



# Catalogue

Version 2019

2019 EN



ZCC Cutting Tools Europe GmbH

your Partner | your Value



## Welcome to ZCC Cutting Tools Europe!

You now have the 2019 main catalogue of ZCC Cutting Tools in your hands. The entire ZCC-CT team are pleased that you are giving us an opportunity to present our continually growing portfolio of tools, which can make your production more cost-efficient.

Just one year after the previous version of the catalogue, we again have many newly available important and well-engineered products and product upgrades for you to discover.

**Added value through partnership** is and remains both our standard and our promise to our customers. Our services therefore go far beyond the content of this catalogue and include, in addition to the development and testing of individual special solutions in the new Technical & Development Centre of our European head office in Düsseldorf, a comprehensive range of services such as tool management and provision of tool data, tool reconditioning and customised customer training. Please contact us about these services at any time.

You will find in Part A of this catalogue tools for turning, in Part B tools for milling and in Part C tools for drilling. We have created separate catalogues for tool systems and boring tools. If you need additional catalogues and further information, get in touch with your personal contact or our internal sales team at any time.

We would like to thank you for the confidence you place in us and look forward to a very good working relationship with you.

The team from ZCC Cutting Tools Europe will support you as your partner at any time.

Your ZCC Cutting Tools Europe GmbH





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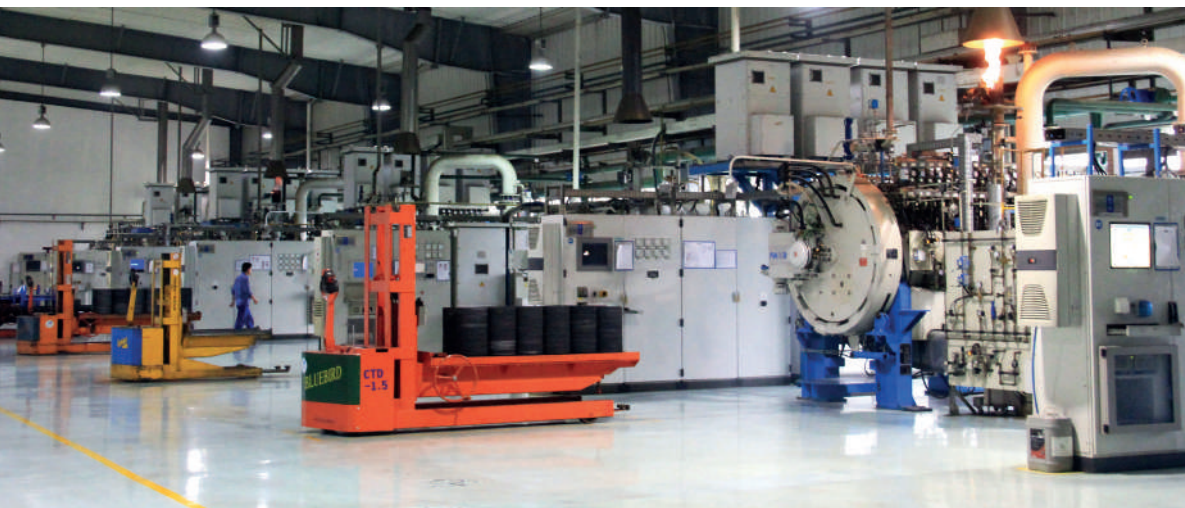


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Member of Minmetals Group



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## Carbide and cermet inserts

### Double sided, negative – Finishing



<b>CNEG-NF</b>	<b>CNMG-ADF</b>	<b>CNMG-DF</b>	<b>CNMG-EF</b>	<b>CNMG-SF</b>		Edge length
12	12	09 12	09 12	09 12		Page
A46	A45	A45	A45	A45		



<b>DNEG-NF</b>	<b>DNEG-NGF</b>	<b>DNMG-ADF</b>	<b>DNMG-DF</b>	<b>DNMG-EF</b>	<b>DNMG-FM</b>	<b>DNMG-SF</b>	Edge length
15	15	15	11 15	11 15	15	11 15	Page
A58	A58	A55	A55	A58	A58	A55	



<b>SNMG-ADF</b>	<b>SNMG-DF</b>	<b>SNMG-EF</b>	<b>SNMG-SF</b>		Edge length
12	12	09 12 15	09 12		Page
A63	A63	A64	A63		



<b>TNMG-ADF</b>	<b>TNMG-DF</b>	<b>TNMG-EF</b>	<b>TNMG-FM</b>	<b>TNMG-SF</b>		Edge length
16	16 22	11 16 22	16	11 16 22		Page
A78	A78	A80	A80	A79		



<b>VNEG-NF</b>	<b>VNEG-NGF</b>	<b>VNMG-ADF</b>	<b>VNMG-DF</b>	<b>VNMG-EF</b>	<b>VNMG-SF</b>	Edge length
16	16	16	16	16	16	Page
A90	A91	A90	A90	A90	A91	



<b>WNEG-NF</b>	<b>WNMG-ADF</b>	<b>WNMG-DF</b>	<b>WNMG-EF</b>	<b>WNMG-NF</b>	<b>WNMG-SF</b>	Edge length
08	08	06 08	06 08	06	06 08	Page
A95	A94	A94	A95	A95	A94	

### Double sided, negative, Wiper – Finishing



<b>CNMG-WG</b>	<b>DNMX-WG</b>	<b>TNMX-WG</b>	<b>WNMG-WG</b>		Edge length
12	11 15	16	08		Page
A45	A55	A78	A95		

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**Carbide and cermet inserts**

Double sided, negative – Medium machining

								
<b>CNMG</b>	<b>CNMG-DM</b>	<b>CNMG-EG</b>	<b>CNMG-EM</b>	<b>CNMG-NM</b>	<b>CNMG-PM</b>	<b>CNMG-TC</b>	<b>CNMG-ZM</b>	
12 16 19	09 12 16 19	12	12 16	12	09 12 16 19	12 16	12	Edge length
A54	A47	A47	A47	A49	A46	A49	A48	Page
								
<b>DNMG-DM</b>	<b>DNMG-EG</b>	<b>DNMG-EM</b>	<b>DNMG-NM</b>	<b>DNMG-PM</b>	<b>DNMG-TC</b>	<b>DNMG-ZM</b>		
11 15	15	11 15	15	11 15	15	15		Edge length
A56	A59	A59	A59	A56	A59	A57		Page
								
<b>RNMG</b>	<b>SNMG</b>	<b>SNMG-DM</b>	<b>SNMG-EG</b>	<b>SNMG-EM</b>	<b>SNMG-NM</b>	<b>SNMG-PM</b>	<b>SNMG-TC</b>	
12	12 25	09 12 15 19	12	12 15	12	09 12 15 19	12 15	Edge length
A99	A74	A66	A66	A67	A68	A65	A67	Page
								
<b>TNMG</b>	<b>TNMG-DM</b>	<b>TNMG-EG</b>	<b>TNMG-EM</b>	<b>TNMG-PM</b>	<b>TNMG-TC</b>	<b>TNMG-ZM</b>		
16 22 27 33	11 16 22	16	16 22	11 16 22	16 22	16		Edge length
A88	A81	A83	A83	A81	A83	A82		Page
								
<b>VNMG</b>	<b>VNMG-DM</b>	<b>VNMG-PM</b>	<b>VNMG-EM</b>	<b>VNMG-NM</b>	<b>VNMG-TC</b>	<b>VNMG-SNR</b>	<b>VNMG-ZM</b>	
16	16	16	16	16	16	16	16	Edge length
A92	A92	A93	A92	A92	A93	A93	A93	Page
								
<b>WNMG-DM</b>	<b>WNMG-EG</b>	<b>WNMG-EM</b>	<b>WNMG-NM</b>	<b>WNMG-PM</b>	<b>WNMG-TC</b>	<b>WNMG-ZM</b>		
06 08	08	06 08	08	06 08	08	08		Edge length
A96	A96	A96	A98	A97	A98	A97		Page

Double sided, negative – Medium machining to roughing

						
<b>CNMA</b>	<b>DNMA</b>	<b>SNMA</b>	<b>SNUN</b>	<b>TNMA</b>	<b>WNMA</b>	
12 16 19	15	12 15 19	12 19 25	16 22	06 08	Edge length
A54	A61	A75	A77	A89	A98	Page

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## Carbide and cermet inserts

### Double sided, negative – Roughing



<b>CNMG-DR</b>	<b>CNMG-ER</b>	<b>CNMG-SNR</b>	<b>DNMG-DR</b>	<b>DNMG-ER</b>	<b>DNMG-SNR</b>	<b>SNMG-DR</b>	<b>SNMG-ER</b>	Edge length
12 16 19 25	12 16 19	12 16 19	15	15	15	12 15 19 25	12 15 19	Page
A49	A51	A50	A60	A61	A60	A68	A69	



<b>TNMG-DR</b>	<b>TNMG-ER</b>	<b>WNMG-DR</b>	Edge length
16 22 27	16 22	06 08	Page
A84	A85	A98	

### Single sided, negative – Roughing



<b>CNMM</b>	<b>CNMM-DR</b>	<b>CNMM-ER</b>	<b>CNMM-HDR</b>	<b>CNMM-HPR</b>	<b>CNMM-LR</b>	Edge length
12 19	12 16 19 25	25	12 16 19 25	19 25	12 16 19 25	Page
A53	A51	A51	A53	A53	A52	



<b>DNMM-DR</b>	<b>DNMM-ER</b>	<b>DNMM-HDR</b>	<b>DNMM-LR</b>	Edge length
15	15	15	15	Page
A62	A62	A62	A62	



<b>SNMM</b>	<b>SNMM-DR</b>	<b>SNMM-ER</b>	<b>SNMM-HDR</b>	<b>SNMM-HPR</b>	<b>SNMM-LR</b>	Edge length
12 19 25	15 19 25	25	12 15 19 25	19 25	12 15 19 25	Page
A74	A70	xxx	A72	A73	A71	



<b>TNMM</b>	<b>TNMM-DR</b>	<b>TNMM-HDR</b>	<b>TNMM-LR</b>	Edge length
16 22 27	16 22 27	22 27	16	Page
A89	A85	A87	A85	




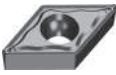
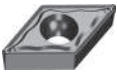
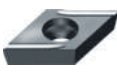









### Special form – Roughing






















<b>175.32-22-227</b>	<b>175.32-24</b>	<b>175.32-25</b>	<b>175.32-28-31</b>	<b>KNUX</b>	Edge length
				16	Page
A101	A101	A101	A101	A100	

## Carbide and cermet inserts

### Positive – Fine-finishing

						
<b>CCGT-SF</b>	<b>CCGT-USF</b>	<b>CPGT-SF</b>	<b>DCGT-SF</b>	<b>DPGT-SF</b>	<b>DCGT-USF</b>	
06 09	09	06 09	07 11	07 11	07 11	Edge length
A102	A102	A110	A111	A117	A112	Page
						
<b>TBGH</b>	<b>TCGT-SF</b>	<b>TCGT-USF</b>	<b>TPGH</b>	<b>TPGT-SF</b>		
06	06 09 11	11	09 11	09 11		Edge length
A125	A126	A126	A132	A133		Page
						
<b>VBGT-SF</b>	<b>VCGT-SF</b>	<b>VCGT-USF</b>	<b>VPGT-USF</b>			
11	11 16	11	11			Edge length
A141	A134	A135	A139			Page

### Positive – Finishing

						
<b>CCMT-AHF</b>	<b>CCMT-EF</b>	<b>CCMT-HF</b>	<b>CPGT</b>	<b>CPMT-HF</b>		
06 09 12	06 09 12	06 09 12	05	06		Edge length
A103	A105	A103	A104	A110		Page
						
<b>DCMT-AHF</b>	<b>DCMT-EF</b>	<b>DCMT-HF</b>	<b>SCMT-AHF</b>	<b>SCMT-EF</b>	<b>SCMT-HF</b>	
07 11	07 11	07 11	09	09	09	Edge length
A111	A113	A113	A120	A120	A121	Page
						
<b>TCMT-AHF</b>	<b>TCMT-EF</b>	<b>TCMT-HF</b>				
11 16	09 11 16	09 11 16				Edge length
A127	A128	A127				Page
						
<b>VBET-NF</b>	<b>VBET-NGF</b>	<b>VBMT-AHF</b>	<b>VBMT-EF</b>	<b>VBMT-HF</b>		
16	16	16	11 16	11		Edge length
A140	A142	A140	A140	A140		Page

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## Carbide and cermet inserts





### Positive – Finishing

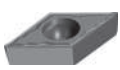


				
<b>VCGT</b>	<b>VCGT-HF</b>	<b>VCGT-NF</b>	<b>VCMT-EF</b>	
13	11	16	16	Edge length
A135	A134	A134	A138	Page

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Milling


### Positive – Medium machining

					
<b>CCMT-EM</b>	<b>CCMT-HM</b>	<b>CCMW</b>	<b>CPGW</b>	<b>CPMT-HM</b>	
06 09 12	06 09 12	09 12	06	09	Edge length
A105	A106	A107	A110	A110	Page

				
<b>DCMT-EM</b>	<b>DCMT-HM</b>	<b>DCMW</b>		
07 11	07 11	11		Edge length
A113	A114	A115		Page








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<b>SCMT-EM</b>	<b>SCMT-HM</b>	<b>SPMW</b>		
09 12	09 12	09 12		Edge length
A120	A121	A124		Page

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<b>TCMT</b>	<b>TCMT-EM</b>	<b>TCMT-HM</b>	<b>TCMW</b>	<b>VBMT-EM</b>	<b>VBMT-HM</b>	<b>VCMT-EM</b>	
22	09 11 16	09 11 16	16	11 16	16	16	Edge length
A130	A128	A129	A129	A142	A142	A138	Page

### Positive – Roughing

								
<b>CCMT-HR</b>	<b>CCMT-TC</b>	<b>DCMT-HR</b>	<b>RCMT-RCGT</b>	<b>RCMX</b>	<b>RCMX-PV</b>	<b>SCMT-HR</b>	<b>TCMT-HR</b>	
06 09 12	06 09 12	11	08 10 12 16 20 25	08 10 12 16 20 25 32	32	09 12	09 11 16 22	Edge length
A107	A107	A115	A118	A119	A119	A122	A129	Page

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## Carbide and cermet inserts

### Positive – Roughing



**VBMT-HR**



**VBMT-SNR**

16	16	Edge length
A143	A143	Page

### Positive – Aluminium machining



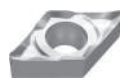
**CCGX-LC**



**CCGX-LH**



**DCGX-LC**



**DCGX-LH**



**RCGX-LH**

06 09 12	06 09 12	07 11	07 11	08 12	Edge length
A108	A108	A115	A116	A118	Page



**SCGX-LC**



**SCGX-LH**



**TCGX-LC**



**TCGX-LH**



**VCGX-LC**



**VCGX-LH**

09 12	09 12	09 11 16	09 11 16	11 16 22	11 16 22	Edge length
A122	A123	A131	A131	A136	A137	Page

## PCBN & PCD

### Negative



**CNGA**



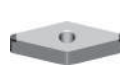
**DNGA**



**SNGA**



**TNGA**



**VNGA**



**WNGA**

12	15	12	16	16	08	Edge length
A148	A149	A150	A151	A152	A153	Page



**CNGN**



**RNGN**



**SNGN**



**WNGN**

12	12	12 15	08	Edge length
A159	A162	A160	A161	Page

### Positive



**CCGW**



**DCGW**



**TCGW**



**VBGW**



**VCGW**

06 09 12	07 11	11 16	16	16	Edge length
A164	A166	A156	A170	A172	Page

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## PCBN & PCD

### Positive



**CCGT**

06 09 12

A163



**DCGT**

07 11

A165



**TCGT**

11 16

A167



**VCGT**

16

A171

Edge length

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## Ceramic inserts

### Negative



**CNGA**

12 16

A176



**CNGN**

12 16

A177



**CNGX**

12

A178



**DNGA**

15

A179



**DNGN**

15

A180



**DNGX**

15

A181

Edge length

Page

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**RNGN**

09 12 15 19 25

A187



**SNGA**

12

A182



**SNGN**

12 15 19

A184



**SNGX**

12

A183



**TNGA**

16 22

A185



**TNGN**

16 22

A186



**WNGA**

08

A188

Edge length

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## External tool holders

### Holder with double clamping









							
<b>DCLNR/L</b>	<b>DDJNR/L</b>	<b>DSBNR/L</b>	<b>DTGNR/L</b>	<b>DVJNR/L</b>	<b>DVVNN</b>	<b>DWLNR/L</b>	
95°	93°	75°	90°	93°	72.5°	95°	Angle
A197	A198	A199	A200	A202	A201	A203	Page









### Holder with knee lever clamping


								
<b>PCBNR/L</b>	<b>PCLNR/L</b>	<b>PDJNR/L</b>	<b>PDNNR/L</b>	<b>PSBNR/L</b>	<b>PSDNN</b>	<b>PSKNR/L</b>	<b>PSSNR/L</b>	
75°	95°	93°	63°	75°	45°	75°	45°	Angle
A204	A205	A206	A207	A208	A210	A211	A212	Page

				
<b>PTFNR/L</b>	<b>PTGNR/L</b>	<b>PTTNR/L</b>	<b>PWLNR/L</b>	
91°	90°	60°	95°	Angle
A213	A215	A214	A217	Page

### Holder with multi clamping

								
<b>MCBNR/L</b>	<b>MCLNR/L</b>	<b>MDJNR/L</b>	<b>MDPNN</b>	<b>MRDNN</b>	<b>MRGNR/L</b>	<b>MSBNR/L</b>	<b>MSDNN</b>	
75°	95°	93°	62.5°	45°	90°	75°	45°	Angle
A218	A219	A220	A221	A233	A234	A222	A225	Page

								
<b>MSKNR/L</b>	<b>MSRNR/L</b>	<b>MTFNR/L</b>	<b>MTGNR/L</b>	<b>MTJNR/L</b>	<b>MTJNR/L-Z</b>	<b>MVJNR/L</b>	<b>MVVNN</b>	
75°	75°	90°	90°	93°	93°	93°	72.5°	Angle
A224	A223	A229	A226	A227	A228	A231	A230	Page

	
<b>MWLNR/L</b>	
95°	Angle
A232	Page

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







### External tool holders

#### Holder with screw clamping






## Turning

								
<b>SCACR/L</b>	<b>SCLCR/L</b>	<b>SDACR/L</b>	<b>SDJCR/L</b>	<b>SDNCN</b>	<b>SRDCN</b>	<b>SRGCR/L</b>	<b>SSBCR/L</b>	
90°	95°	90°	93°	63°	45°	90°	75°	Angle
A235	A236	A237	A238	A239	A254	A255	A245	Page

## B

								
<b>SSDCN</b>	<b>SSKCR/L</b>	<b>SSSCR/L</b>	<b>STACR/L</b>	<b>STFCR/L</b>	<b>STGCR/L</b>	<b>STTCR/L</b>	<b>SVABR/L</b>	
45°	75°	45°	90°	90°	90°	60°	90°	Angle
A246	A247	A248	A249	A250	A251	A252	A241	Page


## Milling

					
<b>SVJBR/L</b>	<b>SVJCR/L</b>	<b>SVVBN</b>	<b>SVVCN</b>	<b>SWACR/L</b>	
93°	93°	72.5°	72.5°	90°	Angle
A240	A244	A242	A243	A253	Page

## C

#### Holder with top clamping







## Drilling




		
<b>CKJNR/L</b>	<b>CKNNR/L</b>	
93°	63°	Angle
A256	A257	Page

## D

#### Tool holder for ceramic inserts and solid CBN inserts

## Technical Information

								
<b>CCLNR/L</b>	<b>CDJNR/L</b>	<b>CRDNN</b>	<b>CSDNN</b>	<b>CSKNR/L</b>	<b>CSRNR/L</b>	<b>CTJNR/L</b>	<b>CTUNR/L</b>	
95°	93°	45°	45°	75°	75°	93°	93°	Angle
A258	A260	A264	A265	A262	A263	A259	A261	Page

			
<b>JCLNR/L</b>	<b>JDJNR/L</b>	<b>JSDNN</b>	
95°	93°	45°	Angle
A266	A267	A268	Page









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## External tool holders

## Swiss turning
















								
<b>SCACR/L-SC</b>	<b>SCLCR/L-SC</b>	<b>SDACR/L-SC</b>	<b>SDHCR/L-SC</b>	<b>SDJCR/L-SC</b>	<b>SDNCN-SC</b>	<b>SVACR/L-SC</b>	<b>SVJCR/L-SC</b>	
90°	95°	90°	107.5°	93°	63°	90°	93°	Angle
A272	A273	A274	A275	A276	A277	A278	A279	Page

## Boring bars












## Steel boring bars with knee lever clamping

						
<b>PCLNR/L</b>	<b>PDSNR/L</b>	<b>PDUNR/L</b>	<b>PSKNR/L</b>	<b>PTFNR/L</b>	<b>PWLNR/L</b>	
95°	45°	93°	75°	90°	95°	Angle
A284	A286	A287	A289	A290	A291	Page

## Steel boring bars with screw clamping

								
<b>SCFCR/L</b>	<b>SCLCR/L</b>	<b>SCLPR/L</b>	<b>SDQCR/L</b>	<b>SDQPR/L</b>	<b>SDUCR/L</b>	<b>SDUPR/L</b>	<b>SDZCR/L</b>	
90°	95°	95°	107.5°	107.5°	93°	93°	95°	Angle
A310	A293	A306	A295	A307	A296	A308	A297	Page
								
<b>SSKCR/L</b>	<b>STFCR/L</b>	<b>STUPR/L</b>	<b>SVQBR/L</b>	<b>SVQCR/L</b>	<b>SVUBR/L</b>	<b>SVUCR/L</b>		
75°	90°	93°	107.5°	107.5°	93°	93°	Angle	
A298	A300	A309	A304	A302	A305	A303	Page	

## Solid carbide boring bars with screw clamping

								
<b>SCLCR/L</b>	<b>SCLPR/L</b>	<b>SDQCR/L</b>	<b>SDQPR/L</b>	<b>SDUCR/L</b>	<b>SDUPR/L</b>	<b>STFCR/L</b>	<b>STFPR/L</b>	
95°	95°	107.5°	107.5°	93°	93°	90°	90°	Angle
A313	A312	A315	A314	A317	A316	A319	A320	Page
								
<b>STUPR/L</b>	<b>SVQCR/L</b>	<b>SVUCR/L</b>						
93°	107.5°	93°						Angle
A318	A321	A322						Page

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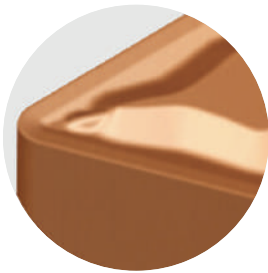
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New

# ADF & AHF

## Chip breaker

Optimised geometry series especially for machining of steel and stainless steel.



### -ADF

Negative inserts  
e.g. CNMG ...

Ground, double sided chip breaker with good chip control. Wide range of application due to excellent balance of sharpness and cutting edge stability.

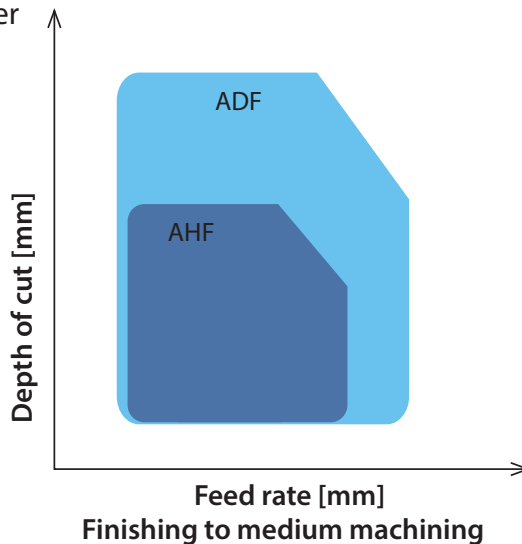


### -AHF

Positive inserts  
e.g. CCMT ...

Ground, single sided chip breaker with good chip control. Wide range of application due to excellent balance of sharpness and cutting edge stability.

Range of chip breaker



New

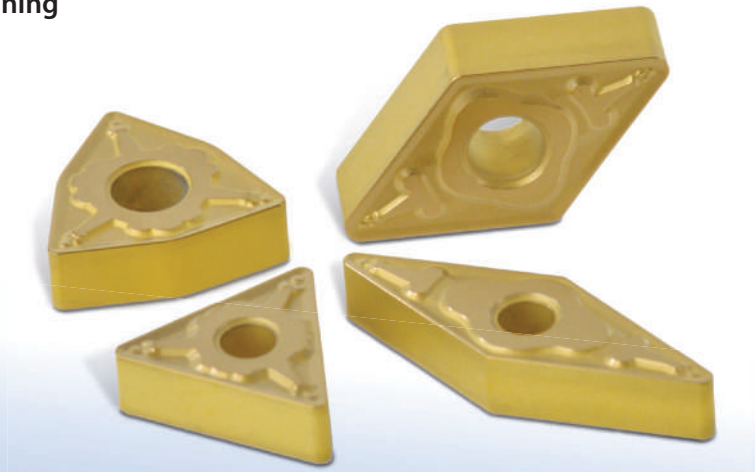
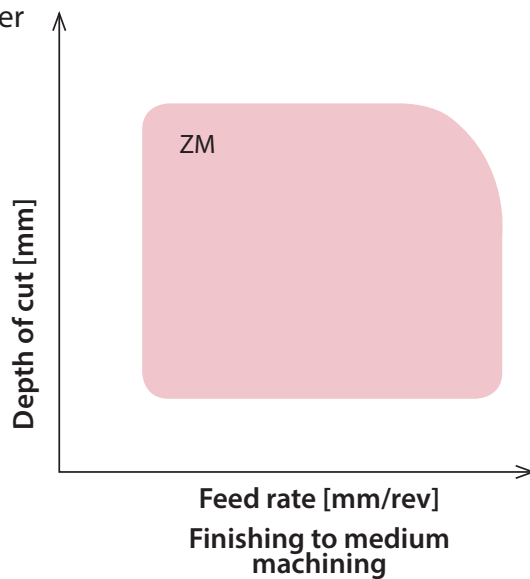
# ZM Chip breaker



## -ZM

Double sided chip breaker for medium machining. Wide range of application due to stable cutting edge and large rake angle. Very suitable for machining of steel.

Range of chip breaker



# Simply coloured









The revolution in wear identification

P YBC  
M YBM

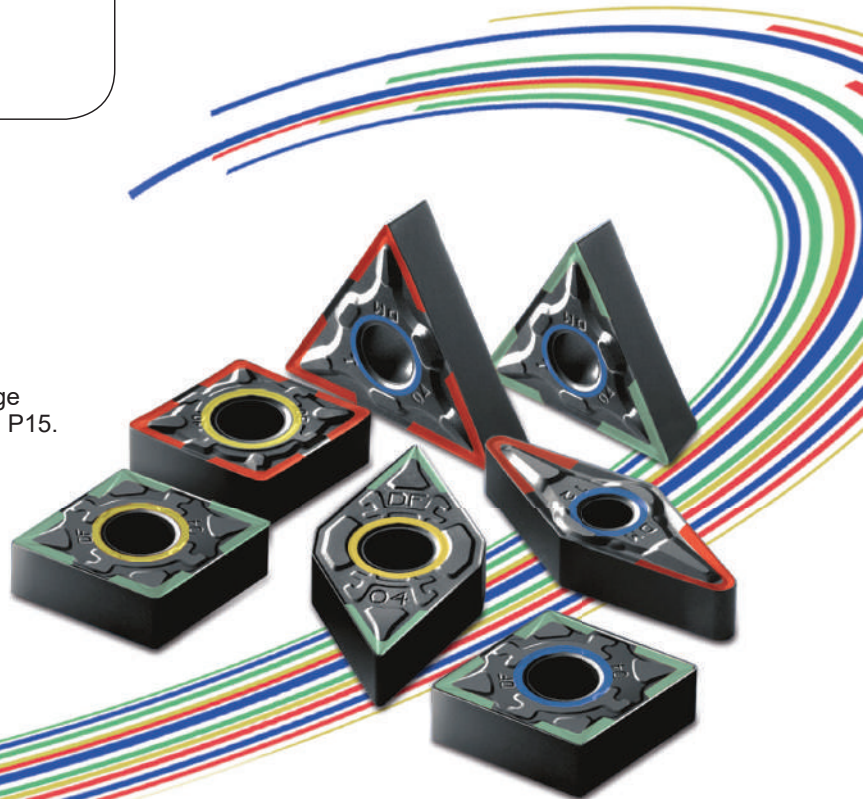
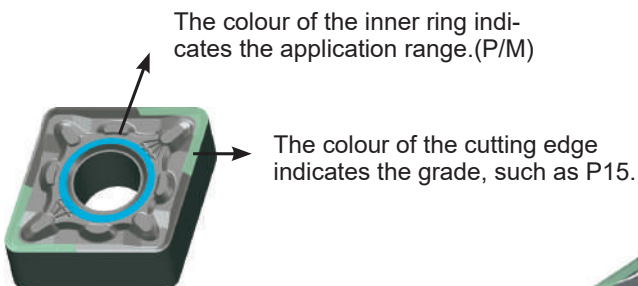
# F

## SERIES

Easy choice on the basis of the table without any further knowledge and without looking at the insert box.

	P	M
		
05	YBC052F 	
15	YBC152F 	YBM153F 
25	YBC252F 	YBM253F 
35	YBC352F 	

Recommended for wet machining

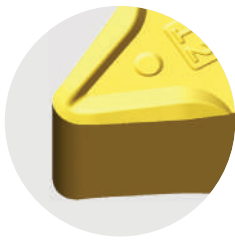


New

# NGF & SNR

## Chip breaker

Special chip breaker series for machining of heat-resistant alloys.



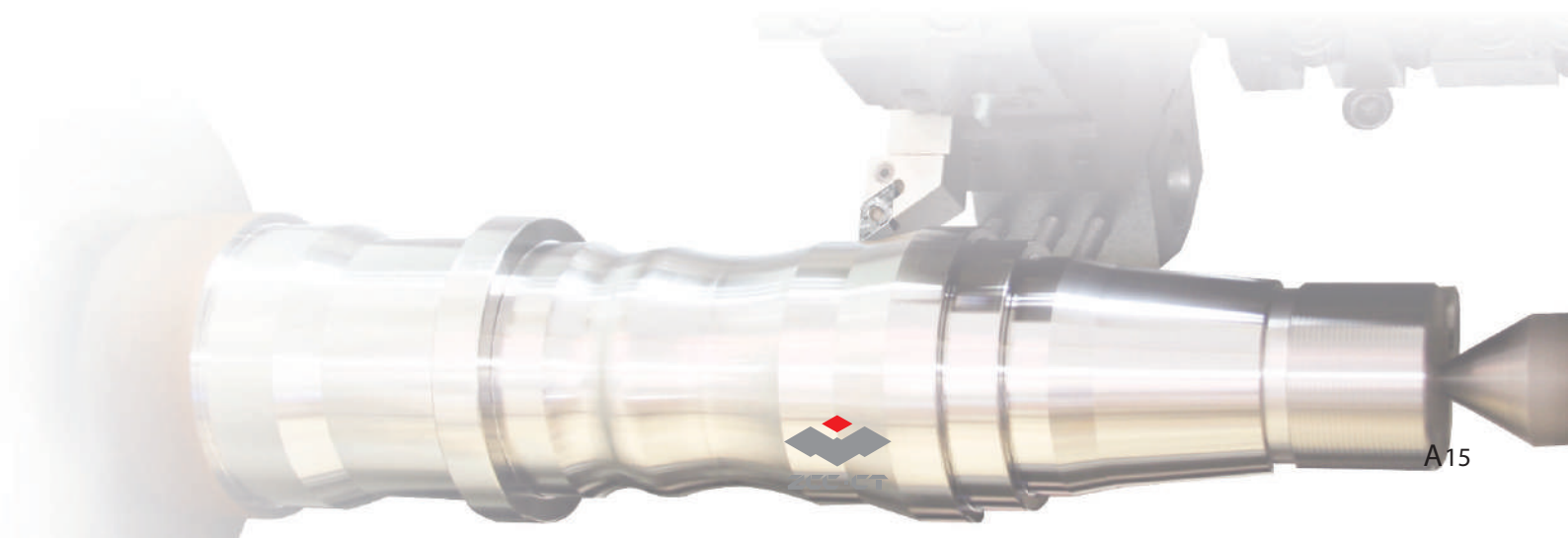
### -NGF

Double sided chip breaker with ground cutting edge and large rake angle for finishing. E-tolerance for high repeatability.



### -SNR

Double sided chip breaker for roughing. Wide range of application due to excellent balance of sharpness and cutting edge stability.

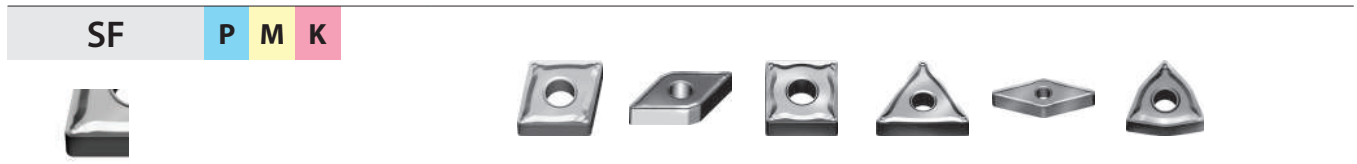


**A**

Turning

## Negative inserts

Finishing



Double sided chip breaker in combination with cermet grades. Geometry with high sharpness for improved chip control and great surface quality. Ideal for machining with small cutting depths and feed rates.

**B**

Milling



Double sided chip breaker with good chip control. Suitable for finishing and medium machining of steel and cast iron.

**C**

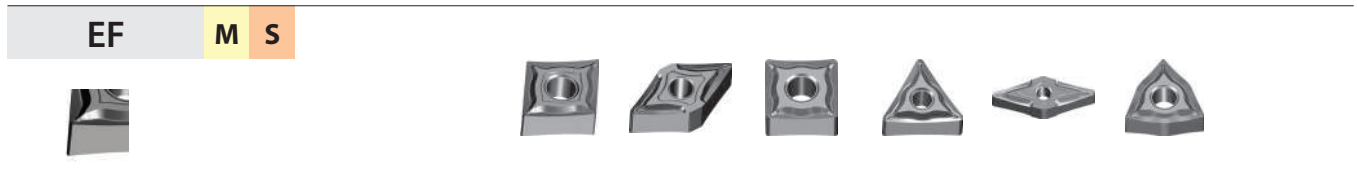
Drilling



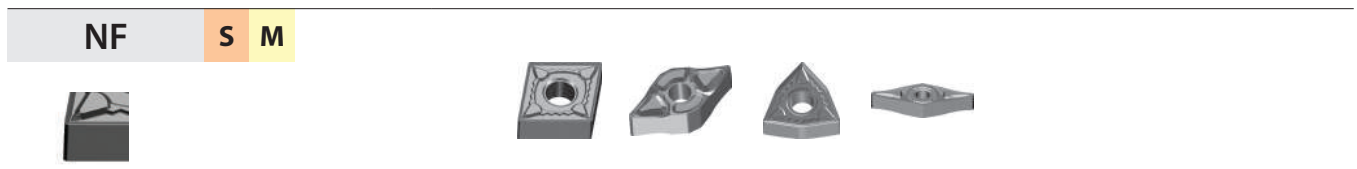
Ground, double sided chip breaker with good chip control. Wide range of application due to excellent balance of sharpness and cutting edge stability.

**D**

Technical Information



Double sided chip breaker with sharp cutting edge and large rake angle for finishing of stainless steel.



Double sided chip breaker with ground cutting edge and large rake angle for finishing. E-tolerance for high repeatability.

**E**

Index

Negative inserts

Finishing

NGF S M



Double sided chip breaker with ground cutting edge and large rake angle for finishing. E-tolerance for high repeatability.

Wiper

WG P M K



Double sided chip breaker with wiper geometry. Allows to double the feed rate and improves the surface quality.

Medium machining

DM P K



Double sided chip breaker for medium machining. Wide range of application due to excellent balance of sharpness and cutting edge stability.

ZM P



Double sided chip breaker for medium machining. Wide range of application due to stable cutting edge and large rake angle. Very suitable for machining of steel.

PM P K



Double sided chip breaker for medium machining. Wide range of application in steel and cast iron.

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**A**

Turning

## Negative inserts

Medium machining



Double sided chip breaker with surrounding cutting edge. Process reliable machining due to highest cutting edge stability.

**B**

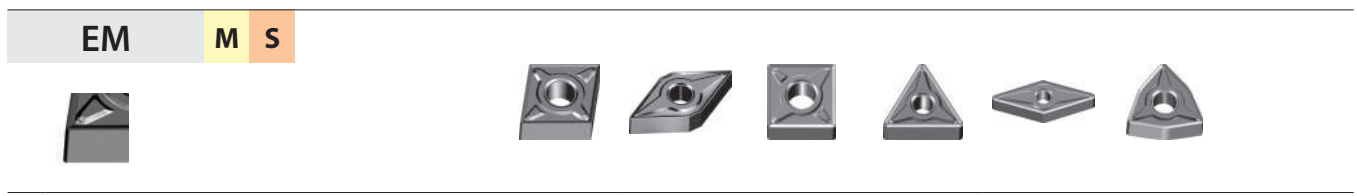
Milling



Double sided chip breaker with ground cutting edge and large rake angle for medium machining of heat-resistant materials.

**C**

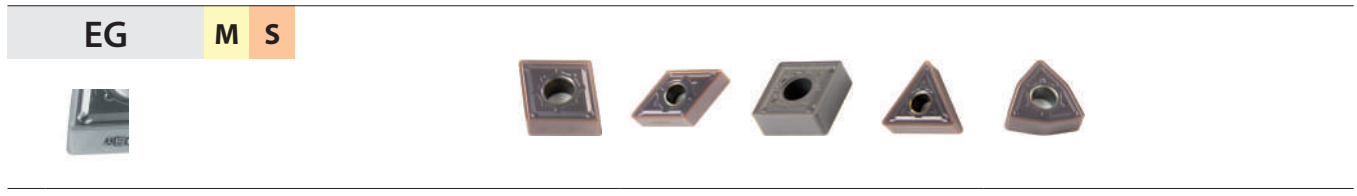
Drilling



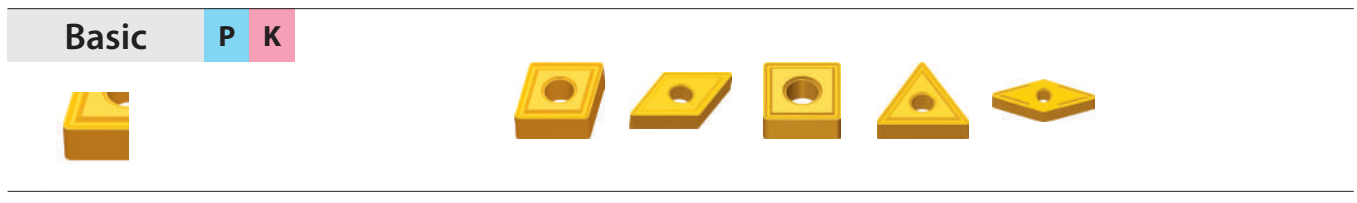
Double sided chip breaker with sharp cutting edge and large rake angle. Process reliable medium machining of stainless steel.

**D**

Technical Information



Double sided chip breaker with grinded cutting edge and large rake angle. Wide range of application for medium machining of stainless steel.



Double sided chip breaker with surrounding cutting edge for universal machining of steel and cast iron.

**E**

Index



Negative inserts

Roughing

DR double sided P K



Double sided chip breaker with positive rake angle and stable cutting edge for light to medium roughing of steel and cast iron.

DR single sided P K



Single sided chipbreaker with positive rake angle and stable cutting edge for light to medium roughing of steel and cast iron.

LR P M



Single sided chip breaker with curved cutting edge and unique bumpy geometry. Low cutting pressure for process reliable machining. Light roughing of steel and stainless steel.

ER double sided M S



Double sided chip breaker with large rake angle for low cutting forces. Suitable for roughing of stainless steel.

ER single sided M S



Single sided chip breaker with large rake angle for low cutting forces. Suitable for roughing of stainless steel.

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**A**

Turning

## Negative inserts

Roughing

**HDR** **P** **K**



Single sided chip breaker with high cutting edge stability and deformation resistance. Excellent for roughing with high cutting depths in steel and stainless steel.

**B**

Milling

**HPR** **P** **K**



Single sided chip breaker with high cutting edge stability and large chip space. Excellent for heavy roughing in steel and cast iron.

**C**

Drilling

**Flat** **K**



Double sided insert without chip breaker. Stable cutting edge design, due to missing microgeometry. Excellent for roughing in cast iron.

**D**

Technical Information

**SNR** **S** **M**



Double sided chip breaker for roughing. Wide range of application due to excellent balance of sharpness and cutting edge stability.

## PCBN & PCD inserts

**Flat** **N** **H**



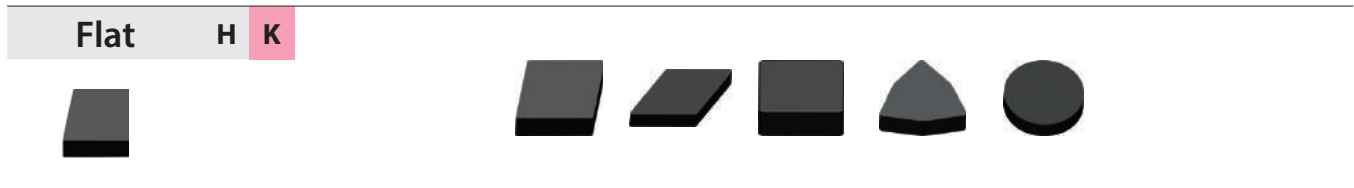
With brazed CBN or PCD cutting edge. For machining of hardened steel (CBN) or non-ferrous metals (PCD).

**E**

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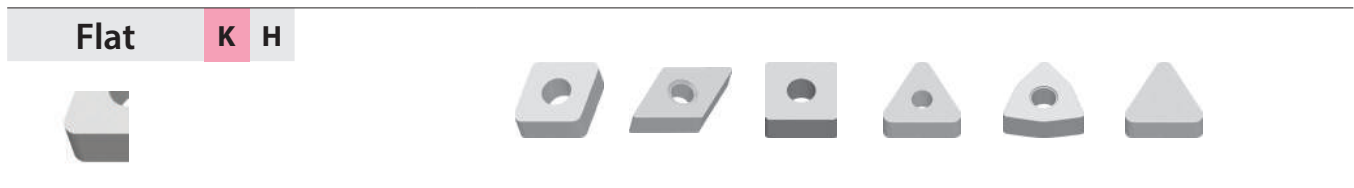
**Negative inserts**

PCBN & PCD inserts



Solid CBN insert for machining od steel and cast iron.

**Ceramic inserts**



Ceramic inserts for machining of low hardened steel and cast iron.

**Positive inserts**

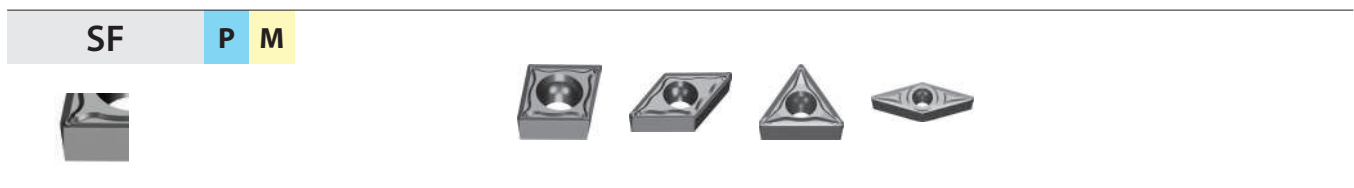
Fine-finishing



Single sided chip breaker for fine finishing. Sharp cutting edge with large hollow flute, excellently suitable for machining small work pieces. G-tolerance for high repeatability.



Single sided chip breaker for fine finishing. Excellent for high surface quality. G-tolerance for high repeatability.



Single sided chip breaker in combination with cermet grades. Geometry with high sharpness for improved chip control and great surface quality. Ideal for machining with small cutting depths and feed rates.

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**A**

Turning

## Positive inserts

### Finishing

HF P K



Single sided chip breaker with good chip control. Suitable for finishing to medium machining of steel and cast iron.

**B**

Milling

AHF P M



Ground, single sided chip breaker with good chip control. Wide range of application due to excellent balance of sharpness and cutting edge stability.

**C**

Drilling

EF M S



Single sided chip breaker with sharp cutting edge and large rake angle for finishing of stainless steel.

**D**

Technical Information

NF M S



Single sided chip breaker with ground cutting edge and large rake angle for finishing. E-tolerance for high repeatability.

NGF M S



Single sided chip breaker with ground cutting edge and large rake angle for finishing. E-tolerance for high repeatability.

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**Positive inserts**

Medium machining

**TC** **K** **P**



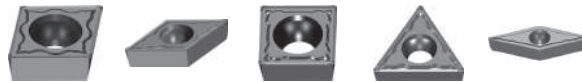
Single sided chip breaker with encircling cutting edge. Process reliable machining due to highest cutting edge stability.

**HM** **P** **K**



Single sided chip breaker for medium machining. Wide range of application due to excellent balance of sharpness and cutting edge stability.

**EM** **M** **S**



Single sided chip breaker with sharp cutting edge and large rake angle. Process reliable medium machining of stainless steel.

**Basic** **P** **K**



Single sided chip breaker with encircling cutting edge for universal machining of steel and cast iron.

Roughing

**Flat** **K**



Single sided insert without chip breaker. Stable cutting edge design due to missing microgeometry. Excellent for roughing in cast iron.

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**A**

Turning

## Positive inserts

### Roughing

HR P K



Single sided chip breaker with positive rake angle and stable cutting edge for light to medium roughing of steel and cast iron.

**B**

Milling

SNR S M



Single sided chip breaker for roughing. Wide range of application due to excellent balance of sharpness and cutting edge stability.

**C**

Drilling

Basic P K



Single sided chip breaker with encircling cutting edge for universal machining of steel and cast iron.

### Aluminium machining

LC N



Single sided chip breaker with excellent cutting edge design. Sharp cutting edge with positive rake angle. G-tolerance for high repeatability.

**D**

Technical Information

LH N



Single sided chipbreaker for machining of cast aluminium alloys. Sharp cutting edge with positive rake angle. G-tolerance for high repeatability.

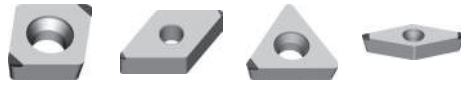
**E**

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### Positive inserts

PCBN & PCD inserts

Flat **N** H



With brazed CBN or PCD cutting edge. For machining of hardened steel (CBN) or non-ferrous metals (PCD).

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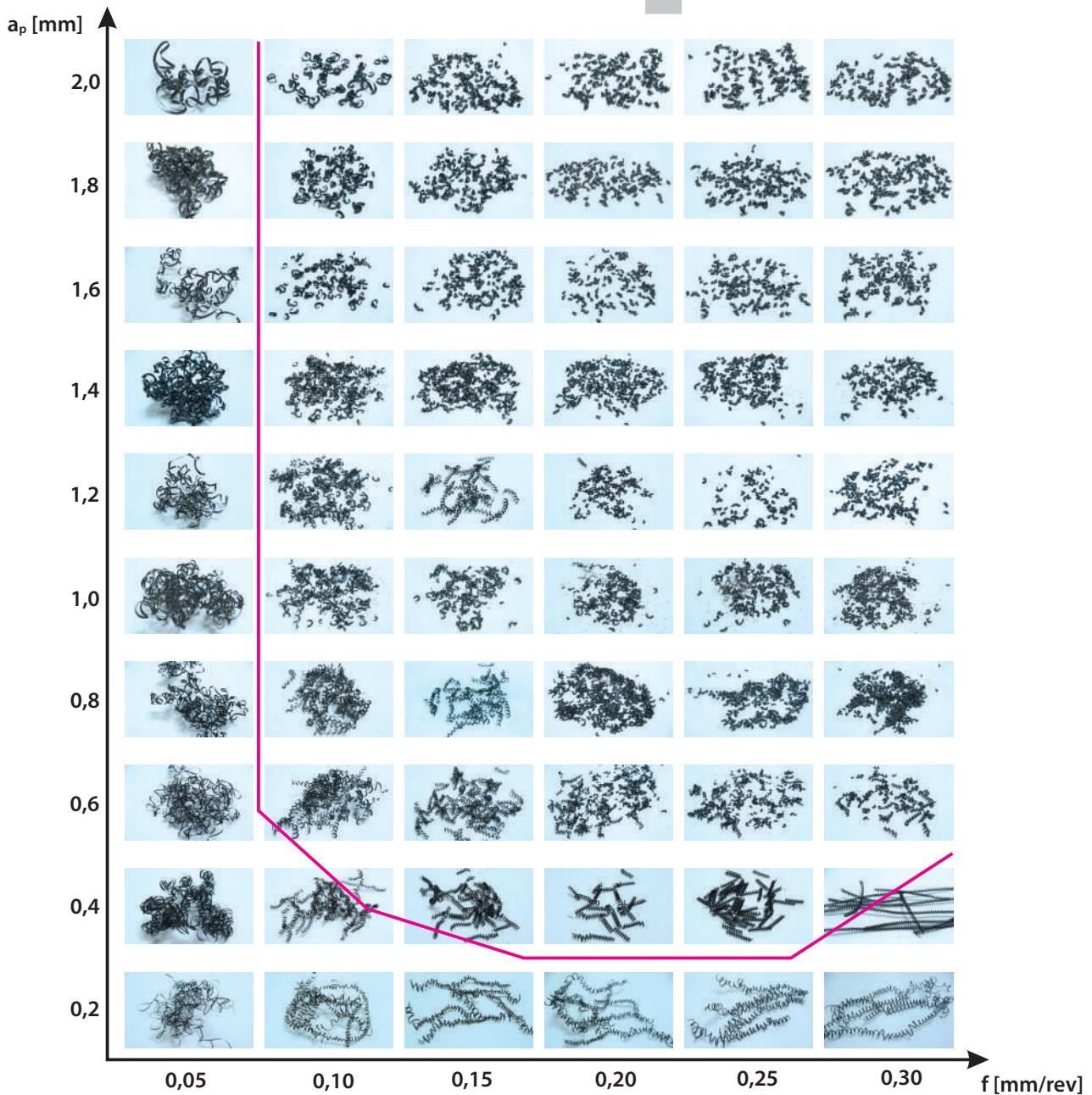
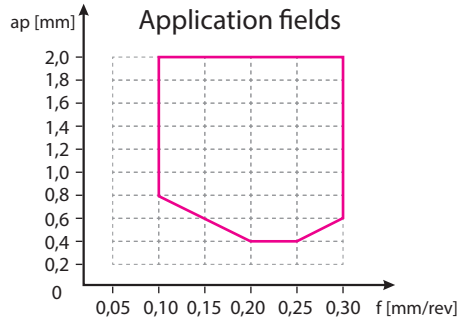


General turning

Application fields of chip breakers determination

Example

Insert: CNMG120408-DF  
 Holder: PCLNL2525M12  
 Material: Acier C45  
 $V_C$ : 200 m/min



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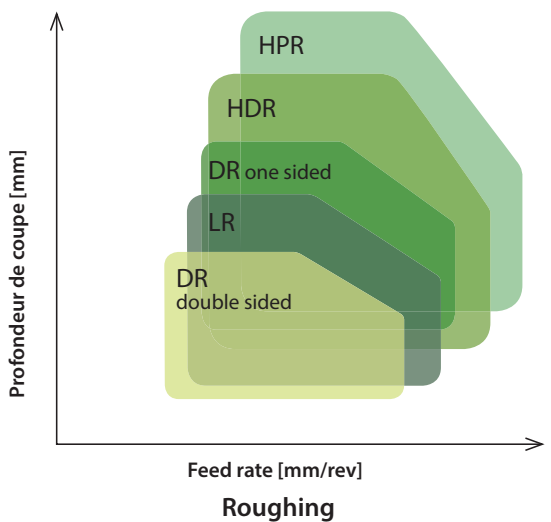
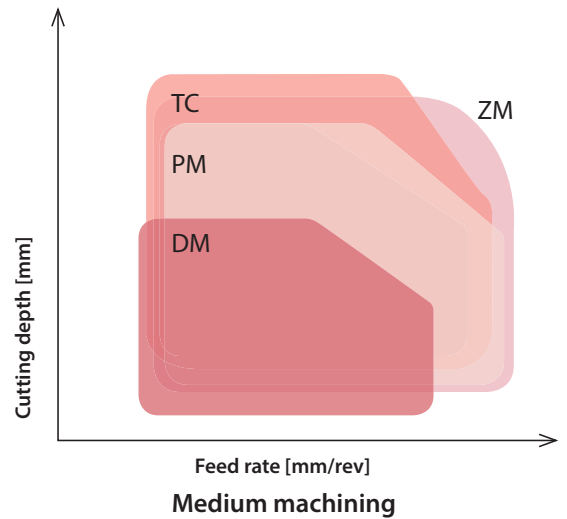
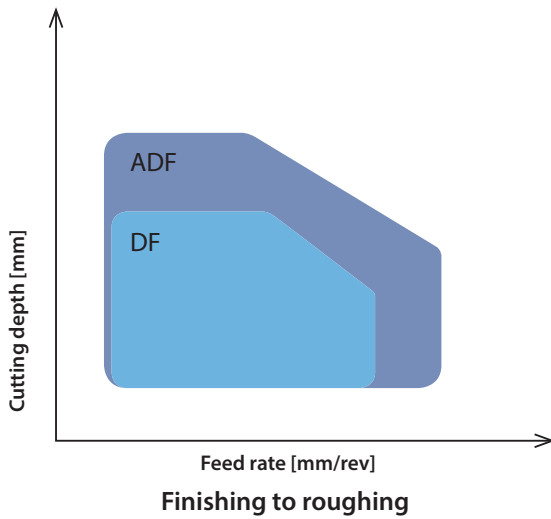
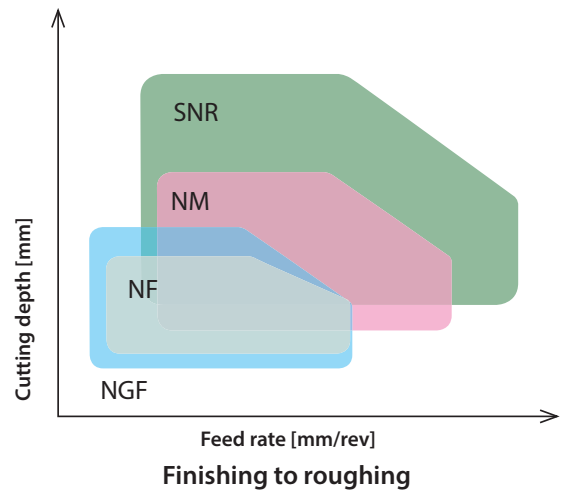
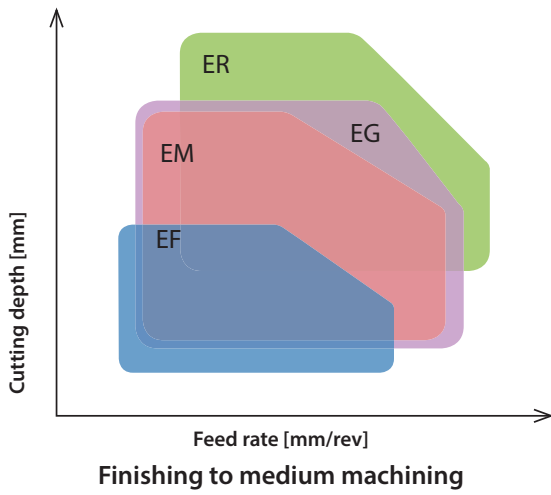
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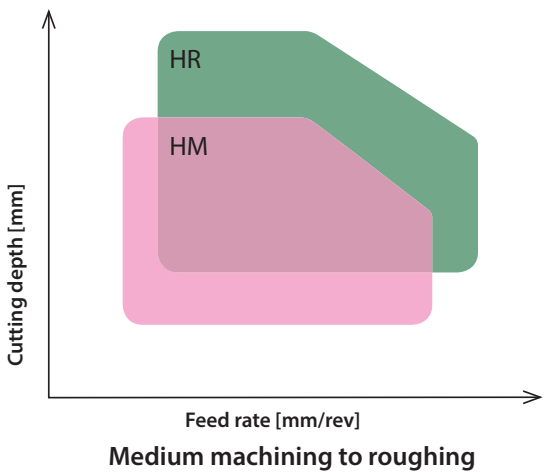
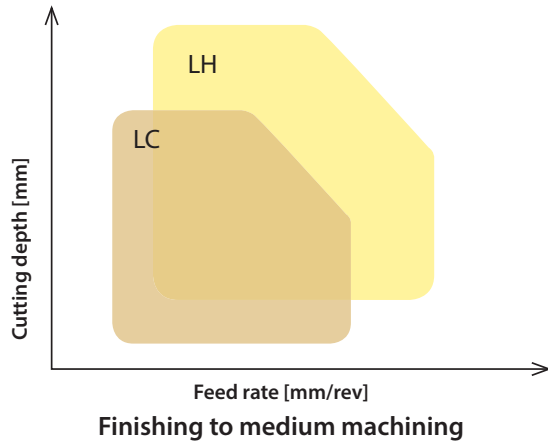
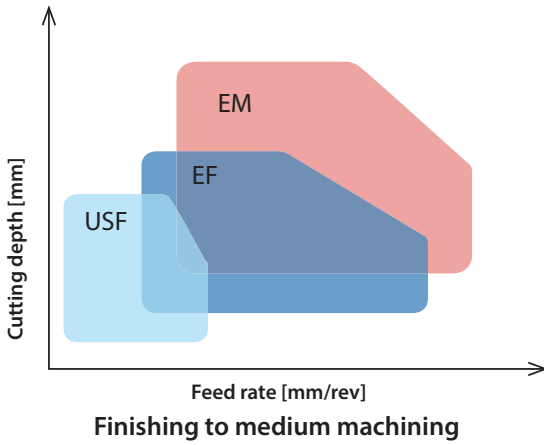
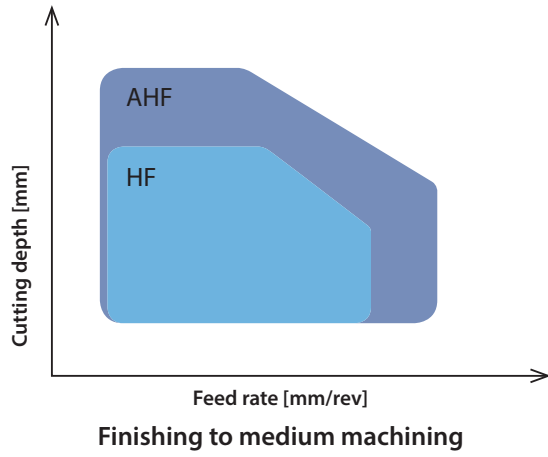
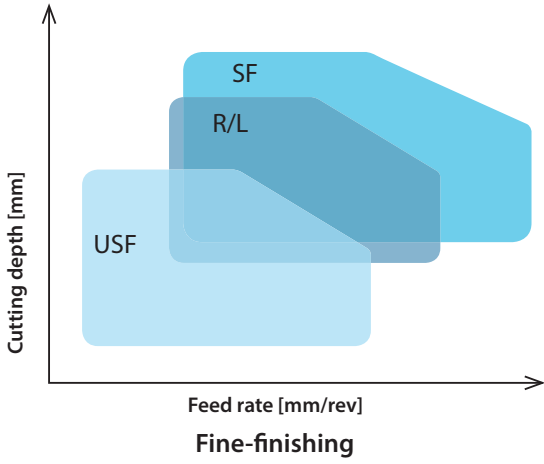
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Negative inserts



Positive inserts



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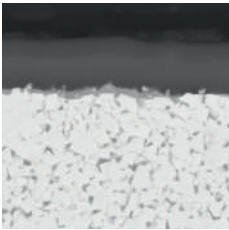
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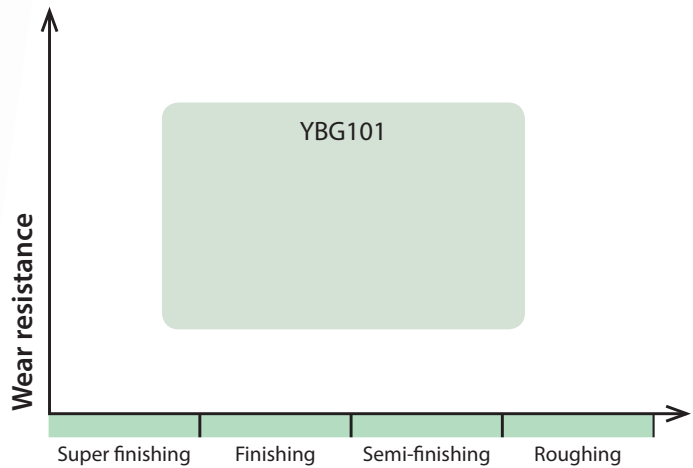
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# New YBG101

## Turning grades for aluminum

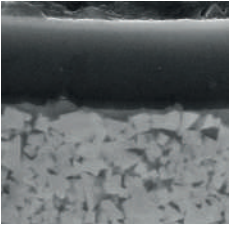


PVD coated N05–N20 carbide substrate for finishing to medium application in aluminum material. Coating only on the top face, in combination with the aluminum chip breaker, prevents build up edges and gives a smooth cut.

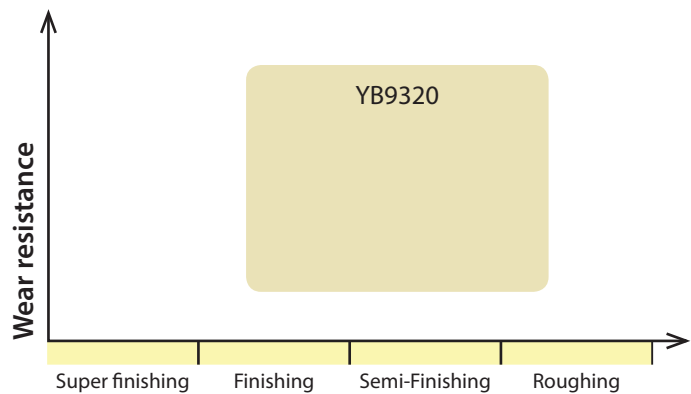


# New YB9320

## PVD coated cemented carbide

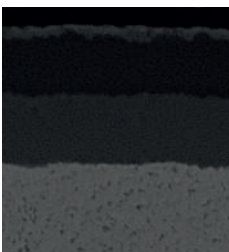


PVD multilayer coated M10–M25/P10–P30 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (grooving/milling). Optimized coating stability for higher wear resistance and thermal stability in a wide application field.

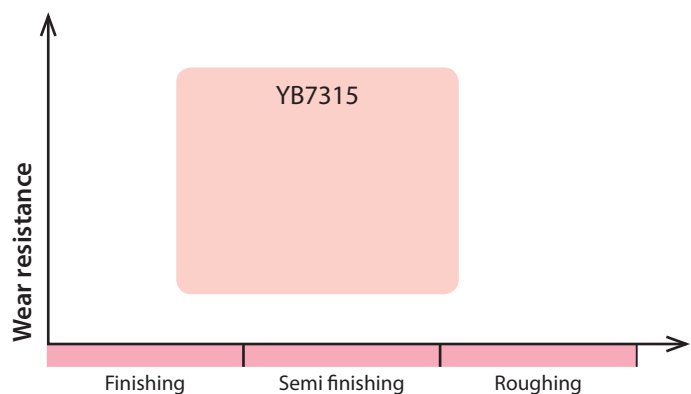


# New YB7315

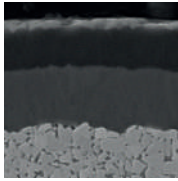
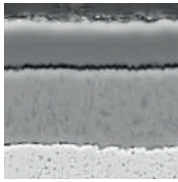
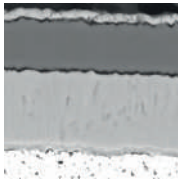
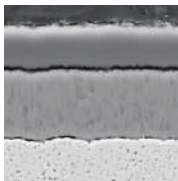
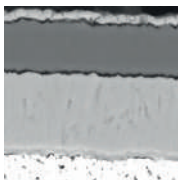
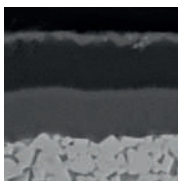
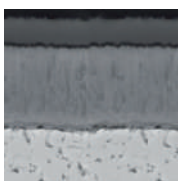

## For high efficient machining of cast irons



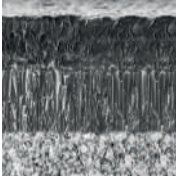
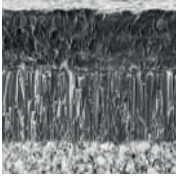
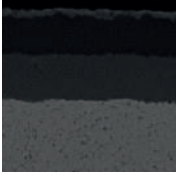
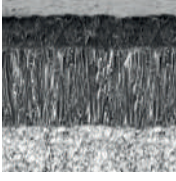
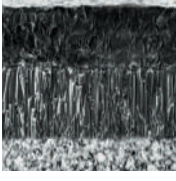
CVD coated K10–K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Improved wear resistance and toughness at high cutting speed.





## Coated cemented carbide CVD

Grade	ISO	Micro structure	Grade description
<b>A</b>	Turning		CVD coated P10–P20 carbide grade for finishing to medium operation of steel, casting steel and high chrome material. Outstanding performance under high cutting speed and temperature with excellent wear resistance.
<b>B</b>	Milling		CVD coated P10–P20 carbide grade for finishing to medium operation of steel and casting steel. Outstanding performance under higher cutting speed and temperature with excellent wear resistance.
<b>C</b>	Drilling		CVD coated P20–P35 carbide grade for medium operation to roughing of steel and casting steel in lower cutting speed.
<b>D</b>	Technical Information		CVD coated P20–P35 carbide grade for medium operation to roughing of steel and casting steel. Optimal performance of wear resistance and toughness for a wide application field.
<b>E</b>	Index		CVD coated P20–P40 carbide grade for roughing operation of steel and casting steel in lower cutting speed.
<b>F</b>	Index		CVD coated P20–P40 carbide grade for roughing operation of steel and casting steel. Optimal performance of wear resistance and toughness for a wide application field.
<b>G</b>	Index		CVD coated M10–M25 carbide grade for finishing to medium application in stainless steel. High wear resistance and capability against plastic deformation at higher cutting speed.
<b>H</b>	Index		CVD coated M15–M35 carbide grade for medium to roughing operation in stainless steel with wide application field. High wear resistance and capability against plastic deformation at higher cutting speed.

**Coated cemented carbide CVD**

Grade	ISO	Micro structure	Grade description
<b>YBD052</b>	K05 - K15		CVD coated K05-K15 carbide grade for cast iron material, special grey cast iron. Excellent wear resistance in higher cutting speed and dry machining.
<b>YBD102</b>	K05 - K20		CVD coated K05-K20 carbide substrate. Optimized for medium operation of cast iron, special nodular cast iron and hard steel at high cutting speed.
<b>YB7315</b>	K10 - K25		CVD coated K10-K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Improved wear resistance and toughness at high cutting speed.
<b>YBD152</b>	K10 - K25		CVD coated K10-K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Good wear resistance and toughness at higher cutting speed.
<b>YBD152C</b>	K10 - K25		Thick Al <sub>2</sub> O <sub>3</sub> CVD coated K05-K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Higher wear resistance and toughness at higher cutting speed in combination with TC chip breaker.

**Coated cemented carbide PVD**

Grade	ISO	Micro structure	Grade description
<b>YBG102</b>	S05 - S15		PVD coated S05-S15 carbide substrate for finishing to medium application of super alloy material, stainless steel and aluminum. Good wear resistance in a wide application field.
<b>YBG105</b>	S05 - S20		PVD multilayer coated S05-S20 carbide substrate for finishing to medium application of super alloy material but also stainless steel. Good wear resistance and thermal stability in a wide application field.

**A**

Turning

**B**

Milling

**C**

Drilling

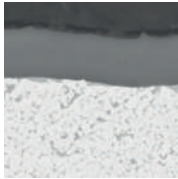

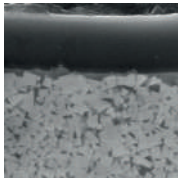
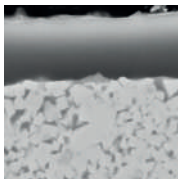
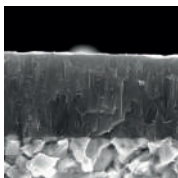
**D**Technical  
Information**E**

Index

**A**

Turning

## Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
<b>YBG202</b>	P10 - P30 M10 - M25		PVD coated M10–M25/P10–P30 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
<b>YBG205</b>	P10 - P30 M20 - M40 S15-S25		PVD multilayer coated M20–M40/S15–S25/P10–P30 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (milling). Good wear resistance and thermal stability in a wide application field.
<b>YB9320</b>	P10 - P30 M10 - M25		PVD multilayer coated M10–M25/P10–P30 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (grooving/milling). Optimized coating stability for higher wear resistance and thermal stability in a wide application field.
<b>YBG302</b>	P15 - P30 M25 - M40		PVD coated M25–M40/P15–P30 carbide substrate for medium roughing application of stainless steel and steel (milling). Good wear resistance and toughness.
<b>YBG101</b>	N05 - N20		PVD coated N05–N20 carbide substrate for finishing to medium application in aluminum material. Coating only on the top face, in combination with the aluminum chip breaker, prevents build up edges and gives a smooth cut.

**B**

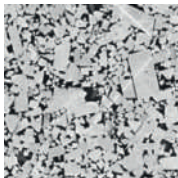
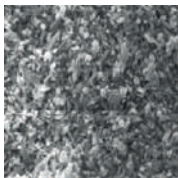
Milling

**C**

Drilling

**D**

## Ceramic

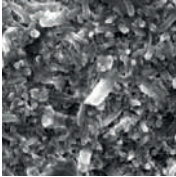
Grade	ISO	Micro structure	Grade description
<b>CA1000</b>	K10 - K25 H10 - H25		Uncoated H10–H25/K10–K25 mixed ceramic grade for finishing to medium operation in hardened steel and nodular cast iron. Good wear resistance and toughness.
<b>CN1000</b>	K05 - K15		Uncoated K05–K15 Si <sub>3</sub> N <sub>4</sub> ceramic grade for finishing to medium operation in grey cast iron. Good wear resistance and thermal stability.

**E**

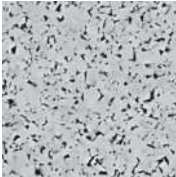
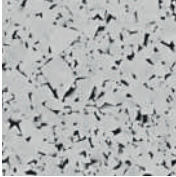
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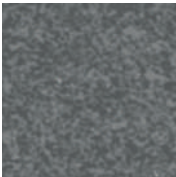
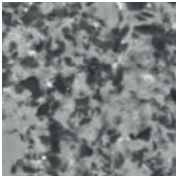
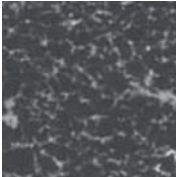
**Ceramic**

Grade	ISO	Micro structure	Grade description
<b>CN2000</b>	K10 - K30		Uncoated K10–K30 Si <sub>3</sub> N <sub>4</sub> Ceramic grade for medium operation in grey cast iron also with interrupted cut. Good wear resistance, toughness and thermal stability.

**Uncoated cemented carbide**

Grade	ISO	Micro structure	Grade description
<b>YD101</b>	N05 - N20 K05 - K20		Uncoated N05–N20/K05–K20 carbide substrate for fine to medium application in aluminum and other material.
<b>YD201</b>	N10 - N30 K10 - K30		Uncoated N10–N30/K10–K30 carbide substrate for medium application in aluminum and other material.

**CBN**

Grade	ISO	Micro structure	Grade description
<b>YCB111</b>	H01 - H10		Uncoated, brazed H01–H10 CBN grade for fine finishing operation in hardened steel with continuous cut. High wear resistance and productivity at higher cutting speed.
<b>YCB121</b>	H10 - H25		Uncoated, brazed H10–H25 CBN grade for fine to medium application in hardened steel from continuous to light interrupted cut. Good wear resistance and toughness for universal use.
<b>YCB131</b>	H20 - H35		Uncoated, brazed H20–H35 CBN grade for fine to medium application in hardened steel with interrupted cut. Good wear resistance and optimized toughness for safe process.

**A**

Turning

**B**

Milling

**C**

Drilling

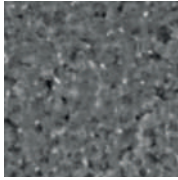
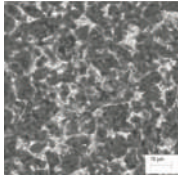
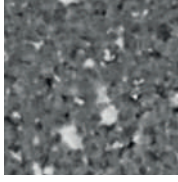
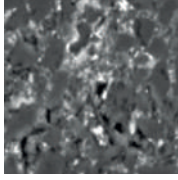
**D**Technical  
Information**E**

Index

**A**

Turning

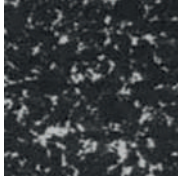
## CBN

Grade	ISO	Micro structure	Grade description
YCB211	K10 - K25		Uncoated, brazed K10–K25 CBN grade for fine to medium machining of cast iron. Good wear resistance and thermal conductivity.
YZB121	H10 - H25		Uncoated H10–H25 solid CBN grade for medium application in hardened steel, HSS or bearing steel also in light interrupted cut. Good wear resistance and toughness.
YZB221	K10 - K25		Uncoated K10–K25 solid CBN grade for medium application in grey cast iron, nodular cast iron and Ni/Cr basic alloy, also in light interrupted cut. Good wear resistance and thermal conductivity.
YZB231	K20 - K30		Uncoated K20–K30 solid CBN grade for medium to roughing application in grey cast iron and nodular cast iron in interrupted cut. Good wear resistance, toughness and thermal conductivity.

**C**

Drilling

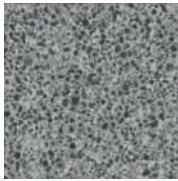
## PCD

Grade	ISO	Micro structure	Grade description
YCD421	N01 - N10		Uncoated, brazed N01–N10 PCD grade for fine finishing operation of aluminum alloys less than 12 % Si, composites, copper/magnesium and other alloys. Medium grain size grade with good wear resistance for a wide application field.

**D**

Technical Information

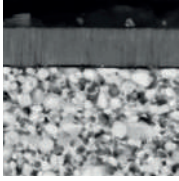
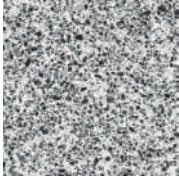
## Cermet

Grade	ISO	Micro structure	Grade description
YNG151	P05 - P15		Uncoated P05–P15 cermet grade for fine finishing operation of steel and stainless steel. Good resistance against plastic deformation for good surface finishing.

**E**

Index

**Cermet**

Grade	ISO	Micro structure	Grade description
<b>YNG151C</b>	P05 – P15		PVD coated P05–P15 cermet grade for fine finishing operation of steel and stainless steel. Good wear resistance and capability against plastic deformation for good surface roughness.
<b>YNT251</b>	P10 - P25		Uncoated P10–P25 cermet grade for fine finishing to medium operation of steel and stainless steel. Good wear resistance and toughness. Suitable also in light interrupted cut.

**A**

Turning

**B**

Milling

**C**

Drilling

**D**Technical  
Information**E**

Index

## CVD grades for steel, stainless steel and cast iron

**A**

Turning

**B**

Milling

**C**

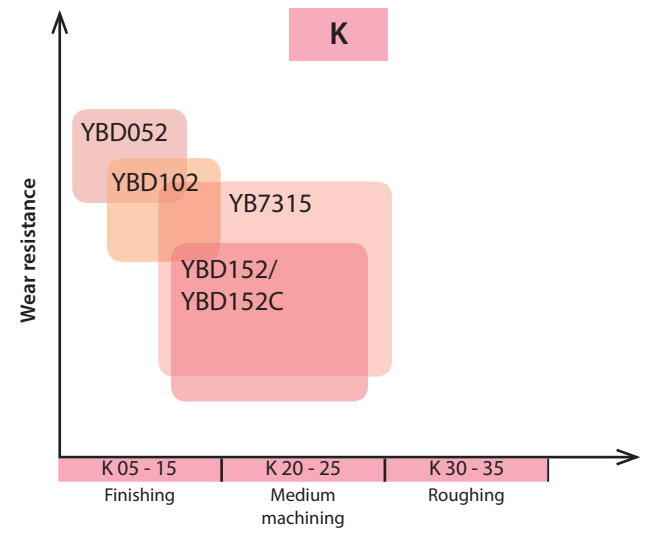
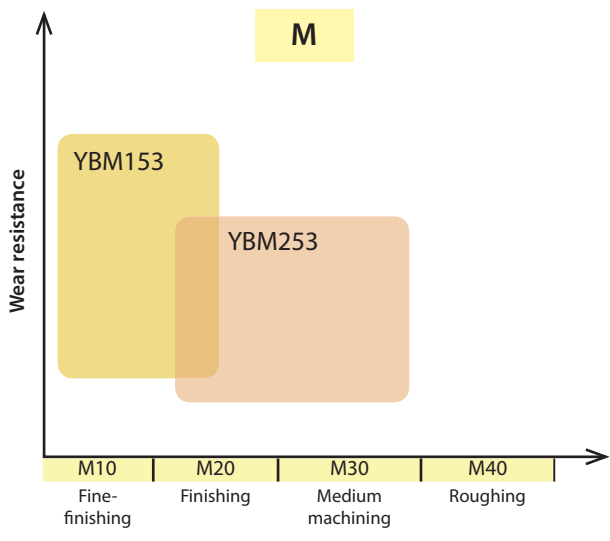
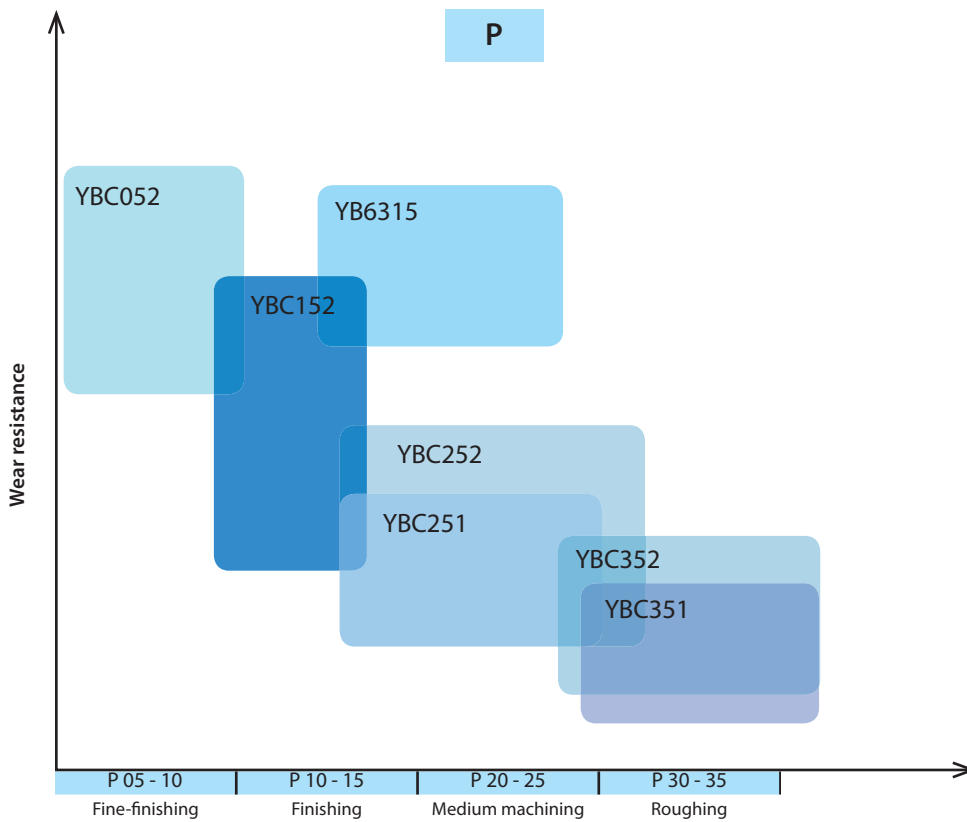
Drilling

**D**

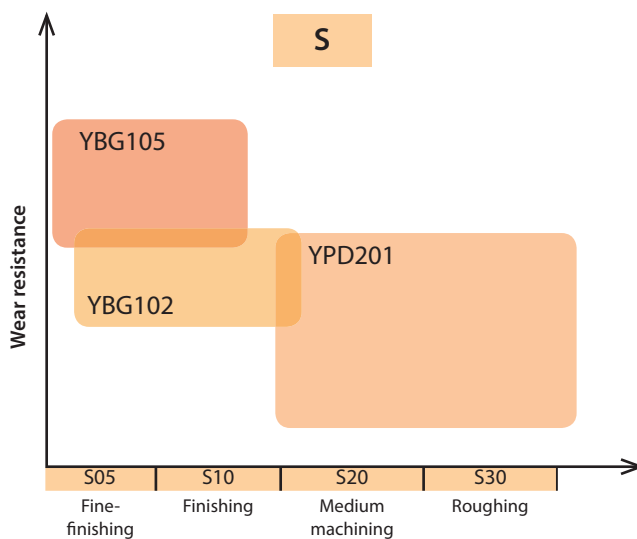
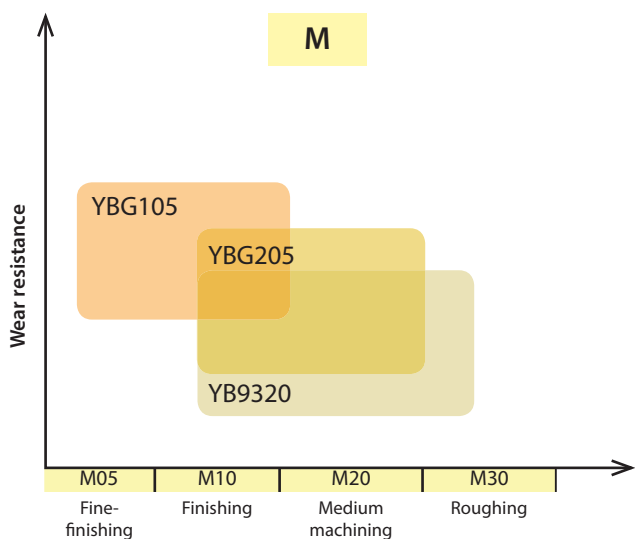
Technical Information

**E**

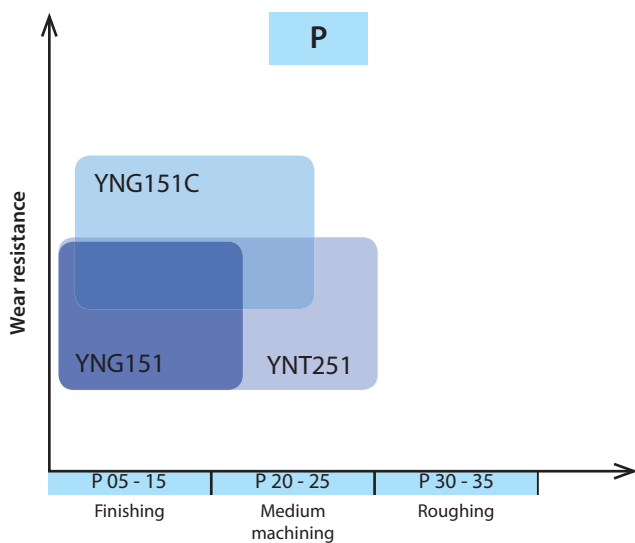
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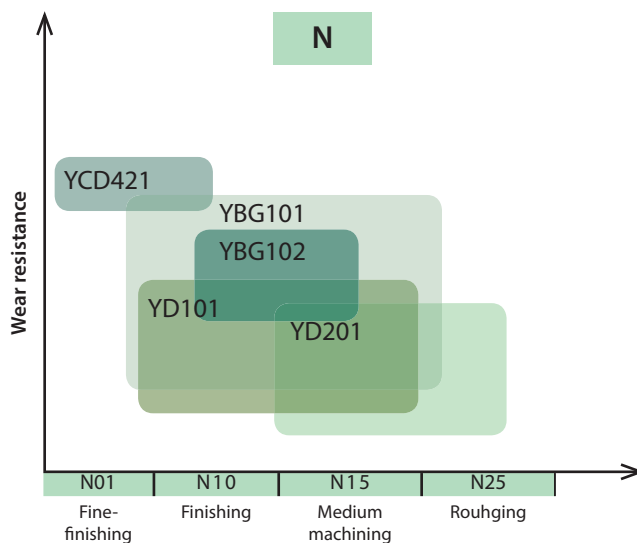
**PVD grade for stainless steel and heat-resistant alloys**



**Cermet grades for steel**



**Turning grades for non-ferrous metals**



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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## Application fields of grades – general turning

	ISO	HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	Ceramic	HW	CBN	PCD
<b>P</b>	P01								
	P10	YB6315 YBC152		YNG151 YNT251	YNG151C	CA1000			
	P20	YBC251 YBC252							
	P30	YBC351 YBC352							
	P40								
<b>M</b>	M01		YBG105	YNG151	YNG151C				
	M10	YBM153	YBG202	YBG205					
	M20	YBM253	YB9320						
	M30								
	M40								
<b>K</b>	K01	YBD052				CN1000		YCB211	YZB221
	K10	YBD102							
	K20	YBD152				CN2000	YD201		YZB231
	K30	YBD152C	YB7315						
<b>N</b>	N01								
	N10		YBG102				YD101		YCD421
	N20						YD201		
	N30								
<b>S</b>	S01								
	S10		YBG102	YNT251	YNG151C				
	S20		YBG105						
	S30		YBG202						
<b>H</b>	H01							YCB111	
	H10							YCB121	YZB121
	H20								
	H30								YCB131

<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron

<b>N</b>	Non-ferrous metals
<b>S</b>	Heat-resistant alloys
<b>H</b>	Hardened materials

**HC<sup>1</sup>** Coated carbide  
**HT** Uncoated cermet  
**HC<sup>2</sup>** Coated cermet  
**HW** Uncoated carbide

**A**

Turning

**B**

Milling

**C**

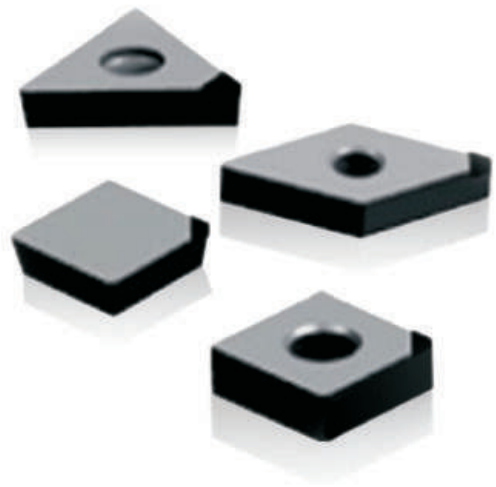
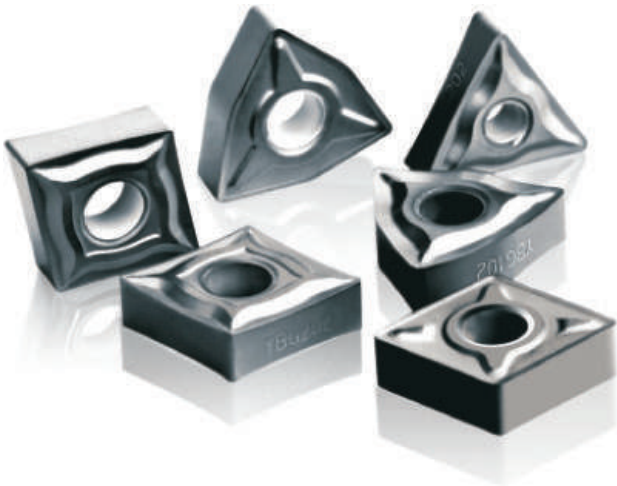
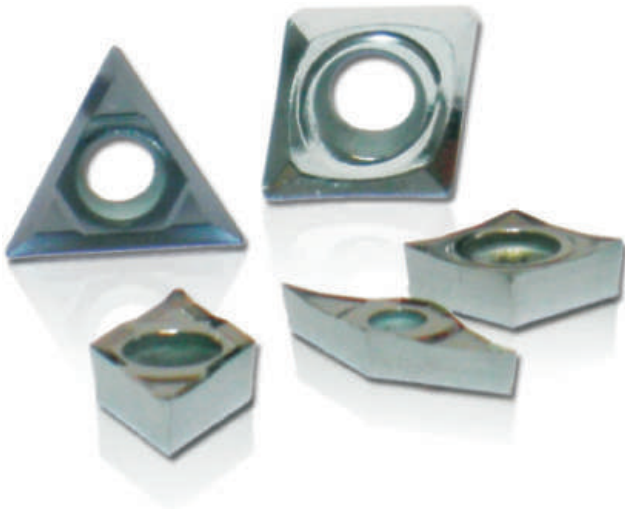
Drilling

**D**

Technical Information

**E**

Index



## ISO standard

**T N M G 22 04 08 (N) – DM**

**1 2 3 4 5 6 7 8 9**

Insert shape		
A	B	C
D	E	H
K	L	M
O	P	R
S	T	T
V	W	Z Special

Clearance angle	
A	B
C	D
E	F
G	N
P	O Special

Tolerance class			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05–0,15	±0,005	±0,025
K	±0,05–0,15	±0,013	±0,025
L	±0,05–0,15	±0,025	±0,025
M	±0,05–0,15	±0,08–0,20	±0,130
N	±0,05–0,15	±0,08–0,20	±0,025
U	±0,08–0,25	±0,13–0,38	±0,130

**1**

**2**

**3**

Fastening features (metric)	
Insert shape	
A	B
C	F
G	H
J	M
N	Q
R	T
U	W
X Special	

**4**

Cutting edge length l [mm]								
I.C [mm]	Insert shape							
3,97	06							
5,0	05							
5,56	09							
6,0	06							
6,35	06	07			11	11		
8,0	08							
9,525	09	11	09	09	16	16	06	16
10,0	10							
12,0	12							
12,7	12	15	12	12	22	22	08	
15,875	16		15	15	27			
16,0		19	16					
19,05	19		19	19	33			
20,0	20							
25,0	25	25	25					
25,4			25	25				
31,75	31							
32	32							

**5**

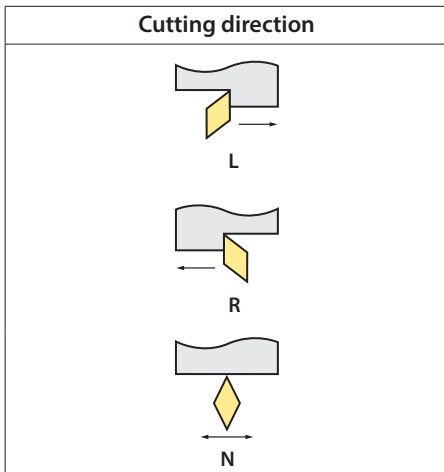


Insert thickness S [mm]			
Code	S	Code	S
00	0,79	T5	5,95
T0	0,99	06	6,35
01	1,59	T6	6,75
T1	1,98	07	7,94
02	2,38	09	9,52
T2	2,58	T9	9,72
03	3,18	11	11,11
T3	3,97	12	12,70
04	4,76		
T4	4,96		
05	5,56		

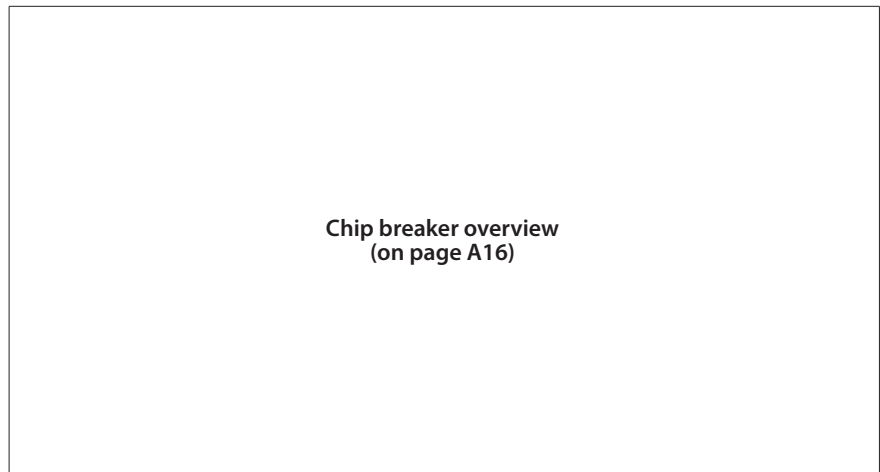
6

Nose radius r [mm]	
Code	r
00	–
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
32	3,2
X	Special
MO	Round inserts

7

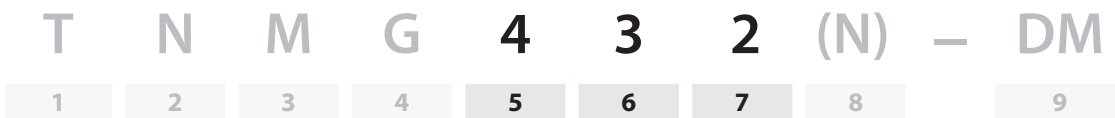


8



9

## ANSI standard



Inner circle		
Code	[mm]	Pouce
2	6.35	0.250
3	9.525	0.375
4	12.7	0.500
5	15.875	0.625
6	19.05	0.750
8	25.4	1.000

5

Insert thickness		
Code	[mm]	Pouce
2	3.18	0.125
3	4.76	0.187
4	6.35	0.250
5	7.94	0.313
6	9.52	0.375

6

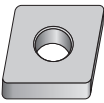
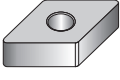


Nose radius		
Code	[mm]	Pouce
0	0.2	0.008
1	0.4	0.016
2	0.8	0.031
3	1.2	0.047
4	1.6	0.063
5	2.0	0.079
6	2.4	0.094




7

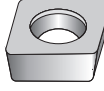
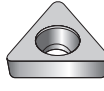
## Conversion table for general turning inserts (metric/imperial system)

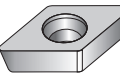

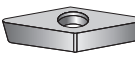
Negative angle/insert

Positive angle/insert

	ISO	Inch
Insert shape C 	090304	321
	090308	322
	120404	431
	120408	432
	120412	433
	120416	434
	160608	542
	160612	543
	160616	544
	190608	642
	190612	643
	190616	644
	190624	646
	250724	856
	250732	858
	250924	866
250932	868	
Insert shape D 	110404	331
	110408	332
	110412	333
	150404	431
	150408	432
	150412	433
	150604	441
	150608	442
	150612	443
	190608	542
190612	543	
Insert shape V 	160404	331
	160408	332
	160412	333
Insert shape R 	0903MO	32
	1204MO	43

	ISO	Inch
Insert shape W 	06T304	3(2.5)1
	06T308	3(2.5)2
	06T312	3(2.5)3
	060404	331
	060408	332
	060412	333
	080404	431
	080408	432
	080412	433
Insert shape T 	113304	221
	110308	222
	160404	331
	160408	332
	160412	333
	220404	431
	220408	432
	220412	433
	220416	434
	270608	542
270612	543	
270616	544	
Insert shape S 	090304	321
	090308	322
	090312	323
	120404	431
	120408	432
	120412	433
	120416	434
	150608	542
	150612	543
	150616	544
	190412	633
	190424	636
	190612	643
	190616	644
	250724	856
	250732	858
250924	866	
250932	868	

	ISO	Inch
Insert shape C 	060202	2(1.5)0
	060204	2(1.5)1
	060208	2(1.5)2
	09T302	3(2.5)0
	09T304	3(2.5)1
	09T308	3(2.5)2
	120404	431
	120408	432
	120412	433
Inserts shape T 	06T102	1.2(1.2)0
	06T104	1.2(1.2)1
	06T108	1.2(1.2)2
	090202	1.8(1.5)0
	090204	1.8(1.5)1
	090208	1.8(1.5)2
	110202	2(1.5)0
	110204	2(1.5)1
	110208	2(1.5)2
	110302	220
	110304	221
	110308	222
	16T302	30
	16T304	31
	16T308	32
	16T312	33
160400	330	
220408	432	
220412	433	
220416	434	
270408	532	
270412	533	
330612	643	
330616	644	

	ISO	Inch
Insert shape D 	070202	2(1.5)0
	070204	2(1.5)1
	070208	2(1.5)2
	11T302	3(2.5)0
	11T304	3(2.5)1
	11T308	3(2.5)2
	11T312	3(2.5)3
Insert shape S 	060204	2(1.5)1
	09T302	3(2.5)0
	09T304	3(2.5)1
	09T308	3(2.5)2
	120404	431
	120408	432
	120412	433
	150404	531
	150408	532
	150412	533
190408	632	
190412	633	
190416	634	
Inserts shape V 	110202	2(1.5)0
	110204	2(1.5)1
	110208	2(1.5)2
	110302	220
	110304	221
	110308	222
	160402	330
	160404	331
160408	332	
160412	333	

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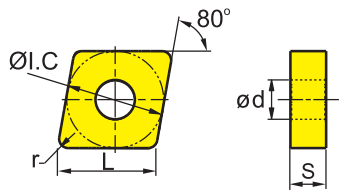
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CNMG	L	I.C	S	d
09 03	9.7	9.525	3.18	3.81
12 04	12.9	12.7	4.76	5.16

**Turning inserts**



CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
WG  Wiper	<b>CNMG120404-WG</b>	0.4	0.25-3.00	0.05-0.25	○																						
	<b>CNMG120408-WG</b>	0.8	0.5-5.0	0.15-0.70	●	●						○		○													
	<b>CNMG120412-WG</b>	1.2	0.8-6.0	0.20-0.75	●																						
ADF  Finishing	<b>CNMG120404-ADF</b>	0.4	0.5-3.0	0.05-0.30	●																						
	<b>CNMG120408-ADF</b>	0.8	0.5-3.0	0.1-0.4	●																				●		
	<b>CNMG120412-ADF</b>	1.2	0.8-3.0	0.15-0.50	○																				●		
DF  Finishing	<b>CNMG090304-DF</b>	0.4	0.25-1.50	0.07-0.30	●	●																					
	<b>CNMG090308-DF</b>	0.8	0.3-1.5	0.1-0.3	●	○																					
	<b>CNMG120404-DF</b>	0.4	0.25-1.50	0.07-0.30	●	●	○																				
	<b>CNMG120408-DF</b>	0.8	0.3-1.5	0.1-0.4	●	●	○																				
	<b>CNMG120412-DF</b>	1.2	0.35-1.50	0.10-0.35	●	●																					
EF  Finishing	<b>CNMG090304-EF</b>	0.4	0.5-2.0	0.05-0.20						○											●	○					
	<b>CNMG090308-EF</b>	0.8	0.5-2.0	0.05-0.25						○												●	○				
	<b>CNMG120404-EF</b>	0.4	0.5-2.5	0.05-0.20			○		●					○								●	○				
	<b>CNMG120408-EF</b>	0.8	0.5-2.5	0.05-0.25			○		●					○								●	○				
	<b>CNMG120412-EF</b>	1.2	0.5-2.5	0.10-0.35							○												○	○			
SF  Finishing	<b>CNMG090304-SF</b>	0.4	0.05-0.50	0.05-0.30																					●		
	<b>CNMG090308-SF</b>	0.8	0.05-0.50	0.10-0.35																					●		
	<b>CNMG120404-SF</b>	0.4	0.1-1.5	0.05-0.30																					●		
	<b>CNMG120408-SF</b>	0.8	0.1-1.5	0.10-0.35																					●		

● Ex stock ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

**Tool holder**

DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

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12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
				P	M	K	N	S	H																				
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
NF 	CNEG120404-NF	0.4	0.2-2.5	0.05-0.30																									
	CNEG120408-NF	0.8	0.2-2.5	0.10-0.35																									
	CNEG120412-NF	1.2	0.2-2.5	0.13-0.40																									
Finishing																													
PM 	CNMG090304-PM	0.4	0.4-4.0	0.1-0.3			●	●																					
	CNMG090308-PM	0.8	0.5-4.0	0.15-0.50			●	●																					
	CNMG120404-PM	0.4	0.4-5.5	0.1-0.3		●	●	●	○				●		●														
	CNMG120408-PM	0.8	0.5-5.5	0.15-0.50		●	●	●	○				○	●	●														
	CNMG120412-PM	1.2	0.8-5.5	0.18-0.60		●	●	○	○				●	●	●														
	CNMG120416-PM	1.6	1.0-5.5	0.23-0.65		●	●	○					●	●	●														
	CNMG160608-PM	0.8	0.5-7.2	0.15-0.50		●	●	●	●				○	○	○														
	CNMG160612-PM	1.2	0.8-7.2	0.18-0.60		●	●	●	●				○	●	●														
	CNMG160616-PM	1.6	1.0-7.2	0.23-0.65		●	●							●	○														
	CNMG190608-PM	0.8	0.5-8.6	0.15-0.50		●	●		●																				
CNMG190612-PM	1.2	0.8-8.6	0.18-0.60		●	●		○					○	●															
CNMG190616-PM	1.6	1.0-8.6	0.23-0.65		○	●							○	○															

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284



CNMG	L	I.C	S	d
09 03	9.7	9.525	3.18	3.81
12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

CN** negative insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW										
				P	M	K	N	S	H																				
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
	<b>DM</b>	<b>CNMG090304-DM</b>	0.4	0.4-4.0	0.1-0.3	●	●	●																					
		<b>CNMG090308-DM</b>	0.8	0.5-4.0	0.15-0.50	●	●	●																					
		<b>CNMG090312-DM</b>	1.2	0.5-3.0	0.1-0.4		○																						
		<b>CNMG120404-DM</b>	0.4	0.4-5.5	0.1-0.3	●	●	●	○														○						
		<b>CNMG120408-DM</b>	0.8	0.5-5.5	0.15-0.50	○	●	●	●	○	●	●																	
		<b>CNMG120412-DM</b>	1.2	0.8-5.5	0.18-0.60	○	●	●	●	○	●	○																	
		<b>CNMG120416-DM</b>	1.6	1.0-5.5	0.23-0.65	○	●	○																					
		<b>CNMG160608-DM</b>	0.8	0.5-7.2	0.15-0.50	○	●	○	○																				
		<b>CNMG160612-DM</b>	1.2	0.8-7.2	0.18-0.60	●	●	●	○																				
		<b>CNMG160616-DM</b>	1.6	1.0-7.2	0.23-0.65	●	●	●	●																				
		<b>CNMG190608-DM</b>	0.8	0.5-8.6	0.15-0.50	●	●	●																					
		<b>CNMG190612-DM</b>	1.2	0.8-8.6	0.18-0.60	●	●	●	●																				
	<b>CNMG190616-DM</b>	1.6	1.0-8.6	0.23-0.65	○	●	●	●		●																			
<b>EG</b>	<b>CNMG120404-EG</b>	0.4	0.5-4.0	0.05-0.30							●	●									●	○							
	<b>CNMG120408-EG</b>	0.8	0.5-4.0	0.1-0.4							●	●									●	●							
	<b>CNMG120412-EG</b>	1.2	0.5-4.0	0.2-0.5							○	●									●	●							
<b>EM</b>	<b>CNMG120404-EM</b>	0.4	0.5-4.0	0.05-0.30							●	●									●	○							
	<b>CNMG120408-EM</b>	0.8	0.5-5.7	0.15-0.45							●	●									●	○							
	<b>CNMG120412-EM</b>	1.2	0.5-5.7	0.25-0.60							●	●									●								
	<b>CNMG160608-EM</b>	0.8	0.5-7.2	0.15-0.45							●	●									●								
	<b>CNMG160612-EM</b>	1.2	0.5-7.2	0.25-0.60							●	●									●	○							

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CNMG	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16

## Turning inserts

CN** negative insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW	
	<b>P</b>	●	●	⊗	⊗	⊗			⊗	⊗	⊗		
	<b>M</b>					●	⊗	●	●	⊗	⊗	●	
	<b>K</b>						●	●	⊗	⊗	⊗		
	<b>N</b>							●	●			●	⊗
	<b>S</b>								●	●	⊗	⊗	●
	<b>H</b>												

**B**

Milling

ISO		r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
ZM	<b>CNMG120404-ZM</b>	0.4	0.5-3.0	0.05-0.30	●																							
	<b>CNMG120408-ZM</b>	0.8	0.5-4.0	0.1-0.5	○																							
Medium Cut																												

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**C**

Drilling

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

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12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94
25 09	25.79	25.4	9.525	9.12

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW														
				P	M	K	N	S	H																					
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
 Medium Cut	CNMG120404-NM	0.4	0.2-3.0	0.05-0.30																○	●									
	CNMG120408-NM	0.8	0.2-4.0	0.1-0.5																○	●	●	○					○		
	CNMG120412-NM	1.2	0.2-4.0	0.2-0.6																○	●									
 Medium Cut	CNMG120404-TC	0.4	0.5-5.0	0.08-0.40										●			●													
	CNMG120408-TC	0.8	0.5-5.0	0.15-0.50										●			●													
	CNMG120412-TC	1.2	0.5-5.0	0.2-0.6										●			●													
	CNMG120416-TC	1.6	0.5-5.0	0.20-0.65										●			○													
	CNMG160608-TC	0.8	1-7	0.15-0.50										●			●													
	CNMG160612-TC	1.2	1-7	0.2-0.6										●			○													
 Roughing	CNMG120408-DR	0.8	0.7-7.0	0.2-0.5	○	●	●	●	●	●			○	●		●														
	CNMG120412-DR	1.2	1-7	0.25-0.70	○	●	●	○	○				○	●		●														
	CNMG120416-DR	1.6	1.5-7.0	0.32-0.75	○	●	●	●						●		●														
	CNMG160608-DR	0.8	0.7-8.0	0.2-0.5			●	●	○					●		○														
	CNMG160612-DR	1.2	1-8	0.25-0.70	○	●	●	●	○					●		●														
	CNMG160616-DR	1.6	1.5-8.0	0.3-0.8		●	●	●	○					○		○														
	CNMG190608-DR	0.8	0.7-10.0	0.2-0.5		●	●	○						○		●														
	CNMG190612-DR	1.2	1-10	0.25-0.70	○	●	●	●	●					○		●														
	CNMG190616-DR	1.6	1.5-10.0	0.3-0.8		●	●	●	○					○		●														
	CNMG190624-DR	2.4	2-10	0.32-0.90	○	●	●	○								○														
	CNMG250924-DR	2.4	2-15	0.4-1.0		○		○																						

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

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12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94

## Turning inserts

CN** negative insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW																		
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
								●	●	●	●	●	●															●	●	●	●	●	●	●		
SNR																									●											
	CNMG120408-SNR	0.8	1-3	0.1-0.4																					●											
	CNMG120412-SNR	1.2	1-3	0.2-0.6																					●											
	CNMG160608-SNR	0.8	2-6	0.1-0.4																					●											
Roughing	CNMG190616-SNR	1.6	2-7	0.2-0.6																					○									●		

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

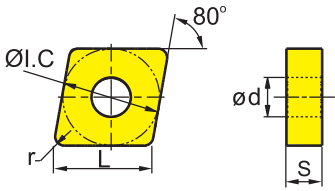







CN**	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94
25 07	25.79	25.4	7.94	9.12
25 09	25.79	25.4	9.525	9.12

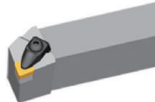





- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW												
				P	M	K	N	S	H																				
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
<b>DR</b>  Roughing	<b>CNMM120412-DR</b>	1.2	1.0-7.5	0.25-0.70	○ ● ○ ○ ● ○ ○																								
	<b>CNMM160612-DR</b>	1.2	1.0-9.5	0.25-0.70	● ● ●																								
	<b>CNMM160616-DR</b>	1.6	1.5-9.5	0.32-0.90	● ● ○ ●																								
	<b>CNMM190612-DR</b>	1.2	1-12	0.25-0.70	○ ● ● ● ● ● ●																								
	<b>CNMM190616-DR</b>	1.6	1.5-12.0	0.32-0.90	● ● ● ● ○																								
	<b>CNMM190624-DR</b>	2.4	2-12	0.35-1.20	● ● ● ○																								
	<b>CNMM250924-DR</b>	2.4	2.0-12.5	0.2-1.2	● ● ● ○ ○																								
<b>ER</b>  Roughing	<b>CNMG120408-ER</b>	0.8	2.0-7.6	0.15-0.55						●																			
	<b>CNMG120412-ER</b>	1.2	2.0-7.6	0.25-0.80							●																		
	<b>CNMG160612-ER</b>	1.2	2-10	0.35-0.80							●																		
	<b>CNMG160616-ER</b>	1.6	2-10	0.45-1.00							●																		
	<b>CNMG190612-ER</b>	1.2	2.0-11.4	0.35-1.00	○						●										●								
<b>ER</b>  Roughing	<b>CNMM250724-ER</b>	2.4	2.0-12.5	0.3-1.4	●																								
	<b>CNMM250732-ER</b>	3.2	2.0-12.5	0.45-1.80	○						○																		
	<b>CNMM250924-ER</b>	2.4	2.0-12.5	0.3-1.4	●						●																		
	<b>CNMM250932-ER</b>	3.2	2.0-12.5	0.45-1.80	●						○																		

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
					
A197	A204	A205	A218	A219	A284

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CNMM	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94
25 09	25.79	25.4	9.525	9.12

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

### Turning inserts

CN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW													
					P	M	K	N	S	H																						
					P	●	●	⊗	⊗	⊗	⊗	⊗																				
					M						●	●	⊗	⊗	●	●	●	●	●	●	●											
					K						●	●	●	●	●	●																
					N							●	●							●	●											
					S									●	●	●	●			●	●											
					H																											
ISO		r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201				
LR  Roughing	CNMM120408-LR	0.8	1-5	0.1-0.5	●	●						●																				
	CNMM120412-LR	1.2	2-6	0.2-0.7	●	●						●																				
	CNMM120416-LR	1.6	2.0-6.5	0.25-0.80	○	●																										
	CNMM160608-LR	0.8	1-7	0.2-0.6	●	●						○																				
	CNMM160612-LR	1.2	1.0-7.5	0.2-0.7	●	●						●																				
	CNMM160616-LR	1.6	1.0-8.5	0.25-0.80	●	●																										
	CNMM160624-LR	2.4	2.0-8.5	0.25-0.70	○	○																										
	CNMM190612-LR	1.2	2.0-10.5	0.2-0.7	●	●						●																				
	CNMM190616-LR	1.6	2.0-10.5	0.3-1.0	●	●						●																				
	CNMM190624-LR	2.4	2.0-10.5	0.3-1.1	●	○	○																									
CNMM250924-LR	2.4	2.0-12.5	0.3-1.2	○	●																											

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284



CNMM	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94
25 09	25.79	25.4	9.525	9.12

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW														
				P	M	K	N	S	H																						
ISO				r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
Basic 	CNMM120404	0.4	0.5-7.0	0.1-0.5																											
	CNMM190612	1.2	0.5-10.5	0.1-0.8				●																							
	CNMM190616	1.6	0.5-10.5	0.1-1.0				○																							
Medium Cut																															
HDR 	CNMM120408-HDR	0.8	1-7	0.2-0.6	●	●	●	○																							
	CNMM120412-HDR	1.2	1-7	0.3-0.8	○	●	●	○																							
	CNMM120416-HDR	1.6	1-7	0.4-1.0	●	●		●																							
	CNMM160612-HDR	1.2	1.5-7.5	0.3-0.8	●	●	●	○																							
	CNMM160616-HDR	1.6	1.5-8.5	0.4-1.0	○	●	●	○																							
	CNMM160624-HDR	2.4	1.5-10.5	0.8-1.2	○	●																									
	CNMM190608-HDR	0.8	2.0-12.5	0.3-0.7	○																										
	CNMM190612-HDR	1.2	2.0-12.5	0.35-0.80	○	●	○	●																							
	CNMM190616-HDR	1.6	2.0-12.5	0.5-1.1	○	●	●	○										○	○												
	CNMM190624-HDR	2.4	2.0-12.5	0.8-1.2	●	●	○																								
CNMM250924-HDR	2.4	2.0-12.5	0.8-1.4	○	●																										
HPR 	CNMM190616-HPR	1.6	2.0-10.5	0.5-1.0				○																							
	CNMM190624-HPR	2.4	2.0-10.5	0.7-1.4	●	●																									
	CNMM250924-HPR	2.4	2.0-12.5	0.7-1.4	●	●																									

● Ex stock      ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284

System code > A42      Grade selection > A40      Technical info > A447      Cutting data > A324



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CN**	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16
16 06	16.1	15.875	6.35	6.35
19 06	19.3	19.05	6.35	7.94

### Turning inserts

CN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW															
	P	M	K	N	S	H																									
								YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	ISO	r	a <sub>p</sub>	f																											
	<b>Flat</b> 	CNMA120404	0.4	0.2-5.0	0.05-0.40																										
		CNMA120408	0.8	0.2-5.0	0.05-0.50																										
		CNMA120412	1.2	0.2-5.0	0.1-0.6																										
CNMA120416		1.6	0.2-5.0	0.10-0.65																											
CNMA160608		0.8	0.2-7.0	0.1-0.5																											
CNMA160612		1.2	0.2-7.0	0.1-0.6																											
CNMA160616		1.6	0.2-7.0	0.15-0.65																											
CNMA190612		1.2	0.2-8.0	0.15-0.70																											
CNMA190616	1.6	0.2-8.0	0.15-0.70																												
<b>Basic</b> 	CNMG120404	0.4	0.1-5.0	0.05-0.50		○	○																								
	CNMG120408	0.8	0.1-5.0	0.1-0.6	○	○	●																								
	CNMG120412	1.2	0.1-5.0	0.1-0.7	○	○	●																								
	CNMG160612	1.2	0.1-7.0	0.1-0.7																											
	CNMG190608	0.8	0.1-8.0	0.1-0.7																											
	CNMG190612	1.2	0.1-8.0	0.1-0.8																											
	CNMG190616	1.6	0.1-8.0	0.1-1.0																											

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

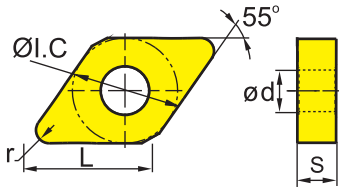
Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284



DN**	L	I.C	S	d
11 04	11.6	9.525	4.76	3.81
15 04	15.5	12.7	4.76	5.16
15 06	15.5	12.7	6.35	5.16

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**



DN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW																
				P	M	K	N	S	H																								
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201					
WG  Wiper	<b>DNMX110404-WG</b>	0.4	0.2-1.5	0.08-0.30	○																												
	<b>DNMX110408-WG</b>	0.8	0.5-3.5	0.15-0.50	● ●																												
	<b>DNMX150608-WG</b>	0.8	0.5-5.0	0.15-0.70	○ ○																												
	<b>DNMX150612-WG</b>	1.2	0.8-6.0	0.20-0.75	○																												
ADF  Finishing	<b>DNMG150604-ADF</b>	0.4	0.5-6.0	0.15-0.50	○																			○									
	<b>DNMG150608-ADF</b>	0.8	0.1-4.0	0.08-0.50	○																				○								
	<b>DNMG150612-ADF</b>	1.2	0.5-4.0	0.15-0.50	○																												
DF  Finishing	<b>DNMG110404-DF</b>	0.4	0.15-2.00	0.08-0.25	● ● ○																												
	<b>DNMG110408-DF</b>	0.8	0.15-2.00	0.1-0.3	● ●																												
	<b>DNMG110412-DF</b>	1.2	0.35-1.50	0.15-0.50	○ ○																												
	<b>DNMG150404-DF</b>	0.4	0.15-2.00	0.08-0.25	● ● ○																												
	<b>DNMG150408-DF</b>	0.8	0.15-2.00	0.1-0.3	● ● ○																												
	<b>DNMG150412-DF</b>	1.2	0.35-1.50	0.15-0.50	○																												
	<b>DNMG150604-DF</b>	0.4	0.8-6.0	0.18-0.60	● ● ○																												
	<b>DNMG150608-DF</b>	0.8	0.15-2.00	0.1-0.3	● ● ●																												
<b>DNMG150612-DF</b>	1.2	0.2-2.5	0.10-0.35	● ○																													
SF  Finishing	<b>DNMG110404-SF</b>	0.4	0.05-0.50	0.05-0.25																						●							
	<b>DNMG150404-SF</b>	0.4	0.05-0.50	0.05-0.25																						●							
	<b>DNMG150408-SF</b>	0.8	0.05-0.50	0.10-0.35																						●							
	<b>DNMG150604-SF</b>	0.4	0.05-0.50	0.05-0.25																						●							
	<b>DNMG150608-SF</b>	0.8	0.05-0.50	0.10-0.35																						●							

● Ex stock    ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287

System code > A42    Grade selection > A40    Technical info > A447    Cutting data > A324



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DNMG	L	I.C	S	d
11 04	11.6	9.525	4.76	3.81
15 04	15.5	12.7	4.76	5.16
15 06	15.5	12.7	6.35	5.16

### Turning inserts

DN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
	P	M	K	N	S	H																							
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
	<b>DM</b>  Medium Cut	DNMG110404-DM	0.4	0.4-5.0	0.1-0.3	●	●	●																					
		DNMG110408-DM	0.8	0.5-5.0	0.15-0.50	●	●	●																					
		DNMG110412-DM	1.2	0.8-5.0	0.18-0.50	●	●																						
		DNMG150404-DM	0.4	0.4-6.0	0.1-0.3	●	●	●																					
DNMG150408-DM		0.8	0.5-6.0	0.15-0.50	●	●	○																						
DNMG150412-DM		1.2	0.8-6.0	0.18-0.60	○	●																							
DNMG150604-DM		0.4	1-6	0.23-0.65	●	●	●																						
DNMG150608-DM		0.8	0.5-6.0	0.15-0.50	○	●	●	○		●																			
DNMG150612-DM		1.2	0.8-6.0	0.18-0.60	●	●	●	○																					
DNMG150616-DM		1.6	1-6	0.23-0.65	○	●	●	○																					
<b>PM</b>  Medium Cut	DNMG110404-PM	0.4	0.4-5.0	0.1-0.3		●	●						○																
	DNMG110408-PM	0.8	0.5-5.0	0.15-0.50	○	○	●	○					●																
	DNMG110412-PM	1.2	0.8-5.0	0.18-0.50		○							○	●															
	DNMG150404-PM	0.4	0.4-6.0	0.1-0.3	○	○																							
	DNMG150408-PM	0.8	0.5-6.0	0.15-0.50	●	●	●						○	●	●														
	DNMG150412-PM	1.2	0.8-6.0	0.18-0.60		●	○							○	○														
	DNMG150416-PM	1.6	1-6	0.23-0.65		○																							
	DNMG150604-PM	0.4	0.4-6.0	0.1-0.3	●	●	●						●	●	○														
DNMG150608-PM	0.8	0.5-6.0	0.15-0.50	●	●	●	○					○	●	●															
DNMG150612-PM	1.2	0.8-6.0	0.18-0.60	●	●	●						○	●	●															
DNMG150616-PM	1.6	1-6	0.23-0.65		●	●						○																	

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DDJNR/L	PDJNR/L	PDNRR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

DNMG	L	I.C	S	d
15 06	15.5	12.7	6.35	5.16

**Turning inserts**

DN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				<b>P</b>	●●●●●●●●								●●●●●●●●	●●●●●●●●	●●●●●●●●													
				<b>M</b>		●●●●●●●●								●●●●●●●●	●●●●●●●●	●●●●●●●●												
				<b>K</b>			●●●●●●●●																					
				<b>N</b>										●●●●●●●●				●●●●●●●●	●●●●●●●●									
				<b>S</b>											●●●●●●●●	●●●●●●●●			●●●●●●●●	●●●●●●●●								
				<b>H</b>																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
ZM	<b>DNMG150612-ZM</b>	1.2	1.0-5.5	0.15-0.60	○	●																						
Medium Cut																												

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287

**A**

Turning

**B**

Milling

**C**

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**D**

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**E**

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DN**	L	I.C	S	d
11 04	11.6	9.525	4.76	3.81
15 04	15.5	12.7	4.76	5.16
15 06	15.5	12.7	6.35	5.16

### Turning inserts

DN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
				P	●	●	●	⊗	⊗	⊗	⊗	⊗	●	●	●	●	●											
				M	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
				K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
				N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
				S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
				H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
EF 	<b>DNMG110404-EF</b>	0.4	0.1-1.5	0.05-0.20						○											●	○						
	<b>DNMG110408-EF</b>	0.8	0.1-1.5	0.1-0.4						○												●	○					
	<b>DNMG150404-EF</b>	0.4	0.1-1.5	0.05-0.30																		●						
	<b>DNMG150408-EF</b>	0.8	0.1-1.5	0.1-0.4																		●						
	<b>DNMG150604-EF</b>	0.4	0.1-1.5	0.05-0.30				○		●												●	○					
	<b>DNMG150608-EF</b>	0.8	0.1-1.5	0.1-0.4				○		●												●						
	<b>DNMG150612-EF</b>	1.2	0.1-1.5	0.15-0.50																		●						
FM 	<b>DNMG150604L-FM</b>	0.4	0.5-3.0	0.05-0.30	●	●															●							
	<b>DNMG150604R-FM</b>	0.4	0.5-3.0	0.05-0.30	●	●															●							
	<b>DNMG150608L-FM</b>	0.8	0.5-3.0	0.1-0.5	○	●															●							
	<b>DNMG150608R-FM</b>	0.8	0.5-3.0	0.1-0.5	●	●															●							
NF 	<b>DNEG150404-NF</b>	0.4	0.2-3.0	0.05-0.30															○									
	<b>DNEG150408-NF</b>	0.8	0.2-3.0	0.1-0.4															○									
	<b>DNEG150604-NF</b>	0.4	0.2-3.0	0.05-0.30															○	○							○	
	<b>DNEG150608-NF</b>	0.8	0.2-3.0	0.1-0.4															●	○							○	
	<b>DNEG150608-NGF</b>	0.8	0.2-3.0	0.05-0.40																○								
NGF 	<b>DNEG150612-NGF</b>	1.2	0.2-3.0	0.1-0.5															●									

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287

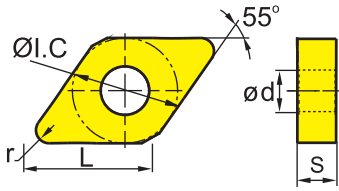




DNMG	L	I.C	S	d
11 04	11.6	9.525	4.76	3.81
15 04	15.5	12.7	4.76	5.16
15 06	15.5	12.7	6.35	5.16

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**



DN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
EG 	<b>DNMG150604-EG</b>	0.4	1-3	0.05-0.30						●											●							
	<b>DNMG150608-EG</b>	0.8	1-3	0.1-0.4						● ●												● ●						
	<b>DNMG150612-EG</b>	1.2	1-3	0.2-0.6						● ●												● ●						
Medium Cut																												
EM 	<b>DNMG110404-EM</b>	0.4	0.5-4.4	0.05-0.30						●												● ○						
	<b>DNMG110408-EM</b>	0.8	0.5-4.4	0.10-0.45						●												●						
	<b>DNMG150404-EM</b>	0.4	0.5-6.4	0.05-0.30						○													○					
	<b>DNMG150408-EM</b>	0.8	0.5-6.4	0.10-0.45						○													●					
	<b>DNMG150412-EM</b>	1.2	0.5-6.4	0.1-0.6						○																		
	<b>DNMG150604-EM</b>	0.4	0.2-6.4	0.05-0.30							● ●												● ○					
	<b>DNMG150608-EM</b>	0.8	0.5-6.4	0.10-0.45							● ●												● ○					
<b>DNMG150612-EM</b>	1.2	0.5-6.4	0.1-0.6							● ●												●						
Medium Cut																												
NM 	<b>DNMG150412-NM</b>	1.2	0.2-4.0	0.2-0.6																		○						
	<b>DNMG150608-NM</b>	0.8	0.2-4.0	0.1-0.4																		○ ●						
	<b>DNMG150612-NM</b>	1.2	0.2-4.0	0.2-0.6																		○ ●						
Medium Cut																												
TC 	<b>DNMG150608-TC</b>	0.8	0.5-5.0	0.15-0.40										●	●													
	<b>DNMG150612-TC</b>	1.2	0.5-5.0	0.2-0.6										●	○													
Medium Cut																												

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Tool holder**

DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



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**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DNMG	L	I.C	S	d
15 06	15.5	12.7	6.35	5.16

## Turning inserts

DN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
					<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>										
					<b>M</b>																							
					<b>K</b>																							
					<b>N</b>																							
					<b>S</b>																							
					<b>H</b>																							
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
DR	<b>DNMG150608-DR</b>	0.8	1-6	0.2-0.5	●	●	●	●	●			●	●		●													
	<b>DNMG150612-DR</b>	1.2	1-6	0.25-0.70	●	●	●	○				●	●															
	<b>DNMG150616-DR</b>	1.6	1-6	0.32-0.75	●	○	○					●	○															
Roughing																												
SNR	<b>DNMG150608-SNR</b>	0.8	0.2-6.0	0.1-0.5																●								
	<b>DNMG150612-SNR</b>	1.2	0.2-6.0	0.2-0.6																○								
Roughing																												

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

Milling

**C**

Drilling

**D**

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**E**

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Tool holder						
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
A198	A206	A207	A220	A221	A286	A287





# General turning Negative inserts

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DNMM	L	I.C	S	d
15 06	15.5	12.7	6.35	5.16

## Turning inserts

DN** negative insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW
	<b>P</b>	●	●	⊗	⊗	⊗			●		
	<b>M</b>					●	●	●	●		
	<b>K</b>					●	●	●	●		
	<b>N</b>						●	●		●	●
	<b>S</b>						●	●	●	●	●
	<b>H</b>										

**B**

Milling

	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
					DR	<b>DNMM150608-DR</b>	0.8	0.7-6.0	0.20-0.55	●	●	○																	
	<b>DNMM150612-DR</b>	1.2	1-6	0.25-0.70	●	●	●																						
	<b>DNMM150616-DR</b>	1.6	1.5-6.0	0.32-0.90	●	●																							
Roughing																													
ER	<b>DNMM150608-ER</b>	0.8	0.7-6.0	0.20-0.55							●																		
	<b>DNMM150612-ER</b>	1.2	1-6	0.25-0.70								●																	
Roughing																													
HDR	<b>DNMM150608-HDR</b>	0.8	1-7	0.25-0.60	●	○	○	○																					
	<b>DNMM150612-HDR</b>	1.2	1-7	0.3-0.8	○	○	○																						
	<b>DNMM150616-HDR</b>	1.6	1.5-7.0	0.4-1.0	○	○	○																						
Roughing																													
LR	<b>DNMM150608-LR</b>	0.8	2-6	0.1-0.6	●	●					●																		
	<b>DNMM150612-LR</b>	1.2	2-6	0.2-0.8	●	●						●																	
	<b>DNMM150616-LR</b>	1.6	2-6	0.25-1.00	●	●						○																	
Roughing																													

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**D**

Technical Information

Tool holder						
<b>DDJNR/L</b> Kr: 93°	<b>PDJNR/L</b> Kr: 93°	<b>PDNNR/L</b> Kr: 63°	<b>MDJNR/L</b> Kr: 93°	<b>MDPNN</b> Kr: 62°30'	<b>S***-PDSNR/L</b> Kr: 62°30'	<b>S***-PDUNR/L</b> Kr: 93°
A198	A206	A207	A220	A221	A286	A287

**E**

Index



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNMG	L	I.C	S	d
09 03	9.525	9.525	3.18	3.81
12 04	12.7	12.7	4.76	5.16

**Turning inserts**

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
ADF	<b>SNMG120404-ADF</b>	0.4	0.5-5.0	0.1-0.3	●															●							
	<b>SNMG120408-ADF</b>	0.8	0.5-5.0	0.12-0.50	●															●							
	<b>SNMG120412-ADF</b>	1.2	1-5	0.2-0.6	●															●							
Finishing																											
DF	<b>SNMG120408-DF</b>	0.8	0.3-1.5	0.1-0.4	●	●	○																				
	<b>SNMG120412-DF</b>	1.2	0.35-1.50	0.15-0.50	●	●	○																				
Finishing																											
SF	<b>SNMG090304-SF</b>	0.4	0.05-0.50	0.05-0.20																					●		
	<b>SNMG090308-SF</b>	0.8	0.05-0.50	0.10-0.35																					●		
	<b>SNMG120404-SF</b>	0.4	0.05-0.50	0.05-0.20																					○		
	<b>SNMG120408-SF</b>	0.8	0.05-0.50	0.10-0.35																					○		
Finishing																											

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SNMG	L	I.C	S	d
<b>09 03</b>	9.525	9.525	3.18	3.81
<b>12 04</b>	12.7	12.7	4.76	5.16
<b>15 06</b>	15.875	15.875	6.35	6.35

## Turning inserts

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW																
	P	M	K	N	S	H																										
									YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	ISO	r	a <sub>p</sub>	f																												
		<b>SNMG090304-EF</b>	0.4	0.5-2.0	0.05-0.30																											
		<b>SNMG090308-EF</b>	0.8	0.5-2.0	0.05-0.40																											
		<b>SNMG090312-EF</b>	1.2	0.5-2.0	0.05-0.45																											
<b>SNMG120404-EF</b>		0.4	0.8-3.0	0.05-0.30																												
<b>SNMG120408-EF</b>		0.8	0.8-3.0	0.1-0.4																												
<b>SNMG120412-EF</b>		1.2	0.8-3.0	0.15-0.45																												
<b>SNMG150608-EF</b>		0.8	1-4	0.1-0.4																												
<b>SNMG150612-EF</b>		1.2	1-4	0.15-0.45																												

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSB NR/L	PSB NR/L	PSD NN	PSK NR/L	PSS NR/L	MSB NR/L	MSR NR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSK NR/L	MSD NN	S***-PSK NR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



SNMG	L	I.C	S	d
09 03	9.525	9.525	3.18	3.81
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW													
				P	M	K	N	S	H																					
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
<b>PM</b>  Medium Cut	<b>SNMG090304-PM</b>	0.4	0.4-4.5	0.1-0.3	○	●																								
	<b>SNMG090308-PM</b>	0.8	0.5-4.5	0.15-0.50	○	●	●				○	●	●																	
	<b>SNMG090312-PM</b>	1.2	0.6-4.5	0.2-0.6	○																									
	<b>SNMG120404-PM</b>	0.4	0.4-6.0	0.1-0.3	●	○	●						○	○																
	<b>SNMG120408-PM</b>	0.8	0.5-6.0	0.15-0.50	●	●	●	○				○	●	●																
	<b>SNMG120412-PM</b>	1.2	0.8-6.0	0.18-0.60	●	●	●	●					○	●																
	<b>SNMG120416-PM</b>	1.6	1-6	0.23-0.65	○	○	○	○					○	○																
	<b>SNMG150608-PM</b>	0.8	0.7-7.5	0.14-0.50	○	○																								
	<b>SNMG150612-PM</b>	1.2	0.8-7.5	0.18-0.60	○	●	○	○					●	●																
	<b>SNMG190612-PM</b>	1.2	1.0-7.5	0.20-0.65	○	●	●	●				○	●	●																
	<b>SNMG190616-PM</b>	1.6	1.0-7.5	0.23-0.65			○																							

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				

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
**E**

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SNMG	L	I.C	S	d
09 03	9.525	9.525	3.18	3.81
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94




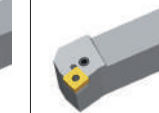
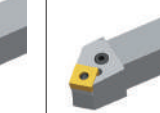
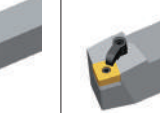
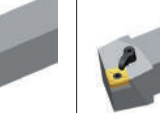
- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions




## Turning inserts

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW										
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H																			
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
DM  Medium Cut	SNMG090304-DM	0.4	0.4-4.5	0.1-0.3	●	●																						
	SNMG090308-DM	0.8	0.5-4.5	0.15-0.50	●	●	●	○																				
	SNMG120404-DM	0.4	0.4-6.0	0.1-0.3	●	●	●																					
	SNMG120408-DM	0.8	0.5-6.0	0.15-0.50	●	●	●	●	●																			
	SNMG120412-DM	1.2	0.8-6.0	0.18-0.60	●	●	●	○																				
	SNMG120416-DM	1.6	1-6	0.23-0.65	○	●	○	○																				
	SNMG150608-DM	0.8	0.8-7.5	0.1-0.5	●	●	●																					
	SNMG150612-DM	1.2	0.8-7.5	0.18-0.60	●	●	●																					
	SNMG190612-DM	1.2	1-9	0.18-0.60	●	●	○	○																				
	SNMG190616-DM	1.6	1-9	0.23-0.65	●	●	●	●																				
EG  Medium Cut	SNMG120408-EG	0.8	0.5-4.0	0.1-0.5						●							●	●										
	SNMG120412-EG	1.2	0.5-4.0	0.2-0.6						●								●										

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
						
A199	A208	A210	A211	A212	A222	A223

M SKNR/L	MSDNN	S***-PSKNR/L
Kr: 75°	Kr: 45°	Kr: 75°
		
A224	A225	A289

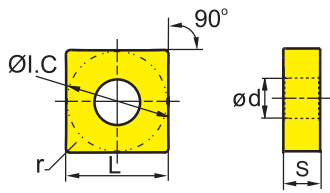




- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNMG	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35

**Turning inserts**



SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
EM	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
					Medium Cut	<b>SNMG120404-EM</b>	0.4	0.50-6.35	0.05-0.30							● ○													
	<b>SNMG120408-EM</b>	0.8	0.50-6.35	0.20-0.45							● ●												● ○						
	<b>SNMG120412-EM</b>	1.2	0.50-6.35	0.25-0.60							● ●												● ○						
	<b>SNMG120416-EM</b>	1.6	0.50-6.35	0.30-0.75							○																		
	<b>SNMG150612-EM</b>	1.2	0.5-8.0	0.25-0.60							○ ●												●						
	<b>SNMG150616-EM</b>	1.6	0.5-8.0	0.30-0.75							○												●						
	<b>SNMG120404-TC</b>	0.4	0.5-5.0	0.08-0.25										●															
	<b>SNMG120408-TC</b>	0.8	0.5-5.0	0.15-0.40										●				●											
	<b>SNMG120412-TC</b>	1.2	0.5-5.0	0.2-0.5										●				●											
	<b>SNMG150616-TC</b>	1.6	1-7	0.2-0.7										●															

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Tool holder**

DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324




**A** Turning  
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SNMG	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94



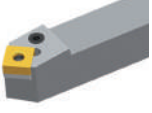
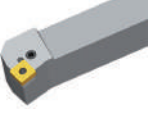
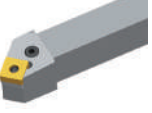
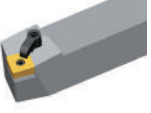




- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW							
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H															
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251
ER  Roughing	<b>SNMG120408-ER</b>	0.8	2.0-7.6	0.20-0.55	●	●	●	●	●					●	●	●	●	●	●	●	●			
	<b>SNMG120412-ER</b>	1.2	2.0-7.6	0.3-0.6											●	●	●	●	●	●				
	<b>SNMG150612-ER</b>	1.2	2.0-9.6	0.3-0.6											●	●	●	●	●	●				
	<b>SNMG190612-ER</b>	1.2	2.0-11.4	0.3-0.6											●	●	●	●	●	●				
	<b>SNMG190616-ER</b>	1.6	2.0-11.4	0.35-0.80											●	●	●	●	●	●				

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
						
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
						
A224	A225	A289				

System code > A42

Grade selection > A40

Technical info > A447

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SNMM	L	I.C	S	d
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94
25 07	25.4	25.4	7.94	9.12
25 09	25.4	25.4	9.525	9.12

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

SN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW														
					P	●	●	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗												
					M	●	●	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗										
					K	●	●	●	●	●	●	●	●	●	●	●	●	●													
					N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					S	●	●	●	●	●	●	●	●	●	●	●	●	●													
					H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
ISO		r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
 DR   Roughing	SNMM150612-DR	1.2	1-7	0.25-0.60	●																										
	SNMM150616-DR	1.6	1.5-9.0	0.32-0.90	○	●	○	●																							
	SNMM190608-DR	0.8	2.0-10.5	0.25-0.50	○																										
	SNMM190612-DR	1.2	2.0-10.5	0.25-0.60	●	●	○	●	●																						
	SNMM190616-DR	1.6	2.0-10.5	0.35-0.90	●	●	●	●	●																						
	SNMM190624-DR	2.4	2.0-10.5	0.4-1.1	●	●	●	○																							
	SNMM250716-DR	1.6	2.5-12.5	0.4-1.0	●																										
	SNMM250724-DR	2.4	2.5-12.5	0.5-1.2	○	●	●	●	●																						
	SNMM250924-DR	2.4	2.5-12.5	0.5-1.2	●	●	●																								

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN					
Kr: 75°	Kr: 45°					
A224	A225					



SNMM	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94
25 09	25.4	25.4	9.525	9.12

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
<p>LR Roughing</p>	<b>SNMM120408-LR</b>	0.8	1-6	0.1-0.5	○ ●																								
	<b>SNMM120412-LR</b>	1.2	1-6	0.2-0.6	○ ●																								
	<b>SNMM120416-LR</b>	1.6	1-6	0.25-0.70	○																								
	<b>SNMM150612-LR</b>	1.2	1.5-7.0	0.1-0.5	○ ●																								
	<b>SNMM150616-LR</b>	1.6	1.5-7.0	0.1-0.5	○ ○																								
	<b>SNMM190612-LR</b>	1.2	2-10	0.25-0.70	○ ●																								
	<b>SNMM190616-LR</b>	1.6	2-10	0.3-1.0	○ ●																								
	<b>SNMM190624-LR</b>	2.4	2-10	0.3-1.1	○ ●																								
	<b>SNMM250924-LR</b>	2.4	3.0-12.5	0.3-1.2	● ● ○																								

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				

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SNMM	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94
25 07	25.4	25.4	7.94	9.12
25 09	25.4	25.4	9.525	9.12

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW										
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
	SNMM120408-HDR	0.8	1-6	0.1-0.6		●	●	○																				
	SNMM120412-HDR	1.2	1.5-6.0	0.2-0.7		○	●	○																				
	SNMM150608-HDR	0.8	1-7	0.2-0.6			●																					
	SNMM150612-HDR	1.2	1-7	0.25-0.70		●	●	●	○																			
	SNMM150616-HDR	1.6	1.5-9.0	0.32-1.00		○	●	○																				
	SNMM150624-HDR	2.4	1.5-9.0	0.4-1.2			○																					
	SNMM190612-HDR	1.2	2.0-10.5	0.25-0.70		○	○	●																				
	SNMM190616-HDR	1.6	2.0-10.5	0.35-1.00		●	●	●			●																	
	SNMM190624-HDR	2.4	2.0-10.5	0.4-1.2		●	●																					
	SNMM250724-HDR	2.4	2.5-12.5	0.5-1.4			●	○	●																			
SNMM250924-HDR	2.4	2.5-12.5	0.5-1.4		●	●		●																				

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
A224	A225	A289				



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNMM	L	I.C	S	d
19 06	19.05	19.05	6.35	7.94
25 09	25.4	25.4	9.525	9.12

**Turning inserts**

SN** negative insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW										
				<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
				<b>M</b>														●	●	●	●							
				<b>K</b>																								
				<b>N</b>														●	●			●	●					
				<b>S</b>																				●	●			
				<b>H</b>																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
 HPR Roughing	<b>SNMM190616-HPR</b>	1.6	2.0-10.5	0.35-1.00	●																							
	<b>SNMM190624-HPR</b>	2.4	2.0-10.5	0.4-1.2	○	●																						
	<b>SNMM250924-HPR</b>	2.4	2.0-12.5	0.5-1.4	○	●	●																					

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L	MSKNR/L
Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°	Kr: 75°
A208	A210	A211	A212	A222	A223	A224

**A**

Turning

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**C**

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**E**

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SN**	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
25 07	25.4	25.4	7.94	9.12
25 09	25.4	25.4	9.525	9.12



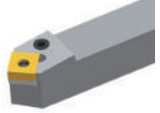







## Turning inserts

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
Basic 	SNMG120408	0.8	0.5-6.0	0.1-0.6	●	●	●																				
	SNMG120412	1.2	0.5-6.0	0.1-0.7	○	○	○																				
	SNMG250724	2.4	1-9	0.1-1.1					●																		
	SNMG250924	2.4	1-9	0.1-1.1					○																		
Medium Cut																											
Basic 	SNMM120408	0.8	0.5-5.0	0.1-0.5					●																		
	SNMM120412	1.2	1.5-7.0	0.2-0.6					○																		

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

### Tool holder

DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
						
A199	A208	A210	A211	A212	A222	A223
MSKNR/L	MSDNN	S***-PSKNR/L				
Kr: 75°	Kr: 45°	Kr: 75°				
						
A224	A225	A289				





SN**	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16
15 06	15.875	15.875	6.35	6.35
19 06	19.05	19.05	6.35	7.94
25 07	25.4	25.4	7.94	9.12

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

SN** negative insert					HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW														
					<b>P</b>	●●●●●	●●●●●						●●●●●	●●●●●	●●●●●																
					<b>M</b>			●●	●●					●●●●●	●●●●●	●●●●●	●●●●●														
					<b>K</b>					●●●●●	●●●●●																				
					<b>N</b>										●●	●●				●●	●●										
					<b>S</b>											●●●●●	●●●●●				●●										
					<b>H</b>																										
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201				
<b>Flat</b> 	<b>SNMA120408</b>	0.8	0.5-5.0	0.1-0.5								●	●		●																
	<b>SNMA120412</b>	1.2	0.5-5.0	0.2-0.7								●	○		●	○															
	<b>SNMA120416</b>	1.6	0.5-5.0	0.2-1.0									○	○		○															
	<b>SNMA150608</b>	0.8	0.8-7.0	0.1-0.5																											
	<b>SNMA150612</b>	1.2	0.8-7.0	0.2-0.7																											
	<b>SNMA190612</b>	1.2	0.8-7.0	0.2-0.7									○	●		●															
	<b>SNMA190616</b>	1.6	0.8-7.0	0.3-0.8										○		●															
<b>Basic</b> 	<b>SNMM250724-1</b>	2.4	2.0-12.5	0.3-1.2	●	●	●																								

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
<b>DSBNR/L</b> Kr: 75°	<b>PSBNR/L</b> Kr: 75°	<b>PSDNN</b> Kr: 45°	<b>PSKNR/L</b> Kr: 75°	<b>PSSNR/L</b> Kr: 45°	<b>MSBNR/L</b> Kr: 75°	<b>MSRNR/L</b> Kr: 75°
A199	A208	A210	A211	A212	A222	A223
<b>MSKNR/L</b> Kr: 75°	<b>MSDNN</b> Kr: 45°	<b>S***-PSKNR/L</b> Kr: 75°				
A224	A225	A289				



## Turning inserts

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SNUN	L	I.C	S
12 04	12.7	12.7	4.76
19 04	19.05	19.05	4.76
25 07	25.4	25.4	7.94

SN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
Flat 	<b>SNUN120408</b>	0.8	0.7-6.0	0.2-0.5																								
	<b>SNUN120412</b>	1.2	0.7-6.0	0.25-0.60			●		○						○												○	○
	<b>SNUN190412</b>	1.2	0.9-6.0	0.25-0.60																								○
	<b>SNUN190416</b>	1.6	0.9-6.0	0.3-0.7																								○
	<b>SNUN250724</b>	2.4	1-9	0.5-1.0						○																		○

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder		
CSKNR/L	CSRNR/L	CSDNN
Kr: 75°	Kr: 75°	Kr: 45°
A262	A263	A265

# General turning Negative inserts

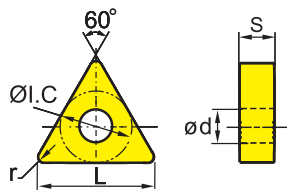
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TN**	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16

## Turning inserts



TN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	HW												
					P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f		YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
WG	<b>TNMX160408-WG</b>	0.8	0.5-5.0	0.15-0.70	●																							
	<b>TNMX160412-WG</b>	1.2	0.8-6.0	0.20-0.75	○																							
Wiper																												
ADF	<b>TNMG160404-ADF</b>	0.4	0.5-5.0	0.05-0.30	●																●			●				
	<b>TNMG160408-ADF</b>	0.8	0.5-5.0	0.1-0.4	●																●	○		●				
	<b>TNMG160412-ADF</b>	1.2	0.5-5.0	0.2-0.5	●																●							
Finishing																												
DF	<b>TNMG160404-DF</b>	0.4	0.15-2.00	0.08-0.25	● ● ○																							
	<b>TNMG160408-DF</b>	0.8	0.15-2.00	0.1-0.3	● ● ○																							
	<b>TNMG160412-DF</b>	1.2	0.35-1.50	0.15-0.50	● ●																							
	<b>TNMG220408-DF</b>	0.8	0.3-1.5	0.1-0.4	● ● ○																							
	<b>TNMG220412-DF</b>	1.2	0.35-1.50	0.15-0.50	● ●																							

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

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**C**

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Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					



TNMG	L	I.C	S	d
11 03	11	6.35	3.18	2.26
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW												
	<b>P</b>	●●●●●●●●	●●●●●●●●										●●●●●●●●	●●●●●●●●	●●●●●●●●														
	<b>M</b>			●●●●●●●●									●●●●●●●●	●●●●●●●●	●●●●●●●●														
	<b>K</b>				●●●●●●●●																								
	<b>N</b>										●●●●●●●●					●●●●●●●●													
	<b>S</b>												●●●●●●●●				●●●●●●●●												
	<b>H</b>																												
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
 Finishing	<b>TNMG110304-SF</b>	0.4	0.05-0.50	0.05-0.30																									
	<b>TNMG160404-SF</b>	0.4	0.05-1.00	0.05-0.30																				○	●				
	<b>TNMG160408-SF</b>	0.8	0.05-1.00	0.05-0.40																					○	●			
	<b>TNMG220408-SF</b>	0.8	0.05-1.50	0.05-0.40																						○	●		
	<b>TNMG220412-SF</b>	1.2	0.05-1.50	0.10-0.45																						○	●		

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
<b>DTGNR/L</b> Kr: 91°	<b>PTFNR/L</b> Kr: 91°	<b>PTTNR/L</b> Kr: 60°	<b>PTGNR/L</b> Kr: 90°	<b>MTGNR/L</b> Kr: 90°	<b>MTJNR/L</b> Kr: 93°	<b>MTJNR/L</b> Kr: 93°
A200	A213	A214	A215	A226	A227	A228
<b>MTFNR/L</b> Kr: 91°	<b>S***-PTFNR/L</b> Kr: 90°					
A229	A290					



**A** Turning  
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**C** Drilling  
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# General turning Negative inserts

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**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TNMG	L	I.C	S	d
11 03	11	6.35	3.18	2.26
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16

## Turning inserts

TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW																
	P	M	K	N	S	H																										
									YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	ISO	r	a <sub>p</sub>	f																												
	<b>EF</b>  Finishing	TNMG110304-EF	0.4	0.1-1.0	0.05-0.20																											
		TNMG110308-EF	0.8	0.1-1.0	0.05-0.40																											
		TNMG160404-EF	0.4	0.1-1.5	0.05-0.30																											
TNMG160408-EF		0.8	0.1-1.5	0.1-0.4																												
TNMG160412-EF		1.2	0.2-2.5	0.15-0.40																												
TNMG220404-EF		0.4	0.5-2.5	0.05-0.25																												
TNMG220408-EF		0.8	0.5-2.5	0.1-0.4																												
TNMG220412-EF		1.2	0.5-2.5	0.1-0.5																												
<b>FM</b>  Finishing	TNMG160404L-FM	0.4	0.5-3.0	0.1-0.3																												
	TNMG160404R-FM	0.4	0.5-3.0	0.1-0.3																												
	TNMG160408L-FM	0.8	0.5-3.0	0.15-0.50																												
	TNMG160408R-FM	0.8	0.5-3.0	0.15-0.50																												

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

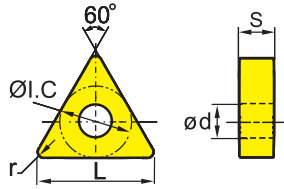
Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					



TNMG	L	I.C	S	d
11 03	11	6.35	3.18	2.26
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**



TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
<b>DM</b>  Medium Cut	TNMG110308-DM	0.8	0.3-3.0	0.1-0.4	○ ●																							
	TNMG160404-DM	0.4	0.4-5.0	0.1-0.3	● ● ●	○	●																					
	TNMG160408-DM	0.8	0.5-5.0	0.15-0.50	● ● ●	●	○																					
	TNMG160412-DM	1.2	0.8-5.0	0.18-0.60	● ● ○	○																						
	TNMG220404-DM	0.4	0.4-6.6	0.1-0.3	● ● ●	○																						
	TNMG220408-DM	0.8	0.5-6.6	0.15-0.50	● ● ●	●																						
	TNMG220412-DM	1.2	0.8-6.6	0.18-0.60	● ● ●	●																						
	TNMG220416-DM	1.6	1.0-6.6	0.23-0.65	● ● ●	○																						
<b>PM</b>  Medium Cut	TNMG110304-PM	0.4	0.4-3.0	0.1-0.3		● ●																						
	TNMG110308-PM	0.8	0.4-3.0	0.15-0.40		● ●																						
	TNMG160404-PM	0.4	0.4-5.0	0.1-0.3	● ● ●	●					○ ● ●	●																
	TNMG160408-PM	0.8	0.5-5.0	0.15-0.50	● ● ●	●					○ ● ●	●																
	TNMG160412-PM	1.2	0.8-5.0	0.18-0.60	● ● ○						○ ● ●	●																
	TNMG220408-PM	0.8	0.5-6.6	0.15-0.50	● ● ●	○					○ ● ●	●																
	TNMG220412-PM	1.2	0.8-6.6	0.18-0.60	○ ● ●	○					○ ● ●	●																
	TNMG220416-PM	1.6	1.0-6.6	0.23-0.65	○ ● ●	○					○ ● ●	○																

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Tool holder**

DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



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# General turning Negative inserts

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TNMG	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81

## Turning inserts

TN** negative insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	HW	
	<b>P</b>	●	●	⊗	⊗	⊗		⊗	⊗	●	
	<b>M</b>				●	⊗		●	●	⊗	
	<b>K</b>					●	●				
	<b>N</b>						●	●			●
	<b>S</b>							●	●	●	⊗
	<b>H</b>										

**B**

Milling

ISO		r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
 Medium Cut	<b>TNMG160404-ZM</b>	0.4	0.5-5.0	0.08-0.30	●																								
	<b>TNMG160408-ZM</b>	0.8	0.5-5.0	0.1-0.4	●																								
	<b>TNMG160412-ZM</b>	1.2	0.5-5.0	0.1-0.6	●																								

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**C**

Drilling

Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228

**D**

Technical Information

MTFNR/L	S***-PTFNR/L
Kr: 91°	Kr: 90°
A229	A290

**E**

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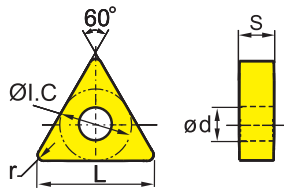




- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TNMG	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16

**Turning inserts**



TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
EG Medium Cut	<b>TNMG160404-EG</b>	0.4	0.5-4.0	0.1-0.3																							
	<b>TNMG160408-EG</b>	0.8	0.5-4.0	0.1-0.4																							
	<b>TNMG160412-EG</b>	1.2	0.5-4.0	0.15-0.50																							
EM Medium Cut	<b>TNMG160404-EM</b>	0.4	0.5-4.8	0.05-0.30						●	○										●	○					
	<b>TNMG160408-EM</b>	0.8	0.5-4.8	0.10-0.45						●	●											●	○				
	<b>TNMG160412-EM</b>	1.2	0.5-4.8	0.1-0.6							●	●										●	○				
	<b>TNMG220408-EM</b>	0.8	0.5-6.6	0.10-0.45							●	●										●	○				
	<b>TNMG220412-EM</b>	1.2	0.5-6.6	0.1-0.6							○	●										●	○				
TC Medium Cut	<b>TNMG160404-TC</b>	0.4	0.5-3.0	0.05-0.20									●			●											
	<b>TNMG160408-TC</b>	0.8	0.5-3.0	0.08-0.25									●			●											
	<b>TNMG160412-TC</b>	1.2	1-3	0.1-0.3									●			●											
	<b>TNMG220412-TC</b>	1.2	1-6	0.15-0.40									●			●											
	<b>TNMG220416-TC</b>	1.6	1-6	0.2-0.5									●														

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Tool holder**

DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TNMG	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16
27 06	27.5	15.875	6.35	6.35

### Turning inserts

TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW														
	P	M	K	N	S	H																								
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
	 DR       Roughing	<b>TNMG160408-DR</b>	0.8	0.7-6.0	0.20-0.55	●	●	●						●		●														
		<b>TNMG160412-DR</b>	1.2	1-6	0.25-0.65	●	●	●	○						○		●													
		<b>TNMG220408-DR</b>	0.8	0.7-7.0	0.20-0.55		●	●	○								○													
		<b>TNMG220412-DR</b>	1.2	1-7	0.25-0.65	○	●	●	●	○					○		●													
<b>TNMG220416-DR</b>		1.6	1.5-7.0	0.32-0.75		●	●	●						○		●														
<b>TNMG270608-DR</b>		0.8	1.5-12.0	0.35-0.55							○																			
<b>TNMG270612-DR</b>		1.2	2-12	0.35-0.75							●																			

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide




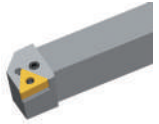
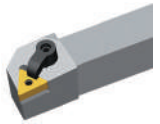
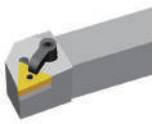
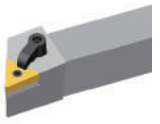
Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					







**A**

Turning

Tool holder						
DTG NR/L Kr: 91°	PTF NR/L Kr: 91°	PTT NR/L Kr: 60°	PTG NR/L Kr: 90°	MTG NR/L Kr: 90°	MTJ NR/L Kr: 93°	MTJ NR/L Kr: 93°
						
A200	A213	A214	A215	A226	A227	A228

**B**

Milling

MTF NR/L Kr: 91°	S***-PTF NR/L Kr: 90°
	
A229	A290

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TNMM	L	I.C	S	d
22 04	22	12.7	4.76	5.16
27 06	27.5	15.875	6.35	6.35

**Turning inserts**

TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
				<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●												
				<b>M</b>										●	●	●	●	●										
				<b>K</b>																								
				<b>N</b>											●	●			●	●								
				<b>S</b>															●	●								
				<b>H</b>																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
<b>HDR</b>	<b>TNMM220412-HDR</b>	1.2	2-9	0.25-0.80	○																							
 Heavy Turning	<b>TNMM220416-HDR</b>	1.6	2-9	0.35-1.00		○																						
	<b>TNMM270616-HDR</b>	1.6	2-6	0.35-1.00		●																						
	<b>TNMM270624-HDR</b>	2.4	2-7	0.4-1.2		●					○																	

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L	MTFNR/L
Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°	Kr: 91°
A213	A214	A215	A226	A227	A228	A229

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

TNMG	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16
27 06	27.5	15.875	6.35	6.35
33 09	33	19.05	9.525	7.94

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

TN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
					P	●	●	●	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
					M																									
					K																									
					N																									
					S																									
					H																									
ISO	r	a <sub>p</sub>	f		YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
 Basic  Medium Cut	TNMG160404	0.4	0.2-4.0	0.05-0.20			○	●																						
	TNMG160408	0.8	0.2-4.0	0.08-0.30		●	●	●		○																				
	TNMG160412	1.2	0.2-4.0	0.1-0.4		●	●	○																						
	TNMG220404	0.4	0.2-6.0	0.05-0.20			○	○																						
	TNMG220408	0.8	0.2-6.0	0.1-0.3			○	●																						
	TNMG220412	1.2	0.2-6.0	0.1-0.4			○																							
	TNMG220416	1.6	0.2-6.0	0.1-0.5			○																							
	TNMG270612	1.2	0.2-9.0	0.1-0.5			○		●																					
	TNMG270616	1.6	0.2-9.0	0.1-0.5			○		●																					
	TNMG330916	1.6	0.2-11.0	0.1-0.5			○		○																					
	TNMG330924	2.4	0.2-11.0	0.1-0.7			○		○																					

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DTG NR/L	PTF NR/L	PTT NR/L	PTG NR/L	MTG NR/L	MTJ NR/L	MTJ NR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTF NR/L	S***-PTF NR/L					
Kr: 91°	Kr: 90°					
A229	A290					



TN**	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81
22 04	22	12.7	4.76	5.16
27 06	27.5	15.875	6.35	6.35

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

TN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				P	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
				M	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
				K	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
				N	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
				S	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
				H	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗											
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
<b>Flat</b> 	<b>TNMA160404</b>	0.4	0.2-4.0	0.05-0.20								○	○		●												
	<b>TNMA160408</b>	0.8	0.2-4.0	0.08-0.30								●	●		●												
	<b>TNMA160412</b>	1.2	0.2-4.0	0.1-0.4									○	●		●											
	<b>TNMA160416</b>	1.6	0.5-4.0	0.05-0.50									○	●		○											
	<b>TNMA220404</b>	0.4	0.2-6.0	0.05-0.20												●											
	<b>TNMA220408</b>	0.8	0.2-6.0	0.1-0.3									○	●		●											
	<b>TNMA220412</b>	1.2	0.2-6.0	0.1-0.4									○			●	●										
<b>TNMA220416</b>	1.6	0.2-6.0	0.1-0.5									○				○											
<b>Basic</b> 	<b>TNMM160404</b>	0.4	0.2-7.0	0.05-0.60	○	●																					
	<b>TNMM160408</b>	0.8	0.5-7.0	0.05-0.60	○	○																					
	<b>TNMM160412</b>	1.2	0.5-7.0	0.05-0.60	○																						
	<b>TNMM220408</b>	0.8	0.5-7.0	0.05-0.60	○	●		○																			
	<b>TNMM220412</b>	1.2	1-7	0.1-0.6	○	●																					
	<b>TNMM220416</b>	1.6	0.5-7.0	0.05-0.60	○																						
	<b>TNMM270616</b>	1.6	0.5-6.5	0.05-0.70	○				●																		

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	S***-PTFNR/L					
Kr: 91°	Kr: 90°					
A229	A290					

# General turning Negative inserts

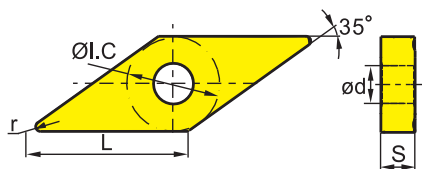
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VN**	L	I.C	S	d
16 04	16.6	9.525	4.76	3.81

## Turning inserts



VN** negative insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	HW
<b>P</b>	<span style="color: blue;">●</span> <span style="color: blue;">●</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span>						<span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span>	<span style="color: blue;">●</span> <span style="color: blue;">●</span>		
<b>M</b>	<span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span>						<span style="color: yellow;">●</span> <span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span> <span style="color: yellow;">⊗</span>	<span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span>		
<b>K</b>	<span style="color: red;">●</span> <span style="color: red;">⊗</span> <span style="color: red;">⊗</span> <span style="color: red;">⊗</span>									
<b>N</b>							<span style="color: green;">●</span> <span style="color: green;">●</span>		<span style="color: green;">●</span> <span style="color: green;">⊗</span>	
<b>S</b>							<span style="color: orange;">●</span> <span style="color: orange;">●</span> <span style="color: orange;">⊗</span> <span style="color: orange;">⊗</span>		<span style="color: orange;">●</span> <span style="color: orange;">⊗</span>	
<b>H</b>										

**B**

Milling

	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
ADF 	<b>VNMG160404-ADF</b>	0.4	0.5-2.5	0.1-0.3	●																	●						
	<b>VNMG160408-ADF</b>	0.8	0.5-2.5	0.1-0.5	●																	●						
DF 	<b>VNMG160404-DF</b>	0.4	0.25-1.50	0.07-0.30		○	●	●																				
	<b>VNMG160408-DF</b>	0.8	0.3-1.5	0.1-0.4		●	●	●																				
EF 	<b>VNMG160404-EF</b>	0.4	0.1-1.5	0.05-0.25							●												●					
	<b>VNMG160408-EF</b>	0.8	0.2-2.5	0.08-0.35							●												●	○				
	<b>VNMG160412-EF</b>	1.2	0.2-2.5	0.10-0.45							○																	
NF 	<b>VNEG160404-NF</b>	0.4	0.2-4.0	0.05-0.30														○	●							○		
	<b>VNEG160408-NF</b>	0.8	0.2-4.0	0.05-0.50														○	●							○		

**C**

Drilling

**D**

Technical Information

● Ex stock    ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

**E**

Index

Tool holder			
DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
A201	A202	A230	A231

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VN**	L	I.C	S	d
16 04	16.6	9.525	4.76	3.81

**Turning inserts**

VN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				<b>P</b>	●	●	⊗	⊗	⊗	⊗	⊗			●	●	●											
				<b>M</b>							●	⊗		●	●	●	●	●									
				<b>K</b>									●	●	●	●	●	●									
				<b>N</b>										●	●				●	⊗							
				<b>S</b>											●	●	●	●		●							
				<b>H</b>																							
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
NGF	<b>VNEG160408-NGF</b>	0.8	0.2-3.0	0.1-0.3															●								
	<b>VNEG160412-NGF</b>	1.2	0.2-3.0	0.1-0.5															○								
Finishing																											
SF	<b>VNMG160404-SF</b>	0.4	0.05-3.00	0.05-0.20																					●		
	<b>VNMG160408-SF</b>	0.8	0.05-3.00	0.05-0.35																					○		
Finishing																											

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder			
<b>DVVNN</b> Kr: 72°30'	<b>DVJNR/L</b> Kr: 93°	<b>MVVNN</b> Kr: 72°30'	<b>MVJNR/L</b> Kr: 93°
A201	A202	A230	A231

# General turning Negative inserts

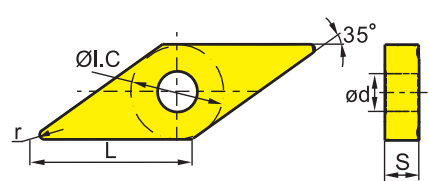
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VNMG	L	I.C	S	d
16 04	16.6	9.525	4.76	3.81

## Turning inserts



VN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW																		
					P	●	●	●	●	●	●	●	●	●	●	●	●	●																	
					M	●	●	●	●	●	●	●	●	●	●	●	●	●																	
					K	●	●	●	●	●	●	●	●	●	●	●	●	●																	
					N	●	●	●	●	●	●	●	●	●	●	●	●	●																	
					S	●	●	●	●	●	●	●	●	●	●	●	●	●																	
					H	●	●	●	●	●	●	●	●	●	●	●	●	●																	
ISO					r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201				
Basic	VNMG160404	0.4	0.2-6.0	0.05-0.60	○																														
	VNMG160408	0.8	0.2-6.0	0.08-0.60	○																														
Medium Cut																																			
DM	VNMG160408-DM	0.8	0.5-4.0	0.15-0.50	●	●	●																												
	VNMG160412-DM	1.2	0.8-4.0	0.18-0.60	●	●	●																												
Medium Cut																																			
EM	VNMG160404-EM	0.4	0.2-3.0	0.05-0.30				●															●	○											
	VNMG160408-EM	0.8	0.5-4.0	0.10-0.45				●															●	○											
Medium Cut																																			
NM	VNMG160412-NM	1.2	0.2-4.0	0.05-0.40																			●												
Medium Cut																																			

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

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**C**

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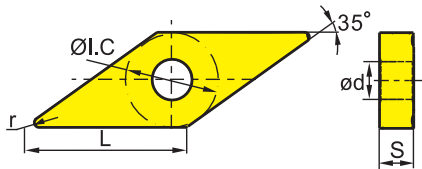
Tool holder			
DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
A201	A202	A230	A231



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

VNMG	L	I.C	S	d
16 04	16.6	9.525	4.76	3.81

**Turning inserts**



VN** negative insert				HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW													
				P	M	K	N	S	H																				
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
PM	<b>VNMG160404-PM</b>	0.4	0.4-4.0	0.13-0.40	●	●	●						●			○													
	<b>VNMG160408-PM</b>	0.8	0.5-4.0	0.15-0.50	●	●	●						●	●		●													
	<b>VNMG160412-PM</b>	1.2	0.8-4.0	0.18-0.60	●	●	●						○	●															
Medium Cut																													
TC	<b>VNMG160404-TC</b>	0.4	0.5-2.0	0.05-0.20											●		●												
	<b>VNMG160408-TC</b>	0.8	0.5-2.0	0.08-0.25											●		●												
	<b>VNMG160412-TC</b>	1.2	0.5-3.0	0.08-0.30											●		●												
Medium Cut																													
ZM	<b>VNMG160404-ZM</b>	0.4	0.5-3.0	0.08-0.30	●																								
	<b>VNMG160408-ZM</b>	0.8	0.5-3.0	0.1-0.4	●																								
Medium Cut																													
SNR	<b>VNMG160408-SNR</b>	0.8	0.2-2.0	0.1-0.4																●									
	<b>VNMG160412-SNR</b>	1.2	0.2-2.0	0.1-0.5																●									
Roughing																													

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder			
<b>DVVNN</b> Kr: 72°30'	<b>DVJNR/L</b> Kr: 93°	<b>MVVNN</b> Kr: 72°30'	<b>MVJNR/L</b> Kr: 93°
A201	A202	A230	A231

**A**

Turning

**B**

Milling

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WNMG	L	I.C	S	d
06 T3	6.5	9.525	3.97	3.81
06 04	6.5	9.525	4.76	3.81
08 04	8.7	12.7	4.76	5.16

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

WN** negative insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
					P	M	K	N	S	H																				
		ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
		<b>WNMG080404-ADF</b>	0.4	0.2-2.5	0.05-0.30	●																								
		<b>WNMG080408-ADF</b>	0.8	0.5-2.5	0.05-0.40	●																								
		<b>WNMG080412-ADF</b>	1.2	0.5-2.5	0.05-0.50	●																								
		<b>WNMG060404-DF</b>	0.4	0.15-2.00	0.08-0.25		●	●	●																					
		<b>WNMG060408-DF</b>	0.8	0.15-2.00	0.1-0.3		●	●	●																					
		<b>WNMG080404-DF</b>	0.4	0.15-2.00	0.08-0.25		●	●	○																					
		<b>WNMG080408-DF</b>	0.8	0.15-2.00	0.1-0.3		●	○	●																					
		<b>WNMG080412-DF</b>	1.2	0.2-2.5	0.10-0.35		●	●	○																					
		<b>WNMG060404-SF</b>	0.4	0.05-0.50	0.05-0.20																							●		
		<b>WNMG060408-SF</b>	0.8	0.05-0.50	0.05-0.35																							●		
		<b>WNMG06T304-SF</b>	0.4	0.05-0.50	0.05-0.20																							●		
		<b>WNMG06T308-SF</b>	0.8	0.05-0.50	0.05-0.35																							●		
		<b>WNMG080404-SF</b>	0.4	0.05-0.50	0.05-0.20																							●		
		<b>WNMG080408-SF</b>	0.8	0.05-0.50	0.05-0.35																							●		
		<b>WNMG080412-SF</b>	1.2	0.05-0.50	0.05-0.40																							○		

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder			
DWLNRL/L	PWLNRL/L	MWLNRL/L	S***-PWLNRL/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
A203	A217	A232	A291



WN**	L	I.C	S	d
06 T3	6.5	9.525	3.97	3.81
06 04	6.5	9.525	4.76	3.81
08 04	8.7	12.7	4.76	5.16

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

WN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW										
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
WG  Wiper	<b>WNMG080408-WG</b>	0.8	0.5-5.0	0.15-0.70	● ●																						
	<b>WNMG080412-WG</b>	1.2	0.8-6.0	0.20-0.75	● ○																						
EF  Finishing	<b>WNMG060404-EF</b>	0.4	0.1-1.5	0.05-0.30						○											● ○						
	<b>WNMG060408-EF</b>	0.8	0.1-1.5	0.1-0.4						○											● ○						
	<b>WNMG06T308-EF</b>	0.8	0.1-1.5	0.1-0.4																	●						
	<b>WNMG080404-EF</b>	0.4	0.1-1.5	0.05-0.30			○			●											● ●						
	<b>WNMG080408-EF</b>	0.8	0.1-1.5	0.1-0.4			○			●								○			● ○						
NF  Finishing	<b>WNEG080404-NF</b>	0.4	0.2-3.0	0.05-0.30													○ ●										
	<b>WNEG080408-NF</b>	0.8	0.2-2.5	0.05-0.30													○										
NF  Finishing	<b>WNMG060408-NF</b>	0.8	0.2-2.5	0.05-0.30													○ ●										

● Ex stock      ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder			
DWLNLR/L	PWLNLR/L	MWLNLR/L	S***-PWLNLR/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
A203	A217	A232	A291

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



**A** Turning  
**B** Milling  
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# General turning Negative inserts

**A**

Turning

WNMG	L	I.C	S	d
06 T3	6.5	9.525	3.97	3.81
06 04	6.5	9.525	4.76	3.81
08 04	8.7	12.7	4.76	5.16

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning inserts

WN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
	P	M	K	N	S	H																							
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
	 DM Medium Cut	WNMG060408-DM	0.8	0.5-3.0	0.15-0.50	●	●	●	○																				
		WNMG060412-DM	1.2	0.8-3.0	0.18-0.60	○	●	●	○																				
		WNMG06T308-DM	0.8	0.5-3.0	0.15-0.15		○	●																					
WNMG080404-DM		0.4	0.5-4.0	0.1-0.4	●	●	●	○																					
WNMG080408-DM		0.8	0.5-4.0	0.15-0.50	○	●	●	○	●				●																
WNMG080412-DM		1.2	0.8-4.0	0.18-0.60	○	●	●	●	●																				
WNMG080416-DM		1.6	1-4	0.23-0.65	●	●																							
 EG Medium Cut	WNMG080408-EG	0.8	0.5-4.0	0.05-0.40							●	●							●	●									
	WNMG080412-EG	1.2	0.5-4.0	0.05-0.60							●	●								●	●								
 EM Medium Cut	WNMG060404-EM	0.4	0.5-3.0	0.05-0.30							○	●								●	○								
	WNMG060408-EM	0.8	0.5-3.0	0.1-0.5							●	●								●	○								
	WNMG06T304-EM	0.4	0.5-3.0	0.05-0.30							●																		
	WNMG06T308-EM	0.8	0.5-3.0	0.1-0.5							●																		
	WNMG06T312-EM	1.2	0.5-3.0	0.1-0.7							○										○								
	WNMG080404-EM	0.4	1-4	0.05-0.30							●	●									●	●							
	WNMG080408-EM	0.8	1-4	0.1-0.5							●	●									●	○							
WNMG080412-EM	1.2	1-4	0.1-0.7							●	●									●									

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**D**

Technical Information

Tool holder			
DWLNRL	PWLNRL	MWLNRL	S***-PWLNRL
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
A203	A217	A232	A291

**E**

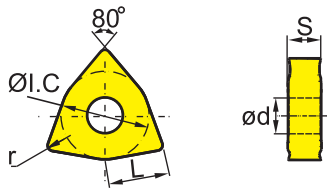
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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

WNMG	L	I.C	S	d
06 04	6.5	9.525	4.76	3.81
08 04	8.7	12.7	4.76	5.16

**Turning inserts**



WN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
<b>PM</b>  Medium Cut	<b>WNMG060408-PM</b>	0.8	0.5-3.0	0.15-0.50	●	●	●	●	●			○	●	●	●														
	<b>WNMG060412-PM</b>	1.2	0.8-3.0	0.18-0.60	●	○	●		○			○	●	●	○														
	<b>WNMG080404-PM</b>	0.4	0.4-4.0	0.12-0.40	●	●	●						○	●	●	●													
	<b>WNMG080408-PM</b>	0.8	0.5-4.0	0.15-0.50	●	●	●	●	●				○	●	●	●													
	<b>WNMG080412-PM</b>	1.2	0.8-4.0	0.18-0.60	●	●	●	●	●				○	●	●	●													
	<b>WNMG080416-PM</b>	1.6	1-4	0.23-0.65		●							○	●	●	●													
<b>ZM</b>  Medium Cut	<b>WNMG080408-ZM</b>	0.8	0.5-4.0	0.1-0.5	●																								
	<b>WNMG080412-ZM</b>	1.2	1.0-5.5	0.15-0.60	●																								

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Tool holder**

DWLNLR/L	PWLNLR/L	MWLNLR/L	S***-PWLNLR/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
A203	A217	A232	A291

System code > A42

Grade selection > A40

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

WN**	L	I.C	S	d
06 T3	6.5	9.525	3.97	3.81
06 04	6.5	9.525	4.76	3.81
08 04	8.7	12.7	4.76	5.16

## Turning inserts

WN** negative insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW															
	P	M	K	N	S	H																									
								YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	ISO	r	a <sub>p</sub>	f																											
	 Medium Cut	<b>WNMG080404-NM</b>	0.4	0.2-3.0	0.05-0.30																										
		<b>WNMG080408-NM</b>	0.8	0.2-3.0	0.1-0.3																										
		<b>WNMG080412-NM</b>	1.2	0.2-4.0	0.1-0.4																										
 Medium Cut	<b>WNMG080404-TC</b>	0.4	0.5-3.0	0.08-0.25																											
	<b>WNMG080408-TC</b>	0.8	0.5-4.0	0.15-0.40																											
	<b>WNMG080412-TC</b>	1.2	0.5-4.0	0.2-0.6																											
 Roughing	<b>WNMG060408-DR</b>	0.8	0.7-3.5	0.20-0.45	● ● ● ○	● ●																									
	<b>WNMG060412-DR</b>	1.2	0.8-3.5	0.25-0.55	● ● ● ○	○ ○																									
	<b>WNMG080408-DR</b>	0.8	0.7-5.0	0.20-0.55	● ● ● ●	● ●																									
	<b>WNMG080412-DR</b>	1.2	1-5	0.25-0.70	○ ● ● ● ○	● ●																									
	<b>WNMG080416-DR</b>	1.6	1.5-5.0	0.32-0.75	○ ● ●	● ○																									
 Flat	<b>WNMA060408</b>	0.8	0.5-3.0	0.1-0.3																											
	<b>WNMA060412</b>	1.2	0.5-3.0	0.15-0.30																											
	<b>WNMA06T308</b>	0.8	0.5-3.0	0.1-0.3																											
	<b>WNMA080404</b>	0.4	0.5-4.0	0.08-0.25																											
	<b>WNMA080408</b>	0.8	0.5-4.0	0.15-0.30																											
	<b>WNMA080412</b>	1.2	0.5-5.0	0.15-0.30																											
	<b>WNMA080416</b>	1.6	0.5-5.0	0.2-0.5																											

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder			
DWLN/L	PWLN/L	MWLN/L	S***-PWLN/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
A203	A217	A232	A291

System code &gt; A42

Grade selection &gt; A40

Technical info &gt; A447

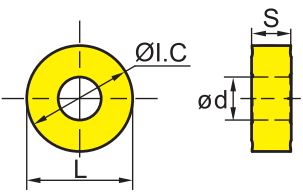

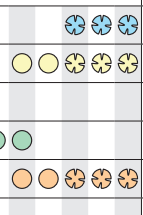
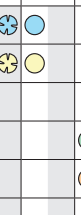


Cutting data &gt; A324



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊙ Unfavourable machining conditions



RNMG	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16

## Turning inserts

RN** negative insert			HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW															
	<b>P</b> <b>M</b> <b>K</b> <b>N</b> <b>S</b> <b>H</b>																												
		ISO	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
		Basic	<b>RNMG120400</b>	0.5-7.0	0.1-1.8			●								○	○												
		Medium Cut																											

- Ex stock
- On demand

- HC<sup>1</sup> Coated carbide
- HT Uncoated cermet
- HC<sup>2</sup> Coated cermet
- HW Uncoated carbide

Tool holder	
MRDNN	MRGNR/L
	
A233	A234

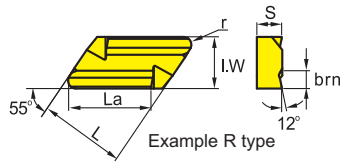
## A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

KNUX	L	I.W	S
<b>16 04</b>	16.15	9.525	4.76

### Turning inserts



KN** negative insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW
<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>			<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">●</span>	
<b>M</b>				<span style="color: yellow;">●</span>	<span style="color: yellow;">⊗</span>			<span style="color: yellow;">●</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">●</span>	<span style="color: yellow;">⊗</span>	
<b>K</b>						<span style="color: red;">●</span>	<span style="color: red;">⊗</span>					
<b>N</b>								<span style="color: green;">●</span>	<span style="color: green;">⊗</span>		<span style="color: green;">●</span>	<span style="color: green;">⊗</span>
<b>S</b>								<span style="color: orange;">●</span>	<span style="color: orange;">⊗</span>		<span style="color: orange;">●</span>	<span style="color: orange;">⊗</span>
<b>H</b>												

## B

Milling

		ISO	La	brn	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
KNUX 	<b>KNUX160405L11</b>	16	2.2	0.5	0.2-6.0	0.05-0.70			●	●	○																					○
	<b>KNUX160405L12</b>	16	2.2	0.5	0.2-6.0	0.05-0.70				●																						○
	<b>KNUX160405R11</b>	16	2.2	0.5	0.2-6.0	0.05-0.70			●	●	○																					○
	<b>KNUX160405R12</b>	16	2.2	0.5	0.2-6.0	0.05-0.70					●																					
Finishing	<b>KNUX160410L11</b>	16	2.2	1	0.2-6.0	0.05-0.70				●																						
	<b>KNUX160410L12</b>	16	2.2	1	0.2-6.0	0.05-0.70		○		●																						
	<b>KNUX160410R11</b>	16	2.2	1	0.2-6.0	0.05-0.70			●	●																						
	<b>KNUX160410R12</b>	16	2.2	1	0.2-6.0	0.05-0.70		○		●																						

## C

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Drilling

Tool holder	
CKJNR/L	CKNNR/L
Kr: 93°	Kr: 63°
A256	A257

## D

Technical Information

## E

Index

**Turning inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

175	L	I.C	S	d
<b>32 -3</b>	30	10	19.05	6.35
<b>32 -1</b>	19.05	10	19.05	6.35

Railway wheel machining		HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW									
		<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>																			
ISO		r	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	<b>175.32-191940-22</b>	4			○																					
	<b>175.32-191940-24</b>	4			●																					
	<b>175.32-301940-24</b>	4		○	●																					
	<b>175.32-191940-25</b>	4			○																					
	<b>175.32-191940-28</b>	4		●	●	●																				
	<b>175.32-301940-31</b>	4			○																					

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

# General turning Positive inserts

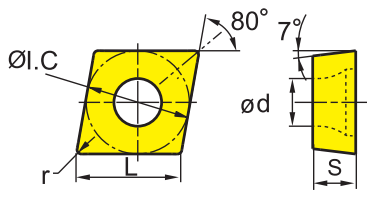
A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CCGT	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4

## Turning inserts



CC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW														
				P	M	K	N	S	H																					
ISO				r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
SF	CCGT060202-SF	0.2	0.05-2.00	0.05-0.18																										
	CCGT060204-SF	0.4	0.05-2.00	0.05-0.35																										
	CCGT09T304-SF	0.4	0.05-2.00	0.05-0.35																										
Finishing																														
USF	CCGT09T301L-USF	0.1	0.2-2.0	0.01-0.08																										
	CCGT09T302L-USF	0.2	0.2-2.0	0.05-0.18																										
	CCGT09T304L-USF	0.4	0.2-2.0	0.05-0.20																										
Finishing																														
USF	CCGT09T301R-USF	0.1	0.2-2.0	0.01-0.08																										
	CCGT09T302R-USF	0.2	0.2-2.0	0.05-0.18																										
	CCGT09T304R-USF	0.4	0.2-2.0	0.05-0.20																										
Finishing																														

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

B

Milling

C

Drilling

D

Technical Information

E

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Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	S***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311
E***-SCLCR/L						
Kr: 95°						
A313						



CCMT	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4
12 04	12.9	12.7	4.76	5.56

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

CC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW									
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
<b>AHF</b>  Finishing	CCMT060204-AHF	0.4	0.2-2.5	0.05-0.20	○																							
	CCMT060208-AHF	0.8	0.3-2.5	0.05-0.30	○																							
	CCMT09T304-AHF	0.4	0.2-3.0	0.05-0.30	○																							
	CCMT09T308-AHF	0.8	0.3-3.0	0.05-0.40	●																							
	CCMT120404-AHF	0.4	0.5-4.0	0.05-0.30	○																							
	CCMT120408-AHF	0.8	0.8-4.0	0.08-0.40	●																							
<b>HF</b>  Finishing	CCMT060202-HF	0.2	0.06-1.70	0.03-0.11	●	●	●																				○	
	CCMT060204-HF	0.4	0.1-1.7	0.05-0.17	●	●	●	○																				○
	CCMT060208-HF	0.8	0.1-1.7	0.05-0.30	○	●	●																					○
	CCMT09T302-HF	0.2	0.08-2.00	0.04-0.15	●	●	●																					○
	CCMT09T304-HF	0.4	0.11-2.00	0.06-0.23	●	●	●	●						○														●
	CCMT09T308-HF	0.8	0.15-2.00	0.08-0.30	●	●	●	○						○														●
	CCMT120404-HF	0.4	0.14-2.40	0.07-0.27	●	●	○																					●
CCMT120408-HF	0.8	0.2-3.0	0.08-0.30	●	○																						○	

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	S***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311
<b>E***-SCLCR/L</b> Kr: 95°						
A313						

**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
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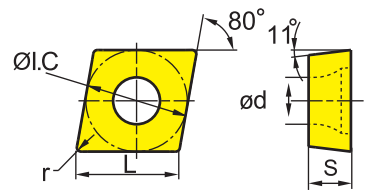
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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CPGT	L	I.C	S	d
05 02	5.6	5.56	2.38	2.8

## Turning inserts

CP** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW										
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
<b>CPGT050204</b>	0.4	0.5-2.0	0.08-0.40				○																					



● Ex stock      ○ On demand

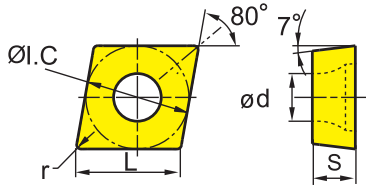
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



CCMT	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4
12 04	12.9	12.7	4.76	5.56

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**



CC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H																				
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
EF Finishing	CCMT060202-EF	0.2	0.06-1.70	0.03-0.11						○																			
	CCMT060204-EF	0.4	0.1-1.7	0.05-0.17						●																			
	CCMT09T302-EF	0.2	0.08-2.00	0.04-0.15							○																		
	CCMT09T304-EF	0.4	0.11-2.00	0.06-0.23							●			○															
	CCMT09T308-EF	0.8	0.15-2.00	0.08-0.30							●			○															
	CCMT120404-EF	0.4	0.14-2.40	0.07-0.27							●																		
	CCMT120408-EF	0.8	0.2-3.0	0.1-0.3							●																		
EM Medium Cut	CCMT060204-EM	0.4	0.2-2.4	0.06-0.17						●●																			
	CCMT060208-EM	0.8	0.4-2.4	0.08-0.23						●○																			
	CCMT09T304-EM	0.4	0.25-3.00	0.08-0.23							●●																		
	CCMT09T308-EM	0.8	0.5-3.0	0.1-0.3							●●																		
	CCMT120404-EM	0.4	0.3-3.6	0.09-0.27							●●																		
	CCMT120408-EM	0.8	0.6-3.6	0.12-0.36							●●																		
	CCMT120412-EM	1.2	0.72-3.60	0.14-0.43							○																		

● Ex stock ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	S***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311
E***-SCLCR/L						
Kr: 95°						
A313						

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

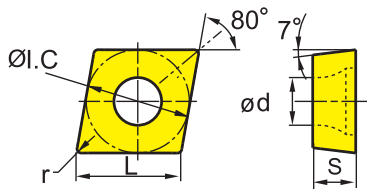
Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊛ Unfavourable machining conditions

	CCMT	L	I.C	S	d
<b>06</b> 02		6.4	6.35	2.38	2.8
<b>09</b> T3		9.7	9.525	3.97	4.4
<b>12</b> 04		12.9	12.7	4.76	5.56

## Turning inserts

CC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
<b>HM</b>	<b>CCMT060204-HM</b>	0.4	0.2-2.4	0.06-0.17	●	●	●	○	●	●	●	●	●	●	●	●					●						
	<b>CCMT060208-HM</b>	0.8	0.2-3.0	0.08-0.20	●	●	●	○	●	●	●	●	●	●	●	●					●						
	<b>CCMT09T304-HM</b>	0.4	0.25-3.00	0.08-0.23	●	●	●	●	●	●	●	●	●	●	●	●					●						
	<b>CCMT09T308-HM</b>	0.8	0.5-3.0	0.1-0.3	●	●	●	●	●	●	●	●	●	●	●	●					●						
	<b>CCMT120404-HM</b>	0.4	0.3-3.6	0.09-0.27	●	●	●	●	●	●	●	○	●	●	●	●					●						
Medium Cut	<b>CCMT120408-HM</b>	0.8	0.6-3.6	0.12-0.36	●	●	●	●	●	●	●	●	●	●	●	●					●						
	<b>CCMT120412-HM</b>	1.2	0.72-3.60	0.14-0.43	●	○	●	○	●	●	●	○	●	●	●	●					●						



● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Drilling

**D**

Technical Information

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	S***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311
<b>E***-SCLCR/L</b>						
Kr: 95°						
A313						

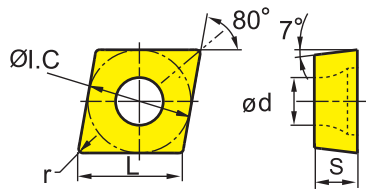




CC**	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4
12 04	12.9	12.7	4.76	5.56

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**



CC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW												
				P	M	K	N	S	H																						
Basic 	CCMW09T304	0.4	0.1-5.0	0.05-0.50	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
	CCMW120404	0.4	0.2-5.0	0.05-0.50																											
	CCMW120408	0.8	0.5-5.0	0.08-0.50																											
Medium Cut 	TC	CCMT060204-TC	0.4	0.5-3.0	0.1-0.3																										
		CCMT09T304-TC	0.4	0.5-3.0	0.1-0.3																										
		CCMT09T308-TC	0.8	0.5-3.0	0.1-0.4																										
		CCMT120404-TC	0.4	1-4	0.1-0.3																										
HR 	HR	CCMT060204-HR	0.4	0.5-3.0	0.05-0.24	●	●	●	○																						
		CCMT060208-HR	0.8	0.8-3.2	0.09-0.26	●	○	●																							
		CCMT09T304-HR	0.4	0.2-4.0	0.05-0.30	●	●	●	○																						
		CCMT09T308-HR	0.8	1-4	0.12-0.35	●	●	●	●		●	●		●	●	●	●														
		CCMT120408-HR	0.8	1.2-4.8	0.14-0.42	●	●	●	○		○	●		●	●	●	●														
Roughing		CCMT120412-HR	1.2	1.44-4.80	0.17-0.50	●	●	●						○	○																

● Ex stock ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	S***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311
E***-SCLCR/L						
Kr: 95°						
A313						

System code > A42      Grade selection > A40      Technical info > A447      Cutting data > A324



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**B** Milling  
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# General turning Positive inserts

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CCGX	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4
12 04	12.9	12.7	4.76	5.56

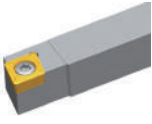
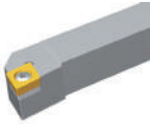

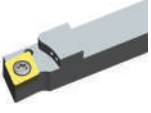



## Turning inserts

CC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW																	
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201				
				LC	CCGX060202-LC	0.2	0.3-3.0	0.05-0.15	●	●	●	●	●														●										●
	CCGX060204-LC	0.4	0.5-3.0	0.1-0.3																			●											●			
Aluminium Machining	CCGX09T302-LC	0.2	0.5-4.0	0.1-0.2																				●										●			
	CCGX09T304-LC	0.4	0.5-5.0	0.1-0.3																				●											●		
	CCGX09T308-LC	0.8	0.5-5.0	0.15-0.60																				●											●		
	CCGX120404-LC	0.4	0.5-7.0	0.1-0.3																				●											●		
	CCGX120408-LC	0.8	0.5-7.0	0.15-0.60																				●											●		
Aluminium Machining	CCGX060202-LH	0.2	0.3-3.0	0.05-0.15																				●											●		
	CCGX060204-LH	0.4	0.5-3.0	0.1-0.3																					●											●	
	CCGX060208-LH	0.8	0.6-3.0	0.15-0.40																					●											●	
	CCGX09T302-LH	0.2	0.4-5.0	0.05-0.15																					●											●	
	CCGX09T304-LH	0.4	0.5-5.0	0.1-0.3																					●											●	
	CCGX09T308-LH	0.8	0.5-5.0	0.15-0.60																					●											●	
	CCGX120402-LH	0.2	0.4-7.0	0.05-0.15																					○											○	
	CCGX120404-LH	0.4	0.5-7.0	0.1-0.3																					●											●	
	CCGX120408-LH	0.8	0.5-7.0	0.15-0.60																					●			○								●	
	CCGX120412-LH	1.2	0.5-7.0	0.15-0.80																					○											●	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Tool holder						
<b>SCACR/L</b> Kr: 90°	<b>SCLCR/L</b> Kr: 95°	<b>SCACR/L-SC</b> Kr: 90°	<b>SCLCR/L-SC</b> Kr: 95°	<b>S***-SCLCR/L</b> Kr: 95°	<b>S***-SCFCR/L</b> Kr: 90°	<b>S***-SCLCR</b> Kr: 95°
						
A235	A236	A272	A273	A293	A310	A311

**E\*\*\*-SCLCR/L**  
Kr: 95°



A313

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# General turning Positive inserts

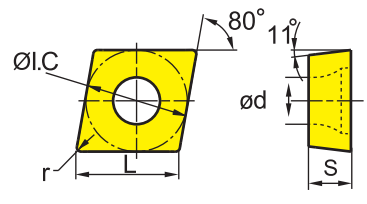
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CP**	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4

## Turning inserts



CP** positive insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW										
					P	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
					M	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
					K	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
					N	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
					S	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
					H	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
ISO	r	a <sub>p</sub>	f		YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
HF 	CPMT060204-HF	0.4	0.1-1.5	0.04-0.18		●											○					○							
	CPMT060208-HF	0.8	0.1-1.5	0.05-0.25													○					●							
SF 	CPGT060202-SF	0.2	0.05-2.00	0.05-0.25																				○		○			
	CPGT060204-SF	0.4	0.05-2.00	0.05-0.35																					●		●		
	CPGT09T304-SF	0.4	0.05-2.00	0.05-0.35																					●		●		
Flat 	CPGW060204	0.4	0.5-1.5	0.05-0.40																							○		
HM 	CPMT09T304-HM	0.4	0.2-3.5	0.05-0.35																									
	CPMT09T308-HM	0.8	0.2-3.5	0.10-0.55																									

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

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Tool holder	
S***-SCLPR/L	C***-SCLPR/L
Kr: 95°	Kr: 95°
A306	A312



**Turning inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

DC**	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

DC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
				<b>P</b>	●●●●●●●●							●●●●●●●●	●●															
				<b>M</b>		●●						●●●●●●●●	●●															
				<b>K</b>			●●●●●●●●																					
				<b>N</b>									●●				●●											
				<b>S</b>										●●●●●●●●			●●											
				<b>H</b>																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
AHF 	<b>DCMT070204-AHF</b>	0.4	0.2-2.5	0.05-0.20	○																			●				
	<b>DCMT11T302-AHF</b>	0.2	0.5-3.0	0.05-0.15	○																			●				
	<b>DCMT11T304-AHF</b>	0.4	0.5-3.0	0.05-0.30	●																			●				
	<b>DCMT11T308-AHF</b>	0.8	0.5-3.0	0.05-0.40	●																			●				
SF 	<b>DCGT070202-SF</b>	0.2	0.05-1.50	0.05-0.15																				●	●	○		
	<b>DCGT070204-SF</b>	0.4	0.05-1.50	0.05-0.20																				○		●		
	<b>DCGT070208-SF</b>	0.8	0.05-1.50	0.05-0.30																						●		
	<b>DCGT11T302-SF</b>	0.2	0.05-2.00	0.05-0.15														○						○	●	●		
	<b>DCGT11T304-SF</b>	0.4	0.05-2.00	0.05-0.20																				●	●	●		
	<b>DCGT11T308-SF</b>	0.8	0.05-2.00	0.05-0.30																				●	●			

● Ex stock      ○ On demand

YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
<b>SDACR/L</b> Kr: 90°	<b>SDJCR/L</b> Kr: 93°	<b>SDNCN</b> Kr: 62°30'	<b>SDACR/L-SC</b> Kr: 90°	<b>SDHCR/L-SC</b> Kr: 107°30'	<b>SDJCR/L-SC</b> Kr: 93°	<b>SDNCN-SC</b> Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277
<b>S***-SDQCR/L</b> Kr: 107°30'	<b>S***-SDUCR/L</b> Kr: 93°	<b>S***-SDZCR/L</b> Kr: 85°	<b>E***-SDQCR/L</b> Kr: 107°30'			
A295	A296	A297	A315			

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



# General turning Positive inserts

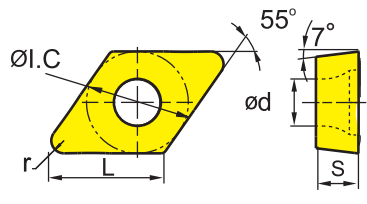
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DCGT	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning inserts



DC** positive insert					HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW										
					P										M		K	N	S		H								
ISO	r	a <sub>p</sub>	f		YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
	USF	DCGT070201L-USF	0.1	0.1-2.0	0.03-0.08																		●						
Milling	USF	DCGT070202L-USF	0.2	0.1-2.0	0.05-0.18																		●						
		DCGT11T302L-USF	0.2	0.2-2.0	0.05-0.18																			○					
Finishing	USF	DCGT0702005R-USF	0.05	0.1-2.0	0.01-0.04																		●						
		DCGT070201R-USF	0.1	0.1-2.0	0.03-0.08																			●					
		DCGT070202R-USF	0.2	0.1-2.0	0.05-0.18																			●					
		DCGT11T302R-USF	0.2	0.2-2.0	0.05-0.18																			●					

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

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
Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277
S***_SDQCR/L	S***_SDUCR/L	S***_SDZCR/L	E***_SDQCR/L			
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'			
A295	A296	A297	A315			



**Turning inserts**

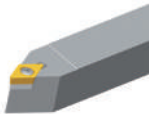




- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DCMT	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

DC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
ISO	r	a <sub>p</sub>	f	P								M		K	N	S	H										
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
EF 	DCMT070202-EF	0.2	0.06-1.50	0.03-0.11																							
	DCMT070204-EF	0.4	0.08-1.50	0.05-0.17																							
	DCMT11T302-EF	0.2	0.08-2.00	0.04-0.15																							
	DCMT11T304-EF	0.4	0.11-2.00	0.06-0.23																							
	DCMT11T308-EF	0.8	0.15-2.00	0.08-0.30																							
HF 	DCMT070202-HF	0.2	0.06-1.50	0.03-0.11	○	●	●																				
	DCMT070204-HF	0.4	0.08-1.50	0.05-0.17	●	●	●																				
	DCMT070208-HF	0.8	0.08-1.50	0.05-0.30	●	○	●																				
	DCMT11T302-HF	0.2	0.08-2.00	0.04-0.15	○	●	●																				
	DCMT11T304-HF	0.4	0.11-2.00	0.06-0.23	●	●	●	○			○	●															
EM 	DCMT070204-EM	0.4	0.19-2.25	0.06-0.17																							
	DCMT070208-EM	0.8	0.38-2.25	0.08-0.23																							
	DCMT11T304-EM	0.4	0.25-3.00	0.08-0.23																							
	DCMT11T308-EM	0.8	0.5-3.0	0.1-0.3																							
	Medium Cut																										

● Ex stock ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						
A237	A238	A239	A274	A275	A276	A277
S***-SDQCR/L	S***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L			
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'			
						
A295	A296	A297	A315			

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# General turning Positive inserts

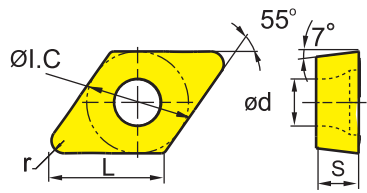
A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DCMT	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning inserts



DC** positive insert		HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW	
<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>		
<b>M</b>										<span style="color: yellow;">●</span>	<span style="color: yellow;">●</span>	<span style="color: yellow;">●</span>	<span style="color: yellow;">●</span>	<span style="color: yellow;">●</span>	
<b>K</b>															
<b>N</b>										<span style="color: green;">●</span>	<span style="color: green;">●</span>			<span style="color: green;">●</span>	<span style="color: green;">⊗</span>
<b>S</b>										<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>
<b>H</b>															

B

Milling

	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
HM 	<b>DCMT070204-HM</b>	0.4	0.19-2.25	0.06-0.17	●	●	●	○					●	●									●	●				
	<b>DCMT070208-HM</b>	0.8	0.38-2.25	0.08-0.23	●	●	●	○						●	●									●				
Medium Cut 	<b>DCMT11T304-HM</b>	0.4	0.25-3.00	0.08-0.23	●	●	●	○						●	●							●	●					
	<b>DCMT11T308-HM</b>	0.8	0.5-3.0	0.1-0.3	●	●	●	○						●	●							●	●					
	<b>DCMT11T312-HM</b>	1.2	0.6-3.0	0.12-0.36	○	○	●	○						○	○													

● Ex stock      ○ On demand  
YBC152F, YBC252F, YBM153F, YBM253F available

- HC<sup>1</sup> Coated carbide
- HT Uncoated cermet
- HC<sup>2</sup> Coated cermet
- HW Uncoated carbide

C

Drilling

Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277

D

Technical Information

S***-SDQCR/L	S***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
A295	A296	A297	A315




E

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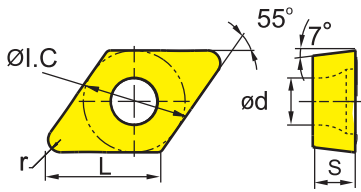







**Turning inserts**

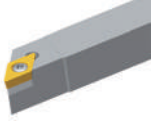
-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

DC**	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

DC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
Flat 	<b>DCMW11T304</b>	0.4	0.5-5.0	0.05-0.20																								
	<b>DCMW11T308</b>	0.8	0.4-5.0	0.1-0.4																								
Medium Cut																												
HR 	<b>DCMT11T304-HR</b>	0.4	1-4	0.1-0.3																								
	<b>DCMT11T308-HR</b>	0.8	1-4	0.12-0.35																								
	<b>DCMT11T312-HR</b>	1.2	1.2-4.0	0.14-0.42																								
Roughing																												
LC 	<b>DCGX070201-LC</b>	0.1	0.3-4.0	0.05-0.10																								
	<b>DCGX070202-LC</b>	0.2	0.3-4.0	0.05-0.15																								
	<b>DCGX070204-LC</b>	0.4	0.5-4.0	0.1-0.3																								
	<b>DCGX11T302-LC</b>	0.2	0.3-5.5	0.05-0.15																								
	<b>DCGX11T304-LC</b>	0.4	0.5-5.5	0.1-0.3																								
	<b>DCGX11T308-LC</b>	0.8	0.5-5.5	0.15-0.60																								

● Ex stock ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						
A237	A238	A239	A274	A275	A276	A277
S***-SDQCR/L	S***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L			
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'			
						
A295	A296	A297	A315			

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



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Turning  
B  
Milling  
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# General turning Positive inserts

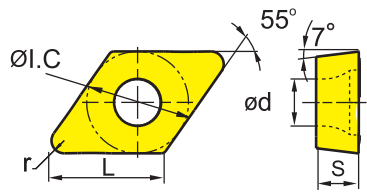
A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DCGX	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning inserts



DC** positive insert		HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW	
<b>P</b>	● ● ● ● ● ● ● ●								● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●			
<b>M</b>		● ● ● ● ● ● ● ●							● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●			
<b>K</b>														
<b>N</b>									● ● ● ● ● ● ● ●				● ● ● ● ● ● ● ●	
<b>S</b>									● ● ● ● ● ● ● ●				● ● ● ● ● ● ● ●	
<b>H</b>														

B

Milling

	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
LH 	<b>DCGX070202-LH</b>	0.2	0.3-4.0	0.05-0.15														●				○					●	
	<b>DCGX070204-LH</b>	0.4	0.5-4.0	0.1-0.3															●				○				●	
	<b>DCGX070208-LH</b>	0.8	0.5-4.0	0.15-0.60															○								●	
Aluminium Machining	<b>DCGX11T302-LH</b>	0.2	0.3-5.5	0.05-0.15															●				●				●	
	<b>DCGX11T304-LH</b>	0.4	0.5-5.5	0.1-0.3															●				●				●	
	<b>DCGX11T308-LH</b>	0.8	0.5-5.5	0.15-0.60															●				○				●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

C

Drilling

Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277

D

Technical Information

S***-SDQCR/L	S***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
A295	A296	A297	A315

E

Index



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DPGT	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

**Turning inserts**

DP** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				<b>P</b>	●	●	⊗	⊗	⊗	⊗	⊗			●	●	●											
				<b>M</b>										●	●	●	●	●									
				<b>K</b>																							
				<b>N</b>											●	●			●	⊗							
				<b>S</b>															●	⊗							
				<b>H</b>																							
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
SF  Finishing	<b>DPGT070202-SF</b>	0.2	0.05-2.00	0.05-0.15																				○	●		
	<b>DPGT070204-SF</b>	0.4	0.05-2.00	0.05-0.30																				●	●		
	<b>DPGT11T304-SF</b>	0.4	0.05-2.00	0.1-0.3																				●	●		
	<b>DPGT11T308-SF</b>	0.8	0.05-2.00	0.1-0.4																				○	○		

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder		
S***-SDQPR/L	S***-SDUPR/L	C***-SDQPR/L
Kr: 107°30'	Kr: 93°	Kr: 107°30'
A307	A308	A314

**A**

Turning

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Milling

**C**

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**A**

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RC**	L	I.C	S	d
08 03	8	8	3.18	3.36
10 T3	10	10	3.97	3.6
12 04	12	12	4.76	44.4
16 06	16	16	6.35	5.5
20 06	20	20	6.35	6.5
25 07	25	25	7.94	7.7

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

### Turning inserts

RC** positive insert			HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW										
			P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
			M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
			K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
			N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
			S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
			H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
ISO	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
Basic 	<b>RCGT1204MO</b>	0.5-5.0	0.1-0.4			○																						
	Medium Cut																											
Basic 	<b>RCMT0803MO</b>	0.5-3.0	0.1-0.4		●							●																
	<b>RCMT10T3MO</b>	0.5-4.0	0.1-0.5		○	●						●						○										
	<b>RCMT1204MO</b>	0.8-5.0	0.1-0.6		●	●	●					●	●						○									
	<b>RCMT1606MO</b>	1-6	0.1-0.8		●	●	●	●	●		○	○	●															
	<b>RCMT2006MO</b>	1.2-8.0	0.1-1.0		●	●	●																					
	<b>RCMT2507MO</b>	1.4-10.0	0.1-1.2		○	●	●																					
LH 	<b>RCGX0803MO-LH</b>	1-4	0.2-0.5																							●		
	<b>RCGX1204MO-LH</b>	1.2-5.0	0.2-0.6																							●		
Aluminium Machining																												

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

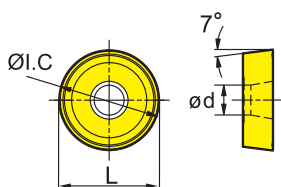
Tool holder	
SRDCN	SRGCR/L
A254	A255



RCMX	L	I.C	S	d
08 03	8	8	3.18	3.36
10 03	10	10	3.18	4.4
12 04	12	12	4.76	4.4
16 06	16	16	6.35	5.5
20 06	20	20	6.35	6.5
25 07	25	25	7.94	7.2
32 09	32	32	9.52	10.2

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**



RC** positive insert			HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW									
			P	M	K	N	S	H																			
ISO	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
Basic Light Roughing	<b>RCMX0803MO</b>	0.5-4.0	0.1-0.5	●	●																						
	<b>RCMX1003MO</b>	0.5-5.0	0.1-0.6	○	●	●																					
	<b>RCMX1204MO</b>	1-6	0.1-0.8	○	●	●	○																				
	<b>RCMX1606MO</b>	1-7	0.2-0.9	○	●	○	●		○												○						
	<b>RCMX2006MO</b>	1-9	0.2-1.0	●	●	●	●							●													
	<b>RCMX2507MO</b>	2-10	0.25-1.20	○	●		●																				
	<b>RCMX3209MO</b>	2-13	0.25-1.40	○	●	●	○																				
Basic Light Roughing	<b>RCMX2507MO-1</b>	2-9	0.1-0.4	○	○																						
Basic Light Roughing	<b>RCMX3209MO-PV</b>	3-12	0.1-0.4	○	●	●																					

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

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# General turning Positive inserts

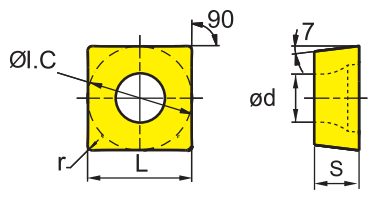
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SCMT	L	I.C	S	d
09 T3	9.525	9.525	3.97	4.4
12 04	12.7	12.7	4.76	5.56

## Turning inserts



SC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW													
				P	M	K	N	S	H																				
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
AHF	SCMT09T304-AHF	0.4	0.5-3.0	0.05-0.30	●																	●							
	SCMT09T308-AHF	0.8	0.5-3.0	0.05-0.40	●																				●				
EF	SCMT09T302-EF	0.2	0.07-2.00	0.05-0.15																									
	SCMT09T304-EF	0.4	0.11-2.00	0.06-0.23																									
	SCMT09T308-EF	0.8	0.15-2.00	0.08-0.30																									
EM	SCMT09T304-EM	0.4	0.25-3.00	0.08-0.23																									
	SCMT09T308-EM	0.8	0.5-3.0	0.1-0.3																									
	SCMT120404-EM	0.4	0.3-3.6	0.09-0.27																									
	SCMT120408-EM	0.8	0.6-3.6	0.12-0.36																									
	SCMT120412-EM	1.2	0.72-3.60	0.14-0.43																									

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

- HC<sup>1</sup> Coated carbide
- HT Uncoated cermet
- HC<sup>2</sup> Coated cermet
- HW Uncoated carbide

**B**

Milling

**C**

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Tool holder				
SSBCR/L	SSDCN	SSKCR/L	SSSCR/L	S***-SSKCR/L
Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°
A245	A246	A247	A248	A298



**Turning inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SCMT	L	I.C	S	d
09 T3	9.525	9.525	3.97	4.4
12 04	12.7	12.7	4.76	5.56

SC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW									
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
<b>HF</b>  Finishing	<b>SCMT09T302-HF</b>	0.2	0.15-2.00	0.05-0.15			●																				
	<b>SCMT09T304-HF</b>	0.4	0.11-2.00	0.05-0.23		●	●															●					
	<b>SCMT09T308-HF</b>	0.8	0.15-2.00	0.05-0.30	●	●	○															●					
<b>HM</b>  Medium Cut	<b>SCMT09T304-HM</b>	0.4	0.25-3.00	0.08-0.23	●	●	●	○				●		●													
	<b>SCMT09T308-HM</b>	0.8	0.5-3.0	0.1-0.3	●	●	●	●				●		●								●					○
	<b>SCMT120404-HM</b>	0.4	0.3-3.6	0.09-0.27	●	○	●																				
	<b>SCMT120408-HM</b>	0.8	0.6-3.6	0.12-0.36	○	●	●	●					●		●								○				
<b>SCMT120412-HM</b>	1.2	0.72-3.60	0.14-0.43	●	●																						

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder				
SSBCR/L	SSDCN	SSKCR/L	SSSCR/L	S***-SSKCR/L
Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°
A245	A246	A247	A248	A298

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



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# General turning Positive inserts

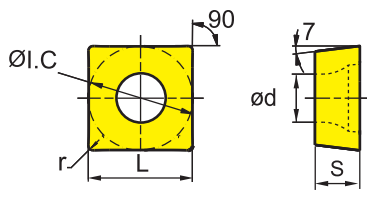
A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SC**	L	I.C	S	d
<b>09 T3</b>	9.525	9.525	3.97	4.4
<b>12 04</b>	12.7	12.7	4.76	5.565.5

## Turning inserts



SC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
																												P	M
HR  Roughing	<b>SCMT09T304-HR</b>	0.4	0.2-4.0	0.05-0.40	○	●	●	○								○													
	<b>SCMT09T308-HR</b>	0.8	1-4	0.12-0.35	●	●	●	●					●		●														
	<b>SCMT09T312-HR</b>	1.2	1.2-4.0	0.14-0.42		○																							
	<b>SCMT120404-HR</b>	0.4	0.5-4.0	0.05-0.50	○	○	●		○																				
	<b>SCMT120408-HR</b>	0.8	1.2-4.8	0.14-0.42	●	●	●	●	●				○	●		●													
	<b>SCMT120412-HR</b>	1.2	1.44-4.80	0.17-0.50	●	●	●						○	●		○													
LC  Aluminium Machining	<b>SCGX09T304-LC</b>	0.4	0.5-5.0	0.1-0.5																							●		
	<b>SCGX09T308-LC</b>	0.8	0.5-5.0	0.15-0.60																							●		
	<b>SCGX120408-LC</b>	0.8	1-7	0.15-0.60													●										●		

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

B

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Tool holder				
SSBCR/L	SSDCN	SSKCR/L	SSSCR/L	S***-SSKCR/L
Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°
A245	A246	A247	A248	A298





**Turning inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SCGX	L	I.C	S	d
09 T3	9.525	9.525	3.97	4.4
12 04	12.7	12.7	4.76	5.56

SC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
				<b>M</b>																	●	●							
				<b>K</b>																									
				<b>N</b>																		●	●						
				<b>S</b>																		●	●						
				<b>H</b>																									
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201		
LH  Aluminium Machining	<b>SCGX09T302-LH</b>	0.2	0.5-4.0	0.05-0.15													○										●		
	<b>SCGX09T304-LH</b>	0.4	0.5-4.0	0.1-0.3													○											●	
	<b>SCGX09T308-LH</b>	0.8	0.5-4.0	0.15-0.60																								●	
	<b>SCGX120408-LH</b>	0.8	0.5-5.0	0.15-0.60													○											●	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder				
SSBCR/L	SDDCN	SSKCR/L	SSSCR/L	S***-SSKCR/L
Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°
A245	A246	A247	A248	A298

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



# General turning Positive inserts

**A**

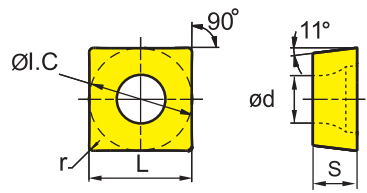
Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPMW	L	I.C	S	d
<b>09 T3</b>	9.525	9.525	3.97	4.4
<b>12 04</b>	12.7	12.7	4.76	5.56

## Turning inserts

SP** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW					
ISO	r	a <sub>p</sub>	f	P	●	●	⊗	⊗	⊗	⊗	⊗	M	●	●	●	●	N	●	●	S	●	●	H
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151
<b>SPMW09T304</b>	0.4	0.5-4.0	0.1-0.4																				
<b>SPMW09T308</b>	0.8	0.5-4.0	0.2-0.4				○																
<b>SPMW120408</b>	0.8	1-6	0.3-0.6																				



**B**

Milling

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**C**

Drilling

**D**

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TBGH	L	I.C	S	d
06 01	6.87	3.97	1.59	2.2

**Turning inserts**

TB** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW															
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
					TBGH060102L	0.2	0.5-3.5	0.05-0.40	●	●	●	●	●																●					
	TBGH060104L	0.4	0.5-3.5	0.05-0.40																				○						●				

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊛ Unfavourable machining conditions



TCGT	L	I.C	S	d
06 T1	6.87	3.97	1.98	2.2
09 02	9.63	5.56	2.38	2.5
11 03	11	6.35	3.18	2.8

## Turning inserts

TC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H																			
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
SF  Finishing	TCGT06T102-SF	0.2	0.05-2.00	0.05-0.15	●	●	●	●	●																			
	TCGT090202-SF	0.2	0.05-2.00	0.05-0.15																			○		○			
	TCGT090204-SF	0.4	0.05-2.00	0.1-0.3																								
	TCGT090208-SF	0.8	0.05-2.00	0.10-0.35																								
	TCGT110302-SF	0.2	0.05-2.00	0.05-0.15																								
	TCGT110304-SF	0.4	0.05-2.00	0.1-0.3																				●		●		
	TCGT110308-SF	0.8	0.05-2.00	0.10-0.35																								
USF  Finishing	TCGT110301L-USF	0.1	0.2-2.0	0.03-0.08																		○						
	TCGT110302L-USF	0.2	0.2-2.0	0.05-0.18																								
USF  Finishing	TCGT110301R-USF	0.1	0.2-2.0	0.03-0.08																								
	TCGT110302R-USF	0.2	0.2-2.0	0.05-0.18																								

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder	
STGCR/L Kr: 91°	E***-STFCR/L Kr: 90°
	
A251	A319



TCMT	L	I.C	S	d
09 02	9.63	5.56	2.38	2.5
11 02	11	6.35	2.38	2.8
16 T3	16.5	9.525	3.97	4.4

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

TC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																			
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
<b>AHF</b>  Finishing	<b>TCMT110204-AHF</b>	0.4	0.2-2.5	0.05-0.30	●																							
	<b>TCMT110208-AHF</b>	0.8	0.2-2.5	0.1-0.4	●																							
	<b>TCMT16T304-AHF</b>	0.4	0.5-3.0	0.05-0.30	●																							
	<b>TCMT16T308-AHF</b>	0.8	0.5-3.5	0.1-0.4	●																							
<b>HF</b>  Finishing	<b>TCMT090202-HF</b>	0.2	0.06-1.70	0.03-0.13	○	●	●																○					
	<b>TCMT090204-HF</b>	0.4	0.1-1.7	0.05-0.19	○	●																	○					
	<b>TCMT090208-HF</b>	0.8	0.15-1.70	0.10-0.25		○	●																					
	<b>TCMT110202-HF</b>	0.2	0.08-2.00	0.05-0.20		●	●																●					
	<b>TCMT110204-HF</b>	0.4	0.1-2.0	0.05-0.30	●	●	●	○						●														
	<b>TCMT110208-HF</b>	0.8	0.1-2.0	0.05-0.35	●	●	○	○					●															
	<b>TCMT16T304-HF</b>	0.4	0.11-2.00	0.05-0.23	○	●	●																○					
<b>TCMT16T308-HF</b>	0.8	0.2-3.5	0.05-0.30	●	●																							

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
A249	A250	A251	A252	A300	A319

# General turning Positive inserts

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

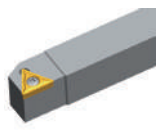

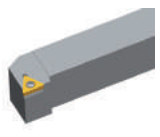
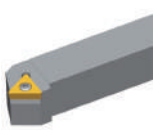


TCMT	L	I.C	S	d
09 02	9.63	5.56	2.38	2.5
11 02	11	6.35	2.38	2.8
16 T3	16.5	9.525	3.97	4.4

## Turning inserts

TC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW																			
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201				
				EF	TCMT090202-EF	0.2	0.06-1.70	0.03-0.13	●	●	●	●	●																								
Finishing	TCMT090204-EF	0.4	0.1-1.7	0.05-0.19																																	
	TCMT110202-EF	0.2	0.2-2.0	0.05-0.13																																	
	TCMT110204-EF	0.4	0.2-2.0	0.05-0.20																																	
	TCMT110208-EF	0.8	0.2-2.0	0.05-0.30																																	
	TCMT16T304-EF	0.4	0.3-3.0	0.05-0.23																																	
	TCMT16T308-EF	0.8	0.3-3.0	0.1-0.4																																	
Medium Cut	TCMT090204-EM	0.4	0.19-2.25	0.06-0.17																																	
	TCMT090208-EM	0.8	0.38-2.25	0.08-0.23																																	
	TCMT110204-EM	0.4	0.2-2.7	0.05-0.30																																	
	TCMT110208-EM	0.8	0.8-2.7	0.08-0.30																																	
	TCMT16T304-EM	0.4	0.25-3.00	0.08-0.23																																	
	TCMT16T308-EM	0.8	0.5-3.0	0.1-0.3																																	

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					
A249	A250	A251	A252	A300	A319

System code > A42

Grade selection > A40




Technical info > A447

Cutting data > A324

TC**	L	I.C	S	d
09 02	9.63	5.56	2.38	2.5
11 02	11	6.35	2.38	2.8
16 T3	16.5	9.525	3.97	4.4
22 04	22	12.7	4.76	5.5

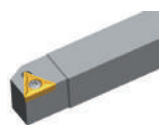

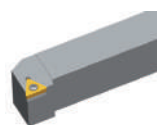



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning inserts**

TC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW														
				P	●	●	⊗	⊗	⊗	⊗	⊗			●	●															
				M				●	⊗			●	●	●	●															
				K						●	●	●	●																	
				N								●	●			●	⊗													
				S									●	●	●	●														
				H																										
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
<b>Flat</b>  Medium Cut	<b>TCMW16T308</b>	0.8	0.5-5.0	0.05-0.60											○															
<b>HM</b>  Medium Cut	<b>TCMT090204-HM</b>	0.4	0.19-2.25	0.06-0.17	●	●	●					●			●															
	<b>TCMT090208-HM</b>	0.8	0.38-2.25	0.08-0.23	○	○	●									○														
	<b>TCMT110204-HM</b>	0.4	0.2-2.7	0.07-0.20	●	●	●			○			●			●								○						
	<b>TCMT110208-HM</b>	0.8	0.5-2.7	0.1-0.3	●	○	●						●			●														
	<b>TCMT16T304-HM</b>	0.4	0.25-3.00	0.08-0.23	●	●	●		●				●			●								●						
	<b>TCMT16T308-HM</b>	0.8	0.5-3.0	0.1-0.3	●	●	●		●				●			●								●						
	<b>TCMT16T312-HM</b>	1.2	0.6-3.0	0.12-0.36	○	●	●		○																					
<b>HR</b>  Roughing	<b>TCMT090204-HR</b>	0.4	0.5-3.0	0.1-0.3			○	●																						
	<b>TCMT090208-HR</b>	0.8	0.5-3.5	0.08-0.50			○	○								○														
	<b>TCMT110204-HR</b>	0.4	0.5-3.0	0.1-0.4			●	●																						
	<b>TCMT110208-HR</b>	0.8	1-4	0.1-0.5			●	●																						
	<b>TCMT16T304-HR</b>	0.4	0.5-4.0	0.1-0.4			●	●					●																	
	<b>TCMT16T308-HR</b>	0.8	1-4	0.12-0.35			●	●	●	●			●			●														
	<b>TCMT16T312-HR</b>	1.2	1.2-4.0	0.14-0.42			○	●					○	○		●														
	<b>TCMT220408-HR</b>	0.8	1.2-4.8	0.14-0.42			●	●	●	●						●														

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					
A249	A250	A251	A252	A300	A319

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TCMT	L	I.C	S	d
22 04	22	12.7	4.76	5.5

## Turning inserts

TC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
	<b>P</b>	●●●●●●										●●●●	●●															
	<b>M</b>		●●									●●●●	●●															
	<b>K</b>			●●●●																								
	<b>N</b>									●●					●●	●●												
	<b>S</b>										●●●●				●●	●●												
	<b>H</b>																											
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
Basic	<b>TCMT220408</b>	0.8	1.2-4.8	0.14-0.42		●						●																

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

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TCGX	L	I.C	S	d
<b>09</b> 02	9.63	5.56	2.38	2.5
<b>11</b> 02	11	6.35	2.38	2.8
<b>16</b> T3	16.5	9.525	3.97	4.4

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning inserts**

TC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW										
				<b>P</b>																							
				<b>M</b>																							
				<b>K</b>																							
				<b>N</b>																							
				<b>S</b>																							
				<b>H</b>																							
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
 Aluminium Machining	<b>TCGX090202-LC</b>	0.2	0.3-4.0	0.05-0.15													●									●	
	<b>TCGX090204-LC</b>	0.4	0.5-4.0	0.1-0.3													●									●	
	<b>TCGX110202-LC</b>	0.2	0.3-5.0	0.05-0.15													●									●	
	<b>TCGX110204-LC</b>	0.4	0.5-5.0	0.1-0.3													●									●	
	<b>TCGX110208-LC</b>	0.8	0.5-5.0	0.15-0.60													●									●	
	<b>TCGX16T304-LC</b>	0.4	0.5-7.0	0.1-0.3													●									●	
	<b>TCGX16T308-LC</b>	0.8	0.5-7.0	0.15-0.60													●									●	
 Aluminium Machining	<b>TCGX090202-LH</b>	0.2	0.3-4.0	0.05-0.15													○									●	
	<b>TCGX090204-LH</b>	0.4	0.5-4.0	0.1-0.3													○									●	
	<b>TCGX110202-LH</b>	0.2	0.3-5.0	0.05-0.15													○									●	
	<b>TCGX110204-LH</b>	0.4	0.5-5.0	0.1-0.3													○									●	
	<b>TCGX110208-LH</b>	0.8	0.5-5.0	0.15-0.60													○									●	
	<b>TCGX16T302-LH</b>	0.2	0.5-7.0	0.05-0.15													○									●	
	<b>TCGX16T304-LH</b>	0.4	0.5-7.0	0.1-0.3													○									●	
<b>TCGX16T308-LH</b>	0.8	0.5-7.0	0.15-0.60													○									●		

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
A249	A250	A251	A252	A300	A319

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
**E** Index

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TPGH	L	I.C	S	d
09 02	9.63	5.56	2.38	2.8
11 03	11	6.35	3.18	3.18

## Turning inserts

TP** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
	P	M	K	N	S	H	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	ISO	r	a <sub>p</sub>	f																										
	 Super Finishing	TPGH090202L	0.2	0.2-3.0	0.05-0.15																									
		TPGH090204L	0.4	0.2-3.0	0.05-0.30																									
		TPGH110302L	0.2	0.2-3.5	0.05-0.15																									
		TPGH110304L	0.4	0.2-3.5	0.05-0.30																									

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



**Turning inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TPGT	L	I.C	S	d
09 02	9.63	5.56	2.38	2.5
11 03	11	6.35	3.18	2.8

TP** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW								
	<b>P</b>	●●●●●	⊗⊗⊗											●●●●●	●●●												
	<b>M</b>			●●	⊗									●●●●●	●●●	●●											
	<b>K</b>								●●●●●	⊗																	
	<b>N</b>												●●					●●									
	<b>S</b>													●●●●●				●●									
	<b>H</b>																										
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
	<b>TPGT090202-SF</b>	0.2	0.05-2.00	0.05-0.15																					●		
	<b>TPGT090204-SF</b>	0.4	0.05-2.00	0.05-0.25														○						●	●		
	<b>TPGT090208-SF</b>	0.8	0.05-2.00	0.05-0.35																				●			
	<b>TPGT110302-SF</b>	0.2	0.05-2.00	0.05-0.15																				●	●		
	<b>TPGT110304-SF</b>	0.4	0.05-2.00	0.05-0.25																				○	●		
	<b>TPGT110308-SF</b>	0.8	0.05-2.00	0.05-0.35																				○	●		

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder		
S***-STUPR/L	C***-STUPR/L	E***-STFPR/L
Kr: 93°	Kr: 93°	Kr: 90°
A309	A318	A320

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



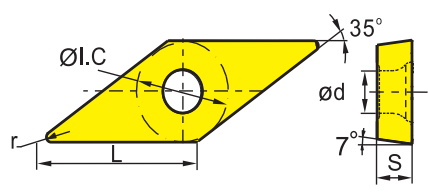
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VCGT	L	I.C	S	d
11 03	11	6.35	3.18	2.8
16 04	16.5	9.525	4.76	4.4

## Turning inserts



VC** positive insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW												
					P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
					H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
	ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201			
HF	<b>VCGT110304-HF</b>	0.4	0.2-2.0	0.05-0.30			●															○									
Finishing																															
NF	<b>VCGT160408-NF</b>	0.8	0.2-2.0	0.1-0.4															○	●											
Finishing																															
SF	<b>VCGT110302-SF</b>	0.2	0.05-1.00	0.05-0.15																					●	●	●				
	<b>VCGT110304-SF</b>	0.4	0.05-1.00	0.05-0.25															○		●				●	○	●				
	<b>VCGT160404-SF</b>	0.4	0.05-1.50	0.05-0.25																							●				
Finishing																															

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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Tool holder						
SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
A243	A244	A278	A279	A302	A303	A321

C***-SVUCR/L
Kr: 93°
A322



**Turning inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

VCGT	L	I.C	S	d
11 03	11	6.35	3.18	2.8
13 03	13.8	7.94	3.175	3.4

VC** positive insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW									
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
USF	<b>VCGT110301L-USF</b>	0.1	0.05-2.00	0.03-0.08	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	<b>VCGT110302L-USF</b>	0.2	0.05-2.00	0.05-0.18																								
Finishing																												
USF	<b>VCGT110301R-USF</b>	0.1	0.05-2.00	0.03-0.08																		●						
	<b>VCGT110302R-USF</b>	0.2	0.05-2.00	0.05-0.18																		●						
Finishing																												
	<b>VCGT130304</b>	0.4	1-5	0.1-0.3																								

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder						
SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
						
A243	A244	A278	A279	A302	A303	A321
<b>C***-SVUCR/L</b>						
Kr: 93°						
						
A322						

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

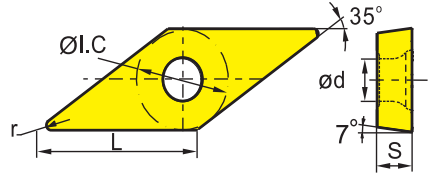
**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VCGX	L	I.C	S	d
11 03	11	6.35	3.18	2.8
16 04	16.6	9.525	4.76	4.4
22 05	22	12.7	5.56	5.5

## Turning/Milling inserts



VC** turning/milling insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW					
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
LC  Aluminium Machining	VCGX110301-LC	0.1	0.3-3.0	0.05-0.10	●	●	●	●	●												
	VCGX110302-LC	0.2	0.3-3.0	0.05-0.15																	
	VCGX110304-LC	0.4	0.5-3.0	0.1-0.3																	
	VCGX110308-LC	0.8	1-3	0.1-0.5																	
	VCGX160404-LC	0.4	0.5-5.0	0.1-0.3																	
	VCGX160408-LC	0.8	0.5-5.0	0.15-0.60																	
	VCGX160412-LC	1.2	0.5-5.0	0.15-0.80																	
	VCGX220530-LC	3	0.5-7.0	0.25-1.00																	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

### Tool holder

SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
A243	A244	A278	A279	A302	A303	A321

### C\*\*\*-SVUCR/L

Kr: 93°



A322

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



VCGX	L	I.C	S	d
<b>11 02</b>	11	6.35	2.38	2.8
<b>11 03</b>	11	6.35	3.18	2.8
<b>16 04</b>	16.6	9.525	4.76	4.4
<b>22 05</b>	22	12.7	5.56	5.5

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Turning/Milling inserts**

VC** turning/milling insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW									
				P	M	K	N	S	H																			
				<span style="color: blue;">●</span> <span style="color: blue; font-size: 0.8em;">●</span> <span style="color: blue; font-size: 0.6em;">●</span> <span style="color: blue; font-size: 0.4em;">●</span>																								
				<span style="color: yellow;">●</span>	<span style="color: yellow; font-size: 0.8em;">●</span>	<span style="color: yellow; font-size: 0.6em;">●</span>	<span style="color: yellow; font-size: 0.4em;">●</span>																					
						<span style="color: red;">●</span> <span style="color: red; font-size: 0.8em;">●</span> <span style="color: red; font-size: 0.6em;">●</span> <span style="color: red; font-size: 0.4em;">●</span>																						
							<span style="color: green;">●</span> <span style="color: green; font-size: 0.8em;">●</span>													<span style="color: green;">●</span> <span style="color: green; font-size: 0.8em;">●</span>								
															<span style="color: orange;">●</span> <span style="color: orange; font-size: 0.8em;">●</span> <span style="color: orange; font-size: 0.6em;">●</span> <span style="color: orange; font-size: 0.4em;">●</span>					<span style="color: orange;">●</span> <span style="color: orange; font-size: 0.8em;">●</span>								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
LH  Aluminium Machining	<b>VCGX110204-LH</b>	0.4	0.5-3.0	0.1-0.3														●									●	
	<b>VCGX110301-LH</b>	0.1	0.5-3.0	0.05-0.10																	○						●	●
	<b>VCGX110302-LH</b>	0.2	0.3-3.0	0.05-0.15															●				●				●	●
	<b>VCGX110304-LH</b>	0.4	0.5-3.0	0.1-0.3															●			○					●	●
	<b>VCGX110308-LH</b>	0.8	0.5-3.0	0.15-0.60															○								●	
	<b>VCGX160402-LH</b>	0.2	0.5-5.0	0.05-0.10															●				●				●	
	<b>VCGX160404-LH</b>	0.4	0.5-5.0	0.1-0.3															●				●				●	
	<b>VCGX160408-LH</b>	0.8	0.5-5.0	0.15-0.60															●								●	
	<b>VCGX160412-LH</b>	1.2	0.5-5.0	0.15-0.80															○								●	
	<b>VCGX220530-LH</b>	3	0.5-7.0	0.25-1.00															○								●	○

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

Tool holder						
SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
A243	A244	A278	A279	A302	A303	A321
<b>C***-SVUCR/L</b>						
Kr: 93°						
A322						

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VCMT	L	I.C	S	d
16 04	16	9.525	4.76	4.4

## Turning inserts

VC** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW												
				P	●	●	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●												
				M						●	●	●	●	●	●	●	●											
				K																								
				N										●	●			●	●									
				S															●	●								
				H																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
EF	<b>VCMT160404-EF</b>	0.4	0.5-2.5	0.05-0.20																		●						
Medium Cut																												
EM	<b>VCMT160404-EM</b>	0.4	0.5-2.5	0.05-0.35						○												●						
	<b>VCMT160408-EM</b>	0.8	0.5-2.5	0.10-0.45						○												●						
Medium Cut																												

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**B**

Milling

**C**

Drilling

Tool holder		
SVVCN	SVJCR/L	E***-SVUCR/L
Kr: 72°30'	Kr: 93°	Kr: 93°
A243	A244	A322

**D**

Technical Information

**E**

Index





- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VPGT	L	I.C	S	d
11 03	11	6.35	3.18	2.8

**Turning inserts**

VP** positive insert				HC <sup>1</sup> (CVD)												HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW						
				P	M	K	N	S	H																		
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201
USF	<b>VPGT110301R-USF</b>	0.1	0.2-2.5	0.03-0.08																							
Finishing																											

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
**E** Index



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

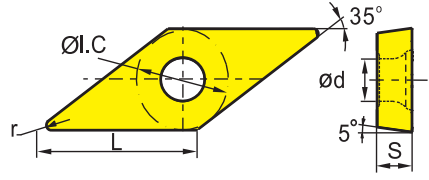
**E**

Index

- Ideal machining conditions
- ● Normal machining conditions
- ● ● Unfavourable machining conditions

VB**	L	I.C	S	d
11 02	11	6.35	2.38	2.8
11 03	11	6.35	3.18	2.8
16 04	16.5	9.525	4.76	4.4

### Turning inserts



VB** positive insert					HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)		HT		HC <sup>2</sup>		HW					
					P	M	K	N	S	H														
ISO					r	a <sub>p</sub>	f																	
AHF	<b>VBMT160404-AHF</b>	0.4	0.2-3.0	0.05-0.30	●																			
	<b>VBMT160408-AHF</b>	0.8	0.8-3.5	0.08-0.40	●																			
Finishing																								
EF	<b>VBMT110302-EF</b>	0.2	0.06-1.70	0.03-0.13																				
	<b>VBMT110304-EF</b>	0.4	0.1-1.7	0.05-0.19																				
	<b>VBMT110308-EF</b>	0.8	0.13-1.70	0.07-0.26																				
	<b>VBMT160404-EF</b>	0.4	0.1-1.8	0.05-0.20																				
	<b>VBMT160408-EF</b>	0.8	0.14-1.80	0.07-0.27																				
HF	<b>VBMT110202-HF</b>	0.2	0.2-2.0	0.05-0.15																				
	<b>VBMT110204-HF</b>	0.4	0.2-2.0	0.05-0.35																				
	<b>VBMT110208-HF</b>	0.8	0.2-2.0	0.05-0.40																				
Finishing																								
NF	<b>VBET160404-NF</b>	0.4	0.2-3.0	0.05-0.30																				
	<b>VBET160408-NF</b>	0.8	0.2-3.0	0.08-0.40																				
Finishing																								

● Ex stock    ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide


Tool holder				
SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°
A240	A241	A242	A304	A305



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VBGT	L	I.C	S	d
11 03	11	6.35	3.18	2.8

**Turning inserts**

VB** positive insert				HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW										
ISO	r	a <sub>p</sub>	f	P	M	K	N	S	H																
				YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C
SF 	<b>VBGT110302-SF</b>	0.2	0.05-2.00	0.05-0.15																○	●	●			
	<b>VBGT110304-SF</b>	0.4	0.05-2.00	0.05-0.20																	○	●			
Finishing																									

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324

# General turning Positive inserts

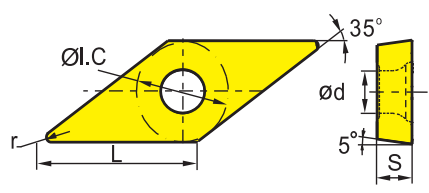
A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VB**	L	I.C	S	d
11 03	11	6.35	3.18	2.8
16 04	16.5	9.525	4.76	4.4

## Turning inserts



VB** positive insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	HW
<b>P</b>	<span style="color: blue;">●</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span>							<span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span> <span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	
<b>M</b>	<span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span>							<span style="color: yellow;">●</span> <span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span> <span style="color: yellow;">⊗</span> <span style="color: yellow;">⊗</span>	<span style="color: yellow;">●</span> <span style="color: yellow;">⊗</span>		
<b>K</b>	<span style="color: pink;">●</span> <span style="color: pink;">⊗</span> <span style="color: pink;">⊗</span> <span style="color: pink;">⊗</span> <span style="color: pink;">⊗</span>										
<b>N</b>								<span style="color: green;">●</span> <span style="color: green;">●</span>		<span style="color: green;">●</span> <span style="color: green;">⊗</span>	
<b>S</b>								<span style="color: orange;">●</span> <span style="color: orange;">●</span> <span style="color: orange;">⊗</span> <span style="color: orange;">⊗</span> <span style="color: orange;">⊗</span>		<span style="color: orange;">●</span> <span style="color: orange;">⊗</span>	
<b>H</b>											

B

Milling

ISO		r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
NGF	<b>VBET160408-NGF</b>	0.8	0.2-3.0	0.08-0.30																									
	<b>VBET160412-NGF</b>	1.2	0.2-3.0	0.1-0.4																									
Finishing																													
EM	<b>VBMT110304-EM</b>	0.4	0.15-2.00	0.07-0.20																									
	<b>VBMT110308-EM</b>	0.8	0.2-2.0	0.09-0.27	○																								
Medium Cut	<b>VBMT160404-EM</b>	0.4	0.23-2.70	0.07-0.20																									
	<b>VBMT160408-EM</b>	0.8	0.45-2.70	0.09-0.27																									
HM	<b>VBMT160404-HM</b>	0.4	0.23-2.70	0.07-0.20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	<b>VBMT160408-HM</b>	0.8	0.45-2.70	0.09-0.27	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	
	<b>VBMT160412-HM</b>	1.2	0.54-2.70	0.11-0.32	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

- HC<sup>1</sup> Coated carbide
- HT Uncoated cermet
- HC<sup>2</sup> Coated cermet
- HW Uncoated carbide

D

Technical Information

Tool holder				
SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°
A240	A241	A242	A304	A305

F

Index



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VBMT	L	I.C	S	d
16 04	16.5	9.525	4.76	4.4

**Turning inserts**

VB** positive insert				HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)			HT	HC <sup>2</sup>	HW											
				<b>P</b>	●	●	⊗	⊗	⊗	⊗				●	●	●												
				<b>M</b>						●	⊗			●	●	●	●	●										
				<b>K</b>								●	●	●	●	●												
				<b>N</b>										●	●				●	⊗								
				<b>S</b>												●	●	●	●	●								
				<b>H</b>																								
ISO	r	a <sub>p</sub>	f	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YBG202	YNG151	YNT251	YNG151C	YD101	YD201	
HR 	<b>VBMT160404-HR</b>	0.4	0.5-3.0	0.1-0.3	●	●																						
	<b>VBMT160408-HR</b>	0.8	0.9-3.6	0.11-0.32	○	●	●		○																			
	<b>VBMT160412-HR</b>	1.2	1.08-3.60	0.13-0.38	○	●	○						○															
Roughing																												
SNR 	<b>VBMT160408-SNR</b>	0.8	0.5-4.0	0.1-0.3																○								
	<b>VBMT160412-SNR</b>	1.2	0.5-4.0	0.3-0.6																●								
Roughing																												

● Ex stock      ○ On demand  
 YBC152F, YBC252F, YBM153F, YBM253F available

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder				
SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°
A240	A241	A242	A304	A305

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

WCMX	L	I.C	S	d
<b>04 02</b>	4.3	6.35	2.38	3.1
<b>06 T3</b>	6.5	9.525	3.97	3.7
<b>08 04</b>	8.7	12.7	4.76	4.3

## Turning inserts

WC** drilling insert				HC <sup>1</sup> (CVD)										HC <sup>1</sup> (PVD)		HT	HC <sup>2</sup>	HW											
				P	M	K	N	S	H																				
ISO				r	a <sub>p</sub>	f																							
	<b>WCMX040208R-53</b>			0.8	0.05-2.00	0.05-0.60	YB6315	YBC152	YBC252	YBC251	YBC352	YBC351	YBM153	YBM253	YBD052	YBD102	YB7315	YBD152	YBD152C	YBG101	YBG102	YBG105	YB9320	YBG205	YNG151	YNT251	YNG151C	YD101	
	<b>WCMX06T308R-53</b>			0.8	0.1-3.0	0.05-0.60																							
	<b>WCMX080412R-53</b>			1.2	0.2-4.0	0.05-0.80																							
Medium Cut																													

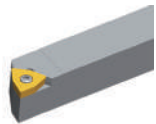
● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

Tool holder

SWACR/L

Kr: 90°



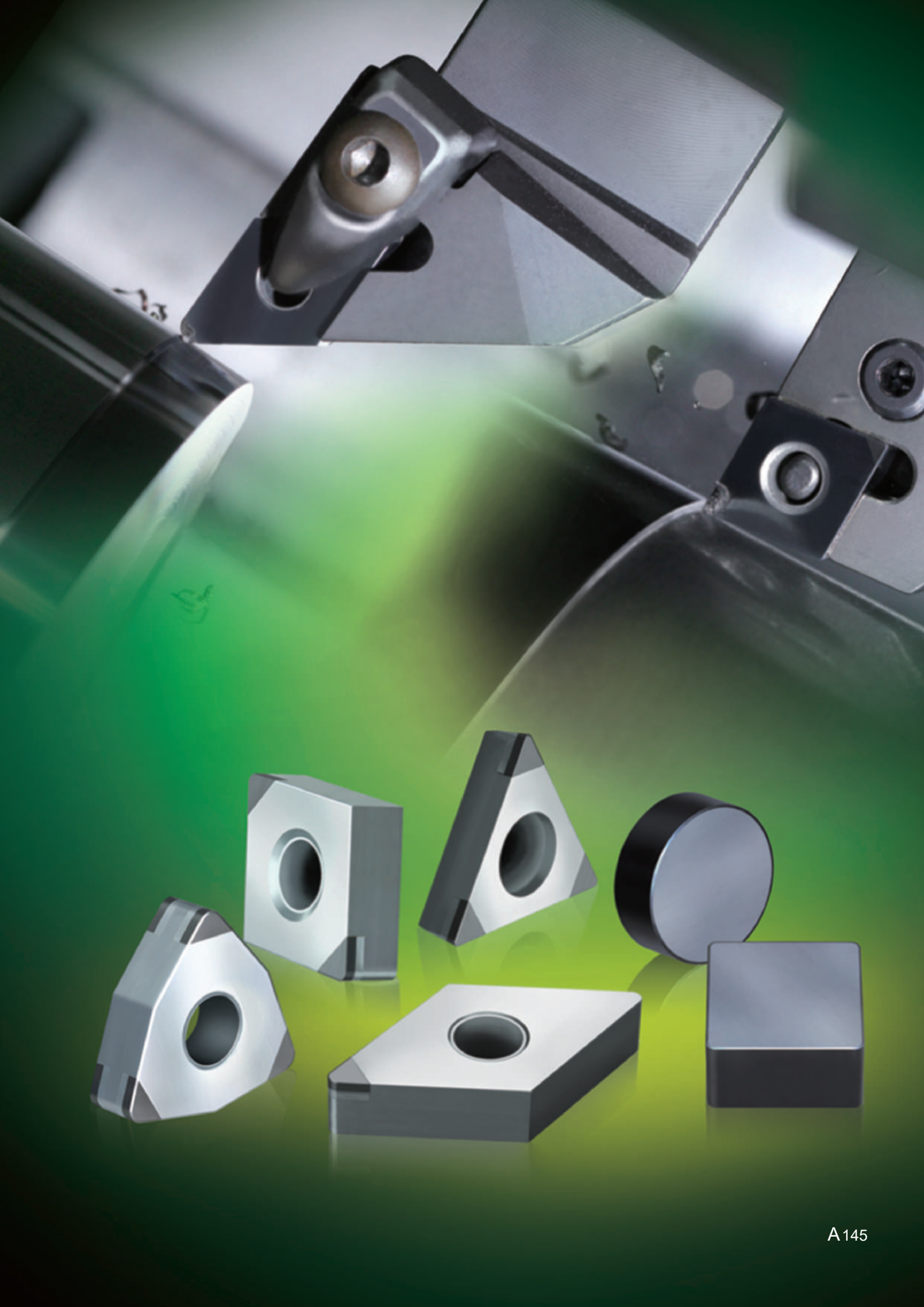
A253

System code > A42

Grade selection > A40

Technical info > A447

Cutting data > A324



## C N G A 12 04 08 T 020 20 – 2 (W)

1 2 3 4 5 6 7 8 9 10 11 12

A

Turning

B

Milling

C















Drilling










D

Technical Information

E

Index

Insert shape		
A 	B 	C 
D 	E 	H 
K 	L 	M 
P 	S 	T 
V 	W 	Z Special







Clearance angle	
A 	B 
C 	D 
E 	F 
G 	N 
P 	O Special

Tolerance class			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05–0,15	±0,005	±0,025
K	±0,05–0,15	±0,013	±0,025
L	±0,05–0,15	±0,025	±0,025
M	±0,05–0,15	±0,08–0,20	±0,130
N	±0,05–0,15	±0,08–0,20	±0,025
U	±0,08–0,25	±0,13–0,38	±0,130

1

2

3

Fastening features (metric)	
Insert shape	
A 	B 
C 	N 
Q 	W 
X	Special

Cutting edge length l [mm]						
I.C [mm]	Insert shape					
	C	D	S	T	V	W
3,97				06		
5,0				09		
5,56				09		
6,0				09		
6,35	06	07		11	11	
8,0				09		
9,525	09	11	09	16	16	06
10,0				09		
12,0				09		
12,7	12	15	12	22	22	08
15,875	16		15	27		
16,0		19				
19,05	19		19	33		
20,0				09		
25,0	25	25				
25,4			25			
31,75				09		
32				09		

4

5



Insert thickness S [mm]			
Code	S	Code	S
02	2,38	06	6,35
T2	2,58	T6	6,75
03	3,18	07	7,94
T3	3,97	09	9,52
04	4,76	T9	9,72
T4	4,96	11	11,11
05	5,56	12	12,70
T5	5,95		

6

Nose radius r [mm]	
Code	r
00	-
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
32	3,2
X	Special
MO	Round inserts

7

Cutting edge profile		
Code	Cutting edge	Insert shape
E	Rounding	
F	Sharp edge	
T	Chamfer	
S	Chamfer + Rounding	

8

Chamfer width b [mm]	
Code	b
010	0,10
015	0,15
020	0,20
025	0,25
030	0,30
035	0,35
040	0,40
045	0,45
050	0,50
100	1,00
200	2,00

9

Chamfer angle α	
Code	α
05	5°
10	10°
15	15°
20	20°
25	25°
30	30°

10

Cutting edges	
Code	Form
1	
2	
3	
4	

11

Extra	
Code	Description
W	

12

Standard edge preparation								
	CBN				Solid CBN			PCD
	YCB111	YCB121	YCB131	YCB211	YZB121	YZB221	YZB231	YCD421
Rayon = 0,4 mm	S01525	S01520	S01525	S01020	S01020	T02020	T02025	F
Rayon ≥ 0,8 mm	S01525	S02020	S02025	S01020	S01020	T02020	T02025	F

Other edge preparation on demand.

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CNGA	L	I.C	S	d
12 04	12.9	12.7	4.76	5.16

## Turning CBN inserts

CN** negative insert		BL (CBN)		BH (CBN)																	
	<b>P</b>																				
	<b>K</b>																				
	<b>N</b>																				
	<b>H</b>	○	⊗	⊗																	

**B**

Milling

ISO	r	a <sub>p</sub>	f	YCB111			YCB211															
				YCB111	YCB121	YCB131																
	<b>CNGA120404-2</b>	0.4	0.08-0.50	0.05-0.20	○	●	○	○														
	<b>CNGA120408-2</b>	0.8	0.08-0.50	0.05-0.25	●	●	●	●														
	<b>CNGA120412-2</b>	1.2	0.08-0.50	0.05-0.30	○	●	●	●														
	<b>CNGA120408-2W</b>	0.8	0.08-0.50	0.05-0.25	○	○																
	<b>CNGA120412-2W</b>	1.2	0.08-0.50	0.05-0.30	○	○																

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder					
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
A197	A204	A205	A218	A219	A284




**D**

Technical Information

**E**

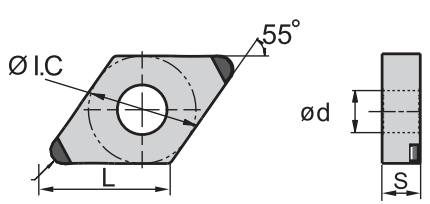




Index



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions




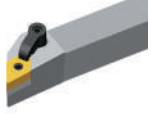



DNGA	L	I.C	S	d
15 06	15.5	12.7	6.35	5.16

## Turning CBN inserts

DN** negative insert				BL (CBN)			BH (CBN)		
	<b>P</b>								
	<b>K</b>								
	<b>N</b>								
	<b>H</b>	  							
ISO	r	a <sub>p</sub>	f	YCB111	YCB121	YCB131	YCB211		
	<b>DNGA150604-2</b>	0.4	0.08-0.50	0.05-0.20	○	○	○	○	
	<b>DNGA150608-2</b>	0.8	0.08-0.50	0.05-0.25	●	●	○	●	
	<b>DNGA150612-2</b>	1.2	0.08-0.50	0.05-0.15	○	●	●	○	

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder						
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	PDSNR/L	PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
						
A198	A206	A207	A220	A221	A286	A287

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324

A

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SNGA	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16

## Turning CBN inserts

SN** negative insert		BL (CBN)	BH (CBN)	
	<b>P</b>			
	<b>K</b>		●	
	<b>N</b>			
	<b>H</b>	○ ⊗ ⊗		

B

Milling

ISO	r	a <sub>p</sub>	f	BL (CBN)			BH (CBN)	
				YCB111	YCB121	YCB131	YCB211	
<b>SNGA120408-2</b>	0.8	0.08-0.50	0.05-0.25	○	○	○	○	
<b>SNGA120412-2</b>	1.2	0.08-0.50	0.05-0.30	○	○	○	○	

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

C

Drilling

Tool holder						
DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
A199	A208	A210	A211	A212	A222	A223

D




Technical Information

MSKNR/L	MSDNN	PSKNR/L
Kr: 75°	Kr: 45°	Kr: 75°
A224	A225	A289

E

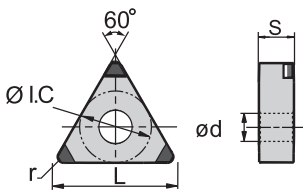





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-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

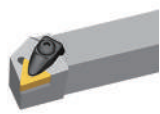



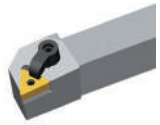
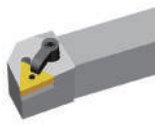
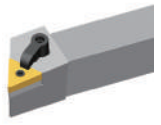


TNGA	L	I.C	S	d
16 04	16.5	9.525	4.76	3.81

## Turning CBN inserts

TN** negative insert				BL (CBN)			BH (CBN)												
				<b>P</b>															
				<b>K</b>															
				<b>N</b>															
				<b>H</b>															
ISO	r	a <sub>p</sub>	f	YCB111	YCB121	YCB131	YCB211												
	<b>TNGA160404-3</b>	0.4	0.08-0.50	0.05-0.20	○ ○														
	<b>TNGA160408-3</b>	0.8	0.08-0.50	0.05-0.25	○ ● ○			○											
	<b>TNGA160412-3</b>	1.2	0.08-0.50	0.05-0.30	○ ○ ○			○											

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder						
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L-Z
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
						
A200	A213	A214	A215	A226	A227	A228
MTFNR/L	PTFNR/L					
Kr: 91°	Kr: 90°					
						
A229	A290					

System code > A40




Grade selection > A146

Technical info > A447

Cutting data > A324

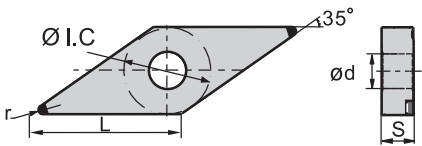



**A**

Turning

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions


VNGA	L	I.C	S	d
16 04	16.6	9.525	4.76	3.81

## Turning CBN inserts

VN** negative insert		BL (CBN)	BH (CBN)																		
	<b>P</b>																				
	<b>K</b>																				
	<b>N</b>																				
	<b>H</b>	  																			

**B**

Milling





ISO	r	a <sub>p</sub>	f	YCB111			YCB211													
				YCB111	YCB121	YCB131														
 <b>VNGA160404-2</b>	0.4	0.08-0.50	0.05-0.20	○	○															
<b>VNGA160408-2</b>	0.8	0.08-0.50	0.05-0.25	○	●															

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder			
DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
			
A201	A202	A230	A231




**D**

Technical Information

**E**

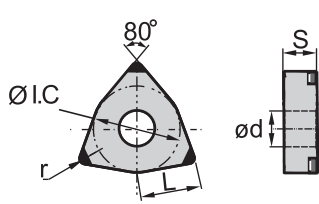




Index



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions





WNGA	L	I.C	S	d
08 04	8.69	12.7	4.76	5.16

## Turning CBN inserts

WN** negative insert				BL (CBN)	BH (CBN)				
				<b>P</b>					
				<b>K</b>					
				<b>N</b>					
				<b>H</b>	  				
ISO	r	a <sub>p</sub>	f	YCB111 YCB121 YCB131	YCB211				
	<b>WNGA080404-3</b>	0.4	0.08-0.50	0.05-0.20	○				
	<b>WNGA080408-3</b>	0.8	0.08-0.50	0.05-0.25	● ○				

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder			
<b>DWLNR/L</b> Kr: 95°	<b>PWLNR/L</b> Kr: 95°	<b>MWLNR/L</b> Kr: 95°	<b>PWLNR/L</b> Kr: 95°
			
A203	A217	A232	A291

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CCGW	L	I.C	S	d
<b>06</b> 02	6.4	6.35	2.38	2.8
<b>09</b> T3	9.7	9.525	3.97	4.4
<b>12</b> 04	12.9	12.7	4.76	5.5

## Turning CBN inserts

CC** positive insert				BL (CBN)			BH (CBN)			
				<b>P</b>						
				<b>K</b>			●			
				<b>N</b>						
				<b>H</b>	○ ⊗ ⊗					
ISO	r	a <sub>p</sub>	f	YCB111	YCB121	YCB131	YCB211			
	<b>CCGW060204-1</b>	0.4	0.08-0.50	0.05-0.20	○	○				
	<b>CCGW060208-1</b>	0.8	0.08-0.50	0.05-0.25	○	○				
	<b>CCGW09T304-2</b>	0.4	0.08-0.50	0.05-0.20	○	●	○	○		
	<b>CCGW09T308-2</b>	0.8	0.08-0.50	0.05-0.25	●	●	○	○		
	<b>CCGW120404-2</b>	0.4	0.08-0.50	0.05-0.20	○	●	○	○		
	<b>CCGW120408-2</b>	0.8	0.08-0.50	0.05-0.25	○	●	○	●		

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

### Tool holder

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	SCLCR/L	SCFCR/L	SCLCR/L
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311

SCLCR/L  
Kr: 95°



A313

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DCGW	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning CBN inserts

DC** positive insert				BL (CBN)	BH (CBN)	
				<b>P</b>		
				<b>K</b>	●	
				<b>N</b>		
				<b>H</b>	○ ⊗ ⊗	
ISO	r	a <sub>p</sub>	f	YCB111 YCB121 YCB131	YCB211	
	<b>DCGW070204-1</b>	0.4	0.08-0.50	0.05-0.20	○ ○	
	<b>DCGW070208-1</b>	0.8	0.08-0.50	0.05-0.25	○ ○	
	<b>DCGW11T304-2</b>	0.4	0.08-0.50	0.05-0.20	● ○ ○	○
	<b>DCGW11T308-2</b>	0.8	0.08-0.50	0.05-0.25	● ● ●	●

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder						
<b>SDACR/L</b> Kr: 90°	<b>SDJCR/L</b> Kr: 93°	<b>SDNCN</b> Kr: 62°30'	<b>SDACR/L-SC</b> Kr: 90°	<b>SDHCR/L-SC</b> Kr: 107°30'	<b>SDJCR/L-SC</b> Kr: 93°	<b>SDNCN-SC</b> Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277
<b>SDQCR/L</b> Kr: 107°30'	<b>SDUCR/L</b> Kr: 93°	<b>SDZCR/L</b> Kr: 85°	<b>SDQCR/L</b> Kr: 107°30'			
A295	A296	A297	A315			

System code > A40

Grade selection > A146

Technical info > A447




Cutting data > A324



# General turning PCBN & PCD inserts

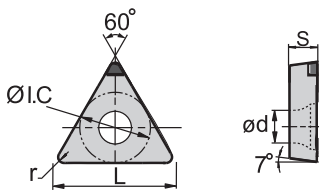



**A**

Turning

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions


TCGW	L	I.C	S	d
11 02	11	6.35	2.38	2.5
16 T3	16.5	9.525	3.97	4.4

## Turning CBN inserts

TC** positive insert		BL (CBN)	BH (CBN)																		
	<b>P</b>																				
	<b>K</b>																				
	<b>N</b>																				
	<b>H</b>																				

**B**

Milling

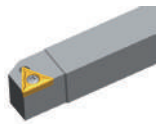

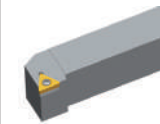



ISO	r	a <sub>p</sub>	f	YCB111	YCB121	YCB131	YCB211														
					<b>TCGW110204-1</b>	0.4	0.08-0.50	0.05-0.20	○	○	○	○									
	<b>TCGW110208-1</b>	0.8	0.08-0.50	0.05-0.25	○	○	○														
	<b>TCGW16T304-3</b>	0.4	0.08-0.50	0.05-0.20	○	○	○	○													
	<b>TCGW16T308-3</b>	0.8	0.08-0.50	0.05-0.25	○	○	○	○													

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	STFCR/L	STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					
A249	A250	A251	A252	A300	A319

**D**

Technical Information

**E**

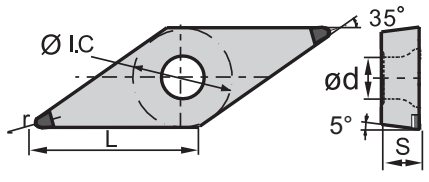

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions






VBGW	L	I.C	S	d
16 04	16.6	9.525	4.76	4.4

**Turning CBN inserts**

VB** positive insert				BL (CBN)			BH (CBN)																	
				P																				
				K			●																	
				N																				
				H	○	⊗	⊗																	
ISO		r	a <sub>p</sub>	f	YCB111	YCB121	YCB131	YCB211																
	<b>VBGW160404-2</b>	0.4	0.08-0.50	0.05-0.20	○	○																		
	<b>VBGW160408-2</b>	0.8	0.08-0.50	0.05-0.25	○	○		○																

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder				
SVJBR/L	SVABR/L	SVVBN	SVQBR/L	SVUBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°
				
A240	A241	A242	A304	A305

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



A

Turning

B

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**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VCGW	L	I.C	S	d
<b>16 04</b>	16.6	9.525	4.76	4.4

## Turning CBN inserts

VC** positive insert		BL (CBN)	BH (CBN)																		
	<b>P</b>																				
	<b>K</b>																				
	<b>N</b>																				
	<b>H</b>	○ ⊗ ⊗																			

**B**

Milling

ISO	r	a <sub>p</sub>	f	BL (CBN)			BH (CBN)														
				YCB111	YCB121	YCB131	YCB211														
	<b>VCGW160404-2</b>	0.4	0.08-0.50	0.05-0.20	○	○															
	<b>VCGW160408-2</b>	0.8	0.08-0.50	0.05-0.25	○	○															

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder		
SVVCN	SVJCR/L	SVUCR/L
Kr: 72°30'	Kr: 93°	Kr: 93°
A243	A244	A322

**D**

Technical Information

**E**

Index



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CNGN	L	I.C	S
12 04	12.9	12.7	4.76

## Turning CBN inserts

CN** negative insert					BL (CBN)	BH (CBN)	
					P		
					K		⊗ ⊗
					N		
					H	⊗	
ISO	r	a <sub>p</sub>	f	YZB121	YZB221 YZB231		
 Medium Cut	<b>CNGN120404</b>	0.4	0.5-2.0	0.3-0.5		○	
	<b>CNGN120408</b>	0.8	0.5-2.0	0.3-0.5	○	○ ○	
	<b>CNGN120412</b>	1.2	0.5-2.0	0.3-0.5	○	○ ○	
	<b>CNGN120416</b>	1.6	0.5-2.0	0.3-0.5	○	○ ○	

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

Tool holder

**CCLNR/L**

Kr: 95°

A258

**A**

Turning

**B**

Milling

**C**

Drilling

**D**




Technical Information

**E**

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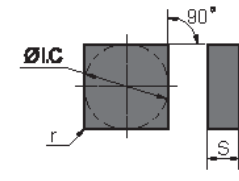



**A**

Turning

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SNGN	L	I.C	S
12 04	12.7	12.7	4.76
15 07	15.875	15.875	7.94

## Turning CBN inserts

SN** negative insert				BL (CBN)	BH (CBN)			
	<b>P</b>							
	<b>K</b>							
	<b>N</b>							
	<b>H</b>							

**B**

Milling




ISO	r	a <sub>p</sub>	f	YZB121		YZB221 YZB231	
<b>SNGN120404</b>	0.4	0.5-2.0	0.3-0.5			○	
<b>SNGN120408</b>	0.8	0.5-2.0	0.3-0.5	○		○ ○	
<b>SNGN120412</b>	1.2	0.5-2.0	0.3-0.5	○		○ ○	
<b>SNGN120416</b>	1.6	0.5-2.0	0.3-0.5	○		○ ○	
<b>SNGN150716</b>	1.6	0.5-2.0	0.3-0.5			○	
<b>SNGN150720</b>	2	0.5-2.0	0.3-0.5			○	

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder		
CSKNR/L	CSRNR/L	CSDNN
Kr: 75°	Kr: 75°	Kr: 45°
		
A262	A263	A265

**D**

Technical Information

**E**

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

WNGN	L	I.C	S
<b>08 04</b>	8.69	12.7	4.76

## Turning CBN inserts

WN** negative insert				BL (CBN)	BH (CBN)	
				<b>P</b>		
				<b>K</b>	⊗ ⊗	
				<b>N</b>		
				<b>H</b>	⊗	
ISO	r	a <sub>p</sub>	f	YZB121	YZB221 YZB231	
	<b>WNGN080408</b>	0.8	0.5-2.0	0.3-0.5	○	○ ○
	<b>WNGN080412</b>	1.2	0.5-2.0	0.3-0.5	○	○ ○

● Ex stock      ○ On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**A**

Turning

**B**

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**D**

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System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

RNGN	L	I.C	S
<b>12 04</b>	12.7	12.7	4.76
<b>12 07</b>	12.7	12.7	7.94

## Turning CBN inserts

RN** negative insert		BL (CBN)	BH (CBN)
	<b>P</b>		
	<b>K</b>	<span style="color: red;">⊗</span> <span style="color: red;">⊗</span>	
	<b>N</b>		
	<b>H</b>	<span style="color: green;">⊗</span>	

**B**

Milling

ISO	a <sub>p</sub>	f	YZB121	YZB221 YZB231
<b>RNGN120400</b>	0.5-2.0	0.3-0.5		○ ○
<b>RNGN120700</b>	0.5-2.0	0.3-0.5	○	○ ○



Medium Cut

- Ex stock
- On demand

BL CBN with a low CBN content  
BH CBN with a high CBN content

**C**

Drilling

Tool holder  
**CRDNN**

A264

**D**

Technical Information

**E**

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## Turning PKD inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

CCGT	L	I.C	S	d
06 02	6.4	6.35	2.38	2.8
09 T3	9.7	9.525	3.97	4.4
12 04	12.9	12.7	4.76	5.56

CC** positive insert				DP																						
				P																						
				K																						
				N	○																					
				H																						
ISO	r	a <sub>p</sub>	f	YCD421																						
	<b>CCGT060202**</b>	0.2	0.05-0.50	0.05-0.15	○																					
	<b>CCGT060204**</b>	0.4	0.08-0.50	0.05-0.20	●																					
	<b>CCGT09T304**</b>	0.4	0.08-0.50	0.05-0.20	○																					
	<b>CCGT09T308**</b>	0.8	0.08-0.50	0.05-0.25	○																					
	<b>CCGT120404**</b>	0.4	0.08-0.50	0.05-0.20	○																					
	<b>CCGT120408**</b>	0.8	0.08-0.50	0.05-0.25	○																					

● Ex stock      ○ On demand

DP Polycrystalline diamond

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	SCLCR/L	SCFCR/L	SCLCR/L
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311

SCLCR/L
Kr: 95°
A313

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



**A**

Turning

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Milling

**C**

Drilling

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CCGW	L	I.C	S	d
<b>06</b> 02	6.4	6.35	2.38	2.8
<b>09</b> T3	9.7	9.525	3.97	4.4
<b>12</b> 04	12.9	12.7	4.76	5.56

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning PKD inserts

CC** positive insert				DP																							
				<b>P</b>																							
				<b>K</b>																							
				<b>N</b>	<span style="color: green;">●</span>																						
				<b>H</b>																							
ISO	r	a <sub>p</sub>	f	YCD421																							
	<b>CCGW060202**</b>	0.2	0.08-0.50	0.05-0.15	○																						
	<b>CCGW060204**</b>	0.4	0.08-0.50	0.05-0.20	○																						
	<b>CCGW09T304**</b>	0.4	0.08-0.50	0.05-0.20	○																						
	<b>CCGW09T308**</b>	0.8	0.08-0.50	0.05-0.25	○																						
	<b>CCGW120404**</b>	0.4	0.08-0.50	0.05-0.20	○																						
	<b>CCGW120408**</b>	0.8	0.08-0.50	0.05-0.25	○																						

● Ex stock    ○ On demand    DP Polycrystalline diamond

**C**

Drilling

Tool holder						
SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	SCLCR/L	SCFCR/L	SCLCR/L
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
A235	A236	A272	A273	A293	A310	A311

**D**

Technical Information

SCLCR/L
Kr: 95°
A313



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

DCGT	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning PKD inserts

DC** positive insert					DP																		
					P																		
					K																		
					N	○																	
					H																		
ISO	r	a <sub>p</sub>	f	YCD421																			
	DCGT070202**	0.2	0.08-0.50	0.05-0.15	○																		
	DCGT070204**	0.4	0.08-0.50	0.05-0.20	○																		
	DCGT11T304**	0.4	0.08-0.50	0.05-0.20	○																		
	DCGT11T308**	0.8	0.08-0.50	0.05-0.25	●																		

● Ex stock      ○ On demand      DP Polycrystalline diamond

Tool holder						
<b>SDACR/L</b> Kr: 90°	<b>SDJCR/L</b> Kr: 93°	<b>SDNCN</b> Kr: 62°30'	<b>SDACR/L-SC</b> Kr: 90°	<b>SDHCR/L-SC</b> Kr: 107°30'	<b>SDJCR/L-SC</b> Kr: 93°	<b>SDNCN-SC</b> Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277
<b>SDQCR/L</b> Kr: 107°30'	<b>SDUCR/L</b> Kr: 93°	<b>SDZCR/L</b> Kr: 85°	<b>SDQCR/L</b> Kr: 107°30'			
A295	A296	A297	A315			

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



A

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

DCGW	L	I.C	S	d
07 02	7.8	6.35	2.38	2.8
11 T3	11.6	9.525	3.97	4.4

## Turning PKD inserts

DC** positive insert		DP									
	<b>P</b>										
	<b>K</b>										
	<b>N</b>	●									
	<b>H</b>										

B

Milling

ISO	r	a <sub>p</sub>	f	YCD421															
	<b>DCGW070202**</b>	0.2	0.08-0.50	0.05-0.15	○														
	<b>DCGW070204**</b>	0.4	0.08-0.50	0.05-0.20	○														
	<b>DCGW070208**</b>	0.8	0.08-0.50	0.05-0.25	○														
	<b>DCGW11T302**</b>	0.2	0.08-0.50	0.05-0.15	○														
	<b>DCGW11T304**</b>	0.4	0.08-0.50	0.05-0.20	○														
	<b>DCGW11T308**</b>	0.8	0.08-0.50	0.05-0.25	○														

● Ex stock      ○ On demand      DP Polycrystalline diamond

C

Drilling

Tool holder						
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
A237	A238	A239	A274	A275	A276	A277
SDQCR/L	SDUCR/L	SDZCR/L	SDQCR/L			
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'			
A295	A296	A297	A315			

D

Technical Information

E

Index



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TCGT	L	I.C	S	d
<b>11</b> 02	11	6.35	2.38	2.8
<b>16</b> T3	16.5	9.525	3.97	4.4

**Turning PKD inserts**

TC** positive insert				DP																				
				<b>P</b>																				
				<b>K</b>																				
				<b>N</b>	○																			
				<b>H</b>																				
ISO	r	a <sub>p</sub>	f	YCD421																				
	<b>TCGT110202**</b>	0.2	0.08-0.50	0.05-0.15	○																			
	<b>TCGT110204**</b>	0.4	0.08-0.50	0.05-0.20	○																			
	<b>TCGT110208**</b>	0.8	0.08-0.50	0.05-0.25	○																			
	<b>TCGT16T304**</b>	0.4	0.08-0.50	0.05-0.20	○																			
	<b>TCGT16T308**</b>	0.8	0.08-0.50	0.05-0.25	○																			

● Ex stock      ○ On demand

DP Polycrystalline diamond

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	STFCR/L	STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
A249	A250	A251	A252	A300	A319

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

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**E**

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**A**

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TCGW	L	I.C	S	d
<b>11</b> 02	11	6.35	2.38	2.8
<b>16</b> T3	16.5	9.525	3.97	4.4

## Turning PKD inserts

TC** positive insert		DP									
	<b>P</b>										
	<b>K</b>										
	<b>N</b>	<span style="color: green;">○</span>									
	<b>H</b>										

**B**

Milling

ISO	r	a <sub>p</sub>	f	YCD421															
	<b>TCGW110208**</b>	0.8	0.08-0.50	0.05-0.25	○														
	<b>TCGW16T302**</b>	0.2	0.08-0.50	0.05-0.15	○														
	<b>TCGW16T304**</b>	0.4	0.08-0.50	0.05-0.20	○														

● Ex stock      ○ On demand      DP Polycrystalline diamond

**C**

Drilling

Tool holder					
STACR/L	STFCR/L	STGCR/L	STTCR/L	STFCR/L	STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
A249	A250	A251	A252	A300	A319

**D**

Technical Information

**E**

Index



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

VBGT	L	I.C	S	d
16 04	16.6	9.525	4.76	4.4

**Turning PKD inserts**

VB** positive insert		DP									
	<b>P</b>										
	<b>K</b>										
	<b>N</b>	●									
	<b>H</b>										

ISO	r	a <sub>p</sub>	f	YCD421																	
	<b>VBGT160402**</b>	0.2	0.08-0.50	0.05-0.15	○																
	<b>VBGT160404**</b>	0.4	0.08-0.50	0.05-0.20	○																
	<b>VBGT160408**</b>	0.8	0.08-0.50	0.05-0.25	○																

● Ex stock      ○ On demand      DP Polycrystalline diamond

Tool holder				
SVJBR/L	SVABR/L	SVVBN	SVQBR/L	SVUBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°
A240	A241	A242	A304	A305

**A**

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

VBGW	L	I.C	S	d
16 04	16.6	9.525	4.76	4.4

## Turning PKD inserts

VB** positive insert		DP									
	<b>P</b>										
	<b>K</b>										
	<b>N</b>	●									
	<b>H</b>										

**B**

Milling

ISO	r	a <sub>p</sub>	f	YCD421															
<b>VBGW160404**</b>	0.4	0.08-0.50	0.05-0.20	○															
<b>VBGW160408**</b>	0.8	0.08-0.50	0.05-0.25	○															

● Ex stock      ○ On demand      DP Polycrystalline diamond

**C**

Drilling

Tool holder				
<b>SVJBR/L</b> Kr: 93°	<b>SVABR/L</b> Kr: 90°	<b>SVVBN</b> Kr: 72°30'	<b>SVQBR/L</b> Kr: 107°30'	<b>SVUBR/L</b> Kr: 93°
A240	A241	A242	A304	A305

**D**

Technical Information

**E**

Index





- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

VCGT	L	I.C	S	d
16 04	16.6	9.525	4.76	4.4

## Turning PKD inserts

VC** positive insert				DP																					
				P																					
				K																					
				N	○																				
				H																					
ISO	r	a <sub>p</sub>	f	YCD421																					
	VCGT160402**	0.2	0.08-0.50	0.05-0.15	○																				
	VCGT160404**	0.4	0.08-0.50	0.05-0.20	○																				
	VCGT160408**	0.8	0.08-0.50	0.05-0.25	○																				

● Ex stock      ○ On demand      DP Polycrystalline diamond

Tool holder		
SVVCN	SVJCR/L	SVUCR/L
Kr: 72°30'	Kr: 93°	Kr: 93°
A243	A244	A322

System code > A40

Grade selection > A146

Technical info > A447

Cutting data > A324



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A

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

VCGW	L	I.C	S	d
16 04	16.6	9.525	4.76	4.4

## Turning PKD inserts

VC** positive insert	DP										
	P										
	K										
	N										
	H										

B

Milling

ISO	r	a <sub>p</sub>	f	YCD421	DP														
	VCGW160404**	0.4	0.08-0.50	0.05-0.20	○														
	VCGW160408**	0.8	0.08-0.50	0.05-0.25	○														

● Ex stock      ○ On demand      DP Polycrystalline diamond

C

Drilling

Tool holder		
SVVCN	SVJCR/L	SVUCR/L
Kr: 72°30'	Kr: 93°	Kr: 93°
A243	A244	A322

D

Technical Information

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**Trouble shooting – PCBN & PCD**

Type of wear	Countermeasure	
	Geometry	Cutting condition
Flank wear	<ul style="list-style-type: none"> <li>- Sharper cutting edge for reduced cutting force</li> <li>- Smaller negative chamfer</li> <li>- Use positive inserts</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce cutting speed</li> <li>- Increase feed rate to reduce operation time</li> </ul>
Notch wear	<ul style="list-style-type: none"> <li>- Bigger radius</li> </ul>	<ul style="list-style-type: none"> <li>- Use "method of altering feed rate"</li> </ul>
Crater wear/breakage due to crater wear	<ul style="list-style-type: none"> <li>- Sharper cutting edge for reduced cutting force</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce cutting speed</li> <li>- Increase feed rate to minimise operation time and to increase distance between cutting edge and crater</li> </ul>
Chipping due to rough condition or vibration	<ul style="list-style-type: none"> <li>- Bigger negative chamfer angle and/or honed chamfer</li> </ul>	<ul style="list-style-type: none"> <li>- Increase feed rate to reduce number of hits</li> </ul>
Flaking	<ul style="list-style-type: none"> <li>- Sharper cutting edge to reduce cutting force</li> <li>- Smaller negative chamfer</li> <li>- Use positive inserts</li> </ul>	<ul style="list-style-type: none"> <li>- Increase feed rate to reduce operation time</li> </ul>
Thermal crack/breakage	<ul style="list-style-type: none"> <li>- Sharper cutting edge for reduced cutting force</li> <li>- Smaller negative chamfer</li> <li>- Use positive inserts</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce cutting speed, feed rate and depth of cut</li> <li>- Dry machining</li> </ul>
Chipping	<ul style="list-style-type: none"> <li>- Bigger negative chamfer</li> </ul>	<ul style="list-style-type: none"> <li>- Increase cutting speed to reduce cutting force</li> </ul>

For investigation please send us the used inserts. If breakage is the problem please use inserts only 80–90% of expected tool life because broken inserts almost have no information.

**A**

Turning

**B**

Milling

**C**

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## T N G A 12 04 08 T 020 20

1 2 3 4 5 6 7 8 9 10

A

Turning

B

Milling

C















Drilling










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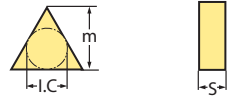
Technical Information

E

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Insert shape		
A 	B 	C 
D 	E 	H 
K 	L 	M 
P 	S 	T 
V 	W 	Z Special







Clearance angle	
A 	B 
C 	D 
E 	F 
G 	N 
P 	O Special







Tolerance class			
			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05-0,15	±0,005	±0,025
K	±0,05-0,15	±0,013	±0,025
L	±0,05-0,15	±0,025	±0,025
M	±0,05-0,15	±0,08-0,20	±0,130
N	±0,05-0,15	±0,08-0,20	±0,025
U	±0,08-0,25	±0,13-0,38	±0,130

1

2

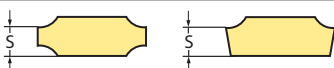
3

Fastening features (metric)	
Insert shape	
A 	B 
C 	N 
Q 	W 
X	Special


Cutting edge length l [mm]						
I.C [mm]	Insert shape					
						
3,97				06		
5,0				09		
5,56				09		
6,0				09		
6,35	06	07		11	11	
8,0				09		
9,525	09	11	09	16	16	06
10,0				09		
12,0				09		
12,7	12	15	12	22	22	08
15,875	16		15	27		
16,0		19				
19,05	19		19	33		
20,0				09		
25,0	25	25				
25,4			25			
31,75				09		
32				09		

4





5

Insert thickness S [mm]			
			
Code	S	Code	S
02	2,38	06	6,35
T2	2,58	T6	6,75
03	3,18	07	7,94
T3	3,97	09	9,52
04	4,76	T9	9,72
T4	4,96	11	11,11
05	5,56	12	12,70
T5	5,95		

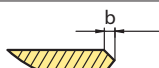
**6**

Nose radius r [mm]	
	
Code	r
00	–
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
32	3,2
X	Special
MO	Plaquettes rondes


**7**

Cutting edge profile		
Code	Cutting edge	Insert shape
E	Rounding	
F	Sharp edge	
T	Chamfer	
S	Chamfer + Rounding	

**8**

Chamfer width b [mm]	
	
Code	b
010	0,10
015	0,15
020	0,20
025	0,25
030	0,30
035	0,35
040	0,40
045	0,45
050	0,50
100	1,00
200	2,00

**9**

Angle du chanfrein $\alpha$	
	
Code	$\alpha$
05	5°
10	10°
15	15°
20	20°
25	25°
30	30°

**10**

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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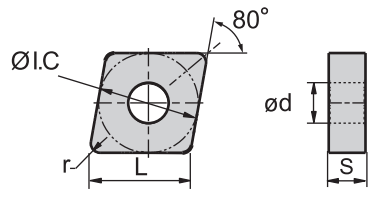
**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions


CNGA	L	I.C	S	d
<b>12 04</b>	12.9	12.7	4.76	5.16
<b>16 06</b>	16.1	15.875	6.35	6.35

## Turning ceramic inserts

CN** negative insert		CM	CN																		
	<b>P</b>	<span style="color: blue;">●</span>																			
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">⊗</span>																		
	<b>N</b>																				
	<b>H</b>																				

**B**

Milling

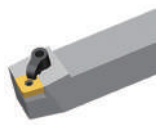
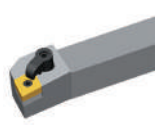
ISO	r	a <sub>p</sub>	f	CA1000	CN1000 CN2000																
							<b>CNGA120404T02020</b>	0.4	0.5-2.0	0.15-0.40		●									
	<b>CNGA120408T02020</b>	0.8	0.5-5.0	0.2-0.6	●	○															
	<b>CNGA120412T02020</b>	1.2	1-4	0.2-0.6		●															
	<b>CNGA120412T03020</b>	1.2	0.5-2.0	0.15-0.40		○															
	<b>CNGA160612T02020</b>	1.2	2-5	0.15-0.40		●															
	<b>CNGA160616T02020</b>	1.6	2-5	0.15-0.40		●															

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

**C**

Drilling

Tool holder	
MCBNR/L	MCLNR/L
Kr: 75°	Kr: 95°
	
A218	A219

**D**

Technical Information

**E**

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CNGN	L	I.C	S
<b>12 04</b>	12.9	12.7	4.76
<b>12 07</b>	12.9	12.7	7.94
<b>16 04</b>	16.1	15.875	4.76
<b>16 06</b>	16.1	15.875	6.35

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

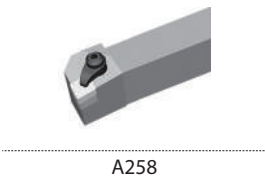
**Turning ceramic inserts**

CN** negative insert				CM	CN		
	<b>P</b>	○					
	<b>K</b>	⊗	⊗				
	<b>N</b>						
	<b>H</b>						
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000	
<b>CNGN120404T02020</b>	0.4	0.5-4.0	0.15-0.50	○			
<b>CNGN120408T02020</b>	0.8	1-5	0.2-0.6	●	● ●		
<b>CNGN120412T02020</b>	1.2	1-4	0.2-0.6	○	● ●		
<b>CNGN120708T02020</b>	0.8	0.5-2.0	0.2-0.5	○	● ●		
<b>CNGN120712T02020</b>	1.2	1-4	0.2-0.6	●	○ ○		
<b>CNGN120716T02020</b>	1.6	0.5-2.0	0.2-0.6	○	○ ○		
<b>CNGN160408T02020</b>	0.8	0.5-2.0	0.2-0.5	○			
<b>CNGN160612T02020</b>	1.2	0.5-4.0	0.15-0.60	○	○		
<b>CNGN160616T02020</b>	1.6	2-5	0.2-0.6	○	○		

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder  
**CCLNR/L**  
Kr: 95°



**A**

Turning

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**A**

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

CNGX	L	I.C	S
12 07	12.9	12.7	7.94

## Turning ceramic inserts

CN** negative insert				CM	CN															
	<b>P</b>	<span style="color: lightblue;">●</span>																		
	<b>K</b>	<span style="color: pink;">●</span>	<span style="color: pink;">●</span> <span style="color: grey;">●</span>																	
	<b>N</b>	<span style="color: green;">●</span>																		
	<b>H</b>	<span style="color: blue;">●</span>																		

**B**

Milling

ISO	r	a <sub>p</sub>	f	CA1000	CN1000 CN2000															
<b>CNGX120712T02020</b>	1.2	1-4	0.2-0.6		●															
<b>CNGX120716T02020</b>	1.6	0.5-2.0	0.2-0.6		○															



Medium Cut

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

**C**

Drilling

Tool holder

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**JCLNR/L**

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Kr: 95°

---



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A266

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**D**

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**E**

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

DNGA	L	I.C	S	d
15 06	15.5	12.7	6.35	5.16

**Turning ceramic inserts**

DN** negative insert				CM	CN															
	<b>P</b>	●																		
	<b>K</b>	●	●	●																
	<b>N</b>																			
	<b>H</b>																			
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000														
	<b>DNGA150604T02020</b>	0.4	0.5-2.0	0.15-0.40		○														
	<b>DNGA150608T02020</b>	0.8	0.5-2.0	0.2-0.5		●														
	<b>DNGA150612T02020</b>	1.2	1-4	0.2-0.6		○														
	<b>DNGA150616T02020</b>	1.6	2-5	0.2-0.6		○														

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder	
<b>MDJNR/L</b> Kr: 93°	<b>MDPNN</b> Kr: 62°30'
A220	A221

**A**

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# General turning Ceramic inserts

**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DNGN	L	I.C	S
15 04	15.5	12.7	4.76
15 07	15.5	12.7	7.94

## Turning ceramic inserts

DN** negative insert		CM	CN																		
	<b>P</b>	<span style="color: blue;">○</span>																			
	<b>K</b>	<span style="color: red;">○</span>	<span style="color: red;">⊗</span>																		
	<b>N</b>																				
	<b>H</b>																				

**B**

Milling

ISO	r	a <sub>p</sub>	f																					
				CA1000	CN1000	CN2000																		
 Medium Cut	<b>DNGN150408T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: blue;">○</span>																			
	<b>DNGN150412T02020</b>	1.2	1-4	0.2-0.6	<span style="color: blue;">○</span>																			
	<b>DNGN150704T02020</b>	0.4	0.5-2.0	0.15-0.40	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>																	
	<b>DNGN150708T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: red;">●</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>																	
	<b>DNGN150712T02020</b>	1.2	0.5-4.0	0.15-0.60	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>																	
	<b>DNGN150716T02020</b>	1.6	2-5	0.2-0.6	<span style="color: blue;">○</span>																			

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

**C**

Drilling

Tool holder

**CDJNR/L**

Kr: 93°

A260

**D**

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

DNGX	L	I.C	S
15 07	15.5	12.7	7.94

**Turning ceramic inserts**

DN** negative insert				CM	CN																
	<b>P</b>	●																			
	<b>K</b>	●	⊗																		
	<b>N</b>																				
	<b>H</b>																				
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000															
 Medium Cut	<b>DNGX150712T02020</b>	1.2	1-4	0.2-0.6		○															
	<b>DNGX150716T02020</b>	1.6	2-5	0.2-0.6		○															

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder  
**JDJNR/L**  
Kr: 93°

A267

**A**

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**B**

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**A**

Turning

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNGA	L	I.C	S	d
12 04	12.7	12.7	4.76	5.16

## Turning ceramic inserts

SN** negative insert				CM	CN																
	<b>P</b>	<span style="color: blue;">●</span>																			
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>																	
	<b>N</b>	<span style="color: green;">●</span>																			
	<b>H</b>	<span style="color: black;">●</span>																			
ISO	r	a <sub>p</sub>	f	CAT1000	CN1000	CN2000															
<b>SNGA120408T02020</b>	0.8	0.5-2.0	0.2-0.5		○																
<b>SNGA120412T02020</b>	1.2	1-4	0.2-0.6		○																

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

**B**

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Tool holder			
MSBNR/L	MSRNR/L	MSKNR/L	MSDNN
Kr: 75°	Kr: 75°	Kr: 75°	Kr: 45°
A222	A223	A224	A225

System code > A40

Grade selection > A174

Technical info > A447

Cutting data > A324

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNGX	L	I.C	S
12 07	12.7	12.7	7.94

**Turning ceramic inserts**

SN** negative insert				CM	CN		
	<b>P</b>	●					
	<b>K</b>	●	●				
	<b>N</b>						
	<b>H</b>						
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000	
 Medium Cut	<b>SNGX120712T02020</b>	1.2	1-4	0.2-0.6		○	
	<b>SNGX120716T02020</b>	1.6	0.5-2.0	0.2-0.6		○	

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder

**JSDNN**

Kr: 45°

A268

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SNGN	L	I.C	S
<b>12 04</b>	12.7	12.7	4.76
<b>12 07</b>	12.7	12.7	7.94
<b>15 07</b>	15.875	15.875	7.94
<b>19 07</b>	19.05	19.05	7.94

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning ceramic inserts

SN** negative insert				CM	CN																
	<b>P</b>	<span style="color: blue;">○</span>																			
	<b>K</b>	<span style="color: red;">○</span>	<span style="color: red;">⊗</span>																		
	<b>N</b>	<span style="color: green;">○</span>																			
	<b>H</b>	<span style="color: black;">○</span>																			
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000															
<b>SNGN120404T02020</b>	0.4	0.5-2.0	0.15-0.40	<span style="color: blue;">○</span>																	
<b>SNGN120408T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: blue;">○</span>	<span style="color: red;">●</span>																
<b>SNGN120412T02020</b>	1.2	1-4	0.2-0.6	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>															
<b>SNGN120416T02020</b>	1.6	0.5-5.0	0.2-0.6	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>															
<b>SNGN120704T02020</b>	0.4	0.5-2.0	0.15-0.40	<span style="color: red;">●</span>																	
<b>SNGN120708T02020</b>	0.8	0.5-4.0	0.2-0.6	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>																
<b>SNGN120712T02020</b>	1.2	1-5	0.2-0.6	<span style="color: blue;">○</span>	<span style="color: red;">●</span>																
<b>SNGN120716T02020</b>	1.6	1-5	0.2-0.6	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>																
<b>SNGN150708T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: blue;">○</span>																	
<b>SNGN150712T02020</b>	1.2	1-4	0.2-0.6	<span style="color: red;">●</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>															
<b>SNGN150716T02020</b>	1.6	0.5-2.0	0.2-0.6	<span style="color: red;">●</span>	<span style="color: blue;">○</span>	<span style="color: blue;">○</span>															
<b>SNGN190716T03020</b>	1.6	2-5	0.2-0.6	<span style="color: blue;">○</span>																	

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder		
CSKNR/L	CSRNR/L	CSDNN
Kr: 75°	Kr: 75°	Kr: 45°
A262	A263	A265



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TNGA	L	I.C	S	d
16 04	16.5	9.525	4.76	3.86
22 04	22	12.7	4.76	5.16

**Turning ceramic inserts**

TN** negative insert				CM	CN															
	<b>P</b>	●																		
	<b>K</b>	●	●	●																
	<b>N</b>																			
	<b>H</b>																			
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000														
	<b>TNGA160404T01020</b>	0.4	2-5	0.15-0.40		●														
	<b>TNGA160408T02020</b>	0.8	2-5	0.2-0.5		●														
	<b>TNGA160412T02020</b>	1.2	1-4	0.2-0.6		●														
	<b>TNGA220408T02020</b>	0.8	2-5	0.2-0.5		○														
	<b>TNGA220412T02020</b>	1.2	2-5	0.2-0.6		○														
	<b>TNGA220416T02020</b>	1.6	2-5	0.2-0.6		○														

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder			
MTGNR/L	MTJNR/L	MTJNR/L-Z	MTFNR/L
Kr: 90°	Kr: 93°	Kr: 93°	Kr: 91°
A226	A227	A228	A229

System code > A40

Grade selection > A174

Technical info > A447

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TNGN	L	I.C	S
<b>16 04</b>	16.5	9.525	4.76
<b>16 07</b>	16.5	9.525	7.94
<b>22 04</b>	22	12.7	4.76

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Turning ceramic inserts

TN** negative insert				CM	CN																	
	<b>P</b>	<span style="color: blue;">●</span>																				
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">⊗</span>																			
	<b>N</b>																					
	<b>H</b>																					
ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000																
<p>Medium Cut</p>	<b>TNGN160404T02020</b>	0.4	0.5-4.0	0.15-0.50	<span style="color: grey;">○</span>																	
	<b>TNGN160408T02020</b>	0.8	0.5-5.0	0.2-0.6	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>																
	<b>TNGN160412T02020</b>	1.2	1-5	0.2-0.6	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>															
	<b>TNGN160708T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>																
	<b>TNGN160712T02020</b>	1.2	1-4	0.2-0.6	<span style="color: grey;">○</span>																	
	<b>TNGN220408T02020</b>	0.8	0.5-2.0	0.2-0.5	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>																
	<b>TNGN220412T02020</b>	1.2	1-4	0.2-0.6	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>																
	<b>TNGN220416T02020</b>	1.6	2-5	0.2-0.6	<span style="color: grey;">○</span>	<span style="color: grey;">○</span>																

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder	
<b>CTJNR/L</b>	<b>CTUNR/L</b>
Kr: 93°	Kr: 93°
A259	A261

System code > A40

Grade selection > A174

Technical info > A447

Cutting data > A324



RNGN	I.C	S
<b>09 04</b>	9.53	4.76
<b>12 04</b>	12.7	4.76
<b>12 07</b>	12.7	7.94
<b>15 07</b>	15.875	7.94
<b>19 07</b>	19.05	7.94
<b>25 10</b>	25.4	10.05

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

**Turning ceramic inserts**

RN** negative insert				CM	CN															
	<b>P</b>	<span style="color: blue;">●</span>																		
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">⊗</span>																	
	<b>N</b>																			
	<b>H</b>																			
ISO	a <sub>p</sub>	f	CA1000	CN1000	CN2000															
	<b>RNGN090400T02020</b>	0.5-2.0	0.2-0.5	○																
	<b>RNGN120400T02020</b>	0.5-2.0	0.2-0.5	○	○	●														
	<b>RNGN120700T02020</b>	0.5-2.0	0.2-0.5	●	●	●														
	<b>RNGN150700T02020</b>	0.5-2.0	0.2-0.5	○																
	<b>RNGN190700T03020</b>	0.5-2.0	0.2-0.5	○		●														
	<b>RNGN251000T05020</b>	0.5-2.0	0.2-0.5	○																

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

Tool holder  
**CRDNN**

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A264

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**A**

Turning

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

WNGA	L	I.C	S	d
<b>08 04</b>	8.69	12.7	4.76	5.16

## Turning ceramic inserts

WN** negative insert				CM	CN															
	<b>P</b>	<span style="color: blue;">●</span>																		
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">⊗</span>																	
	<b>N</b>																			
	<b>H</b>																			

**B**

Milling

ISO	r	a <sub>p</sub>	f	CA1000	CN1000	CN2000														
	<b>WNGA080408T02020</b>	0.8	0.5-2.0	0.2-0.5	●															
	<b>WNGA080412T02020</b>	1.2	2-5	0.2-0.6	●															
	<b>WNGA080416T02020</b>	1.6	2-5	0.2-0.6	●															

● Ex stock      ○ On demand

CM Mixed ceramic  
CN Si3N4 Ceramic

**C**

Drilling

Tool holder  
**MWLNR/L**  
Kr: 95°

A232

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Notes

A series of horizontal dotted lines for taking notes, organized into five sections corresponding to the table of contents on the right.

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### External turning tool holders

Tool holder	Application					Workpiece		Page	
	External machining	Facing	Profiling	Profiling	Profiling	Stable	Unstable		
<b>D</b>	DCLNR/L 95° 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		A197
	DDJNR/L 93° 			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A198
	DSBnr/L 75° 	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		A199
	DTGnr/L 91° 	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		A200
	DVVNN 72.5° 					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		A201
	DVJNR/L 93° 			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A202
	DWLNr/L 95° 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		A203
	PCBNr/L 75° 	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		A204
	PCLnr/L 95° 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		A205
	PDJnr/L 93° 			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A206
	PDNnr/L 63° 					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		A207
<b>P</b>	PSBnr/L 75° 	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		A208
	PSDNN 45° 	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		A210
	PSKnr/L 75° 		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		A211
	PSSnr/L 45° 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		A212

 Recommended

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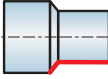

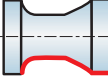
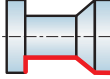
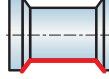











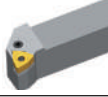


































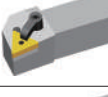






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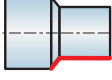

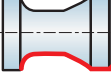
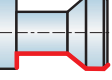






























































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## External turning tool holders

Tool holder	Application					Workpiece		Page	
	External machining	Facing	Profiling	Profiling	Profiling	Stable	Unstable		
									
<b>P</b>	PTFNR/L 91° 							A213	
	PTTNR/L 60° 							A214	
	PTGNR/L 90° 							A215	
	PWLNR/L 95° 							A217	
<b>M</b>	MCBNR/L 75° 							A218	
	MCLNR/L 95° 							A219	
	MDJNR/L 93° 								A220
	MDPNN 62.5° 							A221	
	MSBNR/L 75° 							A222	
	MSRNR/L 75° 							A223	
	MSKNR/L 75° 							A224	
	MSDNN 45° 							A225	
	MTGNR/L 90° 							A226	
	MTJNR/L 93° 							A227	
	MTJNR/L-Z 93° 							A228	

 Recommended

### External turning tool holders

Tool holder	Application					Workpiece		Page
	External machining	Facing	Profiling	Profiling	Profiling	Stable	Unstable	
<b>M</b> MTFNR/L 91° 								A229
MVVNN 72,5° 								A230
MVJNR/L 93° 								A231
MWLNR/L 95° 								A232
MRGNR/L - 								A234
MRDNN - 								A233
<b>S</b> SCACR/L 90° 								A235
SCLCR/L 95° 								A236
SDACR/L 90° 								A237
SDJCR/L 93° 								A238
SDNCN 63° 								A239
SVJBR/L 93° 								A240
SVABR/L 90° 								A241
SVVBN 72,5° 								A242
SVVCN 72,5° 								A243

 Recommended

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## External turning tool holders

Tool holder	Application					Workpiece		Page
	External machining	Facing	Profiling	Profiling	Profiling	Stable	Unstable	
								
<b>S</b>	SVJCR/L 93° 							A244
	SSBCR/L 75° 							A245
	SSDCN 45° 							A246
	SSKCR/L 75° 							A247
	SSSCR/L 45° 							A248
	STACR/L 90° 							A249
	STFCR/L 91° 							A250
	STGCR/L 91° 							A251
	STTCR/L 60° 							A252
	SWACR/L 90° 							A253
	SRDCN - 							A254
	SRGCR/L - 							A255
<b>C</b>	CKJNR/L 93° 							A256
	CKNNR/L 63° 							A257

 Recommended

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**P C L N L 25 25 M 12**

**1 2 3 4 5 6 7 8 9**

Clamping system			Insert shape	
Code	Description			
P	Système de serrage à levier		C	
M	Serrage à bride et levier		D	
S	Système de serrage à vis		R	
C/J	Serrage par bride		S	
D	Serrage double		T	
			V	
			W	

**1**

**2**

Tool holder type and entering angle					Clearance angle	
					B	C
A	B	C	D	E		
					D	E
F	G	H	J	K		
					N	P
L	M	N	O	P		
Q	R	S	T	U		
V	W	X				

**3**

**4**



Cutting direction	
	R
	L
	N

**5**

Shank height h [mm]	
	h
Code	h
12	12
16	16
20	20
25	25
32	32
40	40
50	50

**6**

Shank width b [mm]	
	b
Code	b
12	12
16	16
20	20
25	25
32	32
40	40
50	50

**7**

Holder length L [mm]	
	L
Code	L
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

**8**

Cutting edge length l [mm]							
I.C [mm]	Insert shape						
	C	D	R	S	T	V	W
5,56	09						
6,35	06	07					11
9,525	09	11	09	09	16	16	06
12,7	12	15	12	12	22	22	08
15,875	16	19	15	15	27		
19,05	19	19		19	33		
25,4	25	25		25	44		
32	32						

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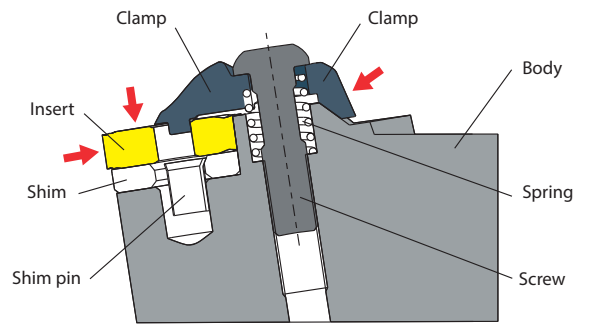
**E**

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# Double clamping tool holder

## D-Type clamp tool holder

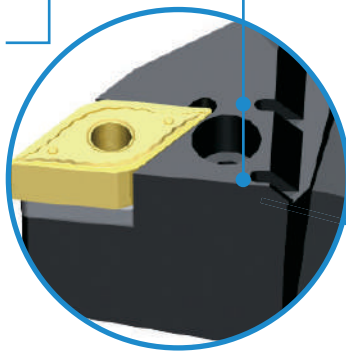
Double clamping system in one operation. The special designed clamping finger enables a stable holding of the inserts, with high accuracy and clamping force for better tool life and higher machining accuracy.



## Best indexing accuracy, high clamping force

Stable tool life by secure clamping

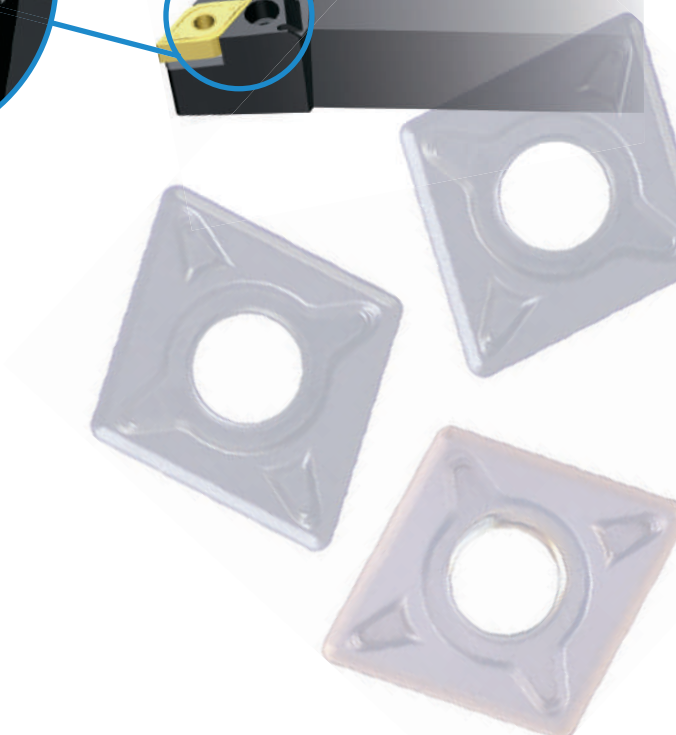
Good anti-corrosive and wear-resistance



## Special clamp nose design for more stability and high clamping accuracy

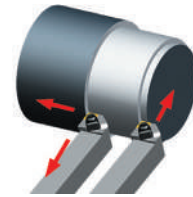
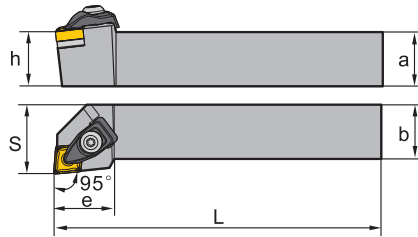
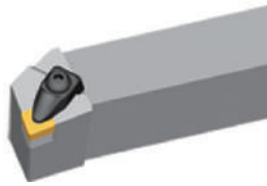
Special design


Double guiding surface



**CN\*\* holder (external) D-Clamping**








DCLNR/L Kr: 95°









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DCLNR/L1616H09	● ○	16	16	100	16	20	24	CN**0903**		
DCLNR/L2020K09	● ●	20	20	125	20	25	24	CN**0903**		
DCLNR/L2525M09	● ●	25	25	150	25	32	24	CN**0903**		
DCLNR/L2020K12	● ●	20	20	125	20	25	28	CN**1204**		
DCLNR/L2525M12	● ●	25	25	150	25	32	28	CN**1204**		
DCLNR/L3225P12	● ●	32	25	170	32	32	28	CN**1204**		

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert	CN**0903**	CN**1204**
	h	16-25	20-32
	Clamp	C1RA	C2RA
	Screw (clamp)	CM5x22C (4.0 Nm)	CM6x25C (7.0 Nm)
	Screw (shim)	SM5x8.65XA1	SM6x10XA1
	Shim	C09BM	C12BM
	Spring	SPR6	SPR4
	Wrench (shim)	WH30L	WH40L
	Wrench (clamp)	WH30L	WH40L

Insert					
					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A45	A45	A46	A53	A53	A148

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



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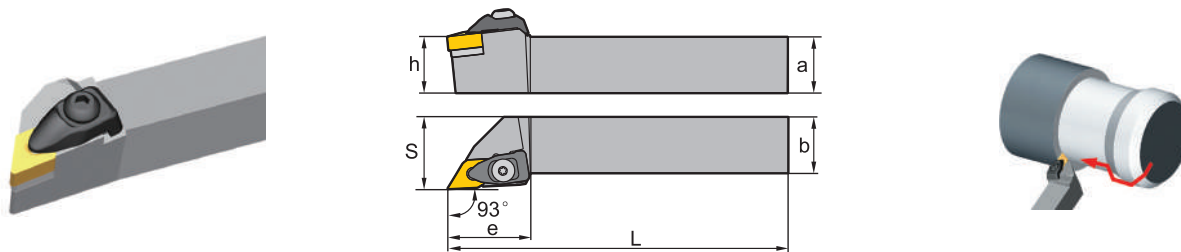
Technical Information

E

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## DN\*\* holder (external) D-Clamping

DDJNR/L Kr: 93°



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DDJNR/L1616H11	●	●		16	16	100	16	20	30	DN**1104**
DDJNR/L2020K11	●	●		20	20	125	20	25	30	DN**1104**
DDJNR/L2525M11	●	●		25	25	150	25	32	30	DN**1104**
DDJNR/L3225P11	○	○		32	25	170	32	32	30	DN**1104**
DDJNR/L2020K15	●	●		20	20	125	20	25	35	DN**1506**
DDJNR/L2525M15	●	●		25	25	150	25	32	35	DN**1506**
DDJNR/L3232P15	●	●		32	32	170	32	40	35	DN**1506**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DN**1104**	DN**1506**
		h	h
	Clamp	C1RA	C2RA
	Screw (clamp)	CM5x22C (4.0 Nm)	CM6x25C (7.0 Nm)
	Screw (shim)	SM5x8.65XA1	SM6x10XA1
	Shim	D11BM	D15BM
	Spring	SPR6	SPR4
	Wrench (shim)	WH30L	WH40L
	Wrench (clamp)	WH30L	WH40L

### Insert

Wiper	Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A55	A55	A56	A60	A61	A149

System code > A194

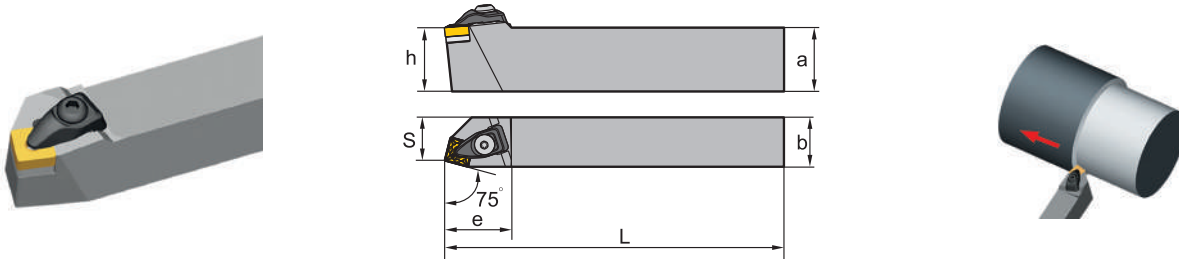
Grade selection > A40


Technical info > A447

Cutting data > A324

**SN\*\* holder (external) D-Clamping**





DSBNR/L Kr: 75°








Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DSBNR/L1616H09		○	○	16	16	100	16	13	26	SN**0903**
DSBNR/L2020K12		●	●	20	20	125	20	17	34	SN**1204**
DSBNR/L2525M12		●	●	25	25	150	25	22	34	SN**1204**
DSBNR/L3225P12		●	●	32	25	170	32	22	34	SN**1204**
DSBNR/L3232P15		●	●	32	32	170	32	27	41	SN**1506**

● Ex stock ○ On demand

\* With internal cooling

Spare parts		SN**0903**	SN**1204**	SN**1506**
Insert		16	20-32	32
h				
	Clamp	C1RA	C2RA	C3RA
	Screw (clamp)	CM5x22C (4.0 Nm)	CM6x25C (7.0 Nm)	CM6x25C (7.0 Nm)
	Screw (shim)	SM5x8.65XA1	SM6x10XA1	SM6x10XA2
	Shim	S09BM	S12BM	S15BM
	Spring	SPR6	SPR4	SPR4
	Wrench (shim)	WH30L	WH40L	WH40L
	Wrench (clamp)	WH30L	WH40L	WH40L

Insert				
				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

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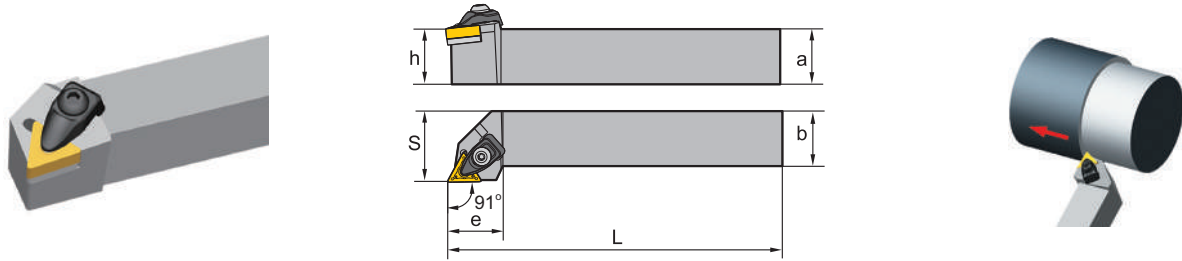
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**A**

Turning

## TN\*\* holder (external) D-Clamping

DTGNR/L Kr: 91°



**B**

Milling

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DTGNR/L1616H16	•	•	16	16	100	16	20	25	TN**1604**	
DTGNR/L2020K16	•	•	20	20	125	20	25	25	TN**1604**	
DTGNR/L2525M16	•	•	25	25	150	25	32	25	TN**1604**	

• Ex stock    ○ On demand

\* With internal cooling

**C**

Drilling

Spare parts		
	Insert	TN**1604**
	h	16-25
	Clamp	C1RA
	Screw (clamp)	CM5x22C (4.0 Nm)
	Screw (shim)	SM5x8.65XA1
	Shim	T16BM
	Spring	SPR6
	Wrench (shim)	WH30L
	Wrench (clamp)	WH30L

**D**

Technical Information

Insert					
Wiper	Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A78	A79	A81	A84	A88	A151

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System code > A194

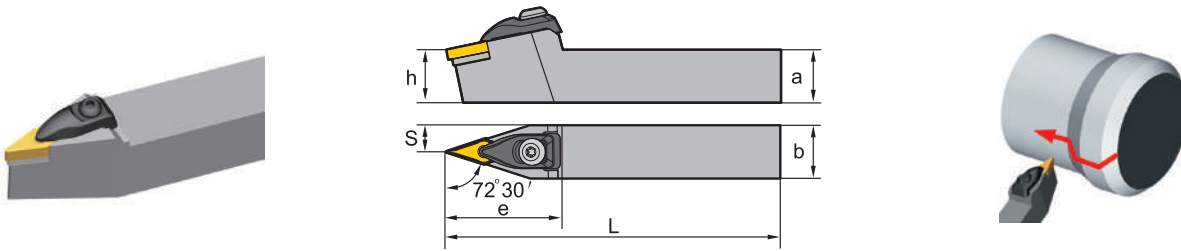
Grade selection > A40

Technical info > A447

Cutting data > A324

## VN\*\* holder (external) D-Clamping

DVVNN Kr: 72°30'



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
DVVNN2020K16	●		20	20	125	20	10	44	VN**1604**
DVVNN2525M16	●		25	25	150	25	12.5	44	VN**1604**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert h	VN**1604** 20-25
	Clamp	C6RA
	Screw (clamp)	CM5x22C (4.0 Nm)
	Screw (shim)	SM5x8.65XA1
	Shim	V16BM
	Spring	SPR6
	Wrench (shim)	WH30L
	Wrench (clamp)	WH30L

### Insert

<b>Finishing</b> A91	<b>Medium Cut</b> A93	<b>Roughing</b> A93	<b>Cast Iron</b> A92	<b>PCBN/PCD</b> A152

System code > A194

Grade selection > A40

Technical info > A447

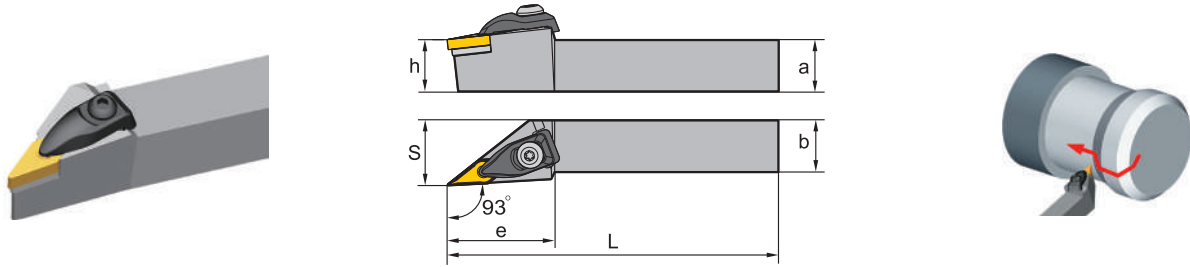
Cutting data > A324

**A**

Turning

## VN\*\* holder (external) D-Clamping

DVJNR/L Kr: 93°



**B**

Milling

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DVJNR/L2020K16	●	●		20	20	125	20	25	41	VN**1604**
DVJNR/L2525M16	●	●		25	25	150	25	32	41	VN**1604**

● Ex stock    ○ On demand

\* With internal cooling

**C**

Drilling

Spare parts		
	Insert	VN**1604**
	h	20-25
	Clamp	C6RA
	Screw (clamp)	CM5x22C (4.0 Nm)
	Screw (shim)	SM5x8.65XA1
	Shim	V16BM
	Spring	SPR6
	Wrench (clamp)	WH30L
	Wrench (shim)	WH30L

**D**

Technical Information

Insert				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A91	A93	A93	A92	A152

**E**

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System code > A194

Grade selection > A40

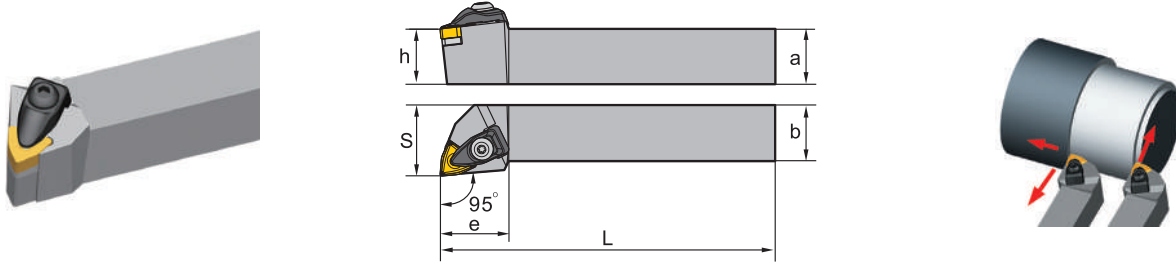
Technical info > A447


Cutting data > A324



**WN\*\* holder (external) D-Clamping**








DWLNRL Kr: 95°









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
DWLNRL1616H06	•	•	16	16	100	16	25	24	WN**0604**	
DWLNRL2020K06	•	•	20	20	125	20	25	24	WN**0604**	
DWLNRL2525M06	•	•	25	25	150	25	32	24	WN**0604**	
DWLNRL2020K08	•	•	20	20	125	20	25	31	WN**0804**	
DWLNRL2525M08	•	•	25	25	150	25	32	31	WN**0804**	
DWLNRL3225P08	•	•	32	25	170	32	32	31	WN**0804**	

• Ex stock    ○ On demand

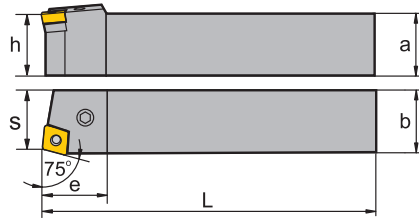
\* With internal cooling

Spare parts			
	Insert	WN**0604**	WN**0804**
	h	16-25	20-32
	Clamp	C1RA	C2RA
	Screw (clamp)	CM5x22C (4.0 Nm)	CM6x25C (7.0 Nm)
	Screw (shim)	SM5x8.65XA1	SM6x10XA1
	Shim	W06BM	W08BM
	Spring	SPR6	SPR4
	Wrench (shim)	WH30L	WH40L
	Wrench (clamp)	WH30L	WH40L

Insert					
					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A95	A94	A97	A98	A98	A153

## CN\*\* holder (external) P-Clamping

PCBNR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PCBNR/L2020K12	●	●		20	20	125	20	17	27	CN**1204**
PCBNR/L2525M12	●	●		25	25	150	25	22	27	CN**1204**
PCBNR/L3232P12	●	●		32	32	170	32	27	27	CN**1204**
PCBNR/L2525M16	●	●		25	25	150	25	22	33	CN**1606**
PCBNR/L3232P16	●	●		32	32	170	32	27	33	CN**1606**
PCBNR/L3232P19	●	●		32	32	170	32	27	38	CN**1906**
PCBNR/L4040S19	●	●		40	40	250	40	35	38	CN**1906**
PCBNR/L4040S2507	●	●		40	40	250	40	35	50	CN**2507**
PCBNR/L4040S2509	●	●		40	40	250	40	35	50	CN**2509**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	CN**1204**	CN**1606**	CN**1906**	CN**2507**	CN**2509**
	h	20-32	25-32	32-40	40	40
	Knee lever	L4	L5	L6	L8	L8
	Screw	LEM8x21 (10.2 Nm)	LEM8x25 (10.2 Nm)	LEM10x27 (16.6 Nm)		
	Screw				LEM12x36A (25.2 Nm)	LEM12x36A (25.2 Nm)
	Shim	C12AP	C16AP	C19AP	C25AP-07	C25AP
	Shim pin (shim)	SP4	SP5	SP6	SP8	SP8
	Wrench	WH30L	WH30L	WH40L	WH50L	WH50L

### Insert

Wiper	Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A45	A45	A46	A51	A53	A148

System code > A194

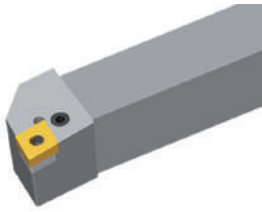
Grade selection > A40

Technical info > A447

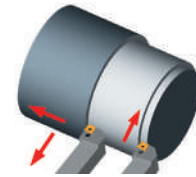
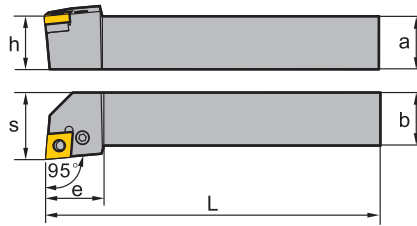
Cutting data > A324

**CN\*\* holder (external) P-Clamping**

PCLNR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PCLNR/L1616H09	● ●	16	16	100	16	20	20	CN**0903**		
PCLNR/L2020K09	● ●	20	20	125	20	25	22	CN**0903**		
PCLNR/L2525M09	○ ●	25	25	150	25	32	22	CN**0903**		
PCLNR/L2020K12	● ●	20	20	125	20	25	28	CN**1204**		
PCLNR/L2525M12	● ●	25	25	150	25	32	28	CN**1204**		
PCLNR/L3232P12	● ●	32	32	170	32	40	28	CN**1204**		
PCLNR/L2525M16	● ●	25	25	150	25	32	33	CN**1606**		
PCLNR/L3232P16	● ●	32	32	170	32	40	33	CN**1606**		
PCLNR/L3232P19	● ●	32	32	170	32	40	38	CN**1906**		
PCLNR/L4040S19	● ●	40	40	250	40	50	38	CN**1906**		
PCLNR/L4040S2507	● ●	40	40	250	40	50	49	CN**2507**		
PCLNR/L4040S2509	● ●	40	40	250	40	50	49	CN**2509**		

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	CN**0903**	CN**1204**	CN**1606**	CN**1906**	CN**2507**	CN**2509**
	h	16-25	20-32	25-32	32-40	40	40
	Knee lever	L3	L4	L5	L6	L8	L8
	Screw		LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)	LEM10×27 (16.6 Nm)		
	Screw	LEM6×13.4A (7.0 Nm)				LEM12×36A (25.2 Nm)	LEM12×36A (25.2 Nm)
	Shim	C09AP	C12AP	C16AP	C19AP	C25AP-07	C25AP
	Shim pin (shim)	SP10	SP4	SP5	SP6	SP8	SP8
	Wrench	WH25L	WH30L	WH30L	WH40L	WH50L	WH50L

Insert

<b>Wiper</b> A45	<b>Finishing</b> A45	<b>Medium Cut</b> A46	<b>Roughing</b> A51	<b>Cast Iron</b> A53	<b>PCBN/PCD</b> A148

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

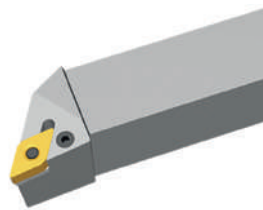
Technical Information

E

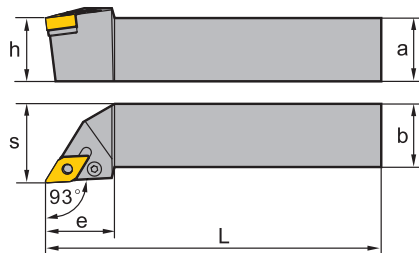
Index

## DN\*\* holder (external) P-Clamping

PDJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PDJNR/L1616H11	●	●		16	16	100	16	20	25	DN**1104**
PDJNR/L2020K11	●	●		20	20	125	20	25	25	DN**1104**
PDJNR/L2525M11	●	●		25	25	150	25	32	30	DN**1104**
PDJNR/L2020K15-3	●	○		20	20	125	20	25	35	DN**1504**
PDJNR/L2525M15-3	●	●		25	25	150	25	32	35	DN**1504**
PDJNR/L3232P15-3	●	●		32	32	170	32	40	35	DN**1504**
PDJNR/L2020K15	●	●		20	20	125	20	25	35	DN**1506**
PDJNR/L2525M15	●	●		25	25	150	25	32	35	DN**1506**
PDJNR/L3232P15	●	●		32	32	170	32	40	35	DN**1506**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DN**1104**	DN**1504**	DN**1506**
	h	16-32	20-32	20-32
	Knee lever	L3	L4	L4B
	Screw		LEM8×21 (10.2 Nm)	LEM8×21 (10.2 Nm)
	Screw	LEM6×13.4A (7.0 Nm)		
	Shim	D11AP	D15AP	D15AP
	Shim pin (shim)	SP3	SP4	SP4
	Wrench	WH25L	WH30L	WH30L

### Insert

Wiper	Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A55	A55	A56	A60	A61	A149

System code > A194

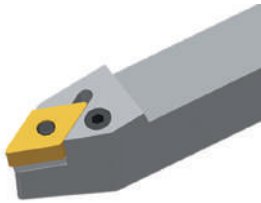
Grade selection > A40

Technical info > A447

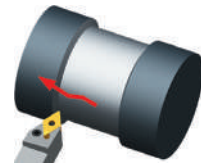
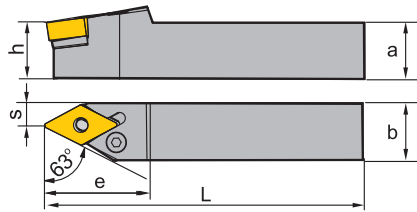
Cutting data > A324

**DN\*\* holder (external)** P-Clamping

PDNNR/L Kr: 63°



Left hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PDNNR/L2020K15-3	●	○		20	20	125	20	8	37	DN**1504**
PDNNR/L2525M15-3	●	○		25	25	150	25	12.5	37	DN**1504**
PDNNR/L3232P15-3	●	●		32	32	170	32	16	37	DN**1504**
PDNNR/L2020K15	●	●		20	20	125	20	8	37	DN**1506**
PDNNR/L2525M15	●	●		25	25	150	25	12.5	37	DN**1506**
PDNNR/L3232P15	●	●		32	32	170	32	16	37	DN**1506**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert h	DN**1504**	DN**1506**
		20-32	20-32
	Knee lever	L4	L4B
	Screw	LEM8×21 (10.2 Nm)	LEM8×21 (10.2 Nm)
	Shim	D15AP	D15AP
	Shim pin (shim)	SP4	SP4
	Wrench	WH30L	WH30L

Insert

<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A55	A55	A56	A60	A61	A149

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

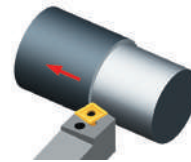
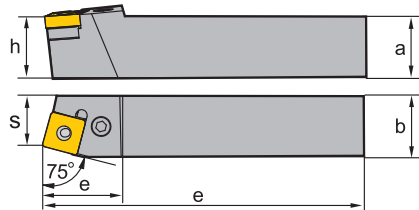
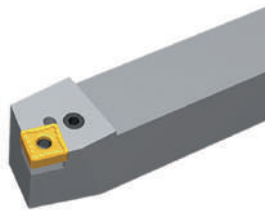
Technical Information

E

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## SN\*\* holder (external) P-Clamping

PSBNR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PSBNR/L1616H09	● ○	●	○	16	16	100	16	13	21	SN**0903**
PSBNR/L2020K09	● ○	●	○	20	20	125	20	17	23	SN**0903**
PSBNR/L2020K12	● ●	●	●	20	20	125	20	17	28	SN**1204**
PSBNR/L2525M12	● ●	●	●	25	25	125	25	22	28	SN**1204**
PSBNR/L3225P12	● ○	●	○	32	25	170	32	22	28	SN**1204**
PSBNR/L3232P12	● ○	●	○	32	32	170	32	27	28	SN**1204**
PSBNR/L2525M15	● ○	●	○	25	25	150	25	22	35	SN**1506**
PSBNR/L3232P15	● ●	●	●	32	32	170	32	27	35	SN**1506**
PSBNR/L3232P19	● ●	●	●	32	32	170	32	27	40	SN**1906**
PSBNR/L4040S19	● ●	●	●	40	40	250	40	35	40	SN**1906**
PSBNR/L4040S2507	○ ○	○	○	40	40	250	40	35	48	SN**2507**
PSBNR/L4040S2509	○ ○	○	○	40	40	250	40	35	48	SN**2509**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	SN**0903**	SN**1204**	SN**1506**	SN**1906**	SN**2507**	SN**2509**
		h	16-20	20-32	25-32	32-40	40
	Knee lever	L3	L4	L5	L6	L8	L8
	Screw		LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)	LEM10×27 (16.6 Nm)		
	Screw	LEM6×13.4A (7.0 Nm)				LEM12×36A (25.2 Nm)	LEM12×36A (25.2 Nm)
	Shim	S09AP	S12AP	S15AP	S19AP	S25AP	
	Shim						S25AP-09
	Shim pin (shim)	SP10	SP4	SP5	SP6	SP8	SP8
	Wrench	WH25L	WH30L	WH30L	WH40L	WH50L	WH50L






System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324

**SN\*\* holder (external)**

Insert				
				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A194

Grade selection > A40

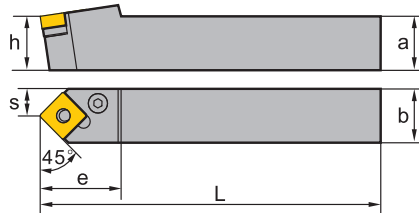
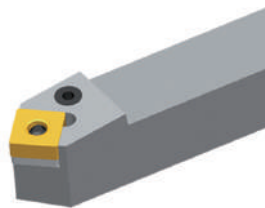
Technical info > A447

Cutting data > A324



## SN\*\* holder (external) P-Clamping

PSDNN Kr: 45°



Article	* Stock	Dimensions [mm]							Inserts
		a	b	L	h	s	e		
PSDNN1212F09	○	12	12	80	12	6	21	SN**0903**	
PSDNN1616H09	●	16	16	100	16	8	23	SN**0903**	
PSDNN2020K12	●	20	20	125	20	10	30	SN**1204**	
PSDNN2525M12	●	20	20	150	20	12.5	30	SN**1204**	
PSDNN3232P12	●	32	32	170	32	16	40	SN**1204**	
PSDNN2525M15	●	25	25	150	25	12.5	40	SN**1506**	
PSDNN3232P15	●	32	32	170	32	16	40	SN**1506**	
PSDNN3232P19	●	32	32	170	32	16	40	SN**1906**	
PSDNN4040S19	●	40	40	250	40	20	40	SN**1906**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts						
	Insert	SN**0903**	SN**0903**	SN**1204**	SN**1506**	SN**1906**
	h	12	16	20-32	25-32	32-40
	Knee lever	L3B	L3	L3	L5	L6
	Screw	LEM5×12B (4.0 Nm)				
	Screw				LEM8×25 (10.2 Nm)	LEM10×27 (16.6 Nm)
	Screw		LEM6×13.4A (7.0 Nm)	LEM6×13.4A (7.0 Nm)		
	Shim		S09AP	S09AP	S15AP	S19AP
	Shim pin (shim)		SP10	SP10	SP5	SP6
	Wrench	WH20L	WH25L	WH25L	WH30L	WH40L

Insert				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

System code > A194

Grade selection > A40

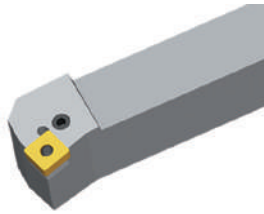
Technical info > A447

Cutting data > A324

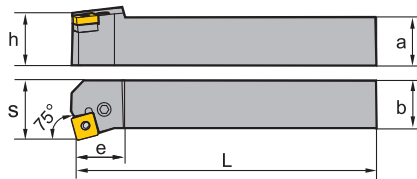



**SN\*\* holder (external) P-Clamping**

PSKNR/L Kr: 75°









Right hand style








Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PSKNR/L1616H09		○	○	16	16	100	16	20	17	SN**0903**
PSKNR/L2020K09		●	○	20	20	125	20	25	20	SN**0903**
PSKNR/L2020K12		●	●	20	20	125	20	25	26	SN**1204**
PSKNR/L2525M12		●	●	25	25	150	25	32	26	SN**1204**
PSKNR/L3232P12		●	●	32	32	170	32	40	26	SN**1204**
PSKNR/L2525M15		●	○	25	25	150	25	32	32	SN**1506**
PSKNR/L3232P15		●	●	32	32	170	32	40	32	SN**1506**
PSKNR/L3232P19		●	●	32	32	170	32	40	36	SN**1906**
PSKNR/L4040S19		○	○	40	40	250	40	50	40	SN**1906**

● Ex stock ○ On demand

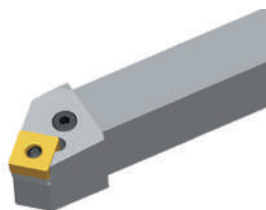
\* With internal cooling

Spare parts		SN**0903**	SN**1204**	SN**1506**	SN**1906**
Insert		16-20	20-32	25-32	32-40
h					
	Knee lever	L3	L4	L5	L6
	Screw		LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)	LEM10×27 (16.6 Nm)
	Screw	LEM6×13.4A (7.0 Nm)			
	Shim	S09AP	S12AP	S15AP	S19AP
	Shim pin (shim)	SP10	SP4	SP5	SP6
	Wrench	WH25L	WH30L	WH30L	WH40L

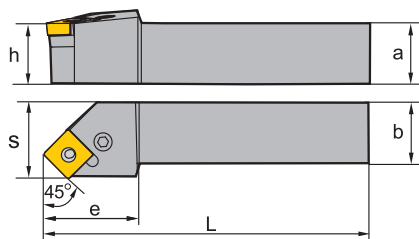
Insert				
				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

## SN\*\* holder (external) P-Clamping

PSSNR/L Kr: 45°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PSSNR/L1616H09	●	●		16	16	100	16	20	25	SN**0903**
PSSNR/L2020K12	●	●		20	20	125	20	25	30	SN**1204**
PSSNR/L2525M12	●	●		25	25	150	25	32	30	SN**1204**
PSSNR/L3232P12	●	●		32	32	170	32	40	40	SN**1204**
PSSNR/L2525M15	●	●		25	25	150	25	32	30	SN**1506**
PSSNR/L3232P15	●	●		32	32	170	32	40	40	SN**1506**
PSSNR/L3232P19	●	●		32	32	170	32	40	40	SN**1906**
PSSNR/L4040S19	●	●		40	40	250	40	50	50	SN**1906**
PSSNR/L4040S2507	●	●		40	40	250	40	50	50	SN**2507**
PSSNR/L4040S2509	●	●		40	40	250	40	50	50	SN**2509**

● Ex stock ○ On demand

\* With internal cooling

Spare parts							
	Insert	SN**0903**	SN**1204**	SN**1506**	SN**1906**	SN**2507**	SN**2509**
	<b>h</b>	<b>16</b>	<b>20-32</b>	<b>25-32</b>	<b>32-40</b>	<b>40</b>	<b>40</b>
	Knee lever	L3	L4	L5	L6	L8	L8
	Screw		LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)	LEM10×27 (16.6 Nm)		
	Screw	LEM6×13.4A (7.0 Nm)				LEM12×36A (25.2 Nm)	LEM12×36A (25.2 Nm)
	Shim	S09AP	S12AP	S15AP	S19AP	S25AP	
	Shim						S25AP-09
	Shim pin (shim)	SP10	SP4	SP5	SP6	SP8	SP8
	Wrench	WH25L	WH30L	WH30L	WH40L	WH50L	WH50L

Insert				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

System code > A194

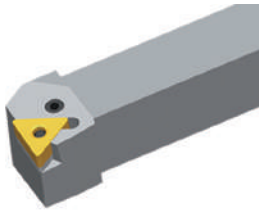
Grade selection > A40

Technical info > A447

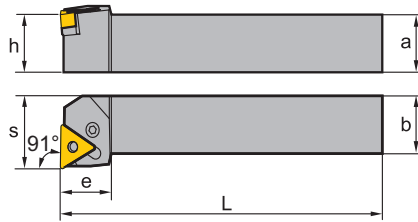
Cutting data > A324


**TN\*\* holder (external)** P-Clamping

PTFNR/L Kr: 91°



Right hand style









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PTFNR/L1616H16	●	●	16	16	100	16	20	20	TN**1604**	
PTFNR/L2020K16	●	●	20	20	125	20	25	20	TN**1604**	
PTFNR/L2525M16	●	●	25	25	150	25	32	20	TN**1604**	
PTFNR/L2525M22	●	●	25	25	150	25	32	25	TN**2204**	
PTFNR/L3232P22	●	●	32	32	170	32	40	25	TN**2204**	
PTFNR/L3232P27	●	○	32	32	170	32	40	34	TN**2706**	
PTFNR/L4040S27	○	○	40	40	250	40	50	34	TN**2706**	


● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	TN**1604**	TN**2204**	TN**2706**
	h	16-25	25-32	32-40
	Knee lever	L3	L4	L5
	Screw		LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)
	Screw	LEM6×13.4A (7.0 Nm)		
	Shim	T16AP	T22AP	T27AP
	Shim pin (shim)	SP3	SP4	SP5
	Wrench	WH25L	WH30L	WH30L

Insert

						
Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Heavy Turning A87	Cast Iron A88	PCBN/PCD A151

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324

A

Turning

B

Milling

C

Drilling

D

Technical Information

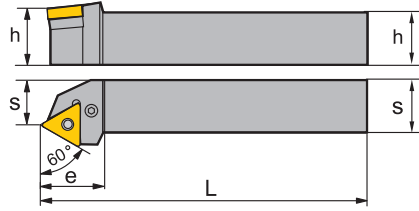
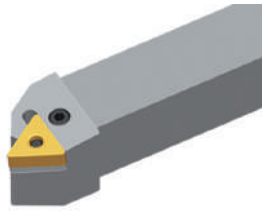
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**A**

## TN\*\* holder (external) P-Clamping

PTTNR/L Kr: 60°



Right hand style

Turning

**B**

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PTTNR/L1616H16	●	●		16	16	100	16	13	25	TN**1604**
PTTNR/L2020K16	●	○		20	20	125	20	17	25	TN**1604**
PTTNR/L2525M22	●	●		25	25	150	20	22	32	TN**2204**

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Spare parts

	Insert	TN**1604**	TN**2204**
	h	16-25	20
	Knee lever	L3	L4
	Screw		LEM8×21 (10.2 Nm)
	Screw	LEM6×13.4A (7.0 Nm)	
	Shim	T16AP	T22AP
	Shim pin (shim)	SP3	SP4
	Wrench	WH25L	WH30L

Drilling

**D**

### Insert

Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Heavy Turning A87	Cast Iron A88	PCBN/PCD A151

Technical Information

**E**

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System code > A194

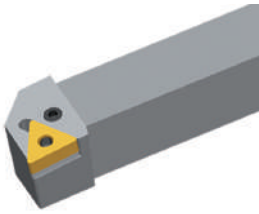
Grade selection > A40

Technical info > A447

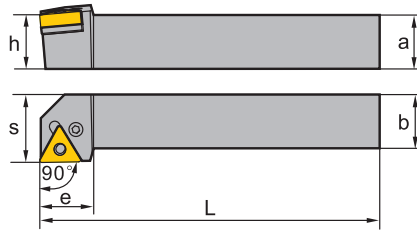
Cutting data > A324


**TN\*\* holder (external)** **P-Clamping**

PTGNR/L Kr: 90°



Right hand style










Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PTGNR/L1010E11	●			10	10	70	10	14	16	TN**1103**
PTGNR/L1212F11	●	●		12	12	80	12	16	14	TN**1103**
PTGNR/L1616H11	●	●		16	16	100	16	20	18	TN**1103**
PTGNR/L2020K11	●	○		20	20	125	20	25	19	TN**1103**
PTGNR/L2525M11	○	○		25	25	150	25	32	20	TN**1103**
PTGNR/L1616H16	●	●		16	16	100	16	20	20	TN**1604**
PTGNR/L2020K16	●	●		20	20	125	20	25	20	TN**1604**
PTGNR/L2525M16	●	●		25	25	150	25	32	20	TN**1604**
PTGNR/L3232P16	●	○		32	32	170	32	40	20	TN**1604**
PTGNR/L2525M22	●	●		25	25	150	25	32	28	TN**2204**
PTGNR/L3232P22	●	●		32	32	170	32	40	28	TN**2204**
PTGNR/L3232P27	●	○		32	32	170	32	40	33	TN**2706**
PTGNR/L4040S27	○	○		40	40	250	40	50	33	TN**2706**

● Ex stock ○ On demand

\* With internal cooling








Spare parts

	Insert h	TN**1103**	TN**1604**	TN**2204**	TN**2706**
		10-25	16-32	25-32	32-40
	Knee lever	L2	L3	L4	L5
	Screw	LEM5×9B (4.0 Nm)			
	Screw			LEM8×21 (10.2 Nm)	LEM8×25 (10.2 Nm)
	Screw		LEM6×13.4A (7.0 Nm)		
	Shim		T16AP	T22AP	T27AP
	Shim pin (shim)		SP3	SP4	SP5
	Wrench	WH20L	WH25L	WH30L	WH30L

**A**

Turning

## TN\*\* holder (external)

Insert						
						
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Heavy Turning</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A78	A79	A81	A84	A87	A88	A151

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A194

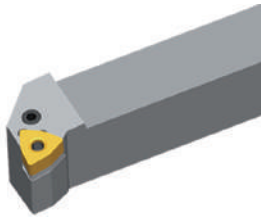
Grade selection > A40

Technical info > A447

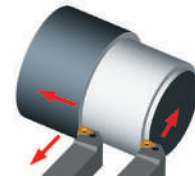
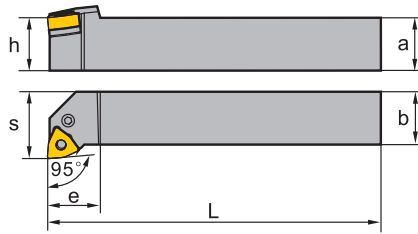
Cutting data > A324

**WN\*\* holder (external)** **P-Clamping**

PWLNLR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
PWLNLR/L1616H06	●	●	16	16	100	16	20	20	20	WN**0604**
PWLNLR/L2020K06	●	●	20	20	125	20	25	20	20	WN**0604**
PWLNLR/L2525M06	●	●	25	25	150	25	32	20	20	WN**0604**
PWLNLR/L2020K08	●	●	20	20	125	20	25	26	26	WN**0804**
PWLNLR/L2525M08	●	●	25	25	150	25	32	26	26	WN**0804**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert h	WN**0604**	WN**0804**
		16-25	20-25
Knee lever		L3	L4
Screw			LEM8x21 (10.2 Nm)
Screw		LEM6x13.4A (7.0 Nm)	
Shim		W06AP	W08AP
Shim pin (shim)		SP3	SP4
Wrench		WH25L	WH30L

Insert

<b>Wiper</b> A95	<b>Finishing</b> A94	<b>Medium Cut</b> A97	<b>Roughing</b> A98	<b>Cast Iron</b> A98	<b>PCBN/PCD</b> A153

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

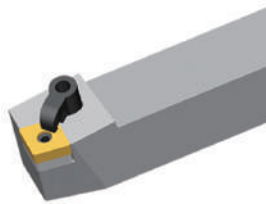
Technical Information

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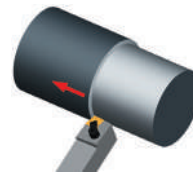
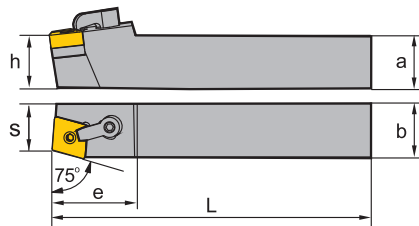
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





## CN\*\* holder (external) M-Clamping

MCBNR/L Kr: 75°



Right hand style










Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MCBNR/L2020K12	● ○	20	20	125	20	17	32			
MCBNR/L2525M12	● ●	25	25	150	20	22	32			
MCBNR/L3225P12	● ●	32	25	170	32	22	32			
MCBNR/L2525M16	○ ○	25	25	150	25	22	40			
MCBNR/L3232P16	● ●	32	32	170	32	27	40			
MCBNR/L3232P19	○ ○	32	32	170	32	27	45			
MCBNR/L4040R19	○ ●	40	40	200	40	35	45			

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert h	CN**1204**	CN**1204**	CN**1606**	CN**1906**
		20	25-32	25-32	32-40
 Clamp		C1RD	C1RD	C2RD	C5RD
 Dowel pin		TM6×17	TM6×17	TM8×21	TM10×21
 Screw (clamp)		DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)	
 Screw (clamp)					DM8×30X (10.2 Nm)
 Shim		C12BM	C12BM	C16BM	C19BM
 Wrench (dowel pin)		WH30L	WH30L	WH30L	WH40L
 Wrench (clamp)		WH30L	WH30L	WH30L	WH40L

### Insert

					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A45	A45	A46	A53	A53	A148

System code > A194

Grade selection > A40

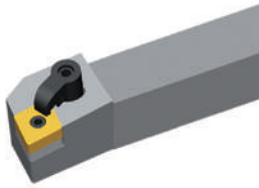
Technical info > A447

Cutting data > A324

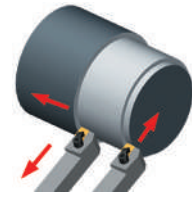
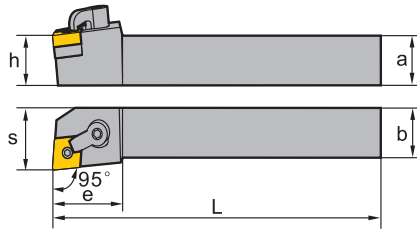



**CN\*\* holder (external)** **M-Clamping**

MCLNR/L Kr: 95°










Right hand style









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MCLNR/L2020K12	●	●		20	20	125	20	25	32	CN**1204**
MCLNR/L2525M12	●	●		25	25	150	25	32	32	CN**1204**
MCLNR/L3225P12	●	●		32	25	170	32	32	32	CN**1204**
MCLNR/L2525M16	●	●		25	25	150	25	32	38	CN**1606**
MCLNR/L3232P16	●	●		32	32	170	32	40	38	CN**1606**
MCLNR/L3232P19	●	●		32	32	170	32	40	45	CN**1906**
MCLNR/L4040R19	●	○		40	40	200	40	50	45	CN**1906**

● Ex stock ○ On demand

\* With internal cooling

Spare parts		CN**1204**	CN**1204**	CN**1606**	CN**1906**
Insert		20	25-32	25-32	32-40
h					
	Clamp	C1RD	C1RD	C2RD	C5RD
	Dowel pin	TM6×17	TM6×17	TM8×21	TM10×21
	Screw (clamp)	DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)	
	Screw (clamp)				DM8×30X (10.2 Nm)
	Shim	C12BM	C12BM	C16BM	C19BM
	Wrench (dowel pin)	WH30L	WH30L	WH30L	WH40L
	Wrench (clamp)	WH30L	WH30L	WH30L	WH40L

Insert					
					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A45	A45	A46	A53	A53	A148

A

Turning

B

Milling

C

Drilling

D

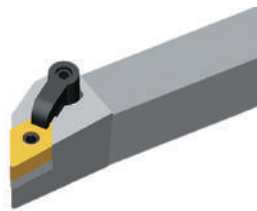
Technical Information

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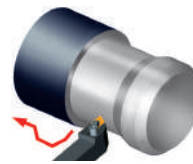
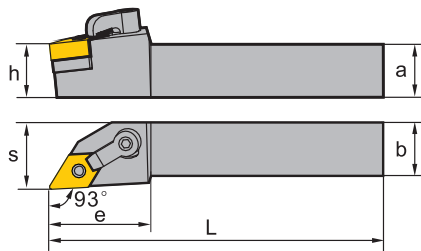
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## DN\*\* holder (external) M-Clamping

MDJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MDJNR/L2020K11	●	●		20	20	125	20	25	32	DN**1104**
MDJNR/L2525M11	●	●		25	25	150	25	32	32	DN**1104**
MDJNR/L3225P11	●	○		32	25	170	32	32	32	DN**1104**
MDJNR/L2020K15	●	●		20	20	125	20	25	38	DN**1506**
MDJNR/L2525M15	●	●		25	25	150	25	32	38	DN**1506**
MDJNR/L3225P15	●	●		32	25	170	32	32	38	DN**1506**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert h	DN**1104**	DN**1104**	DN**1506**	DN**1506**
		20	25-32	20	25-32
	Clamp	C1RD	C1RD	C2RD	C2RD
	Dowel pin	TM5x13	TM5x13	TM6x19	TM6x19
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	D11BM	D11BM	D15BM	D15BM
	Wrench (clamp)	WH30L	WH30L	WH30L	WH30L
	Wrench (dowel pin)	WH20L	WH20L	WH30L	WH30L

### Insert

Wiper A55	Finishing A55	Medium Cut A56	Roughing A60	Cast Iron A61	PCBN/PCD A149

System code > A194

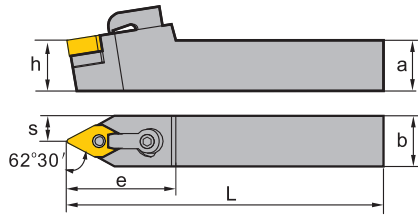
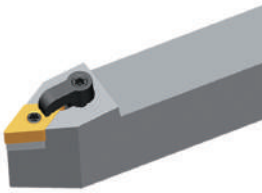
Grade selection > A40

Technical info > A447

Cutting data > A324

**DN\*\* holder (external)** **M-Clamping**

MDPNN Kr: 62°30'



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
MDPNN2020K11		●	20	20	125	20	10	35	DN**1104**
MDPNN2525M11		●	25	25	150	25	12.5	35	DN**1104**
MDPNN3225P11		●	32	25	170	32	12.5	35	DN**1104**
MDPNN2020K15		●	20	20	125	20	10	40	DN**1506**
MDPNN2525M15		●	25	25	150	25	12.5	40	DN**1506**
MDPNN3225P15		●	32	25	170	32	12.5	40	DN**1506**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		DN**1104**	DN**1104**	DN**1506**	DN**1506**
Insert	h	20	25-32	20	25-32
	Clamp	C1RD	C1RD	C2RD	C2RD
	Dowel pin	TM5x13	TM5x13	TM6x19	TM6x19
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	D11BM	D11BM	D15BM	D15BM
	Wrench (clamp)	WH30L	WH30L	WH30L	WH30L
	Wrench (dowel pin)	WH20L	WH20L	WH30L	WH30L

Insert					
Wiper	Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A55	A55	A56	A60	A61	A149

System code > A194

Grade selection > A40

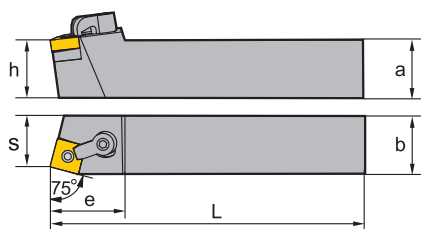
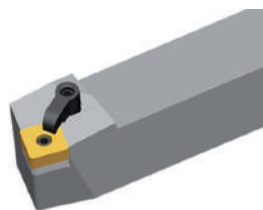
Technical info > A447

Cutting data > A324



## SN\*\* holder (external) M-Clamping

MSBNR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MSBNR/L2020K12	●	●		20	20	125	20	17	32	SN**1204**
MSBNR/L2525M12	●	○		25	25	150	25	22	32	SN**1204**
MSBNR/L3225P12	●	●		32	25	170	32	22	32	SN**1204**
MSBNR/L2525M15	●	○		25	25	150	25	22	38	SN**1506**
MSBNR/L3232P15	●	●		32	32	170	32	29	38	SN**1506**
MSBNR/L4032R15	○			40	32	200	40	27	38	SN**1506**
MSBNR/L3232P19	●	●		32	32	170	32	27	45	SN**1906**
MSBNR/L4040R19	○	●		40	40	200	40	35	45	SN**1906**
MSBNR/L4040R25	●	○		40	40	200	40	35	50	SN**2507**
MSBNR/L4040S2509	○	○		40	40	250	40	35	50	SN**2509**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	SN**1204**	SN**1204**	SN**1506**	SN**1906**	SN**2507**	SN**2509**
	h	20	25-32	25-40	32-40	40	40
	Clamp	C1RD	C1RD	C2RD	C5RD	C6RD	C6RD
	Dowel pin	TM6×17	TM6×17	TM8×21	TM10×21	TM12×29	TM12×29
	Screw (clamp)	DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)			
	Screw (clamp)				DM8×30X (10.2 Nm)	DM10×35X (16.6 Nm)	DM10×35X (16.6 Nm)
	Shim	S12BM	S12BM	S15BM	S19BM	S25BM	S25BM
	Wrench (clamp)	WH30L	WH30L	WH30L	WH40L	WH40L	WH40L
	Wrench (dowel pin)	WH31L	WH31L	WH30L	WH40L	WH50L	WH50L

### Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

System code > A194

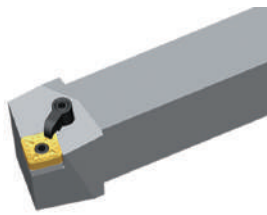
Grade selection > A40

Technical info > A447

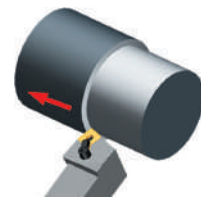
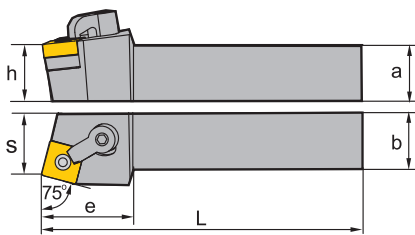
Cutting data > A324


**SN\*\* holder (external)** **M-Clamping**

MSRNR/L Kr: 75°










Right hand style








Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MSRNR/L2020K12	●	●	20	20	125	20	22	36	SN**1204**	
MSRNR/L2525M12	●	●	25	25	150	25	27	36	SN**1204**	
MSRNR/L3225P12	●	○	32	25	170	32	27	36	SN**1204**	
MSRNR/L2525M15	●	○	25	25	150	25	27	40	SN**1506**	
MSRNR/L3232P15	●	●	32	32	170	32	35	40	SN**1506**	
MSRNR/L4032R15	○	○	40	32	200	40	35	40	SN**1506**	
MSRNR/L3232P19	○	○	32	32	170	32	35	45	SN**1906**	
MSRNR/L4040R19	○	○	40	40	200	40	43	45	SN**1906**	
MSRNR/L4040R2509	○	○	40	40	200	40	43	50	SN**2509**	
MSRNR/L4040S2509	○	○	40	40	250	40	43	50	SN**2509**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts		SN**1204**	SN**1204**	SN**1506**	SN**1906**	SN**2509**
Insert	h	20	25-32	25-40	32-40	40
 Clamp		C1RD	C1RD	C2RD	C5RD	C6RD
 Dowel pin		TM6×17	TM6×17	TM8×21	TM10×21	TM12×29
 Screw (clamp)		DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)		
 Screw (clamp)					DM8×30X (10.2 Nm)	DM10×35X (16.6 Nm)
 Shim		S12BM	S12BM	S15BM	S19BM	S25BM
 Wrench (clamp)		WH30L	WH30L	WH30L	WH40L	WH40L
 Wrench (dowel pin)		WH31L	WH31L	WH30L	WH40L	WH50L

Insert				
				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

A

Turning

B

Milling

C

Drilling

D

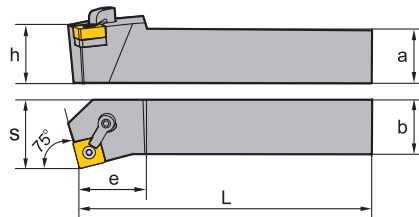
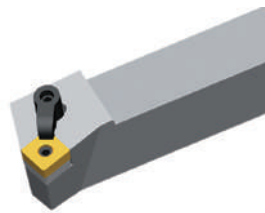
Technical Information

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## SN\*\* holder (external) M-Clamping

MSKNR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MSKNR/L2020K12	●	●		20	20	125	20	25	32	SN**1204**
MSKNR/L2525M12	●	●		25	25	150	25	32	32	SN**1204**
MSKNR/L3225P12	●	○		32	25	170	32	32	32	SN**1204**
MSKNR/L2525M15	●	○		25	25	150	25	32	28	SN**1506**
MSKNR/L3232P15	●	○		32	32	170	32	40	38	SN**1506**
MSKNR/L4032R15		○		40	32	200	40	40	38	SN**1506**
MSKNR/L3232P19	●	●		32	32	170	32	40	45	SN**1906**
MSKNR/L4040R19		○		40	40	200	40	50	45	SN**1906**
MSKNR/L4040S2509		○	●	40	40	250	40	50	50	SN**2509**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	SN**1204**	SN**1204**	SN**1506**	SN**1906**	SN**2509**
	h	20	25-32	25-40	32-40	40
	Clamp	C1RD	C1RD	C2RD	C5RD	C6RD
	Dowel pin	TM6×17	TM6×17	TM8×21	TM10×21	TM12×29
	Screw (clamp)	DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)		
	Screw (clamp)				DM8×30X (10.2 Nm)	DM10×35X (16.6 Nm)
	Shim	S12BM	S12BM	S15BM	S19BM	S25BM
	Wrench (clamp)	WH30L	WH30L	WH30L	WH40L	WH40L
	Wrench (dowel pin)	WH30L	WH30L	WH30L	WH40L	WH50L

### Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A63	A65	A68	A74	A150

System code > A194

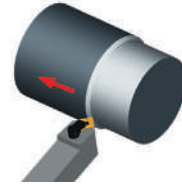
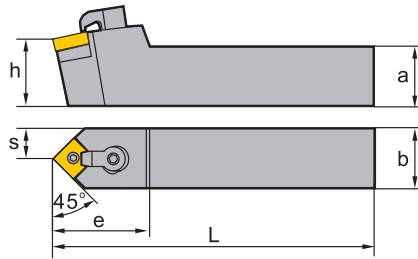
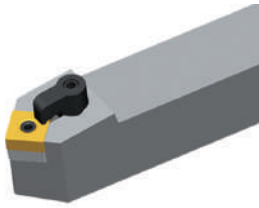
Grade selection > A40

Technical info > A447

Cutting data > A324

**SN\*\* holder (external)** M-Clamping

MSDNN Kr: 45°



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
MSDNN2020K12	●		20	20	125	20	10	35	SN**1204**
MSDNN2525M12	●		25	25	150	25	12.5	35	SN**1204**
MSDNN3225P12	●		32	25	170	32	12.5	35	SN**1204**
MSDNN2525M15	●		25	25	150	25	12.5	42	SN**1506**
MSDNN3232P15	○		32	32	170	32	16	42	SN**1506**
MSDNN4032R15	○		40	32	200	40	16	42	SN**1506**

● Ex stock ○ On demand

\* With internal cooling

Spare parts				
	Insert	SN**1204**	SN**1204**	SN**1506**
	h	20	25-32	25-40
	Clamp	C1RD	C1RD	C2RD
	Dowel pin	TM6×17	TM6×17	TM8×21
	Screw (clamp)	DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)	DM6×30 (7.0 Nm)
	Shim	S12BM	S12BM	S15BM
	Wrench (clamp)	WH30L	WH30L	WH30L
	Wrench (dowel pin)	WH30L	WH30L	WH30L

Insert				
Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A63	A65	A68	A74	A150

A

Turning

B

Milling

C

Drilling

D

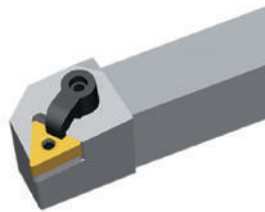
Technical Information

E

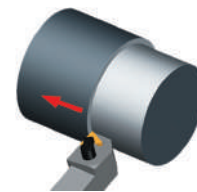
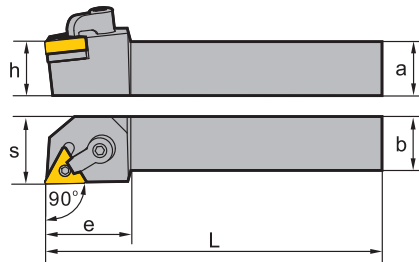
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## TN\*\* holder (external) M-Clamping

MTGNR/L Kr: 90°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MTGNR/L2020K16	● ○	○	○	20	20	125	20	25	33	TN**1604**
MTGNR/L2525M16	● ●	●	●	25	25	150	25	32	33	TN**1604**
MTGNR/L3225P16	● ○	○	○	32	25	170	32	32	33	TN**1604**
MTGNR/L2525M22	● ○	○	○	25	25	150	25	32	35	TN**2204**
MTGNR/L3225P22	○ ○	○	○	32	25	170	32	32	35	TN**2204**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert h	TN**1604** 20	TN**1604** 25-32	TN**2204** 25-32
Clamp		C1RD	C1RD	C2RD
Dowel pin		TM5x13	TM5x13	TM6x17
Screw (clamp)		DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x30 (7.0 Nm)
Shim		T16BM	T16BM	T22BM
Wrench (clamp)		WH30L	WH30L	WH30L
Wrench (dowel pin)		WH20L	WH20L	WH30L

### Insert

<b>Wiper</b> A78	<b>Finishing</b> A79	<b>Medium Cut</b> A81	<b>Roughing</b> A84	<b>Heavy Turning</b> A87	<b>Cast Iron</b> A88	<b>PCBN/PCD</b> A151

System code > A194

Grade selection > A40

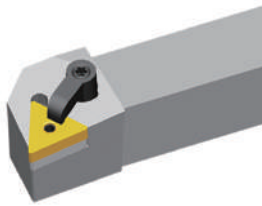
Technical info > A447

Cutting data > A324

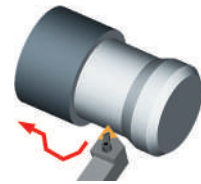
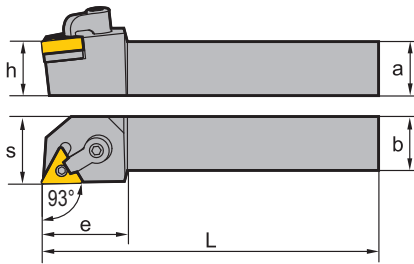


**TN\*\* holder (external)** **M-Clamping**

MTJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MTJNR/L2020K16	●			20	20	125	20	25	32	TN**1604**
MTJNR/L2525M16	○	○		25	25	150	25	32	32	TN**1604**
MTJNR/L3225P16	○			32	25	170	32	32	32	TN**1604**
MTJNR/L2525M22	○			25	25	150	25	32	36	TN**2204**
MTJNR/L3225P22	○	●		32	25	170	32	32	36	TN**2204**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert h	TN**1604** 20	TN**1604** 25-32	TN**2204** 25-32
Clamp		C1RD	C1RD	C2RD
Dowel pin		TM5x13	TM5x13	TM6x17
Screw (clamp)		DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x30 (7.0 Nm)
Shim		T16BM	T16BM	T22BM
Wrench (clamp)		WH30L	WH30L	WH30L
Wrench (dowel pin)		WH20L	WH20L	WH30L

Insert

Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Heavy Turning A87	Cast Iron A88	PCBN/PCD A151

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

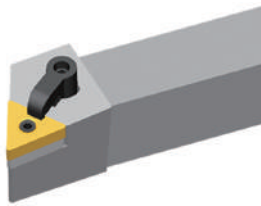
Technical Information

E

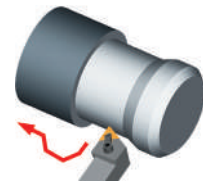
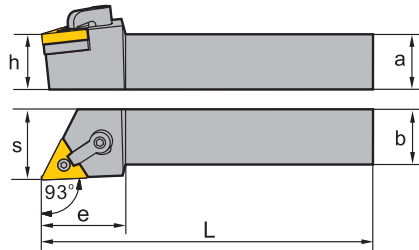
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## TN\*\* holder (external) M-Clamping

MTJNR/L-Z Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MTJNR/L2020K16-Z	●	●		20	20	125	20	25	32	TN**1604**
MTJNR/L2525M16-Z	●	●		25	25	150	25	32	32	TN**1604**
MTJNR/L3225P16-Z	●	○		32	25	170	32	32	32	TN**1604**
MTJNR/L2525M22-Z	●	●		25	25	150	25	32	36	TN**2204**
MTJNR/L3225P22-Z	●	○		32	25	170	32	32	36	TN**2204**

● Ex stock ○ On demand

\* With internal cooling

Spare parts		TN**1604**	TN**1604**	TN**2204**
Insert h		20	25-32	25-32
	Clamp	C1RD	C1RD	C2RD
	Dowel pin	TM5x13	TM5x13	TM6x17
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	T16BM	T16BM	T22BM
	Wrench (clamp)	WH30L	WH30L	WH30L
	Wrench (dowel pin)	WH20L	WH20L	WH30L

Insert						
Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Heavy Turning A87	Cast Iron A88	PCBN/PCD A151

System code > A194

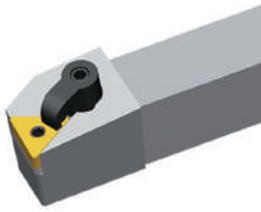
Grade selection > A40

Technical info > A447

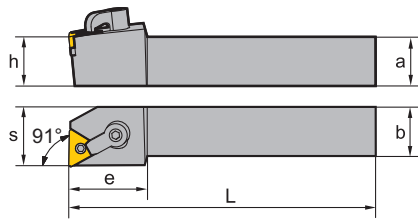
Cutting data > A324

**TN\*\* holder (external)** **M-Clamping**

MTFNRL Kr: 91°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MTFNR/L2020K16		●	○	20	20	125	20	25	32	TN**1604**
MTFNR/L2525M16		●	●	25	25	150	25	32	32	TN**1604**
MTFNR/L3225P16		●		32	25	170	32	32	32	TN**1604**
MTFNR/L2525M22		●	○	25	25	150	25	32	36	TN**2204**
MTFNR/L3225P22		●	○	32	25	170	32	32	36	TN**2204**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

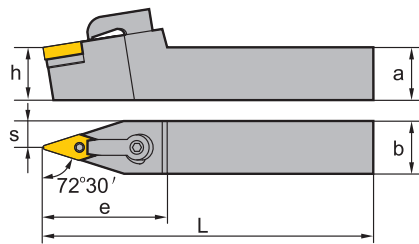
	Insert h	TN**1604** 20	TN**1604** 25-32	TN**2204** 25-32
Clamp		C1RD	C1RD	C2RD
Dowel pin		TM5x13	TM5x13	TM6x17
Screw (clamp)		DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x30 (7.0 Nm)
Shim		T16BM	T16BM	T22BM
Wrench (clamp)		WH30L	WH30L	WH30L
Wrench (dowel pin)		WH20L	WH20L	WH30L

Insert

Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Heavy Turning A87	Cast Iron A88	PCBN/PCD A151

## VN\*\* holder (external) M-Clamping

MVVNN Kr: 72°30'



Article	* Stock	Dimensions [mm]							Inserts
		a	b	L	h	s	e		
MVVNN2020K16	●	20	20	125	20	10	45	VN**1604**	
MVVNN2525M16	●	25	25	150	25	12.5	45	VN**1604**	
MVVNN3225P16	○	32	25	170	32	12.5	45	VN**1604**	
MVVNN3232P16	●	32	32	170	32	16	45	VN**1604**	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	VN**1604**	VN**1604**
	h	20	25-32
	Clamp	C3RD	C3RD
	Dowel pin	TM5x13	TM5x13
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	V16BM	V16BM
	Wrench (clamp)	WH30L	WH30L
	Wrench (dowel pin)	WH20L	WH20L

Insert				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A91	A93	A93	A92	A152

System code > A194

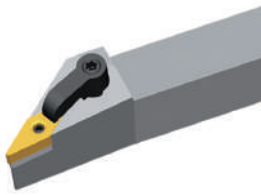
Grade selection > A40

Technical info > A447

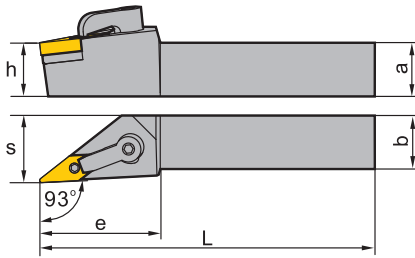
Cutting data > A324


## VN\*\* holder (external) M-Clamping

MVJNR/L Kr: 93°



Right hand style









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MVJNR/L2020K16		●	●	20	20	125	20	25	45	VN**1604**
MVJNR/L2525M16		●	●	25	25	150	25	32	45	VN**1604**
MVJNR/L3225P16		●	●	32	25	170	32	32	45	VN**1604**
MVJNR/L3232P16		●	●	32	32	170	32	40	45	VN**1604**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	VN**1604**	VN**1604**
	h	20	25-32
	Clamp	C3RD	C3RD
	Dowel pin	TM5x13	TM5x13
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	V16BM	V16BM
	Wrench (clamp)	WH30L	WH30L
	Wrench (dowel pin)	WH20L	WH20L

### Insert

				
Finishing A91	Medium Cut A93	Roughing A93	Cast Iron A92	PCBN/PCD A152

System code > A194

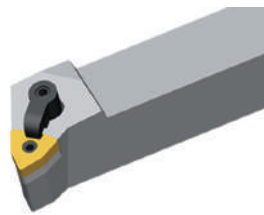
Grade selection > A40

Technical info > A447

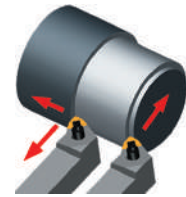
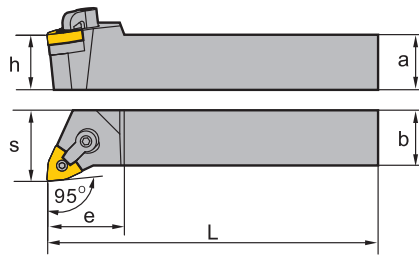
Cutting data > A324

## WN\*\* holder (external) M-Clamping

MWLNLR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MWLNLR/L2020K06	●	●		20	20	125	20	25	30	WN**0604**
MWLNLR/L2525M06	●	●		25	25	150	25	32	30	WN**0604**
MWLNLR/L2020K08	●	●		20	20	125	20	25	30	WN**0804**
MWLNLR/L2525M08	●	●		25	25	150	25	32	35	WN**0804**
MWLNLR/L3232P08	●	●		32	32	170	32	40	35	WN**0804**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert h	WN**0604** 20	WN**0604** 25	WN**0804** 20	WN**0804** 25-32
Clamp		C1RD	C1RD	C1RD	C1RD
Dowel pin		TM5x13	TM5x13	TM6x17	TM6x17
Screw (clamp)		DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
Shim		W06BM	W06BM	W08BM	W08BM
Wrench (clamp)		WH30L	WH30L	WH30L	WH30L
Wrench (dowel pin)		WH20L	WH20L	WH30L	WH30L

### Insert

<b>Wiper</b> A95	<b>Finishing</b> A94	<b>Medium Cut</b> A97	<b>Roughing</b> A98	<b>Cast Iron</b> A98	<b>PCBN/PCD</b> A153

System code > A194

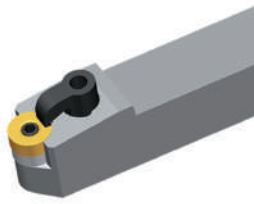
Grade selection > A40

Technical info > A447

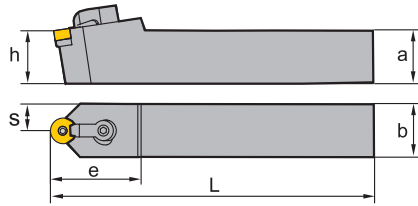
Cutting data > A324

**RN\*\* holder (external)** **M-Clamping**

MRDNN



Right hand style



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
MRDNN2020K12		○	20	20	125	20	10	35	RN**1204**
MRDNN2525M12		○	25	25	150	25	12.5	35	RN**1204**
MRDNN3225P12		○	32	25	170	32	12.5	35	RN**1204**
MRDNN3232P12		○	32	32	170	32	16	35	RN**1204**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	RN**1204**	RN**1204**
	h	20	25-32
	Clamp	C1RD	C1RD
	Dowel pin	TM6x17	TM6x17
	Screw (clamp)	DM6x25 (7.0 Nm)	DM6x30 (7.0 Nm)
	Shim	R12BM	R12BM
	Wrench (clamp)	WH30L	WH30L
	Wrench (dowel pin)	WH30L	WH30L

Insert
<b>Cast Iron</b>
A99

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

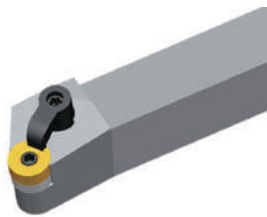
Technical Information

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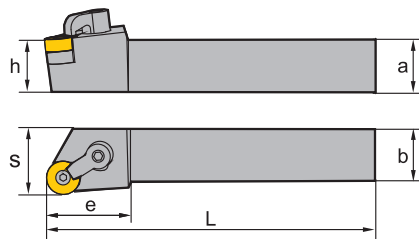
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## RN\*\* holder (external) M-Clamping

MRGNR/L



Right hand style









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
MRGNR/L2020K12		○	○	20	20	125	20	25	32	RN**1204**
MRGNR/L2525M12		○	●	25	25	150	25	32	32	RN**1204**
MRGNR/L3225P12		○	○	32	25	170	32	32	32	RN**1204**
MRGNR/L3232P12		○	○	32	32	170	32	40	32	RN**1204**

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	RN**1204**	RN**1204**
	h	20	25-32
	Clamp	C1RD	C1RD
	Dowel pin	TM6×17	TM6×17
	Screw (clamp)	DM6×25 (7.0 Nm)	DM6×30 (7.0 Nm)
	Shim	R12BM	R12BM
	Wrench (clamp)	WH30L	WH30L
	Wrench (dowel pin)	WH30L	WH30L

Insert



Cast Iron

A99

System code > A194

Grade selection > A40

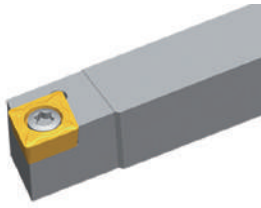
Technical info > A447

Cutting data > A324

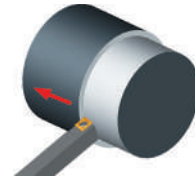
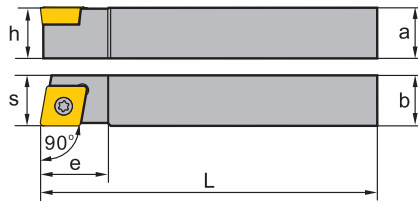



**CC\*\* holder (external)** S-Clamping

SCACR/L Kr: 90°



Right hand style





Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SCACR/L1010E06	•	•		10	10	70	10	10.5	10	CC**0602**
SCACR/L1212F09	•	•		12	12	80	12	12.7	16	CC**09T3**





● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	CC**0602**	CC**09T3**
	h	10	12
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

Insert

					
Finishing A102	Medium Cut A106	Roughing A107	Alum Machining A108	Cast Iron A107	PCBN/PCD A154

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

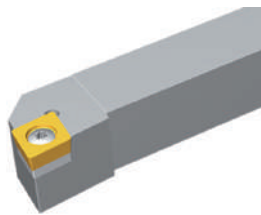
Technical Information

E

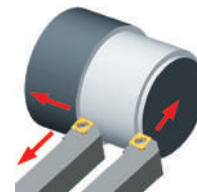
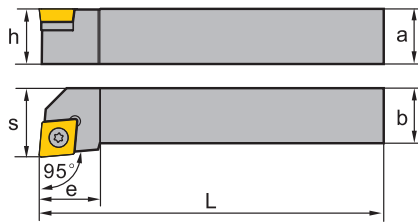
Index


## CC\*\* holder (external) S-Clamping

SCLCR/L Kr: 95°



Right hand style









Article	Stock		Dimensions [mm]								Inserts
	R	L	a	b	L	h	s	L <sub>2</sub>	e		
SCLCR/L0808D06	●	●	8	8	60	8	10	10	10	CC**0602**	
SCLCR/L1010E06	●	●	10	10	70	10	12	10	10	CC**0602**	
SCLCR/L1212F09	●	●	12	12	80	12	16	16	16	CC**09T3**	
SCLCR/L1616H09	●	●	16	16	100	16	20	16	16	CC**09T3**	
SCLCR/L2020K09	●	●	20	20	125	20	25	25	25	CC**09T3**	
SCLCR/L1616H12	●	●	16	16	100	16	20	18	18	CC**1204**	
SCLCR/L2020K12	●	●	20	20	125	20	25	25	25	CC**1204**	
SCLCR/L2525M12	●	●	25	25	150	25	32	26	26	CC**1204**	
SCLCR/L3225P12	○	○	32	25	170	32	32	26	26	CC**1204**	
SCLCR/L3232P12	●	●	32	32	170	32	40	28	28	CC**1204**	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	CC**0602**	CC**09T3**	CC**1204**
	h	8-10	12-20	16-32
 Screw		I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	
 Screw				I60M4x11X (3.4 Nm)
 Screw (shim)				SM6x10XA
 Shim				C12BS
 Wrench (screw)		WT07IP	WT15IP	WT15IP
 Wrench (shim)				WH40L

### Insert

					
<b>Finishing</b> A102	<b>Medium Cut</b> A106	<b>Roughing</b> A107	<b>Alum Machining</b> A108	<b>Cast Iron</b> A107	<b>PCBN/PCD</b> A154

System code > A194

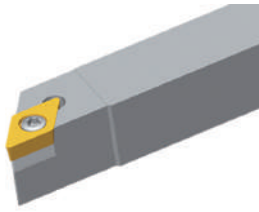
Grade selection > A40

Technical info > A447

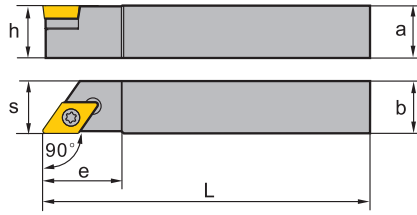
Cutting data > A324

**DC\*\* holder (external)** S-Clamping

SDACR/L Kr: 90°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SDACR/L1010E07		●	●	10	10	70	10	10.5	15	DC**0702**
SDACR/L1212F11		●	●	12	12	80	12	12.5	15	DC**11T3**
SDACR/L1616H11		●	●	16	16	100	16	16.7	24	DC**11T3**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert	DC**0702**	DC**11T3**	DC**11T3**
	h	10	12	16
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x12 (2.7 Nm)
	Screw (shim)			SM5x8.65XA
	Shim			D11BS
	Wrench (screw)	WT07IP	WT15IP	WT15IP
	Wrench (shim)			WH35L

Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A112	A114	A115	A115	A115	A155

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

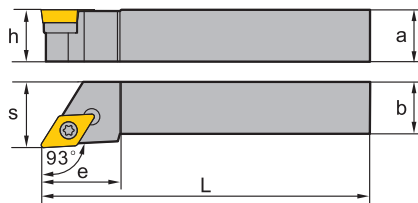
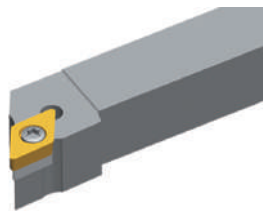
Technical Information

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## DC\*\* holder (external) S-Clamping

SDJCR/L Kr: 93°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SDJCR/L1010E07	●	●		10	10	70	10	12	15	DC**0702**
SDJCR/L1212F07	●	●		12	12	80	12	16	15	DC**0702**
SDJCR/L1616H07	●	●		16	16	100	16	20	18	DC**0702**
SDJCR/L1616H11	●	●		16	16	100	16	20	24	DC**11T3**
SDJCR/L2020K11	●	●		20	20	125	20	25	24	DC**11T3**
SDJCR/L2525M11	●	●		25	25	150	25	32	29	DC**11T3**
SDJCR/L3225P11	●	●		32	25	170	32	32	29	DC**11T3**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DC**0702**	DC**11T3**
		h	h
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		D11BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

### Insert

Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A112	A114	A115	A115	A115	A155

System code > A194

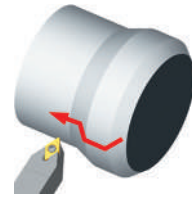
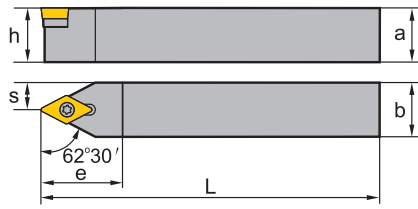
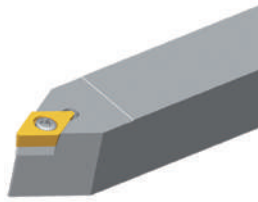
Grade selection > A40

Technical info > A447

Cutting data > A324

**DC\*\* holder (external)** S-Clamping

SDNCN Kr: 62°30'



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
SDNCN1010E07	●		10	10	70	10	5	20	DC**0702**
SDNCN1212F07	●		12	12	80	12	6	20	DC**0702**
SDNCN1212H11	●		12	12	100	12	6	30	DC**11T3**
SDNCN1616H11	●		16	16	100	16	8	30	DC**11T3**
SDNCN2020K11	●		20	20	125	20	10	30	DC**11T3**
SDNCN2525M11	●		25	25	150	25	12.5	30	DC**11T3**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts				
	Insert	DC**0702**	DC**11T3**	DC**11T3**
	h	10-12	12	16-25
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x12 (2.7 Nm)
	Screw (shim)			SM5x8.65XA
	Shim			D11BS
	Wrench (screw)	WT07IP	WT15IP	WT15IP
	Wrench (shim)			WH35L

Insert					
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A112	A114	A115	A115	A115	A155

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

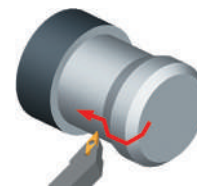
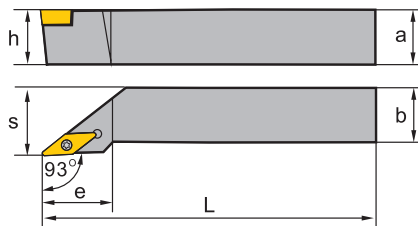
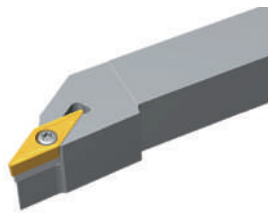
Technical Information

E

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## VB\*\* holder (external) S-Clamping

SVJBR/L Kr: 93°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SVJBR/L1212F11	•	•		12	12	80	12	16	27	VB**1102**
SVJBR/L1616H11	•	•		16	16	100	16	20	27	VB**1102**
SVJBR/L2020K11	•	•		20	20	125	20	25	27	VB**1102**
SVJBR/L2525M11	•	•		25	25	150	25	32	27	VB**1102**
SVJBR/L1616H16	•	•		16	16	100	16	20	36	VB**1604**
SVJBR/L2020K16	•	•		20	20	125	20	25	41	VB**1604**
SVJBR/L2525M16	•	•		25	25	150	25	32	41	VB**1604**
SVJBR/L3225P16	•	•		32	25	170	32	32	41	VB**1604**

• Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert h	VB**1102**	VB**1604**
		12-25	16-32
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		V16BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

### Insert

<b>Finishing</b> A140	<b>Medium Cut</b> A142	<b>Roughing</b> A143	<b>PCBN/PCD</b> A157

System code > A194

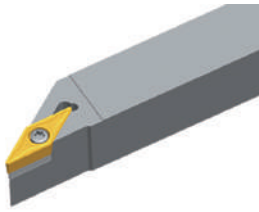
Grade selection > A40

Technical info > A447

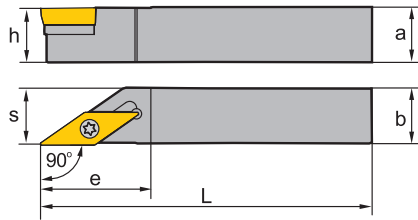
Cutting data > A324


**VB\*\* holder (external) S-Clamping**

SVABR/L Kr: 90°



Right hand style








Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
SVABR/L1010F11		●	●	10	10	80	10				VB**1102**
SVABR/L1616H16		●	○	16	16	100	16	16.5	28		VB**1604**
SVABR/L2020K16		●	○	20	20	125	20	20.5	28		VB**1604**
SVABR/L2525M16		●	●	25	25	150	25	25.5	28		VB**1604**





● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	VB**1102**	VB**1604**
	<b>h</b>	<b>10</b>	<b>16-32</b>
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x12 (2.7 Nm)
	Screw (shim)		SM5x8.65XA
	Shim		V16BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

Insert

			
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>PCBN/PCD</b>
A140	A142	A143	A157

System code > A194

Grade selection > A40

Technical info > A447

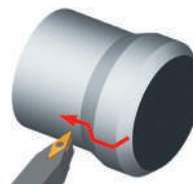
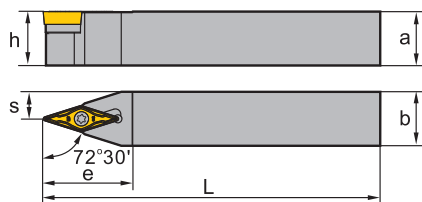
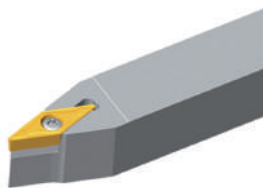
Cutting data > A324

**A**

## VB\*\* holder (external) S-Clamping

SVVBN Kr: 72°30'

Turning



**B**

Milling

Article	* Stock	Dimensions [mm]							Inserts
		a	b	L	h	s	e		
SVVBN1212F11	●	12	12	80	12	6	27	VB**1102**	
SVVBN1616H11	●	16	16	100	16	8	27	VB**1102**	
SVVBN2020K11	●	20	20	125	20	10	30	VB**1102**	
SVVBN1616H16	●	16	16	100	16	8	33	VB**1604**	
SVVBN2020K16	●	20	20	125	20	10	33	VB**1604**	
SVVBN2525M16	●	25	25	150	25	12.5	38	VB**1604**	

● Ex stock    ○ On demand

\* With internal cooling

**C**

Drilling

Spare parts			
	Insert	VB**1102**	VB**1604**
	h	12-25	16-32
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		V16BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

**D**

Technical Information

Insert			
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>PCBN/PCD</b>
A140	A142	A143	A157

**E**

Index

System code > A194

Grade selection > A40

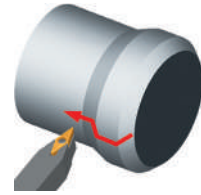
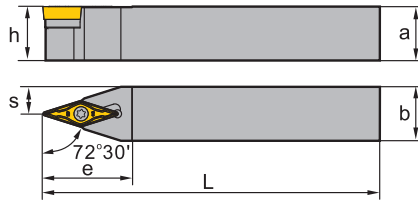
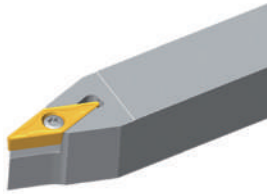
Technical info > A447

Cutting data > A324



**VC\*\* holder (external)** S-Clamping

SVVCN Kr: 72°30'



Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
SVVCN1212F11		●	12	12	80	12	6	27	VC**1103**
SVVCN1616H11		●	16	16	100	16	8	27	VC**1103**
SVVCN2020K11		●	20	20	125	20	10	30	VC**1103**
SVVCN1212M11		●	12	12	150	12	6	27	VC**1103**
SVVCN2525M11		●	25	25	150	25	12.5	38	VC**1103**
SVVCN1616H16		●	16	16	100	16	8	33	VC**1604**
SVVCN2020K16		●	20	20	125	20	10	33	VC**1604**
SVVCN2525M16		●	25	25	150	25	12.5	38	VC**1604**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	VC**1103**	VC**1604**
		12-25	16-32
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		V16BSC
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

Insert			
Finishing	Medium Cut	Alum Machining	PCBN/PCD
A135	A138	A136	A158

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

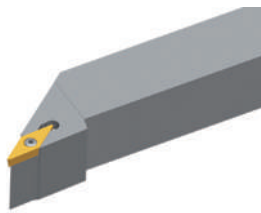
Technical Information

E

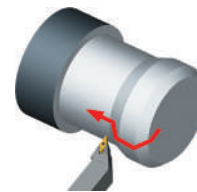
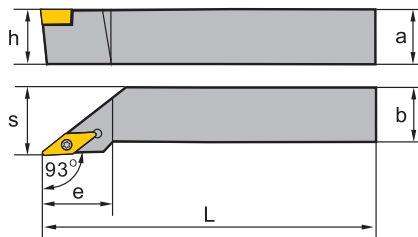
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## VC\*\* holder (external) S-Clamping

SVJCR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SVJCR/L1010E11	●			10	10	70	10	12	22	VC**1103**
SVJCR/L1212F11	●	●		12	12	80	12	16	27	VC**1103**
SVJCR/L1616H11	●	●		16	16	100	16	20	27	VC**1103**
SVJCR/L2020K11	●	●		20	20	125	20	25	27	VC**1103**
SVJCR/L2525M11	●	●		25	25	150	25	32	27	VC**1103**
SVJCR/L1616H16	●	●		16	16	100	16	20	36	VC**1604**
SVJCR/L2020K16	●	●		20	20	125	20	25	41	VC**1604**
SVJCR/L2020M16	●	●		20	20	150	20	25	41	VC**1604**
SVJCR/L2525M16	●	●		25	25	150	20	32	41	VC**1604**
SVJCR/L3225P16	○	○		32	25	170	32	32	41	VC**1604**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	VC**1103**	VC**1604**
		10-25	16-32
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		V16BSC
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

### Insert

Finishing A135	Medium Cut A138	Alum Machining A136	PCBN/PCD A158

System code > A194

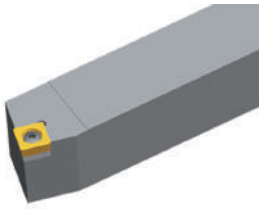
Grade selection > A40

Technical info > A447

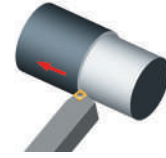
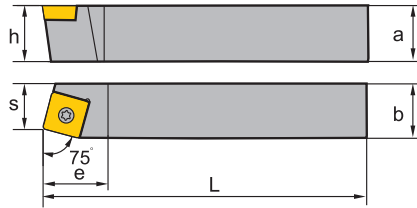
Cutting data > A324


**SC\*\* steel boring bar S-Clamping**

SSBCR/L Kr: 75°



Right hand style









Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SSBCR/L1212F09		●	●	12	12	80	12	11	16	SC**09T3**
SSBCR/L1616H09		●	●	16	16	100	16	13	16	SC**09T3**
SSBCR/L2020K12		●	●	20	20	125	20	17	25	SC**1204**





● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	SC**09T3**	SC**09T3**	SC**1204**
	h	12	16	20
	Screw	I60M3.5x8 (2.7 Nm)	I60M3.5x8 (2.7 Nm)	
	Screw			I60M4x11X (3.4 Nm)
	Screw (shim)		SM5x8.65XA	SM6x10XA
	Shim		S09BS	S12BS
	Wrench (screw)	WT15IP	WT15IP	WT15IP
	Wrench (shim)		WH35L	WH40L

Insert

			
Finishing A120	Medium Cut A121	Roughing A122	Alum Machining A122

System code > A194

Grade selection > A40

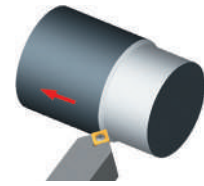
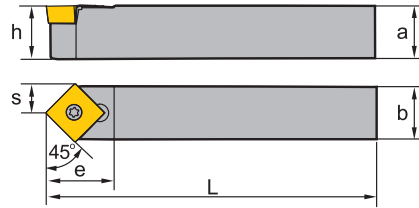
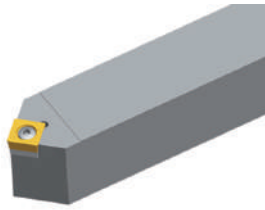
Technical info > A447

Cutting data > A324

**A**

## SC\*\* steel boring bar S-Clamping

SSDCN Kr: 45°



Right hand style

Turning

**B**

Article	*	Stock	Dimensions [mm]						Inserts
			a	b	L	h	s	e	
SSDCN1212F09	●	●	12	12	80	12	6	15.5	SC**09T3**
SSDCN1616H09	●	●	16	16	100	16	8	15.5	SC**09T3**

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Spare parts			
	Insert	SC**09T3**	SC**09T3**
	h	12	16
	Screw	I60M3.5×8 (2.7 Nm)	I60M3.5×8 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		S09BS
	Wrench (screw)	WT15IP	WT15IP
	Wrench (shim)		WH35L

Drilling

**D**

Insert			
Finishing	Medium Cut	Roughing	Alum Machining
A120	A121	A122	A122

Technical Information

**E**

Index

System code > A194

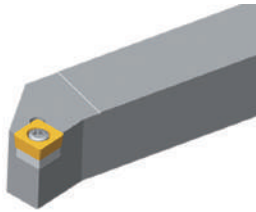
Grade selection > A40

Technical info > A447

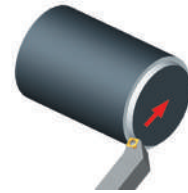
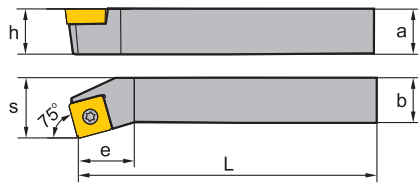
Cutting data > A324


**SC\*\* steel boring bar S-Clamping**

SSKCR/L Kr: 75°



Right hand style








Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SSKCR/L1616H09		●	●	16	16	100	16	20	13	SC**09T3**





● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert	SC**09T3**
	<b>h</b>	<b>16</b>
	Screw	I60M3.5×8 (2.7 Nm)
	Screw (shim)	SM5×8.65XA
	Shim	S09BS
	Wrench (screw)	WT15IP
	Wrench (shim)	WH35L

Insert

			
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>
A120	A121	A122	A122

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324

A

Turning

B

Milling

C

Drilling

D

Technical Information

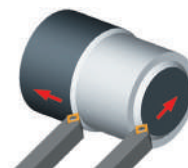
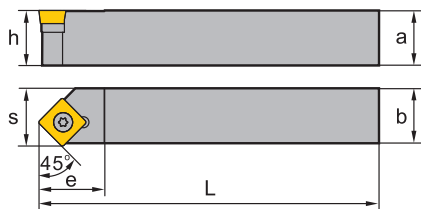
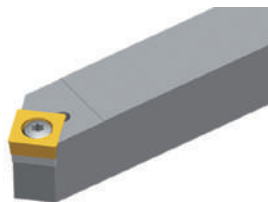
E

Index

**A**

## SC\*\* steel boring bar S-Clamping

SSSCR/L Kr: 45°



Right hand style

Turning

**B**

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SSSCR/L1616H09	•	•		16	16	100	16	17	17	SC**09T3**
SSSCR/L2020K12	•	•		20	20	125	20	21	21	SC**1204**

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Spare parts			
	Insert	SC**09T3**	SC**1204**
	h	16	20
	Screw	I60M3.5×12 (2.7 Nm)	
	Screw		I60M4×11X (3.4 Nm)
	Screw (shim)		SM6×10XA
	Shim		S12BS
	Wrench (screw)	WT15IP	WT15IP
	Wrench (shim)		WH40L

Drilling

**D**

Insert			
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>
A120	A121	A122	A122

Technical Information

**E**

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System code > A194

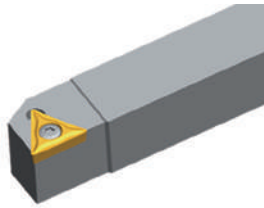
Grade selection > A40

Technical info > A447

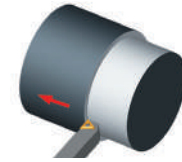
Cutting data > A324


**TC\*\* holder (external) S-Clamping**

STACR/L Kr: 90°



Right hand style





Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
STACR/L1212F11		●	●	12	12	80	12	12.5	14	TC**1102**



● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert	TC**1102**
	<b>h</b>	<b>12</b>
	Screw	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP

Insert

				
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>PCBN/PCD</b>
A127	A128	A129	A131	A156

System code > A194

Grade selection > A40

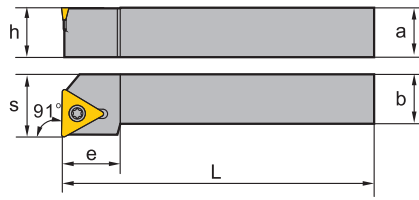
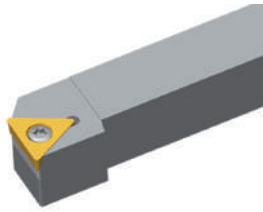
Technical info > A447

Cutting data > A324

**A**

## TC\*\* holder (external) **S-Clamping**

STFCR/L Kr: 91°



Right hand style

Turning

**B**

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
STFCR/L1212F11	● ○	●	○	12	12	80	12	16	14	TC**1102**
STFCR/L1616H11	● ○	●	○	16	16	100	16	20	14	TC**1102**
STFCR/L1616H16	● ○	●	○	16	16	100	16	20	19	TC**16T3**
STFCR/L2020K16	● ●	●	●	20	20	125	20	25	19	TC**16T3**

Milling

● Ex stock ○ On demand

\* With internal cooling

**C**

Spare parts			
	Insert	TC**1102**	TC**16T3**
	h	12-16	16-20
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		T16BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

Drilling

**D**

Insert					
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A127	A128	A129	A131	A129	A156

Technical Information

**E**

Index

System code > A194

Grade selection > A40

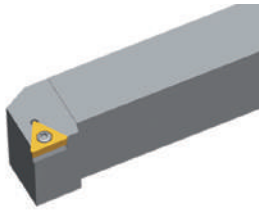
Technical info > A447

Cutting data > A324

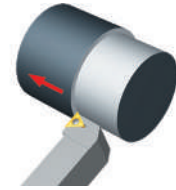
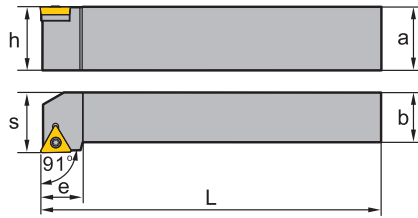


**TC\*\* holder (external) S-Clamping**

STGCR/L Kr: 91°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
STGCR/L0808D09		○	○	8	8	60	8	10	11	TC**0902**
STGCR/L1010E09		●	○	10	10	70	10	12	11	TC**0902**
STGCR/L1212F11		●	●	12	12	80	12	16	14	TC**1102**
STGCR/L1616H11		●	●	16	16	100	16	20	16	TC**1102**
STGCR/L2020K16		●	●	20	20	125	20	25	21	TC**16T3**
STGCR/L2525M16		●	●	25	25	150	25	25	21	TC**16T3**

● Ex stock ○ On demand

\* With internal cooling

Spare parts		TC**0902**	TC**1102**	TC**16T3**
Insert		8-10	12-16	20-25
h				
	Screw	I60M2.2x5.5 (0.8 Nm)	I60M2.5x6.5 (1.0 Nm)	I60M3.5x12 (2.7 Nm)
	Screw (shim)			SM5x8.65XA
	Shim			T16BS
	Wrench (screw)	WT06IP	WT07IP	WT15IP
	Wrench (shim)			WH35L

Insert					
Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A126	A128	A129	A131	A129	A156

A

Turning

B

Milling

C

Drilling

D

Technical Information

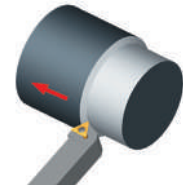
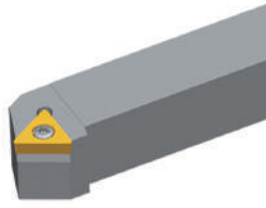
E

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A

## TC\*\* holder (external) **S-Clamping**

STTCR/L Kr: 60°



Right hand style

Turning

B

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
STTCR/L1616H11	● ○	●	○	16	16	100	16	13	14	TC**1102**
STTCR/L1616H16	● ●	●	●	16	16	100	16	13	19	TC**16T3**
STTCR/L2020K16	● ●	●	●	20	20	125	20	17	19	TC**16T3**

● Ex stock ○ On demand

\* With internal cooling

Milling

C

### Spare parts

	Insert	TC**1102**	TC**16T3**
	<b>h</b>	<b>16</b>	<b>16-20</b>
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		T16BS
	Wrench (screw)	WT07IP	WT15IP
	Wrench (shim)		WH35L

Drilling

D

### Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A127	A128	A129	A131	A129	A156

Technical Information

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System code > A194

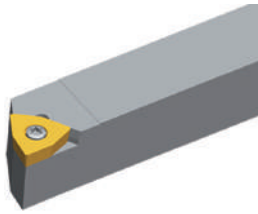
Grade selection > A40

Technical info > A447

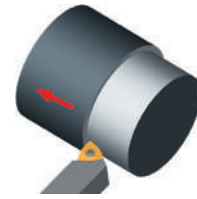
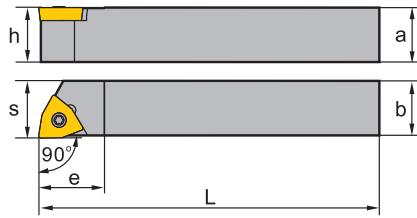
Cutting data > A324

**WC\*\* holder (external) S-Clamping**

SWACR/L Kr: 90°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
SWACR/L1010E04		●	○	10	10	70	10	10.5	10	WC**0402**
SWACR/L1212F04		●	○	12	12	80	12	12	14	WC**0402**
SWACR/L1616H06		●	●	16	16	100	16	16.5	20	WC**06T3**
SWACR/L2020K08		●	●	20	20	125	20	20.5	24	WC**0804**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	WC**0402**	WC**06T3**	WC**0804**
	<b>h</b>	<b>10-12</b>	<b>16</b>	<b>20</b>
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3×7 (1.8 Nm)	I60M3.5×12 (2.7 Nm)
	Wrench (screw)	WT07IP	WT10IP	WT15IP

Insert



Medium Cut

A144

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

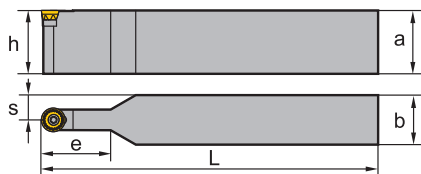
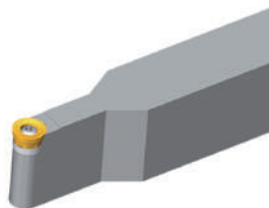
Technical Information



E

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## RC\*\* holder (external) S-Clamping

SRDCN










Article	*	Stock	Dimensions [mm]						Inserts	
			a	b	L	h	s	e		
SRDCN1616H08		○	16	16	100	16	8	16	RCGX0803MO	RCMT0803MO
SRDCN2020K08		●	20	20	125	20	10	16	RCGX0803MO	RCMT0803MO
SRDCN2020K12		●	20	20	125	20	10	35	RCGX1204MO	RCMT1204MO
SRDCN2525M12		●	25	25	150	25	12.5	35	RCGX1204MO	RCMT1204MO
SRDCN3225P12		●	32	25	170	32	12.5	35	RCGX1204MO	RCMT1204MO
SRDCN2020K10		●	20	20	125	20	10	25	RCMT10T3MO	
SRDCN2525M10		●	25	25	150	25	12.5	25	RCMT10T3MO	
SRDCN3225P16		●	32	25	170	32	12.5	35	RCMT1606MO	
SRDCN3232P16		●	32	32	170	32	16	40	RCMT1606MO	
SRDCN4040S16		●	40	40	250	40	20	50	RCMT1606MO	
SRDCN4040S20		●	40	40	250	40	20	50	RCMT2006MO	



● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	RCGX0803MO	RCGX1204MO	RCMT10T3MO	RCMT1606MO	RCMT2006MO
	h	16-20	20-32	20-25	32-40	40
	Screw	I60M3×7 (1.8 Nm)	I60M3.5×12 (2.7 Nm)	I60M3.5×10 (2.7 Nm)		I43M6*16 (9.1 Nm)
	Screw				I60M4×15X (3.4 Nm)	
	Screw (shim)		SM5×8.65XA		SM6×10XA	
	Shim		R12BS		R16BS	
	Wrench (screw)	WT10IP	WT15IP	WT15IP	WT15IP	
	Wrench (screw)					WT25IT
	Wrench (shim)		WH35L		WH40L	

### Insert

	
<b>Alum Machining</b>	<b>Cast Iron</b>
A118	A118

System code > A194

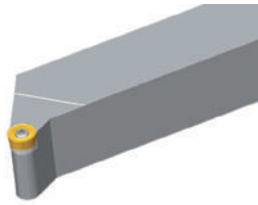
Grade selection > A40

Technical info > A447

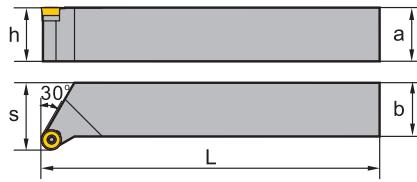
Cutting data > A324



RC\*\* holder (external) **S-Clamping**

SRGCR/L








Right hand style





Article	*	Stock		Dimensions [mm]					Inserts	
		R	L	a	b	L	h	s		
SRGCR/L1616H08		●	●	16	16	100	16	20	RCGX0803MO-LH	RCMT0803MO
SRGCR/L2020K12		●	○	20	20	125	20	27	RCGX1204MO	RCMT1204MO
SRGCR/L2525M12		●	○	25	25	150	25	32	RCGX1204MO	RCMT1204MO
SRGCR/L2525M10		●	○	25	25	100	25	32	RCMT10T3MO	
SRGCR/L2020K10		●	○	20	20	125	20	25	RCMT10T3MO	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		RCGX0803MO-LH	RCGX1204MO	RCMT10T3MO
Insert		16	20-25	16-25
h		16	20-25	16-25
	Screw	I60M3.5×10 (2.7 Nm)	I60M3.5×12 (2.7 Nm)	I60M3.5×10 (2.7 Nm)
	Screw (shim)		SM5×8.65XA	
	Shim		R12BS	
	Wrench (screw)	WT15IP	WT15IP	WT15IP
	Wrench (shim)		WH35L	

Insert	
	
Alum Machining	Cast Iron
A118	A118

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324

A

Turning

B

Milling

C

Drilling

D

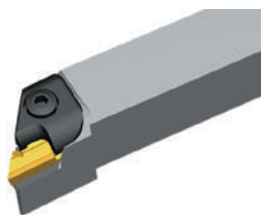
Technical Information

E

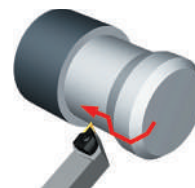
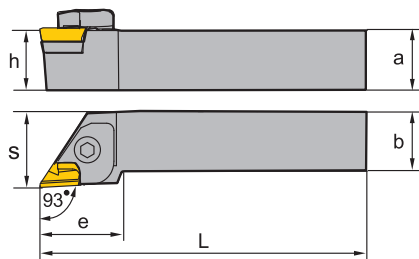
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## KNUX\*\* holder C-Clamping

CKJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
CKJNL2525M16	●			25	25	150	25	32	32	KNUX1604**L
CKJNL3232P16	●			32	32	170	32	40	32	KNUX1604**L
CKJNL4040R16	●			40	40	200	40	50	32	KNUX1604**L
CKJNR2525M16	●			25	25	150	25	32	32	KNUX1604**R
CKJNR3232P16	●			32	32	170	32	40	32	KNUX1604**R
CKJNR4040R16	○			40	40	200	40	50	32	KNUX1604**R

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert	KNUX1604**L	KNUX1604**R
	h	25-40	25-40
	Clamp	C6L1T	C6R1T
	Dowel pin	P0515	P0515
	Screw (clamp)	CM6×25A (7.0 Nm)	CM6×25A (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim		K16CC
	Shim	K16CCL	
	Spring (clamp)	SPR1	SPR1
	Spring (dowel pin)	SPR2	SPR2
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

Insert



Finishing

A100

System code > A194

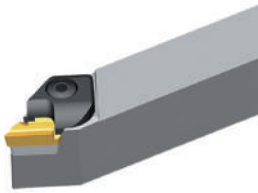
Grade selection > A40

Technical info > A447

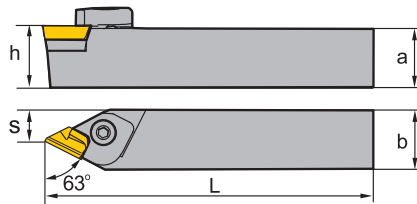
Cutting data > A324


## KNUX\*\* holder C-Clamping

CKNNR/L Kr: 63°



Right hand style













Article	*	Stock		Dimensions [mm]					Inserts
		R	L	a	b	L	h	s	
CKNNL2525M16	●			25	25	150	25	14.3	KNUX1604**L
CKNNL3232P16	○			32	32	170	32	16.8	KNUX1604**L
CKNNR2525M16	●			25	25	150	25	14.3	KNUX1604**R

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	KNUX1604**L	KNUX1604**R
	h	25-32	25-32
	Clamp	C6L1T	C6R1T
	Dowel pin	P0515	P0515
	Screw (clamp)	CM6×25A (7.0 Nm)	CM6×25A (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim		K16CC
	Shim	K16CCL	
	Spring (clamp)	SPR1	SPR1
	Spring (dowel pin)	SPR2	SPR2
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

### Insert



### Finishing

A100

System code > A194

Grade selection > A40

Technical info > A447

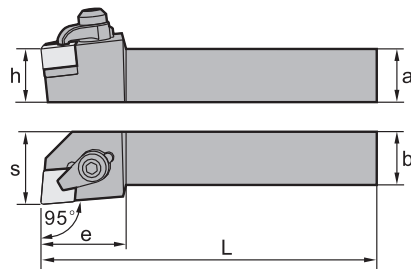
Cutting data > A324

## CN\*\* holder (external) C-Clamping

CCLNR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CCLNR/L2020K12	*	○	○	20	20	125	20	27	32	CNGN1204**	CNGN1207**
CCLNR/L2525M12	*	○	●	25	20	100	25	27	36	CNGN1204**	CNGN1207**
CCLNR/L2525M16	*	○	○	25	25	150	25	32	36	CNGN1604**	CNGN1606**
CCLNR/L3225P16	*	○	○	32	25	170	32	32	36	CNGN1604**	CNGN1606**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	CNGN1204**	CNGN1207**	CNGN1604**	CNGN1606**
	h	20-25	20-25	25-32	25-32
	Clamp	C1RC	C1RC	C2RC	C2RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)	CM8×30B (10.2 Nm)	CM8×30B (10.2 Nm)
	Screw (shim)	SM3×10B	SM3×10B	SM4×12B	SM4×12B
	Shim	C12CC-04	C12CC-07	C16CC-04	C16CC-06
	Spring	SPR1	SPR1	SPR3	SPR3
	Wrench (clamp)	WH40L	WH40L	WH50L	WH50L
	Wrench (shim)	WH20L	WH20L	WH30L	WH30L

### Insert



PCBN/PCD

A159

System code > A194

Grade selection > A40

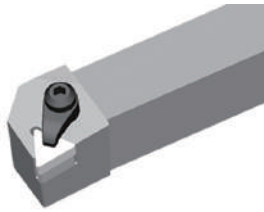
Technical info > A447

Cutting data > A324

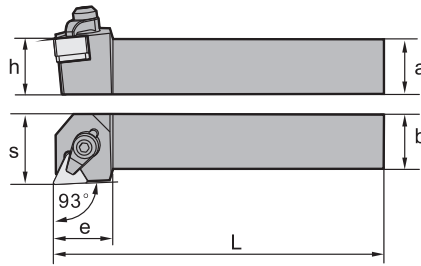


**TN\*\* holder (external) C-Clamping**

CTJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CTJNR/L2020K16		○	○	20	20	125	20	25	30	TNGN1604**	TNGN1607**
CTJNR/L2525M16		○	○	25	25	150	25	32	30	TNGN1604**	TNGN1607**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	TNGN1604**	TNGN1607**
	h	20-25	20-25
	Clamp	C1RC	C1RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim	T16CC-04	T16CC-07
	Spring	SPR1	SPR1
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

Insert



Medium Cut

A186

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

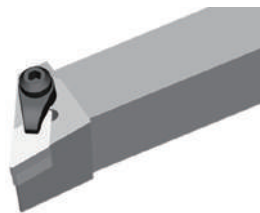
Technical Information

E

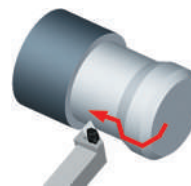
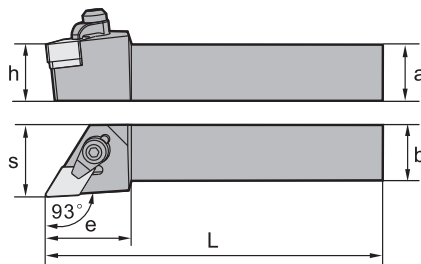
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## DN\*\* holder (external) C-Clamping

CDJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CDJNR/L2525M15	*	●	●	25	25	150	25	32	32	DNGN1504**	DNGN1507**
CDJNR/L3225P15		○	○	32	25	170	32	32	32	DNGN1504**	DNGN1507**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DNGN1504**	DNGN1507**
	h	25-32	25-32
	Clamp	C1RC	C1RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim	D15CC-04	D15CC-07
	Spring	SPR1	SPR1
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

Insert



Medium Cut

A180

System code > A194

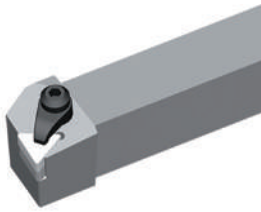
Grade selection > A40

Technical info > A447

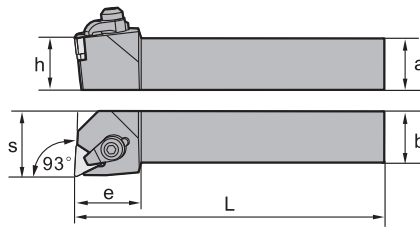
Cutting data > A324

**TN\*\* holder (external) C-Clamping**

CTUNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CTUNR/L2525M16		○	○	25	25	150	25	32	27	TNGN1604**	TNGN1607**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	TNGN1604**	TNGN1607**
		h	h
	Clamp	C1RC	C1RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim	T16CC-04	T16CC-07
	Spring	SPR1	SPR1
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

Insert



Medium Cut

A186

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

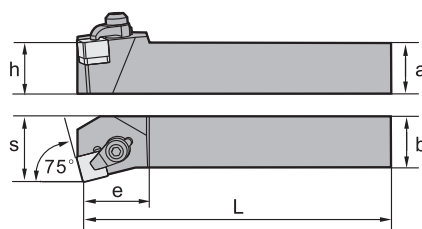
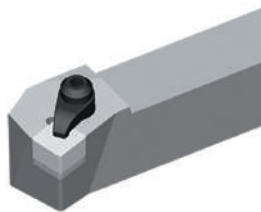
Technical Information

E

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## SN\*\* holder (external) C-Clamping

CSKNR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CSKNR/L2020K12		○	○	20	20	125	20	25	25	SNGN1204**	SNGN1207**
CSKNR/L2525M12		○	○	25	25	170	25	32	25	SNGN1204**	SNGN1207**
CSKNR/L3225P12		○	○	32	25	170	32	32	25	SNGN1204**	SNGN1207**
CSKNR/L3225P15		○	○	32	25	170	32	32	30	SNGN1507**	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	SNGN1204**	SNGN1207**	SNGN1507**
	h	20-32	20-32	32
	Clamp	C1RC	C1RC	C2RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)	CM8×30B (10.2 Nm)
	Screw (shim)	SM3×10B	SM3×10B	SM4×12B
	Shim	S12CC-04	S12CC-07	S15CC-07
	Spring	SPR1	SPR1	SPR3
	Wrench (clamp)	WH40L	WH40L	WH50L
	Wrench (shim)	WH20L	WH20L	WH30L

### Insert

Cast Iron	PCBN/PCD
A77	A160

System code > A194

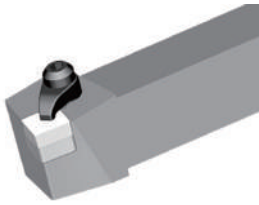
Grade selection > A40

Technical info > A447

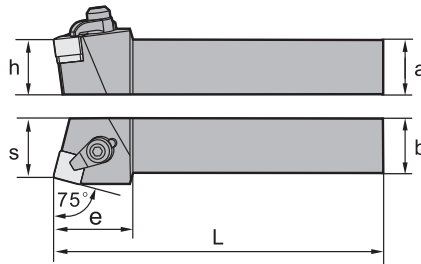
Cutting data > A324



**SN\*\* holder (external) C-Clamping**

CSRNR/L Kr: 75°



Right hand style










Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	a	b	L	h	s	e		
CSRNR/L2020K12		○	○	20	20	125	20	22	32	SNGN1204**	SNGN1207**
CSRNR/L2525M12		○	○	25	20	100	25	27	32	SNGN1204**	SNGN1207**
CSRNR/L3225P12		○	○	32	25	170	32	27	32	SNGN1204**	SNGN1207**
CSRNR/L3225P15		○	○	32	25	170	32	32	40	SNGN1507**	
CSRNR/L4040R15		○	○	40	40	200	40	43	40	SNGN1507**	



● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert h	SNGN1204** 20-32	SNGN1207** 20-32	SNGN1507** 32-40
 Clamp		C1RC	C1RC	C2RC
 Screw (clamp)		CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)	CM8×30B (10.2 Nm)
 Screw (shim)		SM3×10B	SM3×10B	SM4×12B
 Shim		S12CC-04	S12CC-07	S15CC-07
 Spring		SPR1	SPR1	SPR3
 Wrench (clamp)		WH40L	WH40L	WH50L
 Wrench (shim)		WH20L	WH20L	WH30L

Insert

	
Cast Iron A77	PCBN/PCD A160

System code > A194

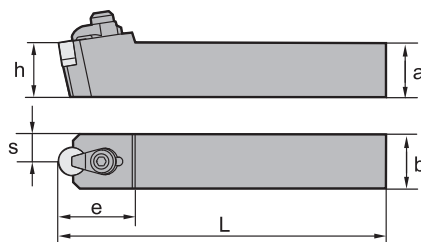
Grade selection > A40



Technical info > A447

Cutting data > A324

## RN\*\* holder (external) C-Clamping

CRDNN










Article	*	Stock	Dimensions [mm]						Inserts	
			a	b	L	h	s	e		
CRDNN2020K12		○	20	20	125	20	10	32	RNGN1204**	RNGN1207**
CRDNN2525M12		○	25	25	150	25	12.5	32	RNGN1204**	RNGN1207**
CRDNN3225P12		○	32	25	170	32	12.5	32	RNGN1204**	RNGN1207**
CRDNN3232P15		○	32	32	170	32	17.5	40	RNGN1507**	
CRDNN4040R15		○	40	40	200	40	20	40	RNGN1507**	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert h	RNGN1204**	RNGN1207**	RNGN1507**
		20-32	20-32	32-40
	Clamp	C1RC	C1RC	C2RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)	CM8×30B (10.2 Nm)
	Screw (shim)	SM3×10B	SM3×10B	SM4×12B
	Shim	R12CC-04	R12CC-07	R15CC-07
	Spring	SPR1	SPR1	SPR3
	Wrench (clamp)	WH40L	WH40L	WH50L
	Wrench (shim)	WH20L	WH20L	WH30L

### Insert



PCBN/PCD

A162

System code > A194

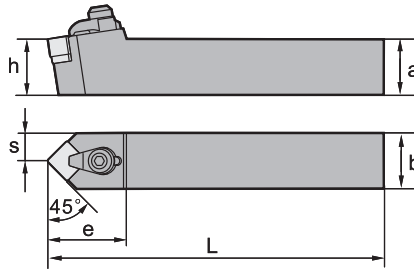
Grade selection > A40



Technical info > A447

Cutting data > A324

**SN\*\* holder (external) C-Clamping**

CSDNN Kr: 45°










Article	*	Stock	Dimensions [mm]						Inserts	
			a	b	L	h	s	e		
CSDNN2020K12		○	20	20	125	20	10	35	SNGN1204**	SNGN1207**
CSDNN2525M12		●	25	25	150	25	12.5	30	SNGN1204**	SNGN1207**
CSDNN3225P12		○	32	25	170	32	12.5	35	SNGN1204**	SNGN1207**



● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert h	SNGN1204** 20-32	SNGN1207** 20-32
	Clamp	C1RC	C1RC
	Screw (clamp)	CM6×30B (7.0 Nm)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B	SM3×10B
	Shim	S12CC-04	S12CC-07
	Spring	SPR1	SPR1
	Wrench (clamp)	WH40L	WH40L
	Wrench (shim)	WH20L	WH20L

Insert

	
Cast Iron A77	PCBN/PCD A160

System code > A194

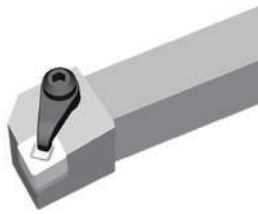
Grade selection > A40

Technical info > A447

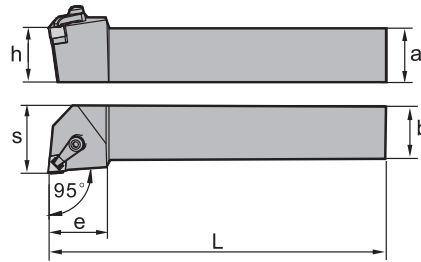
Cutting data > A324

## CN\*\* holder (external) J-Clamping

JCLNR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
JCLNR/L2020K12	○	○		20	20	125	20	29	32	CNGX1207**
JCLNR/L2525M12	○	○		25	25	150	25	32	32	CNGX1207**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	CNGX1207**
	<b>h</b>	<b>20-25</b>
	Clamp	C1RJ
	Screw (clamp)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B
	Shim	C12CC-07
	Spring	SPR1
	Wrench (clamp)	WH40L
	Wrench (shim)	WH20L

### Insert



Medium Cut

A178

System code > A194

Grade selection > A40

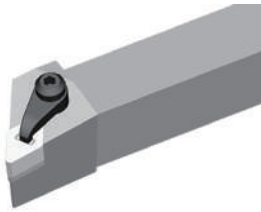
Technical info > A447

Cutting data > A324

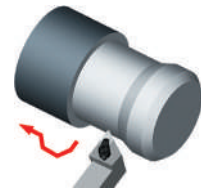
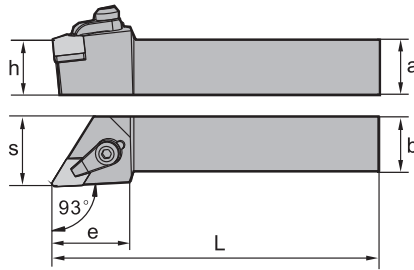


**DN\*\* holder (external) J-Clamping**

JDJNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	a	b	L	h	s	e	
JDJNR/L2525M15	●	○		25	25	150	25	32	38	DNGX1507**
JDJNR/L3225P15	○	○		32	25	170	32	32	38	DNGX1507**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	DNGX1507**
	<b>h</b>	<b>25-32</b>
	Clamp	C1RJ
	Screw (clamp)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B
	Shim	D15CC-07
	Spring	SPR1
	Wrench (clamp)	WH40L
	Wrench (shim)	WH20L

Insert



Medium Cut

A181

System code > A194

Grade selection > A40

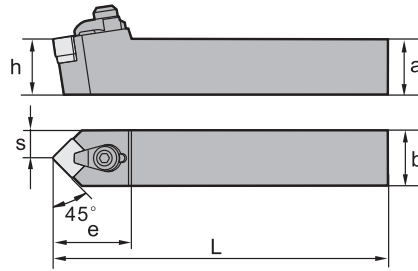
Technical info > A447

Cutting data > A324

**A**

## SN\*\* holder (external) J-Clamping

JSDNN Kr: 45°



Turning

**B**

Article	* Stock	Dimensions [mm]							Inserts
		a	b	L	h	s	e		
JSDNN2020K12	○	20	20	125	20	10	40	SNGX1207**	
JSDNN2525M12	○	25	25	150	25	12.5	40	SNGX1207**	
JSDNN3225P12	○	32	25	170	32	12.5	40	SNGX1207**	

Milling

● Ex stock    ○ On demand

\* With internal cooling

**C**

### Spare parts

	Insert	SNGX1207**
	h	20-32
	Clamp	C1RJ
	Screw (clamp)	CM6×30B (7.0 Nm)
	Screw (shim)	SM3×10B
	Shim	S12CC-07
	Spring	SPR1
	Wrench (clamp)	WH40L
	Wrench (shim)	WH20L

Drilling

**D**

### Insert



Medium Cut

A183

Technical Information

**E**

Index

System code > A194

Grade selection > A40

Technical info > A447

Cutting data > A324

Notes

A series of horizontal dotted lines for taking notes.

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical  
Information

**E**

Index

**S C L N L 25 25 M 12 – S C**

1 2 3 4 5 6 7 8 9 10 11

**A**

Turning

**B**

Milling

**C**


Drilling








**D**

Technical Information

**E**








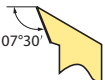















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





Clamping system	
Code	Description
S	Knee lever clamping 

Insert shape	
C	
D	
R	
S	
T	
V	
W	

1

2

Tool holder type and entering angle				
				
A	B	C	D	E
				
F	G	H	J	K
				
L	M	N	O	P
				
Q	R	S	T	U
				
V	W	X		

Clearance angle			
B		C	
D		E	
N		P	

3

4

Cutting direction	
<b>5</b>	

Shank height h [mm]	
Code	h
12	12
16	16
20	20
25	25
32	32
40	40
50	50
<b>6</b>	

Shank width b [mm]	
Code	b
12	12
16	16
20	20
25	25
32	32
40	40
50	50
<b>7</b>	

Holder length L [mm]	
Code	L
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300
<b>8</b>	

Cutting edge length l [mm]								
I.C [mm]	Insert shape							
	C	D	R	S	T	V	W	
5,56	09							
6,35	06	07					11	
9,525	09	11	09	09	16	16	06	
12,7	12	15	12	12	22	22	08	
15,875	16	19	15	15	27			
19,05	19	19		19	33			
25,4	25	25		25	44			
32	32							
<b>9</b>								

<b>Swissturning</b>
<b>10</b>

<b>With inner cooling</b>
<b>11</b>

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

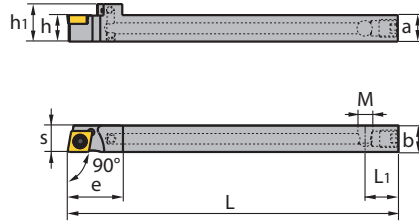
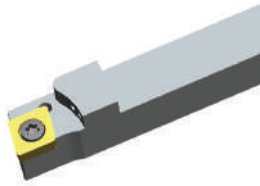
**E**

Index

A

### CC\*\* holder S-Clamping

SCACR/L-SC Kr: 90°



Turning

B

Article	*	Stock		Dimensions [mm]									kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M		
SCACR/L1212M09-SC	*	●	●	12	12	150	12	17	12	15	25	M8X1	0.14	CC**09T3**
SCACR/L1616H09-SC	*	●	●	16	16	100	16	21	16	15	28	M8X1	0.21	CC**09T3**

Milling

● Ex stock ○ On demand

\* With internal cooling

C

Spare parts		
	<b>Insert</b>	<b>CC**09T3**</b>
	<b>h</b>	<b>12-16</b>
	Screw	I60M3.5x8 (2.7 Nm)
	Wrench	WT15IP

Drilling

D

Insert					
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A102	A106	A107	A108	A107	A154

Technical Information

E

Index

System code > A270

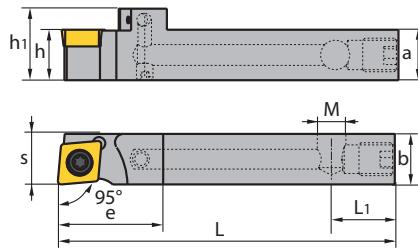
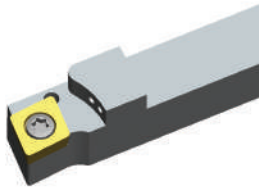
Grade selection > A40

Technical info > A447

Cutting data > A324

## CC\*\* holder S-Clamping

SCLCR/L-SC Kr: 95°



Article	*	Stock		Dimensions [mm]								kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e		
SCLCR/L1010F06-S	●	●	10	10	80	10	10	10	10	10	10	0.06	CC**0602**
SCLCR/L1212F09-SC	* ●	●	12	12	80	12	17	12	15	25	M8X1	0.07	CC**09T3**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	CC**0602**	CC**09T3**
	h	10	12
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench	WT07IP	WT15IP

### Insert

Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A102	A106	A107	A108	A107	A154

System code > A270

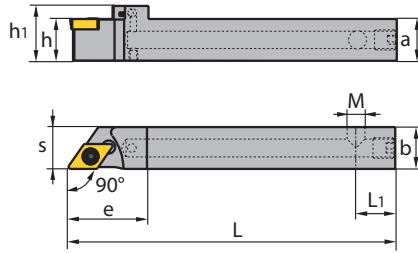
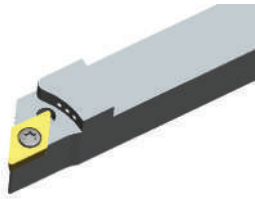
Grade selection > A40

Technical info > A447

Cutting data > A324

### DC\*\* holder S-Clamping

SDACR/L-SC Kr: 90°



Article	*	Stock		Dimensions [mm]									kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M		
SDACR/L1212M07-SC	*	●	●	12	12	150	12	17	12	15	25	M8X1	0.15	DC**0702**
SDACR/L1616K11-SC	*	●	●	16	16	125	16	21	16	15	30	M8X1	0.21	DC**11T3**
SDACR/L1212M11-SC	*	●	●	12	12	150	12	17	12	15	30	M8X1	0.14	DC**11T3**

● Ex stock ○ On demand

\* With internal cooling

#### Spare parts

	Insert	DC**0702**	DC**11T3**
	<b>h</b>	<b>12</b>	<b>12-16</b>
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench	WT07IP	WT15IP

#### Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A112	A114	A115	A115	A115	A155

System code > A270

Grade selection > A40

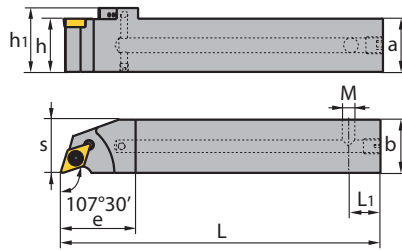
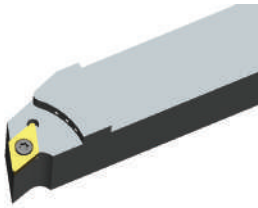
Technical info > A447

Cutting data > A324



DC\*\* holder S-Clamping

SDHCR/L-SC Kr: 107°30'



Article	*	Stock	Dimensions [mm]										kg	Inserts
			a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M			
SDHCR/L2020K11-SC	*	○	20	20	125	20	25	20	15	30	M8X1	0.35	DC**11T3**	
SDHCR/L2525M11-SC	*	●	25	25	150	25	30	25	15	35	M8X1	0.66	DC**11T3**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	DC**11T3**
	h	20-25
	Screw	I60M3.5x8 (2.7 Nm)
	Wrench	WT15IP

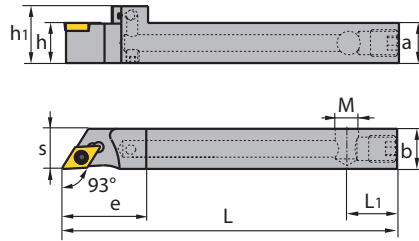
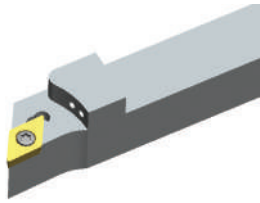
Insert

Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A112	A114	A115	A115	A115	A155

A

### DC\*\* holder S-Clamping

SDJCR/L-SC Kr: 93°



Turning

B

Article	*	Stock		Dimensions [mm]									kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M		
SDJCR/L1212H07-SC	*	●	●	12	12	100	12	17	12	15	25	M8X1	0.1	DC**0702**
SDJCR/L1212H11-SC	*	●	●	12	12	100	12	17	12	15	30	M8X1	0.1	DC**11T3**
SDJCR/L1616K11-SC	*	●	●	16	16	125	16	21	16	15	30	M8X1	0.21	DC**11T3**

Milling

● Ex stock ○ On demand

\* With internal cooling

C

#### Spare parts

	Insert	DC**0702**	DC**11T3**
	<b>h</b>	<b>12</b>	<b>12-16</b>
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench	WT07IP	WT15IP

Drilling

D

#### Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A112	A114	A115	A115	A115	A155

Technical Information

E

Index

System code > A270

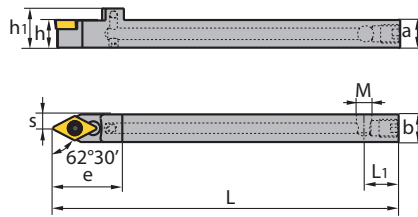
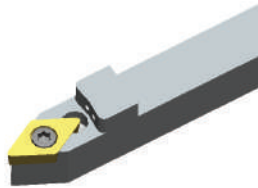
Grade selection > A40

Technical info > A447

Cutting data > A324

## DC\*\* holder S-Clamping

SDNCCN-SC Kr: 62°30'



Article	*	Stock	Dimensions [mm]										kg	Inserts
			a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M			
SDNCCN1212M11-SC	*	●	12	12	150	12	17	6	15	30	M8X1	0.14	DC**11T3**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DC**11T3**
	h	12
	Screw	I60M3,5x8 (2.7 Nm)
	Wrench	WT15IP

### Insert

Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A112	A114	A115	A115	A115	A155

System code > A270

Grade selection > A40

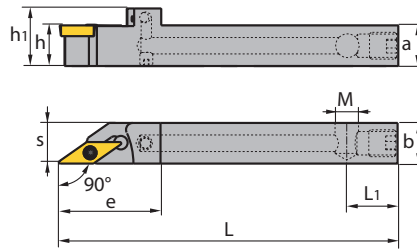
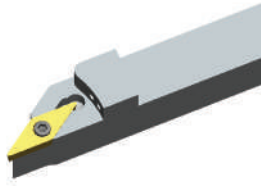
Technical info > A447

Cutting data > A324

A

**VC\*\* holder** **S-Clamping**

SVACR/L-SC Kr: 90°



Turning

B

Article	*	Stock		Dimensions [mm]									kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M		
SVACR/L1212H11-SC	*	●	●	12	12	100	12	17	12	15	30	M8X1	0.1	VC**1103**

Milling

● Ex stock ○ On demand

\* With internal cooling

C

Spare parts

	Insert	VC**1103**
	<b>h</b>	<b>12</b>
	Screw	I60M2.5x6.5 (1.0 Nm)
	Wrench	WT07IP

Drilling

D

Insert

<b>Finishing</b>	<b>Alum Machining</b>
A135	A136

Technical Information

E

Index

System code > A270

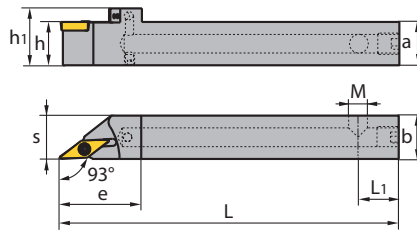
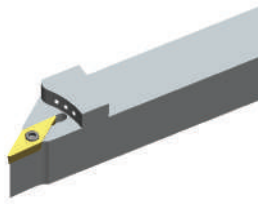
Grade selection > A40

Technical info > A447

Cutting data > A324

## VC\*\* holder S-Clamping

SVJCR/L-SC Kr: 93°



Article	*	Stock		Dimensions [mm]									kg	Inserts
		R	L	a	b	L	h	h <sub>1</sub>	s	L <sub>1</sub>	e	M		
SVJCR/L0808H11-S	●	●	8	8	100	8	8	8	22	0.044	VC**1103**			
SVJCR/L1212H11-SC	*	●	12	12	100	12	17	12	15	30	M8X1	0.095	VC**1103**	
SVJCR/L1616K11-SC	*	●	16	16	125	16	21	16	15	30	M8X1	0.2	VC**1103**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	VC**1103**
	<b>h</b>	<b>8-16</b>
	Screw	I60M2.5x6.5 (1.0 Nm)
	Wrench	WT07IP

### Insert

<b>Finishing</b>	<b>Alum Machining</b>
A135	A136

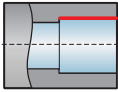
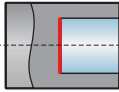
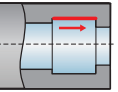
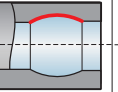
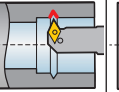
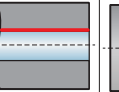
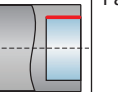















System code > A270

Grade selection > A40

Technical info > A447

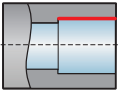
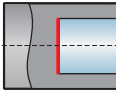
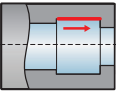
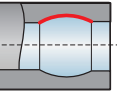
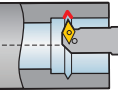
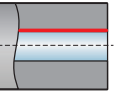
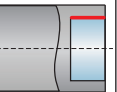












Cutting data > A324

### Boring bars

Boring bar	Application					Workpiece		Page	
	Longitudinal turning	Facing	Undercut	Contouring	Profiling	Stable	Unstable		
									
<b>P</b>	PDSNR/L 62°30'		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A286
	PCLNR/L 95°		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A284
	PDUNR/L 93°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A287
	PSKNR/L 75°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A289
	PTFNR/L 91°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A290
	PWLNR/L 95°		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A291
<b>S</b>	SCFCR/L 90°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A310
	SCLCR/L 95°		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A293
	SCLPR/L 95°		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A306
	SDQCR/L 107°30'		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A295
	SDQPR/L 107°30'		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A307
	SDUCR/L 93°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A296
	SDUPR/L 93°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A308
	SDZCR/L 95°		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A297
	SSKCR/L 75°		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A298

 Recommended

Boring bars

Boring bar	Application					Workpiece		Page
	Longitudinal turning	Facing	Undercut	Contouring	Profiling	Stable	Unstable	
								
<b>S</b>	STFCR/L 91° 	<input type="checkbox"/>						A300
	STUPR/L 93° 	<input type="checkbox"/>						A309
	SVQBR/L 107°30' 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A304
	SVQCR/L 107°30' 	<input type="checkbox"/>						A302
	SVUBR/L 93° 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A305
	SVUCR/L 93° 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A303
<b>Anti-vibratoire</b>	SCLPR/L 95° 	<input type="checkbox"/>	<input type="checkbox"/>					A312
	SDQPR/L 107°30' 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A314
	SDUPR/L 93° 	<input type="checkbox"/>						A316
	STUPR/L 93° 	<input type="checkbox"/>						A318
	SVQCR/L 107°30' 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A321
	SVUCR/L 93° 	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		A322

 Recommended

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

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## S 16 R – S D U C R 07

1 2 3 4 5 6 7 8 9

A

Turning

B

Milling

C

Drilling

D

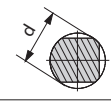
Technical Information

E

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Shank type	
Code	Description
A	Steel shank (IC)
C	Solid carbide shank
E	Solid carbide shank (IC)
S	Steel shank
X	Special application



Shank diameter d [mm]	
Code	d
16	16
20	20
25	25
32	32
40	40
50	50










1

2

Clamping system	
Code	L
H	100
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400
























Clamping system	
Code	Description
P	Knee lever clamping 
S	Screw clamping 







Insert shape			
C		D	
R		S	
T		V	
W			

3

4

5

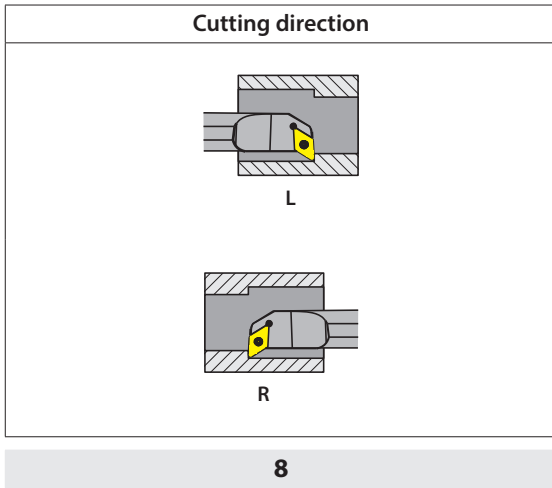
Tool holder type and entering angle						
						
A	B	C	D	E	F	G
						
H	J	K	L	M	N	O
						
P	Q	R	S	T	U	V
						
W	X					

Clearance angle			
B		C	
D		E	
N		P	

6

7





**Cutting edge length l [mm]**

l.C [mm]	Insert shape						
	C	D	R	S	T	V	W
5,56					09		
6,35	06	07			11		
9,525	09	11	09	09	16	16	06
12,7	12	15	12	12	22	22	08
15,875	16	19	15	15	27		
19,05	19		19	19	33		
25,4	25		25	25	44		
32			32				

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**A**

Turning

**B**

Milling

**C**

Drilling

**D**

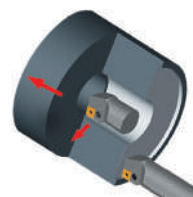
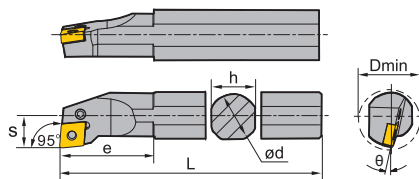
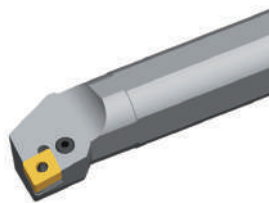
Technical Information

**E**

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## CN\*\* steel boring bar P-Clamping

PCLNR/L Kr: 95°



Right hand style








Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	S	e	D <sub>min</sub>	θ	
S16M-PCLNR/L09		●	●	16	150	15	11	28	20	-12	CN**0903**
S16R-PCLNR/L09		●	●	16	200	15	11	28	20	-12	CN**0903**
S20Q-PCLNR/L09		●	●	20	180	18	13	31	25	-11	CN**0903**
S20S-PCLNR/L09		●	●	20	250	18	13	31	25	-11	CN**0903**
S25Q-PCLNR/L09		○	○	25	180	23	17	35	32	-10	CN**0903**
S25T-PCLNR/L09		●	○	25	300	23	17	35	32	-10	CN**0903**
S25Q-PCLNR/L12		○	○	25	180	23	17	40	32	-12	CN**1204**
S25T-PCLNR/L12		●	●	25	300	23	17	40	32	-12	CN**1204**
S32R-PCLNR/L12		●	●	32	200	30	22	50	44	-10	CN**1204**
S32U-PCLNR/L12		●	●	32	350	30	22	50	44	-10	CN**1204**
S40S-PCLNR/L12		○	●	40	250	37	27	55	54	-10	CN**1204**
S40V-PCLNR/L12		●	●	40	400	37	27	55	54	-10	CN**1204**
S50S-PCLNR/L12		○	○	50	250	47	35	56	63	-10	CN**1204**
S50W-PCLNR/L12		●	●	50	450	47	35	56	63	-10	CN**1204**
A25R-PCLNR/L12	*	●	●	25	200	24	17	40	32	-12	CN**1204**
A32S-PCLNR/L12	*	●	●	32	250	31	22	50	44	-10	CN**1204**
S50S-PCLNR/L19		○	○	50	250	47	35	63	63	-10	CN**1906**
S50W-PCLNR/L19		●	○	50	450	47	35	63	63	-10	CN**1906**

● Ex stock    ○ On demand







\* With internal cooling

**CN\*\* steel boring bar**

Spare parts

	Insert ød	CN**0903** 16-25	CN**1204** 25	CN**1204** 32-50	CN**1906** 50
	Knee lever	L3C	L4A	L4	L6
	Screw	LEM5×12B (4.0 Nm)			
	Screw		LEM8×21 (10.2 Nm)	LEM8×21 (10.2 Nm)	LEM10×27 (16.6 Nm)
	Shim pin (shim)			SP4	SP6
	Shim				C19AP
	Shim			C12APB	
	Wrench	WH20L	WH25L	WH30L	WH40L

Insert

					
<b>Wiper</b> A45	<b>Finishing</b> A45	<b>Medium Cut</b> A46	<b>Roughing</b> A53	<b>Cast Iron</b> A53	<b>PCBN/PCD</b> A148

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

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System code > A282

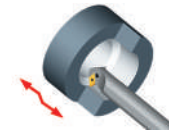
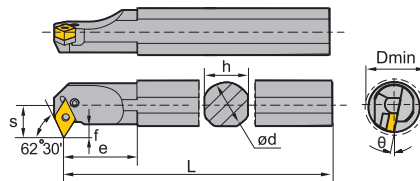
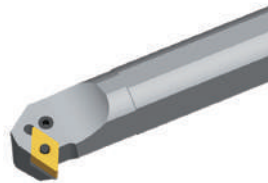
Grade selection > A40

Technical info > A447

Cutting data > A324

## DN\*\* steel boring bar P-Clamping

PDSNR/L Kr: 62°30'



Right hand style

Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	e	f	D <sub>min</sub>	θ	
S32R-PDSNR/L15-3		○	○	32	200	30	22	45	8.5	40	-11	DN**1504**
S40V-PDSNR/L15-3		●		40	400	37	27	43	9.4	50	-11	DN**1504**
A32S-PDSNR/L15-3	*	○	○	32	250	31	22	45	8.5	40	-11	DN**1504**
S32R-PDSNR/L15		●	●	32	200	30	22	45	8.5	40	-11	DN**1506**
S32U-PDSNR/L15		●	●	32	350	30	22	45	8.5	40	-11	DN**1506**
S40S-PDSNR/L15		○	○	40	250	37	27	43	9.4	50	-11	DN**1506**
S40V-PDSNR/L15		○	○	40	400	37	27	43	9.4	50	-11	DN**1506**
A32S-PDSNR/L15	*	●	●	32	250	31	22	45	8.5	40	-11	DN**1506**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert ød	DN**1504**	DN**1506**
		32-40	32-40
	Knee lever	L4	L4B
	Screw	LEM8×21 (10.2 Nm)	LEM8×21 (10.2 Nm)
	Shim pin (shim)	SP4	SP4
	Shim	D15AP	D15AP
	Wrench	WH30L	WH30L

### Insert

<b>Wiper</b> A55	<b>Finishing</b> A55	<b>Medium Cut</b> A56	<b>Roughing</b> A60	<b>Cast Iron</b> A61	<b>PCBN/PCD</b> A149

System code > A282

Grade selection > A40

Technical info > A447

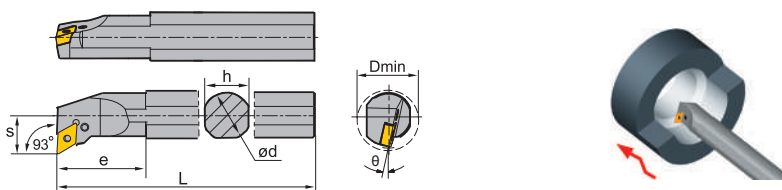
Cutting data > A324

**DN\*\* steel boring bar P-Clamping**

PDUNR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S20Q-PDUNR/L11	● ○	20	180	18	13	30	25	-16	DN**1104**		
S20S-PDUNR/L11	● ●	20	250	18	13	30	25	-16	DN**1104**		
S25Q-PDUNR/L11	● ●	25	180	23	17	35	32	-13	DN**1104**		
S25T-PDUNR/L11	● ●	25	300	23	17	35	32	-13	DN**1104**		
S32R-PDUNR/L11	○ ○	32	200	30	22	40	40	-16	DN**1104**		
S32U-PDUNR/L11	● ●	32	350	30	22	40	40	-16	DN**1104**		
S32R-PDUNR/L15-3	○ ○	32	200	30	22	50	40	-16	DN**1504**		
S32U-PDUNR/L15-3	● ●	32	350	30	22	50	40	-16	DN**1504**		
S40S-PDUNR/L15-3	○ ○	40	250	37	27	50	50	-11	DN**1504**		
S40V-PDUNR/L15-3	● ●	40	400	37	27	50	50	-11	DN**1504**		
A32S-PDUNR/L15-3	* ● ●	32	250	31	22	50	40	-16	DN**1504**		
S32R-PDUNR/L15	○ ○	32	200	30	22	50	40	-16	DN**1506**		
S32U-PDUNR/L15	● ●	32	350	30	22	50	40	-16	DN**1506**		
S40S-PDUNR/L15	○ ○	40	250	37	27	50	50	-11	DN**1506**		
S40V-PDUNR/L15	● ●	40	400	37	27	50	50	-11	DN**1506**		
A32S-PDUNR/L15	* ● ●	32	250	31	22	50	40	-16	DN**1506**		

● Ex stock ○ On demand

\* With internal cooling







Spare parts

	Insert ød	DN**1104**	DN**1104**	DN**1504**	DN**1506**
		20-25	32	32-40	32-40
	Knee lever	L3D	L3	L4	L4B
	Screw	LEM5×12B (4.0 Nm)	LEM6×17 (7.0 Nm)		
	Screw			LEM8×21 (10.2 Nm)	LEM8×21 (10.2 Nm)
	Shim pin (shim)		SP3	SP4	SP4
	Shim		D11AP	D15AP	D15AP
	Wrench	WH20L	WH25L	WH30L	WH30L

**A**

Turning

## DN\*\* steel boring bar

Insert					
					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A55	A55	A56	A60	A61	A149

**B**

Milling

**C**

Drilling

**D**

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System code > A282

Grade selection > A40

Technical info > A447

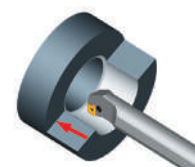
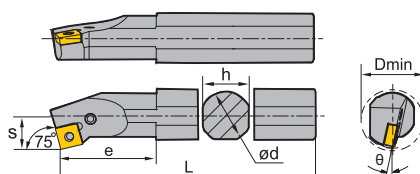
Cutting data > A324

**SN\*\* steel boring bar** P-Clamping

PSKNR/L Kr: 75°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S25Q-PSKNR/L12		○	●	25	180	23	17	42	32	-12	SN**1204**
S25T-PSKNR/L12		●	○	25	300	23	17	42	32	-12	SN**1204**
S32R-PSKNR/L12		○	○	32	200	30	22	45	44	-10	SN**1204**
S32U-PSKNR/L12		●	●	32	350	30	22	45	44	-10	SN**1204**
S40S-PSKNR/L12		○	○	40	250	37	27	50	54	-10	SN**1204**
S40V-PSKNR/L12		●	○	40	400	37	27	50	54	-10	SN**1204**
A25R-PSKNR/L12	*	●	●	25	200	24	17	42	32	-12	SN**1204**
A32S-PSKNR/L12	*	●	●	32	250	31	22	50	44	-12	SN**1204**

● Ex stock ○ On demand

\*With internal cooling

Spare parts			
	Insert	SN**1204**	SN**1204**
	ød	25	32-40
	Knee lever	L4A	L4
	Screw		LEM8×21 (10.2 Nm)
	Screw	LEM6×13.4A (7.0 Nm)	
	Shim pin (shim)		SP4
	Shim		S12APB
	Wrench	WH25L	WH30L

Insert				
Finishing	Medium Cut	Roughing	Cast Iron	PCBN/PCD
A63	A65	A68	A74	A150

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



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Milling

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Drilling

D

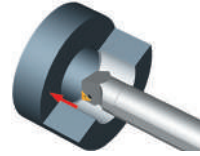
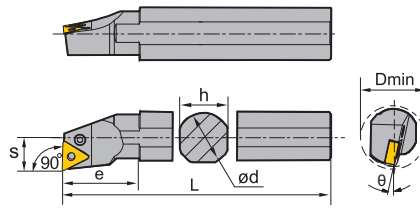
Technical Information

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## TN\*\* steel boring bar P-Clamping

PTFNR/L Kr: 90°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S16M-PTFNR/L11	○	○	16	150	15	11	28	20	-14	TN**1103**	
S16R-PTFNR/L11	●	●	16	200	15	11	28	20	-14	TN**1103**	
S20Q-PTFNR/L11	●	●	20	180	18	13	31	25	-12	TN**1103**	
S20S-PTFNR/L11	●	●	20	250	18	13	31	25	-12	TN**1103**	
S25Q-PTFNR/L11	○	○	25	180	23	17	35	32	-10	TN**1103**	
S25T-PTFNR/L11	○	○	25	300	23	17	35	32	-10	TN**1103**	
S25Q-PTFNR/L16	○	○	25	180	23	17	42	32	-12	TN**1604**	
S25T-PTFNR/L16	●	●	25	300	23	17	42	32	-12	TN**1604**	
S32R-PTFNR/L16	○	○	32	200	30	22	50	44	-10	TN**1604**	
S32U-PTFNR/L16	●	●	32	350	30	22	50	44	-10	TN**1604**	
S40S-PTFNR/L16	○	○	40	250	37	27	55	54	-10	TN**1604**	
S40V-PTFNR/L16	●	●	40	400	37	27	55	54	-10	TN**1604**	
A25R-PTFNR/L16	*	○	25	200	24	17	40	32	-12	TN**1604**	
A32S-PTFNR/L16	*	●	32	250	31	22	50	44	-10	TN**1604**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	TN**1103**	TN**1604**	TN**1604**
		16-25	25	32-40
Knee lever		L2	L3B	L3
Screw		LEM5×9B (4.0 Nm)	LEM5×12B (4.0 Nm)	LEM6×17 (7.0 Nm)
Shim pin (shim)				SP3
Shim				T16APB
Wrench		WH20L	WH20L	WH25L

### Insert

Wiper A78	Finishing A79	Medium Cut A81	Roughing A84	Cast Iron A88	PCBN/PCD A151

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324

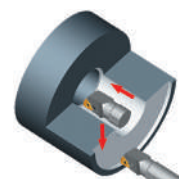
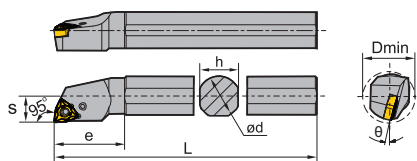


**WN\*\* steel boring bar** P-Clamping

PWLNR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S16M-PWLNR/L06	●	●	16	150	15	11	25	20	-13	WN**0604**	
S16R-PWLNR/L06	○		16	200	15	11	25	20	-13	WN**0604**	
S20Q-PWLNR/L06	●	●	20	180	18	13	35	25	-13	WN**0604**	
S20S-PWLNR/L06	●	○	20	250	18	13	35	25	-13	WN**0604**	
S25Q-PWLNR/L06	○	○	25	180	23	17	35	32	-13	WN**0604**	
S25T-PWLNR/L06	○		25	300	23	17	35	32	-13	WN**0604**	
S20Q-PWLNR/L08	●	●	20	180	18	13	32	25	-13	WN**0804**	
S20S-PWLNR/L08	●		20	250	18	13	32	25	-13	WN**0804**	
S25Q-PWLNR/L08	●	○	25	180	23	17	45	32	-13	WN**0804**	
S25T-PWLNR/L08	●	●	25	300	23	17	45	32	-13	WN**0804**	
S32R-PWLNR/L08	●	●	32	200	30	22	50	40	-15	WN**0804**	
S32U-PWLNR/L08	●	●	32	350	30	22	50	40	-15	WN**0804**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert ød	WN**0604**	WN**0804**	WN**0804**
		16-25	20-25	32
	Knee lever	L3B	L4A	L4
	Screw	LEM5×12B (4.0 Nm)		LEM8×21 (10.2 Nm)
	Screw		LEM6×13.4A (7.0 Nm)	
	Shim pin (shim)			SP4
	Shim			W08AP
	Wrench	WH20L	WH25L	WH30L

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

Technical Information







E

Index

**A**

Turning

## WN\*\* steel boring bar

Insert					
					
<b>Wiper</b>	<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A95	A94	A97	A98	A98	A153

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A282

Grade selection > A40

Technical info > A447

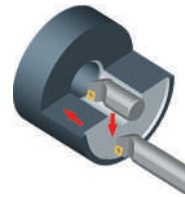
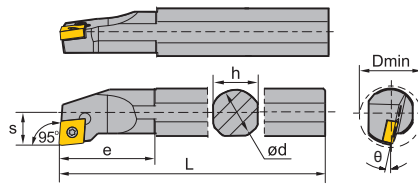
Cutting data > A324

**CC\*\* steel boring bar S-Clamping**

SCLCR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	L <sub>2</sub>	e	D <sub>min</sub>	θ	
S08K-SCLCR/L06		●	●	8	125	7	5	14	14	10	-15	CC**0602**
S10K-SCLCR/L06		●	●	10	125	7	5	14	14	10	-15	CC**0602**
S10M-SCLCR/L06		●	●	10	150	9	6	14	14	12	-13	CC**0602**
S12M-SCLCR/L06		●	●	12	150	11	9	25	25	16	-10	CC**0602**
A08F-SCLCR/L06	*	●	●	8	80	7.5	5	14	14	10	-15	CC**0602**
A10H-SCLCR/L06	*	●	●	10	100	9.5	6	14	14	12	-13	CC**0602**
A12K-SCLCR/L06	*	●	●	12	125	11.5	9	25	25	16	-10	CC**0602**
S12M-SCLCR/L09		●	●	12	150	11	9	25	25	16	-10	CC**09T3**
S16M-SCLCR/L09		●	○	16	150	15	11	32.5	32.5	20	-12	CC**09T3**
S16R-SCLCR/L09		●	●	16	200	15	11	32.5	32.5	20	-12	CC**09T3**
S20Q-SCLCR/L09		●	●	20	180	18	13	38	38	25	-8	CC**09T3**
S20S-SCLCR/L09		●	●	20	250	18	13	38	38	25	-8	CC**09T3**
S25Q-SCLCR/L09		●	○	25	180	23	17	45	45	32	-6	CC**09T3**
S25T-SCLCR/L09		●	●	25	300	23	17	45	45	32	-6	CC**09T3**
A12K-SCLCR/L09	*	●	●	12	125	11.5	9	25	25	16	-10	CC**09T3**
A16M-SCLCR/L09	*	●	●	16	150	15.5	11	32.5	32.5	20	-12	CC**09T3**
A20Q-SCLCR/L09	*	●	●	20	180	19	13	38	38	25	-8	CC**09T3**
A25R-SCLCR/L09	*	●	●	25	200	24	17	45	45	32	-6	CC**09T3**
S25Q-SCLCR/L12		●	○	25	180	23	17	45	45	32	-6	CC**1204**
S25T-SCLCR/L12		●	●	25	300	23	17	45	45	32	-6	CC**1204**
S32R-SCLCR/L12		●	●	32	200	30	22	50	50	40	-10	CC**1204**
S32U-SCLCR/L12		●	●	32	350	30	22	50	50	40	-10	CC**1204**
S40S-SCLCR/L12		○		40	250	37	27	60	60	50	-8	CC**1204**
S40V-SCLCR/L12		●	●	40	400	37	27	60	60	50	-8	CC**1204**
A25R-SCLCR/L12	*	●	●	25	200	24	17	45	45	32	-6	CC**1204**
A32S-SCLCR/L12	*	●	●	32	250	31	22	50	50	40	-10	CC**1204**

● Ex stock    ○ On demand







\* With internal cooling

**A**

Turning







## CC\*\* steel boring bar

Spare parts

	Insert ød	CC**0602** 8-12	CC**09T3** 12-20	CC**09T3** 25	CC**1204** 25	CC**1204** 32-40
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)	I60M3.5×10 (2.7 Nm)		
	Screw				I60M4×11X (3.4 Nm)	I60M4×11X (3.4 Nm)
	Screw (shim)					SM6×10XA
	Shim					C12BS
	Wrench (screw)	WT07IP	WT15IP	WT15IP	WT15IP	WT15IP
	Wrench (shim)					WH40L

**B**

Milling

Insert					
					
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A102	A106	A107	A108	A107	A154

**C**

Drilling

**D**

Technical Information

**E**

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System code > A282

Grade selection > A40

Technical info > A447

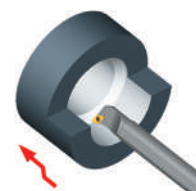
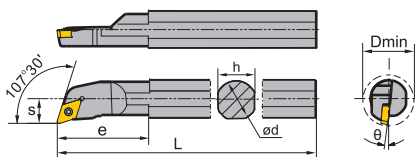
Cutting data > A324

**DC\*\* steel boring bar S-Clamping**

SDQCR/L Kr: 107°30'



Right hand style



Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	L <sub>2</sub>	e	D <sub>min</sub>	θ	
S10M-SDQCR/L07	●	●	10	150	9	7	20	20	13	-8	DC**0702**	
S12M-SDQCR/L07	●	●	12	150	11	9	22	22	16	-8	DC**0702**	
S16M-SDQCR/L07	○	●	16	150	15	11	27	27	20	-6	DC**0702**	
S16Q-SDQCR/L07	●	●	16	180	15	11	27	27	20	-6	DC**0702**	
S16R-SDQCR/L07	●	●	16	200	15	11	27	27	20	-6	DC**0702**	
A10H-SDQCR/L07	*	●	●	10	100	9.5	7	20	20	13	-8	DC**0702**
A12K-SDQCR/L07	*	●	●	12	125	11.5	9	22	22	16	-8	DC**0702**
S20Q-SDQCR/L11	●	○	20	180	18	13	32	32	25	-6	DC**11T3**	
S20S-SDQCR/L11	●	●	20	250	18	13	32	32	25	-6	DC**11T3**	
S25Q-SDQCR/L11	●	○	25	180	23	17	32	32	32	-6	DC**11T3**	
S25T-SDQCR/L11	●	●	25	300	23	17	32	32	32	-6	DC**11T3**	
A16M-SDQCR/L11	*	●	●	16	150	15.5	11	27	27	20	-6	DC**11T3**
A20Q-SDQCR/L11	*	●	●	20	180	19	13	32	32	25	-6	DC**11T3**
A25R-SDQCR/L11	*	●	●	25	200	24	17	32	32	32	-6	DC**11T3**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	DC**0702**	DC**0702**	DC**11T3**	DC**11T3**	DC**11T3**
	ød	10	12-16	16-20	20	25
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT07IP	WT15IP	WT15IP	WT15IP

Insert

<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A112	A114	A115	A115	A115	A155

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

Technical Information

E

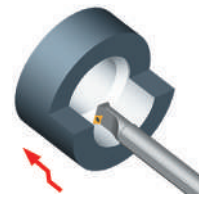
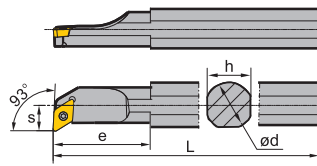
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## DC\*\* steel boring bar S-Clamping

SDUCR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]									Inserts
		R	L	ød	L	h	s	L <sub>2</sub>	e	D <sub>min</sub>	θ		
S10M-SDUCR/L07		●	●	10	150	9	7	-	0	13	-8	DC**0702**	
S12M-SDUCR/L07		●	●	12	150	11	9	22	22	16	-8	DC**0702**	
S16M-SDUCR/L07		●	●	16	150	15	11	27	27	20	-6	DC**0702**	
S16R-SDUCR/L07		●	●	16	200	15	11	27	27	20	-6	DC**0702**	
A10H-SDUCR/L07	*	●	●	10	100	9.5	7	-	0	13	-8	DC**0702**	
A12K-SDUCR/L07	*	●	●	12	125	11.5	9	22	22	16	-8	DC**0702**	
A16M-SDUCR/L07	*	●	●	16	150	15.5	11	27	27	20	-6	DC**0702**	
S20Q-SDUCR/L11		●	●	20	180	18	13	40	40	25	-6	DC**11T3**	
S20S-SDUCR/L11		●	●	20	250	18	13	40	40	25	-6	DC**11T3**	
S25Q-SDUCR/L11		●	○	25	180	23	17	46	46	32	-6	DC**11T3**	
S25T-SDUCR/L11		●	●	25	300	23	17	46	46	32	-6	DC**11T3**	
A20Q-SDUCR/L11	*	●	●	20	180	19	13	40	40	25	-6	DC**11T3**	
A25R-SDUCR/L11	*	●	●	25	200	24	17	46	46	32	-6	DC**11T3**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	DC**0702**	DC**11T3**
	ød	10-16	20-25
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)
	Wrench	WT07IP	WT15IP

### Insert

<b>Finishing</b> A112	<b>Medium Cut</b> A114	<b>Roughing</b> A115	<b>Alum Machining</b> A115	<b>Cast Iron</b> A115	<b>PCBN/PCD</b> A155

System code > A282

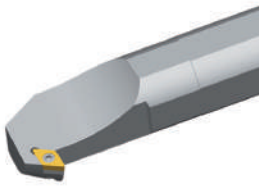
Grade selection > A40

Technical info > A447

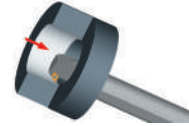
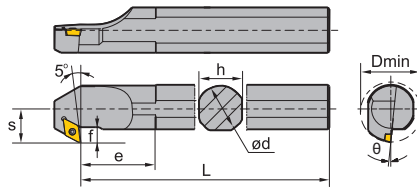
Cutting data > A324

**DC\*\* steel boring bar S-Clamping**

SDZCR/L Kr: 85°



Right hand style



Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	e	f	D <sub>min</sub>	θ	
S25Q-SDZCR/L11	•	•	25	180	23	17	30	6.9	32	-6	DC**11T3**	
S25T-SDZCR/L11	•	•	25	300	23	17	30	6.9	32	-6	DC**11T3**	
S32R-SDZCR/L11	○		32	200	30	22	39	8.4	40	-6	DC**11T3**	
S32U-SDZCR/L11	•	•	32	350	30	22	39	8.4	40	-6	DC**11T3**	
S40S-SDZCR/L11	○	•	40	250	37	27	47	9.4	50	-4	DC**11T3**	
S40V-SDZCR/L11	•	•	40	400	37	27	47	9.4	50	-4	DC**11T3**	
A25R-SDZCR/L11	*	•	25	200	24	17	30	4.5	32	-6	DC**11T3**	
A32S-SDZCR/L11	*	•	32	250	31	22	39	6	40	-6	DC**11T3**	

• Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert ød	DC**11T3**	DC**11T3**
		25	32-40
	Screw	I60M3.5×10 (2.7 Nm)	I60M3.5×12 (2.7 Nm)
	Screw (shim)		SM5×8.65XA
	Shim		D11BS
	Wrench (screw)	WT15IP	WT15IP
	Wrench (shim)		WH35L

Insert

Finishing A112	Medium Cut A114	Roughing A115	Alum Machining A115	Cast Iron A115	PCBN/PCD A155

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

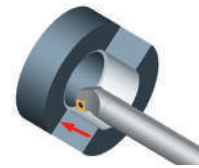
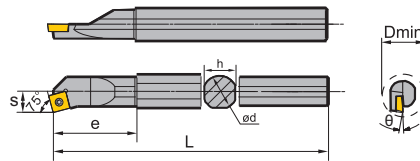
Technical Information

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## SC\*\* steel boring bar S-Clamping

SSKCR/L Kr: 75°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S12M-SSKCR/L09	●	●	12	150	11	9	26	16	-10	SC**09T3**	
S16M-SSKCR/L09	○	○	16	150	15	11	32.5	20	-11	SC**09T3**	
S16R-SSKCR/L09	○	○	16	200	15	11	32.5	20	-11	SC**09T3**	
S20Q-SSKCR/L09	○	○	20	180	18	13	34.5	25	-6	SC**09T3**	
S20S-SSKCR/L09	●	○	20	250	18	13	34.5	25	-6	SC**09T3**	
A12K-SSKCR/L09	*	●	○	12	125	11	9	26	-10	SC**09T3**	
A16M-SSKCR/L09	*	●	○	16	150	15	11	32.5	-11	SC**09T3**	
A20Q-SSKCR/L09	*	●	○	20	180	19	13	34.5	-6	SC**09T3**	
S25Q-SSKCR/L12	○	○	25	180	23	17	36.3	32	-8	SC**1204**	
S25T-SSKCR/L12	●	○	25	300	23	17	36.3	32	-8	SC**1204**	
S32R-SSKCR/L12	○	○	32	200	30	22	43.5	40	-10	SC**1204**	
S32U-SSKCR/L12	●		32	350	30	22	43.5	40	-10	SC**1204**	
A25R-SSKCR/L12	*	●	○	25	200	24	17	41.3	-8	SC**1204**	
A32S-SSKCR/L12	*	●		32	250	31	22	42.8	-10	SC**1204**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	SC**09T3**	SC**1204**	SC**1204**
		12-20	25	32
	Screw	I60M3.5x8 (2.7 Nm)		
	Screw		I60M4x11X (3.4 Nm)	I60M4x11X (3.4 Nm)
	Screw (shim)			SM6x10XA
	Shim			S12BS
	Wrench (screw)	WT15IP	WT15IP	WT15IP
	Wrench (shim)			WH40L

System code > A282





Grade selection > A40

Technical info > A447

Cutting data > A324



**SC\*\* steel boring bar**

Insert			
			
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>
A120	A121	A122	A122

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A282

Grade selection > A40

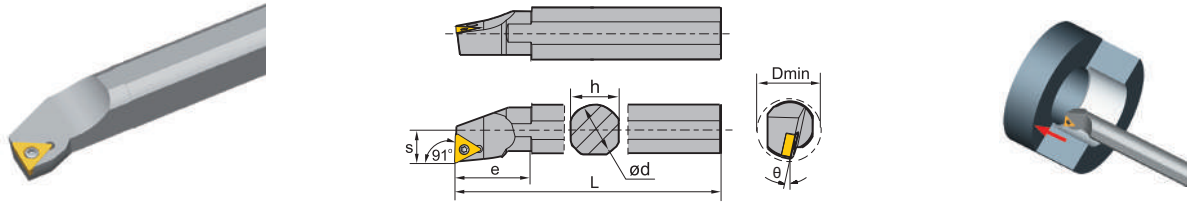
Technical info > A447

Cutting data > A324



## TC\*\* steel boring bar S-Clamping

STFCR/L Kr: 91°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S12M-STFCR/L11		●	●	12	150	11	9	30	16	-10	TC**1102**
S16M-STFCR/L11		○	●	16	150	15	11	35	20	-6	TC**1102**
S16R-STFCR/L11		●	●	16	200	15	11	35	20	-6	TC**1102**
S20Q-STFCR/L11		○	○	20	180	18	13	36	25	-3	TC**1102**
S20S-STFCR/L11		●	●	20	250	18	13	36	25	-3	TC**1102**
A12K-STFCR/L11	*	●	●	12	125	11.5	9	26	16	-10	TC**1102**
A16M-STFCR/L11	*	●	●	16	150	15.5	11	30	20	-6	TC**1102**
A20Q-STFCR/L11	*	●	●	20	180	19	13	36	25	-3	TC**1102**
S25Q-STFCR/L16		●	○	25	180	23	17	49	32	-6	TC**16T3**
S25T-STFCR/L16		●	●	25	300	23	17	49	32	-6	TC**16T3**
S32R-STFCR/L16		●	●	32	200	30	22	50	40	-10	TC**16T3**
S32U-STFCR/L16		●	●	32	350	30	22	50	40	-10	TC**16T3**
S40S-STFCR/L16		○	○	40	250	37	27	60	50	-8	TC**16T3**
S40V-STFCR/L16		●	●	40	400	37	27	60	50	-8	TC**16T3**
A25R-STFCR/L16	*	●	●	25	200	24	17	45	32	-6	TC**16T3**
A32S-STFCR/L16	*	●	○	32	250	31	22	49	40	-10	TC**16T3**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

Insert	ød	TC**1102**	TC**16T3**	TC**16T3**
		12-20	25	32-40
Screw		I60M2.5×6.5 (1.0 Nm)	I60M3.5×10 (2.7 Nm)	I60M3.5×12 (2.7 Nm)
Screw (shim)				SM5×8.65XA
Shim				T16BS
Wrench (screw)		WT07IP	WT15IP	WT15IP
Wrench (shim)				WH35L







System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324

**TC\*\* steel boring bar**

Insert					
					
<b>Finishing</b>	<b>Medium Cut</b>	<b>Roughing</b>	<b>Alum Machining</b>	<b>Cast Iron</b>	<b>PCBN/PCD</b>
A127	A128	A129	A131	A129	A156

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

System code > A282

Grade selection > A40

Technical info > A447

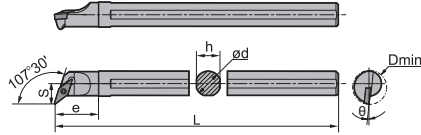
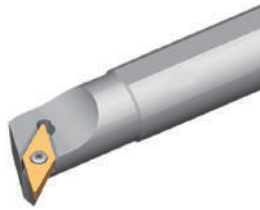
Cutting data > A324



A

## VC\*\* steel boring bar S-Clamping


SVQCR/L Kr: 107°30'



Right hand style

Turning

B

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S16Q-SVQCR/L11	●	●	16	180	15	13	28	22	-6	VC**1103**	
S20R-SVQCR/L11	●	○	20	200	18	15	32	26	-4	VC**1103**	



Milling

● Ex stock ○ On demand

\* With internal cooling

C



### Spare parts

	Insert	VC**1103**
	ød	16-20
	Screw	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP

Drilling

D

### Insert

	
<b>Finishing</b>	<b>Alum Machining</b>
A135	A136

Technical Information

E

Index

System code > A282

Grade selection > A40

Technical info > A447

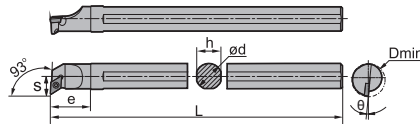
Cutting data > A324

**VC\*\* steel boring bar S-Clamping**

SVUCR/L Kr: 93°



Right hand style





Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	L <sub>2</sub>	e	D <sub>min</sub>	θ
S16Q-SVUCR/L11	● ○	16	180	15	15	25	25	24	-6	VC**1103**	
S20R-SVUCR/L11	● ●	20	200	18	17	30	30	28	-4	VC**1103**	



● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	VC**1103**
	ød	16-20
	Screw	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP

Insert

	
Finishing A135	Alum Machining A136

System code > A282

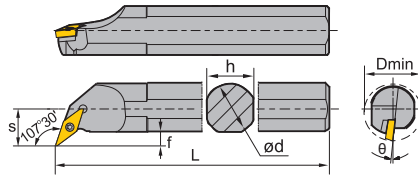
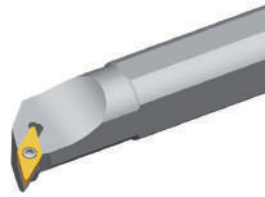
Grade selection > A40

Technical info > A447

Cutting data > A324

## VB\*\* steel boring bar S-Clamping

SVQBR/L Kr: 107°30'



Right hand style

Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	e	f	D <sub>min</sub>	θ	
S32R-SVQBR/L16	●	●	32	200	30	22	56	8.4	40	-8	VB**1604**	
S32U-SVQBR/L16	●	●	32	350	30	22	56	8.4	40	-8	VB**1604**	
S40V-SVQBR/L16	●	●	40	400	37	27	64	9.4	50	-8	VB**1604**	
A32S-SVQBR/L16	*	○	○	32	250	31	22	56	8.4	40	-8	VB**1604**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert ød	VB**1604** 32-40
	Screw	I60M3.5×12 (2.7 Nm)
	Screw (shim)	SM5×8.65XA
	Shim	V16BS
	Wrench (screw)	WT15IP
	Wrench (shim)	WH35L

### Insert

<b>Finishing</b> A140	<b>Medium Cut</b> A142	<b>Roughing</b> A143	<b>PCBN/PCD</b> A157

System code > A282

Grade selection > A40

Technical info > A447

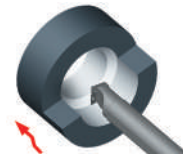
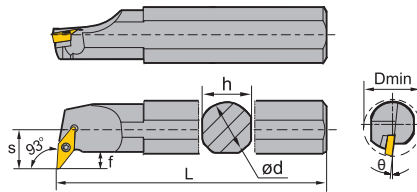
Cutting data > A324

**VB\*\* steel boring bar S-Clamping**

SVUBR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]								Inserts
		R	L	ød	L	h	s	e	f	D <sub>min</sub>	θ	
S32R-SVUBR/L16	● ○	32	200	30	22	49	8.4	40	-8	VB**1604**		
S32U-SVUBR/L16	● ●	32	350	30	22	49	8.4	40	-8	VB**1604**		
S40S-SVUBR/L16	● ○	40	250	37	27	56.5	9.4	50	-8	VB**1604**		
S40V-SVUBR/L16	● ●	40	400	37	27	56.5	9.4	50	-8	VB**1604**		
A32S-SVUBR/L16	* ● ●	32	250	31	22	49	8.4	40	-8	VB**1604**		

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert ød	VB**1604** 32-40
	Screw	I60M3.5×12 (2.7 Nm)
	Screw (shim)	SM5×8.65XA
	Shim	V16BS
	Wrench (screw)	WT15IP
	Wrench (shim)	WH35L

Insert

<b>Finishing</b> A140	<b>Medium Cut</b> A142	<b>Roughing</b> A143	<b>PCBN/PCD</b> A157

System code > A282

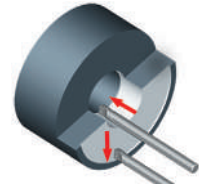
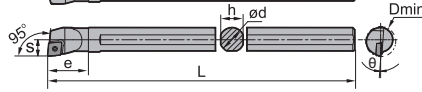
Grade selection > A40

Technical info > A447

Cutting data > A324

## CP\*\* steel boring bar S-Clamping

SCLPR/L Kr: 95°



Right hand style

Article	Stock		Dimensions [mm]							Inserts
	R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S10K-SCLPR/L06	●	●	10	125	9	6	17	12	-7	CP**0602**
S12M-SCLPR/L06	●	●	12	150	11	8	20	16	-4	CP**0602**
S16Q-SCLPR/L09	●	●	16	180	15	10	29	20	-4	CP**09T3**
S20R-SCLPR/L09	○	○	20	200	18	13	35	25	-4	CP**09T3**

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	CP**0602**	CP**09T3**
	ød	10-12	20-25
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

### Insert

Finishing	Medium Cut	Cast Iron
A110	A110	A110

System code > A282

Grade selection > A40

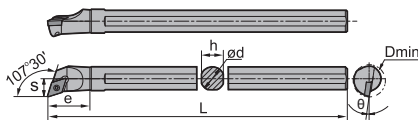
Technical info > A447

Cutting data > A324



**DP\*\* steel boring bar** **S-Clamping**

SDQPR/L Kr: 107°30'



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S10K-SDQPR/L07	●	●	10	125	9	7	20	13	-8	DP**0702**	
S12M-SDQPR/L07	●	●	12	150	11	9	22	16	-8	DP**0702**	
S16Q-SDQPR/L07	●	●	16	180	15	11	27	20	-6	DP**0702**	
S16Q-SDQPR/L11	●	●	16	180	15	11	32	20	-6	DP**11T3**	
S20R-SDQPR/L11	○	○	20	200	18	13	33	25	-6	DP**11T3**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	DP**0702**	DP**0702**	DP**11T3**
	ød	10-12	16	16-20
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M2.5×6.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench (screw)	WT07IP	WT07IP	WT15IP

Insert

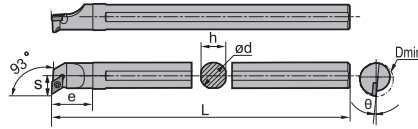


Finishing

A117

## DP\*\* steel boring bar S-Clamping

SDUPR/L Kr: 93°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S10K-SDUPR/L07	•	•	10	125	9	9	18	15	-8	DP**0702**	
S12M-SDUPR/L07	•	•	12	150	11	9	19	16	-8	DP**0702**	
S16Q-SDUPR/L07	•	•	16	180	15	11	25	20	-6	DP**0702**	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	DP**0702**	DP**0702**
	ød	10-12	16
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP	WT07IP

### Insert



### Finishing

A117

System code > A282

Grade selection > A40

Technical info > A447

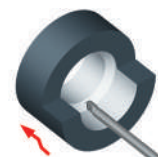
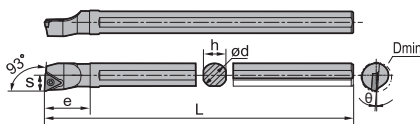
Cutting data > A324

TP\*\* steel boring bar **S-Clamping**

STUPR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	L	h	s	e	D <sub>min</sub>	θ	
S10K-STUPR/L09	●	●	10	125	9	6	20	12	-6	TP**0902**	
S12M-STUPR/L09	●	●	12	150	11	8	22	16	-4	TP**0902**	
S12M-STUPR/L11	●	●	12	150	11	8	25	16	-4	TP**1103**	
S16Q-STUPR/L11	●	●	16	180	15	10	27	20	-3	TP**1103**	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	TP**0902**	TP**1103**
	ød	10-12	12-16
	Screw	I60M2.2x5.5 (0.8 Nm)	I60M2.5x6.5 (1.0 Nm)
	Wrench	WT07IP	WT07IP

Insert



Finishing

A133

System code > A282

Grade selection > A40

Technical info > A447

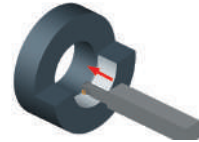
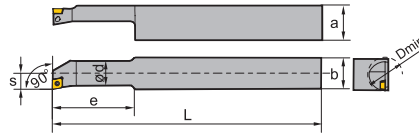
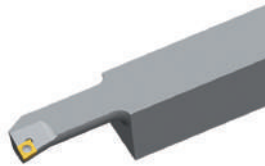
Cutting data > A324

A

## CC\*\* steel boring bar S-Clamping


SCFCR/L Kr: 90°

Turning



B

Milling



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ød	a	b	L	s	e	D <sub>min</sub>	
S10M-SCFCR/L06S25		●	○	10	27	25	150	7	30	13	CC**0602**
S12P-SCFCR/L06S25		●		12	27	25	170	9	35	16	CC**0602**
S16Q-SCFCR/L09S25		●	○	16	27	25	180	11	40	20	CC**09T3**
S20R-SCFCR/L09S25		●		20	27	25	200	13	45	25	CC**09T3**
S25R-SCFCR/L12S25		●	●	25	27	25	200	17	50	32	CC**1204**

● Ex stock ○ On demand

\* With internal cooling







C

Drilling

Spare parts		CC**0602**	CC**09T3**	CC**1204**
Insert		10-12	16-20	25
ød		10-12	16-20	25
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M5x13 (6.7 Nm)
	Wrench	WT07IP	WT15IP	WT20IP

D

Technical Information

Insert					
					
Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A102	A106	A107	A108	A107	A154

E

Index

System code > A282

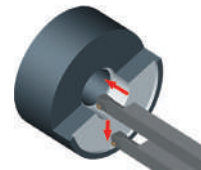
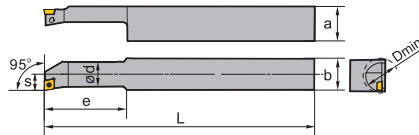
Grade selection > A40

Technical info > A447

Cutting data > A324

**CC\*\* steel boring bar S-Clamping**

SCLCR/L Kr: 95°



Article	*	Stock	Dimensions [mm]							Inserts
			ød	a	b	L	s	e	D <sub>min</sub>	
S10M-SCLCR06S20	○	○	10	22	20	150	7	30	13	CC**0602**
S12P-SCLCR06S20	○	○	12	22	20	170	9	35	16	CC**0602**
S16Q-SCLCR09S20	●	●	16	22	20	180	11	40	20	CC**09T3**
S20R-SCLCR09S20	●	●	20	22	20	200	13	60	25	CC**09T3**

● Ex stock    ○ On demand

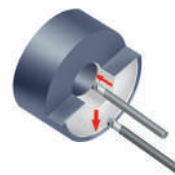
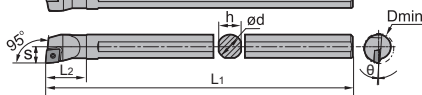
\* With internal cooling

Spare parts			
	Insert	CC**0602**	CC**09T3**
	ød	10-12	16-20
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)
	Wrench	WT07IP	WT15IP

Insert					
Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A102	A106	A107	A108	A107	A154

## CP\*\* solid carbide boring bar S-Clamping

SCLPR/L Kr: 95°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C10M-SCLPR/L06	●	●	12	10	9	6	150	17	7	CP**0602**	
C12Q-SCLPR/L06	●	○	16	12	11	8	180	20	4	CP**0602**	
C16R-SCLPR/L09	●	●	20	16	15	10	200	29	4	CP**09T3**	
E16R-SCLPR/L09	*	○	19	16	15.5	10	200	-	-2	CP**09T3**	
C20S-SCLPR/L09	●	○	25	20	18	13	250	35	4	CP**09T3**	
E20S-SCLPR/L09	*	○	24	20	19.5	13	250	-	-2	CP**09T3**	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	CP**0602**	CP**09T3**
		10-12	16-20
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M3.5×10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

### Insert

Finishing	Medium Cut	Cast Iron
A110	A110	A110

System code > A282

Grade selection > A40

Technical info > A447

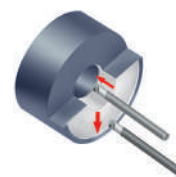
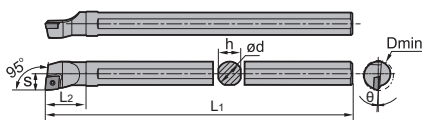
Cutting data > A324

**CC\*\* solid carbide boring bar** S-Clamping

SCLCR/L Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
E08K-SCLCR/L06-09	*	●	●	9	8	7.5	5	125	-	-12	CC**0602**
E08K-SCLCR/L06-10	*	●	●	10	8	7.5	6	125	-	-12	CC**0602**
E10M-SCLCR/L06	*	●	●	12	10	9.5	7	150	-	-10	CC**0602**
E12Q-SCLCR/L06	*	●	●	15	12	11.5	9	180	-	-10	CC**0602**
E16R-SCLCR/L06	*	●	●	18	16	15.5	10	200	-	-8	CC**0602**
E12Q-SCLCR/L09	*	●	●	15	12	11.5	9	180	-	-9	CC**09T3**
E16R-SCLCR/L09	*	●	●	18	16	15.5	10	200	-	-10	CC**09T3**
E20S-SCLCR/L09	*	●	●	24	20	19.5	13	250	-	-8	CC**09T3**
E25T-SCLCR/L09	*	●	●	31	25	24	17	300	-	-6	CC**09T3**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	CC**0602**	CC**09T3**
	ød	8-16	12
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

Insert					
Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A102	A106	A107	A108	A107	A154

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

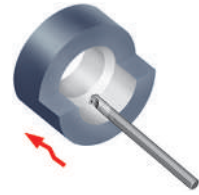
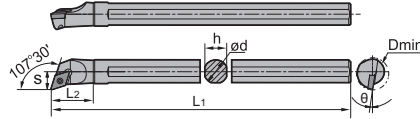
Technical Information

E


Index

## DP\*\* solid carbide boring bar S-Clamping

SDQPR/L Kr: 107°30'





Right hand style

Article	Stock		Dimensions [mm]							Inserts
	R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C10M-SDQPR/L07	●	●	13	10	9	7	150	20	8	DP**0702
C12Q-SDQPR/L07	○	●	16	12	11	9	180	22	8	DP**0702
C16R-SDQPR/L07	○	○	20	16	15	11	200	27	6	DP**0702
C16R-SDQPR/L11	○	○	20	16	15	11	200	32	6	DP**11T3**
C20S-SDQPR/L11	●	○	25	20	18	13	250	33	6	DP**11T3**

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert ød	DP**0702 10-12	DP**0702 16	DP**11T3** 16-20
	Screw	I60M2.5×5.5 (1.0 Nm)	I60M2.5×6.5 (1.0 Nm)	I60M3.5×8 (2.7 Nm)
	Wrench (screw)	WT07IP	WT07IP	WT15IP

### Insert



### Finishing

A117

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324

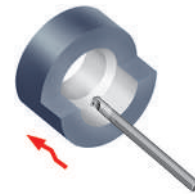
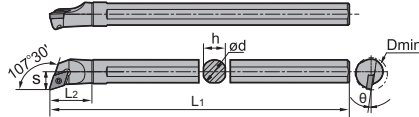



**DC\*\* solid carbide boring bar** S-Clamping

SDQCR/L Kr: 107°30'



Right hand style





Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
E08K-SDQCR/L07	*	●	●	11	8	7.5	6.5	140	-	-12	DC**0702**
E10M-SDQCR/L07	*	●	●	12	10	9.5	7	150	-	-10	DC**0702**
E12Q-SDQCR/L07	*	●	●	15	12	11.5	9	180	-	-10	DC**0702**
E16R-SDQCR/L07	*	●	○	18	16	15.5	10	200	-	-6	DC**0702**
E20S-SDQCR/L07	*	●	○	24	20	19.5	13	250	-	-4	DC**0702**
E16R-SDQCR/L11	*	●	●	18	16	15.5	10	200	-	-8	DC**11T3**
E20S-SDQCR/L11	*	●	○	24	20	19.5	13	250	-	-8	DC**11T3**
E25T-SDQCR/L11	*	●	○	31	25	24	17	300	-	-6	DC**11T3**





● Ex stock    ○ On demand

\* With internal cooling

Spare parts

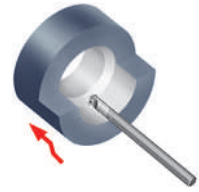
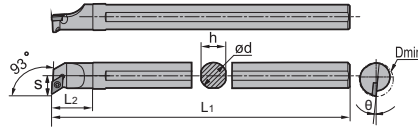
	Insert	DC**0702**	DC**11T3**
	ød	8-20	16-25
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

Insert


					
Finishing A112	Medium Cut A114	Roughing A115	Alum Machining A115	Cast Iron A115	PCBN/PCD A155

## DP\*\* solid carbide boring bar S-Clamping

SDUPR/L Kr: 93°





Right hand style

Article	Stock		Dimensions [mm]							Inserts
	R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C10M-SDUPR/L07	●	●	15	10	9	9	150	18	8	DP**0702**
C12Q-SDUPR/L07	●	○	16	12	11	9	180	19	8	DP**0702**
C16R-SDUPR/L07	○	○	20	16	15	11	200	25	6	DP**0702**

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	<b>Insert</b>	<b>DP**0702**</b>
	<b>ød</b>	<b>15-20</b>
	Screw	I60M2.5x5.5 (1.0 Nm)
	Wrench	WT07IP

### Insert



### Finishing

A117

System code > A282

Grade selection > A40

Technical info > A447

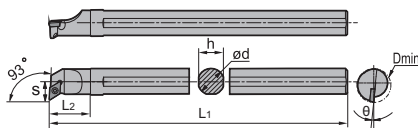
Cutting data > A324

**DC\*\* solid carbide boring bar S-Clamping**

SDUCR/L Kr: 93°



Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
E10M-SDUCR/L07	*	●	○	12	10	9.5	7	150	-	-10	DC**0702**
E12Q-SDUCR/L07	*	●	●	15	12	11.5	9	180	-	-10	DC**0702**
E16R-SDUCR/L07	*	●	○	18	16	15.5	10	200	-	-6	DC**0702**
E20S-SDUCR/L07	*	○	○	24	20	19.5	13	250	-	-4	DC**0702**
E16R-SDUCR/L11	*	●	○	18	16	15.5	10	200	-	-8	DC**11T3**
E20S-SDUCR/L11	*	●	●	24	20	19.5	13	250	-	-8	DC**11T3**
E25T-SDUCR/L11	*	○	○	31	25	24	17	300	-	-6	DC**11T3**

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert	DC**0702**	DC**11T3**
	ød	10-20	16-25
	Screw	I60M2.5x5.5 (1.0 Nm)	I60M3.5x10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

Insert					
Finishing A112	Medium Cut A114	Roughing A115	Alum Machining A115	Cast Iron A115	PCBN/PCD A155

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

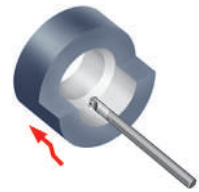
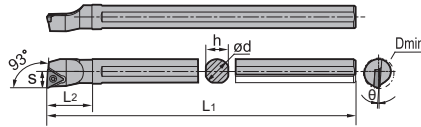
Technical Information

E


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## TP\*\* solid carbide boring bar S-Clamping

STUPR/L Kr: 93°





Right hand style

Article	Stock		Dimensions [mm]							Inserts
	R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C10M-STUPR/L09	○	○	12	10	9	6	150	20	6	TP**0902**
C12Q-STUPR/L09	●	●	16	12	11	8	180	22	4	TP**0902**
C12Q-STUPR/L11	●		16	12	11	8	180	25	4	TP**1103
C16R-STUPR/L11	○	○	20	16	15	10	200	27	3	TP**1103

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	TP**0902**	TP**1103
	ød	10-12	12-16
	Screw	I60M2.2×5.5 (0.8 Nm)	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP	WT07IP

### Insert



### Finishing

A133

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

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System code > A282

Grade selection > A40

Technical info > A447

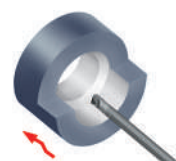
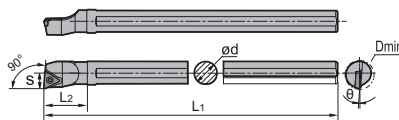
Cutting data > A324


**TC\*\* solid carbide boring bar** S-Clamping

STFCR/L Kr: 90°











Right hand style



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
E08K-STFCR/L09	*	○	●	11	8	7.5	6	125	-	-12	TC**0902**
E10M-STFCR/L09	*	○	○	12	10	9.5	7	150	-	-10	TC**0902**
E12Q-STFCR/L11	*	○	○	15	12	11.5	9	180	-	-10	TC**1102**
E16R-STFCR/L11	*	○	○	18	16	15.5	10	200	-	-8	TC**1102**
E20S-STFCR/L11	*	○	○	24	20	19.5	13	250	-	-8	TC**1102**
E20S-STFCR/L16	*	○	○	24	20	19.5	13	250	-	-8	TC**16T3**
E25T-STFCR/L16	*	○	○	31	25	24	17	300	-	-6	TC**16T3**

- Ex stock    ○ On demand
- \* With internal cooling

Spare parts				
	Insert	TC**0902**	TC**1102**	TC**16T3**
	ød	8-10	12-20	20-25
	Screw	I60M2.2x5.5 (0.8 Nm)	I60M2.5x5.5 (1.0 Nm)	I60M3.5x10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT07IP	WT15IP

Insert					
					
Finishing	Medium Cut	Roughing	Alum Machining	Cast Iron	PCBN/PCD
A126	A128	A129	A131	A129	A156

System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324



A

Turning

B

Milling

C

Drilling

D

Technical Information

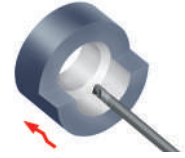
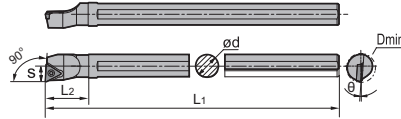
E

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**A**

## TC\*\* solid carbide boring bar S-Clamping


STFPR/L Kr: 90°



Right hand style

Turning

**B**



Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
E10M-STFPR/L11	*	○	○	12	10	9.5	6	150	-	-5	TP**1103**
E12Q-STFPR/L11	*	○	○	15	12	11.5	8	180	-	-4	TP**1103**
E16R-STFPR/L11	*	○	○	19	16	15.5	10	200	-	-2	TP**1103**
E20S-STFPR/L11	*	○	○	24	20	19	13	250	-	-2	TP**1103**

Milling

● Ex stock ○ On demand


\* With internal cooling

**C**

Spare parts		
	<b>Insert</b>	<b>TP**1103**</b>
	<b>ød</b>	<b>10-20</b>
	Screw	I60M3.0x7.0 (1.8 Nm)
	Wrench (screw)	WT08IP

Drilling

**D**

Insert

<b>Finishing</b>
A133

Technical Information

**E**

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System code > A282

Grade selection > A40

Technical info > A447

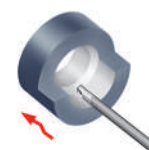
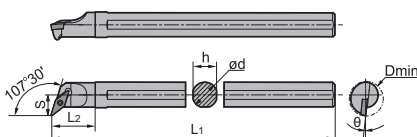
Cutting data > A324


**VC\*\* solid carbide boring bar** S-Clamping

SVQCR/L Kr: 107°30'





Right hand style





Article	*	Stock		Dimensions [mm]						Inserts	
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C16R-SVQCR/L11		○	○	22	16	15	13	200	28	-6	VC**1103**
C20S-SVQCR/L11		○	○	26	20	18	15	250	32	-4	VC**1103**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	<b>Insert</b>	<b>VC**1103**</b>
	<b>ød</b>	<b>16-20</b>
	Screw	I60M2.5×6.5 (1.0 Nm)
	Wrench (screw)	WT07IP

Insert	
	
<b>Finishing</b>	<b>Alum Machining</b>
A135	A136

System code > A282

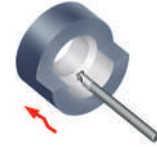
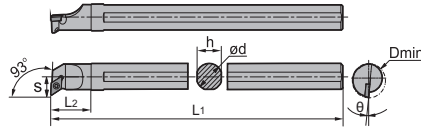
Grade selection > A40

Technical info > A447

Cutting data > A324

## VC\*\* solid carbide boring bar S-Clamping

SVUCR/L Kr: 93°



Right hand style

Article	*	Stock		Dimensions [mm]							Inserts
		R	L	ØD	ød	h	s	L <sub>1</sub>	L <sub>2</sub>	θ	
C16R-SVUCR/L11		○	○	24	16	15	15	200	25	6	VC**1103**
E16R-SVUCR/L11	*	○	○	22	16	15	13	200	-	-6.5	VC**1103**
C20S-SVUCR/L11		●	●	28	20	18	17	250	30	4	VC**1103**
E20S-SVUCR/L11	*	○	○	27	20	18	13	250	-	-6.5	VC**1103**
E25T-SVUCR/L16	*	○	○	35	25	23	20.5	300	-	-6.5	VC**1604**

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert ød	VC**1103** 16-20	VC**1604** 25
	Screw	I60M2.5×6.5 (1.0 Nm)	I60M3.5×10 (2.7 Nm)
	Wrench (screw)	WT07IP	WT15IP

### Insert

Finishing	Medium Cut	Alum Machining	PCBN/PCD
A135	A138	A136	A158

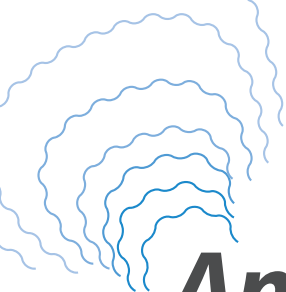
System code > A282

Grade selection > A40

Technical info > A447

Cutting data > A324

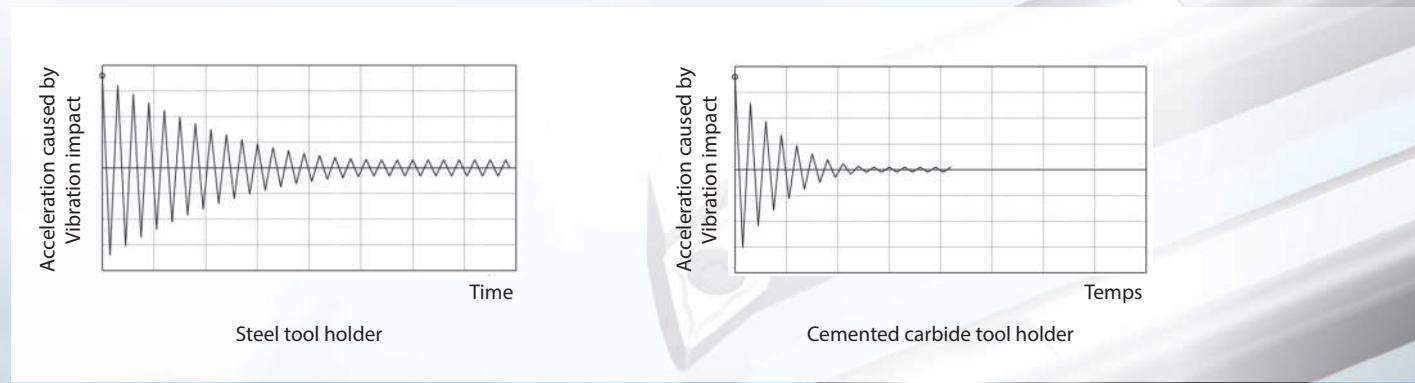




# Anti Vibration Boring Bar

By increasing the rigidity of the tool materials the vibration will be reduced. The carbide tool holder performs much better than steel tool holders (steel tool holder approx.  $L \leq 3 \times D$ , carbide tool holder is approx.  $L \leq 6 \times D$ ). The cutting data can be increased and the shank overhang extended. Therefore you achieve better surface and higher workpiece precision.

## Vibration amplitude (under same machining conditions)



## Turning insert, negative

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						HC (CVD)									
						YB6315			YBC152			YBC252			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
					0,1	0,2	0,6	0,1	0,2	0,6	0,1	0,4	0,8		
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	500	400	270	500	400	270	480	370	230	
		approx. 0,45 % C	annealed	190	2	420	340	230	420	340	230	400	310	190	
		approx. 0,45 % C	tempered	250	3	330	280	200	330	280	200	310	250	160	
		approx. 0,75 % C	annealed	270	4	320	270	190	320	270	190	300	240	150	
		approx. 0,75 % C	tempered	300	5	280	240	170	280	240	170	260	210	130	
	Low-alloyed steel			annealed	180	6	400	300	180	400	300	180	380	290	170
				tempered	275	7	280	230	150	280	230	150	260	210	140
				tempered	300	8	260	220	150	260	220	150	240	200	140
				tempered	350	9	230	190	120	230	190	120	220	180	110
		High-alloyed steel and high-alloyed tool steel			annealed	200	10	360	290	190	360	290	190	310	250
			hardened and tempered	325	11	190	160	130	190	160	130	150	130	100	
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12										
			martensitic	tempered	240	13									
			austenitic	quench hardened	180	14									
			austenitic-ferritic		230	15									
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16										
		perlitic (martensitic)		260	17										
	Cast iron with spheroidal graphite	ferritic		160	18										
		perlitic		250	19										
	Malleable cast iron	ferritic		130	20										
		perlitic		230	21										
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22										
		hardenable	hardened	100	23										
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24										
		$\leq 12\%$ Si, hardenable	hardened	90	25										
		$> 12\%$ Si, cannot be hardened		130	26										
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27										
		CuZn, CuSnZn		90	28										
	CuSn, Pb-free copper, electrolytic copper		100	29											
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30										
			hardened	280	31										
		Ni or Co base	annealed	250	32										
			hardened	350	33										
		cast	320	34											
Titanium alloys	pure titanium		R <sub>m</sub> 400	35											
	$\alpha$ and $\beta$ alloys	hardened	R <sub>m</sub> 1050	36											
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37										
			hardened and tempered	60 HRC	38										
	Hard cast iron		cast	400	39										
	Hardened cast iron		hardened and tempered	55 HRC	40										
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 For examples of material for cutting tool groups view page D22.

**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
**E** Index

Starting values for cutting speed $v_c$ [m/min]																								
HC (CVD)																								
YBC251			YBC352			YBM153			YBM253			YBD052			YBD102			YB7315			YBD152			
Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
0,1	0,4	0,8	0,2	0,5	1	0,2	0,4	0,6	0,2	0,4	0,6	0,1	0,3	0,4	0,1	0,3	0,4	0,1	0,3	0,5	0,1	0,3	0,5	
430	320	180	430	330	220																			
350	260	140	350	270	180																			
260	190	110	260	210	150																			
250	180	100	250	200	140																			
210	160	80	210	170	120																			
330	230	120	320	240	150																			
210	170	110	200	170	120																			
190	150	100	180	160	120																			
170	140	90	150	130	90																			
260	190	120	220	180	130																			
100	75	50	-	-	-																			
							380	295	210	350	265	180												
							190	155	120	150	110	65												
							250	200	150	200	140	80												
							200	160	130	160	115	70												
													620	420	230	530	380	220	600	410	220	540	375	210
													300	220	150	240	200	150	330	240	150	280	210	140
													310	220	150	300	210	145	340	250	160	290	215	140
													230	160	110	220	150	105	260	190	120	210	155	100
													350	275	230	330	265	220	370	300	230	320	265	210
													250	160	105	230	155	100	280	200	120	230	165	100

**A**

Turning

---

**B**

Milling

---

**C**

Drilling

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**D**

Technical Information

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**E**

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## Turning insert, negative

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						HC (CVD)			HC (PVD)						
						YBD152C			YBG101			YBG105			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
			0,1	0,3	0,5	0,1	0,3	0,6	0,1	0,3	0,6				
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1										
		approx. 0,45 % C	annealed	190	2										
		approx. 0,45 % C	tempered	250	3										
		approx. 0,75 % C	annealed	270	4										
		approx. 0,75 % C	tempered	300	5										
	Low-alloyed steel			annealed	180	6									
			tempered	275	7										
			tempered	300	8										
			tempered	350	9										
High-alloyed steel and high-alloyed tool steel			annealed	200	10										
			hardened and tempered	325	11										
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12						360	290	200		
			martensitic	tempered	240	13					180	150	110		
			austenitic	quench hardened	180	14					240	190	140		
			austenitic-ferritic		230	15					190	150	110		
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16	570	395	220							
		perlitic (martensitic)		260	17	310	230	150							
	Cast iron with spheroidal graphite	ferritic		160	18	310	230	150							
		perlitic		250	19	230	170	110							
	Malleable cast iron	ferritic		130	20	340	280	220							
		perlitic		230	21	250	180	110							
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22				2000	1200	-				
		hardenable	hardened	100	23				610	420	-				
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24				550	300	-				
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25				360	190	-				
		$> 12\% \text{ Si}$ , cannot be hardened		130	26				320	170	-				
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27				730	350	-			
		CuZn, CuSnZn			90	28				370	330	-			
CuSn, Pb-free copper, electrolytic copper			100	29				270	200	-					
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30							65	45	-	
			hardened	280	31								60	40	-
		Ni or Co bass	annealed	250	32								60	40	-
			hardened	350	33								55	35	-
		cast	320	34								55	35	-	
Titanium alloys	pure titanium		R <sub>m</sub> 400	35								100	60	-	
	$\alpha$ and $\beta$ alloys	hardened	R <sub>m</sub> 1050	36								80	40	-	
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37										
			hardened and tempered	60 HRC	38										
	Hard cast iron		cast	400	39										
	Hardened cast iron		hardened and tempered	55 HRC	40										
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
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Starting values for cutting speed $v_c$ [m/min]																							
HC (PVD)						HC <sub>1</sub>			HT						HW			BL					
YB9320			YBG205			YNG151C			YNG151			YNT251			YD101			YD201			YCB111		
Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]		
0,1	0,3	0,6	0,1	0,3	0,6	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,05	0,2	0,35	0,1	0,2	0,3	0,1	0,2	0,3
						510	350	-	510	350	-	510	350	-									
						430	270	-	430	270	-	430	270	-									
						330	220	-	330	220	-	330	220	-									
						320	200	-	320	200	-	320	200	-									
						280	170	-	280	170	-	280	170	-									
						400	240	-	400	240	-	400	240	-									
						290	180	-	290	180	-	290	180	-									
						240	170	-	240	170	-	240	170	-									
						220	150	-	220	150	-	220	150	-									
						340	220	-	340	220	-	340	220	-									
						180	110	-	180	110	-	180	110	-									
	360	290	200	320	250	160																	
	190	155	110	170	150	110																	
	250	210	150	230	190	140																	
	200	165	120	180	150	110																	
							430	365	280	430	365	280	430	365	280								
							390	340	270	390	340	270	390	340	270								
							360	300	220	360	300	220	360	300	220								
							340	295	230	340	295	230	340	295	230								
							310	260	190	310	260	190	310	260	190								
							250	210	150	250	210	150	250	210	150								
																1750	1200	800	1750	1200	800		
																510	380	250	510	380	250		
																460	320	175	460	320	175		
																300	205	110	300	205	110		
																270	185	100	270	185	100		
																610	410	205	610	410	205		
																310	250	195	310	250	195		
																225	170	115	225	170	115		
	55	35	-	55	-	-	65	45	-	65	45	-	65	45	-								
	50	30	-	50	-	-	60	40	-	60	40	-	60	40	-								
	50	30	-	50	-	-	60	40	-	60	40	-	60	40	-								
	45	25	-	45	-	-	55	35	-	55	35	-	55	35	-								
	45	25	-	45	-	-	55	35	-	55	35	-	55	35	-								
	80	60	-	70	-	-	90	60	-	90	60	-	90	60	-								
	60	40	-	50	-	-	80	40	-	80	40	-	80	40	-								
																					240	180	140
																					220	180	140
																					250	150	100
																					200	150	100

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## Turning insert, negative

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						BL						BH			
						YCB121			YCB131			YCB211			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
					0,1	0,2	0,3	0,1	0,3	0,5	0,1	0,3	0,5		
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1										
		approx. 0,45 % C	annealed	190	2										
		approx. 0,45 % C	tempered	250	3										
		approx. 0,75 % C	annealed	270	4										
		approx. 0,75 % C	tempered	300	5										
	Low-alloyed steel		annealed	180	6										
			tempered	275	7										
			tempered	300	8										
			tempered	350	9										
	High-alloyed steel and high-alloyed tool steel		annealed	200	10										
			hardened and tempered	325	11										
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12										
		martensitic	tempered	240	13										
		austenitic	quench hardened	180	14										
		austenitic-ferritic		230	15										
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16							1500	980	400	
		perlitic (martensitic)		260	17							1250	800	320	
	Cast iron with spheroidal graphite	ferritic		160	18							-	-	-	
		perlitic		250	19							300	200	100	
	Malleable cast iron	ferritic		130	20							-	-	-	
		perlitic		230	21							300	200	100	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22										
		hardenable	hardened	100	23										
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24										
		≤ 12% Si, hardenable	hardened	90	25										
		> 12% Si, cannot be hardened		130	26										
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27									
		CuZn, CuSnZn			90	28									
		CuSn, Pb-free copper, electrolytic copper			100	29									
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30										
			hardened	280	31										
		Ni or Co base	annealed	250	32										
			hardened	350	33										
	Titanium alloys			R <sub>m</sub> 400	35										
					R <sub>m</sub> 1050	36									
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37	220	170	130	160	120	100				
			hardened and tempered	60 HRC	38	200	160	120	150	120	100				
	Hard cast iron		cast	400	39	200	150	100	180	120	100				
	Hardened cast iron		hardened and tempered	55 HRC	40	200	150	100	150	120	100				
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
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## Turning insert, positive

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						HC (CVD)									
						YB6315			YBC152			YBC252			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
						0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,3	0,6	
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	450	390	270	450	390	270	430	350	230	
		approx. 0,45 % C	annealed	190	2	380	330	230	380	330	230	360	295	190	
		approx. 0,45 % C	tempered	250	3	300	265	200	300	265	200	280	235	160	
		approx. 0,75 % C	annealed	270	4	290	255	190	290	255	190	270	225	150	
		approx. 0,75 % C	tempered	300	5	250	225	170	250	225	170	235	195	130	
	Low-alloyed steel			annealed	180	6	360	300	180	360	300	180	340	270	170
				tempered	275	7	250	210	150	250	210	150	235	195	140
				tempered	300	8	230	200	150	230	200	150	220	180	140
				tempered	350	9	200	170	120	200	170	120	190	155	110
		High-alloyed steel and high-alloyed tool steel			annealed	200	10	320	275	190	320	275	190	280	230
			hardened and tempered	325	11	160	150	130	160	150	130	130	115	100	
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12										
			martensitic	tempered	240	13									
			austenitic	quench hardened	180	14									
			austenitic-ferritic		230	15									
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16										
		perlitic (martensitic)		260	17										
	Cast iron with spheroidal graphite	ferritic		160	18										
		perlitic		250	19										
	Malleable cast iron	ferritic		130	20										
		perlitic		230	21										
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22										
		hardenable	hardened	100	23										
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24										
		$\leq 12\%$ Si, hardenable	hardened	90	25										
		$> 12\%$ Si, cannot be hardened		130	26										
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27										
		CuZn, CuSnZn		90	28										
	CuSn, Pb-free copper, electrolytic copper		100	29											
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30										
			hardened	280	31										
		Ni or Co base	annealed	250	32										
			hardened	350	33										
		cast	320	34											
Titanium alloys	pure titanium		R <sub>m</sub> 400	35											
	$\alpha$ and $\beta$ alloys	hardened	R <sub>m</sub> 1050	36											
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37										
			hardened and tempered	60 HRC	38										
	Hard cast iron		cast	400	39										
	Hardened cast iron		hardened and tempered	55 HRC	40										
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

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Starting values for cutting speed $v_c$ [m/min]																							
HC (CVD)																							
YBC251			YBC352			YBM153			YBM253			YBD052			YBD102			YB7315			YBD152		
Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]		
0,1	0,3	0,6	0,2	0,4	0,6	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4
390	310	180	390	310	230																		
315	245	140	315	250	190																		
235	185	110	230	195	160																		
225	175	100	220	185	150																		
190	150	80	185	155	120																		
300	230	120	290	225	150																		
190	160	110	170	150	130																		
170	140	100	150	140	130																		
145	120	90	130	110	90																		
230	185	120	180	160	140																		
90	75	50	-	-	-																		
						360	340	260	330	300	230												
						180	170	140	150	130	95												
						240	220	170	195	170	115												
						190	175	140	160	140	100												
												560	380	210	480	345	200	540	370	200	490	340	190
												270	200	140	220	180	135	300	220	135	250	190	130
												280	220	135	270	210	130	300	230	145	260	200	125
												210	160	100	200	150	95	230	180	110	190	140	90
												290	250	190	275	240	180	310	260	190	265	230	170
												210	160	90	190	145	85	230	170	100	190	140	90

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	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						HC (CVD)			HC (PVD)						
						YBD152C			YBG101			YBG105			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
					0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4		
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1										
		approx. 0,45 % C	annealed	190	2										
		approx. 0,45 % C	tempered	250	3										
		approx. 0,75 % C	annealed	270	4										
		approx. 0,75 % C	tempered	300	5										
	Low-alloyed steel		annealed	180	6										
			tempered	275	7										
			tempered	300	8										
			tempered	350	9										
	High-alloyed steel and high-alloyed tool steel		annealed	200	10										
			hardened and tempered	325	11										
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12							305	245	205	
		martensitic	tempered	240	13							150	125	100	
		austenitic	quench hardened	180	14							200	165	145	
		austenitic-ferritic		230	15							160	130	115	
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16	520	360	200							
		perlitic (martensitic)		260	17	280	210	135							
	Cast iron with spheroidal graphite	ferritic		160	18	280	220	135							
		perlitic		250	19	210	160	100							
	Malleable cast iron	ferritic		130	20	280	245	180							
		perlitic		230	21	210	160	100							
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22				1800	880	-				
		hardenable	hardened	100	23				540	380	-				
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24				500	270	-				
		$\leq 12\%$ Si, hardenable	hardened	90	25				320	170	-				
		$> 12\%$ Si, cannot be hardened		130	26				290	150	-				
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27				660	320	-			
		CuZn, CuSnZn			90	28				330	300	-			
		CuSn, Pb-free copper, electrolytic copper			100	29				220	175	-			
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30				50	35	-	60	45	-	
			hardened	280	31				45	30	-	55	40	-	
		Ni or Co base	annealed	250	32				45	30	-	55	40	-	
			hardened	350	33				40	-	-	50	35	-	
	cast	320	34				40	-	-	50	35	-			
Titanium alloys	pure titanium		R <sub>m</sub> 400	35				85	60	-	95	60	-		
	$\alpha$ and $\beta$ alloys	hardened	R <sub>m</sub> 1050	36				65	40	-	75	40	-		
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37										
			hardened and tempered	60 HRC	38										
	Hard cast iron		cast	400	39										
	Hardened cast iron		hardened and tempered	55 HRC	40										
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. For examples of material for cutting tool groups view page D22.

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Starting values for cutting speed $v_c$ [m/min]																								
HC (PVD)						HC <sub>1</sub>			HT						HW						BL			
YB9320			YBG205			YNG151C			YNG151			YNT251			YD101			YD201			YCB111			
Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,05	0,2	0,35	0,1	0,3	0,6	0,1	0,2	0,3	
									470	320	-	470	320	-	470	320	-							
									400	250	-	400	250	-	400	250	-							
									300	200	-	300	200	-	300	200	-							
									290	180	-	290	180	-	290	180	-							
									245	150	-	245	150	-	245	150	-							
									370	220	-	370	220	-	370	220	-							
									255	160	-	255	160	-	255	160	-							
									200	140	-	200	140	-	200	140	-							
									185	130	-	185	130	-	185	130	-							
									285	180	-	285	180	-	285	180	-							
									150	90	-	150	90	-	150	90	-							
	305	245	206	270	205	165																		
	160	130	110	145	125	100																		
	210	180	155	195	165	145																		
	170	140	120	155	130	115																		
							390	330	255	390	330	255	390	330	255									
							355	310	245	355	310	245	355	310	245									
							330	270	200	330	270	200	330	270	200									
							310	270	210	310	270	210	310	270	210									
							260	220	160	260	220	160	260	220	160									
							210	170	120	210	170	120	210	170	120									
																1550	1050	700	1550	1050	700			
																450	320	200	450	320	200			
																400	270	150	400	270	150			
																250	170	95	250	170	95			
																230	150	85	230	150	85			
																550	370	170	550	370	170			
																260	210	160	260	210	160			
																190	145	95	190	145	95			
	50	35	-	50	-	-	60	40	-	60	40	-	60	40	-	55	30	-	55	30	-			
	45	30	-	45	-	-	55	35	-	55	35	-	55	35	-	55	25	-	55	25	-			
	45	30	-	45	-	-	55	35	-	55	35	-	55	35	-	45	25	-	45	25	-			
	40	-	-	40	-	-	50	30	-	50	30	-	50	30	-	35	20	-	35	20	-			
	40	-	-	40	-	-	50	30	-	50	30	-	50	30	-	40	20	-	40	20	-			
	75	60	-	70	-	-	85	55	-	85	55	-	85	55	-	60	40	-	60	40	-			
	55	40	-	45	-	-	75	35	-	75	35	-	75	35	-	30	-	-	30	-	-			
																						240	180	140
																						220	180	140
																						250	150	100
																						200	150	100

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	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						BL						BH			
						YCB121			YCB131			YCB211			
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			
					0,1	0,2	0,3	0,1	0,2	0,3	0,1	0,2	0,4		
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1										
		approx. 0,45 % C	annealed	190	2										
		approx. 0,45 % C	tempered	250	3										
		approx. 0,75 % C	annealed	270	4										
		approx. 0,75 % C	tempered	300	5										
	Low-alloyed steel		annealed	180	6										
			tempered	275	7										
			tempered	300	8										
			tempered	350	9										
	High-alloyed steel and high-alloyed tool steel		annealed	200	10										
			hardened and tempered	325	11										
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12										
		martensitic	tempered	240	13										
		austenitic	quench hardened	180	14										
		austenitic-ferritic		230	15										
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16							1330	905	410	
		perlitic (martensitic)		260	17							1100	740	330	
	Cast iron with spheroidal graphite	ferritic		160	18							-	-	-	
		perlitic		250	19							240	180	100	
	Malleable cast iron	ferritic		130	20							-	-	-	
		perlitic		230	21							240	180	100	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22										
		hardenable	hardened	100	23										
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24										
		≤ 12% Si, hardenable	hardened	90	25										
		> 12% Si, cannot be hardened		130	26										
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27									
		CuZn, CuSnZn			90	28									
		CuSn, Pb-free copper, electrolytic copper			100	29									
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30										
			hardened	280	31										
		Ni or Co base	annealed	250	32										
			hardened	350	33										
	Titanium alloys			R <sub>m</sub> 400	35										
				hardened	R <sub>m</sub> 1050	36									
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37	220	170	130	160	120	100				
			hardened and tempered	60 HRC	38	200	160	120	150	120	100				
	Hard cast iron		cast	400	39	200	150	100	180	120	100				
	Hardened cast iron		hardened and tempered	55 HRC	40	200	150	100	150	120	100				
<b>X</b>	Non-metallic materials	Thermoplasts			41										
		Thermosetting plastics			42										
		Plastic, glass-fibre reinforced GFRP			43										
		Plastic, carbon fibre reinforced CFRP			44										
		Graphite			45										
		Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 For examples of material for cutting tool groups view page D22.

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## Parting & grooving

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**A**

Turning

## Parting & grooving inserts

### Double sided

					
<b>ZT*D-MM</b>	<b>ZT*D-MG</b>	<b>ZT**-EG</b>	<b>ZP*D-MG</b>	<b>ZP*D-MG-R/L</b>	
2-8	2.5-6	1-6.5	2.5-6	2.35-2.85	Width
A353	A357	A359	A354	A356	Page

**B**





Milling

				
<b>ZR*D-MG</b>	<b>ZR*D-EG</b>	<b>ZR*D-LH</b>	<b>ZILD-LC</b>	
2.5-6	3-6	6-8	8	Width
A362	A363	A366	A367	Page

**C**

Drilling



### Single sided

				
<b>ZT*S-MG</b>	<b>ZP*S-MG</b>	<b>ZIMF-NM</b>	<b>ZIGQ-NM</b>	
5-6	2.5-6	3-6	3-6	Width
A358	A355	A364	A365	Page

**D**

Technical Information

### Three cutting edges

		
<b>QC**R/L</b>	<b>QC**R/L***R</b>	
0.75-4.8	1-4	Width
A369	A372	Page

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## External tool holders

				
<b>GQC**R/L</b>	<b>QE**R/L</b>	<b>QE*S**N</b>	<b>QE*SR/L</b>	<b>QECDR/L</b>
A399	A377	A383	A382	A380

						
<b>QF**R/L</b>	<b>QF**RR/LL</b>	<b>QF*DR/L</b>	<b>QF*SRR/LL</b>	<b>QFHSDR/L</b>	<b>QX*DR/L</b>	<b>QZS*</b>
A385	A387	A390	A389	A392	A381	A384

## Boring bars

		
<b>C***-Q*DR/L</b>	<b>C40X-Q*DR/L</b>	<b>S**-QC**R/L</b>
A395	A394	A400

A

Turning

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Drilling

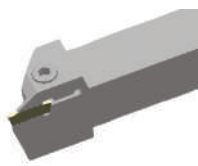

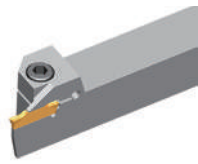



D

Technical Information

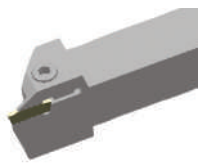

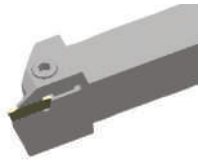

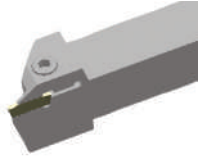

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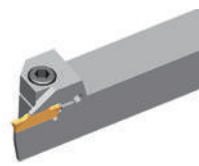
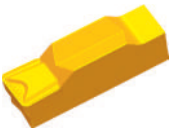
## External machining - Parting

Product	Tool holders	Inserts	Tool features an parameters	Page
QE*D*R/L		 ZP**D*	<ul style="list-style-type: none"> <li>– Inserts with 3D chip breakers for low cutting forces and good chip control.</li> <li>– Max. parting diameter 60.0 mm</li> <li>– Double edged</li> </ul>	A377
QE*S*R/L		 ZP*S*	<ul style="list-style-type: none"> <li>– Inserts with three different chip breakers for low cutting forces and good chip control.</li> <li>– Max. parting diameter 60.0 mm</li> <li>– Double edged</li> </ul>	A382
QZ**+QE**		 ZP*S**	<ul style="list-style-type: none"> <li>– Variable overhang, also for in greater grooving depths.</li> <li>– Max. parting diameter 120.0 mm</li> <li>– Single edge</li> </ul>	A384





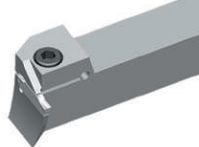

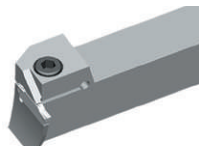

## External machining - Grooving an precise grooving

Product	Tool holders	Inserts	Tool features an parameters	Page
QE*D*R/L		 ZT*D**	<ul style="list-style-type: none"> <li>– With this universal tooling system, using the different inserts, applications like parting, grooving, profiling and turning are possible</li> <li>– Max. groove depth 30.0 mm</li> <li>– Double edged</li> </ul>	A377
QE*D*R/L		 ZR*D*	<ul style="list-style-type: none"> <li>– With this universal tooling system, using the different inserts, applications like parting, grooving, profiling and turning are possible</li> <li>– Max. groove depth 30.0 mm</li> <li>– Double edged</li> </ul>	A377
QE*D*R/L		 ZT*D**-EG	<ul style="list-style-type: none"> <li>– Ground inserts for precision grooving.</li> <li>– Cutting edge width can be any size between 1.0–6.5 mm according to customers requirements.</li> </ul>	A377



**External machining - Grooving an precise grooving**

Product	Tool holders	Inserts	Tool features an parameters	Page
QE*S*R/L		 ZT*S*	<ul style="list-style-type: none"> <li>- With this universal tooling system, and by using the different inserts, applications like parting, grooving, profiling and turning are possible</li> <li>- Max. groove depth 30.0 mm</li> <li>- Single edged</li> </ul>	A382

**External machining - Axial grooving**

Product	Tool holders	Inserts	Tool features an parameters	Page
QF*D*LL-H		 ZT*D**	<ul style="list-style-type: none"> <li>- Tooling system for groove turning and profiling.</li> <li>- Parting diameter 48.0–400.0 mm</li> <li>- Groove depth 10.0–30.0 mm</li> <li>- Double edged</li> </ul>	A385
QF*D*LL-H		 ZR*D**	<ul style="list-style-type: none"> <li>- Tooling system for groove turning and profiling.</li> <li>- Parting diameter 48.0–400.0 mm</li> <li>- Groove depth 10.0–30.0 mm</li> <li>- Double edged</li> </ul>	A385
QF*D*R/L-L		 ZT*D**	<ul style="list-style-type: none"> <li>- Tooling system for groove turning and profiling.</li> <li>- Parting diameter 48.0–400.0 mm</li> <li>- Groove depth 10.0–30.0 mm</li> <li>- 90° tool holder, top clamping</li> <li>- Double edged"</li> </ul>	A390
QF*D*R/L-L		 ZR*D**	<ul style="list-style-type: none"> <li>- Tooling system for groove turning and profiling.</li> <li>- Parting diameter 48.0–400.0 mm</li> <li>- Groove depth 10.0–30.0 mm</li> <li>- 90° tool holder, top clamping</li> <li>- Double edged"</li> </ul>	A390

**External machining - Undercutting**

Product	Tool holders	Inserts	Tool features an parameters	Page
QX*D*		 ZT*D**	<ul style="list-style-type: none"> <li>- Monoblock tool holder positioned at an angle (45°).</li> <li>- Tooling system for undercutting and turning.</li> <li>- Different turning operations like recesses, undercuts and copy turning.</li> <li>- Double edged</li> </ul>	A381

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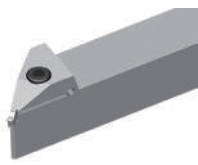

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**A**

Turning

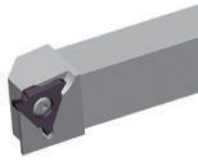
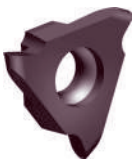
## External machining - Undercutting

Product	Tool holders	Inserts	Tool features an parameters	Page
QX*D*		 ZR*D**	<ul style="list-style-type: none"> <li>– Monoblock tool holder positioned at an angle (45°).</li> <li>– Tooling system for undercutting and turning.</li> <li>– Different turning operations like recesses, undercuts and copy turning.</li> <li>– Double edged</li> </ul>	A381

**B**

Milling





## External machining - Grooving

Product	Tool holders	Inserts	Tool features an parameters	Page
GQCR/L		 QC16/22****	<ul style="list-style-type: none"> <li>– Precision ground with high tolerances.</li> <li>– Sharp cutting edge for precise machining.</li> <li>– High efficiency with three cutting edges.</li> <li>– Finishing for groove width between 0.5 mm–4.8 mm</li> <li>– Max. groove depth 5.0 mm</li> <li>– Triple edged</li> </ul>	A399

**C**

Drilling



## Internal machining - Grooving & turning

Product	Tool holders	Inserts	Tool features an parameters	Page
C*-Q*R/L*		 ZT*D**	<ul style="list-style-type: none"> <li>– Tooling system for groove turning and profiling.</li> <li>– Max. groove depth 13.0 mm</li> <li>– Min. diameter 27.0 mm</li> <li>– Double edged</li> </ul>	A395
C*-Q*R/L*		 ZR*D*	<ul style="list-style-type: none"> <li>– Tooling system for groove turning and profiling.</li> <li>– Max. groove depth 13.0 mm</li> <li>– Min. diameter 27.0 mm</li> <li>– Double edged</li> </ul>	A395

**D**

Technical Information



## Internal machining - Grooving

Product	Tool holders	Inserts	Tool features an parameters	Page
S***-QC**R/L*		 QC11/16/22****	<ul style="list-style-type: none"> <li>– Fine ground insert for high precision.</li> <li>– Groove width 0.5–4.8 mm</li> <li>– Min. diameter 16.0 mm</li> <li>– Max. groove depth 4.0 mm (Right holder + left insert Left holder + right insert)</li> <li>– Double edged</li> </ul>	A400

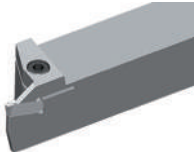

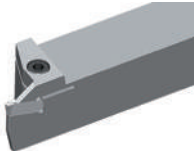

**E**

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## Aluminium machining - Facing &amp; longitudinal profile turning

Product	Tool holders	Inserts	Tool features an parameters	Page
C*X-Q*DR/L		 ZR**-LH	<ul style="list-style-type: none"> <li>- Special chip breakers for machining of aluminium.</li> <li>- Sharp and stable cutting edge for continuous and interrupted cut.</li> <li>- Profiling of aluminium rims.</li> <li>- Double edged</li> </ul>	A394

## Machining of Heat resistant alloy materials - External machining

Product	Tool holders	Inserts	Tool features an parameters	Page
QE*S*N		 ZIGQ**	<ul style="list-style-type: none"> <li>- Precision insert with optimised seat and safe clamping.</li> <li>- Insert for heat-resistant alloys and special materials.</li> </ul>	A382
QE*S*N		 ZIME**	<ul style="list-style-type: none"> <li>- Precision insert with optimised seat and safe clamping.</li> <li>- Insert for heat-resistant alloys and special materials.</li> </ul>	A382

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**A**

Turning

## Grooving

**MM** **P** **M** **K** **S**



Ground chip breaker with straight cutting edge for general machining of steel, stainless steel and heat-resistant alloys. Suitable for grooving, turning and parting.

**B**

Milling

**MG** **P** **M** **K** **S**



Universal chip breaker for general machining of steel, stainless steel and cast iron. Suitable for grooving, turning and parting.

**C**

Drilling

**MG** **P** **M** **K** **S**



Universal chip breaker with round profile for general machining of steel, stainless steel and cast iron. Suitable for grooving and profiling.

**D**

Technical Information

**EG** **M** **P** **S**



Ground precision chip breaker for grooving and turning applications. Suitable for machining of stainless steel. E-tolerance for high repeatability.

**EG** **M** **P** **S**



Ground precision chip breaker with round profile for grooving and turning applications. Suitable for machining of stainless steel. E-tolerance for high repeatability.

**E**

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**NM** **S**



Special chip breaker for machining of heat-resistant materials.

## Grooving

LC

N



Ground chip breaker for profile and turning applications of non-ferrous metals.

LH

N



Ground chip breaker for profile and turning applications of non-ferrous metals.

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**A**  
Turning

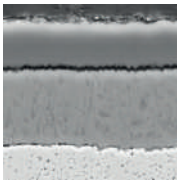
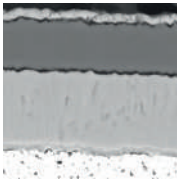
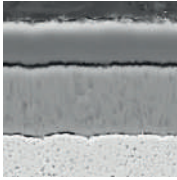


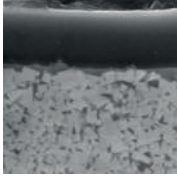


**B**  
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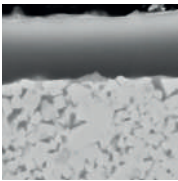
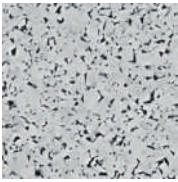
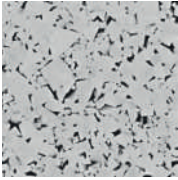
**E**  
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## Parting & grooving

Grade	ISO	Micro structure	Grade description
<b>YBC152</b>	P10 - P20		CVD coated P10–P20 carbide grade for finishing to medium operation of steel and casting steel. Outstanding performance under higher cutting speed and temperature with excellent wear resistance.
<b>YBC251</b>	P20 - P35		CVD coated P20–P35 carbide grade for medium operation to roughing of steel and casting steel in lower cutting speed.
<b>YBC252</b>	P20 - P35		CVD coated P20–P35 carbide grade for medium operation to roughing of steel and casting steel. Optimal performance of wear resistance and toughness for a wide application field.
<b>YBG102</b>	S05 - S15		PVD coated S05–S15 carbide substrate for finishing to medium application of super alloy material, stainless steel and aluminum. Good wear resistance in a wide application field.
<b>YBG105</b>	S05 - S20		PVD multilayer coated S05–S20 carbide substrate for finishing to medium application of super alloy material but also stainless steel. Good wear resistance and thermal stability in a wide application field.
<b>YB9320</b>	P10 - P30 M10 - M25		PVD multilayer coated P10–P30/M10–M25 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (grooving/milling). Optimized coating stability for higher wear resistance and thermal stability in a wide application fi
<b>YBG202</b>	P10 - P30 M10 - M25		PVD coated P10–P30/M10–M25 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
<b>YBG205</b>	P10 - P30 M20 - M40 S15 - S25		PVD multilayer coated P10–P30/M20–M40/S15–S25 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (milling). Good wear resistance and thermal stability in a wide application field.



**Parting & grooving**

Grade	ISO	Micro structure	Grade description
<b>YBG302</b>	P15 - P30 M25 - M40		PVD coated P15–P30/M25–M40 carbide substrate for medium roughing application of stainless steel and steel (milling). Good wear resistance and toughness.
<b>YD101</b>	K05 - K20 N05 - N20		Uncoated K05–K20/N05–N20 carbide substrate for fine to medium application in aluminum and other material.
<b>YD201</b>	K10 - K30 N10 - N30		Uncoated K10–K30/N10–N30 carbide substrate for medium application in aluminum and other material.

**A**

Turning

**B**

Milling

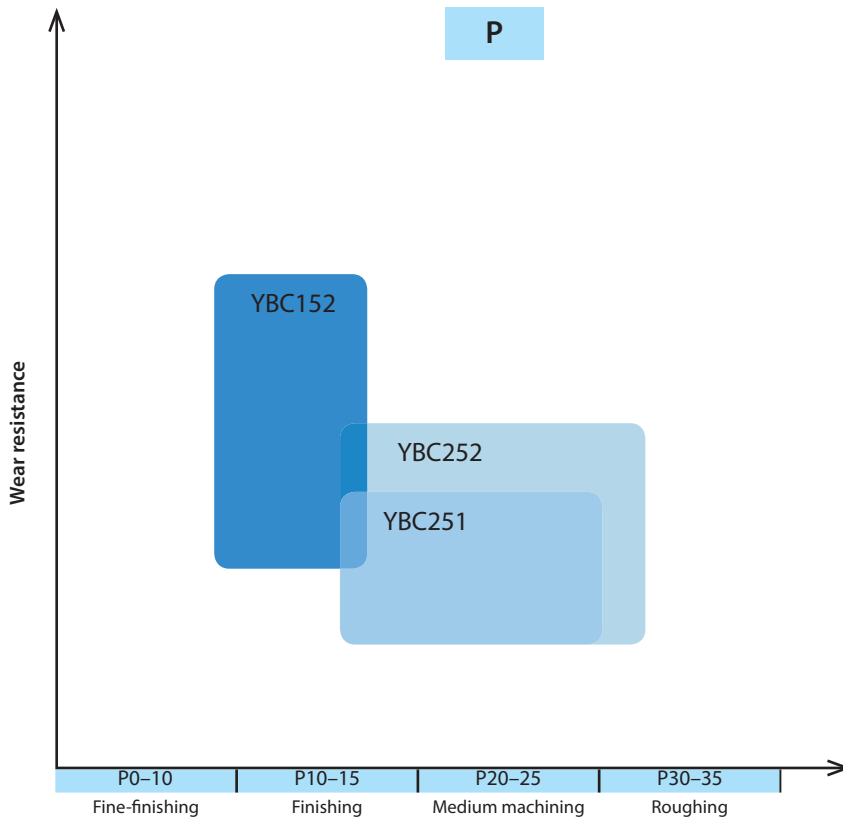
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## CVD grades for steel, stainless steel and cast iron



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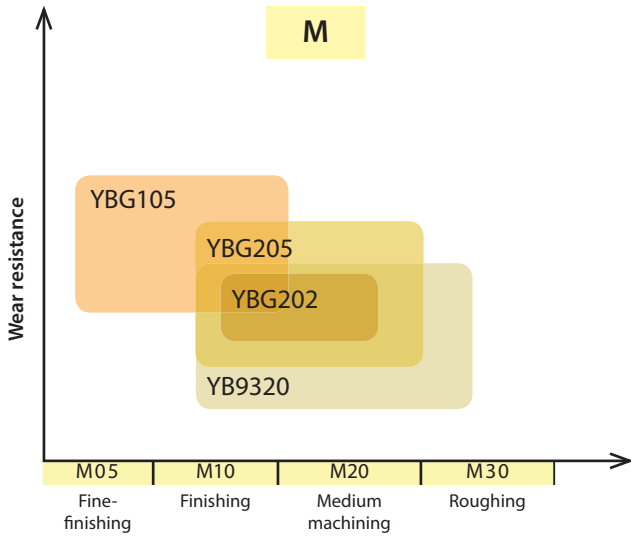
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**PVD grade for stainless steel and heat-resistant alloys**



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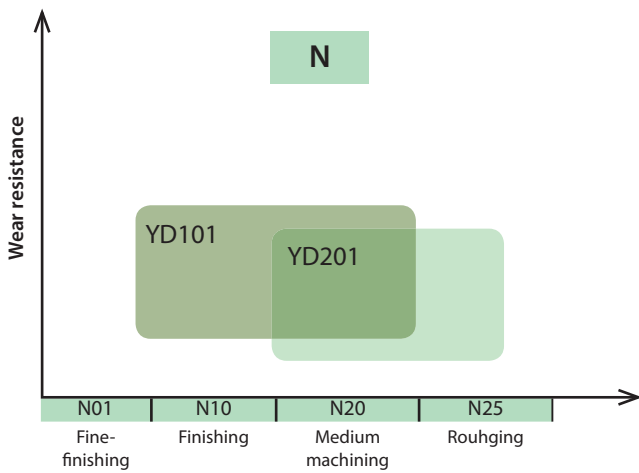
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**Turning grades for non-ferrous metals**



## Application fields of grades – parting & grooving

	ISO	HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	Ceramic	HW	CBN	PCD
A Turning	P01								
	P10	YBC152	YBG202						
	P20	YBC251 YBC252	YB9320						
	P30		YBG302						
	P40								
B Milling	M01								
	M10		YBG202						
	M20		YB9320						
	M30		YBG302						
	M40								
C Drilling	K01								
	K10								
	K20								
	K30								
D Technical Information	N01						YD101		
	N10						YD102		
	N20								
	N30								
E Index	S01								
	S10		YBG102						
	S20								
	S30								
F	H01								
	H10								
	H20								
	H30								

<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron

<b>N</b>	Non-ferrous metals
<b>S</b>	Heat-resistant alloys
<b>H</b>	Hardened materials

<b>HC<sup>1</sup></b>	Coated carbide
<b>HT</b>	Uncoated cermet
<b>HC<sup>2</sup></b>	Coated cermet
<b>HW</b>	Uncoated carbide

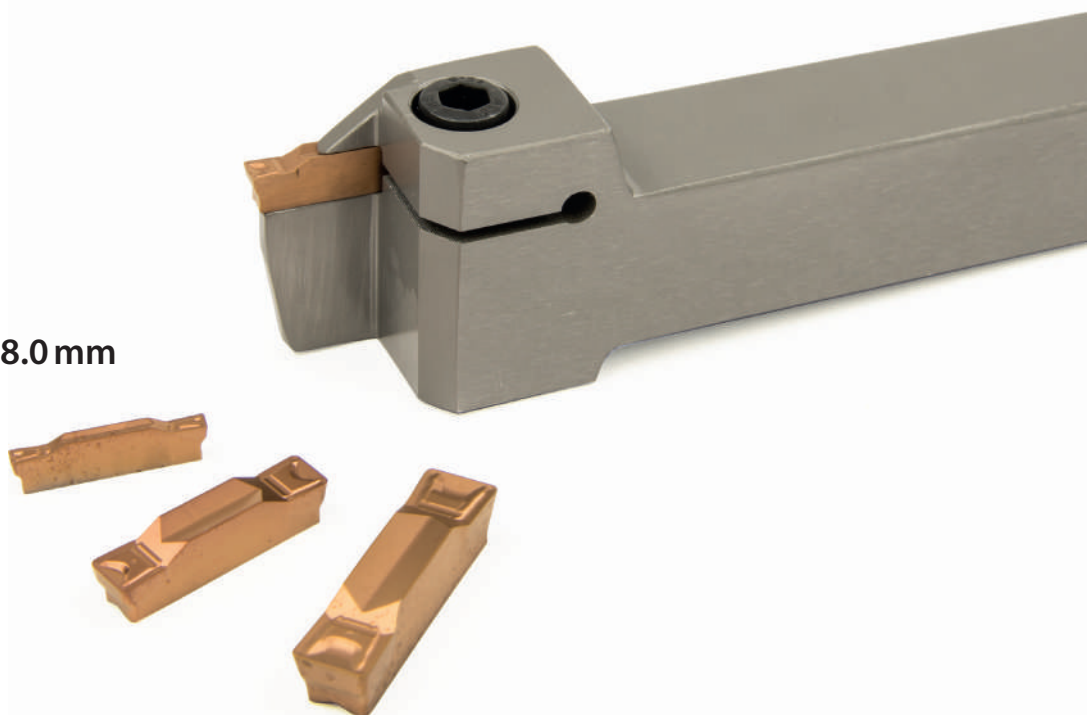
New

# MM chip breaker



Ground chip breaker in combination with grade YB9320 for general machining of steel, stainless steel and heat-resistant alloys. Suitable for grooving, groove turning and parting.

Width 2.0 mm bis 8.0 mm



## ZP G D 04 04 – M G

1 2 3 4 5 6 7

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Application	
Code	Description
ZP	Parting
ZT	Grooving & turning
ZR	Form turning


1

Insert seat size [mm]	
Groove width	
Code	Description
B	2,0
E	2,5
F	3,0
G	4,0
H	5,0
K	6,0
L	8,0


2

No. of cutting edges	
Code	Description
S	Single
D	Double

3

Insert thickness S [mm]	
	
Code	S
02	2,0
025	2,5
03	3,0
04	4,0
05	5,0
06	6,0
08	8,0

4

Nose radius r [mm]	
	
Code	r
02	0,2
03	0,3
04	0,4
08	0,8




5

Tolerance class [mm]	
Code	Description
M	±0,13
E	±0,025

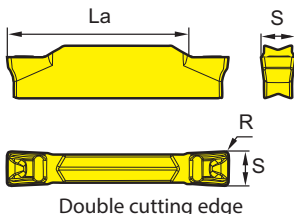


















6

Chip breaker	
Code	Description
G	General chip breaker
F	Special chip breaker
M	Straight edge

7

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions








Parting inserts

ZT** parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
 <p>Double cutting edge</p>	<b>P</b>	 					   					
	<b>M</b>						   					
	<b>K</b>											
	<b>N</b>									 		
	<b>S</b>							    				
	<b>H</b>											
ISO	R $\pm$ 0.1	La max	S	f	YBC252 YBC251		YBG105 YBG102 YB9320 YBG205 YBG202 YBG302		YD101 YD201			
	<b>ZTBD02002-MM</b>	0.2	13	2	0,02-0,07			● ● ○ ○				
	<b>ZTED02503-MM</b>	0.3	17	2.5	0,03-0,1			●				
	<b>ZTFD0303-MM</b>	0.3	17	3	0,04-0,13			●				
	<b>ZTGD0404-MM</b>	0.4	22	4	0,06-0,18			●				
	<b>ZTHD0504-MM</b>	0.4	22	5	0,08-0,23			●				
	<b>ZTKD0608-MM</b>	0.8	22	6	0,12-0,27			●				
	<b>ZTLD0808-MM</b>	0.8	28	8	0,13-0,29			● ○				

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders

*-QBDR/L	QE*D*R/L	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C***-Q*DR/L
						
A395	A377	A385	A387	A387	A390	A395

System code > A352

Grade selection > A350

Technical info > A447




Cutting data > A402

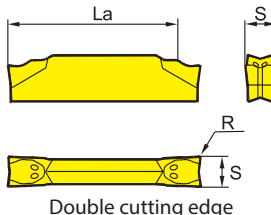


















**A**

Turning


## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (double sided)		HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HW
	<b>P</b>	 	   	
	<b>M</b>		   	
	<b>K</b>			
	<b>N</b>			 
	<b>S</b>		   	
	<b>H</b>			

**B**

Milling

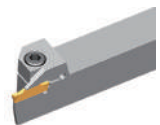


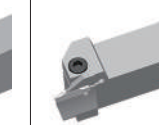
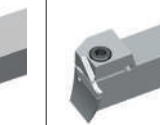
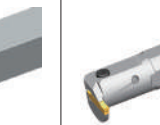
ISO	R±0.1	La max	S±0.10	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
	<b>ZPED02502-MG</b>	0.2	17	2.5	0,03-0,1	●			●	●	●			
	<b>ZPFD0302-MG</b>	0.2	17	3	0,04-0,13	●			●	●	●			
	<b>ZPGD0402-MG</b>	0.2	22	4	0,07-0,18	●			●	●	●		○	
	<b>ZPHD0503-MG</b>	0.3	22	5	0,1-0,24					●	●			
	<b>ZPKD0604-MG</b>	0.4	22	6	0,12-0,29	○				●	●			

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**C**

Drilling

Tool holders					
QE*D*R/L	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C***-Q*DR/L
					
A377	A385	A387	A387	A390	A395

**D**

Technical Information

**E**

Index

System code > A352




Grade selection > A350

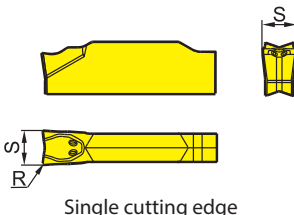


















Technical info > A447

Cutting data > A402



Parting inserts

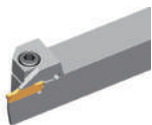





-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (single sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW	
 <p>Single cutting edge</p>	<b>P</b>	 					   				
	<b>M</b>						   				
	<b>K</b>										
	<b>N</b>									 	
	<b>S</b>							    			
	<b>H</b>										
ISO	R±0.1	S±0.10	f	YBC252 YBC251			YBG105 YBG102 YB9320 YBG205 YBG202 YBG302		YD101 YD201		
	<b>ZPES02502-MG</b>	0.2	2.5	0,03-0,1				● ●			
	<b>ZPFS0302-MG</b>	0.2	3	0,04-0,13	●			● ●			
	<b>ZPGS0402-MG</b>	0.2	4	0,07-0,18	○			● ●		○	
	<b>ZPHS0503-MG</b>	0.3	5	0,1-0,24				○ ●			
	<b>ZPKS0604-MG</b>	0.4	6	0,12-0,29				● ●			

● Ex stock    ○ On demand

Single sided inserts only for parting blades

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders					
QE*S*/R/L	QZ**+QE**	QF*S*LL-H	QF*S*RR-H	QF*S*/R/L-L	QF*S*/R/L-H
					
A379	A383	A389	A389	A392	A393

System code > A352

Grade selection > A350

Technical info > A447

Cutting data > A402

A

Turning

B

Milling

C

Drilling

D

Technical Information




E

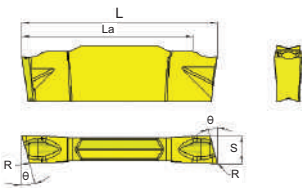

















Index

**A**

Turning

## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

ZT** parting & grooving insert (double sided)								HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW					
								P											
								M											
								K											
								N											
								S											
								H											
ISO	La max	L	S	θ	R	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201			
ZPED02502-MG-6L	17	20	2.35	6°	0.2	0,03-0,08								●					
ZPED02502-MG-6R	17	20	2.35	6°	0.2	0,03-0,08					●		●						
ZPED02502-MG-15L	17	20	2.35	15°	0.2	0,03-0,05								○					
ZPED02502-MG-15R	17	20	2.35	15°	0.2	0,03-0,05								○					
ZPFD0302-MG-6L	17	20	2.85	6°	0.2	0,04-0,1					●	●	●						
ZPFD0302-MG-6R	17	20	2.85	6°	0.2	0,04-0,1					●	●	○						
ZPFD0302-MG-15L	17	20	2.85	15°	0.2	0,04-0,08								○					
ZPFD0302-MG-15R	17	20	2.85	15°	0.3	0,04-0,08					●	●	○						

**B**

Milling


- Ex stock
- On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**C**

Drilling

Tool holders  
QE\*D\*R/L



A377




**D**

Technical Information

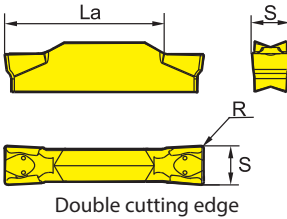



































**E**

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-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting inserts

Parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW					
 <p>Double cutting edge</p>					<b>P</b>											
					<b>M</b>											
					<b>K</b>											
					<b>N</b>											
					<b>S</b>											
					<b>H</b>											
ISO	R±0.1	La max	S±0.10	f	YBC252	YBC251		YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201	
	<b>ZTED02503-MG</b>	0.3	17	2.5	0,03-0,11											
	<b>ZTFD0303-MG</b>	0.3	17	3	0,04-0,14											
	<b>ZTGD0404-MG</b>	0.4	22	4	0,07-0,2											
	<b>ZTHD0504-MG</b>	0.4	22	5	0,10-0,25											
	<b>ZTKD0608-MG</b>	0.8	22	6	0,13-0,30											

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders					
QE*D*R/L	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C***-Q*DR/L
					
A377	A385	A387	A387	A390	A395

System code > A352

Grade selection > A350

Technical info > A447

Cutting data > A402



A

Turning

B

Milling

C

Drilling

D

Technical Information




E

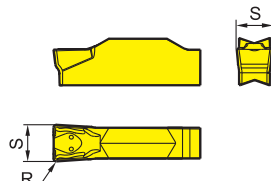
















Index

**A**

Turning



## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (single sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
 <p>Single cutting edge</p>	<b>P</b>											
	<b>M</b>											
	<b>K</b>											
	<b>N</b>											
	<b>S</b>											
<b>H</b>												

**B**

Milling

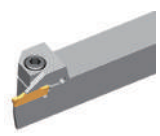

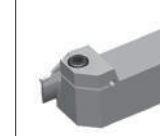
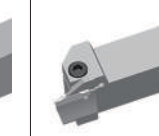
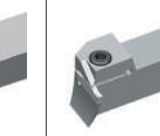
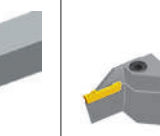
ISO	R±0.1	S±0.10	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
 <b>ZTHS0504-MG</b>	0.4	5	0,10-0,25							● ●			
 <b>ZTKS0608-MG</b>	0.8	6	0,13-0,30							○ ●			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**C**

Drilling

Tool holders					
QE*S*R/L	QZ**+QE**	QF*S*LL-H	QF*S*RR-H	QF*S*R/L-L	QF*S*R/L-H
					
A379	A383	A389	A389	A392	A393

**D**

Technical Information

**E**

Index

System code > A352

Grade selection > A350

Technical info > A447

Cutting data > A402

Parting inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

Parting & grooving insert (double sided)						HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW				
						<b>P</b>										
						<b>M</b>										
						<b>K</b>										
						<b>N</b>										
						<b>S</b>										
						<b>H</b>										
ISO	La max	S±0.025	R±0.05	f	YBC252	YBC251		YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201	
ZTCD01002-EG	2.6	1	0.2	0,02-0,04									○			
ZTCD010500-EG	2.6	1.05	0	0,02-0,04									○			
ZTCD011502-EG	2.6	1.15	0.2	0,02-0,04									○			
ZTCD01202-EG	2.6	1.2	0.2	0,02-0,04									○			
ZTCD01302-EG	2.6	1.3	0.2	0,02-0,04									○			
ZTCD013802-EG	2.6	1.38	0.2	0,02-0,04									○			
ZTCD01402-EG	2.6	1.4	0.2	0,02-0,04									○			
ZTCD01500-EG	2.6	1.5	0	0,02-0,04									○			
ZTCD01502-EG	2.6	1.5	0.2	0,02-0,04									○			
ZTCD01503-EG	2.6	1.5	0.3	0,02-0,04									○			
ZTCD015503-EG	2.6	1.55	0.3	0,02-0,04									○			
ZTCD01602-EG	2.6	1.6	0.2	0,02-0,04									●			
ZTCD01702-EG	3.4	1.7	0.2	0,02-0,08									○			
ZTCD017503-EG	3.4	1.75	0.3	0,02-0,08									○			
ZTCD017602-EG	3.4	1.76	0.2	0,02-0,08									○			
ZTCD01802-EG	3.4	1.8	0.2	0,02-0,08									○			
ZTCD018502-EG	3.4	1.85	0.2	0,02-0,08									○			
ZTCD02000-EG	3.4	2	0	0,02-0,08									○			
ZTCD02002-EG	3.4	2	0.2	0,02-0,08									●			
ZTCD02003-EG	3.4	2	0.3	0,02-0,08									○			
ZTCD020503-EG	3.4	2.05	0.3	0,02-0,08									○			
ZTCD021502-EG	3.4	2.15	0.2	0,02-0,08									○			
ZTCD022503-EG	3.4	2.25	0.3	0,02-0,08									○			
ZTCD02302-EG	3.4	2.3	0.2	0,03-0,11									○			
ZTCD02303-EG	3.4	2.3	0.3	0,03-0,11									○			
ZTCD02402-EG	3.4	2.4	0.2	0,03-0,11									○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders

QECD



A380

System code > A352

Grade selection > A350

Technical info > A447




Cutting data > A402

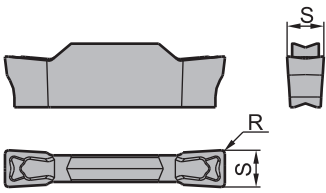


















**A**

Turning


## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
	<b>P</b>											
	<b>M</b>											
	<b>K</b>											
	<b>N</b>											
	<b>S</b>											
	<b>H</b>											

**B**

Milling

ISO	La max	S±0.025	R±0.05	f	YBC252 YBC251		YBG105 YBG102 YB9320 YBG205 YBG202 YBG302					YD101 YD201			
ZTED0247020-EG	17	2.47	0.2	0,03-0,11											
ZTED02502-EG	17	2.5	0.2	0,03-0,11											
ZTED026502-EG	17	2.65	0.2	0,03-0,11											
ZTED02702-EG	17	2.7	0.2	0,03-0,11											
ZTED02703-EG	17	2.7	0.3	0,03-0,11											
ZTED02802-EG	17	2.8	0.2	0,04-0,13											
ZTED02803-EG	17	2.8	0.3	0,04-0,13											
ZTED02804-EG	17	2.8	0.4	0,04-0,13											
ZTED02903-EG	17	2.9	0.3	0,04-0,13											
ZTFD03001-EG	17	3	0.1	0,04-0,13											
ZTFD03002-EG	17	3	0.2	0,04-0,13											
ZTFD03003-EG	17	3	0.3	0,04-0,13											
ZTFD03005-EG	17	3	0.5	0,04-0,13											
ZTFD031802-EG	17	3.18	0.2	0,04-0,13											
ZTFD03203-EG	17	3.2	0.3	0,04-0,13											
ZTFD0325024-EG	17	3.25	0.24	0,04-0,13											
ZTFD03302-EG	17	3.3	0.2	0,04-0,13											
ZTFD03303-EG	17	3.3	0.3	0,04-0,13											
ZTFD03403-EG	17	3.4	0.3	0,04-0,13											
ZTFD035-EG	17	3.5	0	0,04-0,13											
ZTFD03602-EG	17	3.6	0.2	0,04-0,13											
ZTGD039602-EG	22	3.96	0.2	0,07-0,18											
ZTGD04002-EG	22	4	0.2	0,07-0,18											
ZTGD04003-EG	22	4	0.3	0,07-0,18											
ZTGD04004-EG	22	4	0.4	0,07-0,18											
ZTGD04008-EG	22	4	0.8	0,07-0,18											
ZTGD0423010-EG	22	4.23	0.1	0,07-0,18											
ZTGD04503-EG	22	4.5	0.3	0,07-0,18											
ZTGD04505-EG	22	4.8	0.5	0,07-0,18											
ZTGD04803-EG	22	4.8	0.3	0,1-0,24											
ZTGD04805-EG	22	4.8	0.5	0,1-0,24											
ZTHD05003-EG	22	5	0.3	0,1-0,24											
ZTHD05004-EG	22	5	0.4	0,1-0,24											
ZTHD05008-EG	22	5	0.8	0,1-0,24											

**C**

Drilling

**D**

Technical Information

**E**

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● Ex stock    ○ On demand




HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

System code > A352

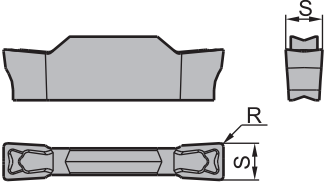

























Grade selection > A350

Technical info > A447

Cutting data > A402







-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting inserts

Parting & grooving insert (double sided)						HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW						
						<b>P</b>	 			   								
						<b>M</b>				   								
						<b>K</b>												
						<b>N</b>										 		
						<b>S</b>							   					
						<b>H</b>												
ISO	La max	S±0.025	R±0.05	f	YBC252 YBC251			YBG105 YBG102 YB9320 YBG205 YBG202 YBG302			YD101 YD201							
	<b>ZTHD05003-EG</b>	22	5	0.3	0,1-0,24													
	<b>ZTHD05004-EG</b>	22	5	0.4	0,1-0,24													
	<b>ZTHD05008-EG</b>	22	5	0.8	0,1-0,24													
	<b>ZTHD05012-EG</b>	22	5	0.12	0,1-0,24													
	<b>ZTHD05202-EG</b>	22	5.2	0.2	0,1-0,24													
	<b>ZTHD052503-EG</b>	22	5.25	0.3	0,1-0,24													
	<b>ZTHD05403-EG</b>	22	5.4	0.3	0,1-0,24													
	<b>ZTHD05508-EG</b>	22	5.5	0.8	0,1-0,24													
	<b>ZTHD055603-EG</b>	22	5.56	0.3	0,1-0,24													
	<b>ZTKD06004-EG</b>	22	6	0.4	0,12-0,29													
	<b>ZTKD06504-EG</b>	22	6.5	0.4	0,12-0,29													

● Ex stock    ○ On demand




HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

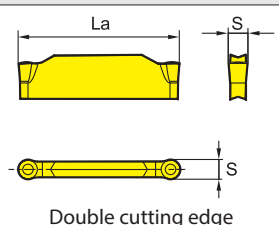









Tool holders					
QE*D*R/L	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C***.Q*DR/L
					
A377	A385	A387	A387	A390	A395

**A**

Turning


## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (double sided)		HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)		HW
 <p>Double cutting edge</p>	<b>P</b>					
	<b>M</b>					
	<b>K</b>					
	<b>N</b>					
	<b>S</b>					
	<b>H</b>					

**B**

Milling

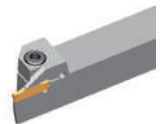




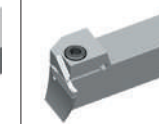

ISO	La max	S±0.10	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
	<b>ZRED025-MG</b>	17.5	2.5	0,03-0,11						•	•		
	<b>ZRFD03-MG</b>	17	3	0,04-0,14				•		•	•		
	<b>ZRGD04-MG</b>	21	4	0,07-0,2	○					•	•		
	<b>ZRHD05-MG</b>	20	5	0,1-0,24						•	•		
	<b>ZRKD06-MG</b>	19	6	0,12-0,29						•	•		

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**C**

Drilling

Tool holders						
QE*D*R/L	QX*D*	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C*X-Q*DR/L
						
A377	A381	A385	A387	A387	A390	A394

C\*\*\*-Q\*DR/L



**D**

Technical Information

**E**

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System code > A352

Grade selection > A350

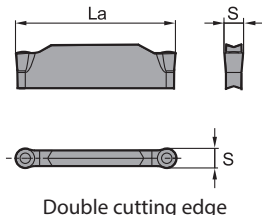

















Technical info > A447

Cutting data > A402



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

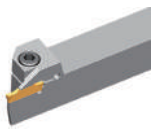


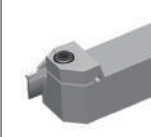
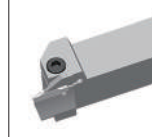
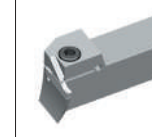

Parting inserts

Parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW			
 <p>Double cutting edge</p>	<b>P</b>												
	<b>M</b>												
	<b>K</b>												
	<b>N</b>												
	<b>S</b>												
	<b>H</b>												
ISO	La max	S±0.025	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
	ZRFD03-EG	17	3	0,04-0,14					●	○			
	ZRGD04-EG	21	4	0,07-0,2					●				
	ZRHD05-EG	20	5	0,1-0,24					●	○			
	ZRKD06-EG	19	6	0,12-0,29					○				

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders

QE*D*R/L	QX*D*	QF*D*R/L-H	QF*D*LL-H	QF*D*RR-H	QF*D*R/L-L	C*X-Q*DR/L
						
A377	A381	A385	A387	A387	A390	A394

C\*\*\*-Q\*DR/L



System code > A352

Grade selection > A350

Technical info > A447

Cutting data > A402

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

**A**

Turning

## Parting inserts

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

Parting & grooving insert (single sided)							HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
	<b>P</b>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>						<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>		
	<b>M</b>								<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>		
	<b>K</b>													
	<b>N</b>												<span style="color: green;">●</span>	<span style="color: green;">⊗</span>
	<b>S</b>								<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>		
	<b>H</b>													

**B**

Milling

ISO	R±0.1	W±0.05	b	L	f	YBC252		YBC251		YBG105		YBG102		YB9320		YBG205		YBG202		YBG302		YD101		YD201	
<b>ZIMF304N-NM</b>	0.4	3	2.4	15.3	0,04-0,11					●															
<b>ZIMF406N-NM</b>	0.6	4	3.2	15.3	0,07-0,16					●	○														
<b>ZIMF506N-NM</b>	0.6	5	4	15.3	0,1-0,2					●	○														
<b>ZIMF608N-NM</b>	0.8	6	4	15.3	0,12-0,23					●	○														

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**C**

Drilling

Tool holders

**QE\*S\*R/L-N**

A382

**D**

Technical Information

**E**




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System code > A352

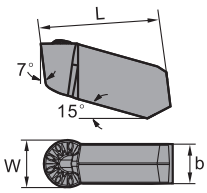

















Grade selection > A350

Technical info > A447

Cutting data > A402

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Parting inserts**

Parting & grooving insert (single sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW			
	<b>P</b>													
	<b>M</b>													
	<b>K</b>													
	<b>N</b>													
	<b>S</b>													
<b>H</b>														
ISO	W±0.05	b	L	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
	<b>ZIGQ3N-NM</b>	3	2.4	15.3	0,04-0,11			● ○						
	<b>ZIGQ4N-NM</b>	4	3.2	15.3	0,07-0,16			● ○						
	<b>ZIGQ5N-NM</b>	5	4	15.3	0,1-0,2			● ○						
	<b>ZIGQ6N-NM</b>	6	5	15.3	0,13-0,24			● ○						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders

QE\*S\*R/L-N



A382

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A352

Grade selection > A350

Technical info > A447




Cutting data > A402

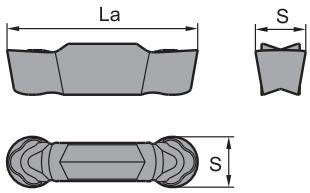


















**A**

Turning

## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW			
	<b>P</b>												
	<b>M</b>												
	<b>K</b>												
	<b>N</b>												
	<b>S</b>												
	<b>H</b>												
ISO	La max	S±0.025	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
	<b>ZRKD06-LH</b>	19	6	0,12-0,23								○	
	<b>ZRLD08-LH</b>	22	8	0,14-0,26								●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**B**

Milling

**C**

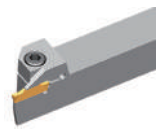


Drilling

**D**

Technical Information

**E**

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Tool holders		
QE*D*R/L	C*X-Q*DR/L	C***-Q*DR/L
		
A377	A394	A395

System code > A352

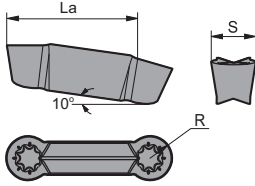

















Grade selection > A350

Technical info > A447

Cutting data > A402

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Parting inserts**

Parting & grooving insert (double sided)					HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
	<b>P</b>											
	<b>M</b>											
	<b>K</b>											
	<b>N</b>											
	<b>S</b>											
	<b>H</b>											
ISO	La max	S±0.025	f	YBC252 YBC251			YBG105 YBG102 YB9320 YBG205 YBG202 YBG302				YD101 YD201	
	<b>ZILD08-LC</b>	22	8	0,14-0,26							○ ○	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > A352

Grade selection > A350

Technical info > A447



Cutting data > A402



**A**

Turning

**QC 22 R 300 – R 03**
**1 2 3 4 5 6**

Series	Cutting edge length [mm]		Cutting direction	
	Code	I.C	Code	Description
	11	6,35	R	 Right
	16	9,525	L	 Left
	22	12,70		

**B**

Milling

**C**



Drilling

**D**

Technical Information

**E**

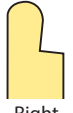

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Groove width [mm]		Edge shape		Radius/Chamfer [mm]	
Code	Description	Code	Description	Code	Description
050	0,50	R	 Radius	005	0,05
100	1,00	C	 Chamfer	02	0,2
...	...			03	0,3
480	4,80			04	0,4




**Triangular inserts (round edge)**

**QC 22 R 300 – R**

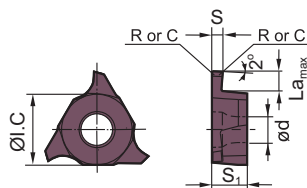
**1 2 3 4 5**

Series	Cutting edge length [mm]		Cutting direction		Groove width [mm]		Round
	Code	I.C	Code	Description	Code	Description	
	11	6,35	R	 Right	050	0,50	
	16	9,525	L	 Left	100	1,00	
	22	12,70			...	...	
					480	4,80	

**Parting inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

QC\*\* turning/milling insert



Right hand style

QC** turning/milling insert								HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)				HW			
								P	M	K	N	S	H				
ISO	La max	S±0.025	R/C	ØI.C	S1	ød	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
QC11R120-R02	1.5	1.2	0.2	6.35	3.18	2.8	0,02-0,03						●				
QC11L120-R02	1.5	1.2	0.2	6.35	3.18	2.8	0,02-0,03						●				
QC11R125-R02	1.5	1.25	0.2	6.35	3.18	2.8	0,02-0,03						●				
QC11L125-R02	1.5	1.25	0.2	6.35	3.18	2.8	0,02-0,03						●				
QC11R145-R02	1.5	1.45	0.2	6.35	3.18	2.8	0,02-0,05						●				
QC11L145-R02	1.5	1.45	0.2	6.35	3.18	2.8	0,02-0,05						●				
QC11R150-R02	1.5	1.5	0.2	6.35	3.18	2.8	0,02-0,05						●				
QC11L150-R02	1.5	1.5	0.2	6.35	3.18	2.8	0,02-0,05						●				
QC11R200-R02	2	2	0.2	6.35	3.18	2.8	0,02-0,06						●				
QC11L200-R02	2	2	0.2	6.35	3.18	2.8	0,02-0,06						●				
QC11R225-R02	2	2.25	0.2	6.35	3.18	2.8	0,02-0,06						○				
QC11L225-R02	2	2.25	0.2	6.35	3.18	2.8	0,02-0,06						○				
QC16R075-R01	2	0.75	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16L075-R01	2	0.75	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16R080-R01	2	0.8	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16R095-R01	2	0.95	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16L095-R01	2	0.95	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16L100-R01	2	1	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16R110-R01	2	1.1	0.1	9.525	3.18	4.4	0,02-0,03						○ ○				
QC16L110-R01	2	1.1	0.1	9.525	3.18	4.4	0,02-0,03						● ○				
QC16R115-R04	2	1.15	0.4	9.525	3.18	4.4	0,02-0,03						○				
QC16R120-R01	2	1.2	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16L120-R01	2	1.2	0.1	9.525	3.18	4.4	0,02-0,03						○				
QC16R125-R02	2	1.25	0.2	9.525	3.18	4.4	0,02-0,03						○ ○				
QC16L125-R02	2	1.25	0.2	9.525	3.18	4.4	0,02-0,03						●				
QC16R130-R02	2	1.3	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16L130-R02	2	1.3	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R140-R02	2	1.4	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R145-R02	2	1.45	0.2	9.525	3.18	4.4	0,02-0,06						●				
QC16L145-R02	2	1.45	0.2	9.525	3.18	4.4	0,02-0,06						●				
QC16R150-R02	2	1.5	0.2	9.525	3.18	4.4	0,02-0,06						●				
QC16L150-R02	2	1.5	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R160-R02	2	1.6	0.2	9.525	3.18	4.4	0,02-0,06						●				
QC16L160-R02	2	1.6	0.2	9.525	3.18	4.4	0,02-0,06						●				

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

System code > A352

Grade selection > A350

Technical info > A447

Cutting data > A402



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information




**E**

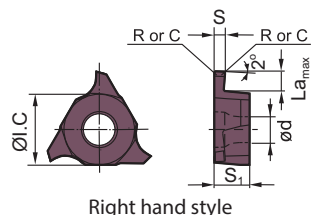
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A

Turning

## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions



QC** turning/milling insert								HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW				
								P									
								M									
								K									
								N									
								S									
								H									
ISO	La max	S±0.025	R/C	Øl.C	S1	Ød	f	YBC252	YBC251	YBG105	YBG102	YBG320	YBG205	YBG202	YBG302	YD101	YD201
QC16R165-R02	2	1.65	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16L165-R02	2	1.65	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R170-R02	2	1.7	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16L170-R02	2	1.7	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R175-R02	2	1.75	0.2	9.525	3.18	4.4	0,02-0,07						●				
QC16L175-R02	2	1.75	0.2	9.525	3.18	4.4	0,02-0,06						○				
QC16R180-R02	2	1.8	0.2	9.525	3.18	4.4	0,02-0,07						○				
QC16R185-R02	2.5	1.85	0.2	9.525	3.18	4.4	0,02-0,07						●				
QC16L185-R02	2.5	1.85	0.2	9.525	3.18	4.4	0,02-0,07						○				
QC16R200-R02	2.5	2	0.2	9.525	3.18	4.4	0,02-0,07						●				
QC16L200-R02	2.5	2	0.2	9.525	3.18	4.4	0,02-0,07						●				
QC16L210-R02	2.5	2.1	0.2	9.525	3.18	4.4	0,02-0,07						○				
QC16L210-R05	2.5	2.1	0.5	9.525	3.18	4.4	0,02-0,07						○				
QC16R220-R02	2.5	2.2	0.2	9.525	3.18	4.4	0,02-0,07						○				
QC16L220-R02	2.5	2.2	0.2	9.525	3.18	4.4	0,02-0,07						○				
QC16R250-R02	2.5	2.5	0.2	9.525	3.18	4.4	0,02-0,08						● ○				
QC16L250-R02	2.5	2.5	0.2	9.525	3.18	4.4	0,02-0,08						●				
QC16R300-R02	3	3	0.2	9.525	3.18	4.4	0,03-0,11						●				
QC16L300-R02	3	3	0.2	9.525	3.18	4.4	0,03-0,11						●				
QC22L100-R02	2	1	0.2	12.7	4.76	5.5	0,02-0,03						○				
QC22R125-R02	2	1.25	0.2	12.7	4.76	5.5	0,02-0,03						●				
QC22L125-R02	2	1.25	0.2	12.7	4.76	5.5	0,02-0,03						○				
QC22R145-R02	2	1.45	0.2	12.7	4.76	5.5	0,02-0,06						○				
QC22L145-R02	2	1.45	0.2	12.7	4.76	5.5	0,02-0,06						○				
QC22R150-R02	3.5	1.5	0.2	12.7	4.76	5.5	0,02-0,06						○				
QC22L150-R02	3.5	1.5	0.2	12.7	4.76	5.5	0,02-0,06						○				
QC22R175-R02	3.5	1.75	0.2	12.7	4.76	5.5	0,02-0,06						●				
QC22L175-R02	3.5	1.75	0.2	12.7	4.76	5.5	0,02-0,06						○				
QC22R185-R02	3.5	1.85	0.2	12.7	4.76	5.5	0,02-0,07						●				
QC22L185-R02	3.5	1.85	0.2	12.7	4.76	5.5	0,02-0,07						○				
QC22R195-R02	3.5	1.95	0.2	12.7	4.76	5.5	0,02-0,07						○				
QC22R200-R02	3.5	2	0.2	12.7	4.76	5.5	0,02-0,07						○				
QC22L200-R02	3.5	2	0.2	12.7	4.76	5.5	0,02-0,07						○				
QC22R225-R02	3.5	2.25	0.2	12.7	4.76	5.5	0,02-0,07						○				

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

B

Milling

C

Drilling

D

Technical Information

E

Index

System code > A352




Grade selection > A350

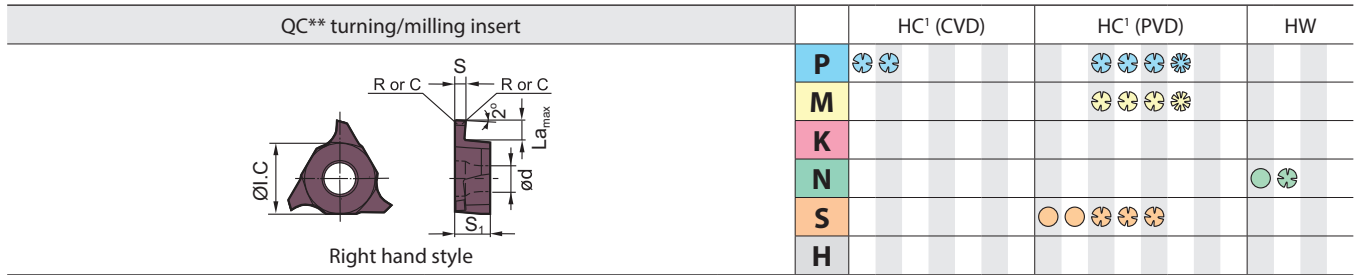
Technical info > A447



































Cutting data > A402



## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions





QC** turning/milling insert								HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW				
								P									
								M									
								K									
								N									
								S									
								H									
ISO	La max	S±0.025	R/C	ØI.C	S1	ød	f	YBC252	YBC251	YBG105	YBG102	YB9320	YBG205	YBG202	YBG302	YD101	YD201
QC22R230-R02	3.5	2.3	0.2	12.7	4.76	5.5	0,02-0,07						●				
QC22L230-R02	3.5	2.3	0.2	12.7	4.76	5.5	0,02-0,07						○				
QC22R250-R03	4	2.5	0.3	12.7	4.76	5.5	0,02-0,08						●				
QC22L250-R03	4	2.5	0.3	12.7	4.76	5.5	0,02-0,08						○				
QC22R265-R03	4	2.65	0.3	12.7	4.76	5.5	0,02-0,08						●				
QC22L265-R03	4	2.65	0.3	12.7	4.76	5.5	0,02-0,08						●				
QC22R280-R03	4	2.8	0.3	12.7	4.76	5.5	0,02-0,08						●				
QC22L280-R03	4	2.8	0.3	12.7	4.76	5.5	0,02-0,08						○				
QC22R300-R03	4	3	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22L300-R03	4	3	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22R320-R03	4	3.2	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22L320-R03	4	3.2	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22R330-R03	4	3.3	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22L330-R03	4	3.3	0.3	12.7	4.76	5.5	0,03-0,11						○				
QC22R350-R03	5	3.5	0.3	12.7	4.76	5.5	0,05-0,13						○				
QC22L350-R03	5	3.5	0.3	12.7	4.76	5.5	0,05-0,13						○				
QC22R400-R04	5	4	0.4	12.7	4.76	5.5	0,05-0,14						○				
QC22L400-R04	5	4	0.4	12.7	4.76	5.5	0,05-0,14						●				
QC22R430-R04	5	4.3	0.4	12.7	4.76	5.5	0,05-0,14						○				
QC22L430-R04	5	4.3	0.4	12.7	4.76	5.5	0,05-0,14						○	○			
QC22R450-R04	5	4.5	0.4	12.7	4.76	5.5	0,06-0,18						○				
QC22L450-R04	5	4.5	0.4	12.7	4.76	5.5	0,06-0,18						○			○	
QC22R480-R04	5	4.8	0.4	12.7	5.06	5.5	0,06-0,18						○				
QC22L480-R04	5	4.8	0.4	12.7	5.06	5.5	0,08-0,2						○				

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

### Tool holders

GQCR/L	S***-QC**R/L
	
A399	A400

System code > A352

Grade selection > A350

Technical info > A447




Cutting data > A402

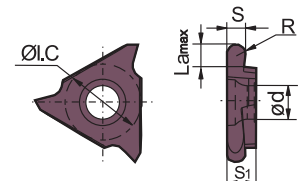


















A

Turning

## Parting inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

QC** turning/milling insert								HC <sup>1</sup> (CVD)		HC <sup>1</sup> (PVD)			HW		
 <p>Right hand style</p>	<b>P</b>														
	<b>M</b>														
	<b>K</b>														
	<b>N</b>														
	<b>S</b>														
<b>H</b>															

B

Milling

ISO	La max	S±0.025	R/C	Øl.C	S1	ød	f	YBC252 YBC251		YBG105 YBG102 YBG320 YBG205 YBG202 YBG302					YD101 YD201	
QC16R100R	2	1	0.5	12.7	3.18	4.4	0,02-0,03									
QC16R120R	2	1.2	0.6	12.7	3.18	4.4	0,02-0,03									
QC16R150R	2	1.5	0.75	12.7	3.18	4.4	0,02-0,06									
QC16R200R	2.5	2	1	12.7	3.18	4.4	0,02-0,07									
QC16L200R	2.5	2	1	12.7	3.18	4.4	0,02-0,07									
QC16R250R	2.5	2.5	1.25	12.7	3.18	4.4	0,02-0,08									
QC16L280R	2.5	2.8	1.4	12.7	3.18	4.4	0,02-0,08									
QC16R300R	2.5	3	1.5	12.7	3.18	4.4	0,03-0,11									
QC16L300R	2.5	3	1.5	12.7	3.18	4.4	0,03-0,11									
QC22R100R	2	1	0.5	12.7	4.76	5.5	0,02-0,03									
QC22L100R	2	1	0.5	12.7	4.76	5.5	0,02-0,03									
QC22R150R	3.5	1.5	0.75	12.7	4.76	5.5	0,02-0,06									
QC22L150R	3.5	1.5	0.75	12.7	4.76	5.5	0,02-0,06									
QC22R170R	3.5	1.7	0.85	12.7	4.76	5.5	0,02-0,06									
QC22R200R	3.5	2	1	12.7	4.76	5.5	0,02-0,07									
QC22L200R	3.5	2	1	12.7	4.76	5.5	0,02-0,07									
QC22R250R	4	2.5	1.25	12.7	4.76	5.5	0,02-0,08									
QC22L250R	4	2.5	1.25	12.7	4.76	5.5	0,02-0,08									
QC22R300R	4	3	1.5	12.7	4.76	5.5	0,03-0,11									
QC22L300R	4	3	1.5	12.7	4.76	5.5	0,03-0,11									
QC22R320R	4	3.2	1.6	12.7	4.76	5.5	0,03-0,11									
QC22R400R	5	4	2	12.7	4.76	5.5	0,05-0,14									
QC22L400R	5	4	2	12.7	4.76	5.5	0,05-0,14									

C



Drilling

D

Technical Information

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holders	
GQCR/L	S***-QC**R/L
	
A399	A400

E

Index



## External tool holders

**Q F G D 2525 R 22 (S) – (130) (H)**

**1 2 3 4 5 6 7 8 9 10**

**Holder for parting & grooving**

**1**

Application	
Code	Description
E	External machining
F	Axial machining

**2**

Insert seat size [mm]	
Holder/cutting width	
Code	Description
B	2,0
E	2,5
F	3,0
G	4,0
H	5,0
K	6,0
L	8,0

**3**

No. of cutting edges	
Code	Description
S	Single
D	Double

**4**

**Cross section of holder [mm] x [mm]**

**5**

Type	
Code	Description
R	Right
L	Left
N	Right and left

**6**

**Max. cutting depth [mm]**

**7**

Extra	
Code	Description
S	Strengthened holder for deep cuts

**8**

**Min. diameter of work piece for first axial grooving [mm]**

**9**

Cutting head	
Code	Description
H	0°
L	90°

**10**

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

**Boring bars**

**C 32 S – Q G D R 11 – 44**

**1 2 3 4 5 6 7 8 9**

Clamping system	Diameter [mm]	Length [mm]		Holder for grooving
		Code	Description	
1	2	Q	180	4
		R	200	
		S	250	
		X	320	
3		4		

Insert seat size [mm]		No. of cutting edges	
Holder/Cutting width		Code	Description
Code	Description	S	Single
B	2.0	D	Double
E	2.5		
F	3.0		
G	4.0		
H	5.0		
K	6.0		
L	8.0		
5		6	

Type		Max. cutting depth [mm]	Min. internal diameter of work piece [mm]
Code	Description		
R	Right	8	9
L	Left		
N	Right and left		
7			

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

## Blade

**Q E G D 32 N**

**1 2 3 4 5 6**



Blade for parting & grooving

**1**

Application	
Code	Description
E	External machining

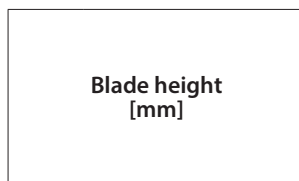
**2**

Insert seat size [mm]	
Holder/cutting width	
Code	Description
B	2,0
E	2,5
F	3,0
G	4,0
H	5,0
K	6,0
L	8,0

**3**

No. of cutting edges	
Code	Description
S	Single
D	Double

**4**



Blade height [mm]

**5**

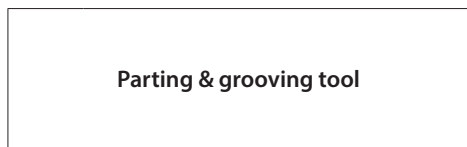
Type	
Code	Description
R	Right
L	Left
N	Right and left

**6**

## Clamping block

**QZ S 32 32**

**1 2 3 4**

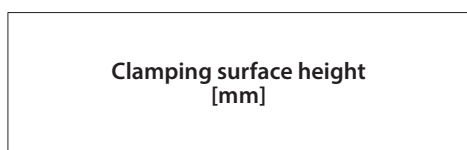


Parting & grooving tool

**1**

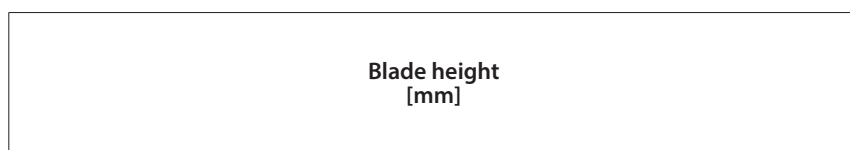
No. of cutting edges	
Code	Description
S	Single
D	Double

**2**



Clamping surface height [mm]

**3**

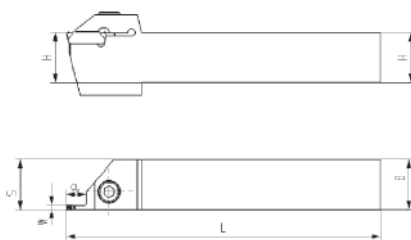
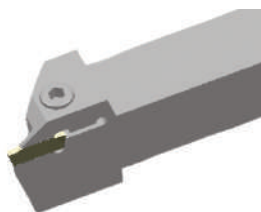


Blade height [mm]

**4**

**Parting & grooving tool holder (external)**

QE\*\*R/L



Article	*	Stock		Dimensions [mm]					Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	
QEED1616R/L10	●	●	16x16	125	15	2.5	10	Z*ED**	
QEED1616R/L17	●	●	16x16	125	15	2.5	17	Z*ED**	
QEED2020R/L17	●	●	20x20	125	19	2.5	17	Z*ED**	
QEED2020R/L10	●	●	20x20	150	10	2.5	10	Z*ED**	
QEED2525R/L10	●	●	25x25	150	19	2.5	10	Z*ED**	
QEED2525R/L17	●	●	25x25	150	19	2.5	17	Z*ED**	
QEGD2020R/L13	●	●	20x20	140	18.5	4	13	Z*GD**	
QEGD2020R/L22	●	●	20x20	140	18.5	4	22	Z*GD**	
QEGD2525R/L13	●	●	25x25	150	23.5	4	13	Z*GD**	
QEGD2525R/L22	●	●	25x25	150	23.5	4	22	Z*GD**	
QEGD3232R/L13	●	●	32x32	170	30.5	4	13	Z*GD**	
QEGD3232R/L22	●	●	32x32	170	30.5	4	22	Z*GD**	
QEHD2525R/L13	●	●	25x25	150	23	5	13	Z*HD**	
QEHD2525R/L22	●	●	25x25	150	23	5	22	Z*HD**	
QEHD3232R/L13	●	●	32x32	170	30	5	13	Z*HD**	
QEHD3232R/L22	●	●	32x32	170	30	5	22	Z*HD**	
QEKD2525R/L13	●	●	25x25	150	22.6	6	13	Z*KD**	
QEKD2525R/L22	●	●	25x25	150	22.6	6	22	Z*KD**	
QEKD3232R/L13	●	●	32x32	170	29.6	6	13	Z*KD**	
QEKD3232R/L22	●	●	32x32	170	29.6	6	22	Z*KD**	

● Ex stock    ○ On demand

\* With internal cooling

System code > A376

Grade selection > A350



Technical info > A447

Cutting data > A402



## Parting & grooving tool holder (external)

Spare parts

	Insert	Z*BD**	Z*ED**	Z*ED**	Z*FD**	Z*FD**	Z*GD**	Z*HD**	Z*KD**
	H	16-20	16	20-32	16	20-32	20-32	20-32	20-32
	Screw	GB70-85-M5x16 (4.0 Nm)	GB70-85-M5x20 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M5x20 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH40L	WH40L	WH50L	WH40L	WH50L	WH50L	WH50L	WH50L

Insert

						
A353	A354	A356	A357	A359	A362	A363



A366

System code > A376

Grade selection > A350

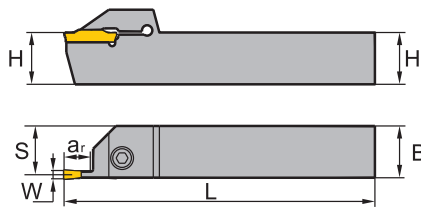
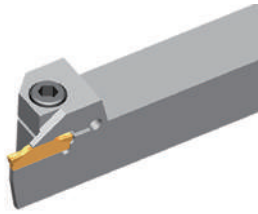
Technical info > A447

Cutting data > A402



**Parting & grooving tool holder (external)**

QE\*SN30



Article	*	Stock	Dimensions [mm]					Inserts
			HxB	L	S	W	ar <sub>max</sub>	
QEHS2525N30	●	●	25x25	150	12.5	5	30	Z*HS**
QEHS3232N30	●	●	32x32	170	16	5	30	Z*HS**
QEKS2525N30	○	○	25x25	150	12.5	6	30	Z*Ks**
QEKS3232N30	○	○	32x32	170	16	6	30	Z*Ks**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	Z*HS**	Z*Ks**
	H	25-32	25-32
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH50L	WH50L

Insert	
A355	A358

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

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System code > A376

Grade selection > A350

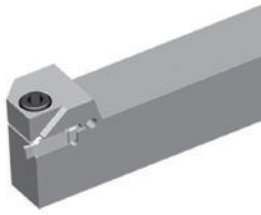
Technical info > A447

Cutting data > A402

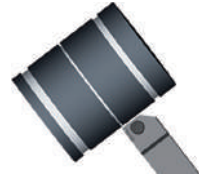
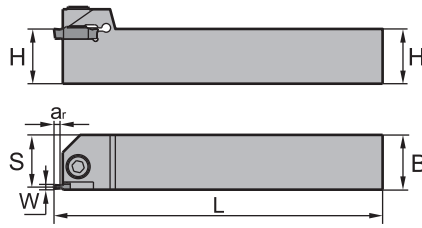


## Parting & grooving tool holder (external)

QECDR/L



Right hand style



Article	*	Stock		Dimensions [mm]					Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	
QECD1616R/L025		○	○	16x16	125	14.75		2.5	Z*CD**
QECD2020R/L025		○	○	20x20	125	18.75		2.5	Z*CD**
QECD2525R/L025		○	○	25x25	150	23.75		2.5	Z*CD**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	Z*CD**	Z*CD**
	H	16	20-32
	Screw	GB70-85-M5x20 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH40L	WH50L

### Insert



A359

System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402

A

Turning

B

Milling

C

Drilling

D

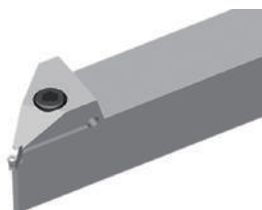
Technical Information

E

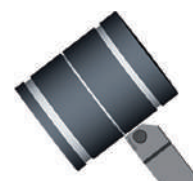
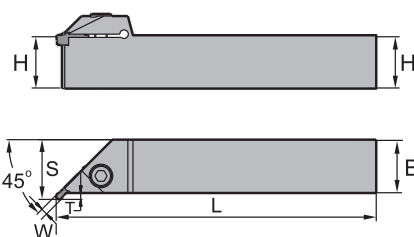
Index

**Parting & grooving tool holder (external)**

QX\*DR/L



Right hand style



Article	*	Stock		Dimensions [mm]					Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	
QXFD2020R/L03-45		○	○	20x20	125	23	3	3	Z*FD**
QXFD2525R/L03-45		●	●	25x25	150	28	3	3	Z*FD**
QXFD3232R/L03-45		○	○	32x32	170	35	3	3	Z*FD**
QXGD2020R/L03-45		○	○	20x20	125	23	4	3	Z*GD**
QXGD2525R/L03-45		○	○	25x25	150	28	4	3	Z*GD**
QXGD3232R/L03-45		○	○	32x32	170	35	4	3	Z*GD**
QXHD2020R/L04-45		○	○	20x20	125	24	5	4	Z*HD**
QXHD2525R/L04-45		○	○	25x25	150	29	5	4	Z*HD**
QXHD3232R/L04-45		○	○	32x32	170	36	5	4	Z*HD**
QXKD2020R/L04-45		○	○	20x20	125	24	6	4	Z*KD**
QXKD2525R/L04-45		○	○	25x25	150	29	6	4	Z*KD**
QXKD3232R/L04-45		○	○	32x32	170	36	6	4	Z*KD**

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert	Z*FD**	Z*GD**	Z*HD**	Z*KD**
	H	20-32	20-32	20-32	20-32
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH50L	WH50L	WH50L	WH50L

Insert

A362	A363

System code > A376

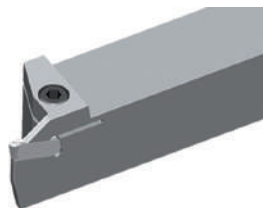
Grade selection > A350

Technical info > A447

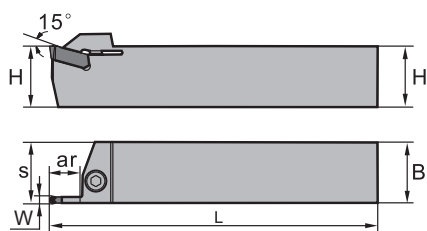
Cutting data > A402

## Parting & grooving tool holder (external)

QE\*SR/L



Right hand style



A

Turning

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D

Technical Information



E



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Article	*	Stock		Dimensions [mm]					Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	
QEFS2525R/L12-3N		○	○	25x25	150	25.3	3	12	ZI**
QEGS2525R/L12-4N		○	○	25x25	150	25.3	4	12	ZI**
QEHS2525R/L12-5N		○	○	25x25	150	25.4	5	12	ZI**
QEKS2525R/L12-6N		○	○	25x25	150	25.4	6	12	ZI**
QEFS3232R/L22-3N		○	○	32x32	170	32.3	3	22	ZI**
QEGS3232R/L22-4N		○	○	32x32	170	32.3	4	22	ZI**
QEHS3232R/L22-5N		○	○	32x32	170	32.4	5	22	ZI**
QEKS3232R/L22-6N		○	○	32x32	170	32.4	6	22	ZI**

● Ex stock ○ On demand

\* With internal cooling

Spare parts		
	<b>Insert</b>	<b>ZI**</b>
	<b>H</b>	<b>25-32</b>
	Screw	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH50L

Insert	
	
A364	A365

System code > A376

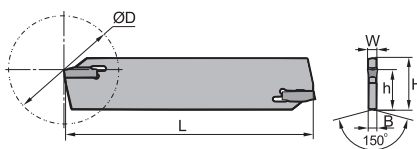
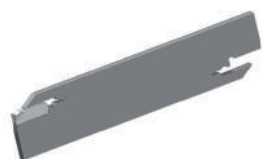
Grade selection > A350

Technical info > A447

Cutting data > A402

Parting blade for external machining

QE\*S\*\*N



Article	*	Stock	Dimensions [mm]						Inserts
			H	L	h	B	W	ØDmax	
QEES26N	●	○	26	110	19	2	2.5	60	ZPES**
QEES32N	●	○	32	150	24.6	2	2.5	100	ZPES**
QEFS26N	●	○	26	110	19	2.4	3	60	ZPFS**
QEFS32N	●	○	32	150	24.6	2.4	3	100	ZPFS**
QEGS26N	●	○	26	110	19	3.2	4	70	ZPGS**
QEGS32N	●	○	32	150	24.6	3.2	4	120	ZPGS**
QEHS26N	●	○	26	110	19	4	5	70	ZPHS**
QEHS32N	●	○	32	150	24.6	4	5	120	ZPHS**
QEKs26N	●	○	26	110	19	5	6	70	ZPKS**
QEKs32N	●	○	32	150	24.6	5	6	120	ZPKS**

● Ex stock ○ On demand

\* With internal cooling

Spare parts						
	Insert	ZPES**	ZPFS**	ZPGS**	ZPHS**	ZPKS**
	H	26-32	26-32	26-32	26-32	26-32
	Wrench	W50RL	W50RL	W50RL	W50RL	W50RL

Insert	
A355	A358

System code > A376

Grade selection > A350

Technical info > A447

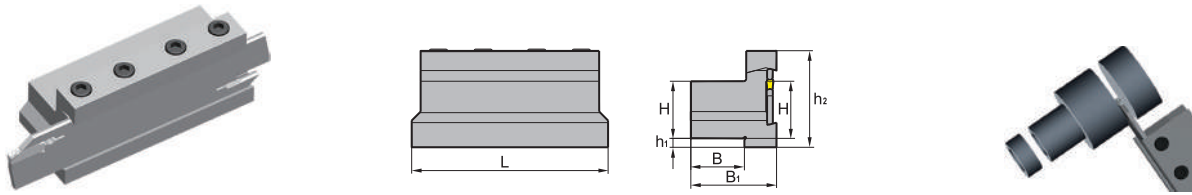
Cutting data > A402



**A**

## Clamping block (external)

QZS\*



Turning

**B**

Article	*	Stock	Dimensions [mm]						Inserts
			H	L	h <sub>1</sub>	h <sub>2</sub>	B	B <sub>1</sub>	
QZS2026	●		20	86	10	46.6	19	38	QE**26
QZS2526	●		25	86	5	46.6	23	42	QE**26
QZS3226	○		32	86	3	51.6	30	48	QE**26
QZS2032	●		20	110	13	50	19	38	QE**32
QZS2532	●		25	110	8	50	23	42	QE**32
QZS3232	●		32	110	5	54	30	48	QE**32

Milling

**C**

● Ex stock    ○ On demand

\* With internal cooling

Drilling

Spare parts			
	Insert	QE**26	QE**32
	<b>H</b>	<b>20-32</b>	<b>20-32</b>
	Clamp	QZC26	QZC32
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL

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System code > A376

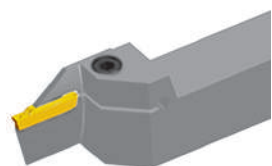
Grade selection > A350

Technical info > A447

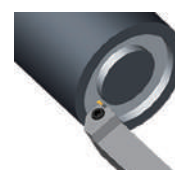
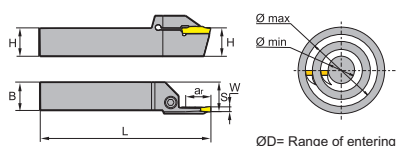
Cutting data > A402


**Parting & grooving tool holder (axial)**

QF\*\*R/L



Left hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFFD2020R/L7-48H	○ ○	20x20	150	21	3	7	48-66	Z*FD**		
QFFD2020R/L7-60H	○ ○	20x20	150	21	3	7	60-80	Z*FD**		
QFFD2020R/L7-74H	○ ○	20x20	150	21	3	7	74-110	Z*FD**		
QFFD2020R/L7-100H	○ ○	20x20	150	21	3	7	100-150	Z*FD**		
QFFD2020R/L10-48H	○ ○	20x20	150	21	3	10	48-66	Z*FD**		
QFFD2020R/L10-60H	○ ○	20x20	150	21	3	10	60-80	Z*FD**		
QFFD2020R/L10-74H	○ ○	20x20	150	21	3	10	74-110	Z*FD**		
QFFD2020R/L10-100H	○ ○	20x20	150	21	3	10	100-150	Z*FD**		
QFFD2525R/L10-48H	● ●	25x25	150	26	3	10	48-66	Z*FD**		
QFFD2525R/L10-60H	● ●	25x25	150	26	3	10	60-80	Z*FD**		
QFFD2525R/L10-74H	● ●	25x25	150	26	3	10	74-110	Z*FD**		
QFFD2525R/L10-100H	● ●	25x25	150	26	3	10	100-150	Z*FD**		
QFFD2525R/L17-48H	● ●	25x25	150	26	3	17	48-66	Z*FD**		
QFFD2525R/L17-60H	● ●	25x25	150	26	3	17	60-80	Z*FD**		
QFFD2525R/L17-74H	● ●	25x25	150	26	3	17	74-110	Z*FD**		
QFFD2525R/L17-100H	● ●	25x25	150	26	3	17	100-150	Z*FD**		
QFGD2020R/L10-52H	○ ○	20x20	150	19	4	10	52-72	Z*GD**		
QFGD2020R/L10-64H	○ ○	20x20	150	19	4	10	64-100	Z*GD**		
QFGD2020R/L10-90H	○ ○	20x20	150	19	4	10	90-140	Z*GD**		
QFGD2020R/L10-130H	○ ○	20x20	150	19	4	10	130-230	Z*GD**		
QFGD2020R/L15-52H	○ ○	20x20	150	19	4	15	52-72	Z*GD**		
QFGD2020R/L15-64H	○ ○	20x20	150	19	4	15	64-100	Z*GD**		
QFGD2020R/L15-90H	○ ○	20x20	150	19	4	15	90-140	Z*GD**		
QFGD2020R/L15-130H	○ ○	20x20	150	19	4	15	130-230	Z*GD**		
QFGD2525R/L13-52H	● ●	25x25	150	24	4	13	52-72	Z*GD**		
QFGD2525R/L13-64H	● ●	25x25	150	24	4	13	64-100	Z*GD**		
QFGD2525R/L13-90H	● ●	25x25	150	24	4	13	90-140	Z*GD**		
QFGD2525R/L13-130H	● ●	25x25	150	24	4	13	130-230	Z*GD**		
QFGD2525R/L22-52H	● ●	25x25	150	24	4	22	52-72	Z*GD**		
QFGD2525R/L22-64H	● ●	25x25	150	24	4	22	64-100	Z*GD**		
QFGD2525R/L22-90H	● ●	25x25	150	24	4	22	90-140	Z*GD**		
QFGD2525R/L22-130H	● ●	25x25	150	24	4	22	130-230	Z*GD**		
QFHD2525R/L13-58H	● ●	25x25	150	23.5	5	13	58-96	Z*HD**		
QFHD2525R/L13-86H	● ●	25x25	150	23.5	5	13	86-140	Z*HD**		
QFHD2525R/L13-130H	● ●	25x25	150	23.5	5	13	130-200	Z*HD**		
QFHD2525R/L13-185H	● ●	25x25	150	23.5	5	13	185-400	Z*HD**		

System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402



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
**E**


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Article	*	Stock		Dimensions [mm]						Inserts 
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFHD2525R/L22-58H	•	•	25x25	150	23.5	5	22	58-96	Z*HD**	
QFHD2525R/L22-86H	•	•	25x25	150	23.5	5	22	86-140	Z*HD**	
QFHD2525R/L22-130H	•	•	25x25	150	23.5	5	22	130-200	Z*HD**	
QFHD2525R/L22-185H	•	•	25x25	150	23.5	5	22	185-400	Z*HD**	
QFKD2525R/L13-60H	•	•	25x25	150	23	6	13	60-100	Z*KD**	
QFKD2525R/L13-88H	○	•	25x25	150	23	6	13	88-180	Z*KD**	
QFKD2525R/L13-160H	•	•	25x25	150	23	6	13	160-400	Z*KD**	
QFKD2525R/L22-60H	•	•	25x25	150	23	6	22	60-100	Z*KD**	
QFKD2525R/L22-88H	•	•	25x25	150	23	6	22	88-180	Z*KD**	
QFKD2525R/L22-160H	•	•	25x25	150	23	6	22	160-400	Z*KD**	

• Ex stock    ○ On demand

\* With internal cooling

Spare parts					
	Insert H	Z*FD** 20-25	Z*GD** 20-25	Z*HD** 20-25	Z*KD** 20-25
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL	W50RL	W50RL

Insert					
					
A353	A354	A357	A359	A362	A363

System code > A376

Grade selection > A350

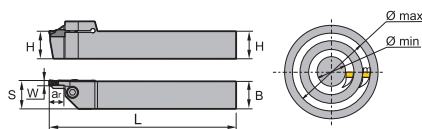
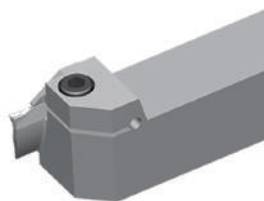
Technical info > A447

Cutting data > A402



**Parting & grooving tool holder (axial)**

QF\*\*RR/LL



LL Version

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFFD2020LL10-48H		○		20x20	150	21	3	10	48-66	Z*FD**
QFFD2020RR10-48H		○		20x20	150	21	3	10	48-66	Z*FD**
QFFD2020RR10-60H		○		20x20	150	21	3	10	60-80	Z*FD**
QFFD2020RR10-74H		○		20x20	150	21	3	10	74-110	Z*FD**
QFFD2525LL10-48H		●		25x25	150	26	3	10	48-66	Z*FD**
QFFD2525RR10-48H		○		25x25	150	26	3	10	48-66	Z*FD**
QFFD2525LL10-60H		○		25x25	150	26	3	10	60-80	Z*FD**
QFFD2525RR10-60H		○		25x25	150	26	3	10	60-80	Z*FD**
QFFD2525LL10-74H		○		25x25	150	26	3	10	74-110	Z*FD**
QFFD2525RR10-74H		○		25x25	150	26	3	10	74-110	Z*FD**
QFFD2525LL10-100H		○		25x25	150	26	3	10	100-150	Z*FD**
QFFD2525RR10-100H		○		25x25	150	26	3	10	100-150	Z*FD**
QFFD2525LL17-48H		●		25x25	150	26	3	17	48-66	Z*FD**
QFFD2525RR17-48H		○		25x25	150	26	3	17	48-66	Z*FD**
QFFD2525LL17-60H		○		25x25	150	26	3	17	60-80	Z*FD**
QFFD2525RR17-60H		○		25x25	150	26	3	17	60-80	Z*FD**
QFFD2525LL17-74H		○		25x25	150	26	3	17	74-110	Z*FD**
QFFD2525RR17-74H		○		25x25	150	26	3	17	74-110	Z*FD**
QFFD2525LL17-100H		○		25x25	150	26	3	17	100-150	Z*FD**
QFFD2525RR17-100H		○		25x25	150	26	3	17	100-150	Z*FD**
QFGD2020LL10-52H		○		20x20	150	21	4	10	52-72	Z*GD**
QFGD2020RR10-52H		○		20x20	150	21	4	10	52-72	Z*GD**
QFGD2020LL15-52H		○		20x20	150	26	4	15	52-72	Z*GD**
QFGD2020LL15-90H		○		20x20	150	26	4	15	90-140	Z*GD**
QFGD2020RR15-90H		○		20x20	150	26	4	15	90-140	Z*GD**
QFGD2020RR15-130H		○		20x20	150	26	4	15	130-230	Z*GD**
QFGD2525RR13-52H		●		25x25	150	21	4	13	52-72	Z*GD**
QFGD2525LL13-64H		●		25x25	150	21	4	13	64-100	Z*GD**
QFGD2525RR13-64H		○		25x25	150	21	4	13	64-100	Z*GD**
QFGD2525LL13-130H		●		25x25	150	26	4	13	130-230	Z*GD**
QFGD2525RR13-130H		○		25x25	150	21	4	13	130-230	Z*GD**
QFGD2525LL22-52H		○		25x25	150	26	4	22	52-72	Z*GD**
QFGD2525RR22-52H		○		25x25	150	26	4	22	52-72	Z*GD**
QFGD2525LL22-64H		○		25x25	150	26	4	22	64-100	Z*GD**
QFGD2525RR22-64H		○		25x25	150	26	4	22	64-100	Z*GD**

System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402



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Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFGD2525LL22-90H		○		25x25	150	26	4	22	90-140	Z*GD**
QFGD2525RR22-90H		○		25x25	150	26	4	22	90-140	Z*GD**
QFGD2525LL22-130H		○		25x25	150	26	4	22	130-230	Z*GD**
QFGD2525RR22-130H		●		25x25	150	26	4	22	130-230	Z*GD**
QFHD2525LL13-130H		○		25x25	150	26	5	13	130-200	Z*HD**
QFHD2525RR13-130H		○		25x25	150	26	5	13	130-200	Z*HD**
QFHD2525RR13-185H		○		25x25	150	26	5	13	185-400	Z*HD**
QFHD2525LL22-58H			●	25x25	150	26	5	22	58-96	Z*HD**
QFHD2525RR22-58H			●	25x25	150	26	5	22	58-96	Z*HD**
QFHD2525RR22-86H		○		25x25	150	26	5	22	86-140	Z*HD**
QFHD2525LL22-130H		○		25x25	150	26	5	22	130-200	Z*HD**
QFHD2525RR22-130H		●		25x25	150	26	5	22	130-200	Z*HD**
QFHD2525LL22-185H		○		25x25	150	26	5	22	185-400	Z*HD**
QFHD2525RR22-185H		○		25x25	150	26	5	22	185-400	Z*HD**
QFKD2525RR13-60H		○		25x25	150	26	6	13	60-100	Z*KD**
QFKD2525RR13-88H		○		25x25	150	26	6	13	88-180	Z*KD**
QFKD2525LL22-88H		○		25x25	150	26	6	22	88-180	Z*KD**
QFKD2525RR22-88H		○		25x25	150	26	6	22	88-180	Z*KD**
QFKD2525LL22-160H			●	25x25	150	26	6	22	160-400	Z*KD**
QFKD2525RR22-160H		○		25x25	150	26	6	22	160-400	Z*KD**

● Ex stock ○ On demand

\* With internal cooling

Spare parts					
	Insert	Z*FD**	Z*GD**	Z*HD**	Z*KD**
	H	20-25	20-25	20-25	20-25
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL	W50RL	W50RL

Insert					
					
A353	A354	A357	A359	A362	A363

System code > A376

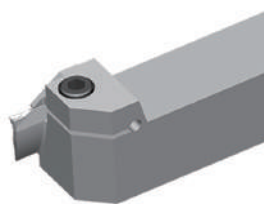
Grade selection > A350

Technical info > A447

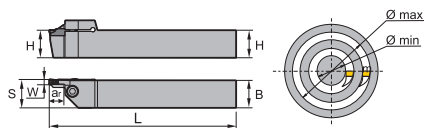
Cutting data > A402

**Parting & grooving tool holder (axial)**

QF\*SRR/LL



LL Version



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFHS2525LL30-185H	●			25x25	150	26	5	30	185-400	Z*HS**
QFHS2525SRR30-185H	○			25x25	150	26	5	30	185-400	Z*HS**
QFKS2525SRR30-160H	○			25x25	150	26	6	30	160-400	Z*KS**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	Z*HS**	Z*KS**
	<b>H</b>	<b>25</b>	<b>25</b>
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL

Insert	
A355	A358

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical  
Information

**E**

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System code > A376

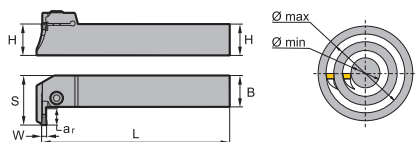
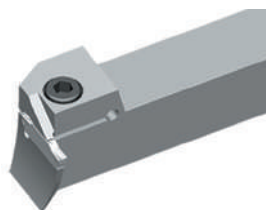
Grade selection > A350

Technical info > A447

Cutting data > A402

## Parting & grooving tool holder (axial)

QF\*DR/L



Right hand style


Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFFD2020R/L7-74L		○		20x20	150	28.5	3	7	74-110	
QFFD2020R/L10-48L		○	○	20x20	150	31.5	3	10	48-66	Z*FD**
QFGD2020R/L10-52L		○	○	20x20	150	31.5	4	10	52-72	Z*GD**
QFFD2020R/L10-60L		●	○	20x20	150	31.5	3	10	60-80	Z*FD**
QFFD2020R/L10-74L		●	○	20x20	150	31.5	3	10	74-110	Z*FD**
QFGD2020R/L10-90L		●	○	20x20	150	31.5	4	10	90-140	Z*GD**
QFFD2020R/L10-100L		○	○	20x20	150	31.5	3	10	100-150	Z*FD**
QFGD2020R/L10-130L		●		20x20	150	31.5	4	10	130-230	
QFGD2020R/L15-52L		○	○	20x20	150	36.5	4	15	52-72	Z*GD**
QFGD2020R/L15-64L		○		20x20	150	36.5	4	15	64-100	
QFGD2020R/L15-90L		○		20x20	150	36.5	4	15	90-140	
QFGD2020R/L15-130L		○		20x20	150	36.5	4	15	130-230	
QFFD2525R/L10-48L		●	●	25x25	150	36.5	3	10	48-66	Z*FD**
QFFD2525R/L10-60L		●	○	25x25	150	36.5	3	10	60-80	Z*FD**
QFFD2525R/L10-74L		○	○	25x25	150	36.5	3	10	74-110	Z*FD**
QFFD2525R/L10-100L		○	○	25x25	150	36.5	3	10	100-150	Z*FD**
QFGD2525R/L13-52L		○	○	25x25	150	39.5	4	13	52-72	Z*GD**
QFKD2525R/L13-60L		○	○	25x25	150	39.5	6	13	60-100	Z*KD**
QFGD2525R/L13-64L		○	●	25x25	150	39.5	4	13	64-100	Z*GD**
QFGD2525R/L13-90L		○	○	25x25	150	39.5	4	13	90-140	Z*GD**
QFGD2525R/L13-130L		○	○	25x25	150	39.5	4	13	130-230	Z*GD**
QFFD2525R/L17-48L		○	○	25x25	150	43.5	3	17	48-66	Z*FD**
QFFD2525R/L17-60L		○	○	25x25	150	43.5	3	17	60-80	Z*FD**
QFFD2525R/L17-74L		○	○	25x25	150	43.5	3	17	74-110	Z*FD**
QFFD2525R/L17-100L		●	○	25x25	150	43.5	3	17	100-150	Z*FD**
QFGD2525R/L22-52L		○	○	25x25	150	48.5	4	22	52-72	Z*GD**
QFKD2525R/L22-60L		○	●	25x25	150	48.5	6	22	60-100	Z*KD**
QFGD2525R/L22-64L		○	○	25x25	150	48.5	4	22	64-100	Z*GD**
QFKD2525R/L22-88L		○	●	25x25	150	48.5	6	22	88-180	Z*KD**
QFGD2525R/L22-90L		○	○	25x25	150	48.5	4	22	90-140	Z*GD**
QFGD2525R/L22-130L		●	○	25x25	150	48.5	4	22	130-230	Z*GD**
QFHD2525R/L13-58L		○		25x25	150	39.5	5	13	58-96	Z*HD**
QFHD2525R/L13-86L		●		25x25	150	39.5	5	13	86-140	Z*HD**
QFHD2525R/L13-130L		○	○	25x25	150	39.5	5	13	130-200	Z*HD**
QFHD2525R/L13-185L		○		25x25	150	39.5	5	13	185-400	Z*HD**
QFHD2525R/L22-58L		○	○	25x25	150	48.5	5	22	58-96	Z*HD**

System code > A376

Grade selection > A350



Technical info > A447







Cutting data > A402

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFHD2525R/L22-86L		○	○	25x25	150	48.5	5	22	86-140	Z*HD**
QFHD2525R/L22-130L		○	○	25x25	150	48.5	5	22	130-200	Z*HD**
QFHD2525R/L22-185L		○	○	25x25	150	48.5	5	22	185-400	Z*HD**
QFKD2525R/L13-88L			○	25x25	150	39.5	6	13	88-180	Z*KD**

● Ex stock    ○ On demand

\* With internal cooling

Spare parts					
	Insert	Z*FD**	Z*GD**	Z*HD**	Z*KD**
	H	20-25	20-25	20-25	20-25
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL	W50RL	W50RL

Insert					
					
A353	A354	A357	A359	A362	A363

System code > A376

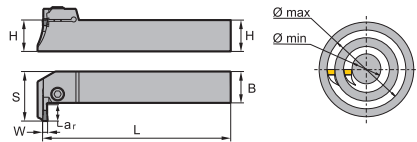
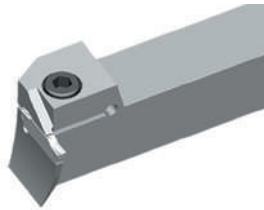
Grade selection > A350

Technical info > A447


Cutting data > A402

### Parting & grooving tool holder (axial)

QFHSDR/L





Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFHS2525R/L30-185L		○	○	25x25	150	56.5	5	30	185-400	Z*HS**

● Ex stock    ○ On demand

\* With internal cooling

#### Spare parts

	Insert	Z*HS**
	Screw	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL

#### Insert

	
A355	A358

System code > A376

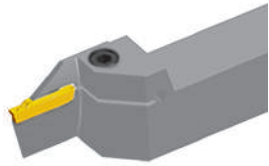
Grade selection > A350

Technical info > A447

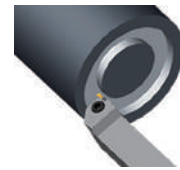
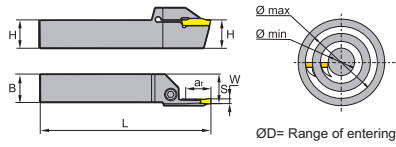
Cutting data > A402

**Parting & grooving tool holder (axial)**

QF\*\*R/L



Left hand style



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	HxB	L	S	W	ar <sub>max</sub>	ØD (min-max)	
QFHS2525R/L30-185H	●	●	25x25	150	23.5	5	30	185-400	Z*HS**	
QFKS2525R/L30-160H	●	●	25x25	150	23	6	30	160-400	Z*KS**	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	Z*HS**	Z*KS**
	H	25	25
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	W50RL	W50RL

Insert	
A355	A358

System code > A376

Grade selection > A350

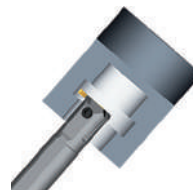
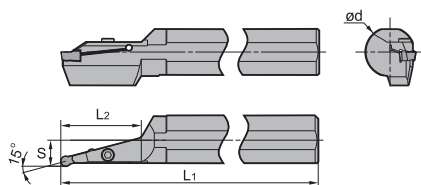
Technical info > A447

Cutting data > A402



## Parting & grooving tool holder (external)

C40X-Q\*DR/L



Right hand style

Article	*	Stock		Dimensions [mm]					Inserts
		R	L	ØD	ød	S	L <sub>1</sub>	L <sub>2</sub>	
C40X-QKDR/L60-15A		○	○	160	40	20	320	60	Z*KD**
C40X-QKDR/L75-15A		●		160	40	20	320	75	Z*KD**
C40X-QLDR/L65-15A		○	○	160	40	21	320	65	Z*LD**
C40X-QLDR/L80-15A		○	○	160	40	21	320	80	Z*LD**

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	Z*KD**	Z*LD**
	ød	<b>32-40</b>	<b>32-40</b>
	Screw	GB70-85-M6x20 (7.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH50L	WH50L

### Insert

A362	A363	A366

System code > A376

Grade selection > A350

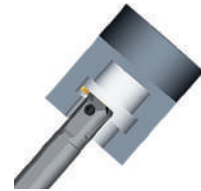
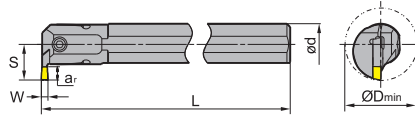
Technical info > A447

Cutting data > A402



**Parting & grooving tool holder (internal)**

C\*\*\*-Q\*DR/L



Article	*	Stock		Dimensions [mm]						Inserts
		R	L	ØDmin	ød	L	S	W	ar <sub>max</sub>	
C16M-QBDR/L04-20	●	○	20	16	150	12	2	4	Z*BD**	
C20Q-QEDR/L05-27	●	●	27	20	180	15.2	2.5	5	Z*ED**	
C25R-QEDR/L07-33	●	●	33	25	200	20.3	2.5	7	Z*ED**	
C32S-QEDR/L09-42	●	●	42	32	250	25.3	2.5	9	Z*ED**	
C20Q-QFDR/L05-27	●	●	27	20	0	15.2	3	5	Z*FD**	
C25R-QFDR/L07-33	●	●	33	25	200	20.3	3	7	Z*FD**	
C32S-QFDR/L09-42	●	●	42	32	250	25.3	3	9	Z*FD**	
C25R-QGDR/L08-35	●	●	35	25	200	21.5	4	8	Z*GD**	
C32S-QGDR/L11-44	●	●	44	32	250	27.5	4	11	Z*GD**	
C40T-QGDR/L13-54	●	●	5	40	300	33.5	4	13	Z*GD**	
C25R-QHDR/L08-35	●	●	35	25	200	21.5	5	8	Z*HD**	
C32S-QHDR/L11-44	●	●	44	32	250	27.5	5	11	Z*HD**	
C40T-QHDR/L13-54	●	●	54	40	300	33.5	5	13	Z*HD**	
C25R-QKDR/L08-35	○	●	35	25	200	21.5	6	8	Z*KD**	
C32S-QKDR/L11-44	●	●	44	32	250	27.5	6	11	Z*KD**	
C40T-QKDR/L13-54	●	●	54	40	300	33.5	6	13	Z*KD**	

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert ød	Z*BD**	Z*ED**	Z*ED**	Z*ED**	Z*FD**	Z*FD**	Z*FD**	Z*GD**	Z*GD**	Z*HD**	Z*HD**	Z*KD**	Z*KD**
		16	20	25	32-40	20	25	32-40	25	32-40	25	32-40	25	32-40
	Screw	GB70-85-M5x10 (4.0 Nm)	GB70-85-M4x12 (2.6 Nm)	GB70-85-M5x16 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M4x12 (2.6 Nm)	GB70-85-M5x16 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M5x16 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M5x16 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)	GB70-85-M5x16 (4.0 Nm)	GB70-85-M6x20 (7.0 Nm)
	Wrench	WH40L	WH30L	WH40L	WH50L	WH30L	WH40L	WH50L	WH40L	WH50L	WH40L	WH50L	WH40L	WH50L

System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402



A

Turning

B

Milling

C

Drilling

D

Technical Information

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**A**

## Parting & grooving tool holder (internal)

Insert

						
A353	A354	A357	A359	A362	A363	A366

Turning

**B**

Milling

**C**

Drilling

**D**

Technical  
Information

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System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402



## External tool holders – QC series

# GQC R 20 20 K 22 – 15

1 2 3 4 5 6 7

Series	Type		Height [mm]		Width [mm]		Length [mm]	
	Code	Description	Code	Description	Code	Description	Code	Description
	R	Right	16	16	16	16	K	125
L	Left	20	20	20	20	M	150	
		25	25	25	25			

1 2 3 4 5

Cutting edge length [mm]	
Code	I.C
11	6,35
16	9,252
22	12,70

6

Cutting width range [mm]		
Code	Insert size	
15	0,5 ≤ S < 1,8 (QC16***)	1,0 ≤ S < 2,3 (QC22***)
25	1,8 ≤ S < 3,0 (QC16***)	2,3 ≤ S < 3,3 (QC22***)
35	–	3,3 ≤ S ≤ 4,8 (QC22***)

7

## Boring bars – QC series

# S 20 K – QC 16 15 R 25

1 2 3 4 5 6 7 8

Shank type	
Code	Material
S	Steel shank
C	Solid carbide shank
A	Solid carbide shank (IC)

1

Diameter [mm]	
Code	Description
16	16
20	20
25	25

2

Length [mm]	
Code	Description
H	100
K	125
M	150

3

Series	Cutting edge length [mm]	
	Code	I.C
	11	6,35
16	9,252	
22	12,70	

4

5

Cutting width range [mm]			
Code	Insert size		
15	0,5 ≤ S < 1,8 (QC11***)	0,5 ≤ S < 1,8 (QC16***)	1,0 ≤ S < 2,3 (QC22***)
25	1,8 ≤ S < 3,0 (QC11***)	1,8 ≤ S < 3,0 (QC16***)	2,3 ≤ S < 3,3 (QC22***)
35	–	–	3,3 ≤ S ≤ 4,8 (QC22***)

6

Cutting direction	
Code	Description
R	Right
L	Left

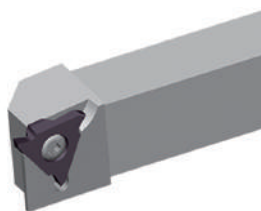
7

Starting diameter [mm]			
Code	∅	Code	∅
16	16	25	25
20	20	35	35

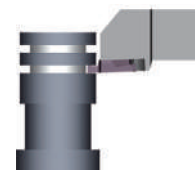
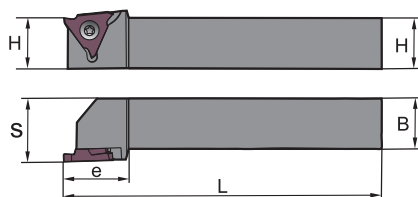
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### Grooving (external)

GQC\*\*R/L



Right hand style





Article	*	Stock		Dimensions [mm]						Inserts
		R	L	H	L	S	e	B	Width	
GQCR/L1616K16-15	●	●	16	125	21	25.5	16	0.5-1.80	QC16R/L 050-180	
GQCR/L2020K16-15	○	●	20	125	25	25.5	20	0.5-1.80	QC16R/L 050-180	
GQCR/L2525M16-15	○	●	25	150	30	25.5	25	0.5-1.80	QC16R/L 050-180	
GQCR/L1616K16-25	●	●	16	125	21	25.5	16	1.8-3.0	QC16R/L 180-300	
GQCR/L2020K16-25	○	●	20	125	25	25.5	20	1.8-3.0	QC16R/L 180-300	
GQCR/L2525M16-25	○	●	25	150	30	25.5	25	1.8-3.0	QC16R/L 180-300	
GQCR/L2020K22-15	○	●	20	125	25	25.5	20	1.0-2.3	QC22R/L 100-230	
GQCR/L2525M22-15	○	●	25	150	30	25.5	25	1.0-2.3	QC22R/L 100-230	
GQCR/L2020K22-25	○	●	20	125	25	25.5	20	2.3-3.3	QC22R/L 230-330	
GQCR/L2525M22-25	○	●	25	150	30	25.5	25	2.3-3.3	QC22R/L 230-330	
GQCR/L2020K22-35	●	●	20	125	25	25.5	20	3.3-4.8	QC22R/L 330-480	
GQCR/L2525M22-35	●	●	25	150	30	25.5	25	3.3-4.8	QC22R/L 330-480	

● Ex stock ○ On demand

\* With internal cooling

#### Spare parts

	Insert	QC16R/L 050-180	QC16R/L 180-300	QC22R/L 100-230	QC22R/L 230-330	QC22R/L 330-480
	H	16-32	16-32	16-32	16-32	16-32
	Screw	I60M3.5x10 (2.7 Nm)	I60M3.5x10 (2.7 Nm)	I60M5x13 (6.7 Nm)	I60M5x13 (6.7 Nm)	I60M5x13 (6.7 Nm)
	Wrench (shim)	WT15IP	WT15IP	WT20IP	WT20IP	WT20IP

#### Insert

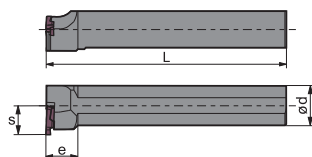
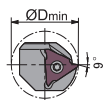


Medium Cut

A369

## Grooving (internal)

S\*\*-QC\*\*R/L



Right hand style

Article	*	Stock		Dimensions [mm]						Inserts
		R	L	ØDmin	ød	L	S	e	Width	
S16H-QC1115R/L20	●	●		21	16	100	11.5	12	0.5-1.80	QC11R/L 050-180
S20K-QC1115R/L16	●	●		16	20	125	11.1	40	0.5-1.80	QC11R/L 050-180
S16H-QC1125R/L20	●	●		21	16	100	11.5	12	1.8-3.0	QC11R/L 180-300
S20K-QC1125R/L16	○	○		16	20	125	11.1	40	1.8-3.0	QC11R/L 180-300
S20M-QC1615R/L25	○	●		26	20	150	12.5	15	0.5-1.80	QC16R/L 050-180
S20M-QC1625R/L25	●	●		26	20	150	12.5	15	1.8-3.0	QC16R/L 180-300
S25M-QC2215R/L35	●	●		35	25	150	18.2	15	1.0-2.3	QC22R/L 100-230
S25M-QC2225R/L35	●	●		35	25	150	18.2	20	2.3-3.3	QC22R/L 230-330
S25M-QC2235R/L35	○	●		35	25	150	18.2	20	3.3-4.8	QC22R/L 330-480

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	QC11R/L 050-180	QC11R/L 180-300	QC16R/L 050-180	QC16R/L 180-300	QC22R/L 100-230	QC22R/L 230-330	QC22R/L 330-480
	ød	16-20	16-20	20	20	25	25	25
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M2.5x6.5 (1.0 Nm)	I60M3.5x10 (2.7 Nm)	I60M3.5x10 (2.7 Nm)	I60M5x13 (6.7 Nm)	I60M5x13 (6.7 Nm)	I60M5x13 (6.7 Nm)
	Wrench (shim)	WT07IP	WT07IP	WT15IP	WT15IP	WT20IP	WT20IP	WT20IP

### Insert



Medium Cut

A369

System code > A376

Grade selection > A350

Technical info > A447

Cutting data > A402

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## Parting & grooving inserts

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]			
					HC (CVD)		HC (PVD)	
					YBC252	YBG105	YB9320	
<b>P</b> Unalloyed steel  Low-alloyed steel  High-alloyed steel and high-alloyed tool steel	approx. 0,15 % C	annealed	125	1	190	200	190	
		approx. 0,45 % C	annealed	190	2	175	180	175
		approx. 0,45 % C	tempered	250	3	145	150	145
		approx. 0,75 % C	annealed	270	4	140	145	140
	approx. 0,75 % C	tempered	300	5	135	140	135	
		annealed	180	6	170	180	170	
		tempered	275	7	125	130	125	
	High-alloyed steel and high-alloyed tool steel	tempered	300	8	115	120	115	
		tempered	350	9	105	110	105	
	<b>M</b> Stainless steel	ferritic/martensitic	annealed	200	12	165	170	165
		martensitic	tempered	240	13	135	140	135
austenitic		quench hardened	180	14	155	160	155	
austenitic-ferritic			230	15	135	140	135	
perlitic/ferritic			180	16	240	250	240	
<b>K</b> Grey cast iron  Cast iron with spheroidal graphite  Malleable cast iron	perlitic (martensitic)		260	17	185	190	185	
	ferritic		160	18	220	230	220	
	perlitic		250	19	165	170	165	
	ferritic		130	20	175	180	175	
Malleable cast iron	perlitic		230	21	165	170	165	
	cannot be hardened		60	22				
<b>N</b> Aluminium wrought alloys  Cast aluminium alloys  Copper and copper alloys (bronze/brass)	hardenable	hardened	100	23				
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24				
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25				
	$> 12\% \text{ Si}$ , cannot be hardened		130	26				
	machining steel, $\text{PB} > 1\%$		110	27				
	CuZn, CuSnZn		90	28				
<b>S</b> Heat-resistant alloys  Titanium alloys	CuSn, Pb-free copper, electrolytic copper		100	29				
	Fe-based alloys	annealed	200	30		100	95	
		hardened	280	31		50	50	
		annealed	250	32		80	80	
		hardened	350	33		70	70	
	Ni or Co bass	cast	320	34		70	70	
pure titanium		$R_m 400$	35		150	145		
$\alpha$ and $\beta$ alloys	hardened	$R_m 1050$	36		50	50		
<b>H</b> Hardened steel  Hard cast iron  Hardened cast iron	hardened and tempered	55 HRC	37					
	hardened and tempered	60 HRC	38					
	cast	400	39					
<b>X</b> Non-metallic materials	hardened and tempered	55 HRC	40					
	Thermoplasts		41					
	Thermosetting plastics		42					
	Plastic, glass-fibre reinforced GFRP		43					
	Plastic, carbon fibre reinforced CFRP		44					
	Graphite		45					
Wood		46						

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
For examples of material for cutting tool groups view page D22.



	Starting values for cutting speed vc [m/min]						
	HC (PVD)			HW			
	YBG202	YBG205	YBG302	YD101	YD201		
	190	190	185				
	175	175	170				
	145	145	140				
	140	140	135				
	135	135	130				
	170	170	165				
	125	125	125				
	115	115	115				
	105	105	105				
	125	125	125				
	95	95	95				
	165	165	160				
	135	135	130				
	155	155	150				
	135	135	130				
	240	240	235				
	185	185	180				
	220	220	215				
	165	165	160				
	175	175	170				
	165	165	160				
				800	760		
				600	570		
				320	305		
				240	230		
				160	155		
				160	155		
				600	570		
				200	190		
	95	95	95	70	65		
	50	50	50	35	35		
	80	80	75	60	60		
	70	70	65	50	50		
	70	70	65	50	50		
	145	145	140	105	100		
	50	50	50	35	35		

HC Coated carbide  
 HW Uncoated carbide, main component (WC)

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System code - threading tool holders	A438
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Recommended cutting data	A446
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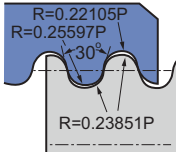

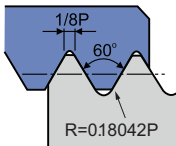

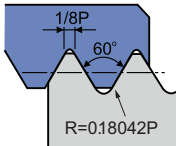

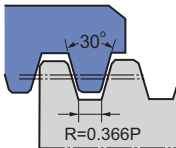

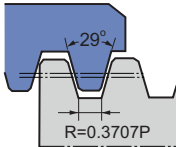

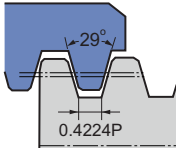

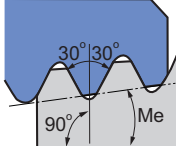

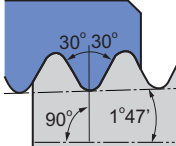

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	Thread types	Profile	Sectional drawing	Insert	Internal thread pitch [mm]	External thread pitch [mm]	Page
A Turning	ISO metric coarse thread 60° full profile	GM			0,5-6,0	0,5-6,0	A413
	ISO metric coarse thread 60° partial profile	60°			0,5-5,0 (5-48)	0,5-5,0 (5-48)	A415
B Milling	ISO metric coarse thread 55° partial profile	55°			0,5-5,0 (5-48)	0,5-5,0 (5-48)	A416
	Whitworth	W			8-16	8-16	A417
C Drilling	UN unified conventional thread 60° full profile	UN			8-20	8-20	A418
	BSPT Whitworth taper pipe thread	BSPT			11-28	11-28	A419
D Technical Information	NPT American taper pipe thread	NPT			8-27	8-27	A420
	NPTF dryseal American taper pipe thread 60°	NPTF			8-27	8-27	A421

Thread types	Profile	Sectional drawing	Insert	Internal thread pitch [mm]	External thread pitch [mm]	Page
R knuckle thread 30°	R			6-10	6-10	A422
MJ thread for aerospace	MJ			---	1,5-2,0	A423
UNJ unified screw thread	UNJ			---	8-32	A424
TR metrical ISO trapezoidal thread 30°	Tr			1,5-3,0	1,5-3,0	A425
ACME American national thread 29°	AC			8-16	8-16	A426
STUB-ACME thread	STAC			8-16	8-16	A427
API 60° thread	AP			4-5	4-5	A428
API round thread	RD			8-10	8-10	A429

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Thread types	Profile	Sectional drawing	Insert	Internal thread pitch [mm]	External thread pitch [mm]	Page
API American buttress thread	BUT			5	5	A430
ISO metric coarse thread 60° full profile (thin type)	GM			0,5-3,0	0,5-3,0	A431
ISO metric coarse thread 60° partial profile (thin type)	60°			0,5-3,0 (8-48)	0,5-3,0 (8-48)	A432
ISO metric coarse thread 55° partial profile (thin type)	55°			0,5-3,0 (8-48)	0,5-3,0 (8-48)	A433
Whitworth (thin type)	W			8-16	8-16	A434
UN unified conventional thread 60° full profile (thin type)	UN			8-24	8-20	A435
BSPT Whitworth taper pipe thread (thin type)	BSPT			11-28	11-28	A436
NPT American taper pipe thread (thin type)	NPT			8-27	8-27	A437

Type	Tool holder	Dimensions [mm]	Page
External thread holder		16×16×100 20×20×125 25×25×150 32×25×170 32×32×170 40×40×250	A439
Internal thread holder		16×125×12 16×150×16 16×150×20 20×150×25 20×180×25 25×150×32 32×200×40 32×250×40 40×300×50 50×350×63	A441
External thread holder (Thin Type)		16×16×100 32×25×170 20×20×125 32×32×170 25×25×150	A443
Internal thread holder (Thin Type)		16×150×20 32×200×40 20×180×25 32×250×40 25×150×32	A444

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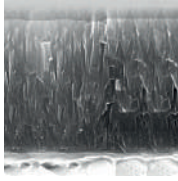


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A

Turning

## Threading

Grade	ISO	Micro structure	Grade description
<b>YBG201</b>	P10 - P30 M10 - M30		PVD coated P10-P30/M10-M30 carbide substrate for finishing to medium application of steel and stainless steel. Good wear resistance in a wide application field.
<b>YBG202</b>	P10 - P30 M10 - M25		PVD coated P10-P30/M10-M25 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
<b>YBG205</b>	P10 - P30 M20 - M40 S15-S25		PVD multilayer coated P10-P30/M20-M40/S15-S25 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (milling). Good wear resistance and thermal stability in a wide application field.

B

Milling

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Application fields of grades – Threading

	ISO	HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	Ceramic	HW	CBN	PCD
<b>P</b>	P01								
	P10		YBG205						
	P20		YBG201						
	P30		YBG202						
	P40								
<b>M</b>	M01								
	M10		YBG205						
	M20		YBG201						
	M30		YBG202						
	M40								
<b>K</b>	K01								
	K10								
	K20								
	K30								
<b>N</b>	N01								
	N10								
	N20								
	N30								
<b>S</b>	S01								
	S10		YBG205						
	S20		YBG201						
	S30		YBG202						
<b>H</b>	H01								
	H10								
	H20								
	H30								

<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron

<b>N</b>	Non-ferrous metals
<b>S</b>	Heat-resistant alloys
<b>H</b>	Hardened materials

HC <sup>1</sup>	Coated carbide
HT	Uncoated cermet
HC <sup>2</sup>	Coated cermet
HW	Uncoated carbide

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## R T 22. 01 W – 3.50 GM (P) (B)


1 2 3 4 5 6 7 8 9

A

Turning

Type	
Code	Description
R	Right
L	Left

1

Insert shape	
T 	Z Special

2

Insert size [mm]	
Code	I.C
11	6,35
16	9,252
22	12,70

3

B

Milling

Teeth per cutting edge	
Code	Description
01	1
02	2

4

Application	
Code	Description
W	External thread
N	Internal thread

5

Pitch		
Code	Pitch range (part profile)	
A	0,5 – 1,5 mm	48 – 16 (TPI)
AG	0,5 – 3,0 mm	48 – 8 (TPI)
G	1,75 – 3,0 mm	14 – 8 (TPI)
N	3,5 – 5,0 mm	7 – 5 (TPI)
	Pitch range [mm] (full profile)	
	0,50 0,75 1,00 1,25 1,50	
	1,75 2,00 2,50 3,00 3,50	
	4,00 4,50 5,00 5,50 6,00	
	Pitch range (TPI) (full profile)	
	4 5 6 8	
	10 11 11,5 12	
	14 16 18 19	
	20 24 27 28	

6

C

Drilling

D

Technical Information

Thread profile	
Code	Description
GM	ISO metric coarse thread 60°
60	Partial profile 60°
55	Partial profile 55°
W	Whitworth
UN	Unified conventional thread
BSPT	Whitworth taper pipe thread
NPT	American taper pipe thread
NPTF	Dryseal American taper pipe thread
R	Knuckle thread 30°
MJ	Thread for aerospace
UNJ	Unified screw thread
TR	Metrical ISO trapezoidal thread
AC	American national thread
STAC	STUB-ACME thread
AP	API 60° thread
RD	API round thread
BUT	American buttress thread

7

Chip breaker

8

Insert thickness [mm]	
Code	Description
B	Thin type

9

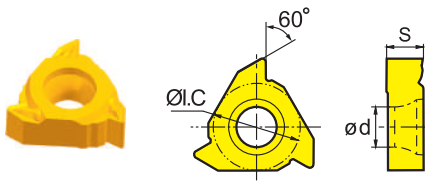
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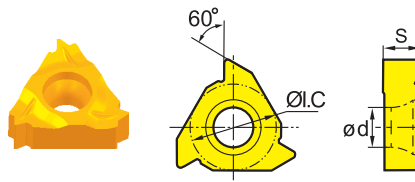
R/LT**N/W	I.C	S	d
<b>11</b>	6.35	3.18	2.8
<b>16</b>	9.525	3.97	4.4
<b>22</b>	12.7	5.56	5.5

**Threading inserts**

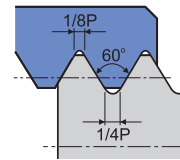
ISO metric coarse thread 60° full profile



External right hand  
Internal left hand



Internal right hand  
External left hand



ISO 965-1980 DIN 13  
GB-T 197-2003 Tolerance: 6g-6H

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)				
			YBG201	YBG205					YBG201	YBG205			
11	0.50	-						RT11.01N-0.50GM	○				
11		-						LT11.01N-0.50GM	○				
11	0.75	-						RT11.01N-0.75GM	●				
11		-						LT11.01N-0.75GM	○				
11	1.00	-						RT11.01N-1.00GM	○ ●				
11		-						LT11.01N-1.00GM	●				
11	1.25	-						RT11.01N-1.25GM	●				
11		-						LT11.01N-1.25GM	●				
11	1.50	-						RT11.01N-1.50GM	○ ●				
11		-						LT11.01N-1.50GM	●				
11	1.75	-						RT11.01N-1.75GM	○				
11		-						LT11.01N-1.75GM	●				
11	2.00	-						RT11.01N-2.00GM	○ ○				
11		-						LT11.01N-2.00GM	●				
16	0.50	-						RT16.01N-0.50GM	○				
16		-						LT16.01N-0.50GM	○				
16	0.75	-						RT16.01N-0.75GM	○				
16		-						LT16.01N-0.75GM	○				
16	1.00	RT16.01W-1.00GM	○ ●					RT16.01N-1.00GM	○				
16		LT16.01W-1.00GM	●					LT16.01N-1.00GM	●				
16	1.25	RT16.01W-1.25GM	○ ●					RT16.01N-1.25GM	○				
16		LT16.01W-1.25GM	●					LT16.01N-1.25GM	●				
16	1.50	RT16.01W-1.50GM	○ ●					RT16.01N-1.50GM	○ ●				
16		LT16.01W-1.50GM	●					LT16.01N-1.50GM	●				
16	1.75	RT16.01W-1.75GM	○ ●					RT16.01N-1.75GM	○				
16		LT16.01W-1.75GM	●					LT16.01N-1.75GM	●				
16	2.00	RT16.01W-2.00GM	○ ●					RT16.01N-2.00GM	○ ●				

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide



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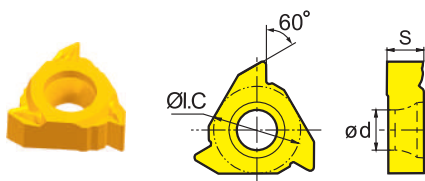
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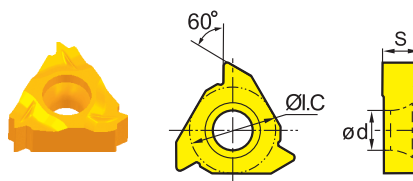
R/LT**N/W	I.C	S	d
<b>11</b>	6.35	3.18	2.8
<b>16</b>	9.525	3.97	4.4
<b>22</b>	12.7	5.56	5.5

## Threading inserts

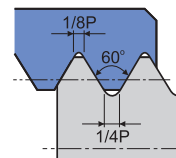
### ISO metric coarse thread 60° full profile



External right hand  
Internal left hand



Internal right hand  
External left hand



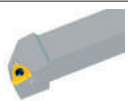

ISO 965-1980 DIN 13  
GB-T 197-2003 Tolerance: 6g-6H

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205					YBG201	YBG205				
16	2.00	LT16.01W-2.00GM	●					LT16.01N-2.00GM	●					
16	2.50	RT16.01W-2.50GM	○	●				RT16.01N-2.50GM	○	●				
16		LT16.01W-2.50GM	●					LT16.01N-2.50GM	●					
16	3.00	RT16.01W-3.00GM	○	●				RT16.01N-3.00GM	○	●				
16		LT16.01W-3.00GM	●					LT16.01N-3.00GM	●					
22	3.50	RT22.01W-3.50GM	○					RT22.01N-3.50GM	○	●				
22		LT22.01W-3.50GM	●					LT22.01N-3.50GM	●					
22	4.00	RT22.01W-4.00GM	○	●				RT22.01N-4.00GM	○	●				
22		LT22.01W-4.00GM	●					LT22.01N-4.00GM	●					
22	4.50	RT22.01W-4.50GM	○					RT22.01N-4.50GM	○	●				
22		LT22.01W-4.50GM	○					LT22.01N-4.50GM	●					
22	5.00	RT22.01W-5.00GM	○					RT22.01N-5.00GM	○					
22		LT22.01W-5.00GM	●					LT22.01N-5.00GM	●					
22	5.50	RT22.01W-5.50GM	○					RT22.01N-5.50GM	○					
22		LT22.01W-5.50GM	○					LT22.01N-5.50GM	●					
22	6.00	RT22.01W-6.00GM	○	●				RT22.01N-6.00GM	○	●				
22		LT22.01W-6.00GM	●					LT22.01N-6.00GM	●					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

### Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

System code > A412

Grade selection > A411

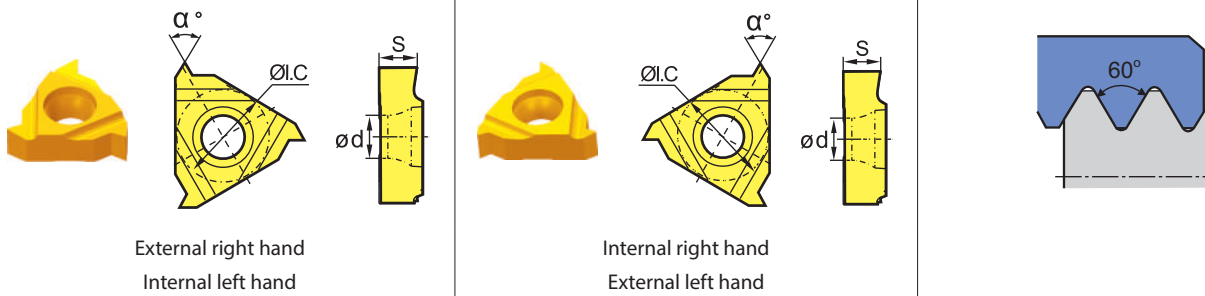
Technical info > A447

Cutting data > A446

Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4
<b>22</b>	12.7	5.56	5.5

ISO metric coarse thread 60° partial profile





ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205					YBG201	YBG205				
16	0.50 - 1.50	RT16.01W-A60	○	●				RT16.01N-A60	○					
16		LT16.01W-A60	●					LT16.01N-A60	●					
16	0.50 - 3.00	RT16.01W-AG60	○	●				RT16.01N-AG60	○					
16		LT16.01W-AG60	●					LT16.01N-AG60	●	○				
16	1.75 - 3.00	RT16.01W-G60	○					RT16.01N-G60	○					
16		LT16.01W-G60	●					LT16.01N-G60	○					
16		RT16.01W-G60P*	○	○				RT16.01N-G60P*	○					
16		LT16.01W-G60P*	●					LT16.01N-G60P*	○					
22	3.50 - 5.00	RT22.01W-N60P*	○	●				RT22.01N-N60P*	○	●				
22		LT22.01W-N60P*	○					LT22.01N-N60P*	○					

● Ex stock ○ On demand  
P\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

A

Turning

B

Milling

C

Drilling

D

Technical Information

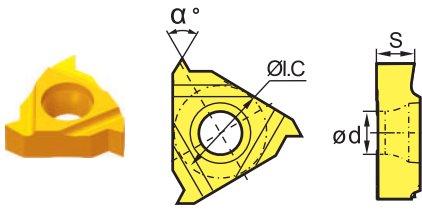
E

Index

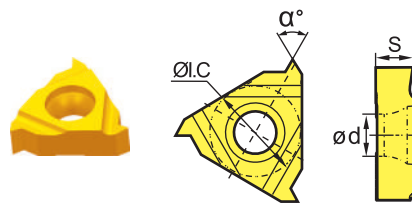
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4
22	12.7	5.56	5.5

## Threading inserts

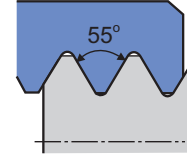
### ISO metric coarse thread 55° partial profile



External right hand  
Internal left hand



Internal right hand  
External left hand





ISO	Pitch (T.Pi)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205						YBG201	YBG205			
16	0.50 - 1.50	RT16.01W-A55	○					RT16.01N-A55	○					
16		LT16.01W-A55	●					LT16.01N-A55	○					
16	0.50 - 3.00	RT16.01W-AG55	○	●				RT16.01N-AG55	○	●				
16		LT16.01W-AG55	○					LT16.01N-AG55	●					
16	1.75 - 3.00	RT16.01W-G55	○					RT16.01N-G55	○					
16		LT16.01W-G55	●					LT16.01N-G55	○					
16		RT16.01W-G55P*	○					RT16.01N-G55P*	○					
16		LT16.01W-G55P*	●					LT16.01N-G55P*	●					
22	3.50 - 5.00	RT22.01W-N55P*	○					RT22.01N-N55P*	○					

● Ex stock ○ On demand  
P\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

### Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

System code > A412

Grade selection > A411

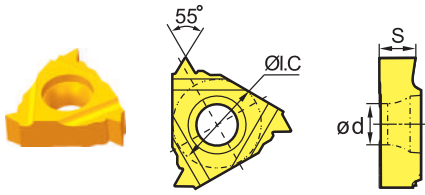
Technical info > A447

Cutting data > A446

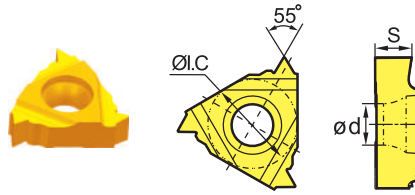
Threading inserts

R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

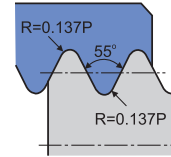
Whitworth



External right hand  
Internal left hand



Internal right hand  
External left hand





ISO 228-1:1982 DIN 259  
B.S.84: 1956 Tolerance: Medium Class 1

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205					YBG201	YBG205				
16	8.00	RT16.01W-8W	○					RT16.01N-8W	○					
16		LT16.01W-8W	●					LT16.01N-8W	●					
16	9.00	-						RT16.01N-9W	○					
16		LT16.01W-9W	○					LT16.01N-9W	○					
16	10.00	RT16.01W-10W	○					RT16.01N-10W	○					
16		LT16.01W-10W	○					LT16.01N-10W	○					
16	11.00	RT16.01W-11W	○ ●					RT16.01N-11W	○ ●					
16		LT16.01W-11W	●					LT16.01N-11W	○					
16	12.00	RT16.01W-12W	○					RT16.01N-12W	○					
16		LT16.01W-12W	○					LT16.01N-12W	○					
16	14.00	RT16.01W-14W	○ ●					RT16.01N-14W	○ ●					
16		-						LT16.01N-14W	○					
16	16.00	RT16.01W-16W	○ ●					RT16.01N-16W	○ ●					
16		LT16.01W-16W	○					LT16.01N-16W	○					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

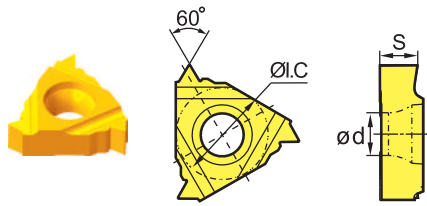
A

## Threading inserts

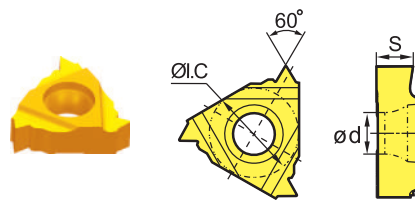
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

Turning

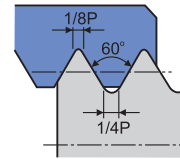
### UN unified conventional thread 60° full profile



External right hand  
Internal left hand



Internal right hand  
External left hand



AS/E B1.1-1989  
Tolerance: 2A-2B

B

Milling

ISO	Pitch (T.Pi)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	8.00	RT16.01W-8UN	○				RT16.01N-8UN	○			
16		LT16.01W-8UN	○				LT16.01N-8UN	○			
16	10.00	RT16.01W-10UN	○				RT16.01N-10UN	○			
16		LT16.01W-10UN	○				LT16.01N-10UN	○			
16	12.00	RT16.01W-12UN	○				RT16.01N-12UN	○			
16		LT16.01W-12UN	○				LT16.01N-12UN	○			
16	14.00	RT16.01W-14UN	○				RT16.01N-14UN	○			
16		LT16.01W-14UN	○				LT16.01N-14UN	○			
16	16.00	RT16.01W-16UN	○				RT16.01N-16UN	○			
16		LT16.01W-16UN	○				LT16.01N-16UN	○			
16	18.00	RT16.01W-18UN	○				RT16.01N-18UN	○			
16		LT16.01W-18UN	○				LT16.01N-18UN	○			
16	20.00	RT16.01W-20UN	○				RT16.01N-20UN	○			
16		LT16.01W-20UN	○				LT16.01N-20UN	○			
16	24.00	-					RT16.01N-24UN	○			
16		-					LT16.01N-24UN	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

C

Drilling

D

Technical Information

### Tool holders

SWR/L	SNR/L
A439-A440	A441-A442

E

Index

System code > A412

Grade selection > A411

Technical info > A447

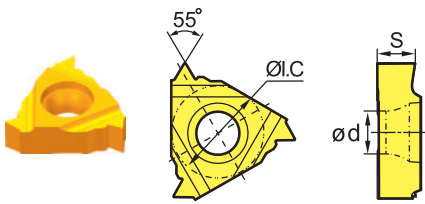
Cutting data > A446



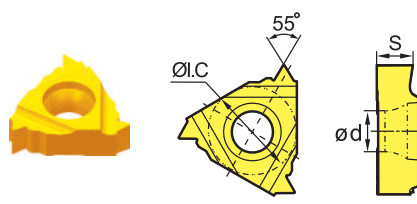
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4

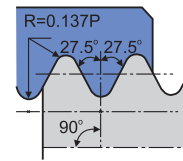
BSPT Whitworth taper pipe thread



External right hand  
Internal left hand



Internal right hand  
External left hand





ISO 7-1: 1984 B.S.21:1985  
Standard BSPT

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	11.00	RT16.01W-11BSPT	○				RT16.01N-11BSPT	○			
16		LT16.01W-11BSPT	●				LT16.01N-11BSPT	○			
16	14.00	RT16.01W-14BSPT	○				RT16.01N-14BSPT	○			
16		LT16.01W-14BSPT	○				LT16.01N-14BSPT	○			
16	19.00	RT16.01W-19BSPT	○				RT16.01N-19BSPT	○			
16		LT16.01W-19BSPT	○				LT16.01N-19BSPT	○			
16	28.00	RT16.01W-28BSPT	○				RT16.01N-28BSPT	○			
16		LT16.01W-28BSPT	○				LT16.01N-28BSPT	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

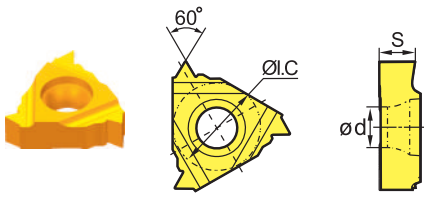
**A**

## Threading inserts

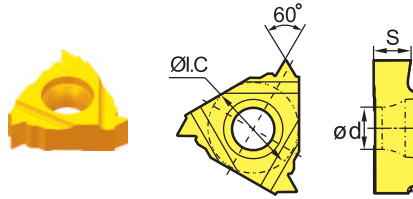
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

Turning

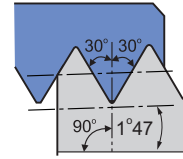
### NPT American taper pipe thread



External right hand  
Internal left hand



Internal right hand  
External left hand



ASME B1.20.1-1983  
Standard NPT

**B**

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	8.00	RT16.01W-8NPT	○				RT16.01N-8NPT	○			
16		LT16.01W-8NPT	○				LT16.01N-8NPT	○			
16	11.50	RT16.01W-11.5NPT	○				RT16.01N-11.5NPT	○			
16		LT16.01W-11.5NPT	○				LT16.01N-11.5NPT	○			
16	14.00	RT16.01W-14NPT	○	○			RT16.01N-14NPT	○			
16		LT16.01W-14NPT	○				LT16.01N-14NPT	○			
16	18.00	RT16.01W-18NPT	○				RT16.01N-18NPT	○			
16		LT16.01W-18NPT	○				LT16.01N-18NPT	○			
16	27.00	RT16.01W-27NPT	○				RT16.01N-27NPT	○			
16		LT16.01W-27NPT	○				LT16.01N-27NPT	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide



**C**

Drilling

**D**

Technical Information

### Tool holders

SWR/L	SNR/L
	
A439-A440	A441-A442

**E**

Index

System code > A412

Grade selection > A411

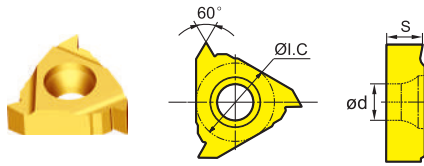
Technical info > A447

Cutting data > A446

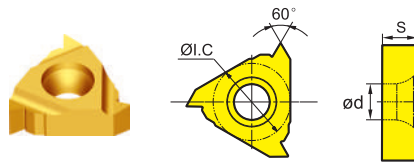
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4

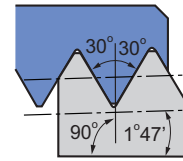
NPTF dryseal American taper pipe thread 60°



External right hand  
Internal left hand



Internal right hand  
External left hand





ASME B1.20.1-1983  
Tolerance: 2

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205				YBG201	YBG205				
16	8.00	-					RT16.01N-8NPTF	○					
16	11.50	RT16.01W-11.5NPTF	○				RT16.01N-11.5NPTF	○					
16	14.00	RT16.01W-14NPTF	○				RT16.01N-14NPTF	○					
16	18.00	RT16.01W-18NPTF	○				RT16.01N-18NPTF	○					
16	27.00	-					RT16.01N-27NPTF	○					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
A439	A441

System code > A412

Grade selection > A411

Technical info > A447

Cutting data > A446

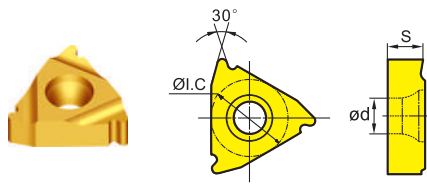
**A**

## Threading inserts

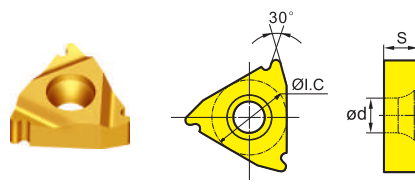
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

Turning

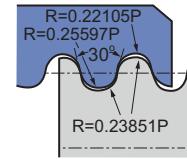
### R knuckle thread 30°



External right hand  
Internal left hand



Internal right hand  
External left hand



DIN 405  
Tolerance: 7

**B**

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	6.00	RT16.01W-6R	○				RT16.01N-6R	○	○		
16	8.00	RT16.01W-8R	○				RT16.01N-8R	○	○		
16	10.00	RT16.01W-10R	○				RT16.01N-10R	○	○		



● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

**C**

Drilling

### Tool holders

SWR/L	SNR/L
	
A439	A441

**D**

Technical Information

**E**

Index

System code > A412

Grade selection > A411

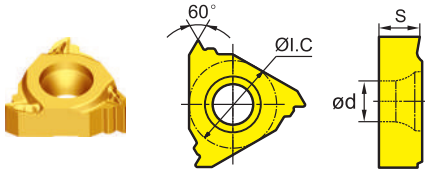
Technical info > A447

Cutting data > A446

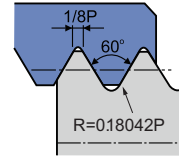
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4

MJ thread for aerospace



External right hand  
Internal left hand



ISO 5855-1999  
Tolerance: 4

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)						Internal	HC <sup>1</sup> (PVD)								
			YBG201	YBG205														
16	1.50	<b>RT16.01W-1.50MJ</b>	○															

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L



A439

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

System code > A412

Grade selection > A411

Technical info > A447

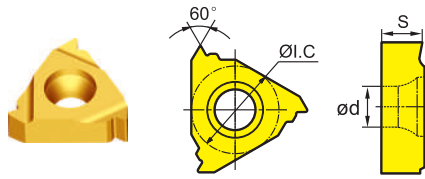
Cutting data > A446

**A**

## Threading inserts

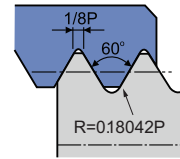
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

Turning



External right hand  
Internal left hand

### UNJ unified screw thread



ISO 3161-1999  
Tolerance: 3A

**B**

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205						YBG201	YBG205			
16	10.00	RT16.01W-10UNJ	○					-						
16	12.00	RT16.01W-12UNJ	○					-						
16	14.00	RT16.01W-14UNJ	○					-						
16	16.00	RT16.01W-16UNJ	○					-						
16	18.00	RT16.01W-18UNJ	○					-						
16	20.00	RT16.01W-20UNJ	○					-						
16	24.00	RT16.01W-24UNJ	○					-						
16	28.00	RT16.01W-28UNJ	○					-						
16	32.00	RT16.01W-32UNJ	○					-						

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

**C**

Drilling

### Tool holders

SWR/L

**D**

Technical Information



A439

**E**

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System code > A412

Grade selection > A411

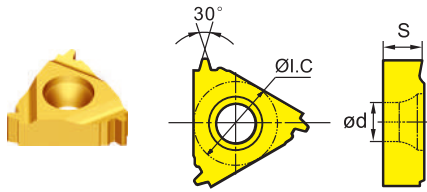
Technical info > A447

Cutting data > A446

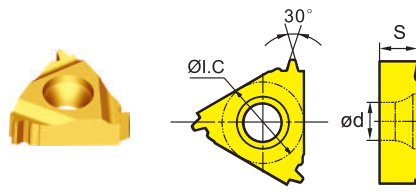
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4

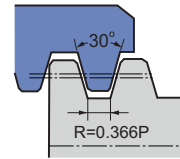
TR metrical ISO trapezoidal thread 30°



External right hand  
Internal left hand



Internal right hand  
External left hand





ISO 2901-2904  
Tolerance: 7

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	1.50	RT16.01W-1.50TR	○				●				
16	2.00	RT16.01W-2.00TR	○ ○				○ ○				
16	3.00	RT16.01W-3.00TR	○ ○				○ ●				

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
A439	A441

A

Turning

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Milling

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System code > A412

Grade selection > A411

Technical info > A447

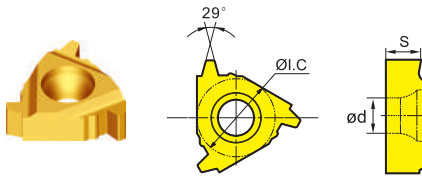
Cutting data > A446



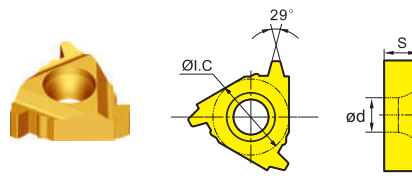
R/LT**N/W	I.C	S	d
16	9.525	3.97	4.4

## Threading inserts

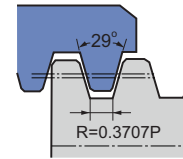
ACME American national thread 29°



External right hand  
Internal left hand



Internal right hand  
External left hand




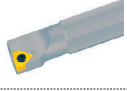
ANSI B1.5-1988  
Tolerance: 2G

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	8.00	RT16.01W-8AC	○				RT16.01N-8AC	○			
16	10.00	RT16.01W-10AC	○				RT16.01N-10AC	○			
16	12.00	RT16.01W-12AC	○				RT16.01N-12AC	○			
16	14.00	RT16.01W-14AC	○				RT16.01N-14AC	○			
16	16.00	RT16.01W-16AC	○				RT16.01N-16AC	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

### Tool holders

SWR/L	SNR/L
	
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System code > A412

Grade selection > A411

Technical info > A447

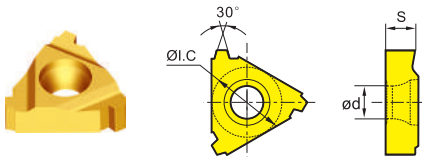
Cutting data > A446



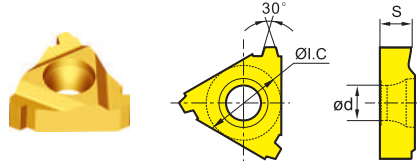
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4

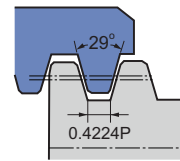
STUB-ACME thread



External right hand  
Internal left hand



Internal right hand  
External left hand





ANSI B1.8-1988  
Tolerance: API Standard

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
16	8.00	RT16.01W-8STAC	○				RT16.01N-8STAC	○			
16	10.00	RT16.01W-10STAC	○				RT16.01N-10STAC	○			
16	12.00	RT16.01W-12STAC	○				RT16.01N-12STAC	○			
16	14.00	RT16.01W-14STAC	○				RT16.01N-14STAC	○			
16	16.00	RT16.01W-16STAC	○				RT16.01N-16STAC	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
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Technical info > A447

Cutting data > A446

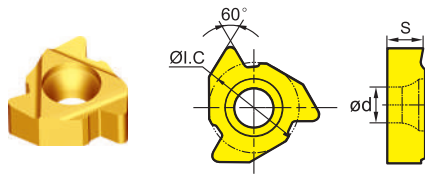
**A**

## Threading inserts

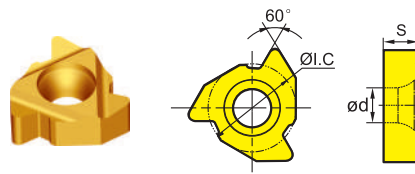
R/LT**N/W	I.C	S	d
<b>22</b>	12.7	5.56	5.5

Turning

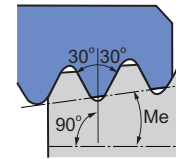
### API 60° thread



External right hand  
Internal left hand



Internal right hand  
External left hand



Me = taper, 2i.p.f-4°46', 3i.p.f-7°01'  
API SPEC7:1990 Tolerance: API Standard

**B**

Milling



ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG201	YBG205				YBG201	YBG205		
22	4.00	RT22.01W-4AP382	○				RT22.01N-4AP382	○			
22		RT22.01W-4AP383	○				RT22.01N-4AP383	○			
22		RT22.01W-4AP502	○				RT22.01N-4AP502	○			
22		RT22.01W-4AP503	○				RT22.01N-4AP503	○			
22	5.00	RT22.01W-5AP403	○				RT22.01N-5AP403	○			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

**C**

Drilling

Tool holders	
SWR/L	SNR/L
	
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**D**

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**E**

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System code > A412

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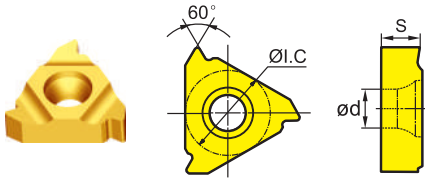
Technical info > A447

Cutting data > A446

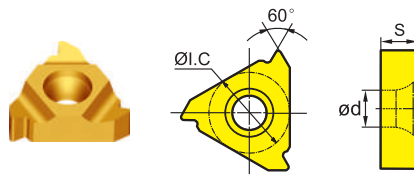
Threading inserts

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.97	4.4
<b>22</b>	12.7	5.56	5.5

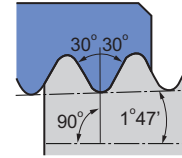
API round thread



External right hand  
Internal left hand



Internal right hand  
External left hand





API spec.5B  
Tolerance: API RD

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG201	YBG205					YBG201	YBG205				
16	8.00	RT16.01W-8RD	○					RT16.01N-8RD	○					
16	10.00	RT16.01W-10RD	○					RT16.01N-10RD	○					
22	8.00	RT22.01W-8RD	○					RT22.01N-8RD	○					
22	10.00	RT22.01W-10RD	○					RT22.01N-10RD	○					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

Tool holders

SWR/L	SNR/L
	
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Grade selection > A411

Technical info > A447

Cutting data > A446

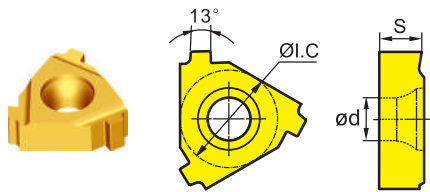
**A**

## Threading inserts

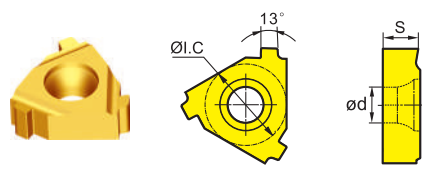
R/LT**N/W	I.C	S	d
<b>22</b>	12.7	5.56	5.5

Turning

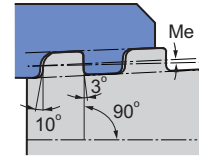
### API American buttress thread



External right hand  
Internal left hand



Internal right hand  
External left hand



Me=taper 3/4i.p.f-1°47'-1°47' for Ø 4 1/2-13 3/8"  
1 i.p.f--2°23' for Ø16" SEPC.5B.1979 Tol.: API Std.

**B**

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)		Internal	HC <sup>1</sup> (PVD)	
			YBG201	YBG205		YBG201	YBG205
22	5.00	RT22.01W-5BUT	○		RT22.01N-5BUT	○	

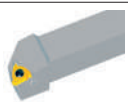

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

**C**

Drilling

### Tool holders

SWR/L	SNR/L
	
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**D**

Technical Information

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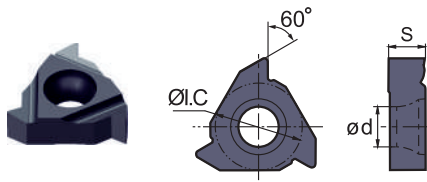
Technical info > A447

Cutting data > A446

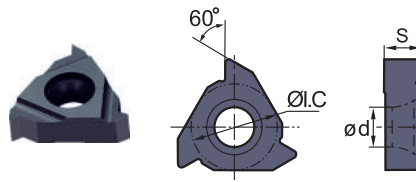
Threading inserts (thin type)

R/LT**N/W	I.C	S	d
16	9.525	3.52	4

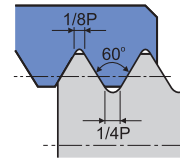
ISO metric coarse thread 60° full profile (thin type)



External right hand  
Internal left hand



Internal right hand  
External left hand



ISO 965-1980 DIN 13  
GB-T 197-2003 Tolerance: 6g/6H

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG202	YBG205				YBG202	YBG205		
16	0,50	RT16.01W-0.50GMB	●				RT16.01N-0.50GMB	●			
16	0,75	RT16.01W-0.75GMB	●				RT16.01N-0.75GMB	●			
16	1,00	RT16.01W-1.00GMB	●	○			RT16.01N-1.00GMB	●	●		
16		RT16.01W-1.00GMPB*	●	●			RT16.01N-1.00GMPB*	●	●		
16	1,25	RT16.01W-1.25GMB	●	●			RT16.01N-1.25GMB	●	●		
16		RT16.01W-1.25GMPB*	●	●			RT16.01N-1.25GMPB*	●	●		
16	1,50	RT16.01W-1.50GMB	●	○			RT16.01N-1.50GMB	●	●		
16		RT16.01W-1.50GMPB*	●	●			RT16.01N-1.50GMPB*	●	●		
16	1,75	RT16.01W-1.75GMB	●	●			RT16.01N-1.75GMB	●	●		
16		RT16.01W-1.75GMPB*	●	●			RT16.01N-1.75GMPB*	●	●		
16	2,00	RT16.01W-2.00GMB	●	○			RT16.01N-2.00GMB	●	●		
16		RT16.01W-2.00GMPB*	●	●			RT16.01N-2.00GMPB*	●	●		
16	2,50	RT16.01W-2.50GMB	●	○			RT16.01N-2.50GMB	●	●		
16		RT16.01W-2.50GMPB*	●	●			RT16.01N-2.50GMPB*	●	●		
16	3,00	RT16.01W-3.00GMB	●	○			RT16.01N-3.00GMB	●	○		
16		RT16.01W-3.00GMPB*	●	●			RT16.01N-3.00GMPB*	●	○		

● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

Tool holders

SWR	SNR
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Grade selection > A411

Technical info > A447

Cutting data > A446



A

Turning

B

Milling

C

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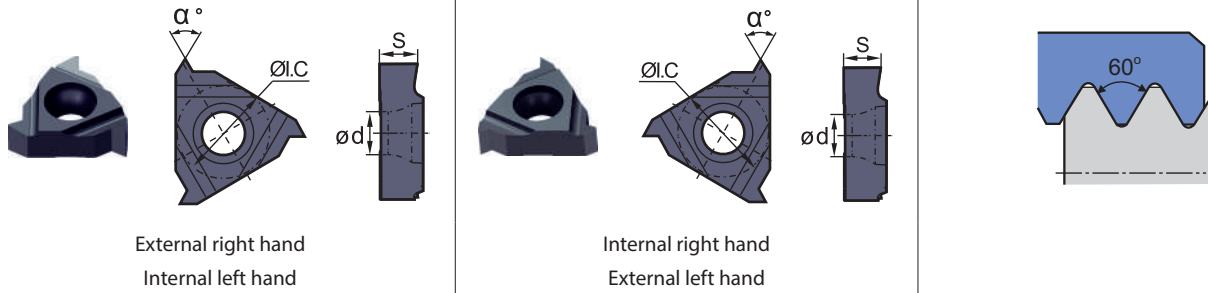
**A**

## Threading inserts (thin type)

R/LT**N/W	I.C	S	d
16	9.525	3.52	4

Turning

### ISO metric coarse thread 60° partial profile (thin type)



**B**

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)						Internal	HC <sup>1</sup> (PVD)							
			YBG202	YBG205						YBG202	YBG205						
16	0.50 - 1.50	RT16.01W-A60B	●						RT16.01N-A60B	●							
16	0.50 - 3.00	RT16.01W-AG60B	●						RT16.01N-AG60B	●							
16		RT16.01W-AG60PB*	● ●						-								
16	1.75 - 3.00	RT16.01W-G60B	● ○						RT16.01N-G60B	●							

● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

**C**

Drilling

Tool holders	
SWR	SNR
A443	A444

**D**

Technical Information

**E**

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System code > A412

Grade selection > A411

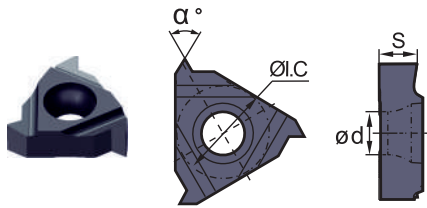
Technical info > A447

Cutting data > A446

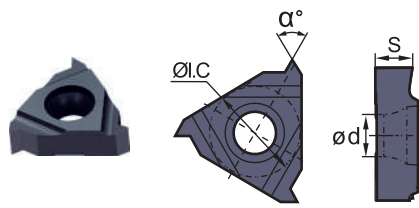
Threading inserts (thin type)

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.52	4

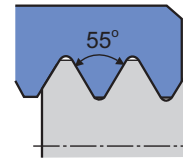
ISO metric coarse thread 55° partial profile (thin type)



External right hand  
Internal left hand



Internal right hand  
External left hand





ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG202	YBG205						YBG202	YBG205			
16	0.50 - 1.50	RT16.01W-A55B	●						○					
16	0.50 - 3.00	RT16.01W-AG55B	●						○					
16		RT16.01W-AG55PB*	●	○										
16	1.75 - 3.00	RT16.01W-G55B	●						●					

● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

Tool holders

SWR	SNR
	
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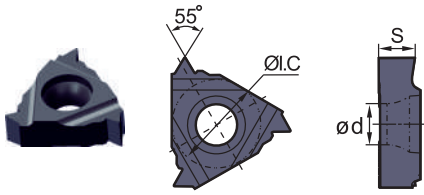
A

## Threading inserts (thin type)

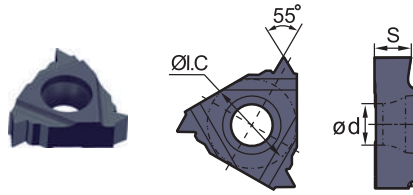
R/LT**N/W	I.C	S	d
16	9.525	3.52	4

Turning

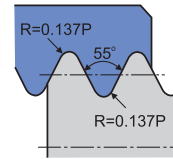
### Whitworth (thin type)



External right hand  
Internal left hand



Internal right hand  
External left hand



ISO 965-1980 DIN 13  
GB-T 197-2003 Tolerance: Medium Class A

B

Milling

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG202	YBG205					YBG202	YBG205				
16	8.00	RT16.01W-8WB	○					RT16.01N-8WB	○					
16	9.00	RT16.01W-9WB	●					RT16.01N-9WB	○					
16	10.00	RT16.01W-10WB	○					RT16.01N-10WB	●					
16	11.00	RT16.01W-11WB	●	○				RT16.01N-11WB	●					
16		-						RT16.01N-11WPB*	●	●				
16	12.00	RT16.01W-12WB	●					RT16.01N-12WB	●					
16	14.00	RT16.01W-14WB	●					RT16.01N-14WB	○					
16		-						RT16.01N-14WPB*	●	●				
16	16.00	RT16.01W-16WB	○					RT16.01N-16WB	○	○				



● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

C

Drilling

### Tool holders

SWR	SNR
	
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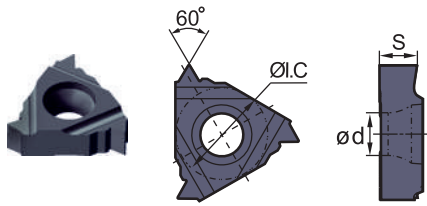
Cutting data > A446



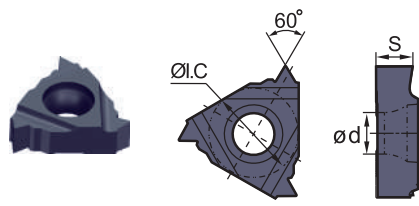
**Threading inserts (thin type)**

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.52	4

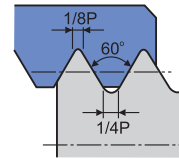
**UN unified conventional thread 60° full profile (thin type)**



External right hand  
Internal left hand



Internal right hand  
External left hand





ASME B1.1-1989  
Tolerance: 2A/2B

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)					Internal	HC <sup>1</sup> (PVD)					
			YBG202	YBG205					YBG202	YBG205				
16	8.00	<b>RT16.01W-8UNB</b>	●					<b>RT16.01N-8UNB</b>	●					
16	10.00	<b>RT16.01W-10UNB</b>	●					<b>RT16.01N-10UNB</b>	●					
16	12.00	<b>RT16.01W-12UNB</b>	●					<b>RT16.01N-12UNB</b>	●					
16	14.00	<b>RT16.01W-14UNB</b>	●					<b>RT16.01N-14UNB</b>	○					
16	16.00	<b>RT16.01W-16UNB</b>	●					<b>RT16.01N-16UNB</b>	●					
16	18.00	<b>RT16.01W-18UNB</b>	○					<b>RT16.01N-18UNB</b>	○					
16	20.00	<b>RT16.01W-20UNB</b>	●					<b>RT16.01N-20UNB</b>	●					
16	24.00	-						<b>RT16.01N-24UNB</b>	○					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide

**Tool holders**

SWR	SNR
	
A443	A444

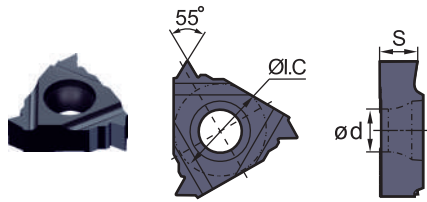
A

## Threading inserts (thin type)

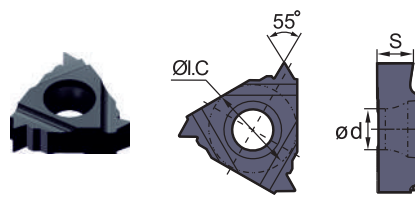
R/LT**N/W	I.C	S	d
16	9.525	3.52	4

Turning

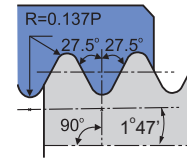
### BSPT Whitworth taper pipe thread (thin type)



External right hand  
Internal left hand



Internal right hand  
External left hand



ASME B1.1-1989  
Standard BSPT

B

Milling

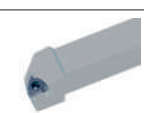

ISO	Pitch (T.Pi)	External	HC <sup>1</sup> (PVD)						Internal	HC <sup>1</sup> (PVD)							
			YBG202	YBG205						YBG202	YBG205						
16	11.00	RT16.01W-11BSPTB	●	○					RT16.01N-11BSPTB	○	○						
16	14.00	RT16.01W-14BSPTB	●						RT16.01N-14BSPTB	○							
16		RT16.01W-14BSPTPB*	●						RT16.01N-14BSPTPB*	○	●						
16	19.00	RT16.01W-19BSPTB	●						RT16.01N-19BSPTB	○							
16	28.00	RT16.01W-28BSPTB	○						RT16.01N-28BSPTB	○							

● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

C

Drilling

Tool holders	
SWR	SNR
	
A443	A444

D

Technical Information

E

Index

System code > A412

Grade selection > A411

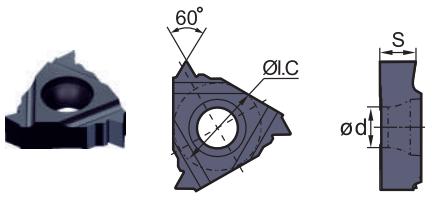
Technical info > A447

Cutting data > A446

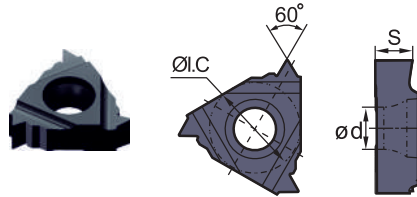
**Threading inserts (thin type)**

R/LT**N/W	I.C	S	d
<b>16</b>	9.525	3.52	4

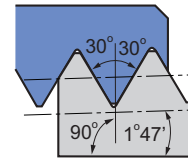
**NPT American taper pipe thread (thin type)**



External right hand  
Internal left hand



Internal right hand  
External left hand



ASME B1.20.1-1983  
Standard NPT

ISO	Pitch (T.P.i)	External	HC <sup>1</sup> (PVD)				Internal	HC <sup>1</sup> (PVD)			
			YBG202	YBG205				YBG202	YBG205		
16	8.00	RT16.01W-8NPTB	○				RT16.01N-8NPTB	○			
16	11.50	RT16.01W-11.5NPTB	○				RT16.01N-11.5NPTB	●			
16		-					RT16.01N-11.5NPTPB*	○ ●			
16	14.00	RT16.01W-14NPTB	○ ●				RT16.01N-14NPTB	○			
16		-					RT16.01N-14NPTPB*	○ ●			
16	18.00	RT16.01W-18NPTB	●				RT16.01N-18NPTB	○			
16	27.00	RT16.01W-27NPTB	○				RT16.01N-27NPTB	○			

● Ex stock ○ On demand  
PB\*: Inserts with chip-breakers

HC<sup>1</sup> Coated carbide

**Tool holders**

SWR	SNR
A443	A444

**S W R 20 20 K 16 (B)**

1

2

3

4



5

6

7

8

### Clamping system

Code	Description
S	Screw clamping 
C	Top clamping 

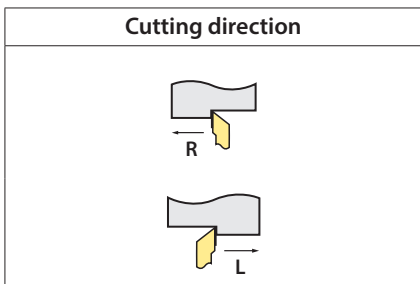
1

### Application

Code	Description
W	External thread tool holder
N	Internal thread tool holder

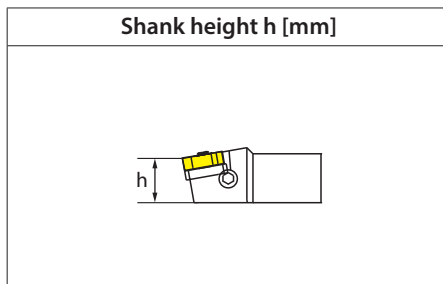
2

### Cutting direction



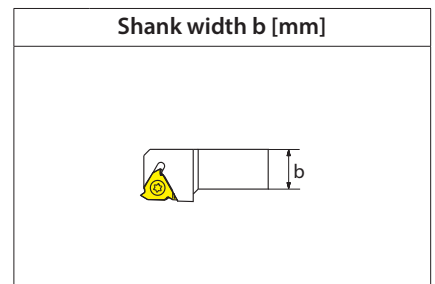
3

### Shank height h [mm]



4

### Shank width b [mm]



5

### Shank length L [mm]

Code	L
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

6

### Insert size [mm]

Code	Height
11	6,35
16	9,525
22	12,7

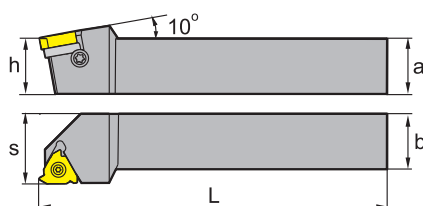
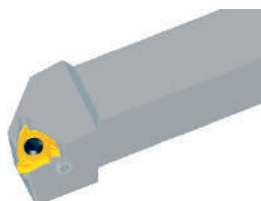
7

Holder for thin thread inserts  
(B type)

8

### Threading tool holder (external)

SWR/L




Article	*	Stock	Dimensions [mm]					Inserts
			a	b	L	h	s	
SWR1616H16		●	16	16	100	16	20	RT16.01W-****
SWR2020K16		●	20	20	125	20	25	RT16.01W-****
SWR2525M16		●	25	25	150	25	32	RT16.01W-****
SWR3225P16		●	32	25	170	32	32	RT16.01W-****
SWR3232P16		●	32	32	170	32	40	RT16.01W-****
SWR2525M22		●	25	25	150	25	32	RT22.01W-****
SWR3225P22		●	32	25	170	32	32	RT22.01W-****
SWR3232P22		●	32	32	170	32	40	RT22.01W-****
SWR4040S22		○	40	40	250	40	50	RT22.01W-****

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	RT16.01W-****	RT22.01W-****
	h	16-32	25-40
	Screw	I60M3.5x12 (2.7 Nm)	I60M5x17 (6.7 Nm)
	Screw (shim)	SM4x8C	SM5x8.5C
	Shim	MT16-__M	MT22-__M
	Wrench (screw)	WT15IP	WT20IP

Insert



Medium Cut  
A413

System code > A438

Grade selection > A411

Technical info > A447

Cutting data > A446



A

Turning

B

Milling

C

Drilling

D

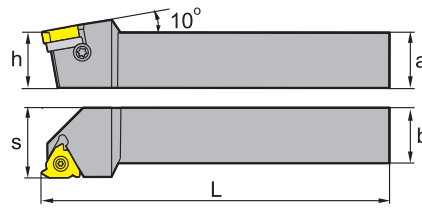
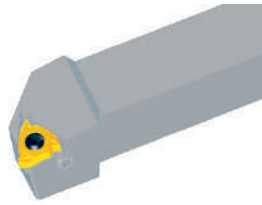
Technical Information

E

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### Threading tool holder (external)

SWR/L



Article	*	Stock	Dimensions [mm]					Inserts
			a	b	L	h	s	
SWL1616H16		●	16	16	100	16	20	LT16.01W-****
SWL2020K16		●	20	20	125	20	25	LT16.01W-****
SWL2525M16		●	25	25	150	25	32	LT16.01W-****
SWL3225P16		●	32	25	170	32	32	LT16.01W-****
SWL3232P16		○	32	32	170	32	40	LT16.01W-****
SWL2525M22		●	25	25	150	25	32	LT22.01W-****
SWL3225P22		○	32	25	170	32	32	LT22.01W-****
SWL3232P22		●	32	32	170	32	40	LT22.01W-****
SWL4040S22		○	40	40	250	40	50	LT22.01W-****

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	LT16.01W-****	LT22.01W-****
	h	16-32	25-40
	Screw	I60M3.5x12 (2.7 Nm)	I60M5x17 (6.7 Nm)
	Screw (shim)	SM4x8C	SM5x8.5C
	Shim	MT16-__M	MT22-__M
	Wrench (screw)	WT15IP	WT20IP

Insert
Medium Cut
A413

System code > A438

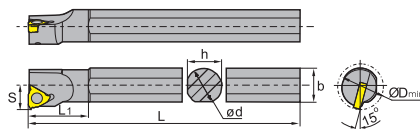
Grade selection > A411

Technical info > A447

Cutting data > A446

### Threading tool holder (internal)

SNR/L



Article	* Stock	Dimensions [mm]								Inserts
		ød	b	L	h	s	L <sub>1</sub>	D <sub>min</sub>		
SNR0016K11	●	16	16	125	15	10	20.9	12	RT11.01N-****	
SNR0016M11	●	16	15.5	150	15	10.5	25.9	16	RT11.01N-****	
SNR0016M16	●	16	15.5	150	15	12	27	20	RT16.01N-****	
SNR0020M16	●	20	19	150	18	14	28.7	25	RT16.01N-****	
SNR0020Q16	●	20	19	180	18	14	34	25	RT16.01N-****	
SNR0025M16	●	25	24	150	23	17	28.8	32	RT16.01N-****	
SNR0032R16	●	32	31	200	30	22	30.9	40	RT16.01N-****	
SNR0032S16	●	32	31	250	30	22	30.9	40	RT16.01N-****	
SNR0040T16	●	40	38.5	300	37	27	31.5	50	RT16.01N-****	
SNR0050U16	○	50	49.5	350	49	35	40.2	63	RT16.01N-****	
SNR0020Q22	●	20	21.5	180	18	15	35	25	RT22.01N-****	
SNR0025R22	●	25	24	200	23	19	39	32	RT22.01N-****	
SNR0032S22	●	32	31	250	30	22	36.4	40	RT22.01N-****	
SNR0040T22	●	40	38.5	300	37	27	37.2	50	RT22.01N-****	
SNR0050U22	●	50	48.5	350	47	35	42.6	63	RT22.01N-****	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts						
	Insert	RT11.01N-****	RT16.01N-****	RT16.01N-****	RT22.01N-****	RT22.01N-****
	ød	16	16	20-50	20	25-50
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x12 (2.7 Nm)	I60M5*10 (6.7 Nm)	I60M5x17 (6.7 Nm)
	Screw (shim)			SM4x8C		SM5x8.5C
	Shim			MT16-__M		MT22-__M
	Wrench (screw)	WT07IP	WT15IP	WT15IP	WT20IP	WT20IP

Insert



Medium Cut

A413

System code > A438

Grade selection > A411

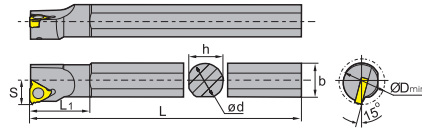
Technical info > A447

Cutting data > A446



### Threading tool holder (internal)

SNR/L




Article	*	Stock	Dimensions [mm]							Inserts
			ød	b	L	h	s	L <sub>1</sub>	D <sub>min</sub>	
SNL0016K11		●	16	16	125	15	10	20.9	12	LT11.01N-****
SNL0016M11		●	16	15.5	150	15	10.5	25.9	16	LT11.01N-****
SNL0016M16		●	16	15.5	150	15	12	27	20	LT16.01N-****
SNL0020M16		○	20	19	150	18	14	28.7	25	LT16.01N-****
SNL0020Q16		●	20	19	180	18	14	34	25	LT16.01N-****
SNL0025M16		●	25	24	150	23	17	28.8	32	LT16.01N-****
SNL0032R16		●	32	31	200	30	22	30.9	40	LT16.01N-****
SNL0032S16		○	32	31	250	30	22	30.9	40	LT16.01N-****
SNL0040T16		●	40	38.5	300	37	27	31.5	50	LT16.01N-****
SNL0050U16		○	50	49.5	350	49	35	40.2	63	LT16.01N-****
SNL0020Q22		●	20	21.5	180	18	15	35	25	LT22.01N-****
SNL0025R22		○	25	24	200	23	19	39	32	LT22.01N-****
SNL0032S22		●	32	31	250	30	22	36.4	40	LT22.01N-****
SNL0040T22		●	40	38.5	300	37	27	37.2	50	LT22.01N-****
SNL0050U22		●	50	48.5	350	47	35	42.6	63	LT22.01N-****

● Ex stock    ○ On demand

\* With internal cooling

Spare parts						
	Insert	LT11.01N-****	LT16.01N-****	LT16.01N-****	LT22.01N-****	LT22.01N-****
	ød	16	16	20-50	20	25-50
	Screw	I60M2.5x6.5 (1.0 Nm)	I60M3.5x8 (2.7 Nm)	I60M3.5x12 (2.7 Nm)	I60M5*10 (6.7 Nm)	I60M5x17 (6.7 Nm)
	Screw (shim)			SM4x8C		SM5x8.5C
	Shim			MT16-__M		MT16-__M
	Wrench (screw)	WT07IP	WT15IP	WT15IP	WT20IP	WT20IP

Insert



**Medium Cut**  
A413

System code > A438

Grade selection > A411

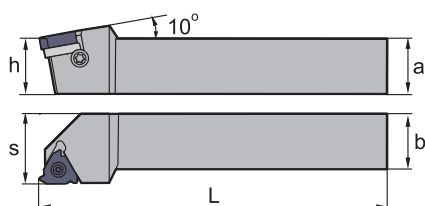
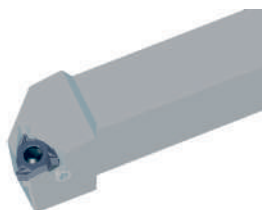
Technical info > A447

Cutting data > A446



### Threading tool holder (external)

#### SWR-B Thin Type



Article	*	Stock	Dimensions [mm]					Inserts
			a	b	L	h	s	
SWR1616H16B		●	16	16	100	16	20	RT16.01W-****B
SWR2020K16B		●	20	20	125	20	25	RT16.01W-****B
SWR2525M16B		●	25	25	150	25	32	RT16.01W-****B
SWR3225P16B		●	32	25	170	32	32	RT16.01W-****B
SWR3232P16B		●	32	32	170	32	40	RT16.01W-****B

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	Insert	RT16.01W-****B
	h	16-32
	Screw	I60M3.5x12TT (2.7 Nm)
	Screw (shim)	SM4x8C
	Shim	MT16-__M
	Wrench (screw)	WT15IP

Insert
<b>Medium Cut</b>
A432

System code > A438

Grade selection > A411

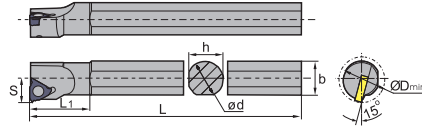
Technical info > A447

Cutting data > A446

A

### Threading tool holder (internal)

SNR-B Thin Type



Turning

B

Article	*	Stock	Dimensions [mm]							Inserts
			ød	b	L	h	s	L <sub>1</sub>	D <sub>min</sub>	
SNR0016M16B	●		16	15.5	150	15	12	27	20	RT16.01W-****B
SNR0020Q16B	●		20	19	180	18	14	34	25	RT16.01W-****B
SNR0025M16B	●		25	24	150	23	17	28.8	32	RT16.01W-****B
SNR0032R16B	●		32	31	200	30	22	30.9	40	RT16.01W-****B
SNR0032S16B	●		32	31	250	30	22	30.9	40	RT16.01W-****B

● Ex stock    ○ On demand

\* With internal cooling

Milling

C

Spare parts			
	Insert	RT16.01W-****B	RT16.01W-****B
	ød	16	20-32
	Screw	I60M3.5x08TT (2.7 Nm)	I60M3.5x12TT (2.7 Nm)
	Screw (shim)		SM4x8C
	Shim		MT16-__M
	Wrench (screw)	WT15IP	WT15IP

Drilling

D

Technical Information

E

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System code > A438

Grade selection > A411

Technical info > A447

Cutting data > A446

Notes

A series of horizontal dotted lines for taking notes.

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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## Threading inserts

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]			
						HC			
						YBG202	YBG205		
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	190	190		
		approx. 0,45 % C	annealed	190	2	175	175		
		approx. 0,45 % C	tempered	250	3	145	145		
		approx. 0,75 % C	annealed	270	4	140	140		
		approx. 0,75 % C	tempered	300	5	135	135		
	B Milling	Low-alloyed steel		annealed	180	6	170	170	
				tempered	275	7	125	125	
				tempered	300	8	115	115	
				tempered	350	9	105	105	
	C Drilling	High-alloyed steel and high-alloyed tool steel		annealed	200	10	125	125	
			hardened and tempered	325	11	95	95		
M Stainless steel		ferritic/martensitic	annealed	200	12	165	165		
		martensitic	tempered	240	13	135	135		
		austenitic	quench hardened	180	14	155	155		
		austenitic-ferritic		230	15	135	135		
K Cast iron with spheroidal graphite		Grey cast iron	perlitic/ferritic		180	16	240	240	
			perlitic (martensitic)		260	17	185	185	
		Cast iron with spheroidal graphite	ferritic		160	18	220	220	
			perlitic		250	19	165	165	
	Malleable cast iron	ferritic		130	20	175	175		
		perlitic		230	21	165	165		
D Technical Information	N Aluminium wrought alloys	cannot be hardened		60	22	800	800		
		hardenable	hardened	100	23	600	600		
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24	320	320		
		$\leq 12\%$ Si, hardenable	hardened	90	25	240	240		
		$> 12\%$ Si, cannot be hardened		130	26	160	160		
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27	160	160	
		CuZn, CuSnZn			90	28	600	600	
		CuSn, Pb-free copper, electrolytic copper			100	29	200	200	
E Index	S Heat-resistant alloys	Fe-based alloys	annealed	200	30	95	95		
			hardened	280	31	50	50		
		Ni or Co bass	annealed	250	32	80	80		
			hardened	350	33	70	70		
			cast	320	34	70	70		
	Titanium alloys	pure titanium		R <sub>m</sub> 400	35	145	145		
$\alpha$ and $\beta$ alloys		hardened	R <sub>m</sub> 1050	36	50	50			
H Hardened steel		hardened and tempered	55 HRC	37					
		hardened and tempered	60 HRC	38					
	Hard cast iron	cast	400	39					
X Non-metallic materials		hardened and tempered	55 HRC	40					
	Non-metallic materials	Thermoplasts			41				
		Thermosetting plastics			42				
		Plastic, glass-fibre reinforced GFRP			43				
		Plastic, carbon fibre reinforced CFRP			44				
		Graphite			45				
Wood			46						

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. For examples of material for cutting tool groups view page D22.

HC Coated carbide

## Technical information

Trouble shooting - turning

A448-A449

Technical Information - turning

A450-A457

# A

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

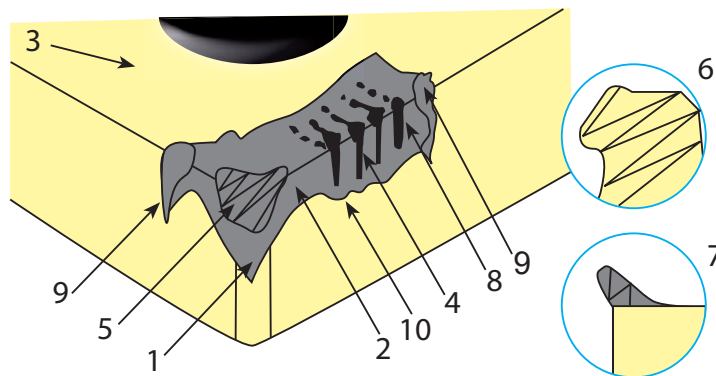
Technical  
Information

**E**

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## Trouble shooting – general turning

Fig.	Type of wear	Effects	Reason	Countermeasure
1+2	Flank wear	<ul style="list-style-type: none"> <li>– Bad surface quality and dimensional stability</li> <li>– Increase of cutting force</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Clearance angle too small</li> <li>– Feed rate too low</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Reduce cutting speed</li> <li>– Increase clearance angle</li> <li>– Reduce feed rate</li> </ul>
3	Crater wear	<ul style="list-style-type: none"> <li>– Bad surface quality and chip control</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Feed rate too low</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Reduce cutting speed</li> <li>– Reduce feed rate</li> </ul>
4	Chipping	<ul style="list-style-type: none"> <li>– Unstable tool life</li> <li>– Sudden breakage of cutting edge</li> </ul>	<ul style="list-style-type: none"> <li>– Grade too hard</li> <li>– Feed rate too high</li> <li>– Cutting edge not stable enough</li> <li>– Stability of the holder or tension insufficient</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce feed rate</li> <li>– Change honing of cutting edge</li> <li>– Use a more stable tool holder</li> </ul>
5	Breakage	<ul style="list-style-type: none"> <li>– Increase of cutting force</li> <li>– Bad surface quality and dimensional stability</li> </ul>	<ul style="list-style-type: none"> <li>– Grade too hard</li> <li>– Feed rate too high</li> <li>– Cutting edge not stable enough</li> <li>– Stability of the holder or tension insufficient</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce feed rate</li> <li>– Change honing of cutting edge</li> <li>– Use a more stable tool holder</li> </ul>
6	Plastic deformation	<ul style="list-style-type: none"> <li>– Bad dimensional stability</li> <li>– Damage to cutting edge</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Cutting depth and/or feed rate too high</li> <li>– Temperature on the cutting edge too high</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce cutting speed</li> <li>– Reduce cutting depth and feed rate</li> <li>– Grade with higher heat-resistance</li> </ul>
7	Welding	<ul style="list-style-type: none"> <li>– Increase of cutting force</li> <li>– Bad surface quality</li> </ul>	<ul style="list-style-type: none"> <li>– Cutting speed too low</li> <li>– Cutting edge not sharp enough</li> <li>– Grade not suitable</li> </ul>	<ul style="list-style-type: none"> <li>– Increase cutting speed</li> <li>– Increase rake angle</li> <li>– Use a more suitable grade</li> </ul>
8	Thermal cracks	<ul style="list-style-type: none"> <li>– Breakage due to thermal interaction, often caused when cutting is interrupted (milling)</li> </ul>	<ul style="list-style-type: none"> <li>– Temperature fluctuation when machining</li> <li>– Grade too hard</li> </ul>	<ul style="list-style-type: none"> <li>– Dry machining</li> <li>– Grade with higher toughness</li> </ul>
9	Notch wear	<ul style="list-style-type: none"> <li>– Burr formation</li> <li>– Increase of cutting force</li> </ul>	<ul style="list-style-type: none"> <li>– Damage through chips (jagged edges)</li> <li>– Feed rate and cutting speed too high</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Increase rake angle to get a sharper cutting edge</li> <li>– Reduce cutting speed</li> </ul>
10	Flaking (coating)	<ul style="list-style-type: none"> <li>– Often appears when machining hardened materials or caused by vibration</li> </ul>	<ul style="list-style-type: none"> <li>– Cutting edge adhesion and chipping</li> <li>– Bad chip removal</li> </ul>	<ul style="list-style-type: none"> <li>– Increase rake angle to get a sharper cutting edge</li> <li>– Chip breaker with bigger chip space</li> </ul>



**Trouble shooting – threading**

Problème	Cause	Solution
Big flank wear	– Cutting speed too high	– Reduce cutting speed
	– Width of cut too small	– Reduce number of width of cut
	– Insert over/under centre line	– Adjust insert height
Asymmetric wear on left and right cutting edge	– Width of cut not optimal	– Adjust width of cut
	– Inclination angle and lead angle are not optimally aligned	– Change the shim to get the correct angle
Breakage	– Cutting speed too low	– Increase cutting speed
	– Cutting force too high	– Increase number of width of cut – Reduce width of cut
	– Unstable conditions	– Improve clamping and overhang to avoid vibrations
	– Bad chip control	– Increase coolant pressure for better chip removal
Déformation plastique	– Cutting speed and temperature too high	– Reduce cutting speed – Increase number of width of cut – Reduce width of cut
	– Insufficient coolant supply	– Improve coolant supply
Mauvais état de surface du filet	– Cutting speed too low	– Increase cutting speed
	– Insert over/under centre line	– Adjust insert height
	– Bad chip control	– Change feed rate and/or width of cut
Profil de filet incorrect	– Wrong insert height	– Change insert height
	– Tool holder doesn't form a 90° angle	– Adjust tool holder
	– Pitch error in machine	– Adjust machine
Profil de filetage de profondeur insuffisante	– Wrong insert height	– Change insert height
	– Breakage of cutting edge	– Change insert
	– Excessive wear	– Change insert
Formation d'arêtes rapportées	– Temperature on cutting edge is too low	– Increase cutting speed
	– Often occurs when machining of carbon steel and stainless steel	– Use grade with sufficient toughness (PVD coated)
Vibrations	– Wrong cutting data	– Increase or highly decrease cutting speed
	– Wrong insert height	– Change insert height
	– Insufficient clamping	– Improve clamping system and minimise overhang

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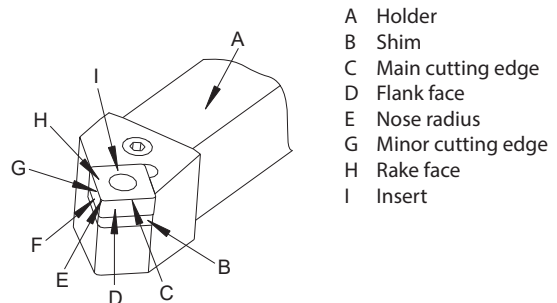
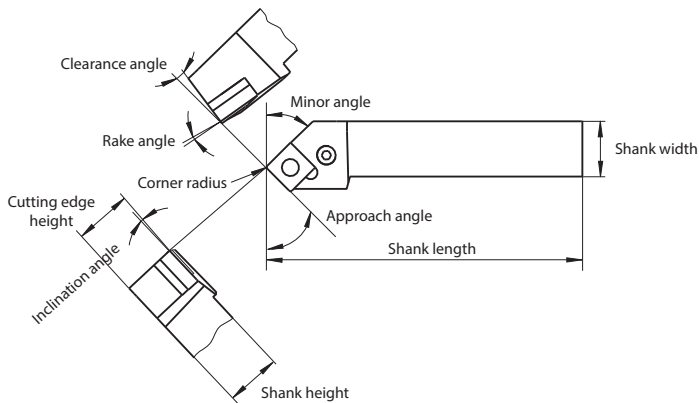
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## Turning tools

### Cutting tool geometry



- A Holder
- B Shim
- C Main cutting edge
- D Flank face
- E Nose radius
- G Minor cutting edge
- H Rake face
- I Insert

### Rake angle

The rake angle is a cutting edge angle that has large effects on cutting resistance, chip disposal, cutting temperature and tool life. Increasing the rake angle in positive direction improves the sharpness of the cutting edge and the cutting force decreases but at the same time it lowers the strength. To increase the cutting resistance the rake angle must be increased in negative direction.

Rake angle	Applications
Small	Machining of fragile and hard materials, roughing and interrupted cut
Large	Machining of plastic materials and soft materials, precision machining

### Clearance angle

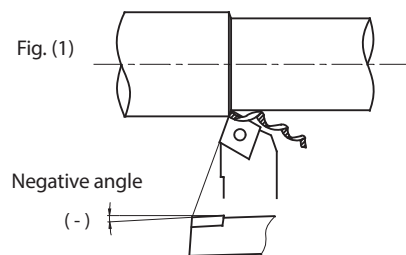
The flank angle prevents friction between the flank face and work piece resulting in smooth feed. Increasing the flank angle decreases the cutting force and the surface roughness becomes better but on the other hand this lowers the cutting edge strength and decreases the flank wear occurrence.

Clearance angle	Applications
Small	Machining of hard and demure materials, for roughing operation with stable cutting edge
Large	Precision machining with low cutting force, work pieces suffer from work hardening easily

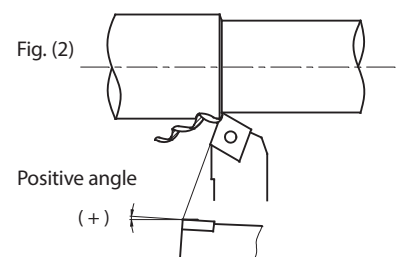
### Inclination angle

The positive and negative edge inclination angle determines the discharging direction of chips. In heavy cutting, the cutting edge receives extremely large shocks at the beginning of cutting. Cutting edge inclination keeps the cutting edge from receiving this shock and prevents fracturing. On the other hand the back force increases and occurs vibration. For a finishing operation a positive angle is more suitable.

When the edge inclination angle is negative, i.e. the cutting edge is located at the lowest point relative to the bottom plane of the tool holder, the chips flow to the machined surface of workpiece.



As shown in Fig. (2), when the edge inclination angle is positive, i.e. the cutting edge is located at the highest point relative to the bottom plane of the tool holder, the chips flow to the un-machined surface of workpiece.

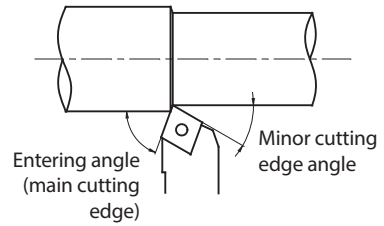




## Turning tools

### Entering angle (main cutting edge)

Reducing the lead angle increases the strength of the cutting edge. Because the lead angle is small, the cutting width is long, the force on the unit cutting edge length is small. At the same time, reducing the lead angle can increase the tool life. Normally, when turning thin long shaft and ladder shaft, the lead angle adapts 90°. The lead angle is increased, radial force is reduced, cutting is stable, cutting thickness is increased and chip breaking performance is good.



Entering angle	Applications
Small	For material with high tensile strength, high hardness or hardened layer on surface
Large	For machining with low rigidity

### Minor cutting edge

The minor cutting edge angle is the main angle on influence surface roughness; its size is also influence strength of cutter. When the minor cutting edge angle is too small, the cutting force increases and results in chattering and vibration. The selection principle for the minor cutting edge angle is under the condition of rough machining, or un-influencing friction and producing vibration, the smaller angle should be chosen; the bigger angle can be used for precision machining.

### Nose radius

The nose radius effects the cutting edge strength and the finished surface. By increasing the nose radius the surface finish becomes better and the cutting edge strength improves. Flank and rake wear decreases. If the radius becomes too big, the cutting force increases and causes vibration which effects the chip control negative.

Radius	Applications
Small	Finishing with small cutting depth, machining thin long shaft, rigidity of machine is insufficient
Large	Rough machining, high cutting edge strength is required, rigidity of machine is good, machining hardened materials and interrupted cut

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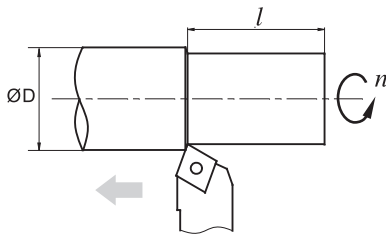
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## Turning tools

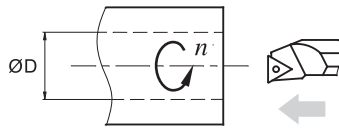
### Cutting speed $V_c$

Turning

$$V_c = \frac{\pi \times D \times n}{1000} \text{ [m/min]}$$



External machining



Internal machining

$V_c$ : Cutting speed [m/min]  
 $n$ : Revolution [1/min]  
 $f$ : Feed rate [mm]

Example:  $n = 250$  1/min,  $f = 0,2$  mm,  
 $l = 150$  mm

Result: [insert values in formula  $V_c$ ]

B

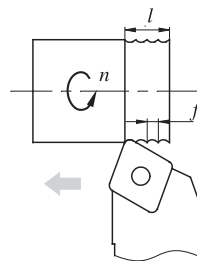
Milling

### Feed rate $F$

$$f = \frac{l}{n} \text{ [mm/rev]}$$

C

Drilling



$f$ : Feed rate [mm]  
 $l$ : Cutting length [mm/min]  
 $n$ : Revolution [1/min]

Example:  $n = 500$  1/min,  $l = 100$  mm/min  
 Result: [insert values in formula  $f$ ]

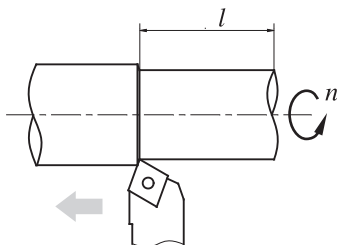
$$f = \frac{l}{n} = \frac{100}{500} = 0,2 \text{ mm}$$

D

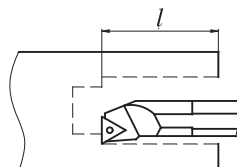
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### Cutting time $T_c$

$$T_c = \frac{l}{f \times n} \text{ [min]}$$



External machining



Internal machining

$T_c$ : Cutting time [min]  
 $l$ : Cutting length [mm/min]  
 $f$ : Feed rate [mm]  
 $n$ : Revolution [1/min]

Example:  $n = 250$  1/min,  $f = 0,2$  mm,  
 $l = 150$  mm

Result: [insert values in formula  $T_c$ ]

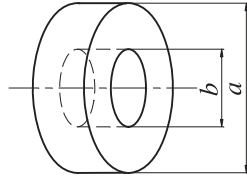
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## Turning tools

### Cutting time $T_c$ for face milling

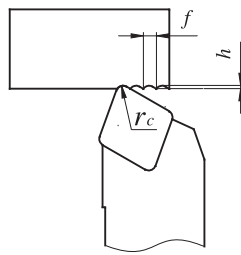
$$T_c = \frac{\pi \times (a^2 - b^2)}{4000 \times V_c \times f} \text{ [min]}$$



$T_c$ : Cutting time [min]  
 $V_c$ : Cutting speed [m/min]  
 $f$ : Feed rate [mm]

### Theoretical surface roughness R

$$R = \frac{f^2}{8r_c} \times 1000 \text{ [}\mu\text{m]}$$



R: Surface roughness [ $\mu\text{m}$ ]  
 $f$ : Feed rate [mm]  
 $r_c$ : Radius of insert [mm]

Example:  $f = 0,2 \text{ mm}$ ,  
 $r_c = 0,4 \text{ mm}$

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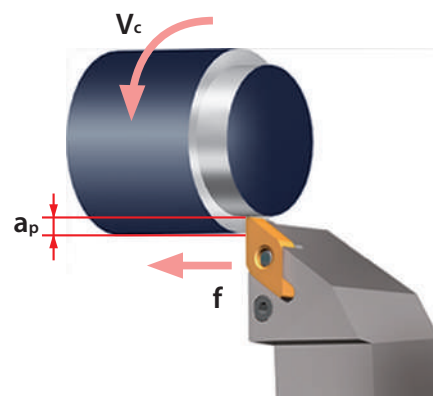
**A**

Turning

### Turning tools

#### Three effects of cutting condition for turning

Today short machining time, long tool life and high machining accuracy is expected from modern tools. Based on the machine performance, material shape and hardness of the components the right choice of tool and cutting conditions are the premise for a successful machining process. Cutting speed, feed rate and depth of cut are what we call the “Three effects of cutting”.

**B**

Milling

#### 1. Cutting speed ( $V_c$ )

Cutting speed is defined as the rate (or speed) that the material moves past the cutting edge of the tool. The unit for  $V_c$  is meter per minute [m/min].

**Cutting speed influence:** Cutting speed is one of the three important effects of turning and has influence on tool life. Increasing the cutting speed also increases the cutting temperature and that decreases the tool life. Depending on the hardness and type of material the cutting speed varies. Therefore to choose a suitable grade for the cutting speed is necessary.

In general situation, when cutting speed is increased by 20% the tool life will be reduced  $\frac{1}{2}$ ; when the cutting speed is increased by 50% the tool life decreases  $\frac{1}{3}$ . Lower cutting speed results in vibration which will shorten tool life.

**C**

Drilling

#### 2. Feed rate ( $f$ )

In turning application feed rate is the distance the tool holder moves per work piece revolution. That has influence to the surface quality. The unit for feed rate is millimetre per revolution [mm/rev]

**Feed rate influence:** Decreasing the feed rate will increase flank wear and tool life will be shortened. Increasing the feed rate increases the cutting temperature and also flank wear. On the other hand the efficiency will be improved.

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#### 3. Depth of cut ( $a_p$ )

The depth of cut refers to the half different value between the diameter of the unmachined and machined work piece. The unit is millimetre [mm].

**Depth of cut influence:** Changing depth of cut has no big influence to the tool life. Machining hardened layer with small depth of cut results in friction and short tool life. Machining uncut surface or cast iron material, choose maximum depth of cut according to the machine power so that the cutting edge and corner radius is out of the hardened layer. That helps to prevent chipping and abnormal wear.

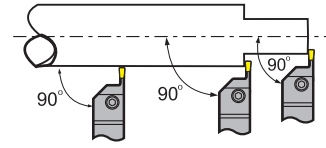
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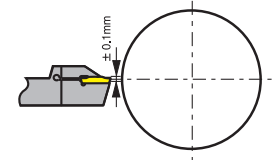
## Parting & grooving

### Adjusting the cutting edge height

- Mount the tool holder in a 90° angle to the central axis of the workpiece. This improves the surface quality and decreases the risk of vibrations.



- Height tolerance between the cutting edge of the insert and the centre of the work piece should be kept  $\pm 0.1$  mm, especially for parting of rods and grooving of materials with a small diameter. This extends the tool life and reduces the cutting forces as well as the formation of burrs.

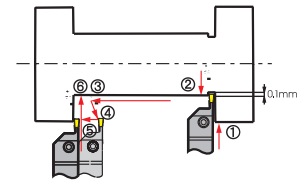


### Parting off

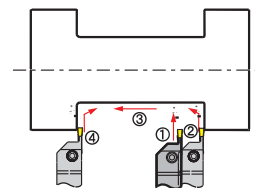
- When the cutting edge nears the central axis of the work piece, reducing the feed rate by 30 % can extend the tool life of the insert.
- Pick a tool holder with the smallest possible overhang to avoid vibrations and tool deflection.

### Longitudinal turning and profile turning

- Machining sequence 0.5 mm:
  1. Bring radial feed rate to required cutting depth (ap max.  $0.75 \times$  cutting edge width)
  2. Radial relocating by 0.1 mm
  3. Longitudinal turning to opposite shoulder
  4. Diagonal relocating by 0.5 mm outward axial feed rate to the starting point
  5. Radial feed rate to required cutting depth, etc.

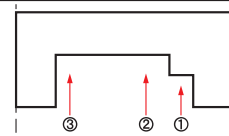


- When machining the chamfer or the base of the slot follow the steps as shown in figure. This reduces tool deflection and avoids cutting edge chipping.

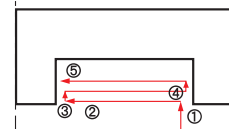


### Surface grooving and turning

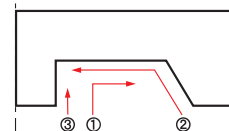
- Roughing: Processing from largest diameter to the axis. When returning it's recommended to bend the tool slightly.



- Flute turning: Depth of axial turning less than  $0.75 \times S$  (width of insert). When the pocket width is bigger than the depth follow the working steps as shown. When the pocket depth is bigger than the width, we recommend to go to the required diameter step by step.

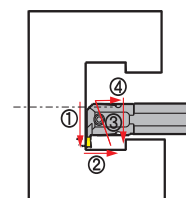


- Finishing: When finishing begin with the outer diameter and the bottom. Then go on with the inner diameter to the required size.



### Internal machining

- Procedure according to figure. For better chip removal in blind holes machine from the inside out.



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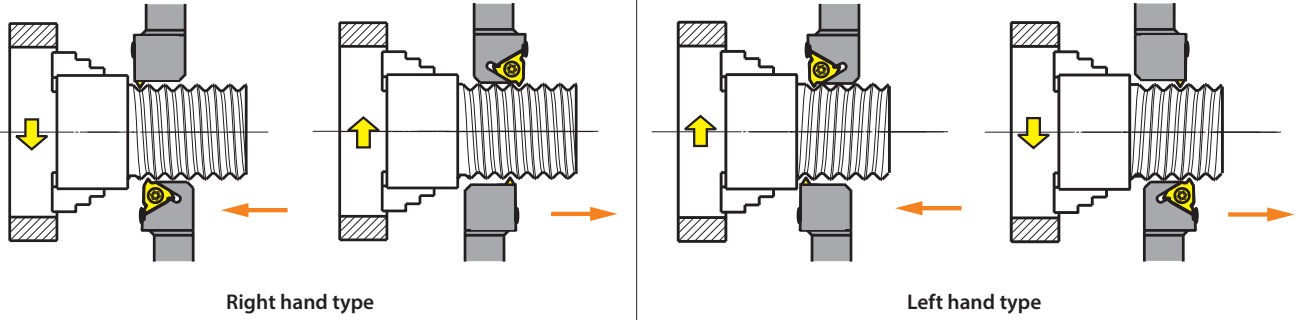
## Threading

### Steps for best results when thread-cutting

1. Choice of threading method
2. Choice of angle and shim
3. Choice of tool holder and inserts
4. Choice of cutting data
5. Choice of cutting direction

### Thread turning method

#### External machining



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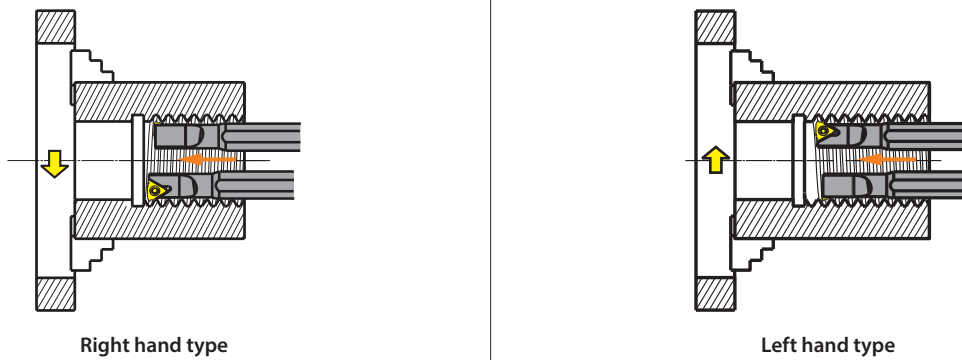
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#### Internal machining

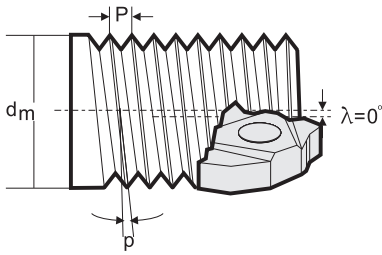


## Choice of angle and shim

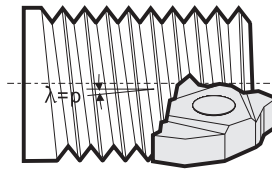
### Choice of angle

The flank clearance angles of the thread profile depend on the helical angle of the thread. The helical angle of the thread must coincide with the insert's angle of inclination angle as far as possible to get the ideal profile, to avoid longer unfavourable wear on one of the flanks and thus to ensure tool life.

$$\lambda = \arctan \frac{p}{d_2 \times \pi}$$



Helix angle (p)

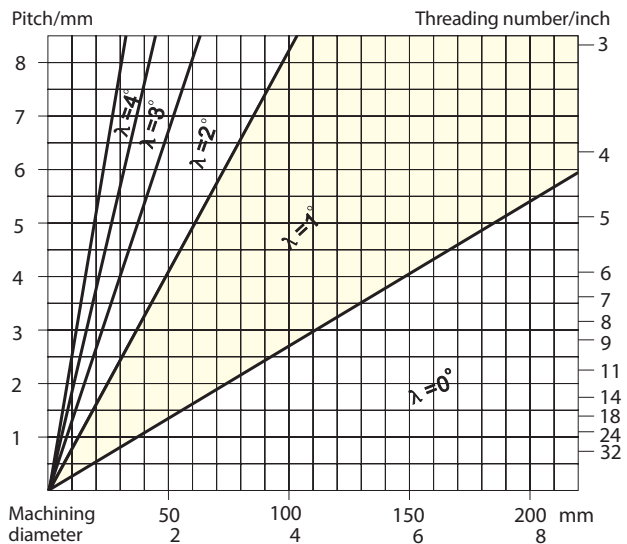


Pitch angle (λ)

p Pitch  
d<sub>2</sub> Flank diameter  
λ Pitch angle

### Choice of shim

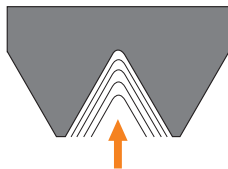
Pitch range	Dimension	Pitch angle	Shim
0,5–0,3	16	0	MT16-00M
		1	MT16-01M
		2	MT16-02M
		3	MT16-03M
3,5–6,0	22	0	MT22-00M
		1	MT22-01M
		2	MT22-02M
		3	MT22-03M



The shim  $\lambda = 1^\circ$  is delivered with the tool holder.

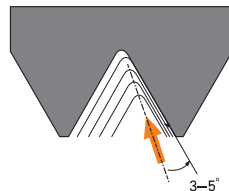
### Infeed way of threading

The number of passes and widths of cut are the key points of threading operation. Please choose the cutting parameters with the recommended form according to experience data. In case of breakages or too much wear please have a look at page A447 (trouble shooting).



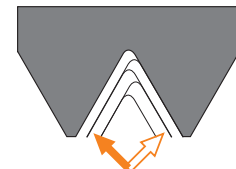
Radial width of cut

Radial width of cut requires low cutting depth, sharp cutting edge and tough grade. It is recommended when the pitch is smaller than 2 mm, not ideal for material with long chips.



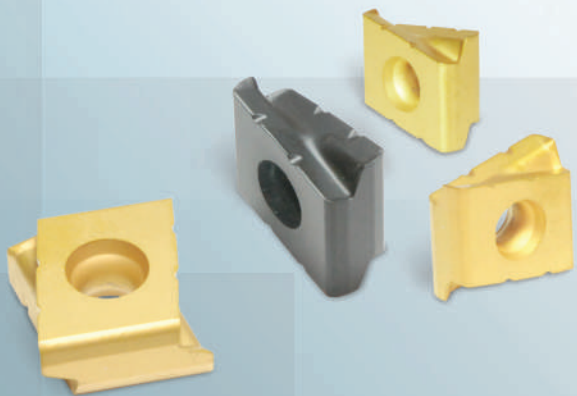
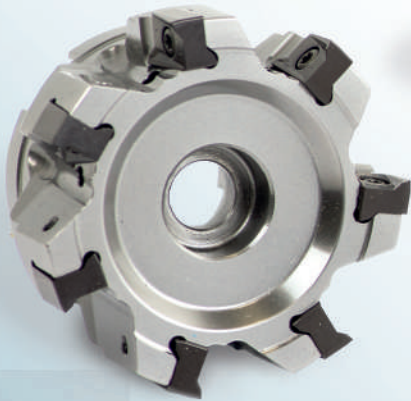
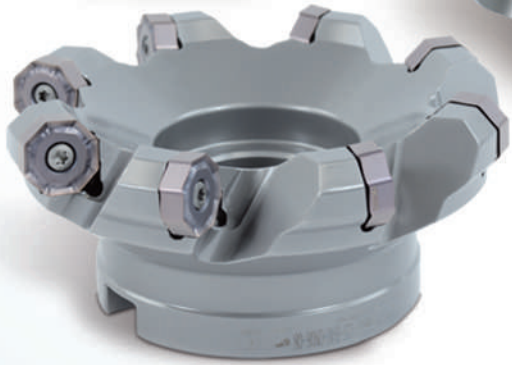
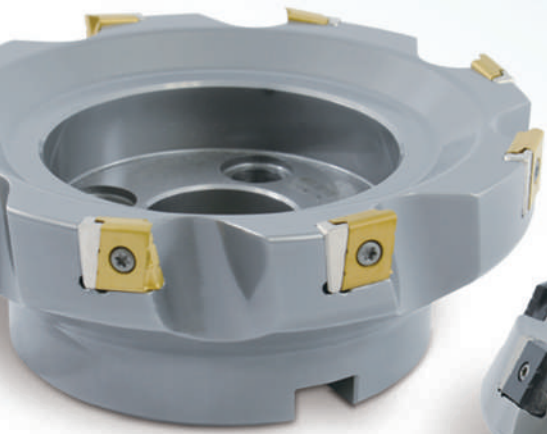
Modified flank width of cut

Infeed at an angle of 3–5° to the flank of the teeth. It is easy for chips flow. Suitable for long chip material and internal threading.



Alternating width of cut

Alternating width of cut is mainly used for large pitches and long chip materials. To get equal insert wear on both edges.





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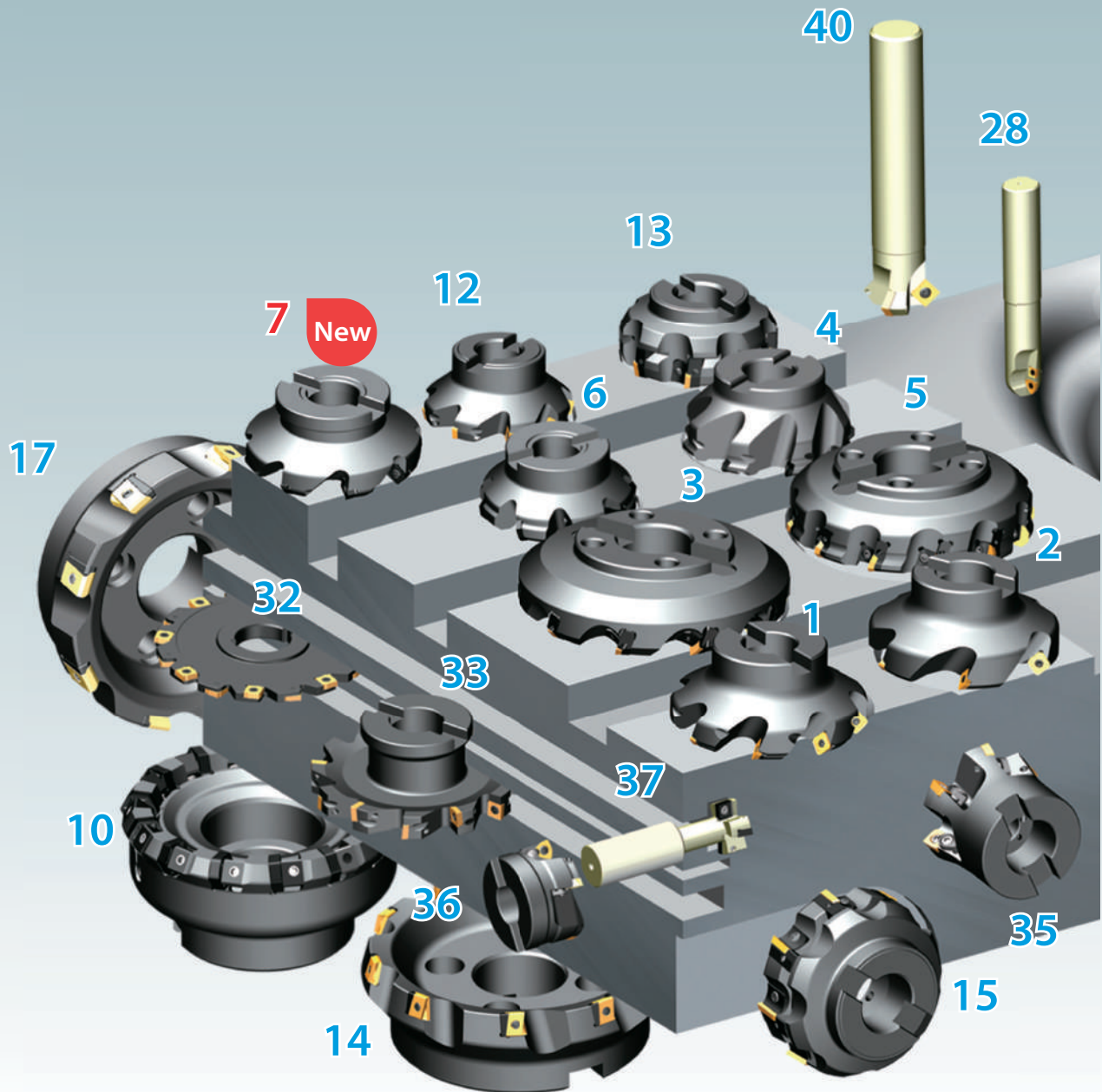
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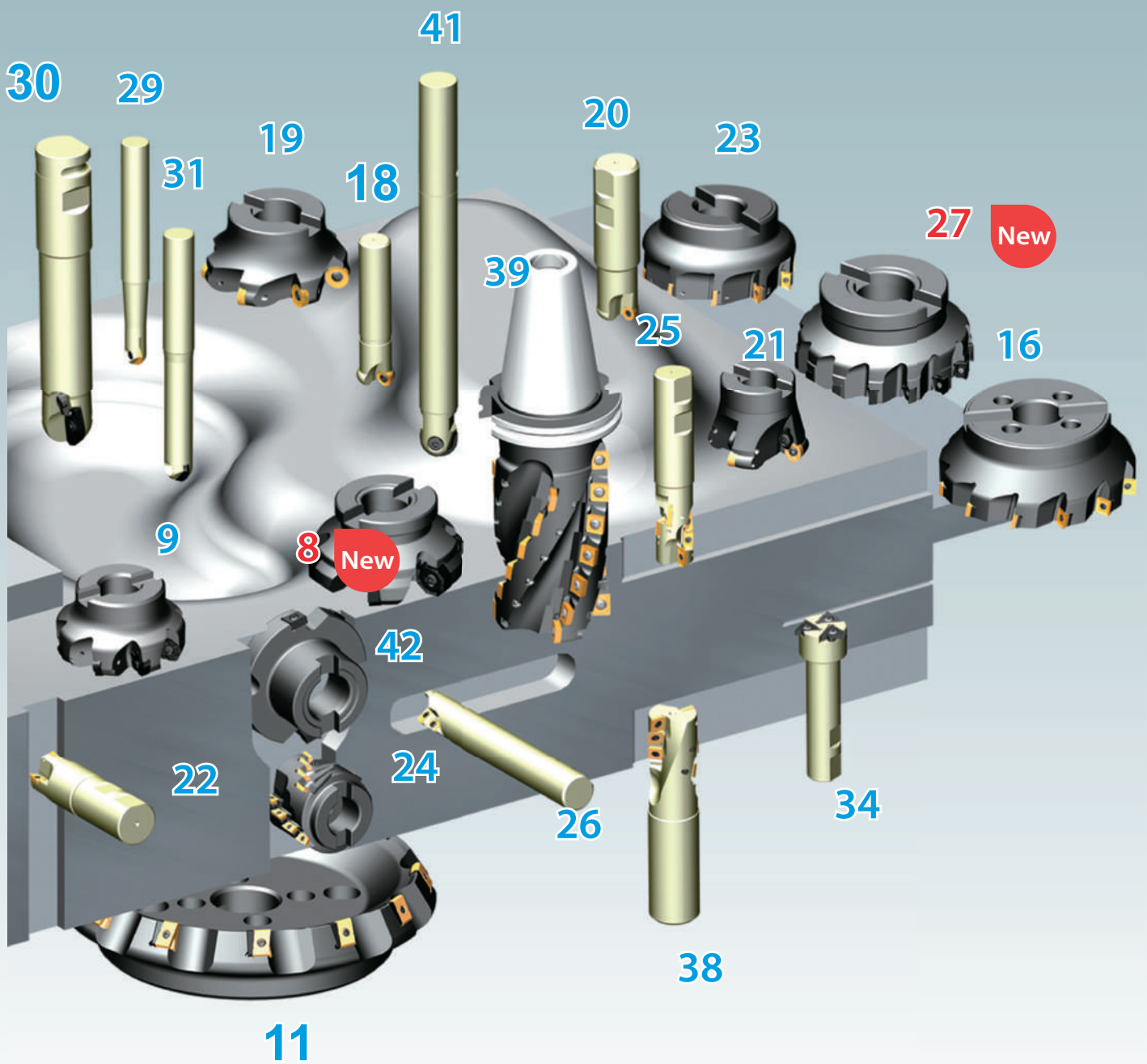
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# Indexable inserts milling tool program



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## Milling inserts









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Turning

								
<b>ANGX-GM</b>	<b>ANGX-LH</b>	<b>APKT-ALH</b>	<b>APKT-APF</b>	<b>APKT-APM</b>	<b>APKT-KM</b>	<b>APKT-LH</b>	<b>APKT-PF</b>	
11 15	11 15	11 16	11 16	07 11 16	15	11 16	11 16	Edge length
B127, B129, B131, B133, B135	B127, B129, B131, B133, B135	B105, B108, B111, B114, B116, B205	B105, B108, B111, B114, B116, B205	B105, B108, B111, B114, B116, B205	B179, B181, B183	B105, B108, B111, B114, B116, B205	B105, B108, B111, B114, B116, B205	Page


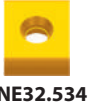






**B**

Milling

								
<b>APKT-PM</b>	<b>APKT-PR</b>	<b>APMT</b>	<b>CNE-A/B</b>	<b>HNEX-DM</b>	<b>HNEX-DR</b>	<b>HNGX-HDR</b>	<b>HNGX-MR</b>	
11 15 16	11	11 16	12	09	09	09	09	Edge length
B105, B108, B111, B114, B116, B205	B105, B108, B111, B114, B116, B205	B118	B175	B67	B67	B212	B212	Page









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Drilling









								
<b>LNCX</b>	<b>LNE32.534</b>	<b>LNKT-GM</b>	<b>LNKT-ZR</b>	<b>MPHT-DM</b>	<b>OFKR-DF</b>	<b>OFKR-DM</b>	<b>OFKT-DF</b>	
18		08 12 16	12 15 20 25	06 08 12	07	07	05	Edge length
B214	B213	B121, B123	B69, B76, B83	B158, B160, B177	B43	B43	B41	Page

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<b>OFKT-DM</b>	<b>OFKT-LH</b>	<b>ONHU-GM</b>	<b>ONHU-PF</b>	<b>ONHU-PM</b>	<b>PNEG-CF</b>	<b>PNEG-CM</b>	<b>PNEG-CR</b>	
05	05	08	06 08	06 08	11	11	11	Edge length
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<b>PNEG-PF</b>	<b>PNEG-PM</b>	<b>PNEG-PR</b>	<b>RCKT-DM</b>	<b>RCKT-DR</b>	<b>RCKT-ER</b>	<b>RCKT-NM</b>	<b>RDKW</b>	
11	11	11	10 12 16 20	12 16 20	12 16 20	12 16 20	07 08 10 12 16 20	Edge length
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<b>ROHX</b>	<b>SDMT</b>	<b>SDMT-DM</b>	<b>SDMT-PM</b>	<b>SEEN</b>	<b>SEET-APF</b>	<b>SEET-APM</b>	<b>SEET-APR</b>	
12 16 20	09	06 09 12 15	06 09 12 15	12	09 12	09 12	09 12	Edge length
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<b>SEET-CF</b>	<b>SEET-CM</b>	<b>SEET-CR</b>	<b>SEET-DF</b>	<b>SEET-DM</b>	<b>SEET-DR</b>	<b>SEET-EF</b>	<b>SEET-EM</b>	
12	12	12	12	12 18	12	12	12	Edge length
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<b>SEET-LH</b>	<b>SEET-PF</b>	<b>SEET-PM</b>	<b>SEET-PR</b>	<b>SEET-W</b>	<b>SEKN</b>	<b>SEKR</b>	<b>SNEG-E</b>	
12	09 12	09 12	09 12	12	12 15	12	15	Edge length
B80	B80	B80	B80	B33, B36	B39	B39	B53	Page
								
<b>SNEG-GM</b>	<b>SNEG-GR</b>	<b>SNEG-W</b>	<b>SNKN</b>	<b>SPCN</b>	<b>SPGN</b>	<b>SPKN</b>	<b>SPKR</b>	
12 15	12 15 19	12	12 15	12 15	12	12 15	12	Edge length
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<b>SPKR-GM</b>	<b>SPKT</b>	<b>SPKW</b>	<b>SPMR</b>	<b>SPMT</b>	<b>SPMT-HT</b>	<b>SPMT-KM</b>	<b>SPMT-KT</b>	
12 15	12	12	09 12	06 09 12	09 12	12	06	Edge length
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<b>SPMT-PM</b>	<b>SPUN</b>	<b>TPCN</b>	<b>TPKN</b>	<b>TPMR</b>	<b>TPUN</b>	<b>WNHU-GM</b>	<b>WPGT</b>	
12	12 15	22	16 22	09 11 16 22	11 16 22	06 08	05 06 08 09	Edge length
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<b>WPGT-PM</b>	<b>XSEQ</b>	<b>XPHT-GM</b>	<b>ZDET</b>	<b>ZDET-PM</b>	<b>ZOHX-GF</b>	<b>ZOHX-GM</b>	<b>ZPNT</b>	
05 06 08 09	12	16 20 25 30 32 40 50	08 11 13	13	12 16 20 25 30 32	12 16 20 25 30 32	22	Edge length
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










## Face milling

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
FMA01		 SEET12T3 SEET18T6	45°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 315 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Wiper inserts for good surface quality</li> </ul>	B31
FMA02		 SEET12T3	45°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 125 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Wide pitch</li> </ul>	B34
FMA03		 SEEN1203 SEKN1203 SEKR1203 SEKN1504 SEKR1504	45°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø80 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Wedge clamping</li> </ul>	B37
FMA04		 OFKT05T3	45°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 160 mm</li> <li>• For steel, stainless steel, cast iron and non-ferrous metals</li> <li>• Inserts with eight cutting edges</li> <li>• Screw clamping</li> </ul>	B40
FMA04		 OFKR0704	45°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø125 – 315 mm</li> <li>• For steel, stainless steel, cast iron and non-ferrous metals</li> <li>• Inserts with eight cutting edges</li> <li>• Wedge clamping</li> </ul>	B42
FMA07		 ONHU0604 ONHU08T5	45°	✓		✓			✓	<ul style="list-style-type: none"> <li>• Diameter range Ø25 – 50 mm</li> <li>• For steel and cast iron</li> <li>• Inserts with 16 cutting edges</li> </ul>	B46

✓ Very suitable    ✓ Suitable

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FMA07		 ONHU0604 ONHU08T5	45°	✓		✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø40 – 315 mm</li> <li>• For steel and cast iron</li> <li>• Inserts with 16 cutting edges</li> </ul>	B48
FMA11		 SNEG1205 SNEG1506 SNEG1907	45°	✓	✓	✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø63 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with eight cutting edges</li> <li>• Double sided, thicker inserts for high stability and deeper cutting depths</li> <li>• Wiper geometry for good surface quality</li> <li>• Normal and fine pitch</li> </ul>	B52
FMA12		 ONHU08T6	45°	✓	✓	✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø63 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with 16 cutting edges</li> </ul>	B56
FMD02		 PNEG1105	67°	✓	✓	✓					<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with ten cutting edges</li> <li>• Wedge clamping or screw clamping</li> <li>• Normal and fine pitch</li> </ul>	B60 B63
FMD02		 HNEX0905	55°			✓					<ul style="list-style-type: none"> <li>• Diameter range Ø80 – 315 mm</li> <li>• For cast iron</li> <li>• Wedge clamping</li> <li>• Inserts with twelve cutting edges</li> </ul>	B66
FMD03		 LNKT2007-ZR LNKT2510-ZR	60°	✓		✓					<ul style="list-style-type: none"> <li>• Diameter range Ø100 – 400 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Tangential insert with four cutting edges</li> <li>• Heavy duty machining for high cutting depths</li> <li>• Screw clamping</li> </ul>	B68

✓ Very suitable    ✓ Suitable

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FME02		 SPKT1204 SPKW1204	75°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø50 – 125 mm</li> <li>For steel and cast iron</li> <li>Screw clamping</li> </ul>	B70
FME03		 SPKN1203 SPKR1203 SPEX1203 SPKN1504 SPKR1504 SPEX1504	75°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø80 – 400 mm</li> <li>For steel and cast iron</li> <li>Wedge clamping</li> </ul>	B72
FME04		 LNKT1506-ZR	75°	✓		✓				<ul style="list-style-type: none"> <li>Diameter range Ø125 – 315 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Tangential insert with four cutting edges</li> <li>Heavy duty machining for high cutting depths</li> <li>Screw clamping</li> </ul>	B75
FMP01		 TPKN2204	90°	✓	✓	✓			✓	<ul style="list-style-type: none"> <li>Diameter range Ø80 – 315 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Milling cutter with positive, soft cutting geometry</li> <li>Wedge clamping</li> </ul>	B77
FMP02		 SEET09T3 SEET1203	90°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>Diameter range Ø50 – 315 mm</li> <li>For steel, stainless steel, cast iron an non-ferrous metals</li> <li>Screw clamping</li> </ul>	B79
FMP03		 LNKT120608-ZR LNKT1506EN-ZR LNKT2007DN-ZR LNKT2510-ZR	89°	✓		✓				<ul style="list-style-type: none"> <li>Diameter range Ø50 – 315 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Tangential insert with four cutting edges</li> <li>Heavy duty machining for high cutting depths</li> <li>Screw clamping</li> </ul>	B82

✓ Very suitable    ✓ Suitable

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FMP12		 WNHU0604 WNHU0806	90°	✓		✓					<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Tangential insert with four cutting edges</li> <li>• Heavy duty machining for high cutting depths</li> <li>• Screw clamping</li> </ul>	B86
FMP12		 WNHU0604	90°	✓		✓					<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 315 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Tangential insert with four cutting edges</li> <li>• Heavy duty machining for high cutting depths</li> <li>• Screw clamping</li> </ul>	B88
FMR01		 RCKT10T3 RCKT1204 RCGX1204		✓	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø25 – 63 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Screw clamping</li> </ul>	B90
FMR02		 RCGX1204 RCKT1204 RCMW1204 RCKT1606 RCKT2006		✓	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 250 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Screw clamping</li> </ul>	B93
FMR03		 RDKW0803 RDKW10T3 RDKW1204		✓	✓	✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø15 – 50 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Screw clamping</li> <li>• Mould and die industry</li> </ul>	B96
FMR03		 RDKW0702 RDKW1003		✓	✓	✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø15 – 50 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Screw clamping</li> <li>• Mould and die industry</li> </ul>	B98

✓ Very suitable    ✓ Suitable

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				P	M	K	N	S	H		
FMR04		 RDkW1204 RDkW1605 RDkW2006		✓	✓	✓			✓	<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 200 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Screw clamping</li> <li>• Mould and die industry</li> </ul>	B100
FMR04		 RDkW1003 RDkW12T3 RDkW1604		✓	✓	✓			✓	<ul style="list-style-type: none"> <li>• Diameter range Ø42 – 200 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Screw clamping</li> <li>• Mould and die industry</li> </ul>	B102

## Square shoulder milling

EMP01		 APKT0702 APKT11T3 APKT1604	90°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 63 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Weldon shank</li> <li>• For square shoulder milling, slot milling and ramping</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Inserts with two cutting edges</li> </ul>	B104
EMP01		 APKT11T3 APKT0702 APKT1604	90°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 63 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• Weldon shank</li> <li>• For square shoulder milling, slot milling and ramping</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Inserts with two cutting edges</li> </ul>	B107
EMP02		 APKT0702 APKT11T3 APKT1604	90°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>• Diameter range Ø40 – 250 mm</li> <li>• For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>• For square shoulder milling, slot milling and ramping</li> <li>• Milling cutter with positive, soft cutting geometry</li> <li>• Inserts with two cutting edges</li> </ul>	B110

✓ Very suitable    ✓ Suitable

**Square shoulder milling**

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
EMP03		 APKT11T3	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>Diameter range Ø50 – 100 mm</li> <li>For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>For square shoulder milling, slot milling and ramping</li> <li>Milling cutter with a positive, soft cutting geometry</li> <li>Inserts with two cutting edges</li> </ul>	B113
EMP04		 APKT11T3	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>Diameter range Ø20 – 40 mm</li> <li>For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>For square shoulder milling, slot milling and ramping</li> <li>Milling cutter with positive, soft cutting geometry</li> <li>Inserts with two cutting edges</li> </ul>	B115
EMP05		 APMT1135 APMT1604	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø25 – 40 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Straight shank</li> <li>For square shoulder milling, slot milling and ramping</li> <li>Milling cutter with positive, soft cutting geometry</li> <li>Inserts with two cutting edges</li> <li>Machining in z-direction possible</li> </ul>	B117
EMP09		 LNKT0804PNR-GM LNKT1206PNR-GM LNKT1607PNR-GM	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø40 – 125 mm</li> <li>Sharp cutting edge geometry combined with robust tangential inserts</li> <li>First choice for large cutting depths with high feed rates.</li> <li>Specially designed cutting edge with high precision control for high quality 90 degree square shoulder milling</li> </ul>	B120
EMP13		 ANGX1105 ANGX1506	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>Diameter range Ø40 – 250 mm</li> <li>For steel, cast iron and non-ferrous metals</li> <li>Double sided, thicker inserts for high stability and deeper cutting depths</li> <li>Inserts with four cutting edges</li> </ul>	B126
EMP13		 ANGX1105 ANGX1506	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>Diameter range Ø25 – 40 mm</li> <li>For steel, cast iron and non-ferrous metals</li> <li>Double sided, thicker inserts for high stability and deeper cutting depths</li> <li>Inserts with four cutting edges</li> </ul>	B128

✓ Very suitable    ✓ Suitable

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## Square shoulder milling

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				P	M	K	N	S	H		
EMP13		 ANGX1105 ANGX1506	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 80 mm</li> <li>• For steel, cast iron and non-ferrous metals</li> <li>• Double sided, thicker inserts for high stability and deeper cutting depths</li> <li>• Inserts with four cutting edges</li> </ul>	B132
EMP13		 ANGX1105 ANGX1506	90°	✓	✓	✓	✓			<ul style="list-style-type: none"> <li>• Diameter range Ø25 – 40 mm</li> <li>• For steel, cast iron and non-ferrous metals</li> <li>• Double sided, thicker inserts for high stability and deeper cutting depths</li> <li>• Inserts with four cutting edges</li> </ul>	B134

## Profile milling

BMR01		 ZDET08T2 & SPMT0603 ZDET1103 & SPMT0603 ZDET13T2 & SDMT0903 ZPNT2204 & SPMT1204		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø20 – 63 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Very suitable for roughing of big moulds</li> <li>• Inserts with three cutting edges</li> </ul>	B136
BMR02		 ROHX1203 ROHX1604 ROHX2005		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 20 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Very suitable for finishing in mould and die industry</li> <li>• Inserts with two cutting edges</li> </ul>	B139
BMR03		 XPHT16 XPHT20 XPHT25 XPHT30 XPHT32 XPHT40		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø16 – 40 mm</li> <li>• For steel and cast iron</li> <li>• Very suitable for roughing in mould and die industry</li> <li>• Tool with high stability</li> </ul>	B141

✓ Very suitable    ✓ Suitable

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**Profile milling**

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
BMR03		 XPHT20 XPHT25 XPHT30 XPHT32 XPHT40 XPHT50		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø16 – 40 mm</li> <li>• For steel and cast iron</li> <li>• Very suitable for roughing in mould and die industry</li> <li>• Tool with high stability</li> </ul>	B145
BMR03		 XPHT16 XPHT20 XPHT25 XPHT30 XPHT32 XPHT40 XPHT50		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø16 – 40 mm</li> <li>• For steel and cast iron</li> <li>• Very suitable for roughing in mould and die industry</li> <li>• Tool with high stability</li> </ul>	B143
BMR03		 XPHT40 XPHT50		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø16 – 40 mm</li> <li>• For steel and cast iron</li> <li>• Very suitable for roughing in mould and die industry</li> <li>• Tool with high stability</li> </ul>	B147
BMR04		 ZOHX12 ZOHX16 ZOHX20 ZOHX25 ZOHX30 ZOHX32		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Very suitable for finishing in mould and die industry</li> <li>• Inserts with two cutting edges</li> </ul>	B149
BMR04		 ZOHX12 ZOHX16 ZOHX20 ZOHX25 ZOHX30 ZOHX32		✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Very suitable for finishing in mould and die industry</li> <li>• Inserts with two cutting edges</li> </ul>	B151

✓ Very suitable    ✓ Suitable

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## Slot milling



Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
SMP01		 XSEQ1202 XSEQ1203 XSEQ12T3 XSEQ1204 XSEQ12T4	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø100 – 250 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Bore with keyway</li> <li>• Groove widths 4, 5, 6, 7, 8 mm</li> </ul>	B153
SMP01		 XSEQ1202 XSEQ1203 XSEQ12T3 XSEQ1204 XSEQ12T4	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø63 – 160 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Groove widths 4, 5, 6, 7, 8 mm</li> </ul>	B155
SMP03		 MPHT0603 MPHT0803 MPHT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø80 – 200 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Bore with keyway</li> <li>• Groove widths 8, 10, 12, 16, 18, 20 mm</li> </ul>	B157
SMP03		 MPHT0603 MPHT0803 MPHT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø80 – 200 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Groove widths 8, 10, 12, 16, 18, 20 mm</li> </ul>	B159
SMP05		 QC16L QC22L	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø25 – 44 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Groove widths range 1,1 – 4,8 mm</li> </ul>	B161

✓ Very suitable    ✓ Suitable

### High-feed milling

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
XMR01		 SDMT06T2 SDMT09T3 SDMT1204 SDMT1505	15°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø20 – 40 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with four cutting edges</li> <li>• Ramping possible</li> <li>• Double clamping system for inserts</li> </ul>	B166
XMR01		 SDMT09T3 SDMT06T2 SDMT1204 SDMT1505	15°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø40 – 125 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with four cutting edges</li> <li>• Ramping possible</li> <li>• Double clamping system for inserts</li> </ul>	B168
XMR01		 WPGT0503 WPGT0604	11°- 22°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø20 – 40 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with three cutting edges</li> <li>• Ramping possible</li> <li>• Double clamping system for inserts</li> </ul>	B170
XMR01		 WPGT0604 WPGT0806 WPGT0907	11°- 22°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø42 – 160 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Inserts with three cutting edges</li> <li>• Ramping possible</li> <li>• Double clamping system for inserts</li> </ul>	B172

### Bore milling

XMP01		 CNE12	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø80 – 400 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Also for face and square shoulder milling</li> </ul>	B174
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✓ Very suitable    ✓ Suitable

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## T-slot milling

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
TMP01		 MPHT0603 MPHT0803 MPHT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø21 – 60 mm</li> <li>• For cast iron</li> <li>• Groove widths 9, 11, 14, 18, 22, 28 mm</li> </ul>	B176

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## Helical milling

HMP01		 APKT1504 & SPMT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø40 – 50 mm</li> <li>• For steel and cast iron</li> <li>• Weldon shank</li> </ul>	B178
HMP01		 APKT1504 & SPMT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 80 mm</li> <li>• For steel and cast iron</li> <li>• With JT coupling</li> </ul>	B180
HMP01-EC		 APKT1504 & SPMT1204	90°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø50 – 80 mm</li> <li>• For steel and cast iron</li> <li>• With JT coupling</li> <li>• With indexable head</li> </ul>	B182

✓ Very suitable    ✓ Suitable

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
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### Chamfer milling

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
CMZ01		 SPMT1204	30°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Chamfer milling cutter 30°</li> </ul>	B184 B186
CMA01		 SPMT1204	45°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Chamfer milling cutter 45°</li> <li>• Weldon shank</li> </ul>	B188
CMA01		 SPMT1204	45°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Chamfer milling cutter 45°</li> <li>• Weldon shank</li> </ul>	B190
CMD01		 SPMT1204	60°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Chamfer milling cutter 60°</li> <li>• Weldon shank</li> </ul>	B192
CMD01		 SPMT1204	60°	✓	✓	✓				<ul style="list-style-type: none"> <li>• Diameter range Ø12 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Chamfer milling cutter 60°</li> <li>• Weldon shank</li> </ul>	B194

✓ Very suitable    ✓ Suitable

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## Indexable heads - QCH series

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
QCH-XPHT		 XPHT16 XPHT20 XPHT25 XPHT30 XPHT32		✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø16 – 32 mm</li> <li>For steel and cast iron</li> <li>Very suitable for roughing in mould and die industry</li> </ul>	B198
QCH-SDMT		 SDMT06T2 SDMT09T3 SDMT1204	15°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø20 – 40 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Inserts with four cutting edges</li> <li>Ramping possible</li> <li>Double clamping system for inserts</li> </ul>	B200
QCH-WPGT		 WPGT0503 WPGT0604 WPGT0806	11°-22°	✓	✓	✓				<ul style="list-style-type: none"> <li>Diameter range Ø16 – 42 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Inserts with three cutting edges</li> <li>Ramping possible</li> <li>Double clamping system for inserts</li> </ul>	B202
QCH-APKT		 APKT11T3 APKT1604	90°	✓	✓	✓	✓	✓		<ul style="list-style-type: none"> <li>Diameter range Ø16 – 40 mm</li> <li>For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys</li> <li>For square shoulder milling, slot milling and ramping</li> <li>Milling cutter with positive, soft cutting geometry</li> <li>Inserts with two cutting edges</li> </ul>	B204
QCH-RD		 RDKW0702 RDKW10T3 RDKW1605		✓	✓	✓			✓	<ul style="list-style-type: none"> <li>Diameter range Ø15 – 42 mm</li> <li>For steel, stainless steel and cast iron</li> <li>Screw clamping</li> <li>Mould and die industry</li> <li>For two different thicknesses of inserts</li> </ul>	B206

✓ Very suitable    ✓ Suitable

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**Indexable heads - QCH series**

Series	Milling body	Inserts	Kr	Application						Features	Page	
				P	M	K	N	S	H			
QCH-RD		 RDKW0702 RDKW1003 RDKW12T3 RDKW1604		✓	✓	✓				✓	<ul style="list-style-type: none"> <li>• Diameter range Ø15 – 42 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Screw clamping</li> <li>• Mould and die industry</li> <li>• For two different thicknesses of inserts</li> </ul>	B208
QCH-ZOHX		 ZOHX16 ZOHX20 ZOHX25 ZOHX30 ZOHX32		✓	✓	✓					<ul style="list-style-type: none"> <li>• Diameter range Ø16 – 32 mm</li> <li>• For steel, stainless steel and cast iron</li> <li>• Very suitable for finishing in mould and die industry</li> <li>• Inserts with two cutting edges</li> </ul>	B210

✓ Very suitable    ✓ Suitable

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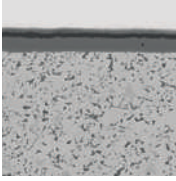

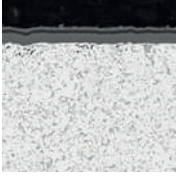



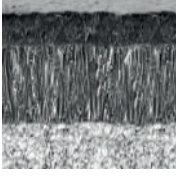

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## Chip breakers overview

	Finishing	Medium machining	Roughing
<b>A</b> Turning	P	DF	DM
		APF	APM
		PF	PM
		GF	GM
		-	-
		MO-2	MO-1
<b>B</b> Milling	M	EF	EM
		APF	APM
		DF	DM
		PF	PM
		GF	GM
		E	E
<b>C</b> Drilling	K	-	-
		CF	CM
		DF	DM
		EDFR	DER
		PF	PM
		GF	GM
<b>D</b> Technical Information	S	-	-
		MO-2	MO-1
		EF	EM
		NM	NM
<b>E</b> Index	N	LH	LH
		ALH	ALH

**Coated cemented carbide CVD**

Grade	ISO	Micro structure	Grade description
<b>YBC301</b>	P20 - P35		CVD coated P20–P35 carbide grade for medium operation to roughing of steel at lower cutting speed.
<b>YBC302</b>	P20 - P35		CVD coated P20–P35 carbide grade for medium operation to roughing of steel at higher cutting speed. Optimal performance of wear resistance and toughness for a wide application field.
<b>YBC401</b>	P30 - P50 M30 - M40		CVD coated P30–P50/M30–M40 carbide grade for roughing operation of steel at lower cutting speed and unstable condition.
<b>YBM251</b>	P20 - P30 M15 - M35		CVD coated P20–P30/M15–M35 carbide grade for medium to roughing operation in stainless steel and steel with wide application field. Good wear resistance and capability against plastic deformation at normal cutting speed.
<b>YBM253</b>	M15 - M35		CVD coated M15–M35 carbide grade for medium to roughing operation in stainless steel with wide application field. High wear resistance and capability against plastic deformation at higher cutting speed.
<b>YBM351</b>	P25 - P40 M20 - M40		CVD coated P25–P40/M25–M40 carbide grade for roughing operation in stainless steel and steel. Good wear resistance and edge stability at normal cutting speed.
<b>YBD152</b>	K10 - K25		CVD coated K10–K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Good wear resistance and toughness at higher cutting speed.
<b>YBD252</b>	K20 - K35		CVD coated K20–K35 carbide substrate. Optimized for medium to roughing operation of cast iron and Steel. Good wear resistance and toughness at higher cutting speed.

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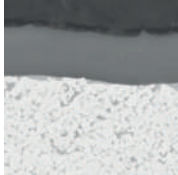
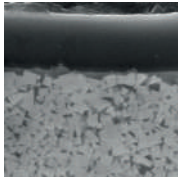

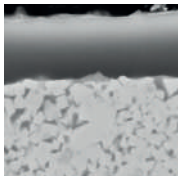

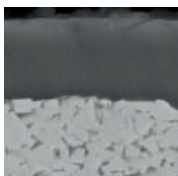
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## Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
<b>YBG102</b>	S05 - S15		PVD coated S05-S15 carbide substrate for finishing to medium application of super alloy material, stainless steel and aluminum. Good wear resistance in a wide application field.
<b>YBG202</b>	P10 - P30 M10-M25		PVD coated P10-P30/M10-M25 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
<b>YB9320</b>	P10 - P30 M10-M25		PVD multilayer coated P10-P30/M20-M40 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (grooving/milling). Optimized coating stability for higher wear resistance and thermal stability in a wide application field.
<b>YBG205</b>	P10 - P30 M20 - M40 S15-S25		PVD multilayer coated P10-P30/M20-M40/S15-S25 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (milling). Good wear resistance and thermal stability in a wide application field.
<b>YBG302</b>	P15 - P30 M25 - M40		PVD coated P15-P30/M25-M40 carbide substrate for medium roughing application of stainless steel and steel (milling). Good wear resistance and toughness.
<b>YBG152</b>	K20 - K35		PVD coated K20-K35 carbide substrate for medium roughing application of cast iron. Good wear resistance and toughness.
<b>YBG252</b>	P10 - P20 M10 - M20 K10 - K20		PVD coated P10-P20/M10-M20/K10-K20 carbide grade for finishing to medium operation of steel, stainless steel and cast iron. Good wear resistance and toughness for a wide application field.

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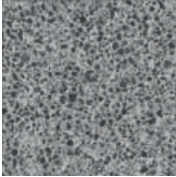
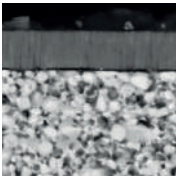
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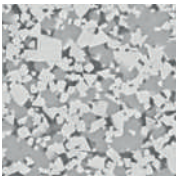
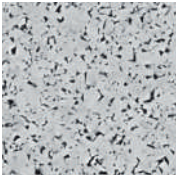
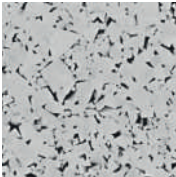
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**Cermet**

Grade	ISO	Micro structure	Grade description
<b>YNG151</b>	P05 - P15		Uncoated P05-P15 cermet grade for fine finishing operation of steel and stainless steel. Good resistance against plastic deformation for good surface finishing.
<b>YNG151C</b>	P05 - P15		PVD coated P05-P15 cermet grade for fine finishing operation of steel and stainless steel. Good wear resistance and capability against plastic deformation for good surface roughness.

**Uncoated cemented carbide**

Grade	ISO	Micro structure	Grade description
<b>YC30S</b>	P25 - P40 M25 - M40		Uncoated P25-P40/M25-M40 carbide substrate for roughing operation of steel and stainless steel.
<b>YD101</b>	N05 - N25 K05 - K20		Uncoated K05-K20/N05-N20 carbide substrate for fine to medium application in aluminum and other material.
<b>YD201</b>	K10 - K30 N10 - N30		Uncoated K10-K30/N10-N30 carbide substrate for medium application in aluminum and other material.

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## Application fields of grades – Indexable milling

	ISO	HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HT	HC <sup>2</sup>	HW	PCBN/PCD
<b>P</b>	P01		YBG102				
	P10		YBG202				
	P20	YBC301	YBG205	YNG151	YNG151C		
	P30	YBC302	YBG252				
	P40	YBC401	YBG302			YC305	
		YBM351	YB9320				
		YBM253					
<b>M</b>	M01		YBG102				
	M10	YBM251	YBG202	YNG151	YNG151C		
	M20	YBM253	YBG205				
	M30	YBM351	YBG252				
	M40	YBC401	YBG302			YC305	
			YB9320				
<b>K</b>	K01		YBG102				
	K10	YBD152	YBG152				
	K20	YBD252	YBG202				
	K30		YBG252				
	K40						YD201
<b>N</b>	N01					YD051	
	N10		YBG101			YD101	
	N20		YBG202				YD201
	N30						
<b>S</b>	S01		YBG102				
	S10		YBG202				
	S20		YBG205				
	S30						
<b>H</b>	H01						
	H10		YBG102				
	H20						
	H30						

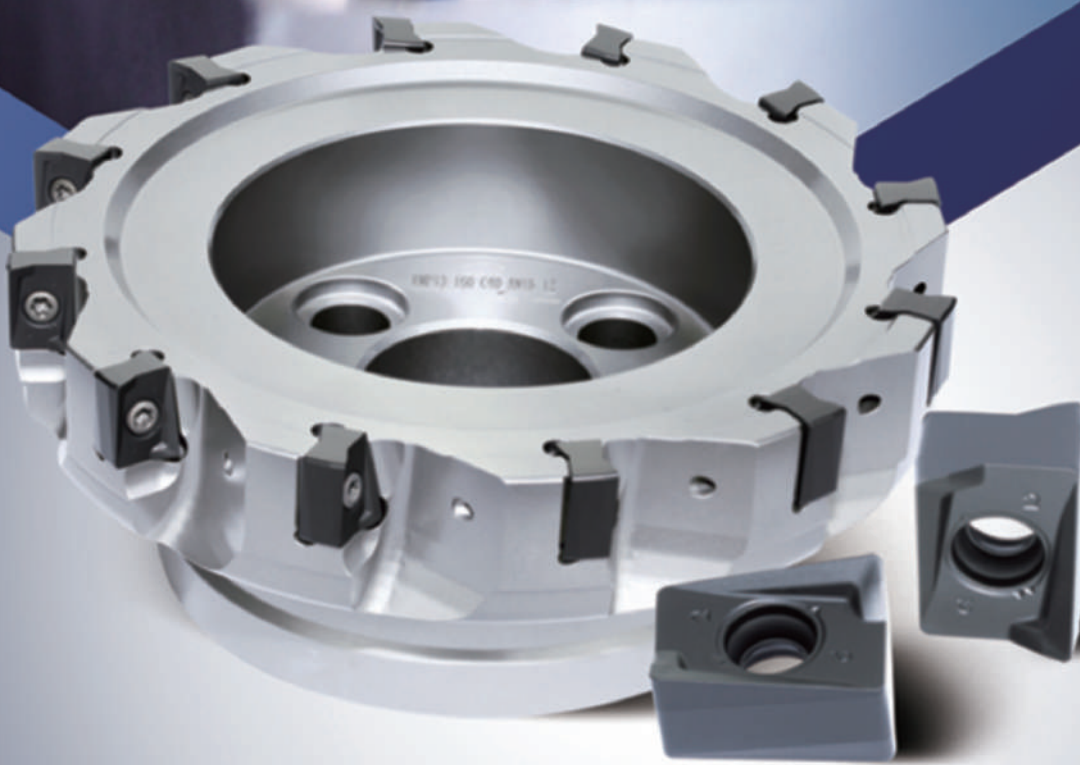
<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron

<b>N</b>	Non-ferrous metals
<b>S</b>	Heat-resistant alloys
<b>H</b>	Hardened materials

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated carbide  
 HW Uncoated carbide



New **EMP13**



## FM E 03 100 – B32 S – P 12 – 06 (L) (C)

1 2 3 4 5 6 7 8 9 10 11

Type	
Code	Description
BM	Profile milling
CM	Chamfer milling
EM	Square shoulder milling
FM	Face milling
HM	Helical milling
SM	Slot milling
TM	T-slot milling
XM	Special

1

Entering angle	
A	45°
E	75°
D	60°
P	90°
R	

2

Nominal diameter [mm]	
Code	Description
025	25
050	50
160	160
315	315
...	

4












Serial number	

3








Type and size of tool holders			
Code	Type	Code	Type
A	Nominal diameter Ø50 – 80 mm  Ø 16, 22, 27, 32  20 33 22 37  40 50 63  Ø 11, 13,5 Ø 18, 20 Ø 50, 63, 80	B	Nominal diameter Ø100 – 160 mm  Ø 27, 32, 40  50 63 70  Ø 38, 45, 56 Ø 100, 125, 160
	Nominal diameter Ø200 – 250 mm  101,6 Ø 60  63 70  Ø 18 Ø 26 Ø 200, 250		Nominal diameter Ø315 mm  177,8 101,6 Ø 60  32 70 80  Ø 22 Ø 18 Ø 34 Ø 26 Ø 315
G	Straight shank	XP	Weldon shank
K	Bore with keyway		

5









With respect to mounting please adhere to the information provided by the tool holder manufacturer.

Insert shape	
A 	C 
H 	L 
M 	O 
P 	R 
S 	T 
W 	X Special
Z Special	

6

Clearance angle	
B 	C 
D 	E 
F 	N 
P 	

7

Cutting edge length l [mm]	
Insert shape	
	
A	C, M
	
H, O, P	L
	
R	S
	
T	W

8

Number of teeth

9

Cutting direction	
Code	Description
L	Left

10



With inner cooling

11



Tools with B coupling and inner coolant supply require the following spare parts:



Spare parts (B coupling with inner coolant supply)					
		B27	B32	B40	B40
	∅	80	100	125	160
	Coolant clamp screw	LDB27C	LDB32C	LDB40C	LDB40C
	Coolant shower plate	B27-002-CP	B32-002-CP	B40-002-CP	B40-003-CP

When purchasing tools with inner coolant supply and B coupling these spare parts are included in delivery.

**S P K N 12 04 ED T21K R – DM**

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

**10**

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

Insert shape	
A	C
H	L
M	O
P	R
S	T
W	X Special
Z Special	

Clearance angle	
B	C
D	E
F	N
P	

Tolerance class			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05-0,13	±0,005	±0,025
K	±0,05-0,13	±0,013	±0,025
L	±0,05-0,13	±0,025	±0,025
M	±0,05-0,13	±0,08-0,18	±0,130
N	±0,05-0,13	±0,08-0,18	±0,025
U	±0,08-0,25	±0,13-0,38	±0,130

**1**

**2**

**3**

Fastening features (metric)	
Insert shape	
A	B
C	F
G	H
J	M
N	Q
R	T
U	W
X Special	

Cutting edge length l [mm]	
Insert shape	
A	C, M
H, O, P	L
R	S
T	W

**4**

**5**

Insert thickness S [mm]			
Code	S	Code	S
00	0,79	05	5,56
T0	0,99	T5	5,95
01	1,59	06	6,35
T1	1,98	T6	6,75
02	2,38	07	7,94
T2	2,58	09	9,52
03	3,18	T9	9,72
T3	3,97	11	11,11
04	4,76	12	12,70
T4	4,96		

**6**

Angle			
Code	Kr	Code	an
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	Special	F	25°
		G	30°
		N	0°
		P	11°
		Z	Special

**7**

Chamfer							
Code	Type	Code	Angle	Code	Width [mm]	Code	Position
F		0	5°	0	0,10	K	
E		1	10°	1	0,15	P	
T		2	15°	2	0,20	W	
S		3	20°	3	0,25	-	
		4	25°	4	0,30		
		5	30°	5	0,35		
				6	0,40		
				7	0,45		

**8**

Cutting direction	
Code	Description
R	Right
L	Left
N	Right and left

**9**

Chip breaker overview  
(on page B20)

**10**

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical  
Information

**E**

Index

**SM P 03 – 160 × 16 – K 40 – M P 12 – 12 L**

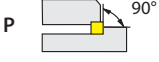
**1 2 3 4 5 6 7 8 9 10 11 12**

**A**

Turning

Type	
Code	Description
SM	Slot milling cutter

**1**

Entering angle


**2**

**B**

Milling

Serial number
---------------

**3**

Nominal diameter [mm]
-----------------------

**4**

Cutting width [mm]
--------------------

**5**

**C**

Drilling

Tool holder type			
Code	Description	Code	Description
A	A type	B	B type
C	C type	D	D type
K	With feather key		



**6**

Diameter of mounting hole [mm]
--------------------------------



**7**

**D**

Technical Information

Insert shape	
M 	S 

**8**

Clearance angle	
N 	P 

**9**

Insert size [mm]
------------------

**10**

Number of teeth
-----------------

**11**

Cutting direction	
Code	Description
R	Right
L	Left

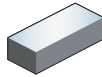
**12**

**E**

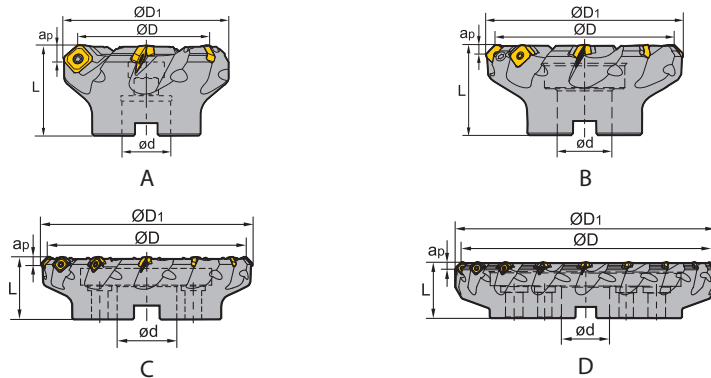
Index

Face milling

FMA01 Kr: 45°



Fine pitch



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA01-050-A22-SE12-04	● ○	50	61	22	40	6	4	A	0.3	SEET12T3		
FMA01-050-A22-SE12-04C	* ● ○	50	61	22	40	6	4	A	0.3			
FMA01-063-A22-SE12-05	● ○	63	74	22	40	6	5	A	0.5			
FMA01-063-A22-SE12-05C	* ● ○	63	74	22	40	6	6	A	1.2			
FMA01-080-A27-SE12-06	● ●	80	91	27	50	6	6	A	1.2			
FMA01-080-A27-SE12-06C	* ● ○	80	91	27	50	6	6	A	1.2			
FMA01-100-B32-SE12-07	● ○	100	107	32	50	6	7	B	1.2			
FMA01-100-B32-SE12-07C	* ○ ○	100	107	32	50	6	7	B	1.2			
FMA01-125-B40-SE12-08	● ●	125	136	40	63	6	8	B	2.6			
FMA01-125-B40-SE12-08C	* ○ ○	125	136	40	63	6	8	B	2.6			
FMA01-160-B40-SE12-10	● ●	160	170	40	63	6	10	B	4.3			
FMA01-160-B40-SE12-10C	* ○ ○	160	170	40	63	6	10	B	4.3			
FMA01-200-C60-SE12-12	● ○	200	210	60	63	6	12	C	7.6			
FMA01-250-C60-SE12-14	● ○	250	260	60	63	6	14	C	13.5			
FMA01-315-D60-SE12-18	● ○	315	325	60	70	6	18	D	20.8			
FMA01-100-B32-SE18-04	○ ○	100	120	32	63	10	4	B	1.2	SEET18T6		
FMA01-125-B40-SE18-05	○ ○	125	145	40	63	10	5	B	2.6			
FMA01-160-C40-SE18-06	○ ○	160	180	40	63	10	6	C	4.3			
FMA01-200-C60-SE18-08	● ○	200	220	60	63	10	8	C	7.6			
FMA01-250-C60-SE18-10	● ○	250	270	60	63	10	10	C	13.5			
FMA01-315-D60-SE18-12	○ ○	315	335	60	80	10	12	D	20.8			

● Ex stock ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



**A**

Turning

**B**

Milling

**C**

Drilling

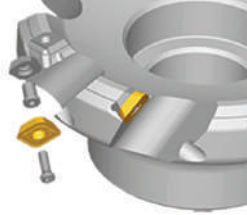
**D**

Technical Information

**E**

Index

Spare parts				
Insert	SEET12T3	SEET12T3	SEET18T6	
ØD	50-100	125 - 315	100- 315	
	Screw (insert)	I60M3.5*10 (2.7 Nm)	I60M3.5*12 (2.7 Nm)	I60M5*17 (6.7 Nm)
	Screw (shim)		SM5*7XA	SM8*9XA
	Shim		S13BS	S18BS
	Wrench (insert)	WT15IS	WT15IS	
	Wrench (insert)			WT20IT
	Wrench (shim)		WH35L	WH50L



## Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SEET	L	I.C	S	d
12 T3	13.4	13.4	3.97	4.1
18 T6	18	18	6.1	5.5

SE** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
		P	M	K	N	S	H																	
	ISO	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201
	SEET12T3-CF	2.55							●		●													
	SEET12T3-CM	2.55							●		●													
	SEET12T3-CR	2.55							●	●	○													
	SEET12T3-DF	2.55	●	●		●	●						●	○					○			○		
	SEET12T3-DM	2.55	●	●	●	●	●				●		●		●									
	SEET18T6-DM	2.29	●			●																		

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SEET	L	I.C	S	d
<b>12</b> T3	13.4	13.4	3.97	4.1
<b>18</b> T6	18	18	6.1	5.5

SE** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW							
		<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗						
		<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗						
		<b>K</b>																					
		<b>N</b>																					
		<b>S</b>																					
		<b>H</b>																					
ISO		bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	SEET12T3-DR	2.55	●	●			●		○					○		○							
	SEET12T3-EF	2.55												○		●							
	SEET12T3-EM	2.55				●	●							○		●							
	SEET12T3-LH	2.55								○												●	●

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SEET	L	I.C	S	d
<b>12</b> T3	17.82	13.4	3.97	4.1

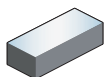
SE** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
		<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗							
		<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗							
		<b>K</b>																						
		<b>N</b>																						
		<b>S</b>																						
		<b>H</b>																						
ISO		R	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	SEET12T3-W	500	9.46							○					●					○	○			

● Ex stock ○ On demand

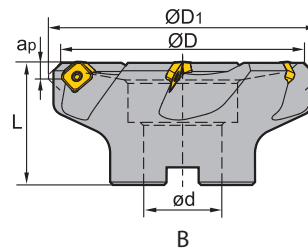
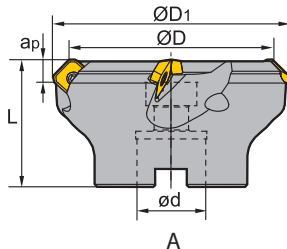
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Face milling

FMA02 Kr: 45°



Coarse and differential pitch



Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA02-050-A22-SE12-03		●	50	61	22	40	6	3	A	0.4	SEET12T3
FMA02-063-A22-SE12-04		●	63	74	22	40	6	4	A	0.6	
FMA02-080-A27-SE12-04		●	80	91	27	50	6	4	A	1.3	
FMA02-100-B32-SE12-05		●	100	107	32	50	6	5	B	1.3	
FMA02-125-B40-SE12-06		○	125	131	40	63	6	6	B	2.6	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	<b>Insert</b>	<b>SEET12T3</b>
	<b>ØD</b>	<b>50-125</b>
	Screw (insert)	I60M3.5*10 (2.7 Nm)
	Wrench (insert)	WT15IS



System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SEET	L	I.C	S	d
12 T3	13.4	13.4	3.97	4.1

**Milling inserts**

SE** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
			P	M	K	N	S	H	P	M	K	N	S	H									
ISO		bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	SEET12T3-CF	2.55							●		●												
	SEET12T3-CM	2.55							●		●												
	SEET12T3-CR	2.55							●	●		○											
	SEET12T3-DF	2.55	●	●		●	●						●		○			○	○				
	SEET12T3-DM	2.55	●	●	●	●	●	●				●	●	●									
	SEET12T3-DR	2.55	●	●		●		○					○	○									
	SEET12T3-EF	2.55											○	●									
	SEET12T3-EM	2.55				●	●						○	●									
	SEET12T3-LH	2.55								○												●	●

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**  
Turning

**B**  
Milling

**C**  
Drilling

**D**  
Technical Information

**E**  
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**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SEET	L	I.C	S	d
<b>12 T3</b>	17.82	13.4	3.97	4.1

## Milling inserts

SE** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>K</b>									●						●								
	<b>N</b>									●						●								
	<b>S</b>			●	●					●	●	●	●											
	<b>H</b>																							
ISO	R	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	<b>SEET12T3-W</b>	500	9.46												●									

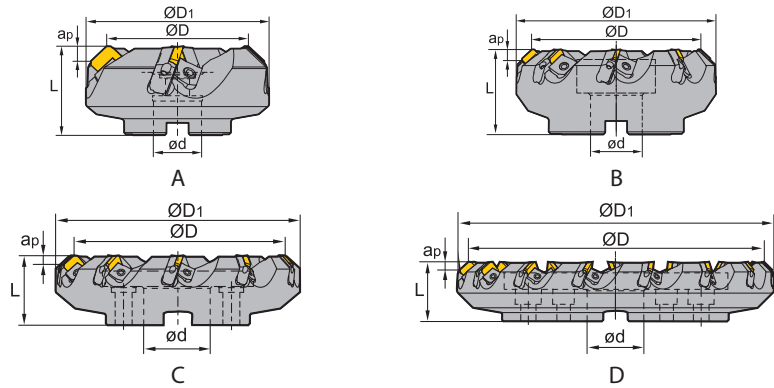
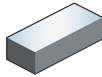
● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Face milling

FMA03 Kr: 45°



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA03-080-A27-SE12-04		○	○	80	103	27	50	5.5	4	A	1.8	SEEN1203 SEKN1203 SEKR1203
FMA03-100-B32-SE12-05		○	○	100	122	32	50	5.5	5	B	2.4	
FMA03-125-B40-SE12-06		○	○	125	147	40	63	5.5	6	B	4.4	
FMA03-160-B40-SE12-08		○	○	160	181	40	63	5.5	8	B	6.4	
FMA03-200-C60-SE12-10		○	○	200	221	60	63	5.5	10	C	8.5	
FMA03-250-C60-SE12-12		○	○	250	270	60	63	5.5	12	C	14.1	SEKN1504 SEKR1504
FMA03-315-D60-SE12-15		○	○	315	353	60	63	5.5	15	D	22.2	
FMA03-080-A27-SE15-04		○		80	103	27	50	7.5	4	A	1.7	
FMA03-100-B32-SE15-05		○		100	122	32	50	7.5	5	B	2.3	
FMA03-125-B40-SE15-06		○		125	147	40	63	7.5	6	B	4.2	
FMA03-160-B40-SE15-08		○		160	181	40	63	7.5	8	B	6.1	
FMA03-200-C60-SE15-10		○		200	221	60	63	7.5	10	C	8.3	
FMA03-250-C60-SE15-12		○		250	270	60	63	7.5	12	C	13.6	
FMA03-315-D60-SE15-15		○	○	315	353	60	63	7.5	15	D	21.8	

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463

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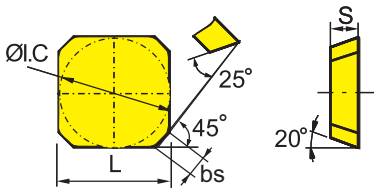
Spare parts			
	Insert	SEEN1203 SEKN1203 SEKR1203	SEKN1504 SEKR1504
	ØD	80- 315	80- 315
	Adjustable screw	LOM5*15.1	LOM5*15.1
	Cassette (left)	LSE12L	LSE15L
	Cassette (right)	LSE12R	LSE15R
	Screw (wedge)	DM8*21X (10.2 Nm)	DM8*21X (10.2 Nm)
	Wedge (left)	W01L	W01L
	Wedge (right)	W01R	W01R
	Wrench (locator)	WT20T	WT20T
	Wrench (wedge)	WH40T	WH40T



## Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SEEN	L	I.C	S
12 03	12.7	12.7	3.18

SE** milling insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SEEN1203AFTN	1.8																					

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SEKN	L	I.C	S
12 03	12.7	12.7	3.18
15 04	15.875	15.875	4.76

SE** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW										
	<b>P</b>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>										
	<b>M</b>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>										
	<b>K</b>							<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>									
	<b>N</b>							<span style="color: green;">⊗</span>						<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>									
	<b>S</b>		<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>				<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>													
	<b>H</b>																							
ISO		bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201		
	SEKN1203AFN	1.8	○																					
	SEKN1203AFTN	1.8	●	●	●	●								○					●	●			○	
	SEKN1504AFTN	1.6	●	○		●	●						●											○
	SEKN1504AZ	1.6	●																					○

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SEKR	L	I.C	S
12 03	12.7	12.7	3.18

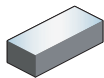
SE** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>									
	<b>M</b>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>									
	<b>K</b>							<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>								
	<b>N</b>							<span style="color: green;">⊗</span>							<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>							
	<b>S</b>		<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>				<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>												
	<b>H</b>																						
ISO		bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SEKR1203AFN	1.8	●											○									

● Ex stock    ○ On demand

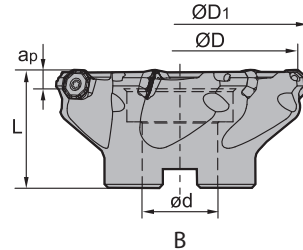
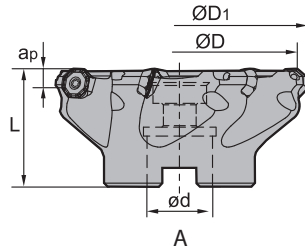
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Face milling

FMA04 Kr: 45°



Screw Clamping



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA04-050-A22-OF05-04	●			50	56	22	40	3.5	4	A	0.3	OFKT05T3
FMA04-050-A22-OF05-05	●			50	56	22	40	3.5	5	A	0.4	
FMA04-050-A22-OF05-05C	* ○			50	56	22	40	3.5	5	A	0.4	
FMA04-063-A22-OF05-05	●			63	69	22	40	3.5	5	A	0.5	
FMA04-063-A22-OF05-05C	* ○			63	69	22	40	3.5	5	A	0.5	
FMA04-080-A27-OF05-06	● ○			80	86	27	50	3.5	6	A	0.8	
FMA04-080-A27-OF05-06C	* ●			80	86	27	50	3.5	6	A	0.8	
FMA04-100-B32-OF05-07	● ○			100	106	32	50	3.5	7	B	1.2	
FMA04-100-B32-OF05-07C	* ○			100	106	32	50	3.5	7	B	1.2	
FMA04-125-B40-OF05-08	●			125	130	40	63	3.5	8	B	2.7	
FMA04-125-B40-OF05-08C	* ○			125	130	40	63	3.5	8	B	2.7	
FMA04-160-B40-OF05-10	●			160	165	40	63	3.5	10	B	5.1	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	OFKT05T3	
		50-63	80-160
	Screw (insert)	I60M4*8.4 (3.4 Nm)	I60M4*10 (3.4 Nm)
	Wrench (insert)	WT15IS	WT15IS



System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



- Ideal machining conditions
- ✳ Normal machining conditions
- ✳ Unfavourable machining conditions

OFKT	L	I.C	S	d
05 T3	5.26	12.7	3.97	4.4

**Milling inserts**

OF** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
		<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>								
		<b>M</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>							
		<b>K</b>					<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>						
		<b>N</b>							<span style="color: blue;">✳</span>							<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>						
		<b>S</b>		<span style="color: blue;">✳</span>	<span style="color: blue;">✳</span>					<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>										
		<b>H</b>																					
ISO		R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	OFKT05T3-DF	0.5									●			●									
	OFKT05T3-DM	0.5				○		●			●		●		●								
	OFKT05T3-LH	0.5																					●

● Ex stock    ○ On demand

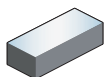
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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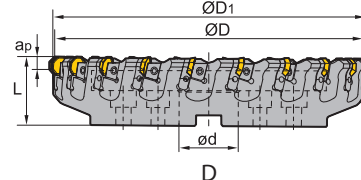
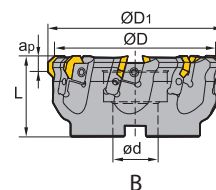
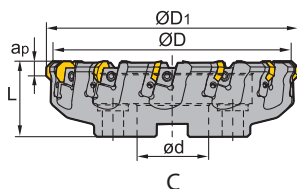


## Face milling

FMA04 Kr: 45°



Wedge



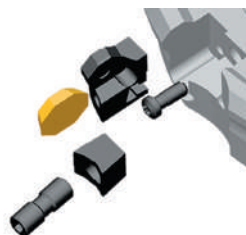
Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA04-125-B40-OF07-08	●			125	136	40	63	5	8	B	3.9	OFKR0704
FMA04-160-B40-OF07-10	●			160	171	40	63	5	10	B	5.9	
FMA04-200-C60-OF07-12	●			200	211	60	63	5	12	C	7.6	
FMA04-250-C60-OF07-16	●			250	261	60	63	5	16	C	13.3	
FMA04-315-D60-OF07-20	○	○		315	321	60	63	5	20	D	20.3	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	OFKR0704
	ØD	125 - 315
	Adjustable screw	LOM5*15.1
	Cassette (left)	LOF07L
	Cassette (right)	LOF07R
	Screw (wedge)	DM8*21X (10.2 Nm)
	Wedge (left)	W02L
	Wedge (right)	W02R
	Wrench (locator)	WT20T
	Wrench (wedge)	WH40T



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

OFR	L	I.C	S
07 04	7.45	17.94	4.76

### Milling inserts

OF** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●									
	<b>M</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●									
	<b>K</b>				●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>N</b>						●●●●●●●●								●●●●●●●●	●●●●●●●●								
	<b>S</b>		●●●●●●●●	●●●●●●●●				●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●												
	<b>H</b>																							
	ISO	R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	OFKR0704-DF	0.8				○								●										
	OFKR0704-DM	0.8	●	●		●	●	●							○		●							
	OFKR0704W-DM	0.8	○						○				●											

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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Face mill

# FMA07 *Kr: 45°*

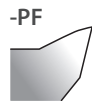
## Face mill

- High cost-benefit factor due to 16 cutting edges.
- Thick insert for best stability and break resistance.
- Different chip breakers for best chip breaking.
- Two insert sizes available.

## Insert grades

<b>YBC302</b> CVD P15 – P35	<b>YBG202</b> PVD P10 – P30	<b>YBM253</b> CVD P20 – P40	<b>YBM351</b> CVD P25 – P40
<b>YBG205</b> PVD P10 – P30 M20 – M30	<b>YB9320</b> PVD P15 – P25 M20 – M30	<b>YBD152</b> CVD K05 – K25	

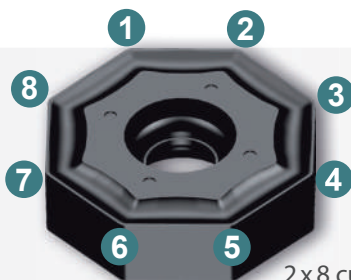
## Chip breakers



- PF**
- Low cutting forces
  - Very sharp



- PM**
- General application
  - Good balance between stability and sharpness

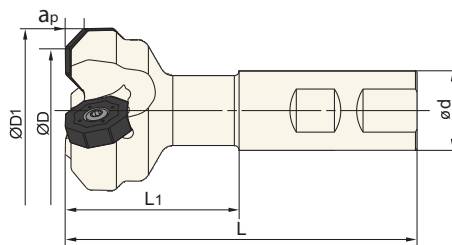
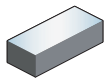


2x8 cutting edges



## Face milling

FMA07 Kr: 45°



Weldon shank

Article	*	Stock	Dimensions [mm]						Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
FMA07-025-XP20-ON06-02		○	25	37	20	45	95	4	2	0.2	ONHU0604
FMA07-025-XP20-ON06-02C	*	○	25	37	20	45	95	4	2	0.2	
FMA07-032-XP25-ON06-02C	*	●	32	44	25	55	111	4	2	0.4	
FMA07-040-XP25-ON06-03		○	40	52	25	50	106	4	3	0.4	ONHU08T5
FMA07-032-XP25-ON08-02		●	32	47	25	55	111	5	2	0.4	
FMA07-040-XP25-ON08-03		●	40	55	25	55	111	5	3	0.5	
FMA07-040-XP25-ON08-03C	*	●	40	55	25	55	111	5	3	0.5	
FMA07-050-XP25-ON08-04		●	50	65	25	55	111	5	4	0.6	

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert	ONHU0604	ONHU08T5
	ØD	25-40	32-50
	Screw (insert)	I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)
	Wrench (insert)	WT15IS	
	Wrench (insert)		WT20IT



- Ideal machining conditions
- ● Normal machining conditions
- Unfavourable machining conditions

ONHU	L	I.C	S	d
<b>06</b> 04	6.58	15.875	4.76	4.4
<b>08</b> T5	8.39	20.2	5.77	5.3

### Milling inserts

ON** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>K</b>								●	●	●	●	●	●	●	●	●							
	<b>N</b>								●	●	●	●	●	●	●	●	●							
	<b>S</b>			●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	ONHU060408-PF	0.8	○			○		●						●										
	ONHU08T508-PF	0.8	●		●			○					●	●										
	ONHU060408-PM	0.8	●		●	●	●						●											
	ONHU08T508-PM	0.8	●		●	●	●																	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > B26

Grade selection > B24

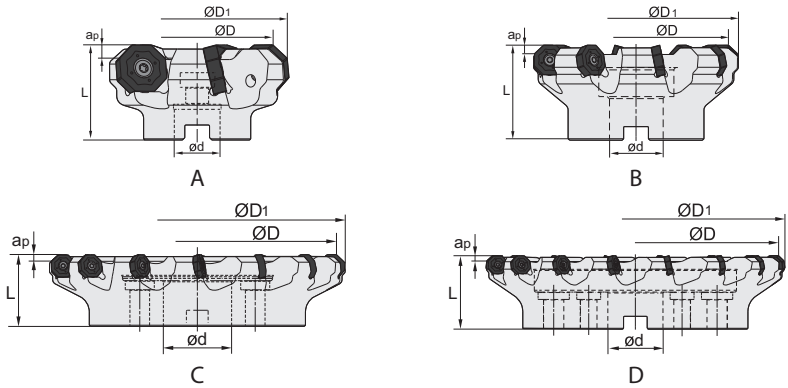
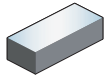
Technical info > B463

Cutting data > B224



## Face milling

FMA07 Kr: 45°



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA07-050-A22-ON06-05		●	○	50	62	22	40	4	5	A	0.3	ONHU0604
FMA07-050-A22-ON06-05C	*	●		50	62	22	40	4	5	A	0.3	
FMA07-063-A22-ON06-06		○		63	75	22	40	4	6	A	0.5	
FMA07-063-A22-ON06-06C	*	●		63	75	22	40	4	6	A	0.5	
FMA07-080-A27-ON06-07C	*	●		80	92	27	50	4	7	A	1	
FMA07-080-B27-ON06-07		●		80	92	27	50	4	7	B	1	
FMA07-100-B32-ON06-08		●		100	112	32	63	4	8	B	1.9	
FMA07-100-B32-ON06-08C	*	●		100	112	32	63	4	8	B	1.9	
FMA07-125-B40-ON06-09		●		125	137	40	63	4	9	B	3.5	
FMA07-125-B40-ON06-09C	*	●		125	137	40	63	4	9	B	3.5	
FMA07-160-C40-ON06-11		○	○	160	172	40	63	4	11	C	4.3	
FMA07-200-C60-ON06-13		○		200	212	60	63	4	13	C	6.4	
FMA07-250-C60-ON06-15		○		250	262	60	63	4	15	C	13.4	
FMA07-315-D60-ON06-17		○		315	327	60	80	4	17	D	21.9	
FMA07-063-A22-ON08-05		●		63	78	22	40	5	5	A	0.5	ONHU08T5
FMA07-063-A22-ON08-05C	*	●		63	78	22	40	5	5	A	0.5	
FMA07-080-A27-ON08-06C	*	●		80	95	27	50	5	6	A	0.9	
FMA07-080-B27-ON08-06		●	○	80	95	27	50	5	6	B	0.9	
FMA07-100-B32-ON08-07		●		100	115	32	63	5	7	B	1.8	
FMA07-100-B32-ON08-07C	*	●		100	115	32	63	5	8	B	3.1	
FMA07-125-B40-ON08-08		●	○	125	140	40	63	5	8	B	3.1	
FMA07-125-B40-ON08-08C	*	●		125	140	40	63	5	8	B	3.1	
FMA07-160-C40-ON08-10		●	○	160	175	40	63	5	10	C	4.1	
FMA07-200-C60-ON08-12		●	○	200	215	60	63	5	12	C	6.1	
FMA07-250-C60-ON08-14		●	○	250	265	60	63	5	14	C	12	
FMA07-315-D60-ON08-16		●	○	315	330	60	80	5	16	D	21	

● Ex stock    ○ On demand

\* With internal cooling





System code > B26

Grade selection > B24




Technical info > B463

Cutting data > B224

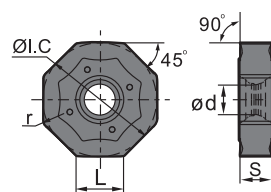




Spare parts			
Insert	ONHU0604	ONHU08T5	
ØD	50- 315	63- 315	
 Screw (insert)	I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)	
 Wrench (insert)	WT15IS		
 Wrench (insert)		WT20IT	

**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

ONHU	L	I.C	S	d
<b>06 04</b>	6.58	15.875	4.76	4.4
<b>08 T5</b>	8.39	20.2	5.77	5.3

ON** milling insert		HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW												
		P	M	K	N	S	H	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
ISO		r																										
	ONHU060408-PF	0.8	○		○		●												●									
	ONHU08T508-PF	0.8	●		●		○											●	●									
	ONHU060408-PM	0.8	●		●		●											●										
	ONHU08T508-PM	0.8	●		●		●																					

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Notes

**A**

Turning

**B**

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Notes section with horizontal dotted lines for writing.

# FMA 11 Kr: 45°





## New face mill generation

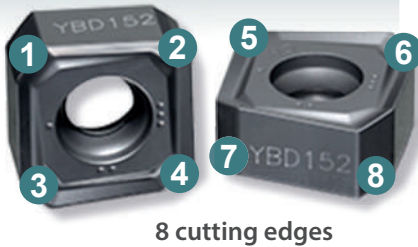
- Double sided, extra thick insert with 8 cutting edges.
- Large rake angle reduces cutting forces.
- More stability for larger cutting depths.
- Wiper geometry for better surface quality.

### Insert grades

<b>YBC302</b> CVD P15 – P35	<b>YBM253</b> CVD P20 – P40	<b>YBD152</b> CVD K05 – K25
<b>YBD252</b> CVD K15 – K35	<b>YBG205</b> PVD P10 – P30 M20 – M30	<b>YB9320</b> PVD P15 – P25 M20 – M30

### Chip breakers

<b>-GM</b>  • General machining	<b>-GR</b>  • Stable cutting edge
<b>-E</b>  • Sharp cutting edge • First choice for stainless steel	<b>-W</b>  • Wiper geometry for best surface quality

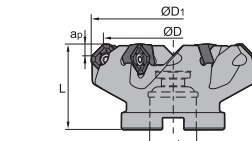
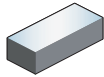


### Insert sizes

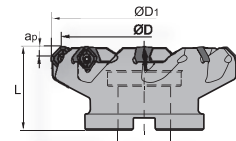


## Face milling

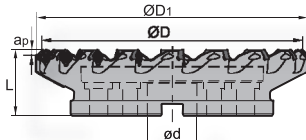
FMA11 Kr: 45°



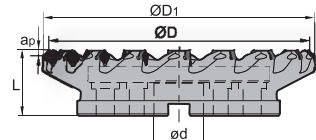
A



B



C



D

Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts	
			ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>					
FMA11-063-A22-SN12-05		●	63	74.47	22	40	5.5	5	A	0.55	SNEG1205	
FMA11-063-A22-SN12-06		●	63	74.47	22	40	5.5	6	A	0.58		
FMA11-080-A27-SN12-06		●	80	91.47	27	50	5.5	6	A	1.14		
FMA11-100-B32-SN12-07		●	100	111.47	32	50	5.5	7	B	1.42		
FMA11-100-B32-SN12-07C	*	○	100	111.47	32	50	5.5	7	B	1.42		
FMA11-100-B32-SN12-10C	*	●	100	111.47	32	50	5.5	10	B	1.42		
FMA11-125-B40-SN12-08		●	125	136.47	40	63	5.5	8	B	2.86		
FMA11-125-B40-SN12-08C	*	○	125	136.47	40	63	5.5	8	B	2.86		
FMA11-125-B40-SN12-12C	*	●	125	136.47	40	63	5.5	12	B	2.86		
FMA11-160-C40-SN12-10		●	160	171.47	40	63	5.5	10	C	4.06		
FMA11-160-C40-SN12-15		●	160	171.47	40	63	5.5	15	C	4.06		
FMA11-200-C60-SN12-14		●	200	212.08	60	63	5.5	14	C	6.89		
FMA11-063-A22-SN15-05		●	63	77.4	22	40	7	5	A	0.56		SNEG1506
FMA11-080-A27-SN15-06		●	80	94.4	27	50	7	6	A	1.06		
FMA11-100-B32-SN15-07		●	100	114.4	32	50	7	7	B	1.47		
FMA11-100-B32-SN15-07C	*	○	100	114.4	32	50	7	7	B	1.47		
FMA11-100-B32-SN15-09C	*	●	100	114.4	32	50	7	9	B	1.47		
FMA11-125-B40-SN15-08		●	125	139.4	40	63	7	8	B	2.7		
FMA11-125-B40-SN15-08C	*	○	125	139.4	40	63	7	8	B	2.7		
FMA11-125-B40-SN15-10C	*	●	125	140.25	40	63	7	10	B	3.1		
FMA11-160-C40-SN15-10		●	160	174.4	40	63	7	10	C	3.92		
FMA11-160-C40-SN15-13		●	160	175.25	40	63	7	13	C	4.14		
FMA11-200-C60-SN15-12		●	200	214.4	60	63	7	12	C	5.46		
FMA11-250-C60-SN15-14		●	250	264.4	60	63	7	14	C	11.26		
FMA11-315-D60-SN15-18		○	315	329.4	60	80	7	18	D	20		
FMA11-125-B40-SN19-07		●	125	142.63	40	63	9	7	B	3	SNEG1907	
FMA11-125-B40-SN19-07C	*	●	125	142.63	40	63	9	7	B	3		
FMA11-160-C40-SN19-09		●	160	167.63	40	63	9	9	C	4.25		
FMA11-200-C60-SN19-11		●	200	217.63	60	63	9	11	C	6.18		

● Ex stock ○ On demand


\* With internal cooling

System code > B26

Grade selection > B24





Technical info > B463

Cutting data > B224




Article	* Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts 
		ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA11-250-C60-SN19-13	●	250	267.63	60	63	9	13	C	11.55	SNEG1907
FMA11-315-D60-SN19-16	○	315	332.63	60	80	9	16	D	20.9	

● Ex stock ○ On demand







\* With internal cooling

Spare parts					
Insert	SNEG1205	SNEG1506	SNEG1907		
ØD	63-200	63-315	125-315		
 Screw (insert)	I60M3.5*10 (2.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)		
 Wrench (insert)	WT15IS				
 Wrench (insert)		WT20IT	WT25IT		

### Milling inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SNEG	L	I.C	S	d
12 05	7.6	12	4.76	4.6
15 06	9.4	15	5.6	5.5
19 07	12.1	19	7	7.2

SN** negative insert				HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW							
		P	M	K	N	S	H	P	M	K	N	S	H										
		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SNEG1506ANR-E	0.9	1.3										●										
	SNEG1205ANR-GM	0.8	1.05	●	●	●						●											
	SNEG1506ANR-GM	0.9	1.3	●	●	●						●											
	SNEG1205ANR-GR	0.8	1.05	●	●	●																	
	SNEG1506ANR-GR	0.9	1.3	●	●	●																	
	SNEG1907ANR-GR	1	1.67	●	●	●	●																

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

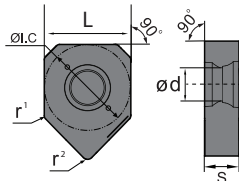

**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SNEG	L	I.C	S	d
12 05	12	12	4.76	4.6

## Milling inserts

SN** negative insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW							
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>K</b>															●							
	<b>N</b>															●							
	<b>S</b>																						
	<b>H</b>																						
ISO	r1	r2	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
 <b>SNEG1205ANR-W</b>	0.6	0.8												●									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

# FMA12 <sup>Kr: 45°</sup>

## Face mill

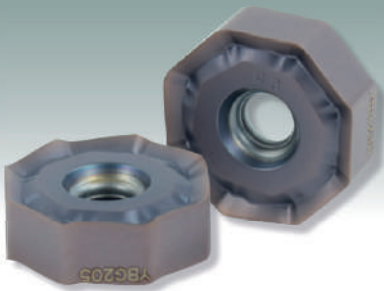
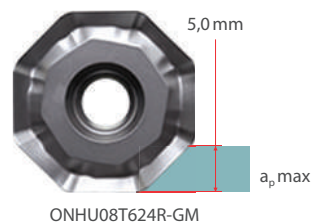
- High cost-benefit factor due to 16 cutting edges.
- Three-dimensional chip breaker for tough materials.
- Smooth cut due to positive and sharp cutting edge.

### Insert grades

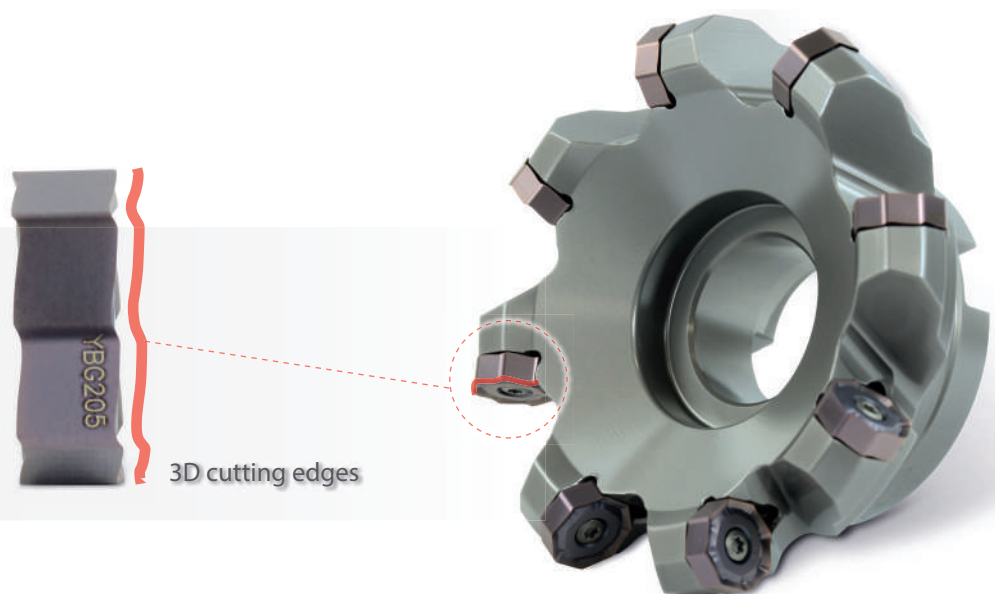
<b>YBM253</b>	<b>YBG205</b>	<b>YBD152</b>	<b>YBD252</b>
CVD	PVD	CVD	CVD
P20–P40	P10–P30	K05–K25	K15–K35
M10–M30	M10–M30		

### Chip breakers

-GM

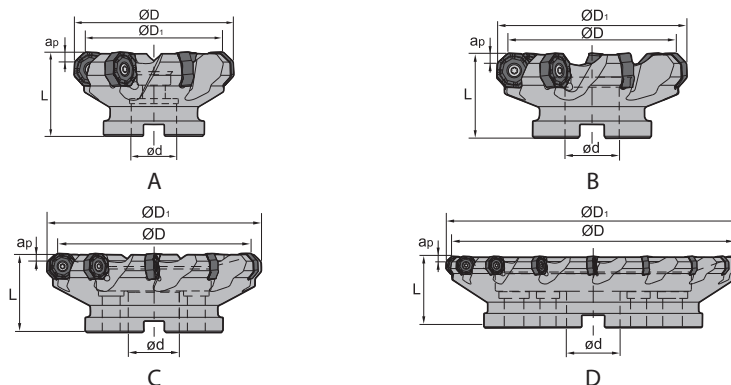
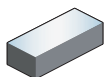


16 cutting edges



## Face milling

FMA12 Kr: 45°



Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMA12-063-A22-ON08-05		●	63	78	22	50	5	5	A	0.6	ONHU08T6
FMA12-080-A27-ON08-06		○	80	95	27	50	5	6	A	0.97	
FMA12-100-B32-ON08-07		●	100	115	32	50	5	7	B	1.28	
FMA12-100-B32-ON08-07C	*	●	100	115	32	50	5	7	B	1.28	
FMA12-125-B40-ON08-08		●	125	140	40	63	5	8	B	2.59	
FMA12-125-B40-ON08-08C	*	●	125	140	40	63	5	8	B	2.59	
FMA12-160-C40-ON08-10		●	160	175	40	63	5	10	C	4.1	
FMA12-200-C60-ON08-12		●	200	215	60	63	5	12	C	5.68	
FMA12-250-C60-ON08-14		○	250	265	60	63	5	14	C	11.9	
FMA12-315-D60-ON08-18		○	315	330	60	80	5	18	D	20.41	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
Insert	ØD	ONHU08T6	
Screw (insert)		63-315	
		I60M5*13 (6.7 Nm)	
Wrench (insert)		WT20IT	

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Grade selection > B24

Technical info > B463

Cutting data > B224



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

ONHU	L	I.C	S	d
<b>08 T6</b>	6.38	20.2	6.3	5.3

### Milling inserts

ON** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>K</b>							⊗								⊗							
	<b>N</b>							⊗								⊗							
	<b>S</b>		⊗		⊗			⊗	⊗	⊗	⊗	⊗											
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	ONHU08T624R-GM	2.4			●		○						○										

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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Notes section containing horizontal dotted lines for writing.

# FMD02 *Kr: 67°*

## Face mill

- Smooth-cutting inserts due to trough-shaped chip breaker.
- Chamfer with wiper for best surface quality.
- Wide selection of inserts with 6 different chip breakers.
- Milling body available in wide, normal and close pitch (wedge clamping).

## Insert grades

YBC302

CVD  
P15–P35

YBM253

CVD  
P10–P40

YBD152

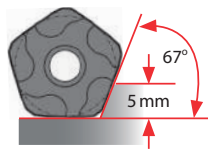
CVD  
K05–K25

YBD252

CVD  
K15–K35

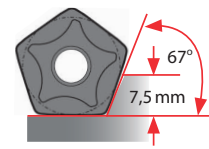
## Chip breakers

-CF -CM -CR



• Cast iron machining  
 $a_{pmax} = 5 \text{ mm}$

-PF -PM -PR



• Steel  
 $a_{pmax} = 7.5 \text{ mm}$



2x5 cutting edges



• Entry angle  $Kr = 67^\circ$



• Screw clamping



• Wedge clamping

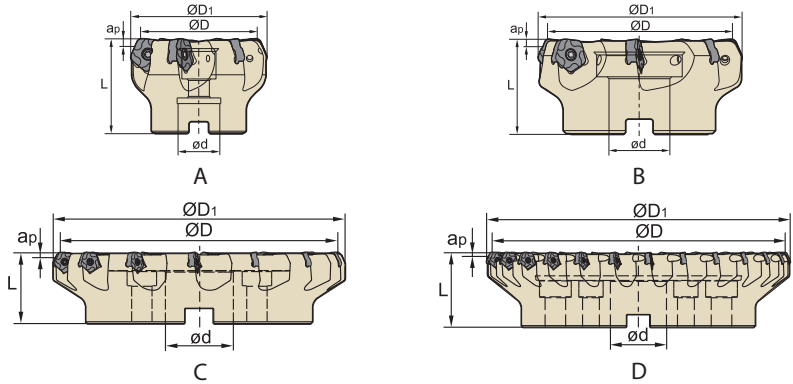
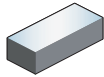



• Wiper



## Face milling

FMD02 Kr: 67°



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	Ød	L	a <sub>p max</sub>				
FMD02-050-A22-PN11-04		●	○	50	60.1	22	50	5	4	A	0.6	
FMD02-050-A22-PN11-04C	*	○		50	60.1	22	50	5	4	A	0.6	
FMD02-050-A22-PN11-05		●		50	60.1	22	50	5	5	A	0.6	
FMD02-050-A22-PN11-05C	*	●		50	60.1	22	50	5	5	A	0.6	
FMD02-063-A22-PN11-05		●	○	63	73.1	22	50	5	5	A	0.8	
FMD02-063-A22-PN11-05C	*	○		63	73.1	22	50	5	5	A	0.8	
FMD02-063-A22-PN11-06		●		63	73.1	22	50	5	6	A	0.9	
FMD02-063-A22-PN11-06C	*	●		63	73.1	22	50	5	6	A	0.9	
FMD02-080-A27-PN11-06		●		80	90.1	27	50	5	6	A	1.1	
FMD02-080-A27-PN11-08		●		80	90.1	27	50	5	8	A	1.2	
FMD02-080-A27-PN11-08C	*	●		80	90.1	27	50	5	8	A	1.2	
FMD02-100-B32-PN11-07		●		100	110.1	32	50	5	7	B	1.8	
FMD02-100-B32-PN11-07C	*	○		100	110.1	32	50	5	7	B	1.8	
FMD02-100-B32-PN11-10		●		100	110.1	32	50	5	10	B	1.9	
FMD02-100-B32-PN11-10C	*	○		100	110.1	32	50	5	10	B	1.9	
FMD02-125-B40-PN11-08		●	●	125	135.1	40	63	5	8	B	2.9	
FMD02-125-B40-PN11-08C	*	○		125	135.1	40	63	5	8	B	2.9	
FMD02-125-B40-PN11-12		●	○	125	135.1	40	63	5	12	B	3.2	
FMD02-125-B40-PN11-12C	*	○		125	135.1	40	63	5	12	B	3.2	
FMD02-160-B40-PN11-10		●	○	160	170.1	40	63	5	10	B	5.6	
FMD02-160-B40-PN11-14		●	○	160	170.1	40	63	5	14	B	6.4	
FMD02-200-C60-PN11-12		○	○	200	210.1	60	63	5	12	C	7.9	
FMD02-200-C60-PN11-16		●		200	210.1	60	63	5	16	C	8.5	
FMD02-200-C60-PN11-20		○		200	210.1	60	63	5	20	C	8.5	
FMD02-200-C60-PN11-24		●		200	210.1	60	63	5	24	C	8.6	
FMD02-250-C60-PN11-14		○		250	260.1	60	63	5	14	C	13.4	
FMD02-250-C60-PN11-18		●	○	250	260.1	60	63	5	18	C	18	
FMD02-250-C60-PN11-30		○		250	260.1	60	63	5	30	C	13.5	
FMD02-315-D60-PN11-26		○	○	315	325.1	60	80	5	26	D	24.5	

PNEG1105

● Ex stock    ○ On demand

\* With internal cooling

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Grade selection > B24

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Spare parts

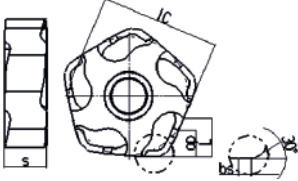
Insert	PNEG1105
ØD	50-315
Screw (insert)	I60M4*10 (3.4 Nm)
Wrench (insert)	WT15IS



- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

PNEG	L	I.C	S	d
11 05	5.4	15.875	5.56	4.64

**Milling inserts**

PN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW														
		P	M	K	N	S	H	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
ISO	bs	a <sub>p</sub> max																										
PNEG110512L-CF	1.6	5																										
PNEG110512R-CF	1.6	5																										
PNEG110512L-CM	1.6	5																										
PNEG110512R-CM	1.6	5																										
PNEG110512L-CR	1.6	5																										
PNEG110512R-CR	1.6	5																										

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

PNEG	L	I.C	S	d
11 05	7.5	15.875	5.56	4.64

## Milling inserts

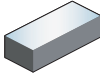
PN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	bs	a <sub>p max</sub>	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	PNEG110512L-PF	1.6	7.5	○																			
	PNEG110512R-PF	1.6	7.5	○	○																		
	PNEG110512L-PM	1.6	7.5	○	○																		
	PNEG110512R-PM	1.6	7.5	●	●																		
	PNEG110512L-PR	1.6	7.5	○	●																		
	PNEG110512R-PR	1.6	7.5	○	●																		

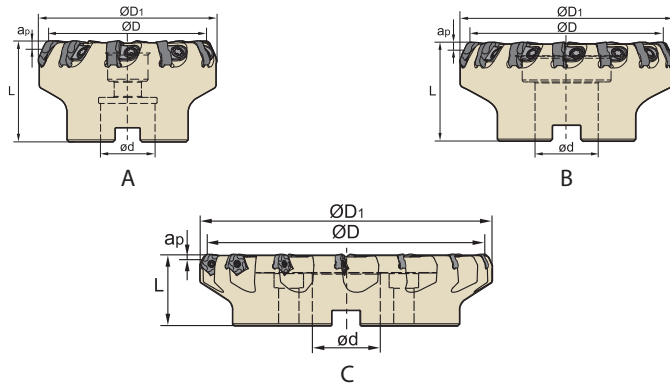
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Face milling




FMD02 Kr: 67° 




Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMD02-080-A27-PN11-10	●			80	90.1	27	50	5	10	A	1.3	PNEG1105
FMD02-100-B32-PN11-14	●	○		100	110.1	32	50	5	14	B	1.6	
FMD02-125-B40-PN11-18	●			125	135.1	40	63	5	18	B	3.2	
FMD02-160-B40-PN11-22	●			160	170.1	40	63	5	22	B	5.8	
FMD02-200-C60-PN11-28	○	○		200	210.1	60	63	5	28	C	8.5	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	Insert ØD	PNEG1105 80-200
	Screw (wedge)	DM6*20A (7.0 Nm)
	Wedge	W18N
	Wrench (wedge)	WT15IT



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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

PNEG	L	I.C	S	d
11 05	5.4	15.875	5.56	4.64

## Milling inserts

PN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●										
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●										
	<b>K</b>								●							●									
	<b>N</b>								●							●									
	<b>S</b>			●	●				●	●	●														
	<b>H</b>																								
ISO		bs	a <sub>p</sub> max	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	PNEG110512L-CF	1.6	5							○															
	PNEG110512R-CF	1.6	5							●															
	PNEG110512L-CM	1.6	5							○															
	PNEG110512R-CM	1.6	5							●															
	PNEG110512L-CR	1.6	5							○ ○															
	PNEG110512R-CR	1.6	5							● ●															

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

PNEG	L	I.C	S	d
11 05	7.5	15.875	5.56	4.64

## Milling inserts

PN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●										
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●										
	<b>K</b>								●							●									
	<b>N</b>								●							●									
	<b>S</b>			●	●					●	●	●													
	<b>H</b>																								
ISO		bs	a <sub>p</sub> max	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	PNEG110512L-PF	1.6	7.5							○															
	PNEG110512R-PF	1.6	7.5							○															

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463



Cutting data > B224



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

PNEG	L	I.C	S	d
11 05	7.5	15.875	5.56	4.64

### Milling inserts

PN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
ISO			bs	a <sub>p</sub> max	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	PNEG110512L-PM	1.6	7.5	○	○																				
	PNEG110512R-PM	1.6	7.5	●	●																				
	PNEG110512L-PR	1.6	7.5	○	●																				
	PNEG110512R-PR	1.6	7.5	○	●																				

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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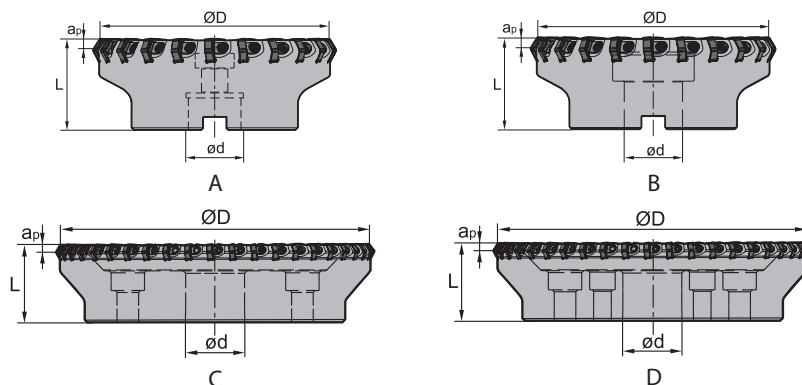
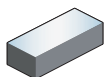
Technical info > B463

Cutting data > B224



## Face milling

FMD02 Kr: 55°



Article	*	Stock		Dimensions [mm]				Teeth	Coupling	kg	Inserts
		R	L	ØD	ød	L	$a_{p\ max}$				
FMD02-080-A27-HN09-08	○			80	27	50	6	8	A	1.19	HNEX0905
FMD02-100-B32-HN09-10	○			100	32	50	6	10	B	1.77	
FMD02-125-B40-HN09-14	○			125	40	63	6	14	B	3.55	
FMD02-125-B40-HN09-18	○			125	40	63	6	18	B	3.7	
FMD02-160-B40-HN09-18	●			160	40	63	6	18	B	5.62	
FMD02-160-B40-HN09-22	○			160	40	63	6	22	B	5.6	
FMD02-200-C60-HN09-22	○			200	60	63	6	22	C	6.7	
FMD02-250-C60-HN09-28	○	○		250	60	63	6	28	C	13	
FMD02-315-D60-HN09-44	○			315	60	63	6	44	D	21.7	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	Insert	HNEX0905
	ØD	80-315
	Screw (wedge)	DM6*20A (7.0 Nm)
	Wedge	W18N
	Wrench (wedge)	WT15IT



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

HNEX	L	I.C	S
09 05	9.16	15.875	5.56

### Milling inserts

HN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>M</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>K</b>									⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>N</b>									⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>S</b>									⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>H</b>																							
ISO		r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	HNEX090512-DM	1.2						○	○															
	HNEX090512-DR	1.2						●	●															

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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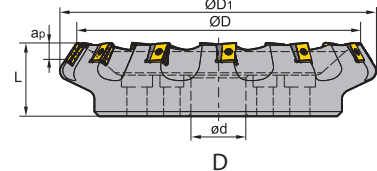
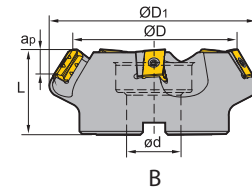
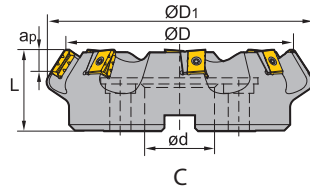
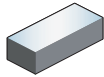
Technical info > B463

Cutting data > B224



## Face milling

FMD03 Kr: 60°



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FMD03-100-B32-LN20-05	○			100	129	32	63	12	5	B	3.02	LNKT2007-ZR
FMD03-125-B40-LN20-06	●			125	153	40	63	12	6	B	4.5	
FMD03-160-C40-LN20-08	●			160	187	40	63	12	8	C	6.9	
FMD03-160-C40-LN20-09	○			160	187	40	63	12	9	C	6.7	
FMD03-200-C60-LN20-10	●			200	227	60	70	12	10	C	10.5	
FMD03-250-C60-LN20-12	●			250	276	60	70	12	12	C	13.4	
FMD03-315-D60-LN20-15	○			315	339	60	80	12	15	D	26.2	LNKT2510-ZR
FMD03-125-B40-LN25-05	○			125	154	40	63	16	5	B	4.5	
FMD03-160-C40-LN25-06	●			160	189	40	63	16	6	C	6.9	
FMD03-200-C60-LN25-08	●			200	229	60	70	16	8	C	10.5	
FMD03-250-C60-LN25-10	●			250	278	60	70	16	10	C	16.7	
FMD03-315-D60-LN25-12	○ ○			315	346	60	80	16	12	D	27.3	
FMD03-400-D60-LN25-16	○ ○			400	427	60	80	16	16	D	47.1	

● Ex stock ○ On demand

\* With internal cooling

### Spare parts

	Insert	LNKT2007-ZR	LNKT2510-ZR
	ØD	100-315	125-400
	Screw (insert)	I60M4*15 (3.4 Nm)	I60M5*17 (6.7 Nm)
	Screw (shim)	I60M3*7	I60M3.5*10.4
	Shim	LLN20R-ZR	LLN25R-ZR
	Wrench (insert)	WT15IS	
	Wrench (insert)		WT20IT
	Wrench (shim)	WT09IS	WT15IS



System code > B26

Grade selection > B24

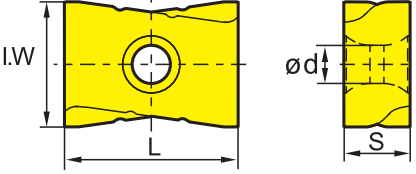

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

LNKT	L	S	d
20 07	20	7.94	4.6
25 10	25	9.525	5.5

LN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	<b>M</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	<b>K</b>							●								●						
	<b>N</b>							●								●						
	<b>S</b>		●		●			●	●	●	●											
	<b>H</b>																					
ISO	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	LNKT2007DN-ZR	17			●	●		○								●						
	LNKT2510-ZR	18				●		●								●						

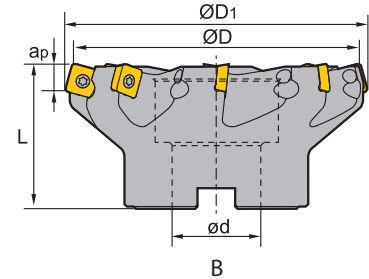
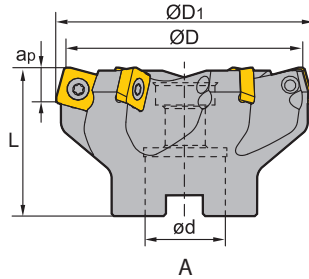
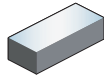
● Ex stock    ○ On demand


HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



## Face milling

FME02 Kr: 75°

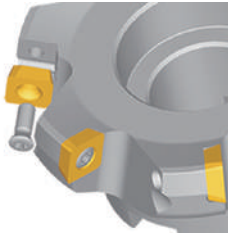




Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FME02-050-A22-SP12-04	●		50	54	22	40	6	4	A	0.3	 SPKT1204 SPKW1204
FME02-063-A22-SP12-05	●		63	66	22	50	6	5	A	0.6	
FME02-080-A27-SP12-06	●		80	83	27	50	6	6	A	0.9	
FME02-100-B32-SP12-07	●		100	103	32	50	6	7	B	1.4	
FME02-125-B40-SP12-08	●		125	128	40	63	6	8	B	2.5	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	SPKT1204 SPKW1204	
	ØD	50-125	
	Screw (insert)	I60M5*13.2 (6.7 Nm)	
	Wrench (insert)	WT20IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPKW	L	I.C	S	d
12 04	12.7	12.7	4.76	5.56

SP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
	<b>M</b>	⊗	⊗	⊗	⊗	⊗		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
	<b>K</b>															⊗
	<b>N</b>															⊗
	<b>S</b>							⊗	⊗							
	<b>H</b>															
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302
SPKW1204EDFR SPKW1204EDSR													○			
● Ex stock    ○ On demand																

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

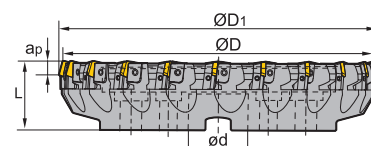
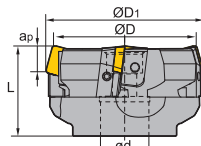
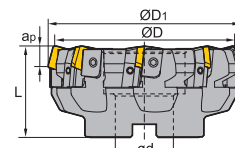
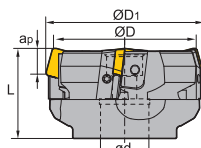
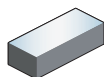
SPKT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.56

SP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
	<b>M</b>	⊗	⊗	⊗	⊗	⊗		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
	<b>K</b>															⊗
	<b>N</b>															⊗
	<b>S</b>							⊗	⊗							
	<b>H</b>															
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302
SPKT1204EDR														●		
● Ex stock    ○ On demand																

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Face milling

FME03 Kr: 75°



Article	*	Stock		Dimensions [mm]					Teeth	Coupling	kg	Inserts
		R	L	$\varnothing D$	$\varnothing D_1$	$\varnothing d$	L	$a_{p\ max}$				
FME03-080-A27-SP12-04		○		80	84	27	50	6	4	A	1.1	SPKN1203 SPKR1203 SPEX1203
FME03-100-B32-SP12-06		●		100	104	32	50	6	6	B	1.9	
FME03-125-B40-SP12-08		○	○	125	129	40	63	6	8	B	3.5	
FME03-160-B40-SP12-10		●	○	160	164	40	63	6	10	B	5.7	
FME03-200-C60-SP12-12		○	○	200	203	60	63	6	12	C	8.2	
FME03-250-C60-SP12-16		○	○	250	253	60	63	6	16	C	13.8	
FME03-315-D60-SP12-20		○		315	318	60	70	6	20	D	23.5	SPKN1504 SPKR1504 SPEX1504
FME03-080-A27-SP15-04		○	○	80	84	27	50	8	4	A	1	
FME03-100-B27-SP15-06		○		100	104	27	50	8	6	B	1.8	
FME03-125-B40-SP15-08		●	○	125	129	40	63	8	8	B	3.3	
FME03-160-B40-SP15-10		○	○	160	164	40	63	8	10	B	5.4	
FME03-200-C60-SP15-12		○	○	200	204	60	63	8	12	C	7.9	
FME03-250-C60-SP15-16		○	○	250	253	60	63	8	16	C	13.6	SPKN1504 SPKR1504 SPEX1504
FME03-315-D60-SP15-20		○	○	315	318	60	70	8	20	D	23.1	

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

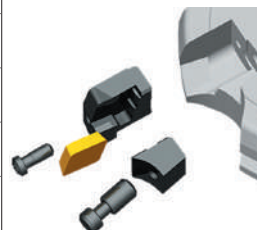
Grade selection > B24

Technical info > B463

Cutting data > B224



Spare parts		SPKN1203 SPKR1203 SPEX1203	SPKN1203 SPKR1203 SPEX1203	SPKN1504 SPKR1504 SPEX1504
Insert		80-100	125 - 315	80 - 315
ØD		80-100	125 - 315	80 - 315
	Adjustable screw	LOM5*15.1	LOM5*15.1	LOM5*15.1
	Cassette (left)	LSP12L	LSP12L	LSP15L
	Cassette (right)	LSP12R	LSP12R	LSP15R
	Screw (wedge)	WM8*17	WM8*22	WM8*22
	Wedge (left)	W04L	W04L	W04L
	Wedge (right)	W04R	W04R	W04R
	Wrench (locator)	WT20T	WT20T	WT20T
	Wrench (wedge)	WT25T	WT25T	WT25T



### Milling inserts

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPKN	L	I.C	S
12 03	12.7	12.7	3.18
15 04	15.875	15.875	4.76

SP** milling insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW											
ISO		be	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPKN1203EDFL	1	1.4																						
	SPKN1203EDFR	1	1.4	○								○													●
	SPKN1203EDSKL	1	1.4	●																					
	SPKN1203EDSKR	1	1.4	●	●					○						●		●							
	SPKN1203EDTKR	1	1.4							○								○							
	SPKN1504EDFL	1	1.4																						○
	SPKN1504EDFR	1	1.4																						○
	SPKN1504EDS32PR	1	1.4	○														○							
	SPKN1504EDSKL	1	1.4																○						
	SPKN1504EDSKR	1	1.4	●							●					●		●							
	SPKN1504EDTKR	1	1.4													○									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

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Technical Information

**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

SPKR	L	I.C	S
<b>12 03</b>	12.7	12.7	3.18
<b>15 04</b>	15.875	15.875	4.76

## Milling inserts

SP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO		be	bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPKR1203EDL-GM	1	1.4				○																	
	SPKR1203EDR-GM	1	1.4				●																	
	SPKR1504EDR-GM	1	1.4				○								○									
	SPKR1203EDR	1	1.4	○																				

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

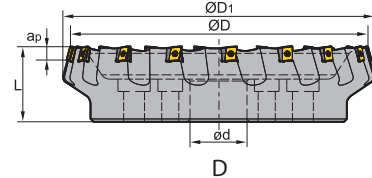
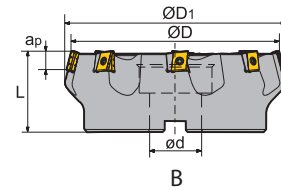
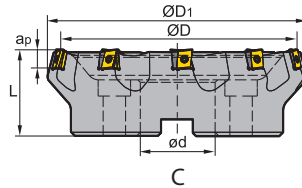
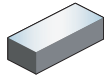
Grade selection > B24

Technical info > B463

Cutting data > B224

Face milling

FME04 Kr: 75°



Article	* Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
		ØD	ØD <sub>1</sub>	ød	L	a <sub>p max</sub>				
FME04-125-B40-LN15-06	●	125	137	40	63	10	6	B	3.8	LNKT1506-ZR
FME04-160-B40-LN15-08	●	160	170	40	63	10	8	C	6.6	
FME04-200-C60-LN15-10	●	200	208	60	70	10	10	C	9.6	
FME04-250-C60-LN15-12	○	250	257	60	70	10	12	C	13.4	
FME04-315-D60-LN15-16	○	315	328	60	80	10	16	D	25.2	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert	LNKT1506-ZR	
	ØD	125 - 315	
	Screw (insert)	I60M4*12 (3.4 Nm)	
	Screw (shim)	I60M3*7	
	Shim	LLN15-ZR	
	Wrench (insert)	WT15IS	
	Wrench (shim)	WT09IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

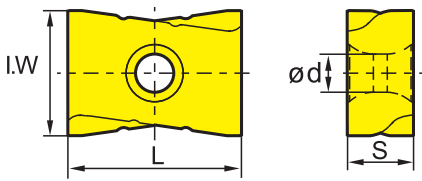
**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

LNKT	L	S	d
15 06	15,875	6.35	4.6

## Milling inserts

LN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	<b>M</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	<b>K</b>					●	●	●						●	●	●							
	<b>N</b>							●						●	●	●							
	<b>S</b>		●	●				●	●	●													
	<b>H</b>																						
ISO		I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
LNKT1506EN-ZR		14	●		○	●	●	●									○						

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

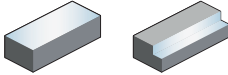
Grade selection > B24

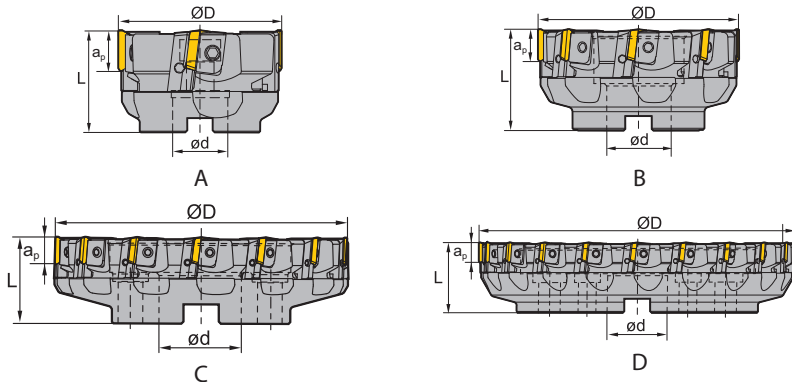
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Cutting data > B224



Face milling









FMP01 Kr: 90° 

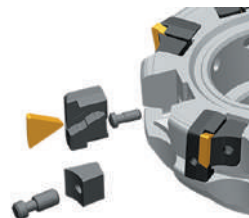


Article	*	Stock		Dimensions [mm]				Teeth	Coupling	kg	Inserts 
		R	L	ØD	ød	L	$a_{p\ max}$				
FMP01-080-A27-TP22-04	●			80	27	50	18	4	A	1.2	TPKN2204
FMP01-100-B32-TP22-06	●			100	32	50	18	6	B	1.7	
FMP01-125-B40-TP22-08	●	○		125	40	63	18	8	B	3.2	
FMP01-160-B40-TP22-10	●	○		160	40	63	18	10	B	5.1	
FMP01-200-C60-TP22-12	●	○		200	60	63	18	12	C	7.4	
FMP01-250-C60-TP22-16	○	○		250	60	63	18	16	C	12.3	
FMP01-315-D60-TP22-20	○	○		315	60	70	18	20	D	21.9	

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert ØD	TPKN2204 80-100	TPKN2204 125-315
	Adjustable screw	LOM5*15.1	LOM5*15.1
	Cassette (left)	LTP4L1	LTP4L
	Cassette (right)	LTP4R1	LTP4R
	Screw (wedge)	WM8*12	WM8*22
	Wedge (left)	W04L	W04L
	Wedge (right)	W04R	W04R
	Wrench (locator)	WT20T	WT20T
	Wrench (wedge)	WT25T	WT25T



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

TPKN	L	I.C	S
22 04	22	12.7	4.76

## Milling inserts

TP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW	
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●		
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●		
	<b>K</b>						●	●		●				●	●		●
	<b>N</b>								●							●	●
	<b>S</b>			●	●					●	●	●					
	<b>H</b>																

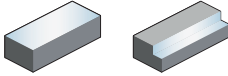
ISO	be	bs	an	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
					TPKN2204PDFR	1.4	0.7	11°									○								
	TPKN2204PDS32PR	1.4	0.7	11°											○		○								●
	TPKN2204PDSKL	1.4	0.7	11°		○																			
	TPKN2204PDSKR	1.4	0.7	11°	●	●		●	●					●	●		●								
	TPKN2204PDTKR	1.4	0.7	11°									●												

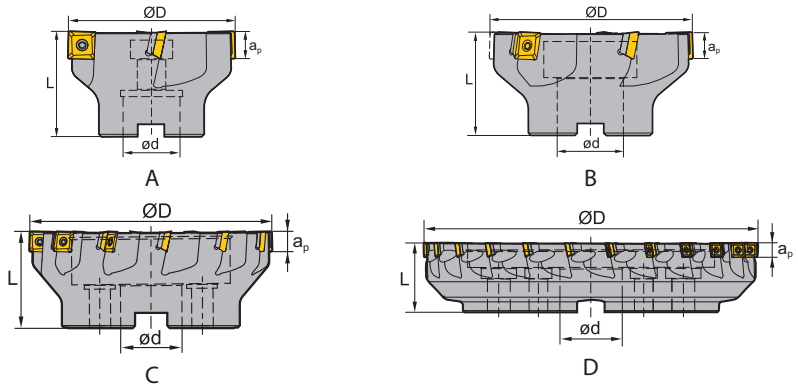
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Face milling

FMP02 Kr: 90° 



Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts
			ØD	ød	L	ap max				
FMP02-050-A22-SE09-05		●	50	22	40	6.7	5	A	0.3	SEET09T3
FMP02-050-A22-SE09-05C	*	●	50	22	40	6.7	5	A	0.3	
FMP02-063-A22-SE09-06		●	63	22	40	6.7	6	A	0.5	
FMP02-063-A22-SE09-06C	*	●	63	22	40	6.7	6	A	0.5	
FMP02-080-A27-SE09-08		●	80	27	50	6.7	8	A	0.9	
FMP02-100-B32-SE09-08		○	100	32	50	6.7	8	B	1.7	
FMP02-100-B32-SE09-10		○	100	32	50	6.7	10	B	1.7	
FMP02-100-B32-SE09-10C	*	○	100	32	50	6.7	10	B	1.7	
FMP02-125-B40-SE09-12		●	125	40	63	6.7	12	B	2.6	
FMP02-125-B40-SE09-12C	*	○	125	40	63	6.7	12	B	2.6	
FMP02-050-A22-SE12-03		○	50	22	40	10.8	3	A	0.3	SEET1203
FMP02-050-A22-SE12-04		●	50	22	40	10.8	4	A	0.3	
FMP02-050-A22-SE12-04C	*	●	50	22	40	10.8	4	A	0.3	
FMP02-050-A22-SE12-05		●	50	22	40	10.8	5	A	0.2	
FMP02-050-A22-SE12-05C	*	○	50	22	40	10.8	5	A	0.2	
FMP02-063-A22-SE12-04		○	63	22	40	10.8	4	A	0.4	
FMP02-063-A22-SE12-05		●	63	22	40	10.8	5	A	0.4	
FMP02-063-A22-SE12-05C	*	●	63	22	40	10.8	5	A	0.4	
FMP02-063-A22-SE12-06		●	63	22	40	10.8	6	A	0.4	
FMP02-063-A22-SE12-06C	*	○	63	22	40	10.8	6	A	0.4	
FMP02-080-A27-SE12-04		○	80	27	50	10.8	4	A	0.9	
FMP02-080-A27-SE12-06		●	80	27	50	10.8	6	A	0.8	
FMP02-080-A27-SE12-06C	*	●	80	27	50	10.8	6	A	0.8	
FMP02-080-A27-SE12-08		●	80	27	50	10.8	8	A	0.8	
FMP02-080-A27-SE12-08C	*	○	80	27	50	10.8	8	A	0.8	
FMP02-100-B32-SE12-05		●	100	32	50	10.8	5	B	1.2	
FMP02-100-B32-SE12-07		●	100	32	50	10.8	7	B	1.2	
FMP02-100-B32-SE12-10		●	100	32	50	10.8	10	B	1.2	
FMP02-100-B32-SE12-10C	*	○	100	32	50	10.8	10	B	1.2	

● Ex stock ○ On demand

\* With internal cooling

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# Indexable milling Face milling

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Article	* Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts 
		∅D	∅d	L	a <sub>p max</sub>				
FMP02-125-B40-SE12-06	○	125	40	63	10.8	6	B	3.1	SEET1203
FMP02-125-B40-SE12-08	●	125	40	63	10.8	8	B	3	
FMP02-125-B40-SE12-08C	* ○	125	40	63	10.8	8	B	3	
FMP02-125-B40-SE12-12	●	125	40	63	10.8	12	B	2.9	
FMP02-160-C40-SE12-08	●	160	40	63	10.8	8	C	4.1	
FMP02-160-C40-SE12-12	●	160	40	63	10.8	12	C	3.9	
FMP02-200-C60-SE12-16	●	200	60	63	10.8	16	C	6.1	
FMP02-250-C60-SE12-12	○	250	60	63	10.8	12	C	11.1	
FMP02-250-C60-SE12-18	●	250	60	63	10.8	18	C	10.9	
FMP02-315-D60-SE12-24	○	315	60	63	10.8	24	D	21.6	

● Ex stock    ○ On demand

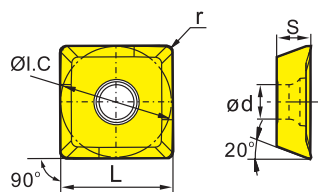

\* With internal cooling

Spare parts					
Insert	SEET09T3	SEET1203	SEET1203	SEET1203	
 Screw (insert)	∅D I60M3*7 (1.8 Nm)	50-125	50	63-315	
 Screw (shim)				I60M3.5*10 (2.7 Nm)	
 Shim				SM5*7XA	
 Wrench (insert)		WT09IS	WT15IS	S12BSX	
 Wrench (shim)				WT15IS	
				WH35L	

## Milling inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SEET	L	I.C	S	d
09 T3	9.525	9.525	4.01	3.3
12 03	13.308	13.308	4.04	4.1

SE** milling insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SEET09T308PER-APF	0.8				●				○	○												
	SEET120308PER-APF	0.8				●				○	○												

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

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**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SEET	L	I.C	S	d
<b>09 T3</b>	9.525	9.525	4.01	3.3
<b>12 03</b>	13.308	13.308	4.04	4.1

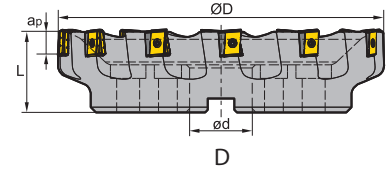
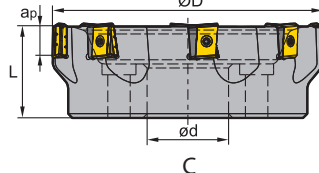
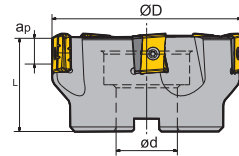
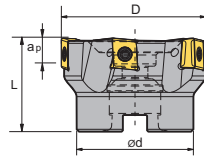
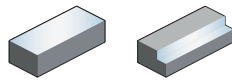
SE** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
		<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗										
		<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗										
		<b>K</b>					⊗	⊗							⊗			⊗							
		<b>N</b>																⊗	⊗						
		<b>S</b>			⊗	⊗																			
		<b>H</b>																							
ISO		r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201	
	SEET09T308PER-APM	0.8					●					○	○												
	SEET120308PER-APM	0.8					●					○	●												
	SEET09T308PER-APR	0.8					●					○	○												
	SEET120308PER-APR	0.8					●					○	○												
	SEET120308-LH	0.8									○	○												●	
	SEET09T308PER-PF	0.8														●									
	SEET120308PER-PF	0.8	●	●			○									●									
	SEET09T308PER-PM	0.8							○							●									
	SEET120308PER-PM	0.8	●				●	●	●	●		●			●		●								
	SEET09T308PER-PR	0.8							●									○							
	SEET120308PER-PR	0.8	●				●	●	●	●		○			○		○								


● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Face milling

FMP03 Kr: 89°



Article	*	Stock		Dimensions [mm]				Teeth	Coupling	kg	Inserts 	
		R	L	ØD	ød	L	ap max					
FMP03-050-A22-LN12-04C	*	●		50	22	40	7	4	A	0.3	LNKT120608-ZR	
FMP03-050-A22-LN12-05C	*	○		50	22	40	7	5	A	0.3		
FMP03-063-A22-LN12-05C	*	●		63	22	40	7	5	A	0.5		
FMP03-063-A27-LN12-05C	*	○		63	27	50	7	5	A	0.64		
FMP03-063-A22-LN12-06C	*	○		63	22	40	7	6	A	0.5		
FMP03-063-A27-LN12-06C	*	●		63	27	50	7	6	A	0.65		
FMP03-063-A27-LN12-07C	*	○		63	27	50	7	7	A	0.64		
FMP03-080-A27-LN12-06C	*	●		80	27	50	7	6	A	1		
FMP03-080-A27-LN12-07C	*	○		80	27	50	7	7	A	1		
FMP03-100-B32-LN12-06		○		100	32	50	7	6	B	1.47		LNKT1506EN-ZR
FMP03-125-B40-LN15-06		●		125	40	63	12	6	B	3.2		
FMP03-160-C40-LN15-08		●		160	40	63	12	8	C	5.1		
FMP03-160-C40-LN15-09		○		160	40	63	12	9	C			
FMP03-200-C60-LN15-10		●		200	60	70	12	10	C	7.5		
FMP03-250-C60-LN15-12		○		250	60	70	12	12	C	12.2		
FMP03-250-C60-LN15-13		○		250	60	70	12	13	C			
FMP03-315-D60-LN15-16		○		315	60	80	12	16	D	23.7		
FMP03-125-B40-LN20-06		○		125	40	63	16	6	B	3.3	LNKT2007DN-ZR	
FMP03-160-C40-LN20-08		●		160	40	63	16	8	C	5.3		
FMP03-160-C40-LN20-09		○		160	40	63	16	9	C			
FMP03-200-C60-LN20-10		●		200	60	70	16	10	C	8.8		
FMP03-200-C60-LN20-11		○		200	60	70	16	11	C			
FMP03-250-C60-LN20-12		●		250	60	70	16	12	C	14		
FMP03-315-D60-LN20-15		○		315	60	80	16	15	D	23.9		
FMP03-125-B40-LN25-05		○		125	40	63	20	5	B	3.3		LNKT2510-ZR
FMP03-160-C40-LN25-06		○	○	160	40	63	20	6	C	5.1		
FMP03-200-C60-LN25-08		○		200	60	70	20	8	C	8.9		
FMP03-250-C60-LN25-10		●	○	250	60	70	20	10	C	12		
FMP03-315-D60-LN25-12		○	○	315	60	80	20	12	D	21.9		

● Ex stock    ○ On demand

\* With internal cooling

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Spare parts

Insert	LNKT120608-ZR	LNKT1506EN-ZR	LNKT2007DN-ZR	LNKT2510-ZR
ØD	50-100	125 - 315	125 - 315	125 - 315
Screw (insert)	I60M4*12 (3.4 Nm)	I60M4*12 (3.4 Nm)	I60M4*15 (3.4 Nm)	I60M5*17 (6.7 Nm)
Screw (shim)		I60M3*7	I60M3*7	I60M3.5*10.4
Shim		LLN15-ZR	LLN20R-ZR	LLN25R-ZR
Wrench (insert)	WT15IS	WT15IS	WT15IS	
Wrench (insert)				WT20IT
Wrench (shim)		WT09IS	WT09IS	WT15IS



LNKT	L	S	d
12 06	12.7	6.65	4.4
15 06	15.875	6.35	4.6
20 07	20	7.94	4.6
25 10	25	9.525	5.5

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

Milling inserts

LN** milling insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
		P	M	K	N	S	H																
I.W	L																						
I.W	Ød																						
	S																						
ISO	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	LNKT120608-ZR	12	●		●							●											
	LNKT1506EN-ZR	14	●		○	●	●	●							○								
	LNKT2007DN-ZR	17		●		●	○								●								
	LNKT2510-ZR	18				●	●								●								

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

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## Notes

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# FMP12 *Kr: 90°*

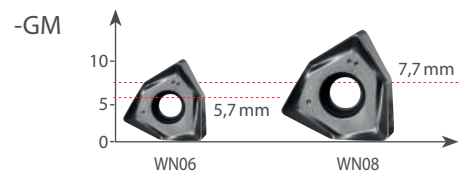
## Square shoulder mill

- For steel, stainless steel and cast iron
- Insert with six cutting edges
- Two different insert sizes
- Radii from 0.4–1.6 mm available

### Insert grades

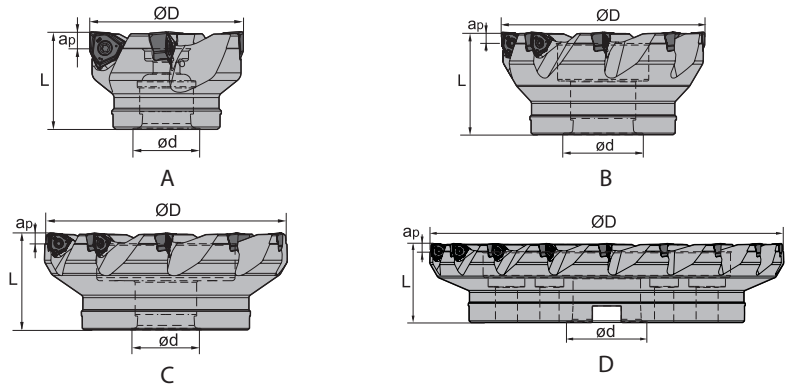
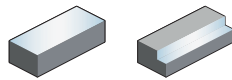
<b>YBM253</b>	<b>YBG205</b>	<b>YBD152</b>	<b>YBD252</b>
CVD	PVD	CVD	CVD
P20–P40	P10–P30	K05–K25	K15–K35
M10–M30	M20–M30		

### Chip breaker



## Face milling

FMP12 Kr: 90°



Article	*	Stock	Dimensions [mm]			Teeth	Coupling	kg	Inserts
			ØD	ød	a <sub>p max</sub>				
FMP12-050-A22-WN06-05C	*	○	50	22		5	A	55	WNHU0604
FMP12-063-A22-WN06-06C	*	●	63	22		6	A	45	
FMP12-080-A27-WN06-07C	*	●	80	27		7	A	10	
FMP12-100-B32-WN06-09		●	100	32		9	A	1.4	
FMP12-100-B32-WN06-09C	*	●	100	32		9	A	1.4	
FMP12-125-B40-WN06-11C	*	○	125	40		11	B	3.4	
FMP12-160-C40-WN06-14		○	160	40		14	C	5.4	WNHU0806
FMP12-063-A22-WN08-04C	*	●	63	22		4	A	39	
FMP12-063-A22-WN08-05C	*	●	63	22		5	A	45	
FMP12-080-A27-WN08-05C	*	●	80	27		5	A	95	
FMP12-100-B32-WN08-06		●	100	32		6	B	1.32	
FMP12-100-B32-WN08-06C	*	●	100	32		6	B	1.32	
FMP12-125-B40-WN08-08C	*	○	125	40		8	B	3.3	
FMP12-160-C40-WN08-10		○	160	40		10	C	5.2	
FMP12-200-C60-WN08-12		○	200	60		12	C		
FMP12-250-C60-WN08-14		○	250	60		14	C		
FMP12-315-D60-WN08-18		○	315	60		18	D		

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	WNHU0604	WNHU0806
		ØD	50-315
	Screw (insert)	I60M3*9 (1.8 Nm)	I60M4*10 (3.4 Nm)
	Wrench (insert)	WT09IS	
	Wrench (insert)		WT20IT




System code > B26

Grade selection > B24

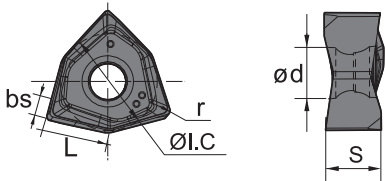










































Technical info > B463

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**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

WNHU	L	I.C	S	d
<b>06 04</b>	5.73	9.525	4.704	3.5
<b>08 06</b>	7.76	12.7	6.32	4.4

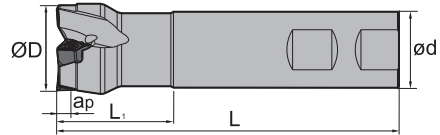
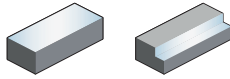
WN** negative insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW										
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201	
	WNHU060404PNR-GM	0.4			○		○						○											
	WNHU060408PNR-GM	0.8			●		○	○					○											
	WNHU080608PNR-GM	0.8			○		●	●					●											
	WNHU080616PNR-GM	1.6			○		●	○																

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Face milling

FMP12 Kr: 90°



Article	*	Stock	Dimensions [mm]			Teeth	Coupling	kg	Inserts
			ØD	ød	$a_{p\max}$				
FMP12-025-XP25-WN06-02C	*	○	25	25		2		0.38	WNHU0604
FMP12-032-XP25-WN06-03C	*	○	32	25		3		0.47	
FMP12-040-XP32-WN06-04C	*	○	40	32		4		0.85	
FMP12-050-XP40-WN06-05C	*	○	50	40		5		1.59	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	WNHU0604	
	ØD	25-50	
	Screw (insert)	I60M3x9 (1.8Nm)	
	Wrench (insert)	WT09IS	

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

WNHU	L	I.C	S	d
06 04	5.73	9.525	4.704	3.5

### Milling inserts

WN** negative insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>K</b>							⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>N</b>							⊗								⊗							
	<b>S</b>							⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	WNHU060404PNR-GM	0.4			○								○										
	WNHU060408PNR-GM	0.8			●			○	○				○										

● Ex stock      ○ On demand

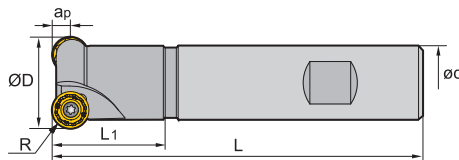
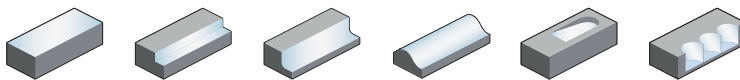
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

A	Turning
B	Milling
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## Face milling

FMR01



Article	*	Stock	Dimensions [mm]						Teeth	kg	Inserts
			R	ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
FMR01-025-XP20-RC10-02		○	5	25	20	30	100	5	2	0.2	RCKT10T3
FMR01-025-XP20-RC10-02C	*	○	5	25	20	30	100	5	2	0.2	
FMR01-032-XP25-RC10-02		●	5	32	25	35	120	5	2	0.5	
FMR01-032-XP25-RC10-02C	*	●	5	32	25	35	120	5	2	0.5	RCKT1204 RCGX1204
FMR01-040-XP32-RC12-03		●	6	40	32	40	120	6	3	0.7	
FMR01-040-XP32-RC12-03C	*	●	6	40	32	40	120	6	3	0.7	
FMR01-050-XP32-RC12-03		●	6	50	32	40	120	6	3	0.8	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	RCKT10T3	RCKT1204 RCGX1204	
		ØD	25-32	
Screw (insert)		I60M4*8.4 (3.4 Nm)	I60M3.5*10 (2.7 Nm)	
Wrench (insert)		WT15S	WT15S	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

RCGX	I.C	S	d
12 04	12	4.76	4

### Milling inserts

RC** positive insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RCGX1204MO-LH																						●

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

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### Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

RCKT	I.C	S	d
10 T3	10	3.97	4.4
12 04	12	4.76	4

RC** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
	<b>P</b>																					
	<b>M</b>																					
	<b>K</b>																					
	<b>N</b>																					
	<b>S</b>																					
	<b>H</b>																					
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	RCKT10T3MO-DM	●	●											●	○							
	RCKT1204MO-DM	●	●		●	●	○							●	○							
	RCKT1204MO-DR	●	●		●	●						○	○									
	RCKT1204MO-ER				●																	
	RCKT1204MO-NM				●	●						●		○	○							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

A

Turning

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E

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

RCMW	I.C	S	d
<b>12 04</b>	12	4.76	4.1

## Milling inserts

RN** negative insert		BL (CBN)	BH (CBN)
	<b>P</b>		
	<b>M</b>		
	<b>K</b>		●
	<b>N</b>		
	<b>S</b>	●	
	<b>H</b>	● ●	
ISO	$a_{p \max}$	YCB121 YCB131	YCB211
	RCMW1204MO-PCBN	2.7	○

● Ex stock      ○ On demand

BL (CBN) CBN with a low CBN content  
BH (CBN) CBN with a high CBN content

System code > B26

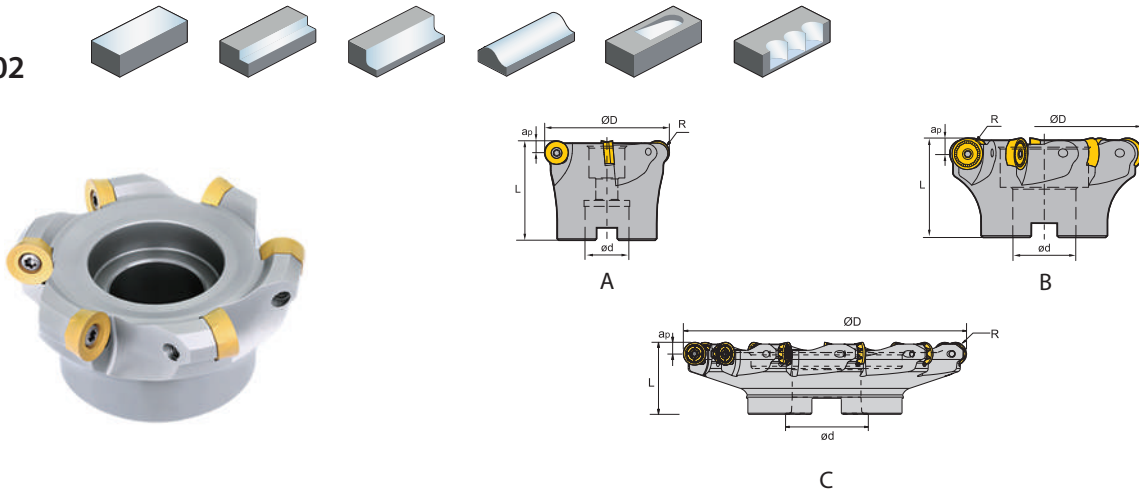
Grade selection > B24

Technical info > B463

Cutting data > B224

Face milling

FMR02



Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			R	ØD	ød	L	ap max				
FMR02-050-A22-RC12-05C	*	●	6	50	22	40	6	5	A	0.7	RCGX1204 RCKT1204 RCMW1204
FMR02-052-A22-RC12-05C	*	●	6	52	22	40	6	5	A	0.7	
FMR02-063-A22-RC12-04		●	6	63	22	40	6	4	A	0.7	
FMR02-063-A22-RC12-06		●	6	63	22	40	6	6	A	0.7	
FMR02-063-A22-RC12-06C	*	●	6	63	22	40	6	6	A	0.7	
FMR02-080-A27-RC12-07C	*	●	6	80	27	50	6	7	B	0.7	
FMR02-100-B32-RC12-08C	*	●	6	100	32	50	6	8	B	0.89	RCKT1606
FMR02-063-A22-RC16-04		●	8	63	22	40	8	4	A	0.7	
FMR02-063-A22-RC16-04C	*	○	8	63	22	40	8	4	A	0.7	
FMR02-066-A27-RC16-05C	*	●	8	66	27	50	8	4	A	0.5	
FMR02-080-B27-RC16-05		●	8	80	27	50	8	5	B	0.7	
FMR02-080-B27-RC16-07		●	8	80	27	50	8	7	B	0.7	
FMR02-100-B32-RC16-06		●	8	100	32	63	8	6	B	1.2	
FMR02-100-A32-RC16-06C	*	○	8	100	32	63	8	6	B	1.2	
FMR02-125-B40-RC16-07		●	8	125	40	63	8	7	B	2.5	
FMR02-160-B40-RC16-10(FB)		○	8	160	40	63	8	10	B	3.94	
FMR02-200-C60-RC16-12FB		●	8	200	60	63	8	12	C	5.4	
FMR02-080-A27-RC20-04		●	10	80	27	50	10	4	A	0.7	
FMR02-080-A27-RC20-04C	*	●	10	80	27	50	10	4	A	0.7	
FMR02-100-B32-RC20-05		●	10	100	32	63	10	5	B	1.2	
FMR02-100-B32-RC20-06		●	10	100	32	63	10	6	B	1.2	
FMR02-100-B32-RC20-06C	*	○	10	100	32	63	10	6	B	1.2	
FMR02-125-B40-RC20-06		●	10	125	40	63	10	6	B	1.2	
FMR02-125-B40-RC20-07		●	10	125	40	63	10	7	B	2.2	
FMR02-125-B40-RC20-07C	*	○	10	125	40	63	10	7	B	2.2	
FMR02-160-B40-RC20-08		●	10	160	40	63	10	8	B	4.2	
FMR02-160-B40-RC20-08C	*	○	10	160	40	63	10	8	B	4.2	
FMR02-250-C60-RC20-10		●	10	250	60	63	10	10	C	8.49	
FMR02-250-C60-RC20-11		○	10	250	60	63	10	11	C	8.37	

● Ex stock ○ On demand

\* With internal cooling

System code > B26    Grade selection > B24    Technical info > B463    Cutting data > B224



A

Turning

B

Milling

C

Drilling

D


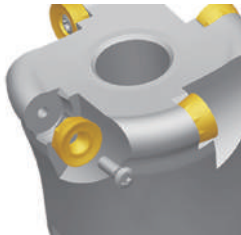


Technical Information

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A




Turning

Spare parts					
	Insert	RCGX1204 RCKT1204 RCMW1204	RCKT1606	RCKT2006	
	ØD	50-100	63-200	80-250	
	Screw (insert)	I60M3.5*10 (2.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	
	Wrench (insert)	WT15IS			
	Wrench (insert)		WT20IT	WT25IT	

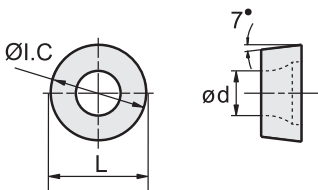

B

Milling

	RCGX	I.C	S	d
	12 04	12	4.76	4

 Ideal machining conditions  
 Normal machining conditions  
 Unfavourable machining conditions

## Milling inserts

RC** positive insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
 <p>ØI.C L 7° ød</p>	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RCGX1204MO-LH																					●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

C

Drilling

D

Technical Information

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System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

RCKT	I.C	S	d
12 04	12	4.76	4
16 06	16	6.35	5.56
20 06	20	6.35	6.55

### Milling inserts

RC** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
	<b>M</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗									
	<b>K</b>								⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>N</b>								⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗								
	<b>S</b>			⊗	⊗				⊗	⊗	⊗	⊗	⊗	⊗	⊗									
	<b>H</b>																							
ISO			YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB920	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RCKT1204MO-DM		●	●		●	●	○							●		○							
	RCKT1606MO-DM		●	●		○							○				●							
	RCKT2006MO-DM		○	○		○																		
	RCKT1204MO-DR		●	●		●	●						○	○										
	RCKT1606MO-DR		●	●		●	●	●				○		○										
	RCKT2006MO-DR		●	●		○		●						○	○									
	RCKT1204MO-ER					●																		
	RCKT1606MO-ER					●																		
	RCKT2006MO-ER					●																		
	RCKT1204MO-NM					●	●					●		○	○									
	RCKT1606MO-NM					○	○					●		○	○									

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

RCMW	I.C	S	d
12 04	12	4.76	4.1

### Milling inserts

RN** negative insert			BL (CBN)	BH (CBN)	
	<b>P</b>				
	<b>M</b>				
	<b>K</b>			⊗	
	<b>N</b>				
	<b>S</b>		⊗		
	<b>H</b>		⊗	⊗	
ISO		a <sub>p max</sub>	YCB121 YCB131	YCB211	
	RCMW1204MO-PCBN	2.7		○	

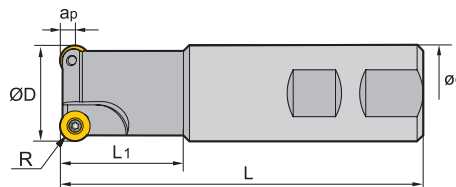
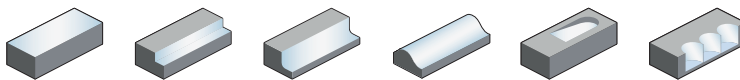
● Ex stock ○ On demand

BL (CBN) CBN with a low CBN content  
 BH (CBN) CBN with a high CBN content

**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
**E** Index

## Face milling

FMR03



Article	*	Stock	Dimensions [mm]						Teeth	kg	Inserts
			R	ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
FMR03-016-XP16-RD08-02		○	4	16	16	25	100	4	2	0.1	RDKW0803
FMR03-016-XP16-RD08-02C	*	○	4	16	16	25	100	4	2	0.1	
FMR03-025-XP25-RD08-02		●	4	25	25	30	100	4	2	0.3	
FMR03-025-XP25-RD08-02C	*	○	4	25	25	30	100	4	2	0.3	
FMR03-032-XP32-RD10-02		●	5	32	32	40	120	5	2	0.7	RDKW10T3
FMR03-032-XP32-RD10-02C	*	○	5	32	32	40	120	5	2	0.7	
FMR03-040-XP32-RD12-03		●	6	40	32	40	120	6	3	0.7	RDKW1204
FMR03-040-XP32-RD12-03C	*	○	6	40	32	40	120	6	3	0.7	
FMR03-050-XP32-RD12-04		●	6	50	32	40	120	6	4	0.8	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		RDKW0803	RDKW10T3	RDKW1204	
Insert	ØD	16-25	32	40-50	
Screw (insert)		I60M3*7 (1.8 Nm)	I60M4*10 (3.4 Nm)	I60M4*10 (3.4 Nm)	
Wrench (insert)		WT09IP	WT15IP	WT15IP	

System code > B26




Grade selection > B24

Technical info > B463

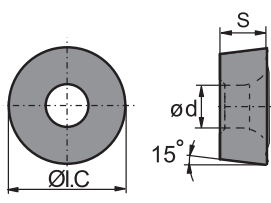

Cutting data > B224



**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

RDKW	I.C	S	d
<b>08 03</b>	8	3.18	3.4
<b>10 T3</b>	10	3.97	4.4
<b>12 04</b>	12	4.76	4.4

RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
	<b>P</b>																					
	<b>M</b>																					
	<b>K</b>																					
	<b>N</b>																					
	<b>S</b>																					
	<b>H</b>																					
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RDKW0803MO						●							●								
	RDKW10T3MO	●	○				○			●				●	○							
	RDKW1204MO	●				●	●			●	●	●	●		○							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**  
Turning

**B**  
Milling

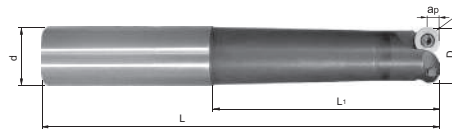
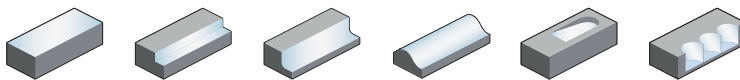
**C**  
Drilling

**D**  
Technical Information

**E**  
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## Face milling



FMR03



Article	*	Stock	Dimensions [mm]						Teeth	Inserts
			R	ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>		
FMR03-015-G16-XS-RD0702-02		○	3.5	15	16	40	88	3.5	2	RDkW0702
FMR03-015-G16-XS-RD0702-02C	*	○	3.5	15	16	40	88	3.5	2	
FMR03-015-G16-S-RD0702-02C	*	○	3.5	15	16	60	108	3.5	2	
FMR03-015-G20-M-RD0702-02C	*	○	3.5	15	20	80	130	3.5	2	RDkW1003
FMR03-015-G25-XL-RD0702-02C	*	○	3.5	15	25	120	176	3.5	2	
FMR03-020-G20-XS-RD1003-02C	*	○	5	20	20	40	90	5	2	
FMR03-020-G20-S-RD1003-02C	*	○	5	20	20	60	110	5	2	RDkW1003
FMR03-020-G25-M-RD1003-02C	*	○	5	20	25	80	136	5	2	
FMR03-020-G25-L-RD1003-02C	*	○	5	20	25	100	156	5	2	
FMR03-020-G25-XL-RD1003-02C	*	○	5	20	25	120	176	5	2	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	RDkW0702	RDkW1003
	ØD	15	20
	Screw (insert)	I60M2.5*5.0 (1.0 Nm)	I60M3.5*7.7 (2.7 Nm)
	Wrench (insert)	WT07P	WT15P






System code > B26

Grade selection > B24

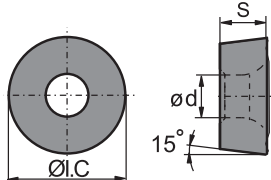

Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

RDkW	I.C	S	d
07 02	7	2.38	2.7
10 03	10	3.18	3.9

### Milling inserts

RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RDkW0702MO-1					●																	
	RDkW0702MO-2									●													
	RDkW1003MO-1					●	●				●	●	●										
	RDkW1003MO-2										●												
	RDkW1003MO-3				●							●											

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**  
Turning

**B**  
Milling

**C**  
Drilling

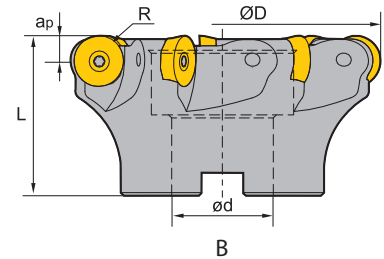
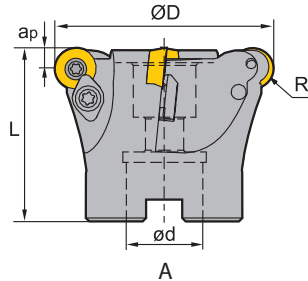
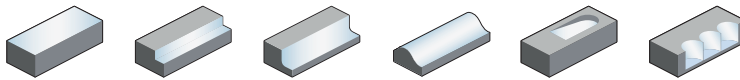
**D**  
Technical Information

**E**  
Index



## Face milling

FMR04



Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			R	ØD	ød	L	a <sub>p max</sub>				
FMR04-050-A22-RD12-03	●	●	6	50	22	40	6	3	A	0.3	RDKW1204
FMR04-063-A22-RD12-04	●	●	6	63	22	50	6	4	A	0.5	
FMR04-080-B27-RD16-05	●	●	8	80	27	50	8	5	B	1.2	RDKW1605
FMR04-100-B32-RD16-06	●	●	8	100	32	50	8	6	B	1	
FMR04-125-B40-RD20-06	○	○	10	125	40	63	10	6	B	1.9	RDKW2006
FMR04-125-B40-RD20-06C	*	○	10	125	40	63	10	6	B	1.9	
FMR04-160-B40-RD20-07	○	○	10	160	40	63	10	7	B	3.7	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert ØD	RDKW1204	RDKW1605	RDKW2006	
		50-63	80-100	125-160	
	Clamp	WD-204	WD-207		
	Screw (clamp)	I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)		
	Screw (insert)	I60M3.5*10 (2.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	
	Wrench (clamp)	WT15IP			
	Wrench (clamp)		WT20IT		
	Wrench (insert)	WT15IP			
	Wrench (insert)		WT20IT	WT25IT	




System code > B26

Grade selection > B24

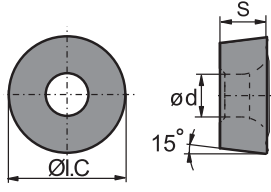


Technical info > B463

Cutting data > B224

**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

RDKW	I.C	S	d
12 04	12	4.76	4.4
16 05	16	5.56	5.5
20 06	20	6.35	6.5

RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RDKW1204MO	●				●	●				●	●	●	●	○	○							
	RDKW1605MO					○								●	○								
	RDKW2006MO		○			●		○															
	RDKW2006MO-3												●										

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

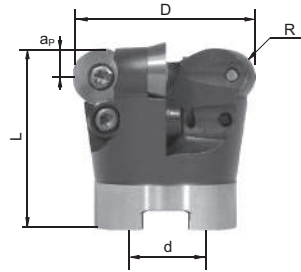
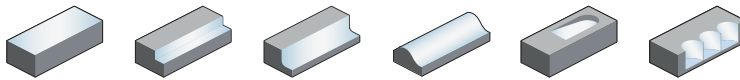
**E**

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## Face milling

FMR04



Article	*	Stock	Dimensions [mm]					Teeth	Inserts
			R	ØD	ød	L	a <sub>p</sub> max		
FMR04-042-A16-RD1003-06		●	5	42	16	44	5	6	RDKW1003
FMR04-042-A16-RD1003-06C	*	○	5	42	16	44	5	6	
FMR04-052-A22-RD1003-07		●	5	52	22	50	5	7	
FMR04-052-A22-RD1003-07C	*	○	5	52	22	50	5	7	RDKW12T3
FMR04-042-A16-RD12T3-05		●	6	42	16	42	6	5	
FMR04-042-A16-RD12T3-05C	*	○	6	42	16	42	6	5	
FMR04-052-A22-RD12T3-05		●	6	52	22	50	6	5	RDKW12T3
FMR04-052-A22-RD12T3-05C	*	○	6	52	22	50	6	5	
FMR04-066-A27-RD12T3-06		●	6	66	27	50	6	6	
FMR04-066-A27-RD12T3-06C	*	○	6	66	27	50	6	6	RDKW1604
FMR04-080-A27-RD12T3-07		●	6	80	27	50	6	7	
FMR04-080-A27-RD12T3-07C	*	○	6	80	27	50	6	7	
FMR04-052-A22-RD1604-04		●	8	52	22	50	8	4	RDKW1604
FMR04-052-A22-RD1604-04C	*	○	8	52	22	50	8	4	
FMR04-066-A27-RD1604-05		●	8	66	27	50	8	5	
FMR04-066-A27-RD1604-05C	*	○	8	66	27	50	8	5	RDKW1604
FMR04-080-A27-RD1604-06		●	8	80	27	52	8	6	
FMR04-080-A27-RD1604-06C	*	○	8	80	27	52	8	6	
FMR04-100-B32-RD1604-07		●	8	100	32	52	8	7	RDKW1604
FMR04-100-B32-RD1604-07C	*	○	8	100	32	52	8	7	
FMR04-125-B40-RD1604-08		●	8	125	40	52	8	8	
FMR04-160-B40-RD1604-09		●	8	160	40	52	8	9	RDKW1604
FMR04-160-B40-RD1604-09C	*	○	8	160	40	52	8	9	

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

Spare parts						
	Insert	RDkW1003	RDkW12T3	RDkW12T3	RDkW1604	RDkW1604
	ØD	42-52	42	52-80	52	66-160
	Clamp					WX16N
	Clamp			LOM3.5*7.1		
	Screw (clamp)					I60M4.5*10 (5.0 Nm)
	Screw (insert)	I60M3.5*7.7 (2.7 Nm)	I60M3.5*7.7 (2.7 Nm)	I60M3.5*7.7 (2.7 Nm)	I60M4.5*10 (5.0 Nm)	I60M4.5*10 (5.0 Nm)
	Wrench (clamp)			WT15P		
	Wrench (clamp)					WT20T
	Wrench (insert)	WT15P	WT15P	WT15P		
	Wrench (insert)				WT20T	WT20T

**Milling inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

RDkW	I.C	S	d
10 03	10	3.18	3.9
12 T3	12	3.97	3.9
16 04	16	4.76	5.2

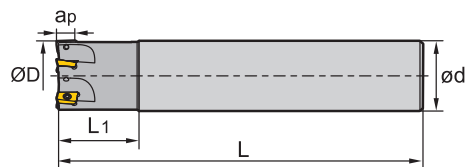
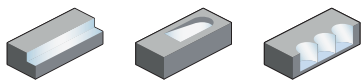
RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
		P	M	K	N	S	H																
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RDkW1003MO-1				●	●						●	●	●									
	RDkW1003MO-2										●												
	RDkW1003MO-3				●								●										
	RDkW12T3MO-1				●	●						●	●	●									
	RDkW12T3MO-2										●		○										
	RDkW12T3MO-3				●								●										
	RDkW1604MO-1					●						●	●	●		●							
	RDkW1604MO-2											○											
RDkW1604MO-3		○	○	●				●		○	●			●									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Square shoulder milling

EMP01 Kr: 90°



Straight shank

Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
EMP01-012-G12-AP07-02C	*	●	12	12	25	75	6.4	2	0.31	APKT0702
EMP01-014-G16-AP07-03C	*	●	14	16	25	85	6.4	3	0.61	
EMP01-016-G16-AP07-04C	*	●	16	16	30	90	6.4	4	0.75	
EMP01-012-G16-AP11-01		●	12	16	25	85	10.5	1	0.1	APKT11T3
EMP01-016-G16-AP11-02		●	16	16	25	90	10.5	2	0.1	
EMP01-016-G16-AP11-02C	*	○	16	16	25	90	10.5	2	0.1	
EMP01-020-G20-AP11-02		●	20	20	30	100	10.5	2	0.2	
EMP01-020-G20-AP11-02C	*	●	20	20	30	100	10.5	2	0.2	
EMP01-020-G20-AP11-03		○	20	20	30	100	10.5	3	0.2	
EMP01-020-G20-AP11-03C	*	●	20	20	30	100	10.5	3	0.2	
EMP01-025-G25-AP11-03		●	25	25	35	115	10.5	3	0.4	
EMP01-025-G25-AP11-03C	*	○	25	25	35	115	10.5	3	0.4	
EMP01-025-G25-AP11-04		●	25	25	35	115	10.5	4	0.4	
EMP01-032-G32-AP11-04		●	32	32	40	125	10.5	4	0.7	APKT1604
EMP01-032-G32-AP11-04C	*	●	32	32	40	125	10.5	4	0.7	
EMP01-025-G25-AP16-02		●	25	25	35	115	15.5	2	0.4	
EMP01-025-G25-AP16-02C	*	●	25	25	35	115	15.5	2	0.4	
EMP01-032-G32-AP16-03		●	32	32	40	125	15.5	3	0.7	
EMP01-032-G32-AP16-03C	*	●	32	32	40	125	15.5	3	0.7	
EMP01-040-G32-AP16-03		●	40	32	42	130	15.5	3	0.7	
EMP01-040-G32-AP16-03C	*	●	40	32	42	130	15.5	3	0.7	
EMP01-040-G32-AP16-04		●	40	32	42	130	15.5	4	0.8	
EMP01-040-G32-AP16-04C	*	○	40	32	42	130	15.5	4	0.8	
EMP01-050-G32-AP16-05		●	50	32	45	135	15.5	5	1	
EMP01-063-G32-AP16-06		●	63	32	45	135	15.5	6	1.4	

● Ex stock ○ On demand

\* With internal cooling






System code > B26

Grade selection > B24




Technical info > B463

Cutting data > B224

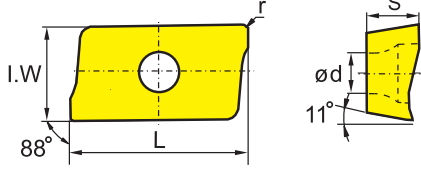















Spare parts				
Insert	APKT0702	APKT11T3	APKT1604	
ØD	12-25	12-32	25-63	
 Screw (insert)	I60M1,8x4 (0.3 Nm)		I60M4*8.4 (3.4 Nm)	
 Screw (insert)		I60M2.5*6.5T (1.0 Nm)		
 Wrench (insert)	WT05IP	WT08IP		
 Wrench (insert)			WT15S	

**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

APKT	L	S	d
07 02	4.26	2.38	2
11 T3	12.24	3.6	2.8
16 04	17.877	5.76	4.4

AP** milling insert				HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
		P	M	K	N	S	H																	
																								
ISO	r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	APKT11T304-ALH	0.4	6.5								●												●	●
	APKT11T308-ALH	0.8	6.5								●												●	●
	APKT160408-ALH	0.8	9.33								●												●	●
	APKT11T304-APF	0.4	6.5										●											
	APKT11T308-APF	0.8	6.5										●											
	APKT160408-APF	0.8	9.33										●	○	○									
	APKT070204-APM	0.4	6.91							●			●											
	APKT11T304-APM	0.4	6.5			●		●					●											
	APKT11T308-APM	0.8	6.5			●		●					●											
	APKT11T312-APM	1.2	6.5			●		●					●											
	APKT11T316-APM	1.6	6.5			●		●					●											
	APKT11T320-APM	2	6.5			●		●					●											
	APKT160408-APM	0.8	9.33			●		●	●				●											
	APKT160416-APM	1.6	9.33			●		●					●											
	APKT160420-APM	2	9.33			●		●					●											
	APKT160424-APM	2.4	9.33			●		●					●											
	APKT160430-APM	3	9.33			●		●					●											
	APKT11T304-LH	0.4	6.5																				●	●
	APKT11T308-LH	0.8	6.5																				●	●
	APKT160408-LH	0.8	9.33																				●	●

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



A

Turning

B

Milling

C

Drilling

D

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Index

**A**

Turning

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Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

APKT	L	S	d
<b>07 02</b>	4.26	2.38	2
<b>11 T3</b>	12.24	3.6	2.8
<b>16 04</b>	17.877	5.76	4.4

## Milling inserts

AP** milling insert			HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW						
	ISO	r	P	M	K	N	S	H															
			YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG205	YBG202	YBG212	YBG302	YBG252	YNG151	YNG151C	YD101	YD201		
				APKT11T304-PF	0.4	6.5	○		●				●		●								
				APKT11T308-PF	0.8	6.5		○					○		●								
				APKT11T312-PF	1.2	6.5									○								
				APKT11T316-PF	1.6	6.5									○								
APKT160408-PF	0.8	9.33		●		○	●					●		●									
APKT160430-PF	3	9.33		○																			
	APKT11T304-PM	0.4	6.5	●	●	○	●	●		○		●		●									
	APKT11T308-PM	0.8	6.5	●	●		●	●	●	●	●	●		●									
	APKT11T312-PM	1.2	6.5				○			○		●		○									
	APKT11T316-PM	1.6	6.5					●		○		●		○									
	APKT160408-PM	0.8	9.33	●	●	●	●	●	●	●	●	●	●	●	●								
	APKT160416-PM	1.6	9.33	○								●											
	APKT11T304-PR	0.4	6.5					○				○		○									
	APKT11T316-PR	1.6	6.5											○									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

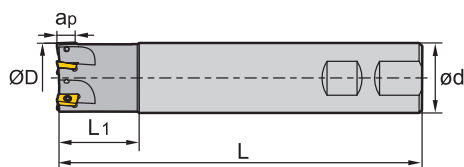
Technical info > B463

Cutting data > B224



### Square shoulder milling

EMP01 Kr: 90°



Weldon shank

Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
EMP01-020-XP20-AP07-05C	*	●	20	20	30	100	6.4	5	0.31	APKT0702
EMP01-025-XP25-AP07-07C	*	●	25	25	35	115	6.4	7	0.61	
EMP01-012-XP16-AP11-01		●	12	16	25	85	10.5	1	0.1	APKT11T3
EMP01-012-XP16-AP11-01C	*	○	12	16	25	85	10.5	1	0.1	
EMP01-016-XP16-AP11-02		●	16	16	25	90	10.5	2	0.1	
EMP01-016-XP16-AP11-02C	*	○	16	16	25	90	10.5	2	0.1	
EMP01-020-XP20-AP11-02		●	20	20	30	100	10.5	2	0.2	
EMP01-020-XP20-AP11-02C	*	○	20	20	30	100	10.5	2	0.2	
EMP01-020-XP20-AP11-03		●	20	20	30	100	10.5	3	0.2	
EMP01-020-XP20-AP11-03C	*	●	20	20	30	100	10.5	3	0.2	
EMP01-025-XP25-AP11-03		●	25	25	35	115	10.5	3	0.4	
EMP01-025-XP25-AP11-03C	*	●	25	25	35	115	10.5	3	0.4	
EMP01-025-XP25-AP11-04		●	25	25	35	115	10.5	4	0.4	APKT1604
EMP01-025-XP25-AP11-04C	*	○	25	25	35	115	10.5	4	0.4	
EMP01-032-XP32-AP11-04		●	32	32	40	125	10.5	4	0.7	
EMP01-032-XP32-AP11-04C	*	○	32	32	40	125	10.5	4	0.7	
EMP01-025-XP25-AP16-02		●	25	25	35	115	15.5	2	0.4	
EMP01-025-XP25-AP16-02C	*	○	25	25	35	115	15.5	2	0.4	
EMP01-032-XP32-AP16-03		●	32	32	40	125	15.5	3	0.7	
EMP01-032-XP32-AP16-03C	*	○	32	32	40	125	15.5	3	0.7	
EMP01-040-XP32-AP16-04		●	40	32	42	130	15.5	4	0.8	APKT1604
EMP01-040-XP32-AP16-04C	*	○	40	32	42	130	15.5	4	0.8	
EMP01-050-XP32-AP16-05		●	50	32	45	135	15.5	5	1	
EMP01-063-XP32-AP16-06		○	63	32	45	135	15.5	6	1.4	

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



# Indexable milling Square shoulder milling

A

Turning

Spare parts		APKT0702	APKT11T3	APKT1604
Insert	ØD	12-25	12-32	25-63
	Screw (insert)	I60M1,8x4 (0.3 Nm)		I60M4*8.4 (3.4 Nm)
	Screw (insert)		I60M2.5*6.5T (1.0 Nm)	
	Wrench (insert)	WT05IP	WT08IP	
	Wrench (insert)			WT15S



B

Milling

## Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

APKT	L	S	d
07 02	4.26	2.38	2
11 T3	12.24	3.6	2.8
16 04	17.877	5.76	4.4

C

Drilling

AP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
ISO		r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	APKT11T304-ALH	0.4	6.5									●											●	●
	APKT11T308-ALH	0.8	6.5									●											●	●
	APKT160408-ALH	0.8	9.33									●											●	●
	APKT11T304-APF	0.4	6.5										●											
	APKT11T308-APF	0.8	6.5										●											
	APKT160408-APF	0.8	9.33										●	○		○								
	APKT070204-APM	0.4	6.91								●		●											
	APKT11T304-APM	0.4	6.5				●			●		●												
	APKT11T308-APM	0.8	6.5				●			●		●												
	APKT11T312-APM	1.2	6.5				●			●		●												
	APKT11T316-APM	1.6	6.5				●			●		●												
	APKT11T320-APM	2	6.5				●			●		●												
	APKT160408-APM	0.8	9.33				●			●	●		●											
	APKT160416-APM	1.6	9.33				●			●		●												
	APKT160420-APM	2	9.33				●			●		●												
	APKT160424-APM	2.4	9.33				●			●		●												
	APKT160430-APM	3	9.33				●			●		●												
	APKT11T304-LH	0.4	6.5																				●	●
	APKT11T308-LH	0.8	6.5																				●	●
	APKT160408-LH	0.8	9.33																				●	●

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

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System code > B26

Grade selection > B24

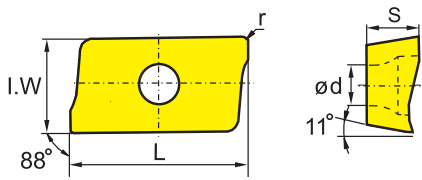



Technical info > B463

Cutting data > B224

**Milling inserts**

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

APKT	L	S	d
<b>07 02</b>	4.26	2.38	2
<b>11 T3</b>	12.24	3.6	2.8
<b>16 04</b>	17.877	5.76	4.4

AP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	ISO	r	P	M	K	N	S	H																
		I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB920	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201		
			APKT11T304-PF	0.4	6.5	○		●				●			●	●								
			APKT11T308-PF	0.8	6.5		○					○			●									
			APKT11T312-PF	1.2	6.5										○									
			APKT11T316-PF	1.6	6.5										○									
	APKT160408-PF	0.8	9.33	●		○	●						●	●										
	APKT160430-PF	3	9.33	○																				
	APKT11T304-PM	0.4	6.5	●	○	●	●			○			●	●										
	APKT11T308-PM	0.8	6.5	●	●	●	●	●	●	●			●	●	●									
	APKT11T312-PM	1.2	6.5			○				○			●		○									
	APKT11T316-PM	1.6	6.5				●			○			●		○									
	APKT160408-PM	0.8	9.33	●	●	●	●	●	●	●			●	●	●									
	APKT160416-PM	1.6	9.33	○									●											
	APKT11T304-PR	0.4	6.5				○						○	○										
	APKT11T316-PR	1.6	6.5											○										

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

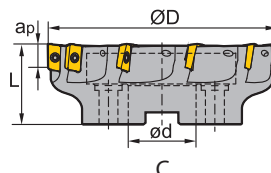
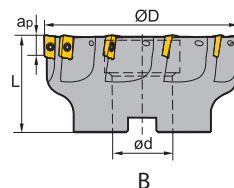
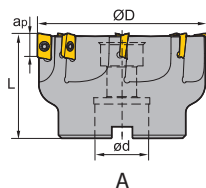
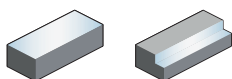
Cutting data > B224



**A** Turning  
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## Square shoulder milling

EMP02 Kr: 90°



Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts
			ØD	ød	L	a <sub>p max</sub>				
EMP02-032-A16-AP07-08C	*	●	32	16	35	6.4	8	A	34	APKT0702
EMP02-040-A16-AP07-10C	*	●	40	16	40	6.4	10	A	40	
EMP02-050-A22-AP07-12C	*	●	50	22	40	6.4	12	A	0.6	
EMP02-040-A16-AP11-04C	*	●	40	16	40	11	4	A	0.237	APKT11T3
EMP02-040-A16-AP11-05C	*	●	40	16	40	11	5	A	0.177	
EMP02-040-A16-AP11-06C	*	●	40	16	40	11	6	A	0.234	
EMP02-050-A22-AP11-06		●	50	22	40	11	6	A	0.3	APKT1604
EMP02-050-A22-AP11-06C	*	●	50	22	40	11	6	A	0.3	
EMP02-050-A22-AP11-07C	*	●	50	22	40	11	7	A	0.39	
EMP02-063-A22-AP11-08		●	63	22	40	11	8	A	0.6	APKT1604
EMP02-063-A22-AP11-08C	*	●	63	22	40	11	8	A	0.6	
EMP02-063-A22-AP11-09C	*	●	63	22	40	11	9	A	0.54	
EMP02-080-A27-AP11-08		●	80	27	50	11	8	A	1.2	APKT1604
EMP02-080-A27-AP11-08C	*	●	80	27	50	11	8	A	1.2	
EMP02-080-A27-AP11-10C	*	●	80	27	50	11	10	A	1.13	
EMP02-100-B32-AP11-10		●	100	32	50	11	10	B	1.7	APKT1604
EMP02-100-B32-AP11-10C	*	○	100	32	50	11	10	B	1.7	
EMP02-125-B40-AP11-10		○	125	40	63	11	10	B	3.42	
EMP02-040-A16-AP16-03		○	40	16	40	15.5	3	A	0.17	APKT1604
EMP02-040-A16-AP16-04C	*	●	40	16	40	15.5	4	A	0.17	
EMP02-050-A22-AP16-05		●	50	22	40	15.5	5	A	0.3	
EMP02-050-A22-AP16-05C	*	●	50	22	40	15.5	5	A	0.3	APKT1604
EMP02-063-A22-AP16-06		●	63	22	40	15.5	6	A	0.5	
EMP02-063-A22-AP16-06C	*	●	63	22	40	15.5	6	A	0.5	
EMP02-080-A27-AP16-06C	*	○	80	27	50	15.5	6	A	1.08	APKT1604
EMP02-080-A27-AP16-07		●	80	27	50	15.5	7	A	1.1	
EMP02-080-A27-AP16-07C	*	●	80	27	50	15.5	7	A	1.1	
EMP02-100-B32-AP16-08		●	100	32	50	15.5	8	B	1.6	

● Ex stock    ○ On demand


\* With internal cooling

System code > B26

Grade selection > B24

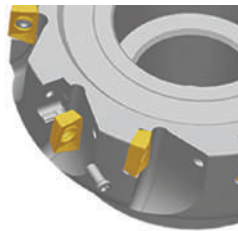




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Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts 
			∅D	∅d	L	a <sub>p</sub> max				
EMP02-100-B32-AP16-08C	*	●	100	32	50	15.5	8	B	1.6	APKT1604
EMP02-125-B40-AP16-06C	*	○	125	40	63	15.5	6	B	3.18	
EMP02-125-B40-AP16-10		○	125	40	63	15.5	10	B	3.2	
EMP02-125-B40-AP16-10C	*	○	125	40	63	15.5	10	B	3.2	
EMP02-160-B40-AP16-07C	*	○	160	40	63	15.5	7	B	4.3	
EMP02-160-B40-AP16-10		○	160	40	63	15.5	10	B	6.3	
EMP02-160-B40-AP16-10C	*	○	160	40	63	15.5	10	B	6.3	
EMP02-200-C60-AP16-12		○	200	60	63	15.5	12	C	8.1	
EMP02-250-C60-AP16-12		○	250	60	63	15.5	12	C	11.2	

● Ex stock ○ On demand

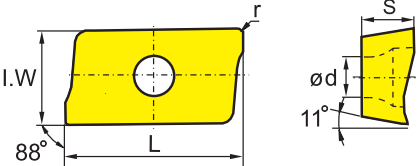

\*With internal cooling

Spare parts					
	Insert	APKT0702	APKT11T3	APKT1604	
	∅D	32-50	40-125	40-250	
	Screw (insert)	I60M1,8x4 (0.3 Nm)		I60M4*10 (3.4 Nm)	
	Screw (insert)		I60M2.5*6.5T (1.0Nm)		
	Wrench (insert)	WT05IP			
	Wrench (insert)		WT08IS	WT15IS	

### Milling inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

APKT	L	S	d
07 02	4.26	2.38	2
11 T3	12.24	3.6	2.8
16 04	17.877	5.76	4.4

AP** milling insert		HC <sup>1</sup> (CVD)				HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
		P	M	K	N	S	H																
ISO	r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	APKT11T304-ALH	0.4	6.5								●											●	●
	APKT11T308-ALH	0.8	6.5								●											●	●
	APKT160408-ALH	0.8	9.33								●											●	●

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

System code > B26

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- Ideal machining conditions
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- ⊗ Unfavourable machining conditions

APKT	L	S	d
<b>07 02</b>	4.26	2.38	2
<b>11 T3</b>	12.24	3.6	2.8
<b>16 04</b>	17.877	5.76	4.4

## Milling inserts

AP** milling insert				HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW										
				P	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●									
				M	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●									
				K	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●	⊗								
				N	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●	⊗								
				S	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●	⊗								
				H	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗						⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗					●	●	●	⊗								
ISO				r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	APKT11T304-APF	0.4	6.5												●												
	APKT11T308-APF	0.8	6.5												●												
	APKT160408-APF	0.8	9.33												●	○		○									
	APKT070204-APM	0.4	6.91									●			●												
	APKT11T304-APM	0.4	6.5					●			●				●												
	APKT11T308-APM	0.8	6.5					●			●				●												
	APKT11T312-APM	1.2	6.5					●			●				●												
	APKT11T316-APM	1.6	6.5					●			●				●												
	APKT11T320-APM	2	6.5					●			●				●												
	APKT160408-APM	0.8	9.33					●			●	●			●												
	APKT160416-APM	1.6	9.33					●			●				●												
	APKT160420-APM	2	9.33					●			●				●												
	APKT160424-APM	2.4	9.33					●			●				●												
	APKT160430-APM	3	9.33					●			●				●												
		APKT11T304-LH	0.4	6.5																						●	●
APKT11T308-LH		0.8	6.5																						●	●	
APKT160408-LH		0.8	9.33																						●	●	
	APKT11T304-PF	0.4	6.5		○			●						●		●		●									
	APKT11T308-PF	0.8	6.5						○					○		●											
	APKT11T312-PF	1.2	6.5														○										
	APKT11T316-PF	1.6	6.5														○										
	APKT160408-PF	0.8	9.33		●				○	●							●		●								
	APKT160430-PF	3	9.33		○																						
	APKT11T304-PM	0.4	6.5		●	●	○		●	●				○		●		●									
	APKT11T308-PM	0.8	6.5		●	●		●	●	●	●	●		●		●	●	●	●								
	APKT11T312-PM	1.2	6.5						○					○		●		○									
	APKT11T316-PM	1.6	6.5							●				○		●		○									
	APKT160408-PM	0.8	9.33		●	●	●	●	●	●	●	●	●		●		●	●	●								
	APKT160416-PM	1.6	9.33		○												●										
	APKT11T304-PR	0.4	6.5							○						○		○									
	APKT11T316-PR	1.6	6.5																○								

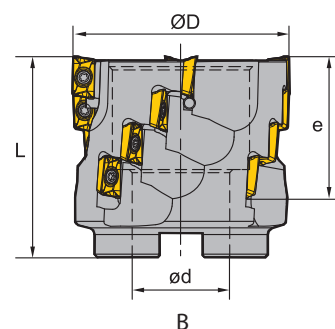
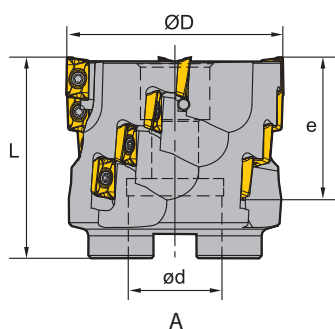
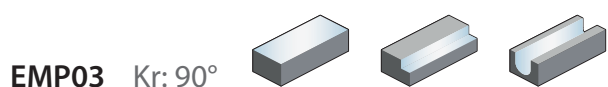
● Ex stock    ○ On demand


HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide





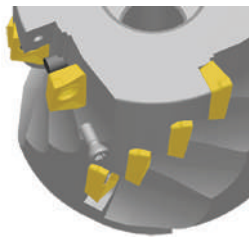


### Square shoulder milling



Article	*	Stock	Dimensions [mm]				Teeth	Coupling	No. of inserts	kg	Inserts
			ØD	e	ød	L					
EMP03-050-A22-AP11-04		●	50	39	22	58	4	A	16	0.5	 APKT11T3
EMP03-050-A22-AP11-04C	*	○	50	39	22	58	4	A	16	0.5	
EMP03-063-A27-AP11-04		●	63	39	27	58	4	A	16	0.9	
EMP03-063-A27-AP11-04C	*	○	63	39	27	58	4	A	16	0.9	
EMP03-080-B32-AP11-05		●	80	39	32	63	5	B	20	1.3	
EMP03-080-B32-AP11-05C	*	○	80	39	32	63	5	B	20	1.3	
EMP03-100-B40-AP11-06		●	100	39	40	63	6	B	24	2	
EMP03-100-B40-AP11-06C	*	○	100	39	40	63	6	B	24	2	

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert ØD	APKT11T3 50-100	
	Screw (insert)	I60M2.5*6.5T (1.0Nm)	
	Wrench (insert)	WT08IS	

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# Indexable milling Square shoulder milling

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊙ Unfavourable machining conditions

APKT	L	S	d
11 T3	12.24	3.6	2.8

## Milling inserts

AP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW
		P	M	K	N	S	H								
		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
				⊙				⊙							
								⊙							

ISO	r	I.W	Milling												Drilling									
			YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	0.4	6.5								●													●	●
	0.8	6.5								●													●	●
	0.4	6.5									●													
	0.8	6.5									●													
	0.4	6.5				●		●			●													
	0.8	6.5				●		●			●													
	1.2	6.5				●		●			●													
	1.6	6.5				●		●			●													
	2	6.5				●		●			●													
	0.4	6.5																					●	●
	0.8	6.5																					●	●
	0.4	6.5		○		●				●		●		●										
	0.8	6.5				○				○		●												
	1.2	6.5										○												
	1.6	6.5										○												
	0.4	6.5	●	●	○	●	●			○		●		●										
	0.8	6.5	●	●		●	●	●	●	●		●	●	●	●									
	1.2	6.5				○				○		●		○										
	1.6	6.5				●				○		●		○										
	0.4	6.5					○					○		○										
	1.6	6.5												○										

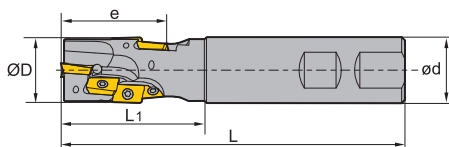
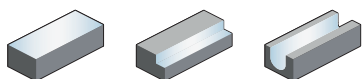
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide




### Square shoulder milling

EMP04 Kr: 90°





Weldon shank

Article	* Stock	Dimensions [mm]					Teeth	No. of inserts	kg	Inserts 
		ØD	e	ød	L <sub>1</sub>	L				
EMP04-020-XP20-AP11-01	●	20	29.4	20	45	120	1	3	0.3	APKT11T3
EMP04-025-XP25-AP11-02	●	25	38.9	25	55	130	2	8	0.4	
EMP04-032-XP32-AP11-02	●	32	48.5	32	65	140	2	10	0.7	
EMP04-040-XP40-AP11-02	●	40	58	40	75	150	2	14	1.3	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
	Insert ØD	APKT11T3 20-40
	Screw (insert)	I60M2.5*6.5T (1.0Nm)
	Wrench (insert)	WT08IS



A

Turning

B

Milling

C

Drilling

D

Technical  
Information

E

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System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

# Indexable milling Square shoulder milling

**A**

Turning

**B**

Milling

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Drilling

**D**

Technical Information

**E**

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

APKT	L	S	d
11 T3	12.24	3.6	2.8

## Milling inserts

AP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW	
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●		
	<b>M</b>	●	●	●	●	●		●	●	●	●	●	●	●		
	<b>K</b>						●					●	●			●
	<b>N</b>						●							●	●	
	<b>S</b>		●	●				●	●	●						
	<b>H</b>															

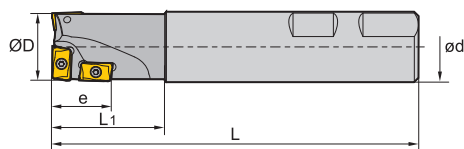
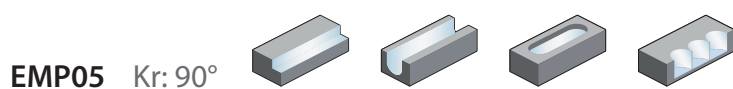
	ISO	r	I.W	Milling												Drilling										
				YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201		
	APKT11T304-ALH	0.4	6.5																					●	●	
	APKT11T308-ALH	0.8	6.5																						●	●
	APKT11T304-APF	0.4	6.5																							
	APKT11T308-APF	0.8	6.5																							
	APKT11T304-APM	0.4	6.5				●		●																	
	APKT11T308-APM	0.8	6.5				●		●																	
	APKT11T312-APM	1.2	6.5				●		●																	
	APKT11T316-APM	1.6	6.5				●		●																	
	APKT11T320-APM	2	6.5				●		●																	
	APKT11T304-LH	0.4	6.5																						●	●
	APKT11T308-LH	0.8	6.5																						●	●
	APKT11T304-PF	0.4	6.5				○		●																	
	APKT11T308-PF	0.8	6.5						○																	
	APKT11T312-PF	1.2	6.5																							
	APKT11T316-PF	1.6	6.5																							
	APKT11T304-PM	0.4	6.5	●	●	○		●	●																	
	APKT11T308-PM	0.8	6.5	●	●			●	●	●	●	●														
	APKT11T312-PM	1.2	6.5					○																		
	APKT11T316-PM	1.6	6.5					●																		
	APKT11T304-PR	0.4	6.5							○																
	APKT11T316-PR	1.6	6.5																							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



### Square shoulder milling



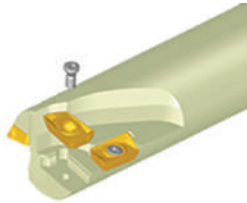
Weldon shank

Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	e	ød	L <sub>1</sub>	L			
EMP05-025-XP25		○	25	20	25	40	130	3	0.5	APMT1135
EMP05-025-XP25C	*	●	25	20	25	40	130	3	0.5	
EMP05-032-XP32C	*	○	32	30	32	50	140	3	0.8	APMT1604
EMP05-040-XP32C	*	○	40	40	32	60	150	4	1	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts			
	Insert	APMT1135	APMT1604
	ØD	25	32-40
	Screw (insert)		I60M4*10 (3.4 Nm)
	Screw (insert)	I60M2.5*6.5T (1.0Nm)	
	Wrench (insert)	WT08IP	WT15IP



# Indexable milling Square shoulder milling

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

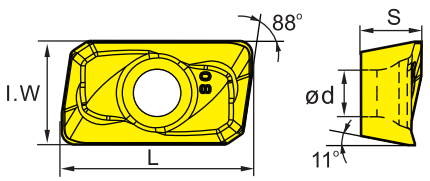

**E**

Index

- Ideal machining conditions
- ● Normal machining conditions
- ● ● Unfavourable machining conditions

APMT	L	S	d
<b>11 35</b>	11.25	3.5	2.8
<b>16 04</b>	17.25	4.76	4.4

## Milling inserts

AN** milling insert				HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW					
	<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>							
	<b>M</b>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>							
	<b>K</b>							<span style="color: red;">●</span>	<span style="color: red;">●</span>					<span style="color: red;">●</span>	<span style="color: red;">●</span>		<span style="color: red;">●</span>						
	<b>N</b>								<span style="color: green;">●</span>								<span style="color: green;">●</span>	<span style="color: green;">●</span>					
	<b>S</b>			<span style="color: orange;">●</span>	<span style="color: orange;">●</span>				<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>												
	<b>H</b>																						
ISO	r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	APMT1135PDR	0.8	6.2				○							●	○		○						
	APMT160408PDER	0.8	9.25				○							●	○		○						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

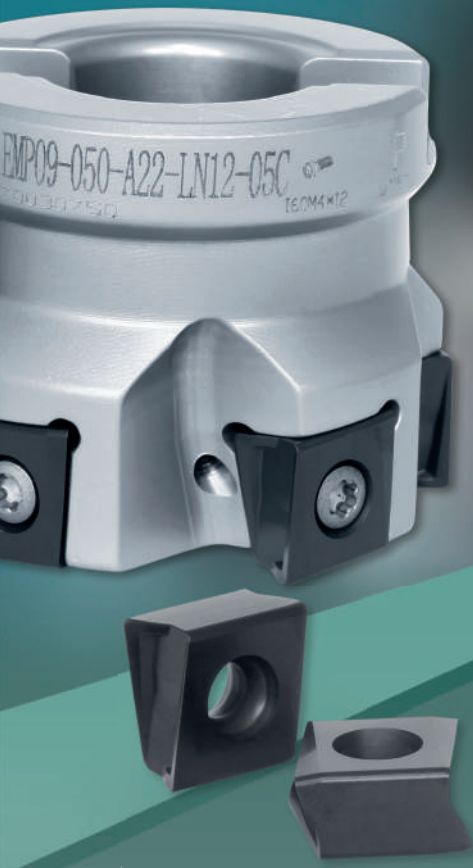
System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224





# EMP09 *Kr: 90°*

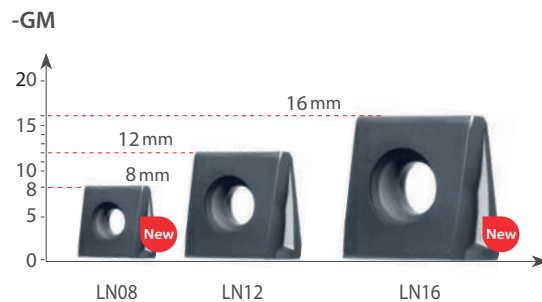
## Square shoulder mill with tangential inserts

- Sharp cutting edge geometry combined with robust tangential inserts.
- First choice for large cutting depths with high feed rates.
- Very good competitiveness.

### Insert grades

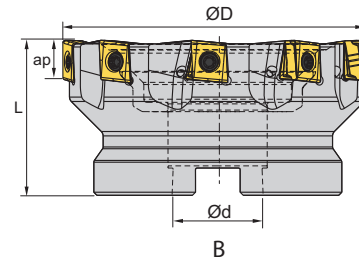
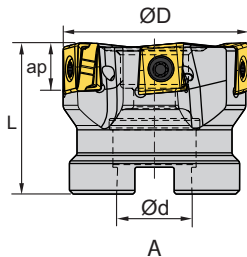
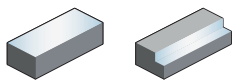
YBM253	YBG9320	YBD252
CVD	PVD	CVD
P20 – P40	P10 – P30	K15 – K35
M10 – M30	M20 – M30	

### Chip breaker



## Square shoulder milling

EMP09 Kr: 90°





Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts
			ØD	ød	L	a <sub>p max</sub>				
EMP09-040-A16-LN08-05C	*	●	40	16	40	8	5	A		LNKT0804PNR-GM
EMP09-050-A22-LN08-06C	*	●	50	22	40	8	6	A		
EMP09-063-A22-LN08-08C	*	●	63	22	40	8	8	A		
EMP09-080-A27-LN08-10C	*	○	80	27	50	8	10	A		LNKT1206PNR-GM
EMP09-040-A16-LN12-04C	*	●	40	16	40	11.5	4	A	0.19	
EMP09-050-A22-LN12-05C	*	●	50	22	40	11.5	5	A	0.33	
EMP09-063-A22-LN12-06C	*	●	63	22	40	11.5	6	A	0.53	LNKT1607PNR-GM
EMP09-080-A27-LN12-07C	*	●	80	27	50	11.5	7	A	1.18	
EMP09-100-B32-LN12-09C	*	●	100	32	50	11.5	9	B	1.62	
EMP09-125-B40-LN12-11C	*	●	125	40	63	11.5	11	B	3.25	LNKT1607PNR-GM
EMP09-080-A27-LN16-06C	*	●	80	27	50	15	6	A		
EMP09-100-B32-LN16-08C	*	●	100	32	50	15	8	B		
EMP09-125-B40-LN16-10C	*	●	125	40	63	15	10	B		
EMP09-160-B40-LN16-12C	*	●	160	40	63	15	12	B		

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	LNKT0804PNR-GM	LNKT1206PNR-GM	LNKT1607PNR-GM
	ØD	40-80	40-125	80-160
	Screw (clamp)	I60M3*7 (1.8 Nm)	I60M4*12 (3.4 Nm)	I60M5*17 (6.7 Nm)
	Wrench	WT10IS	WT15IS	WT20IS

System code > B26




Grade selection > B24

Technical info > B463

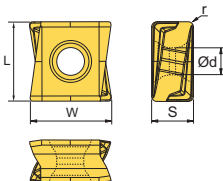

Cutting data > B224



LNKT	L	S
<b>08 04</b>	8.75	4.45
<b>12 06</b>	12.7	6.75
<b>16 07</b>	16.05	7.35

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Milling inserts**

LN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
			P	M	K	N	S	H	P	M	K	N	S	H										
																								
ISO			W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	LNKT080404PNR-GM	8.75	0.4				●								●									
	LNKT120608PNR-GM	12.7	0.8				●								●									
	LNKT160708PNR-GM	16.05	0.8				●	○							●									

● Ex stock    ○ On demand

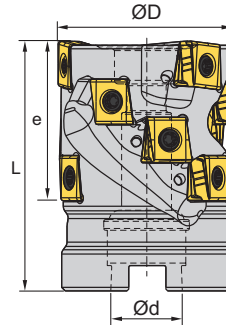
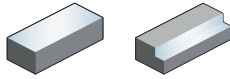
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**  
Turning  
  
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## Square shoulder milling



EMP09 Kr: 90°



Article	*	Stock	Dimensions [mm]				Teeth row	Teeth	Coupling	kg	Inserts
			ØD	e	ød	L					
EMP09-040x43-A16-LN12-02C	*	○	40	43	16	70	2	8	A	0.4	LNKT1206PNR-GM
EMP09-050x43-A22-LN12-03C	*	●	50	43	22	70	3	12	A	0.64	
EMP09-063x53-A27-LN12-04C	*	●	63	53	27	80	4	20	A	1.31	
EMP09-080x53-A27-LN12-05C	*	○	80	53	27	80	5	25	A	2.33	

● Ex stock    ○ On demand

\* With internal cooling




Spare parts		
	<b>Insert</b>	<b>LNKT1206PNR-GM</b>
	<b>ØD</b>	<b>40-80</b>
	Screw (clamp)	I60M4*12 (3.4Nm)
	Wrench	WT15IS

System code > B26

Grade selection > B24

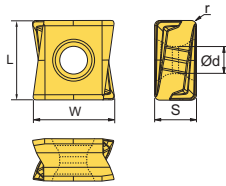
Technical info > B463


Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

LNKT	L	S
12 06	12.7	6.75

**Milling inserts**



			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
			P	M	K	N	S	H	P	M	K	N	S	H											
ISO			W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	LNKT120608PNR-GM		12.7	0.8			●					●			●										

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

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System code > B26

Grade selection > B24

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### Notes

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Notes section with horizontal dotted lines for writing.

# EMP13 *Kr: 90°*

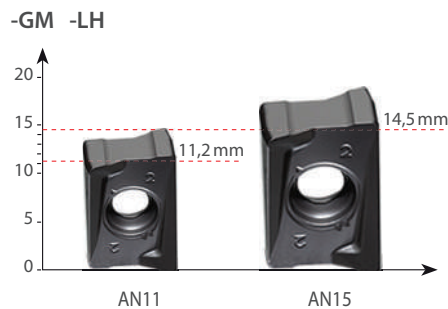
## New square shoulder mill generation

- Specially developed cutting edges for high-quality 90° square shoulder milling.
- Extra thick inserts for better stability.
- Positive, smooth cutting geometry for reduced cutting forces.
- Polished, high-precision geometry for aluminum alloys, steel and cast iron.

### Insert grades

<b>YBC302</b> CVD P15–P35	<b>YBM253</b> CVD P20–P40 M10–M30	<b>YBG9320</b> PVD P10–P30 M20–M30	<b>YBG205</b> PVD P10–P30 M20–M30
<b>YBD152</b> CVD K05–K25	<b>YBD252</b> CVD K15–K35	<b>YD101</b> – N05–N25	

### Chip breakers

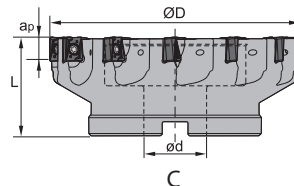
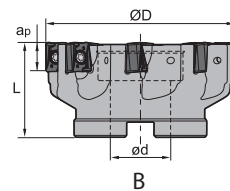
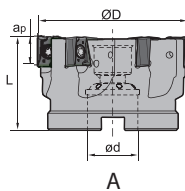
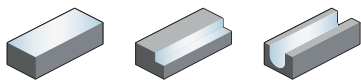


Chip breaker -LH for aluminium



## Square shoulder milling

EMP13 Kr: 90°



Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Inserts	
			ØD	ød	L	ap max					
EMP13-040-A16-AN11-04C	*	○	40	16	40	11.2	4	A	0.45	ANGX1105	
EMP13-050-A22-AN11-06		●	50	22	40	11.2	6	A	0.3		
EMP13-063-A22-AN11-06	*	○	63	22	40	11.2	6	A	0.49		
EMP13-063-A22-AN11-07		●	63	22	40	11.2	7	A	0.49		
EMP13-080-A27-AN11-07	*	○	80	27	50	11.2	7	A	1.18		
EMP13-080-A27-AN11-09		●	80	27	50	11.2	9	A	1.18		
EMP13-100-B32-AN11-12		●	100	32	50	11.2	12	B	1.46		
EMP13-100-B32-AN11-12C	*	○	100	32	50	11.2	12	B	1.46		
EMP13-125-B40-AN11-14		●	125	40	63	11.2	14	B	2.92		
EMP13-125-B40-AN11-14C	*	○	125	40	63	11.2	14	B	2.92		
EMP13-160-C40-AN11-16		●	160	40	63	11.2	16	C	4.3		
EMP13-050-A22-AN15-04		●	50	22	40	14.5	4	A	0.26		ANGX1506
EMP13-063-A22-AN15-05		●	63	22	40	14.5	5	A	0.53		
EMP13-080-A27-AN15-06		●	80	27	50	14.5	6	A	1.23		
EMP13-100-B32-AN15-08		●	100	32	50	14.5	8	B	1.52		
EMP13-100-B32-AN15-08C	*	○	100	32	50	14.5	8	B	1.52		
EMP13-125-B40-AN15-10		●	125	40	63	14.5	10	B	3.05		
EMP13-125-B40-AN15-10C	*	○	125	40	63	14.5	10	B	3.05		
EMP13-160-C40-AN15-12		●	160	40	63	14.5	12	C	4.46		
EMP13-200-C60-AN15-16		○	200	60	63	14.5	16	C	6.26		

● Ex stock ○ On demand

\* With internal cooling



System code > B26


Grade selection > B24

Technical info > B463




Cutting data > B224

Spare parts

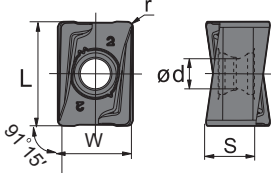


Insert		ANGX1105 40-160	ANGX1506 50-200
ØD			
	Screw (insert)	I60M3*9 (1.8 Nm)	I60M4*12 (3.4 Nm)
	Wrench (insert)	WT09IS	WT15IS



Milling inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

ANGX	L	S	d
11 05	11.85	5.7	3.5
15 06	15.43	7.3	4.4

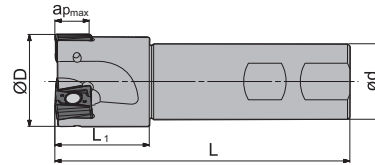
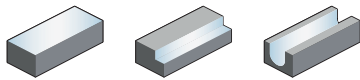
AN** milling insert				HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
		P	M	K	N	S	H																		
	ISO	W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
		ANGX110504PNR-GM	8.4	0.4				●		●					●	●									
		ANGX110508PNR-GM	8.4	0.8	●			●		●	●				●	●									
		ANGX150608PNR-GM	11	0.8	○			●		●	●				●	●									
		ANGX150616PNR-GM	11	1.6				●		●						●									
		ANGX150620PNR-GM	11	2						●	●					●									
	ANGX110504PNR-LH	8.4	0.4																				●		
	ANGX150608PNR-LH	11	0.8																					●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Square shoulder milling

EMP13 Kr: 90°



Weldon shank

Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L	a <sub>p max</sub>			
EMP13-025-XP25-AN11-02	●		25	25	32	100	11.2	2	0.31	ANGX1105
EMP13-032-XP32-AN11-03	●		32	32	40	115	11.2	3	0.61	
EMP13-040-XP32-AN11-04	●		40	32	40	125	11.2	4	0.75	
EMP13-032-XP32-AN15-02	●		32	32	40	125	11.2	2	0.66	ANGX1506
EMP13-040-XP32-AN15-03	●		40	32	40	125	11.2	3	0.76	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		ANGX1105	ANGX1506	
Insert	ØD	25-40	25-40	
Screw (insert)		I60M3*9 (1.8 Nm)	I60M4*12 (3.4 Nm)	
Wrench (insert)		WT09IS	WT15IS	

System code > B26

Grade selection > B24

Technical info > B463

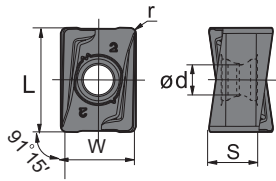
Cutting data > B224



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

ANGX	L	S	d
<b>11 05</b>	11.85	5.7	3.5
<b>15 06</b>	15.43	7.3	4.4

**Milling inserts**



AN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
ISO	W	r	CVD Grades						PVD Grades						HT	HC <sup>2</sup>	HW							
			YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205				YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C
	ANGX110504PNR-GM	8.4	0.4																					
	ANGX110508PNR-GM	8.4	0.8	●																				
	ANGX150608PNR-GM	11	0.8	○																				
	ANGX150616PNR-GM	11	1.6																					
	ANGX150620PNR-GM	11	2																					
	ANGX110504PNR-LH	8.4	0.4																				●	
	ANGX150608PNR-LH	11	0.8																				●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**  
Turning

**B**  
Milling

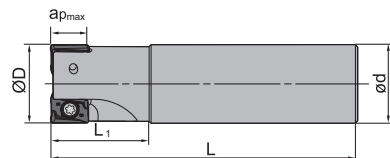
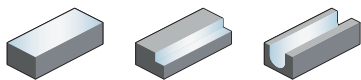
**C**  
Drilling

**D**  
Technical Information

**E**  
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## Square shoulder milling

EMP13 Kr: 90°



Straight shank

Article	* Stock	Dimensions [mm]							Teeth	kg	Inserts
		ØD	e	ød	L <sub>1</sub>	L	a <sub>p max</sub>				
EMP13-025-G25-AN11-02	●	25	11.2	25	32	100	11.2	2	0.31	ANGX1105	
EMP13-032-G32-AN11-03	●	32	11.2	32	40	115	11.2	3	0.61		
EMP13-040-G32-AN11-04	●	40	11.2	32	40	125	11.2	4	0.75		
EMP13-032-G32-AN15-02	●	32	14.5	32	40	125	14.5	2	0.66	ANGX1506	
EMP13-040-G32-AN15-03	●	40	14.5	32	40	125	14.5	3	0.76		

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert ØD	ANGX1105 25-40	ANGX1506 25-40	
	Screw (insert)	I60M3*9 (1.8 Nm)	I60M4*12 (3.4 Nm)	
	Wrench (insert)	WT09IS	WT15IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

ANGX	L	S	d
11 05	11.85	5.7	3.5
15 06	15.43	7.3	4.4

AN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
	P																							
	M																							
	K																							
	N																							
	S																							
	H																							
ISO	W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	ANGX110504PNR-GM	8.4	0.4			●		●					●	●										
	ANGX110508PNR-GM	8.4	0.8	●		●		●	●				●	●										
	ANGX150608PNR-GM	11	0.8	○		●		●	●				●	●										
	ANGX150616PNR-GM	11	1.6			●		●						●										
	ANGX150620PNR-GM	11	2					●	●					●										
	ANGX110504PNR-LH	8.4	0.4																				●	
	ANGX150608PNR-LH	11	0.8																				●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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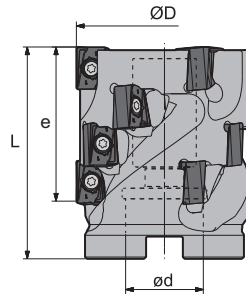
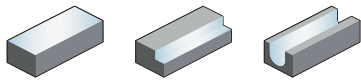
Technical info > B463

Cutting data > B224



## Square shoulder milling

EMP13 Kr: 90°



Article	*	Stock	Dimensions [mm]				Teeth	No. of inserts	kg	Inserts
			ØD	e	ød	L				
EMP13-050x43-A22-AN11-03	●		50	43	22	60	3	12	0.52	ANGX1105
EMP13-063x64-A27-AN11-04	○		63	64	27	80	4	24	1.15	
EMP13-063x53-A27-AN15-03	○		63	53	27	75	3	12	1.14	ANGX1506
EMP13-080x53-A32-AN15-04	●		80	53	32	75	4	16	1.82	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		ANGX1105	ANGX1506	
Insert	ØD	50-63	63-80	
Screw (insert)		I60M3*9 (1.8 Nm)	I60M4*12 (3.4 Nm)	
Wrench (insert)		WT09IS	WT15IS	

A

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Technical Information

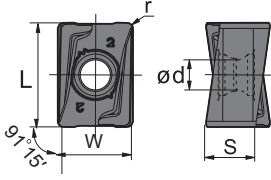


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### Milling inserts

- Ideal machining conditions
- ✳ Normal machining conditions
- ✳ Unfavourable machining conditions

ANGX	L	S	d
11 05	11.85	5.7	3.5
15 06	15.43	7.3	4.4

AN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW										
	P	M	K	N	S	H																					
	ISO			W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
		ANGX110504PNR-GM	8.4	0.4			●				●					●	●										
		ANGX110508PNR-GM	8.4	0.8	●											●	●										
		ANGX150608PNR-GM	11	0.8	○											●	●										
		ANGX150616PNR-GM	11	1.6													●										
	ANGX150620PNR-GM	11	2													●											
	ANGX110504PNR-LH	8.4	0.4																						●		
	ANGX150608PNR-LH	11	0.8																						●		

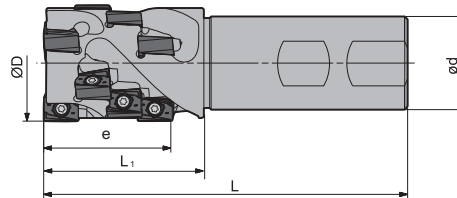
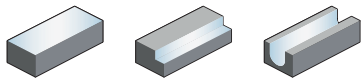
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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## Square shoulder milling

EMP13 Kr: 90°



Weldon shank

Article	*	Stock	Dimensions [mm]					Teeth	No. of inserts	kg	Inserts
			ØD	e	ød	L <sub>1</sub>	L				
EMP13-032x43-XP32-AN11-02		○	32	43	32	48	115	2	8	0.61	ANGX1105
EMP13-040x43-XP32-AN11-03		○	40	43	32	55	125	3	12	0.79	
EMP13-040x40-XP32-AN15-02		○	40	40	32	55	115	2	6	0.79	ANGX1506
EMP13-050x53-XP40-AN15-02		○	50	53	40	70	145	2	8	1.53	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert ØD	ANGX1105 32-40	ANGX1506 40-50
Screw (insert)		I60M3*9 (1.8 Nm)	I60M4*12 (3.4 Nm)
Wrench (insert)		WT09IS	WT15IS



System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

ANGX	L	S	d
<b>11 05</b>	11.85	5.7	3.5
<b>15 06</b>	15.43	7.3	4.4

AN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
		P	M	K	N	S	H	P	M	K	N	S	H											
ISO	W	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	ANGX110504PNR-GM	8.4	0.4				●		●				●	●										
	ANGX110508PNR-GM	8.4	0.8	●			●		●				●	●										
	ANGX150608PNR-GM	11	0.8	○			●		●	●			●	●										
	ANGX150616PNR-GM	11	1.6				●		●					●										
	ANGX150620PNR-GM	11	2						●	●				●										
	ANGX110504PNR-LH	8.4	0.4																				●	
	ANGX150608PNR-LH	11	0.8																				●	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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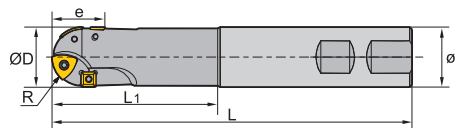
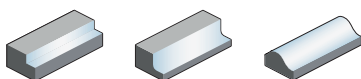
Technical info > B463

Cutting data > B224



## Profile milling

BMR01



Weldon shank

Article	* Stock	Dimensions [mm]							Teeth		kg	Inserts
		R	ØD	e	ød	L <sub>1</sub>	L	ZDET	SPMT			
BMR01-020-XP20-S	○	10	20	20	20	50	125	2	2	0.3	ZDET08T2 & SPMT0603	
BMR01-020-XP20-M	○	10	20	20	20	75	150	2	2	0.3		
BMR01-020-XP20-L	○	10	20	20	20	100	200	2	2	0.4		
BMR01-025-XP25-S	○	12.5	25	23	25	70	150	2	2	0.5	ZDET1103 & SPMT0603	
BMR01-025-XP25-M	○	12.5	25	23	25	95	175	2	2	0.6		
BMR01-025-XP25-L	○	12.5	25	23	25	100	200	2	2	0.7		
BMR01-032-XP32-S	○	16	32	31	32	85	175	2	2	0.9	ZDET13T2 & SDMT0903	
BMR01-032-XP32-M	○	16	32	31	32	100	200	2	2	1.1		
BMR01-032-XP32-L	○	16	32	31	32	150	250	2	2	1.4		
BMR01-040-XP40-S	○	20	40	41	40	85	175	3	2	1.4	ZPNT2204 & SPMT1204	
BMR01-040-XP40-M	○	20	40	41	40	100	200	3	2	1.7		
BMR01-040-XP40-L	○	20	40	41	40	150	250	3	2	2.1		
BMR01-050-XP40-S	○	25	50	45	40	100	200	3	2	1.8	ZPNT2204 & SPMT1204	
BMR01-050-XP40-M	○	25	50	45	40	100	300	3	2	2.8		
BMR01-063-XP40-S	○	31.5	63	52	40	100	200	4	2	3		
BMR01-063-XP40-M	○	31.5	63	52	40	100	300	4	2	3.5		

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

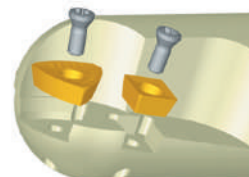
Technical info > B463

Cutting data > B224



Spare parts

Insert	ZDET08T2 & SPMT0603	ZDET1103 & SPMT0603	ZDET13T2 & SDMT0903	ZPNT2204 & SPMT1204
ØD	20	25	32	40-63
Screw (insert)	I43M2.5*5.7 (1.0 Nm)	I43M2.5*5.7 (1.0 Nm)	I43M4*8 (3.4 Nm)	I43M5*11 (6.7 Nm)
Wrench (insert)	WT07IP	WT07IP		
Wrench (insert)			WT15IS	WT20IS



Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

ZDET	L	I.C	S	d
08 T2	8.4	6.75	2.78	2.8
11 03	10.6	8.5	3.18	2.8
13 T3	13.2	10.5	3.97	4.4
22 04	16.1	12.7	4.76	5.56

ZD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	P	M	K	N	S	H																	
ISO	R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
ZDET13T3CYR16-PM	16			○									○										
ZDET08T2CYR10	10			○																			
ZDET1103CYR12.5	12.5			○																			
ZDET13T3CYR16	16			○																			
ZPNT2204CY(R20)	20			○																			
ZPNT2204CY(R25)	25			●																			
ZPNT2204CY(R31)	31.5			○																			

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPMT	L	I.C	S	d
<b>06 03</b>	6.35	6.35	3.18	2.8
<b>12 04</b>	12.7	12.7	4.76	5.5

## Milling inserts

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>										
	<b>M</b>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>										
	<b>K</b>					<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>				<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>			<span style="color: red;">⊗</span>								
	<b>N</b>							<span style="color: green;">⊗</span>								<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>							
	<b>S</b>			<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>			<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>													
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201
	SPMT060304-KT		○																					
	SPMT060304	0.4				●											○							
	SPMT120408	0.8	○	●	○	●	○										○							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SDMT	L	I.C	S	d
<b>09 03</b>	9.525	9.525	3.18	4.4

## Milling inserts

SD** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>										
	<b>M</b>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>										
	<b>K</b>					<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>				<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>			<span style="color: red;">⊗</span>								
	<b>N</b>							<span style="color: green;">⊗</span>								<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>							
	<b>S</b>			<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>			<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>													
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201
	SDMT090308	0.8				●	○																	

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

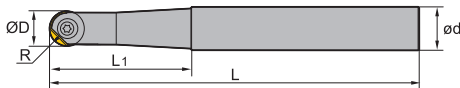
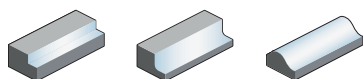
Grade selection > B24

Technical info > B463

Cutting data > B224

Profile milling

BMR02



Article	*	Stock	Dimensions [mm]					kg	Inserts
			R	ØD	ød	L <sub>1</sub>	L		
BMR02-012-G16-S	●		6	12	16	40	110	0.1	ROHX1203
BMR02-012-G16-M	●		6	12	16	50	130	0.2	
BMR02-012-G16-L	●		6	12	16	50	160	0.2	
BMR02-016-G20-S	●		8	16	20	45	140	0.3	ROHX1604
BMR02-016-G20-M	●		8	16	20	65	170	0.3	
BMR02-016-G20-L	●		8	16	20	65	200	0.4	
BMR02-020-G25-S	●		10	20	25	60	160	0.5	ROHX2005
BMR02-020-G25-M	●		10	20	25	80	200	0.6	
BMR02-020-G25-L	●		10	20	25	80	240	0.8	

● Ex stock    ○ On demand

\*With internal cooling

Spare parts		ROHX1203	ROHX1604	ROHX2005	
Insert	ØD	12	16	20	
Screw (insert)		I70M4*10TT (3.4 Nm)	I70M5*12TT (6.7 Nm)	I70M5*16TT (6.7 Nm)	
Wrench (insert)		WT15IS	WT20IS	WT20IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

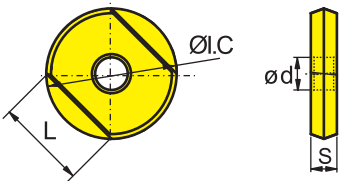

**E**

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- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

ROHX	L	I.C	S	d
12 03	8.5	12	3	4
16 04	11.3	16	4	5
20 05	14.1	20	5	5

## Milling inserts

RO** positive insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW						
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	<b>M</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	<b>K</b>							●								●					
	<b>N</b>							●							●	●					
	<b>S</b>		●	●				●	●	●	●										
	<b>H</b>																				
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	ROHX1203									○						●					
	ROHX1604											●				●					
	ROHX2005											●				●					

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

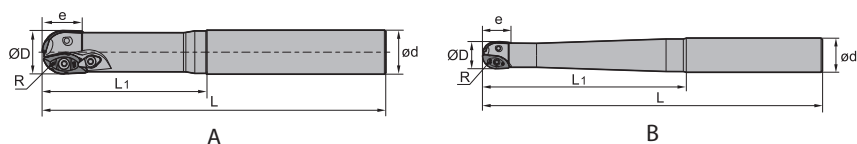
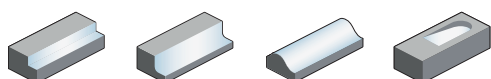
Grade selection > B24

Technical info > B463

Cutting data > B224

Profile milling

BMR03



Straight shank

Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		R	ØD	e	ød	L <sub>1</sub>	L					
BMR03-016-G20-S	●	8	16	16	20	70	150	2	B	0.3	XPHT16	
BMR03-016-G20-M	●	8	16	16	20	80	180	2	B	0.4		
BMR03-020-G25-S	●	10	20	20	25	80	180	2	B	0.5	XPHT20	
BMR03-020-G25-M	●	10	20	20	25	100	200	2	B	0.6		
BMR03-020-G25-L	●	10	20	20	25	150	250	2	B	0.7		
BMR03-020-G25-XL	○	10	20	20	25	110	300	2	B	1	XPHT25	
BMR03-025-G25-S	●	12.5	25	25	25	80	180	2	B	0.6		
BMR03-025-G25-M	●	12.5	25	25	25	100	200	2	B	0.7		
BMR03-025-G25-L	○	12.5	25	25	25	110	250	2	B	0.8		
BMR03-025-G25-XL	○	12.5	25	25	25	120	300	2	B	1	XPHT30	
BMR03-030-G32-S	○	15	30	30	32	120	200	2	A	1		
BMR03-030-G32-M	●	15	30	30	32	150	250	2	A	1.3		
BMR03-030-G32-L	○	15	30	30	32	200	300	2	A	1.6	XPHT32	
BMR03-032-G32-S	●	16	32	32	32	120	200	2	A	1.1		
BMR03-032-G32-M	●	16	32	32	32	150	250	2	A	1.4		
BMR03-032-G32-L	●	16	32	32	32	200	300	2	A	1.6		
BMR03-032-G32-XL	○	16	32	32	32	200	350	2	A	2	XPHT40	
BMR03-040-G40-S	○	20	40	40	40	120	200	2	A	1.6		
BMR03-040-G40-M	○	20	40	40	40	150	250	2	A	2		
BMR03-040-G40-L	●	20	40	40	40	200	300	2	A	2.5		

● Ex stock    ○ On demand

\* With internal cooling

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Spare parts		XPHT16	XPHT20	XPHT25	XPHT30	XPHT32	XPHT40
Insert	ØD	16	20	25	30	32	40
	Clamp						CBH5R1
	Clamp				WD-208	WD-208	
	Screw (clamp)				I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)
	Screw (insert)	I60M2.5*6.5 (1.0 Nm)		I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)
	Screw (insert)		I60M3.5*08TT (2.7 Nm)				
	Wrench (clamp)				WT20IT	WT20IT	WT25IT
	Wrench (insert)		WT10IP				
	Wrench (insert)				WT20IT	WT20IT	WT25IT
	Wrench (insert)	WT07P					
	Wrench (insert)			WT15S			

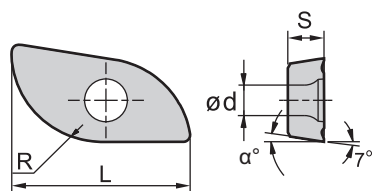


XPHT	L	S	d
16	16	3.18	3.1
20	20	3.97	4
25	25	4.76	4.7
30	30	6.35	5.8
32	32	6.35	5.8
40	40	7.94	6.8

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

### Milling inserts

XP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW
ISO	R	α	P	M	K	N	S	H						
						●●●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
			●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●



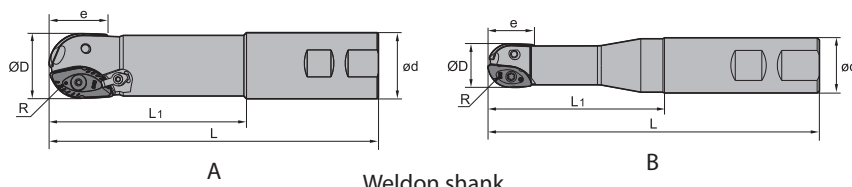
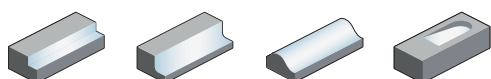
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Profile milling

BMR03



Weldon shank

Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		R	ØD	e	ød	L <sub>1</sub>	L					
BMR03-016-XP20-M	●	8	16	16	20	60	111	2	B	0.2	XPHT16	
BMR03-020-XP25-M	●	10	20	20	25	70	127	2	B	0.3	XPHT20	
BMR03-020-XP25-L	●	10	20	20	25	80	150	2	B	0.4	XPHT25	
BMR03-025-XP25-M	●	12.5	25	25	25	80	137	2	B	0.4	XPHT25	
BMR03-025-XP25-L	●	12.5	25	25	25	100	200	2	B	0.6	XPHT30	
BMR03-030-XP32-M	●	15	30	30	32	100	161	2	A	0.8	XPHT30	
BMR03-030-XP32-L	●	15	30	30	32	150	250	2	A	1.3	XPHT32	
BMR03-032-XP32-M	●	16	32	32	32	100	161	2	A	0.8	XPHT32	
BMR03-032-XP32-L	○	16	32	32	32	120	250	2	A	1.3	XPHT40	
BMR03-040-XP40-M	○	20	40	40	40	100	175	2	A	1.3	XPHT40	
BMR03-040-XP40-L	●	20	40	40	40	120	250	2	A	2	XPHT50	
BMR03-050-XP50-M	○	25	50	50	50	100	200	2	A	2.5	XPHT50	
BMR03-050-XP50-L	○	25	50	50	50	150	250	2	A	3.1		

● Ex stock    ○ On demand

\* With internal cooling

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Grade selection > B24

Technical info > B463

Cutting data > B224



## Spare parts

Insert	XPHT16	XPHT20	XPHT25	XPHT30	XPHT32	XPHT40	XPHT50
ØD	16	20	25	30	32	40	50
Clamp						CBH5R1	CBH5R1
Clamp				WD-208	WD-208		
Screw (clamp)				I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	I43M6*16 (9.1 Nm)
Screw (insert)	I60M2.5*6.5 (1.0 Nm)		I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	I43M8*21 (16.2 Nm)
Screw (insert)		I60M3.5*08TT (2.7 Nm)					
Wrench (clamp)				WT20IT	WT20IT	WT25IT	WT25IT
Wrench (insert)		WT10IP					
Wrench (insert)				WT20IT	WT20IT	WT25IT	WT30IT
Wrench (insert)	WT07P						
Wrench (insert)			WT15S				



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XPHT	L	S	d
16	16	3.18	3.1
20	20	3.97	4
25	25	4.76	4.7
30	30	6.35	5.8
32	32	6.35	5.8
40	40	7.94	6.8
50	50	7.94	9.2

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

## Milling inserts

XP** milling insert		HC <sup>1</sup> (CVD)				HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	R	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	XPHT16R0803-GM	8	9																				
	XPHT20R10T3-GM	10	9																				
	XPHT25R1204-GM	12.5	9																				
	XPHT30R1506-GM	15	11																				
	XPHT32R1606-GM	16	9																				
	XPHT40R2007-GM	20	9																				
XPHT50R2507-GM	25	9																					

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

System code &gt; B26

Grade selection &gt; B24

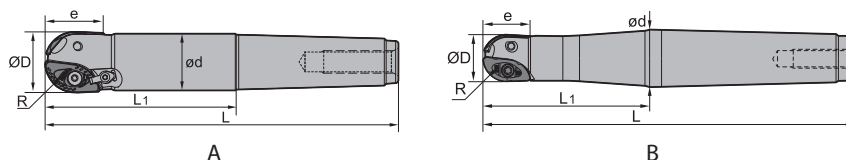
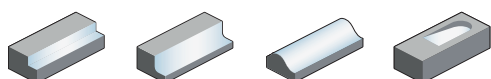
Technical info &gt; B463

Cutting data &gt; B224



Profile milling

BMR03



Morse taper shank

Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		R	ØD	e	ød	L <sub>1</sub>	L					
BMR03-020-MT3-M	○	10	20	20	18.7	70	156	2	B	0.4	XPHT20	
BMR03-020-MT3-L	○	10	20	20	18.7	100	186	2	B	0.4		
BMR03-025-MT3-M	○	12.5	25	25	23.5	70	156	2	B	0.4	XPHT25	
BMR03-025-MT3-L	○	12.5	25	25	23.5	100	186	2	B	0.4		
BMR03-030-MT4-M	○	15	30	30	28.2	70	189	2	A	0.8	XPHT30	
BMR03-030-MT4-L	○	15	30	30	28.2	120	229	2	A	1		
BMR03-032-MT4-M	○	16	32	32	29.2	70	179	2	A	0.9	XPHT32	
BMR03-032-MT4-L	●	16	32	32	29.2	100	209	2	A	0.9		
BMR03-040-MT5-L	○	20	40	40	36.9	90	226	2	A	1.8	XPHT40	
BMR03-050-MT5-M	●	25	50	50	46.8	100	236	2	A	2.2		
BMR03-050-MT5-L	○	25	50	50	46.8	150	286	2	A	2.9	XPHT50	

● Ex stock    ○ On demand

\* With internal cooling

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System code > B26

Grade selection > B24

Technical info > B463

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## Spare parts

	Insert	XPHT20	XPHT25	XPHT30	XPHT32	XPHT40	XPHT50
	ØD	20	25	30	32	40	50
	Clamp					CBH5R1	CBH5R1
	Clamp			WD-208	WD-208		
	Screw (clamp)			I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	I43M6*16 (9.1 Nm)
	Screw (insert)		I60M4*10 (3.4 Nm)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I43M6*16 (9.1 Nm)	I43M8*21 (16.2 Nm)
	Screw (insert)	I60M3.5*08TT (2.7 Nm)					
	Wrench (clamp)			WT20IT	WT20IT	WT25IT	WT25IT
	Wrench (insert)	WT10IP					
	Wrench (insert)			WT20IT	WT20IT	WT25IT	WT30IT
	Wrench (insert)		WT15S				



XPHT	L	S	d
20	20	3.97	4
25	25	4.76	4.7
30	30	6.35	5.8
32	32	6.35	5.8
40	40	7.94	6.8
50	50	7.94	9.2

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Milling inserts**

XP** milling insert		HC <sup>1</sup> (CVD)					HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	R	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	XPHT20R10T3-GM	10	9																					
	XPHT25R1204-GM	12.5	9																					
	XPHT30R1506-GM	15	11																					
	XPHT32R1606-GM	16	9																					
	XPHT40R2007-GM	20	9																					
	XPHT50R2507-GM	25	9																					

● Ex stock    ○ On demand

 HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code &gt; B26

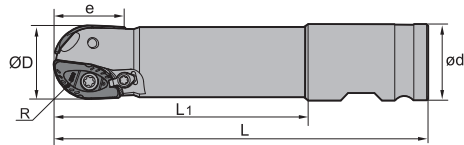
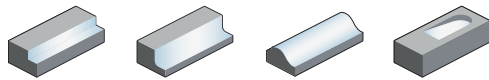
Grade selection &gt; B24

Technical info &gt; B463

Cutting data &gt; B224

**Profile milling**

**BMR03**



Compound shank

Article	*	Stock	Dimensions [mm]						Teeth	kg	Inserts
			R	ØD	e	ød	L <sub>1</sub>	L			
BMR03-040-XPX-M		○	20	40	40	50.8	170	250	2	1.3	XPHT40
BMR03-040-XPX-L		○	20	40	40	50.8	220	300	2	3.1	
BMR03-040-XPX-XL		○	20	40	40	50.8	270	350	2	3.5	
BMR03-050-XPX-M		○	25	50	50	50.8	170	250	2	3.1	XPHT50
BMR03-050-XPX-L		○	25	50	50	50.8	200	300	2	3.8	
BMR03-050-XPX-XL		○	25	50	50	50.8	270	350	2	4.4	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert	XPHT40	XPHT50
	ØD	40	50
	Clamp	CBH5R1	CBH5R1
	Screw (clamp)	I43M6*16 (9.1 Nm)	I43M6*16 (9.1 Nm)
	Screw (insert)	I43M6*16 (9.1 Nm)	I43M8*21 (16.2 Nm)
	Wrench (clamp)	WT25IT	WT25IT
	Wrench (insert)	WT25IT	WT30IT



System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

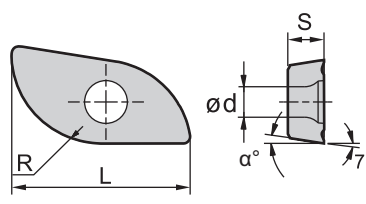

**E**

Index

- Ideal machining conditions
- ● Normal machining conditions
- ● Unfavourable machining conditions

XPHT	L	S	d
<b>40</b>	40	7.94	6.8
<b>50</b>	50	7.94	9.2

## Milling inserts

XP** milling insert		HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW						
	<b>P</b>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>	<span style="color: blue;">●</span>				
	<b>M</b>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>				
	<b>K</b>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>				
	<b>N</b>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>				
	<b>S</b>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>	<span style="color: orange;">●</span>				
	<b>H</b>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: red;">●</span>				
ISO	R	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	XPHT40R2007-GM	20	9														●						
	XPHT50R2507-GM	25	9														●						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

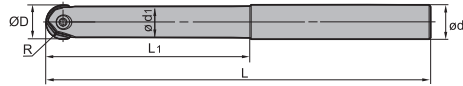
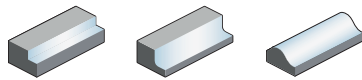
Grade selection > B24

Technical info > B463

Cutting data > B224

Profile milling

BMR04



Straight shank

Article	*	Stock	Dimensions [mm]						kg	Inserts
			R	ØD	ød	Ød1	L <sub>1</sub>	L		
BMR04-012-G12-M	●	●	6	12	12	11	35	125	0.1	ZOHX12
BMR04-012-G12-L	●	●	6	12	12	11	45	150	0.1	
BMR04-016-G16-M	●	●	8	16	16	14	40	150	0.2	ZOHX16
BMR04-016-G16-L	●	●	8	16	16	14	55	180	0.3	
BMR04-020-G20-M	●	●	10	20	20	18	65	180	0.4	ZOHX20
BMR04-020-G20-L	●	●	10	20	20	18	100	250	0.6	
BMR04-025-G25-M	●	●	12.5	25	25	23	70	200	0.7	ZOHX25
BMR04-025-G25-L	●	●	12.5	25	25	23	100	250	0.9	
BMR04-030-G32-M	●	●	15	30	32	27	80	250	1.2	ZOHX30
BMR04-030-G32-L	●	●	15	30	32	27	110	300	1.5	
BMR04-032-G32-M	●	●	16	32	32	29	80	250	1.4	ZOHX32
BMR04-032-G32-L	●	●	16	32	32	29	110	300	1.7	

● Ex stock ○ On demand

\* With internal cooling

Spare parts

	Insert ØD	ZOHX12 12	ZOHX16 16	ZOHX20 20	ZOHX25 25	ZOHX30 30	ZOHX32 32	
	Screw (insert)	I70M4*10TT (3.4 Nm)	I70M5*12TT (6.7 Nm)	I70M5*16TT (6.7 Nm)	I70M6*20TT (9.1 Nm)	I70M8*25TT (16.2 Nm)	I70M8*25TT (16.2 Nm)	
	Wrench (insert)	WT15IP	WT20IP	WT20IP	WT20IP			
	Wrench (insert)					WT30IT	WT30IT	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

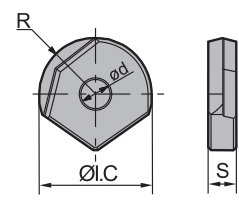


**E**

Index

ZOHX	I.C	S	d
<b>12</b>	12	1.5	4
<b>16</b>	16	4	5
<b>20</b>	20	5	5
<b>25</b>	25	6	6
<b>30</b>	30	7	8
<b>32</b>	32	7	8

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Milling inserts

ZO** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
ISO		P	M	K	N	S	H	P	M	K	N	S	H											
		<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>	<span style="color: blue;">⊗</span>										
		<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>		<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>	<span style="color: yellow;">⊗</span>										
				<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>		<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>	<span style="color: red;">⊗</span>			<span style="color: red;">⊗</span>								
						<span style="color: green;">⊗</span>					<span style="color: green;">⊗</span>				<span style="color: green;">⊗</span>	<span style="color: green;">⊗</span>								
				<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>			<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>	<span style="color: orange;">⊗</span>											
	R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201		
	ZOHX1203-GF	6															●							
	ZOHX1604-GF	8																●						
	ZOHX2005-GF	10																●						
	ZOHX2506-GF	12.5																○						
	ZOHX3007-GF	15																●						
	ZOHX3207-GF	16																●						
	ZOHX1203-GM	6															●							
	ZOHX1604-GM	8																●						
	ZOHX2005-GM	10																●						
	ZOHX2506-GM	12.5																○						
	ZOHX3007-GM	15																●						
	ZOHX3207-GM	16																●						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

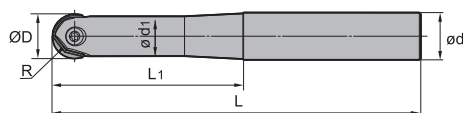
Technical info > B463

Cutting data > B224



Profile milling

**BMR04**



Straight shank

Article	*	Stock	Dimensions [mm]						kg	Inserts
			R	ØD	ød	Ød1	L <sub>1</sub>	L		
BMR04-012-G16-M	●	●	6	12	16	11	50	125	0.2	ZOHX12
BMR04-012-G16-L	●	●	6	12	16	11	70	150	0.2	
BMR04-016-G20-M	●	●	8	16	20	14	60	150	0.3	ZOHX16
BMR04-016-G20-L	●	●	8	16	20	14	80	180	0.3	
BMR04-020-G25-M	●	●	10	20	25	18	75	180	0.6	ZOHX20
BMR04-020-G25-L	●	●	10	20	25	18	95	200	0.6	
BMR04-025-G32-M	●	●	12.5	25	32	23	90	200	1	ZOHX25
BMR04-025-G32-L	●	●	12.5	25	32	23	110	250	1.3	
BMR04-030-G40-M	●	●	15	30	40	27	110	250	2	ZOHX30
BMR04-030-G40-L	●	●	15	30	40	27	125	300	2.4	
BMR04-032-G40-M	●	●	16	32	40	29	110	250	2	ZOHX32
BMR04-032-G40-L	●	●	16	32	40	29	125	300	2.4	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert ØD	ZOHX12 12	ZOHX16 16	ZOHX20 20	ZOHX25 25	ZOHX30 30	ZOHX32 32
	Screw (insert)	I70M4*10TT (3.4 Nm)	I70M5*12TT (6.7 Nm)	I70M5*16TT (6.7 Nm)	I70M6*20TT (9.1 Nm)	I70M8*25TT (16.2 Nm)	I70M8*25TT (16.2 Nm)
	Wrench (insert)	WT15IP	WT20IP	WT20IP	WT20IP		
	Wrench (insert)					WT30IT	WT30IT



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

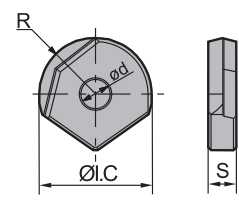


**E**

Index

ZOHX	I.C	S	d
<b>12</b>	12	1.5	4
<b>16</b>	16	4	5
<b>20</b>	20	5	5
<b>25</b>	25	6	6
<b>30</b>	30	7	8
<b>32</b>	32	7	8

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

## Milling inserts

ZO** milling insert		HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW										
		P	M	K	N	S	H																		
ISO		R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201	
	ZOHX1203-GF	6																							
	ZOHX1604-GF	8																							
	ZOHX2005-GF	10																							
	ZOHX2506-GF	12.5																							
	ZOHX3007-GF	15																							
	ZOHX1203-GM	6																							
	ZOHX1604-GM	8																							
	ZOHX2005-GM	10																							
	ZOHX2506-GM	12.5																							
	ZOHX3007-GM	15																							
ZOHX3207-GF	16																								
ZOHX3207-GM	16																								

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

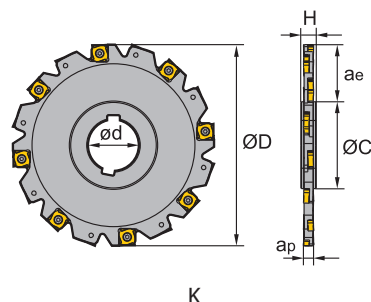
Grade selection > B24

Technical info > B463

Cutting data > B224



Slot milling



Article	*	Stock	Dimensions [mm]						Coupling	kg	Inserts
			ØD	Ød	ØC	H	ap	ae max			
SMP01-100x4-K27-SN12-10		○	100	27	45	12	4	25	K	0.2	XSEQ1202
SMP01-125x4-K40-SN12-12		○	125	40	56	12	4	32	K	0.3	
SMP01-160x4-K40-SN12-16		●	160	40	67	12	4	44	K	0.5	XSEQ1203
SMP01-100x5-K27-SN12-10		○	100	27	45	12	5	25	K	0.2	
SMP01-125x5-K40-SN12-12		○	125	40	56	12	5	32	K	0.3	XSEQ1204
SMP01-160x5-K40-SN12-16		○	160	40	67	12	5	44	K	0.6	
SMP01-100x7-K27-SN12-10		○	100	27	45	12	7	25	K	0.3	XSEQ1204
SMP01-125x7-K40-SN12-12		○	125	40	56	12	7	32	K	0.4	
SMP01-160x7-K40-SN12-16		○	160	40	67	12	7	44	K	0.8	XSEQ1204
SMP01-200x7-K50-SN12-18		○	200	50	71	12	7	62	K	1.2	
SMP01-250x7-K50-SN12-24		○	250	50	71	12	7	87	K	1.9	XSEQ12T3
SMP01-100x6-K27-SN12-10		○	100	27	45	12	6	25	K	0.3	
SMP01-125x6-K40-SN12-12		○	125	40	56	12	6	32	K	0.4	XSEQ12T3
SMP01-160x6-K40-SN12-16		○	160	40	67	12	6	44	K	0.7	
SMP01-200x6-K50-SN12-18		○	200	50	71	12	6	62	K	1.1	XSEQ12T4
SMP01-250x6-K50-SN12-24		○	250	50	71	12	6	87	K	1.7	
SMP01-100x8-K27-SN12-10		○	100	27	45	12	8	25	K	0.3	XSEQ12T4
SMP01-125x8-K40-SN12-12		○	125	40	56	12	8	32	K	0.5	
SMP01-160x8-K40-SN12-16		○	160	40	67	12	8	44	K	0.9	XSEQ12T4
SMP01-200x8-K50-SN12-18		○	200	50	71	12	8	62	K	1.4	
SMP01-250x8-K50-SN12-24		○	250	50	71	12	8	87	K	2.2	

● Ex stock ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463


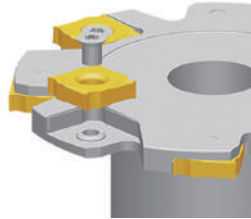

Cutting data > B224



# Indexable milling Slot milling

A




Turning

Spare parts						
Insert	XSEQ1202	XSEQ1203	XSEQ1204	XSEQ12T3	XSEQ12T4	
ØD	63-160	63-160	63-250	63-250	63-250	
 Screw (insert)	I91M4*3.2X (3.4 Nm)	I91M4*3.2X (3.4 Nm)	I91M4*6.1X (3.4 Nm)	I91M4*5.1X (3.4 Nm)	I91M4*7.1X (3.4 Nm)	
 Wrench (insert)	WT08IP	WT08IP	WT08IP	WT08IP	WT08IP	

B

Milling

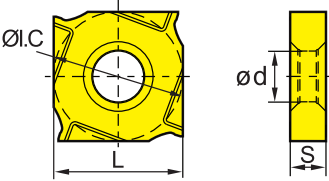



























XSEQ	L	I.C	S	d
12 02	12.7	12.7	2.3	5
12 03	12.7	12.7	3	5
12 T3	12.7	12.7	3.5	5
12 04	12.7	12.7	4	5
12 T4	12.7	12.7	4.5	5

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

C

Drilling

XS** milling insert	HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW
	P	M	K	N	S	H							
													
ISO													
	XSEQ1202												
	XSEQ1203												
	XSEQ1204												
	XSEQ12T3												
	XSEQ12T4												

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

D

Technical Information

E

Index

System code > B26

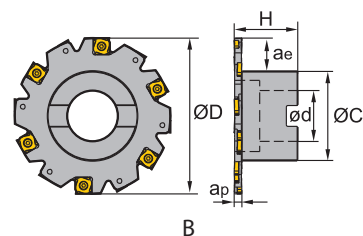
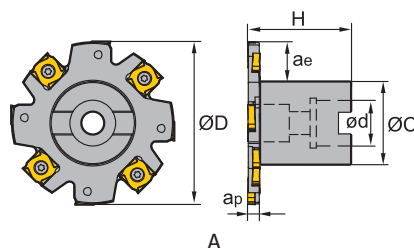
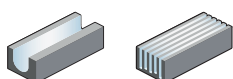
Grade selection > B24

Technical info > B463

Cutting data > B224

Slot milling

SMP01 Kr: 90°



Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		ØD	ød	Øc	H	ap	ae,max					
SMP01-063x4-A22-SN12-06	○	63	22	32	40	4	14	6	A	0.2	XSEQ1202	
SMP01-080x4-A22-SN12-08	○	80	22	40	40	4	18	8	A	0.4		
SMP01-100x4-A27-SN12-10	○	100	27	48	50	4	23	10	A	0.6		
SMP01-063x5-A22-SN12-06	○	63	22	32	40	5	14	6	A	0.2	XSEQ1203	
SMP01-080x5-A22-SN12-08	○	80	22	40	40	5	18	8	A	0.4		
SMP01-100x5-A27-SN12-10	○	100	27	48	50	5	23	10	A	0.7		
SMP01-063x7-A22-SN12-06	○	63	22	32	40	7	14	6	A	0.2	XSEQ1204	
SMP01-080x7-A22-SN12-08	○	80	22	40	40	7	18	8	A	0.5		
SMP01-100x7-A27-SN12-10	○	100	27	48	50	7	23	10	A	0.7		
SMP01-125x7-B40-SN12-12	○	125	40	72	50	7	23	12	B	1.1	XSEQ1204	
SMP01-160x7-B40-SN12-16	○	160	40	70	60	7	41	16	B	1.4		
SMP01-063x6-A22-SN12-06	○	63	22	32	40	6	14	6	A	0.2		
SMP01-080x6-A22-SN12-08	○	80	22	40	40	6	18	8	A	0.5	XSEQ12T3	
SMP01-100x6-A27-SN12-10	○	100	27	48	50	6	23	10	A	0.7		
SMP01-125x6-B40-SN12-12	○	125	40	72	50	6	23	12	B	1		
SMP01-160x6-B40-SN12-16	○	160	40	70	60	6	41	16	B	1.3	XSEQ12T4	
SMP01-063x8-A22-SN12-06	○	63	22	32	40	8	14	6	A	0.2		
SMP01-080x8-A22-SN12-08	○	80	22	40	40	8	18	8	A	0.5		
SMP01-100x8-A27-SN12-10	○	100	27	48	50	8	23	10	A	0.8	XSEQ12T4	
SMP01-125x8-B40-SN12-12	○	125	40	72	50	8	23	12	B	1.1		
SMP01-160x8-B40-SN12-16	○	160	40	70	60	8	41	16	B	1.5		

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463


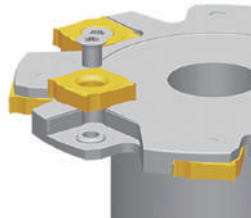

Cutting data > B224



# Indexable milling Slot milling

**A**




Turning

Spare parts						
Insert	XSEQ1202	XSEQ1203	XSEQ1204	XSEQ12T3	XSEQ12T4	
ØD	63-160	63-160	63-250	63-250	63-250	
 Screw (insert)	I91M4*3.2X (3.4 Nm)	I91M4*3.2X (3.4 Nm)	I91M4*6.1X (3.4 Nm)	I91M4*5.1X (3.4 Nm)	I91M4*7.1X (3.4 Nm)	
 Wrench (insert)	WT08IP	WT08IP	WT08IP	WT08IP	WT08IP	

**B**

Milling

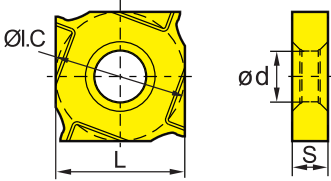











XSEQ	L	I.C	S	d
12 02	12.7	12.7	2.3	5
12 03	12.7	12.7	3	5
12 T3	12.7	12.7	3.5	5
12 04	12.7	12.7	4	5
12 T4	12.7	12.7	4.5	5

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

**C**

Drilling

XS** milling insert	HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	P	M	K	N	S	H																
																						
ISO	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	XSEQ1202																					
	XSEQ12T3	●																				○
	XSEQ1203	○	●																			
	XSEQ1204																					
	XSEQ12T4																					

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**D**

Technical Information

**E**

Index

System code > B26

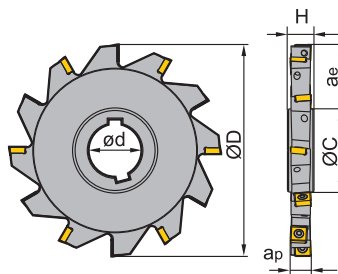
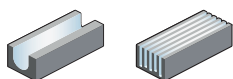
Grade selection > B24

Technical info > B463

Cutting data > B224

## Slot milling

SMP03 Kr: 90°



K

Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		ØD	ød	Øc	H	ap	ae,max					
SMP03-080x8-K27-MP06-10	○	80	27	44	12	8	17.6	10	K	0.2	MPHT0603	
SMP03-100x8-K32-MP06-14	○	100	32	49	12	8	25.1	14	K	0.3		
SMP03-100x10-K32-MP06-14	○	100	32	49	14	10	25.1	14	K	0.4		
SMP03-125x10-K40-MP06-16	○	125	40	57	14	10	33.6	16	K	0.6	MPHT0803	
SMP03-125x12-K40-MP08-12	○	125	40	58.3	16	12	32.6	12	K	0.7		
SMP03-160x12-K40-MP08-14	○	160	40	64.3	16	12	31.5	14	K	1.3		
SMP03-160x16-K40-MP12-12	○	160	40	64.6	20	16	47.6	12	K	1.6	MPHT1204	
SMP03-160x18-K40-MP12-12	○	160	40	65.3	24	18	47.3	12	K	1.9		
SMP03-160x20-K40-MP12-12	○	160	40	65.3	26	20	47.3	12	K	2.1		
SMP03-200x16-K50-MP12-14	○	200	50	74.6	20	16	62.6	14	K	2.5		
SMP03-200x18-K50-MP12-14	○	200	50	75.3	24	18	62.3	14	K	2.9		
SMP03-200x20-K50-MP12-14	○	200	50	75.3	26	20	62.3	14	K	3.3		

● Ex stock ○ On demand

\* With internal cooling

Spare parts					
	Insert	MPHT0603	MPHT0803	MPHT1204	
	ØD	80-125	125-160	160-200	
	Screw (insert)	I60M2.5*6.5 (1.0 Nm)	I60M3*7 (1.8 Nm)	I60M5*13 (6.7 Nm)	
	Wrench (insert)	WT07IP	WT09IP	WT20IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**A**

Turning

**B**

Milling

**C**




Drilling

**D**

Technical Information

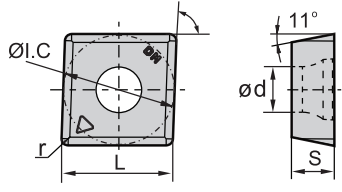

**E**

Index

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

MPHT	L	I.C	S	d
<b>06</b> 03	6.35	6.35	3.18	2.8
<b>08</b> 03	8.3	8.3	3.18	3.4
<b>12</b> 04	12.7	12.7	4.76	5.56

## Milling inserts

MP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW					
	<b>P</b>																			
	<b>M</b>																			
	<b>K</b>																			
	<b>N</b>																			
	<b>S</b>																			
	<b>H</b>																			
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG205	YBG202	YBG212	YBG302	YBG252	YNG151	YNG151C	YD101	YD201
	MPHT060304-DM	0.4	●			●									●					
	MPHT080305-DM	0.5	●			●									●					
	MPHT120408-DM	0.8	●			○		●							●					

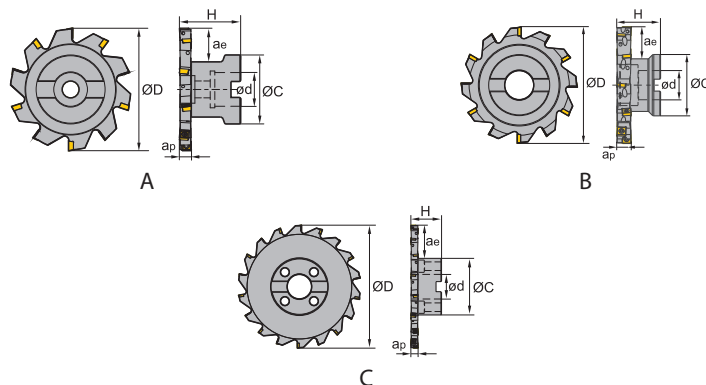
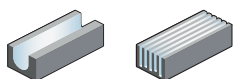
● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



Slot milling

SMP03 Kr: 90°



Article	* Stock	Dimensions [mm]							Teeth	Coupling	kg	Inserts
		ØD	ød	Øc	H	ap	ae,max					
SMP03-080x8-A22-MP06-10	○	80	22	45	40	8	21	10	A	0.4	MPHT0603	
SMP03-100x8-B27-MP06-14	○	100	27	55	40	8	24.5	14	B	0.6		
SMP03-100x10-B27-MP06-14	●	100	27	55	40	10	24.5	14	B	0.7		
SMP03-125x10-B32-MP06-16	○	125	32	65	45	10	33.3	16	B	1.1	MPHT0803	
SMP03-125x12-B32-MP08-12	○	125	32	65	45	12	33	12	B	1.4		
SMP03-160x12-B40-MP08-14	○	160	40	80	50	12	44	14	B	1.9		
SMP03-200x12-C40-MP08-18	○	200	40	92	50	12	52	18	C	3.2	MPHT1204	
SMP03-125x16-B32-MP12-10	○	125	32	65	50	16	33	10	B	2.3		
SMP03-160x16-B40-MP12-12	○	160	40	80	60	16	45	12	B	2.3		
SMP03-160x18-B40-MP12-12	○	160	40	80	60	18	45	12	B	2.4	MPHT1204	
SMP03-200x16-C40-MP12-14	○	200	40	92	50	16	52	14	C	3.6		
SMP03-200x18-C40-MP12-14	○	200	40	92	50	18	52	14	C	3.9		
SMP03-200x20-C40-MP12-14	○	200	40	92	50	20	52	14	C	4.2		

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

	Insert ØD	MPHT0603 80-125	MPHT0803 125-200	MPHT1204 125-200	
	Screw (insert)	I60M2.5*6.5 (1.0 Nm)	I60M3*7 (1.8 Nm)	I60M5*13 (6.7 Nm)	
	Wrench (insert)	WT07IP	WT09IP		
	Wrench (insert)			WT20IS	

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

MPHT	L	I.C	S	d
<b>06</b> 03	6.35	6.35	3.18	2.8
<b>08</b> 03	8.3	8.3	3.18	3.4
<b>12</b> 04	12.7	12.7	4.76	5.56

## Milling inserts

MP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>M</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>K</b>							●								●							
	<b>N</b>							●							●	●							
	<b>S</b>		●	●				●	●	●	●												
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C	YD101	YD201
	MPHT060304-DM	0.4	●			●										●							
	MPHT080305-DM	0.5	●			●										●							
	MPHT120408-DM	0.8	●			○		●								●							

● Ex stock    ○ On demand

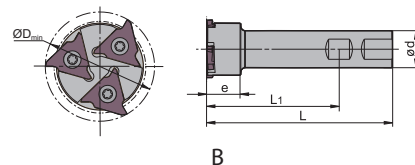
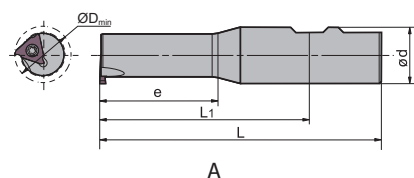
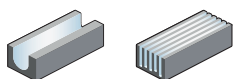
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide






Slot milling

SMP05 Kr: 90°






Article	*	Stock	Dimensions [mm]					Teeth	Coupling	Inserts
			e	ØDmin	ød	L <sub>1</sub>	L			
SMP05-025x3.0-XP25-QC16-01	●		40	25	25	89	125	1	A	
SMP05-039x3.0-XP25-QC16-03	●		23	39	25	89	125	3	B	
SMP05-044x4.8-XP25-QC22-03	●		23	44	25	89	125	3	B	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts

		QC16L	QC16L	QC22L	
Insert		25	39	44	
	Screw (insert)	I60M3.5*10 (2.7 Nm)	I60M3.5*10 (2.7 Nm)	I60M5*13 (6.7 Nm)	
	Wrench (insert)	WT15IP	WT15IP	WT20IP	

System code > B26

Grade selection > B24




Technical info > B463

Cutting data > B224

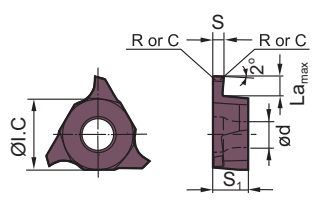




























































































# Indexable milling Slot milling

## Milling inserts

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

QC	I.C	d
<b>16</b>	9.525	4.4
<b>22</b>	12.7	5.5

QC** turning/milling insert				HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW							
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	S±0.025	La <sub>max</sub>	R/C	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
QC16L075-R01	0.75	2	0.1												○									
QC16L095-R01	0.95	2	0.1												○									
QC16L100-R01	1	2	0.1												○									
QC16L110-R01	1.1	2	0.1												○	○								
QC16L120-R01	1.2	2	0.1												○									
QC16L125-R02	1.25	2	0.2												●									
QC16L130-R02	1.3	2	0.2												○									
QC16L145-R02	1.45	2	0.2												●									
QC16L150-R02	1.5	2	0.2												○									
QC16L160-R02	1.6	2	0.2												●									
QC16L165-R02	1.65	2	0.2												○									
QC16L170-R02	1.7	2	0.2												○									
QC16L175-R02	1.75	2	0.2												○									
QC16L185-R02	1.85	2.5	0.2												○									
QC16L200-R02	2	2.5	0.2												●									
QC16L210-R02	2.1	2.5	0.2												○									
QC16L210-R05	2.1	2.5	0.5												○									
QC16L220-R02	2.2	2.5	0.2												○									
QC16L250-R02	2.5	2.5	0.2												●									
QC16L300-R02	3	3	0.2												●									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

**Milling inserts**

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

QC	I.C	d
<b>16</b>	9.525	4.4
<b>22</b>	12.7	5.5

QC** turning/milling insert				HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW										
				P																								
				M																								
				K																								
				N																								
				S																								
				H																								
ISO				S±0.025	La <sub>max</sub>	R/C	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
QC22L100-R02	1	2	0.2														○											
QC22L125-R02	1.25	2	0.2														○											
QC22L145-R02	1.45	2	0.2														○											
QC22L150-R02	1.5	3.5	0.2														○											
QC22L175-R02	1.75	3.5	0.2														○											
QC22L185-R02	1.85	3.5	0.2														○											
QC22L200-R02	2	3.5	0.2														○											
QC22L230-R02	2.3	3.5	0.2														○											
QC22L250-R03	2.5	4	0.3														○											
QC22L265-R03	2.65	4	0.3														●											
QC22L280-R03	2.8	4	0.3														○											
QC22L300-R03	3	4	0.3														○											
QC22L320-R03	3.2	4	0.3														○											
QC22L330-R03	3.3	4	0.3														○											
QC22L350-R03	3.5	5	0.3														○											
QC22L400-R04	4	5	0.4														●											
QC22L430-R04	4.3	5	0.4														○	○										
QC22L450-R04	4.5	5	0.4														○									○		
QC22L480-R04	4.8	5	0.4														○											

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A** Turning  
**B** Milling  
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## Notes

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Turning

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Notes section with horizontal dotted lines for writing.

# XMR01 Kr: 11/16/22°

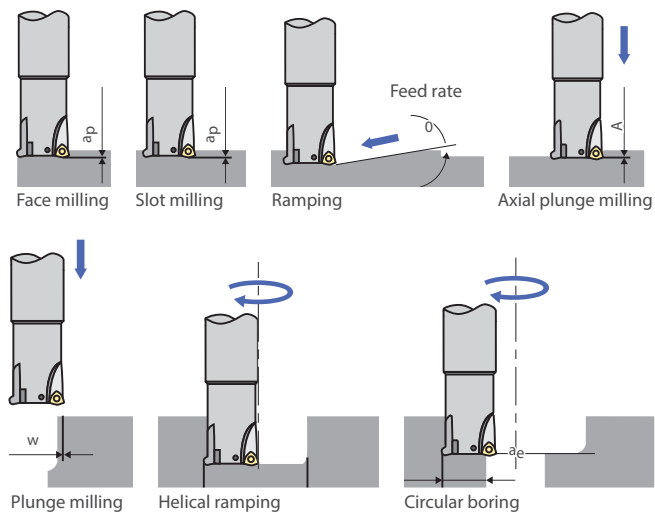
## High-feed mill

- Wide range of inserts and grades.
- High-feed mill for high chip removal rates.
- Low cutting forces even with large projecting lengths.

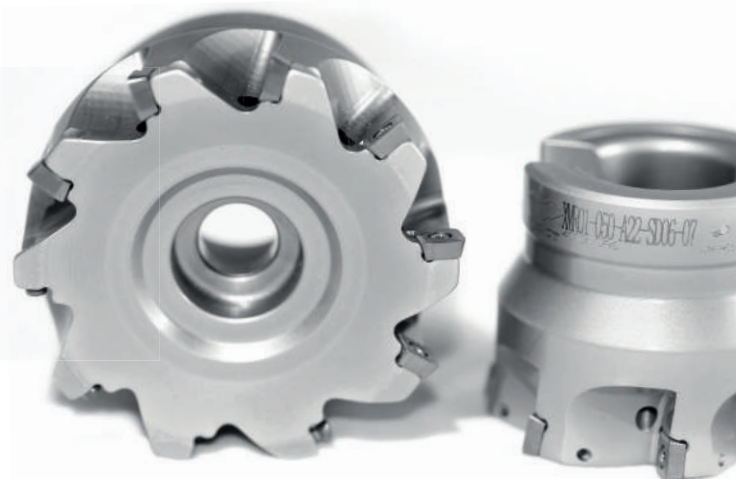
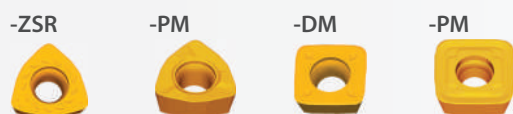
### Insert grades

<b>YBC302</b> CVD P15–P35	<b>YBM253</b> CVD P20–P40 M10–M30	<b>YBG205</b> PVD P10–P30 M20–M30	<b>YBG202</b> PVD P10–P30
<b>YBG302</b> CVD P15–P35	<b>YBG212</b> PVD M10–M25	<b>YBM351</b> CVD P25–P40	<b>YBD252</b> CVD K15–K35

### Machining operations

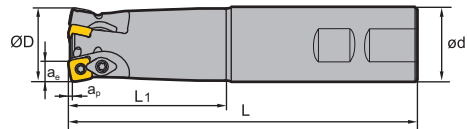
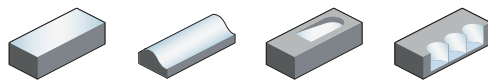


### Chip breakers



## High feed milling

XMR01 Kr: 15°



S type insert, Weldon shank

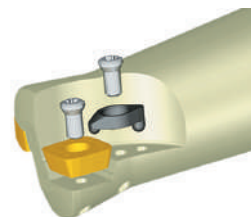
Article	* Stock	Dimensions [mm]							Teeth	kg	Inserts
		ØD	ød	ap	ae	L <sub>1</sub>	L				
XMR01-025-XP25-SD06-03	○	25	25	0.8	5.8	60	140	3	0.46	SDMT06T2	
XMR01-025-XP25-SD09-02	○	25	25	1.4	8.8	60	140	2	0.5		
XMR01-032-XP32-SD09-03	○	32	32	1.4	8.8	70	150	3	0.8	SDMT09T3	
XMR01-035-XP32-SD09-03	○	35	32	1.4	8.8	70	150	3	0.8		
XMR01-040-XP40-SD12-03	○	40	40	1.8	11.7	70	150	3	1.3	SDMT1204	
XMR01-040-XP40-SD15-02	○	40	40	2.2	14	70	200	2	1.6	SDMT1505	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	SDMT06T2	SDMT09T3	SDMT1204	SDMT1505
		ØD	20-63	25-63	32-100
	Clamp		WD-204	WD-204	WD-208
	Screw (clamp)		I60M4*8.4 (3.4 Nm)	I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)
	Screw (insert)	I60M2.2*5.5 (0.8 Nm)		I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)
	Screw (insert)		I60M3.5*08TT (2.7 Nm)		
	Wrench (clamp)		WT15IP	WT15IP	WT20IP
	Wrench (insert)	WT07IP	WT10IP	WT15IP	WT20IP



System code > B26

Grade selection > B24

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SDMT	L	I.C	S	d
06 T2	6.35	6.35	2.58	2.5
09 T3	9.525	9.525	3.97	4
12 04	12.7	12.7	4.76	4.4
15 05	15.875	15.875	5.56	5.5

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Milling inserts**

SD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
		P	M	K	N	S	H																		
	ISO	r	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
		0.8	15					○								○									
	SDMT09T312-DM	1.2	15	●				●								●		●							
	SDMT120412-DM	1.2	15	●				●								●		○							
	SDMT150520-DM	2	15													○									
	SDMT06T208-PM	0.8	15	●		●									●										
	SDMT09T312-PM	1.2	15					●							●		●								
	SDMT120412-PM	1.2	15					●							●		●								
	SDMT150520-PM	2	15					○							○										

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

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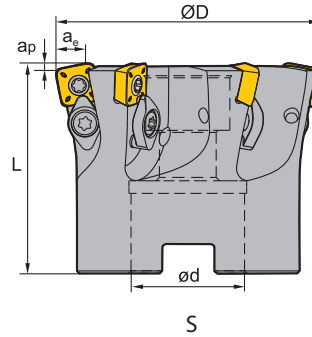
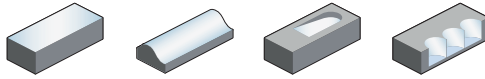
**E**

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## High feed milling

XMR01 Kr: 15°



Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			ØD	ød	ap	ae	L				
XMR01-050-A22-SD06-07		○	50	22	0.8	5.8	40	7	A	0.36	SDMT06T2
XMR01-063-A22-SD06-10		○	63	22	0.8	5.8	40	10	A	0.53	
XMR01-063-A27-SD06-10		○	63	27	0.8	5.8	50	10	A	0.57	
XMR01-040-A16-SD09-04		○	40	16	1.4	8.8	40	4	A	0.182	SDMT09T3
XMR01-050-A22-SD09-04		●	50	22	1.4	8.8	40	4	A	0.3	
XMR01-050-A22-SD09-04C	*	●	50	22	1.4	8.8	40	4	A	0.3	
XMR01-063-A22-SD09-06		●	63	22	1.4	8.8	40	6	A	0.5	SDMT1204
XMR01-063-A22-SD09-06C	*	●	63	22	1.4	8.8	40	6	A	0.5	
XMR01-063-A27-SD09-06		○	63	27	1.4	8.8	50	6	A	0.6	
XMR01-063-A27-SD09-06C	*	○	63	27	1.4	8.8	50	6	A	0.6	SDMT1505
XMR01-063-A22-SD09-07		●	63	22	1.4	8.8	40	7	A	0.44	
XMR01-063-A22-SD12-05		●	63	22	1.8	11.7	40	5	A	0.5	
XMR01-063-A22-SD12-05C	*	●	63	22	1.8	11.7	40	5	A	0.5	SDMT1204
XMR01-063-A27-SD12-05		●	63	27	1.8	11.7	50	5	A	0.6	
XMR01-063-A27-SD12-05C	*	●	63	27	1.8	11.7	50	5	A	0.6	
XMR01-063-A22-SD12-06		●	63	22	1.8	11.7	50	6	A	0.55	SDMT1204
XMR01-066-A27-SD12-05C	*	○	66	27	1.8	11.7	50	5	A	0.56	
XMR01-080-A27-SD12-05		●	80	27	1.8	11.7	63	5	A	0.9	
XMR01-080-A27-SD12-05C	*	●	80	27	1.8	11.7	63	5	A	0.9	SDMT1204
XMR01-080-A27-SD12-06C	*	●	80	27	1.8	11.7	50	6	A	0.9	
XMR01-080-A27-SD12-07		●	80	27	1.8	11.7	50	7	A	0.93	
XMR01-080-A27-SD12-08		●	80	27	1.8	11.7	50	8	A	0.92	SDMT1204
XMR01-100-B32-SD12-06		●	100	32	1.8	11.7	50	6	B	1.8	
XMR01-100-B32-SD12-06C	*	●	100	32	1.8	11.7	50	6	B	1.8	
XMR01-100-B32-SD15-07		○	100	32	2.2	14	50	7	B	1.2	SDMT1505
XMR01-125-B40-SD15-09		○	125	40	2.2	14	63	9	B	2.9	

● Ex stock    ○ On demand

\* With internal cooling

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



Spare parts

	Insert	SDMT06T2	SDMT09T3	SDMT1204	SDMT1505
	ØD	20-63	25-63	32-100	40-160
	Clamp		WD-204	WD-204	WD-208
	Screw (clamp)		I60M4*8.4 (3.4 Nm)	I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)
	Screw (insert)	I60M2.2*5.5 (0.8 Nm)		I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)
	Screw (insert)		I60M3.5*8TT (2.7 Nm)		
	Wrench (clamp)		WT15IP	WT15IP	WT20IP
	Wrench (insert)	WT07IP	WT10IP	WT15IP	WT20IP



SDMT	L	I.C	S	d
06 T2	6.35	6.35	2.58	2.5
09 T3	9.525	9.525	3.97	4
12 04	12.7	12.7	4.76	4.4
15 05	15.875	15.875	5.56	5.5

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

**Milling inserts**

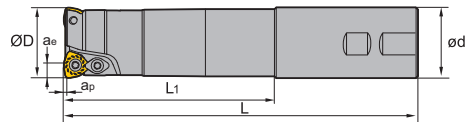
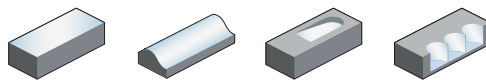
SD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
		P	M	K	N	S	H																		
ISO		r	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SDMT06T208-DM	0.8	15					○								○									
	SDMT09T312-DM	1.2	15	●				●		○						●		●							
	SDMT120412-DM	1.2	15	●				●		○						●		○							
	SDMT150520-DM	2	15													○									
	SDMT06T208-PM	0.8	15	●		●									●										
	SDMT09T312-PM	1.2	15					●							●	●									
	SDMT120412-PM	1.2	15					●							●	●									
	SDMT150520-PM	2	15												○										

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## High feed milling

XMR01 Kr: 11°-22°



W type insert, Weldon shank

Article	* Stock	Dimensions [mm]							Teeth	kg	Inserts
		$\varnothing D$	$\varnothing d$	$a_p$	$a_e$	$L_1$	L				
XMR01-020-XP20-WP05-02-M	○	20	20	1.5	3.8	50	130	2	0.2	WPGT0503	
XMR01-020-XP20-WP05-02-L	○	20	20	1.5	3.8	100	180	2	0.3		
XMR01-020-XP20-WP05-02-XL	○	20	20	1.5	3.8	130	250	2	0.8		
XMR01-025-XP25-WP06-02-M	○	25	25	1.5	4.35	60	140	2	0.4	WPGT0604	
XMR01-025-XP25-WP06-02-L	○	25	25	1.5	4.35	120	200	2	0.6		
XMR01-025-XP25-WP06-02-XL	○	25	25	1.5	4.35	180	300	2	1		
XMR01-032-XP32-WP06-03-M	○	32	32	1.5	4.35	70	150	3	0.8		
XMR01-032-XP32-WP06-03-L	○	32	32	1.5	4.35	120	200	3	1		
XMR01-032-XP32-WP06-03-XL	○	32	32	1.5	4.35	180	300	3	1.6		
XMR01-040-XP32-WP06-03-M	○	40	32	1.5	4.35	50	150	3	0.9	WPGT0604	
XMR01-040-XP32-WP06-03-XL	○	40	32	1.5	4.35	50	300	3	1.8		

● Ex stock ○ On demand

\* With internal cooling

variabler Einstellwinkel (Einstellwinkel ist hier plattengrößenabhängig)- lead angle:  
 WPGT05 insert: 16°; WPGT06 insert: 22°; WPGT08 insert: 11°; WPGT09 insert: 21°

Spare parts			
	Insert	WPGT0503	WPGT0604
	$\varnothing D$	20	25-40
	Clamp		
	Screw (clamp)		
	Screw (insert)		I60M4*8.4 (3.4 Nm)
	Screw (insert)	I60M3.5*08TT (2.7 Nm)	
	Wrench (clamp)		
	Wrench (insert)	WT10IP	WT15IP






System code > B26

Grade selection > B24

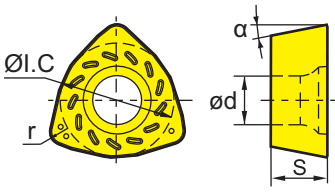


Technical info > B463

Cutting data > B224

WPGT	I.C	S	d
05 03	7.94	3.5	4
06 04	9.525	4.2	4.4
08 06	12.85	6.35	5.5

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Milling inserts**

WP** positive insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	WPGT050315ZSR-PM	1.5												●										
	WPGT060415ZSR-PM	1.5	●											●										
	WPGT080615ZSR-PM	1.5	●											●										
	WPGT050315ZSR	1.5	●				●									●								
	WPGT060415ZSR	1.5	●				●						●		●									
	WPGT080615ZSR	1.5	●				●						●		●									

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

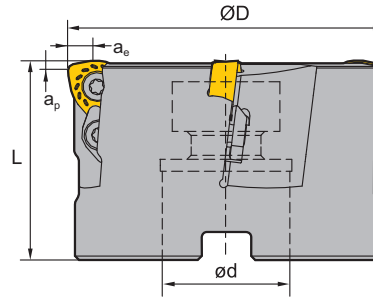
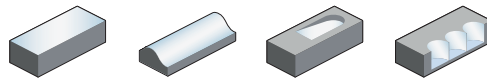
**E**

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## High feed milling

XMR01 Kr: 11°-22°



W type insert, Arbor mounting

Article	*	Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
			ØD	ød	ap	ae	L				
XMR01-050-A22-WP06-04		●	50	22	1.5	4.35	50	4	A	0.4	WPGT0604
XMR01-050-A22-WP06-04C	*	●	50	22	1.5	4.35	50	4	A	0.4	
XMR01-050-A22-WP08-03		○	50	22	1.5	5.66	50	3	A	0.4	WPGT0806
XMR01-063-A22-WP08-04		●	63	22	1.5	5.66	50	4	A	0.7	
XMR01-063-A27-WP08-04		●	63	27	1.5	5.66	50	4	A	0.7	
XMR01-063-A22-WP08-04C	*	●	63	22	1.5	5.66	50	4	A	0.7	
XMR01-063-A27-WP08-04C	*	○	63	27	1.5	5.66	50	4	A	0.7	
XMR01-080-A27-WP08-05		●	80	27	1.5	5.66	63	5	A	1.5	
XMR01-080-A27-WP08-05C	*	●	80	27	1.5	5.66	63	5	A	1.5	WPGT0907
XMR01-100-B32-WP08-06		●	100	32	1.5	5.66	63	6	B	2.2	
XMR01-125-B40-WP08-07		●	125	40	1.5	5.66	63	7	B	3.5	
XMR01-160-B40-WP08-08		○	160	40	1.5	5.66	63	8	B	6	
XMR01-063-A22-WP09-03C	*	○	63	22	3	6.8	50	3	A	0.7	WPGT0907
XMR01-080-A27-WP09-04C	*	○	80	27	3	6.8	63	4	A	1.4	
XMR01-100-B32-WP09-05		○	100	32	3	6.8	63	5	B	2.1	
XMR01-125-B40-WP09-06		○	125	40	3	6.8	63	6	B	3.7	
XMR01-160-B40-WP09-07		○	160	40	3	6.8	63	7	B	6.3	

● Ex stock    ○ On demand

\* With internal cooling

variabler Einstellwinkel (Einstellwinkel ist hier plattengrößenabhängig)- lead angle:

WPGT05 insert: 16°; WPGT06 insert: 22°; WPGT08 insert: 11°; WPGT09 insert: 21°

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

Spare parts

	Insert ØD	WPGT0604 50	WPGT0806 50-160	WPGT0907 3-160	
	Clamp		WD-208	WD-208	
	Screw (clamp)		I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	
	Screw (insert)	I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	
	Wrench (clamp)		WT20IT	WT20IT	
	Wrench (insert)	WT15IS			
	Wrench (insert)		WT20IT	WT20IT	

Milling inserts

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

WPGT	I.C	S	d
06 04	9.525	4.2	4.4
08 06	12.85	6.35	5.5
09 07	15	7	5.5

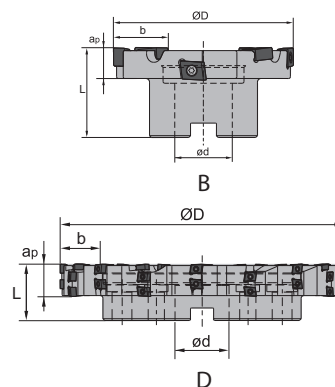
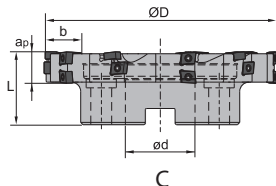
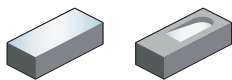
WP** positive insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	WPGT060415ZSR-PM	1.5	●									●											
	WPGT080615ZSR-PM	1.5	●									●											
	WPGT090725ZSR-PM	2.5										●											
	WPGT060415ZSR	1.5	●			●						●	●										
	WPGT080615ZSR	1.5	●			●						●	●										
	WPGT090725ZSR	2.5				●						●	○										

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

## Bore milling

XMP01 Kr: 90°



Article	* Stock	Dimensions [mm]					Teeth	Coupling	kg	Inserts
		ØD	ød	b	ap	L				
XMP01-080*18-B27-CNE1210-08	●	80	27	18	15	50	8	B	0.67	CNE12
XMP01-100*18-B32-CNE1210-08	●	100	32	18	20	50	8	B	0.99	
XMP01-125*27-B40-CNE1210-15	●	125	40	27	22.5	63	15	B	2.46	
XMP01-160*27-C40-CNE1210-18	●	160	40	27	25	63	18	C	3.7	
XMP01-200*27-C60-CNE1210-21	●	200	60	27	31.5	63	21	C	5.46	
XMP01-250*36-C60-CNE1210-32	●	250	40	36	56.5	63	32	C	9.79	
XMP01-315*36-D60-CNE1210-42	●	315	60	36	47.5	63	42	D	17.65	
XMP01-400*36-D60-CNE1210-52	●	400	60	36	36	63	52	D	27.36	

● Ex stock    ○ On demand

\* With internal cooling

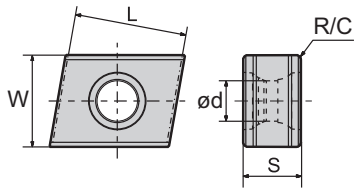
Spare parts		
	Insert	CNE12
	ØD	80-400
	Screw (insert)	I60M4*12 (3.4Nm)
	Wrench (insert)	WT15IP



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

CNE	L	S	d
12	12.8	6.35	4.4

**Milling inserts**



CN** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
			P	M	K	N	S	H	P	M	K	N	S	H										
ISO	R/C	W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	CNE121006A	0.4	10				●																	
	CNE121006B	0.6	10				○	●																

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

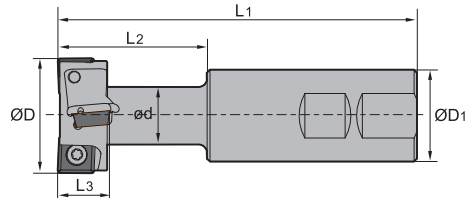
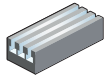
Technical Information

**E**


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## T-slot milling

TMP01 Kr: 90°



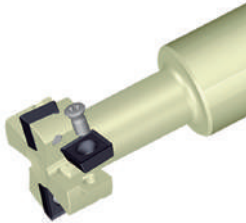



Weldon shank

Article	* Stock	Dimensions [mm]							Teeth	No. of inserts	T-slot specification	Inserts 
		ØD	ØD <sub>1</sub>	ød	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>					
TMP01-021-XP25-MP06-01	●	21	25	10	100	32	9	1	2	12	MPHT0603	
TMP01-025-XP25-MP06-01	●	25	25	12	100	35	11	1	2	14		
TMP01-032-XP32-MP08-02	●	32	32	15	110	45	14	2	4	18	MPHT0803	
TMP01-040-XP32-MP12-02	●	40	32	19	125	55	18	2	4	22	MPHT1204	
TMP01-050-XP40-MP12-02	●	50	40	25	140	65	22	2	4	28		
TMP01-060-XP50-MP12-02	●	60	50	32	160	80	28	2	6	36		

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	MPHT0603	MPHT0803	MPHT1204	
	ØD	21-25	32	40-60	
	Screw (insert)	I60M2.5*5.5 (1.0 Nm)	I60M3*7 (1.8 Nm)	I60M5*10 (6.7 Nm)	
	Wrench (insert)	WT07IP	WT09IP		
	Wrench (insert)			WT20IT	

System code > B26




Grade selection > B24

Technical info > B463

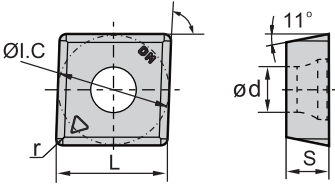

Cutting data > B224



MPHT	L	I.C	S	d
06 03	6.35	6.35	3.18	2.8
08 03	8.3	8.3	3.18	3.4
12 04	12.7	12.7	4.76	5.56

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Milling inserts**

MP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	MPHT060304-DM	●				●										●							
	MPHT080305-DM	●				●										●							
	MPHT120408-DM	●				○	●									●							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

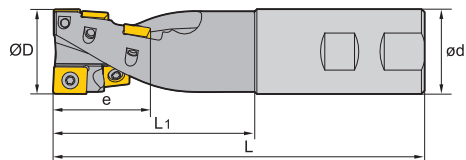
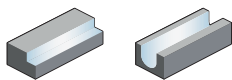
Technical Information

**E**

Index

## Helical milling

HMP01 Kr: 90°





Weldon shank

Article	* Stock	Dimensions [mm]					Teeth row	Teeth		Shanktype	Inserts
		ØD	e	ød	L <sub>1</sub>	L		APKT	SPMT		
HMP01-040x55-XP40-SP12-02	●	40	55	40	95	175	2	1	5	Weldon	APKT1504 & SPMT1204
HMP01-050x55-XP40-SP12-04	●	50	55	40	95	175	4	2	10	Weldon	

● Ex stock ○ On demand

\* With internal cooling

Spare parts			
	Insert	APKT1504 & SPMT1204	APKT1504 & SPMT1204
	ØD	40	50
 Screw (insert)		I60M5*10 (6.7 Nm)	I60M5*13 (6.7 Nm)
 Wrench (insert)		WT20T	WT20T



System code > B26

Grade selection > B24

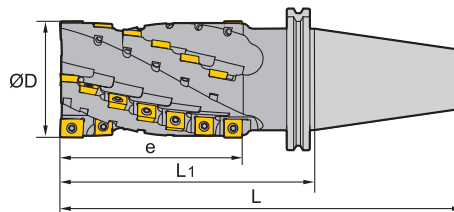
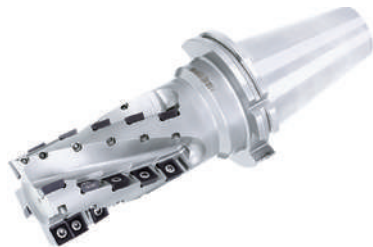
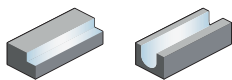
Technical info > B463

Cutting data > B224



## Helical milling

HMP01 Kr: 90°



Article	* Stock	Dimensions [mm]				Teeth row	Teeth		Shanktype	Inserts
		ØD	e	L <sub>1</sub>	L		APKT	SPMT		
HMP01-050x84-BT50-SP12-04	○	50	84	145	246.8	4	2	16	BT	 APKT1504 & SPMT1204
HMP01-050x84-JT50-SP12-04	○	50	84	145	246.75	4	2	16	JT	
HMP01-063x74-BT50-SP12-04	○	63	74	135	236.8	4	2	14	BT	
HMP01-063x74-JT50-SP12-04	○	63	74	135	236.75	4	2	14	JT	
HMP01-063x104-BT50-SP12-04	○	63	104	165	266.8	4	2	20	BT	
HMP01-063x104-JT50-SP12-04	●	63	104	165	266.75	4	2	20	JT	
HMP01-063x134-BT50-SP12-04	○	63	134	195	296.8	4	2	26	BT	
HMP01-063x134-JT50-SP12-04	○	63	134	195	296.75	4	2	26	JT	
HMP01-080x104-BT50-SP12-04	○	80	104	165	266.8	4	2	20	BT	
HMP01-080x104-JT50-SP12-04	○	80	104	165	266.75	4	2	20	JT	
HMP01-080x144-BT50-SP12-04	○	80	144	205	306.8	4	2	28	BT	
HMP01-080x144-JT50-SP12-04	○	80	144	205	306.75	4	2	28	JT	

● Ex stock    ○ On demand

\* With internal cooling

Spare parts		
Insert	APKT1504 & SPMT1204	
ØD	50-80	
 Screw (insert)	I60M5*10 (6.7 Nm)	
 Wrench (insert)	WT20IS	

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

APKT	L	S	d
15 04	16.33	4.76	5.4

### Milling inserts

AP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW								
	<b>P</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>M</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>K</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>N</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>S</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>H</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
ISO	r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	APKT150412-KM	1.2	12.7															●					
	APKT150412-PM	1.2	12.7		●													●					

● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

### Milling inserts

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

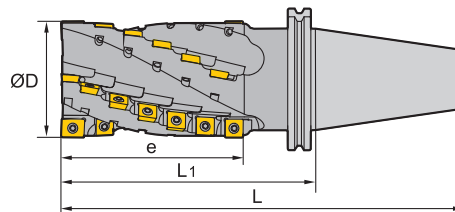
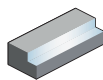
SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW								
	<b>P</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>M</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>K</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>N</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>S</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
	<b>H</b>	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●								
ISO	r	I.C	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	SPMT120408-KM	0.8																●					
	SPMT120408-PM	0.8		●														●					


● Ex stock ○ On demand

HC<sup>1</sup> Coated carbide  
HT Uncoated cermet  
HC<sup>2</sup> Coated cermet  
HW Uncoated carbide

## Helical milling






HMP01 EC Kr: 90°

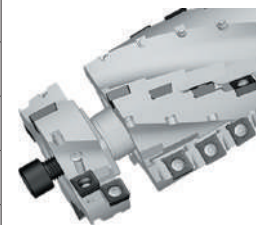


Article	* Stock	Dimensions [mm]				Teeth row	Teeth		Shanktype	Inserts
		ØD	e	L <sub>1</sub>	L		APKT	SPMT		
HMP01-050x84EC-BT50-SP12-04	○	50	84	145	246.8	4	2	16	BT	 APKT1504 & SPMT1204
HMP01-050x84EC-JT50-SP12-04	●	50	84	145	246.75	4	2	16	JT	
HMP01-063x74EC-BT50-SP12-04	○	63	74	135	236.8	4	2	14	BT	
HMP01-063x74EC-JT50-SP12-04	○	63	74	135	236.75	4	2	14	JT	
HMP01-063x104EC-BT50-SP12-04	○	63	104	165	266.8	4	2	20	BT	
HMP01-063x104EC-JT50-SP12-04	○	63	104	165	266.75	4	2	20	JT	
HMP01-063x134EC-BT50-SP12-04	○	63	134	195	296.8	4	2	26	BT	
HMP01-063x134EC-JT50-SP12-04	●	63	134	195	296.75	4	2	26	JT	
HMP01-080x104EC-BT50-SP12-04	○	80	104	165	266.8	4	2	20	BT	
HMP01-080x104EC-JT50-SP12-04	○	80	104	165	266.75	4	2	20	JT	
HMP01-080x144EC-BT50-SP12-04	○	80	144	205	306.8	4	2	28	BT	
HMP01-080x144EC-JT50-SP12-04	○	80	144	205	306.75	4	2	28	JT	

● Ex stock ○ On demand

\* With internal cooling

Spare parts				
	Insert	APKT1504 & SPMT1204	APKT1504 & SPMT1204	APKT1504 & SPMT1204
	ØD	50	63	80
	Indexable head	050EC	063EC	080EC
	Screw (head)	M10*50 (16.6 Nm)	M10*50 (16.6 Nm)	M12*55 (25.2 Nm)
	Screw (insert)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)	I60M5*13 (6.7 Nm)
	Wrench (head)	WH80L	WH80L	WH100L
	Wrench (insert)	WT20IS	WT20IS	WT20IS



System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

APKT	L	S	d
15 04	16.33	4.76	5.4

### Milling inserts

AP** milling insert			HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
			P	M	K	N	S	H	P	M	K	N	S	H											
ISO			r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	APKT150412-KM	1.2	12.7																		●				
	APKT150412-PM	1.2	12.7				●														●				

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

### Milling inserts

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

SP** milling insert			HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW								
			P	M	K	N	S	H	P	M	K	N	S	H										
ISO			r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	SPMT120408-KM	0.8																			●			
	SPMT120408-PM	0.8					●														●			

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

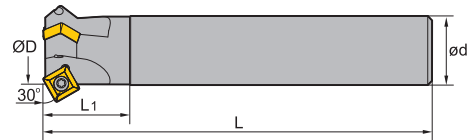
Technical info > B463

Cutting data > B224



## Chamfer milling

CMZ01 Kr: 30°



Straight shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMZ01-012-G20-SP12-01		●	12	20	40	100	1	0.2	SPMT1204
CMZ01-025-G25-SP12-02		●	25	25	40	120	2	0.8	
CMZ01-032-G32-SP12-03		●	32	32	40	180	3	1.1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	SPMT1204	
	ØD	12-32	
	Screw (insert)	M3M5*11 (6.7Nm)	
	Wrench (insert)	WT20IS	




System code > B26

Grade selection > B24

Technical info > B463

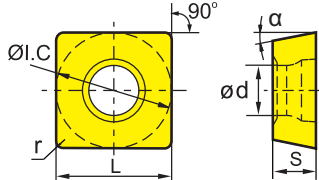


Cutting data > B224



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPMT120408-HT-1	0.8																						
	SPMT120408	0.8																						

● Ex stock    ○ On demand

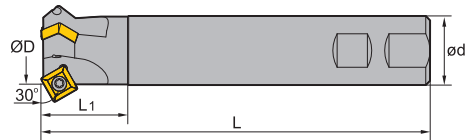
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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## Chamfer milling

CMZ01 Kr: 30°



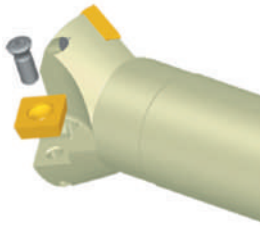


Weldon shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMZ01-012-XP20-SP12-01		●	12	20	40	100	1	0.2	 SPMT1204
CMZ01-025-XP25-SP12-02		●	25	25	40	120	2	0.6	
CMZ01-032-XP32-SP12-03		●	32	32	40	180	3	1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts




	Insert	SPMT1204	
	ØD	12-32	
 Screw (insert)		M3M5*11 (6.7Nm)	
 Wrench (insert)		WT20IS	

System code > B26

Grade selection > B24

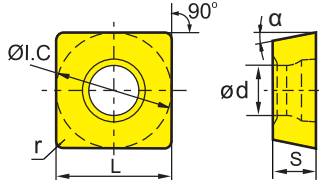


Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
	<b>P</b>																						
	<b>M</b>																						
	<b>K</b>																						
	<b>N</b>																						
	<b>S</b>																						
	<b>H</b>																						
ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPMT120408-HT-1	0.8													○								
	SPMT120408	0.8	○	●	○	●	○								○								

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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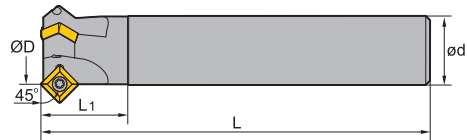
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## Chamfer milling

CMA01 Kr: 45°



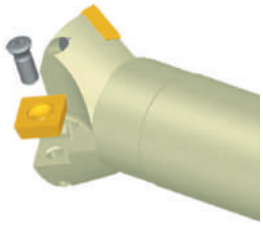


Straight shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMA01-012-G20-SP12-01		●	12	20	40	100	1	0.2	 SPMT1204
CMA01-025-G25-SP12-02		●	25	25	40	120	2	0.8	
CMA01-032-G32-SP12-03		●	32	32	40	180	3	1.1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts




	Insert	SPMT1204	
	ØD	12-32	
 Screw (insert)		M3M5*11 (6.7Nm)	
 Wrench (insert)		WT20IS	

System code > B26

Grade selection > B24

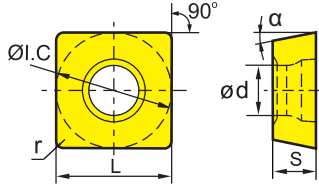


Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPMT120408-HT-1	0.8																						
	SPMT120408	0.8																						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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Grade selection > B24

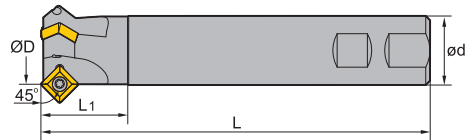
Technical info > B463

Cutting data > B224




## Chamfer milling

CMA01 Kr: 45°



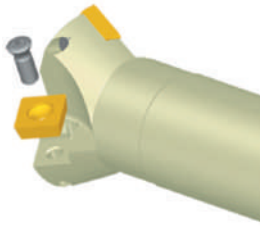


Weldon shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMA01-012-XP20-SP12-01		●	12	20	40	100	1	0.2	 SPMT1204
CMA01-025-XP25-SP12-02		●	25	25	40	120	2	0.6	
CMA01-032-XP32-SP12-03		●	32	32	40	100	3	1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts




	Insert	SPMT1204	
	ØD	12-32	
 Screw (insert)		M3M5*11 (6.7Nm)	
 Wrench (insert)		WT20IS	

System code > B26

Grade selection > B24

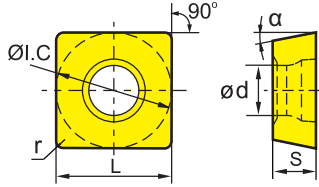


Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPMT120408-HT-1	0.8															○							
	SPMT120408	0.8	○	●	○	●	○										○							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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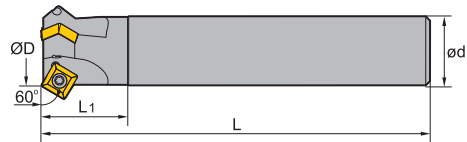
Technical info > B463

Cutting data > B224




## Chamfer milling

CMD01 Kr: 60°



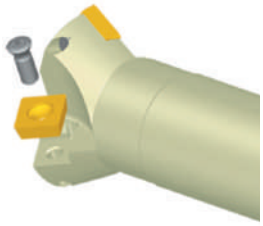


Straight shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMD01-012-G20-SP12-01		●	12	20	40	100	1	0.2	 SPMT1204
CMD01-025-G25-SP12-02		●	25	25	40	120	2	0.8	
CMD01-036-G32-SP12-03		●	36	32	40	180	3	1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts

	Insert	SPMT1204	
	ØD	12-36	
 Screw (insert)		M3M5*11 (6.7Nm)	
 Wrench (insert)		WT20IS	




System code > B26

Grade selection > B24

Technical info > B463

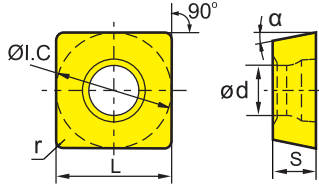


Cutting data > B224



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW										
	<b>P</b>																										
	<b>M</b>																										
	<b>K</b>																										
	<b>N</b>																										
	<b>S</b>																										
	<b>H</b>																										
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151		YNG151C		YD101	YD201		
	SPMT120408-HT-1	0.8															○										
	SPMT120408	0.8	○	●	○		●	○										○									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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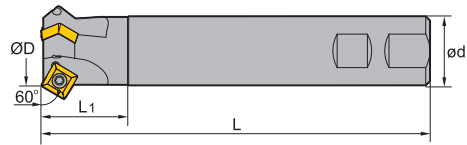
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## Chamfer milling

CMD01 Kr: 60°



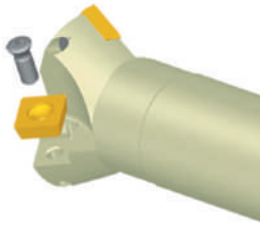


Weldon shank

Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ød	L <sub>1</sub>	L			
CMD01-012-XP20-SP12-01		●	12	20	40	100	1	0.2	 SPMT1204
CMD01-025-XP25-SP12-02		●	25	25	40	120	2	0.6	
CMD01-036-XP32-SP12-03		●	36	32	40	180	3	1	

● Ex stock    ○ On demand

\* With internal cooling

### Spare parts




	Insert	SPMT1204	
	ØD	12-36	
 Screw (insert)		M3M5*11 (6.7Nm)	
 Wrench (insert)		WT20IS	

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Grade selection > B24

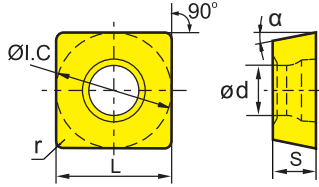

















































Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SPMT	L	I.C	S	d
12 04	12.7	12.7	4.76	5.5

**Milling inserts**

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>																							
	<b>M</b>																							
	<b>K</b>																							
	<b>N</b>																							
	<b>S</b>																							
	<b>H</b>																							
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	SPMT120408-HT-1	0.8																						
	SPMT120408	0.8																						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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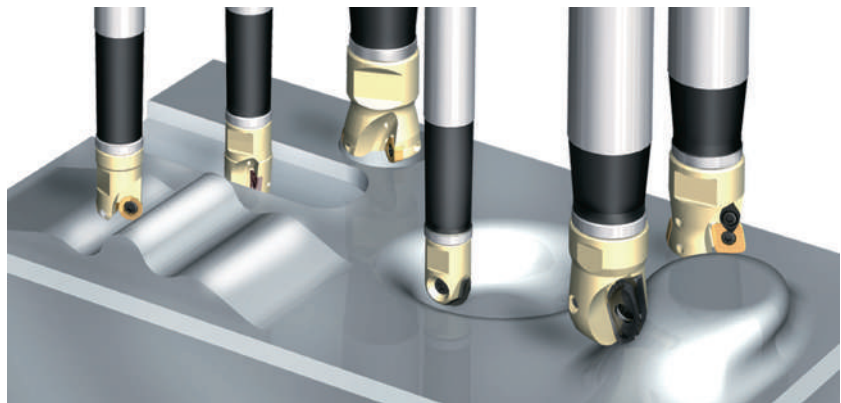
Notes section containing horizontal dotted lines for writing.

# QCH series

## Indexable heads

- Quick tool change reduces the set-up time and therefore the machine breakdown.
- Stable force-locking connection.
- Increased flexibility in production.
- All indexable heads are designed for the application with inner cooling (except QCH-ZOHX).

## Machining operations



## Force-locking connection

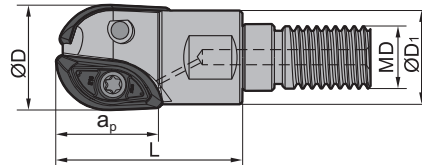
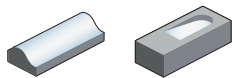


- Extensions available in steel and solid carbide.



### Profile milling

QCH - XPHT



Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	a <sub>p</sub>	L	MD			
QCH-16-XPHT16-M10	●	●	16	17	16	28	10	2	0.036	XPHT16
QCH-20-XPHT20-M12	○	○	20	19	20	30	12	2	0.051	XPHT20
QCH-25-XPHT25-M12	●	●	25	24	25	35	12	2	0.071	XPHT25
QCH-30-XPHT30-M16	●	●	30	29	30	45	16	2	0.14	XPHT30
QCH-32-XPHT32-M16	●	●	32	30	32	45	16	2	0.162	XPHT32

● Ex stock    ○ On demand

\* With internal cooling

#### Spare parts

	Insert	XPHT16	XPHT20	XPHT25	XPHT30	XPHT32	
		ØD	16	20	25	30	
	Screw (insert)	I60M2.5*6.5 (1.0 Nm)		I60M4*10 (3.4 Nm)	I60M5*13.2 (6.7 Nm)	I60M5*13.2 (6.7 Nm)	
	Screw (insert)		I60M3.5*08TT (2.7 Nm)				
	Wrench (insert)		WT10IP				
	Wrench (insert)				WT20IT	WT20IT	
	Wrench (insert)	WT07P					
	Wrench (insert)			WT15S			




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XPHT	L	S	d
16	16	3.18	3.1
20	20	3.97	4
25	25	4.76	4.7
30	30	6.35	5.8
32	32	6.35	5.8

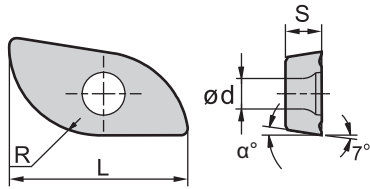
-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

XP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW									
ISO			R	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	XPHT16R0803-GM	8	9																						
	XPHT20R10T3-GM	10	9																						
	XPHT25R1204-GM	12.5	9																						
	XPHT30R1506-GM	15	11																						
	XPHT32R1606-GM	16	9																						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



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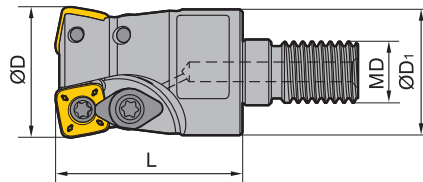
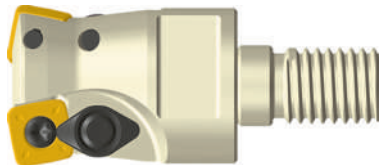
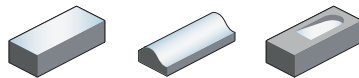
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### High-feed mills

QCH - SDMT Kr: 15°



Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	L	MD			
QCH-20-SDMT06-M10-03		●	20	19	30	10	3	0.058	SDMT06T2
QCH-25-SDMT06-M12-04		●	25	24	35	12	4	0.097	
QCH-32-SDMT06-M16-05		○	32	30	45	16	5	0.183	
QCH-25-SDMT09-M12-02		○	25	24	35	12	2	0.088	SDMT09T3
QCH-30-SDMT09-M16-03		●	30	29	45	16	3	0.176	
QCH-35-SDMT09-M16-03		○	35	30	45	16	3	0.216	
QCH-32-SDMT12-M16-02		●	32	30	45	16	2	0.175	SDMT1204
QCH-35-SDMT12-M16-02		○	35	30	45	16	2	0.2	
QCH-40-SDMT12-M16-03		○	40	30	45	16	3	0.3	

● Ex stock ○ On demand

\* With internal cooling

Spare parts		SDMT06T2	SDMT09T3	SDMT1204	
	Insert ØD	20-35	25-35	32-40	
	Clamp		WD-204	WD-204	
	Screw (clamp)			I60M4*8.4 (3.4Nm)	
	Screw (clamp)		I60M3.5*08TT (2.7Nm)		
	Screw (insert)	I60M2.2*5.5 (0.8 Nm)	I60M4*8.4 (3.4 Nm)	I60M4*8.4 (3.4 Nm)	
	Wrench (clamp)		WT10IP	WT15IP	
	Wrench (insert)	WT07IP	WT15IP	WT15IP	

System code > B26




Grade selection > B24

Technical info > B463

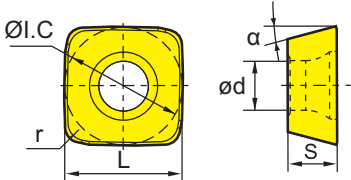


Cutting data > B224



SDMT	L	I.C	S	d
06 T2	6.35	6.35	2.58	2.5
09 T3	9.525	9.525	3.97	4
12 04	12.7	12.7	4.76	4.4

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

SD** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW											
			P	M	K	N	S	H																		
	ISO		r	α	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
		SDMT06T208-DM	0.8	15														○								
	SDMT09T312-DM	1.2	15	●					●		○						●		●							
	SDMT120412-DM	1.2	15	●					●		○						●	○								
	SDMT06T208-PM	0.8	15	●		●										●										
	SDMT09T312-PM	1.2	15			●										●	●									
	SDMT120412-PM	1.2	15			●										●	●									

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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### High-feed mills

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Drilling

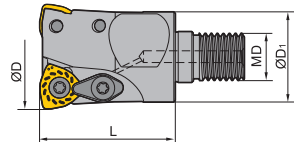
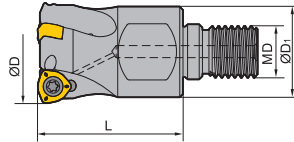
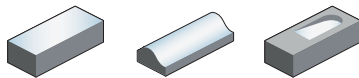
D

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QCH - WPGT Kr: 11°-22°



Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	L	MD			
QCH-20-WPGT05-M10-02	○		20	18	30	10	2	0.056	WPGT0503
QCH-25-WPGT06-M12-02	○		25	21	35	12	2	0.097	
QCH-32-WPGT06-M16-03	●		32	29	43	16	3	0.185	
QCH-35-WPGT06-M16-03	●		35	30	45	16	3	0.201	WPGT0604
QCH-42-WPGT06-M16-04	○		42	29	43	16	4		
QCH-35-WPGT08-M16-02	●		35	30	45	16	2	0.196	WPGT0806

● Ex stock ○ On demand

\* With internal cooling

variabler Einstellwinkel (Einstellwinkel ist hier plattengrößenabhängig)- lead angle:  
 WPGT05 insert: 16°; WPGT06 insert: 22°; WPGT08 insert: 11°; WPGT09 insert: 21°

#### Spare parts




	Insert	WPGT0503	WPGT0604	WPGT0806	
	ØD	20	25-42	35	
	Clamp			WD-208	
	Screw (clamp)			I60M5*13 (6.7 Nm)	
	Screw (insert)		I60M4*8.4 (3.4 Nm)	I60M5*13 (6.7 Nm)	
	Screw (insert)	I60M3.5*08TT (2.7 Nm)			
	Wrench (clamp)			WT20IT	
	Wrench (insert)			WT20IT	
	Wrench (insert)	WT10P	WT15P		

System code > B26

Grade selection > B24

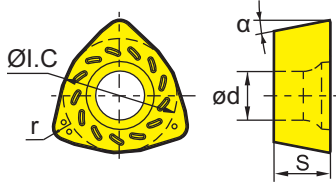
Technical info > B463




Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

WPGT	I.C	S	d
05 03	7.94	3.5	4
06 04	9.525	4.2	4.4
08 06	12.85	6.35	5.5

## Milling inserts



WP** positive insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW								
	<b>P</b>	r																					
	<b>M</b>	r																					
	<b>K</b>	r																					
	<b>N</b>	r																					
	<b>S</b>	r																					
	<b>H</b>	r																					
ISO	r		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	WPGT050315ZSR-PM	1.5												●									
	WPGT060415ZSR-PM	1.5	●											●									
	WPGT080615ZSR-PM	1.5	●											●									
	WPGT050315ZSR	1.5	●				●									●							
	WPGT060415ZSR	1.5	●				●							●		●							
	WPGT080615ZSR	1.5	●				●							●		●							

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

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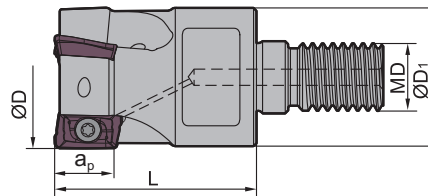
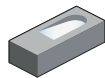
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### Indexable heads – QCH series

QCH - APKT Kr: 90°



Article	*	Stock	Dimensions [mm]					Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	a <sub>p</sub>	L	MD			
QCH-16-APKT11-M8-02	●		16	12.5	10.5	25	8	2	0.028	APKT11T3
QCH-20-APKT11-M10-03	●		20	18	10.5	30	10	3	0.059	
QCH-25-APKT11-M12-04	●		25	21	10.5	35	12	4	0.104	
QCH-32-APKT11-M16-05	●		32	29	10.5	43	16	5		
QCH-40-APKT11-M16-06	●		40	29	10.5	43	16	6		
QCH-25-APKT16-M12-02	○		25	21	10.5	38	12	2	0.09	
QCH-32-APKT16-M16-03	●		32	29	10.5	46	16	3		
QCH-40-APKT16-M16-04	○		40	29	10.5	46	16	4		

● Ex stock ○ On demand

\* With internal cooling

Spare parts				
Insert	APKT11T3	APKT1604		
ØD	16-40	25-40		
Screw (insert)		I60M4*8.4 (3.4Nm)		
Screw (insert)	I60M2.5*6.5T (1.0Nm)			
Wrench (insert)	WT08IP	WT15IP		

System code > B26

Grade selection > B24

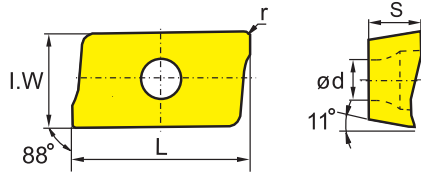
Technical info > B463

Cutting data > B224

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

APKT	L	S	d
11 T3	12.24	3.6	2.8
16 04	17.877	5.76	4.4

## Milling inserts



AP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
			P																					
			M																					
			K																					
			N																					
			S																					
			H																					
ISO	r	I.W	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	APKT11T304-ALH	0.4	6.5								●												●	●
	APKT11T308-ALH	0.8	6.5								●												●	●
	APKT160408-ALH	0.8	9.33								●												●	●
	APKT11T304-APF	0.4	6.5										●											
	APKT11T308-APF	0.8	6.5										●											
	APKT160408-APF	0.8	9.33										●	○		○								
	APKT11T304-APM	0.4	6.5				●		●				●											
	APKT11T308-APM	0.8	6.5				●		●				●											
	APKT11T312-APM	1.2	6.5				●		●				●											
	APKT11T316-APM	1.6	6.5				●		●				●											
	APKT11T320-APM	2	6.5				●		●				●											
	APKT160408-APM	0.8	9.33				●		●	●			●											
	APKT160416-APM	1.6	9.33				●		●				●											
	APKT160420-APM	2	9.33				●		●				●											
	APKT160424-APM	2.4	9.33				●		●				●											
APKT160430-APM	3	9.33				●		●				●												
	APKT11T304-LH	0.4	6.5																				●	●
	APKT11T308-LH	0.8	6.5																				●	●
	APKT160408-LH	0.8	9.33																				●	●
	APKT11T304-PF	0.4	6.5	○			●					●		●		●								
	APKT11T308-PF	0.8	6.5				○					○		●										
	APKT11T312-PF	1.2	6.5											○										
	APKT11T316-PF	1.6	6.5											○										
	APKT160408-PF	0.8	9.33		●		○	●						●		●								
	APKT160430-PF	3	9.33	○																				
	APKT11T304-PM	0.4	6.5	●	●	○	●	●			○		●		●		●							
	APKT11T308-PM	0.8	6.5	●	●	●	●	●	●	●	●		●		●		●							
	APKT11T312-PM	1.2	6.5				○				○		●		○									
	APKT11T316-PM	1.6	6.5				●				○		●		○									
	APKT160408-PM	0.8	9.33	●	●	●	●	●	●	●	●		●		●		●							
	APKT160416-PM	1.6	9.33	○										●										
	APKT11T304-PR	0.4	6.5					○					○		○									
	APKT11T316-PR	1.6	6.5												○									

● Ex stock    ○ On demand

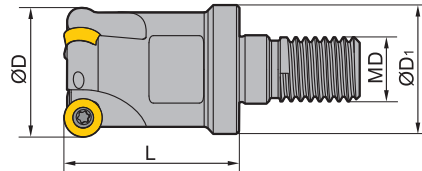
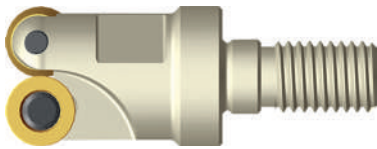
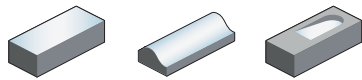
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



**A** Turning  
**B** Milling  
**C** Drilling  
**D** Technical Information  
**E** Index

### Indexable heads – QCH series

QCH - RD



Article	*	Stock	Dimensions [mm]				Teeth	kg	Inserts
			ØD	ØD <sub>1</sub>	L	MD			
QCH-16-RD07-M8-02		●	16	15	25	8	2	0.027	
QCH-20-RD07-M10-03		○	20	18	30	10	3	0.058	RDKW0702
QCH-25-RD07-M12-03		○	25	21	35	12	3	0.093	
QCH-20-RD10-M10-02		○	20	19	30	10	2	0.054	
QCH-25-RD10-M12-02		○	25	24	35	12	2	0.097	RDKW10T3
QCH-32-RD10-M16-03		○	32	30	45	16	3	0.183	
QCH-32-RD16-M16-02		○	32	30	45	16	2	0.156	RDKW1605

● Ex stock    ○ On demand

\* With internal cooling

#### Spare parts




	Insert	RDKW0702	RDKW10T3	RDKW1605	
		ØD	16-25	20-32	
	Screw (insert)	I60M2.5*5.0 (1.0 Nm)	I60M4*8 (3.4 Nm)	I60M5*13 (6.7 Nm)	
	Wrench (insert)	WT08IP	WT15IP		
	Wrench (insert)			WT20IT	

System code > B26

Grade selection > B24

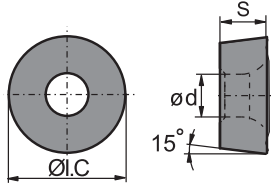


Technical info > B463

Cutting data > B224

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

RDKW	I.C	S	d
07 02	7	2.38	2.7
10 T3	10	3.97	4.4
16 05	16	5.56	5.5

## Milling inserts

RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW						
	<b>P</b>																					
	<b>M</b>																					
	<b>K</b>																					
	<b>N</b>																					
	<b>S</b>																					
	<b>H</b>																					
ISO		YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	RDKW10T3MO	●	○								●			●	○	○						
	RDKW1605MO					○							●									
	RDKW0702MO-1					●							●									
	RDKW0702MO-2									●												

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

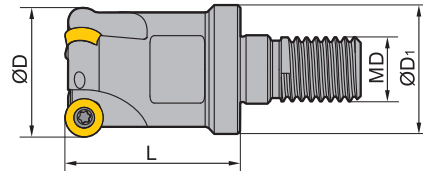
Technical Information

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### Indexable heads – QCH series

#### QCH - RD



Article	*	Stock	Dimensions [mm]				Teeth		Inserts
			ØD	ØD <sub>1</sub>	L	MD			
QCH-15-RDKW0702-M8-02		●	8	12.5	23	8	2	RDKW0702	
QCH-15-RDKW0702-M8-03		●	8	12.5	23	8	3		
QCH-20-RDKW0702-M10-04		●	13	18	30	10	4		
QCH-25-RDKW0702-M12-05		●	18	21	35	12	5	RDKW1003	
QCH-20-RDKW1003-M10-02		●	10	18	30	10	2		
QCH-25-RDKW1003-M12-02		●	15	21	35	12	2		
QCH-25-RDKW1003-M12-03		●	15	21	35	12	3	RDKW1003	
QCH-30-RDKW1003-M16-04		●	20	29	43	16	4		
QCH-35-RDKW1003-M16-04		●	25	29	43	16	4		
QCH-42-RDKW1003-M16-05		●	32	29	43	16	5	RDKW12T3	
QCH-24-RDKW12T3-M12-02		●	12	21	35	12	2		
QCH-35-RDKW12T3-M16-03		●	23	29	43	16	3		
QCH-42-RDKW12T3-M16-04		●	30	29	43	16	4	RDKW1604	
QCH-32-RDKW1604-M16-02		●	16	29	43	16	2		

● Ex stock    ○ On demand

\* With internal cooling

Spare parts					
	Insert	RDKW0702	RDKW1003	RDKW12T3	RDKW1604
	ØD	15-25	20-42	24-42	32
	Clamp				WX16N
	Screw (clamp)				I60M4.5*10 (5.0 Nm)
	Screw (clamp)			LOM3.5*7.1	
	Screw (insert)	I60M2.5*5.0 (1.0 Nm)	I60M3.5*7.7 (2.7 Nm)	I60M3.5*7.7 (2.7 Nm)	I60M4.5*10 (5.0 Nm)
	Wrench (insert)	WT07P	WT15P	WT15P	
	Wrench (insert)				WT20T

System code > B26




Grade selection > B24

Technical info > B463

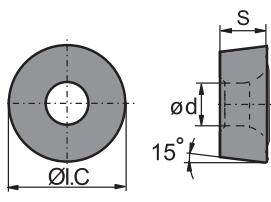
Cutting data > B224



RDKW	I.C	S	d
<b>07 02</b>	7	2.38	2.7
<b>10 03</b>	10	3.18	3.9
<b>12 T3</b>	12	3.97	3.9
<b>16 04</b>	16	4.76	5.2

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

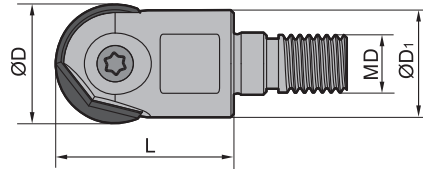
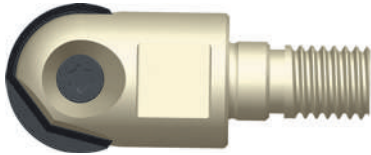
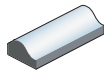
RD** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
		P	M	K	N	S	H	P	M	K	N	S	H											
	ISO	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201		
	RDKW0702MO-1					●																		
	RDKW0702MO-2									●														
	RDKW1003MO-1				●	●						●	●	●										
	RDKW1003MO-2										●													
	RDKW1003MO-3				●								●											
	RDKW12T3MO-1				●	●						●	●	●										
	RDKW12T3MO-2											●		○										
	RDKW12T3MO-3				●								●											
	RDKW1604MO-1						●						●	●	●		●							
	RDKW1604MO-2											○												
	RDKW1604MO-3		○	○		●			●		○		●			●								

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

### Indexable heads – QCH series

QCH - ZOHX



Article	*	Stock	Dimensions [mm]				kg	Inserts
			ØD	ØD <sub>1</sub>	L	MD		
QCH-16-ZOHX16-M8	●		16	15	28	8	0.029	ZOHX16
QCH-20-ZOHX20-M10	●		20	19	30	10	0.048	ZOHX20
QCH-25-ZOHX25-M12	●		25	24	35	12	0.087	ZOHX25
QCH-30-ZOHX30-M16	●		30	29	45	16	0.17	ZOHX30
QCH-32-ZOHX32-M16	●		32	30	45	16	0.18	ZOHX32

● Ex stock    ○ On demand

\* With internal cooling

Spare parts							
Insert	ZOHX16	ZOHX20	ZOHX25	ZOHX30	ZOHX32		
ØD	16	20	25	30	32		
Screw (insert)	I70M5*12TT (6.7 Nm)	I70M5*16TT (6.7 Nm)	I70M6*20TT (9.1 Nm)	I70M8*25TT (16.2 Nm)	I70M8*25TT (16.2 Nm)		
Wrench (insert)	WT20IP	WT20IP	WT20IP				
Wrench (insert)				WT30IT	WT30IT		




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Grade selection > B24

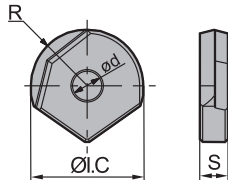


Technical info > B463

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ZO <sup>XX</sup>	I.C	S	d
<b>16</b>	16	4	5
<b>20</b>	20	5	5
<b>25</b>	25	6	6
<b>30</b>	30	7	8
<b>32</b>	32	7	8

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Milling inserts

ZO <sup>**</sup> milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
		P	M	K	N	S	H	P	M	K	N	S	H											
ISO		R	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	ZOHX1604-GF	8																						
	ZOHX2005-GF	10																						
	ZOHX2506-GF	12.5																						
	ZOHX3007-GF	15																						
	ZOHX3207-GF	16																						
	ZOHX1604-GM	8																						
	ZOHX2005-GM	10																						
	ZOHX2506-GM	12.5																						
	ZOHX3007-GM	15																						
	ZOHX3207-GM	16																						

● Ex stock    ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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HNGX	L	I.C	S
09 05	9.16	15.875	5.56

## Milling inserts

HN** milling insert			HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW					
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	<b>K</b>									●								●					
	<b>N</b>									●							●	●					
	<b>S</b>			●	●					●	●	●	●										
	<b>H</b>																						
ISO		r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	<b>HNGX090530-HDR</b>	3							○	○													
	<b>HNGX090516-MR</b>	1.6							●														
	<b>HNGX090520-MR</b>	2							●														

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide



- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

LNE3	L	I.W	S
2.53	15.875	4.76	9.525

**Milling inserts**

LN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●								
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●								
	<b>K</b>							⊗								⊗								
	<b>N</b>							⊗								⊗	⊗							
	<b>S</b>		⊗		⊗			⊗	⊗	⊗	⊗													
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	<b>LNE32.534</b>	1.6						○	○	○														

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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LNCX	I.W	L	S
18 06	10	24	6.4

## Milling inserts

LN** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW								
	<b>P</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>M</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	<b>K</b>							●								●								
	<b>N</b>							●							●	●								
	<b>S</b>		●	●				●	●	●	●													
	<b>H</b>																							
ISO		bs	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	<b>LNCX1806AZR</b>	2.0	●																					
	<b>LNCX1806AZT11L</b>	2.0							○															
	<b>LNCX1806AZT11R</b>	2.0							○															

● Ex stock      ○ On demand

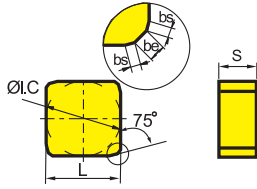
HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide




- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SNKN	L	I.C	S
12 04	12.7	12.7	4.76
15 04	15.875	15.875	4.76

**Milling inserts**



SN** milling insert			HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW						
ISO	bs	be	P	M	K	N	S	H															
			YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
			●																				
	SNKN1204ENN	1.5	0.9	●				○	●														
	SNKN1504ENN	1.5	0.9	●				○														○	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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- ⊗ Unfavourable machining conditions

SPCN	L	I.C	S
12 03	12.7	12.7	1.4
15 04	15.875	15.875	1.4

## Milling inserts

SP** milling insert		HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW								
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>K</b>								⊗								⊗							
	<b>N</b>								⊗							⊗	⊗							
	<b>S</b>			⊗	⊗				⊗	⊗	⊗	⊗												
	<b>H</b>																							
	ISO	bs	be	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	<b>SPCN1203EDSKR</b>	3.2	1.0	●																				
	<b>SPCN1504EDSKR</b>	4.8	1.0	●																				

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide





- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SPMR	L	I.C	S
09 03	9.525	9.525	3.18
12 03	12.7	12.7	3.18

**Milling inserts**

SP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)						HT	HC <sup>2</sup>	HW							
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>K</b>							⊗								⊗							
	<b>N</b>							⊗							⊗	⊗							
	<b>S</b>		⊗	⊗				●	●	●	●												
	<b>H</b>																						
ISO		r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	<b>SPMR090304</b>	0.4				○																	
	<b>SPMR090308</b>	0.8				○																	
	<b>SPMR120304</b>	0.4				●																	
	<b>SPMR120308</b>	0.8				●	○																
	<b>SPMR120312</b>	1.2					○																

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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SPMT	L	I.C	S	d
06 03	6.35	6.35	3.18	2.8
09 T3	9.525	9.525	3.97	4.4
12 04	12.7	12.7	4.76	5.5

## Milling inserts

SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>M</b>		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●							
	<b>K</b>								⊗								⊗							
	<b>N</b>								⊗							⊗	⊗							
	<b>S</b>			⊗	⊗				⊗	⊗	⊗													
	<b>H</b>																							
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
HT-1	<b>SPMT120408-HT-1</b>	0.8													○									
HT	<b>SPMT09T308-HT</b>	0.8				●				●						●								
KT	<b>SPMT060304-KT</b>	0.4		○																				

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

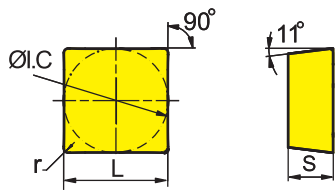
Technical info > B463



Cutting data > B224

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- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SP**	L	I.C	S
12 03	12.7	12.7	3.18
15 04	15.875	15.875	4.76

**Milling inserts**



SP** milling insert			HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)				HT	HC <sup>2</sup>	HW									
	<b>P</b>	0.4	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●								
	<b>M</b>	0.8	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●								
	<b>K</b>															⊗								
	<b>N</b>															⊗	⊗							
	<b>S</b>			⊗	⊗				●	●	●	●												
	<b>H</b>																							
ISO		r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
	<b>SPGN120304</b>	0.4												●										
	<b>SPGN120308</b>	0.8													●									
	<b>SPUN120308</b>	0.8				●	○																○	
	<b>SPUN120312</b>	1.2				●																		○
	<b>SPUN150408</b>	0.8																						○
	<b>SPUN150412</b>	1.2																						○

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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TPCN	L	I.C	S
22 04	22	12.7	4.76

## Milling inserts

TP** milling insert		HC <sup>1</sup> (CVD)						HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW	
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
	<b>M</b>	⊗	⊗	⊗	⊗	⊗				⊗	⊗	⊗	⊗	⊗	⊗	⊗
	<b>K</b>						⊗	⊗					⊗	⊗		⊗
	<b>N</b>						⊗							⊗	⊗	
	<b>S</b>			⊗	⊗				⊗	⊗	⊗					
	<b>H</b>															

**B**

Milling

ISO	bs	be	an	Grade selection																					
				YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201	
<b>TPCN2204PDR</b>	1.4	1.4	15																					○	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

TPKN	L	I.C	S
16 03	16.5	9.525	3.18

**Milling inserts**

TP** milling insert				HC <sup>1</sup> (CVD)							HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW						
	<b>P</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●				
	<b>M</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●				
	<b>K</b>																					⊗		
	<b>N</b>																					⊗	⊗	
	<b>S</b>									⊗	⊗													
	<b>H</b>																							
ISO	bs	be	an	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	<b>TPKN1603PDTKR</b>	1.0	1.2	11																				
	<b>TPKN1603PPER</b>	1.0	1.2	11	●																			○
	<b>TPKN1603PPFR</b>	1.0	1.2	11																				○

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

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TP**	L	I.C	S
09 02	9.63	5.56	2.38
11 03	11	6.35	3.18
16 03	16.5	9.525	3.18
22 04	22	12.7	4.76

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

## Milling inserts

TP** milling insert			HC <sup>1</sup> (CVD)								HC <sup>1</sup> (PVD)					HT	HC <sup>2</sup>	HW					
	<b>P</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	<b>M</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	<b>K</b>									●								●					
	<b>N</b>									●							●	●					
	<b>S</b>			●	●					●	●	●	●										
	<b>H</b>																						
	ISO	r	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YD101	YD201
	<b>TPMR090204</b>	0.4				●																	
	<b>TPMR110304</b>	0.4				●																	
	<b>TPMR110308</b>	0.8				●																	
	<b>TPMR160304</b>	0.4				●																	
	<b>TPMR160308</b>	0.8				●	●	○															
	<b>TPMR160312</b>	1.2					○	○															
	<b>TPMR220412</b>	1.2				●																	
		<b>TPUN110304</b>	0.4				●																
<b>TPUN110308</b>		0.8				●																	
<b>TPUN160304</b>		0.4				●																	○
<b>TPUN160308</b>		0.8				●	○																○
<b>TPUN160312</b>		1.2				●																	
<b>TPUN220408</b>		0.8				●																	
<b>TPUN220412</b>		1.2						○															
<b>TPUN220416</b>		1.6																					○

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
 HT Uncoated cermet  
 HC<sup>2</sup> Coated cermet  
 HW Uncoated carbide

System code > B26

Grade selection > B24

Technical info > B463

Cutting data > B224



## Guide for recommended cutting data – indexable milling

### Indexable milling – group 1 (FMA07/11/12, FMD02, EMP09/13)

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
				HC (CVD)								
				YBC302		YBC401		YBD152		YBD252		
				$a_p / D$		$a_p / D$		$a_p / D$		$a_p / D$		
				1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5			
P	Unalloyed steel	ca. 0,15 % C annealed	125	1	260	300	220	260				
		ca. 0,45 % C annealed	190	2	225	255	195	225				
		ca. 0,45 % C tempered	250	3	210	240	180	210				
		ca. 0,75 % C annealed	270	4	185	210	160	185				
		ca. 0,75 % C tempered	300	5	170	195	150	170				
	Low-alloyed steel	annealed	180	6	225	255	195	225				
		tempered	275	7	185	210	160	185				
		tempered	300	8	170	195	150	170				
		tempered	350	9	145	165	125	145				
	High-alloyed steel and high-alloyed tool steel	annealed	200	10	130	150	115	130				
hardened and tempered		325	11	95	105	80	95					
M	Stainless steel	ferritic/martensitic annealed	200	12								
		martensitic tempered	240	13								
		austenitic quench hardened	180	14								
		austenitic-ferritic	230	15								
K	Grey cast iron	perlite/ferritic	180	16				370	430	320	370	
		perlite (martensitic)	260	17				220	255	190	220	
	Cast iron with spheroidal graphite	ferritic	160	18				255	295	220	255	
		perlite	250	19				170	200	145	170	
	Malleable cast iron	ferritic	130	20				305	355	265	305	
perlite		230	21				205	240	175	205		
N	Aluminium wrought alloys	cannot be hardened	60	22								
		hardenable hardened	100	23								
	Cast aluminium alloys	≤ 12% Si, cannot be hardened	75	24								
		≤ 12% Si, hardenable hardened	90	25								
		> 12% Si, cannot be hardened	130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27							
CuZn, CuSnZn		90	28									
CuSn, Pb-free copper, electrolytic copper		100	29									
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30							
			hardened	280	31							
		Ni or Co base	annealed	250	32							
			hardened	350	33							
	cast	320	34									
Titanium alloys	pure titanium	$R_m$ 400	35									
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36								
H	Hardened steel	hardened and tempered	55 HRC	37								
	Hard cast iron	hardened and tempered	60 HRC	38								
	Hardened cast iron	cast	400	39								
X	Non-metallic materials	Thermoplasts		41								
		Thermosetting plastics		42								
		Plastic, glass-fibre reinforced GFRP		43								
		Plastic, carbon fibre reinforced CFRP		44								
		Graphite		45								
		Wood		46								

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. Feed rate recommendations on page B248. For examples of material for cutting tool groups view page D22.



**Recommend feed rate**

**Indexable milling – group1 (FMA07/11/12, FMD02, EMP09/13)**

5	Material group	Feed rate per cutting edge [mm]																		
		EMP09			EMP13			EMP13			FMA07			FMA07			FMA11			
		LNKT12			ANGX11			ANGX15			ONHU06			ONHU08			SNEG12			
		Application																		
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	
<b>P</b>	Unalloyed steel		0,25	0,50			0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
	Low-alloyed steel		0,23	0,47			0,22			0,23		0,17	0,22		0,17	0,22			0,19	0,21
	High-alloyed steel and high-alloyed tool steel		0,22	0,44			0,20			0,22		0,16	0,20		0,16	0,20			0,18	0,20
<b>M</b>	Stainless steel		0,18	0,35															0,14	0,16
	Grey cast iron		0,28	0,55			0,26			0,28		0,20	0,26		0,20	0,26			0,22	0,25
<b>K</b>	Cast iron with spheroidal graphite		0,25	0,50			0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
	Malleable cast iron		0,25	0,50			0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
<b>N</b>	Aluminium wrought alloys						0,20			0,21										
	Aluminium-Gusslegierungen						0,20			0,21										
	Copper and copper alloys (bronze/brass)						0,18			0,19										
<b>S</b>	Heat-resistant alloys																			
	Titanium alloys																			
<b>H</b>	Hardened steel																			
	Hard cast iron																			
<b>X</b>	Hardened cast iron																			
	Non-metallic materials																			

1. Select the appropriate product family/cutting data group.
2. Select the used grade.
3. Determine the immersion.
4. Select the used material and read the cutting speed.
5. Please have a look at the detached feed rate recommendations.
6. Select the used tool, the machining mode and the used material.

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## Indexable milling – group 1 (FMA07/11/12, FMD02, EMP09/13)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						HC (CVD)									
						YBC302		YBC401		YBD152		YBD252			
						$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$			
						1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5		
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	260	300	225	260						
		approx. 0,45 % C	annealed	190	2	225	255	195	225						
		approx. 0,45 % C	tempered	250	3	210	240	180	210						
		approx. 0,75 % C	annealed	270	4	185	210	160	185						
		approx. 0,75 % C	tempered	300	5	170	195	150	170						
	Low-alloyed steel			annealed	180	6	225	255	195	225					
				tempered	275	7	185	210	160	185					
				tempered	300	8	170	195	150	170					
				tempered	350	9	145	165	125	145					
	High-alloyed steel and high-alloyed tool steel			annealed	200	10	130	150	115	130					
			hardened and tempered	325	11	95	105	80	95						
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12										
			martensitic	tempered	240	13									
			austenitic	quench hardened	180	14									
			austenitic-ferritic		230	15									
<b>K</b>	Grey cast iron		perlitic/ferritic	180	16					370	430	320	370		
			perlitic (martensitic)	260	17					220	255	190	220		
	Cast iron with spheroidal graphite		ferritic	160	18					255	295	220	255		
			perlitic	250	19					170	200	145	170		
	Malleable cast iron		ferritic	130	20					305	355	265	305		
			perlitic	230	21					205	240	175	205		
<b>N</b>	Aluminium wrought alloys		cannot be hardened	60	22										
			hardenable	hardened	100	23									
	Cast aluminium alloys		$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
			$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
			$> 12\% \text{ Si}$ , cannot be hardened		130	26									
	Copper and copper alloys (bronze/brass)		machining steel, PB > 1%		110	27									
			CuZn, CuSnZn		90	28									
			CuSn, Pb-free copper, electrolytic copper		100	29									
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30										
			hardened	280	31										
		Ni or Co base	annealed	250	32										
			hardened	350	33										
		cast	320	34											
Titanium alloys	pure titanium		$R_m 400$	35											
	$\alpha$ and $\beta$ alloys	hardened		$R_m 1050$	36										
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37										
			hardened and tempered	60 HRC	38										
	Hard cast iron		cast	400	39										
	Hardened cast iron		hardened and tempered	55 HRC	40										
<b>X</b>	Non-metallic materials		Thermoplasts		41										
			Thermosetting plastics		42										
			Plastic, glass-fibre reinforced GFRP		43										
			Plastic, carbon fibre reinforced CFRP		44										
			Graphite		45										
			Wood		46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]															
HC (CVD)		HC (PVD)								HW					
YBM253		YBG102		YB9320		YBG205		YBG252		YBG302		YD101		YD201	
$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$	
1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5
260	300	270	315	245	285	235	275	230	265	225	260				
225	255	230	270	210	245	200	235	200	230	195	225				
210	240	220	255	200	230	190	220	185	215	180	210				
185	210	190	225	175	200	165	195	165	190	160	185				
170	195	180	205	160	190	155	180	150	175	150	170				
225	255	230	270	210	245	200	235	200	230	195	225				
185	210	190	225	175	200	165	195	165	190	160	185				
170	195	180	205	160	190	155	180	150	175	150	170				
145	165	150	175	135	160	130	155	130	150	125	145				
130	150	135	160	125	145	120	140	115	135	115	130				
95	105	95	115	90	100	85	100	85	95	80	95				
130	150	135	160	125	145	120	140	115	135	115	130				
110	130	115	135	105	120	100	120	100	115	95	110				
140	160	145	170	130	155	125	150	125	145	120	140				
110	130	115	135	105	120	100	120	100	115	95	110				
		300	345	270	315	260	300	255	295	250	290				
		180	205	160	190	155	180	150	175	150	170				
		205	240	185	215	180	210	175	200	170	195				
		135	160	125	145	120	140	115	135	115	130				
		245	285	225	260	215	250	210	240	205	235				
		165	190	150	175	145	165	140	160	135	160				
												1505	1735	1450	1670
												1225	1420	1180	1370
												540	620	515	600
												435	505	420	485
												220	255	215	250
												170	195	160	190
												210	245	205	235
												385	445	370	430

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 2 (FMA01/02/03/04, FME01/02, EMP01/02/03/04)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
						HC (CVD)								
						YBC302		YBC401		YBD152		YBD252		
						$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		
						1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	1/1   3/4	1/5	
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	245	285	210	245					
		approx. 0,45 % C	annealed	190	2	210	245	180	210					
		approx. 0,45 % C	tempered	250	3	200	230	170	200					
		approx. 0,75 % C	annealed	270	4	175	200	150	175					
		approx. 0,75 % C	tempered	300	5	160	190	140	160					
B Milling	P Low-alloyed steel		annealed	180	6	210	245	180	210					
			tempered	275	7	175	200	150	175					
			tempered	300	8	160	190	140	160					
			tempered	350	9	135	160	120	135					
		High-alloyed steel and high-alloyed tool steel	annealed	200	10	125	145	105	125					
		hardened and tempered	325	11	90	100	75	90						
C Drilling	M Stainless steel	ferritic/martensitic	annealed	200	12									
			martensitic	tempered	240	13								
			austenitic	quench hardened	180	14								
			austenitic-ferritic		230	15								
D Technical Information	K Grey cast iron	perlitic/ferritic		180	16					315	365	270	315	
		perlitic (martensitic)		260	17					185	215	160	190	
	K Cast iron with spheroidal graphite	ferritic		160	18					215	250	185	215	
		perlitic		250	19					145	170	125	145	
	K Malleable cast iron	ferritic		130	20					260	300	225	260	
perlitic			230	21					175	205	150	175		
E Index	N Aluminium wrought alloys	cannot be hardened		60	22									
		hardenable	hardened	100	23									
	N Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened			75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened		90	25								
		$> 12\% \text{ Si}$ , cannot be hardened			130	26								
	N Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27								
CuZn, CuSnZn			90	28										
CuSn, Pb-free copper, electrolytic copper			100	29										
S Heat-resistant alloys	S Fe-based alloys	annealed		200	30									
		hardened		280	31									
		annealed		250	32									
		hardened		350	33									
	S Ni or Co bass	hardened		320	34									
cast														
S Titanium alloys	pure titanium		$R_m$ 400	35										
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
H Hardened steel	H Hardened steel	hardened and tempered		55 HRC	37									
		hardened and tempered		60 HRC	38									
	H Hard cast iron	cast		400	39									
H Hardened cast iron	hardened and tempered		55 HRC	40										
X Non-metallic materials	X Non-metallic materials	Thermoplasts			41									
		Thermosetting plastics			42									
		Plastic, glass-fibre reinforced GFRP			43									
		Plastic, carbon fibre reinforced CFRP			44									
		Graphite			45									
		Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]																					
HC (CVD)				HC (PVD)												HW				HT	
YBM253		YBG101		YBG102		YBG152		YB9320		YBG205		YBG252		YBG302		YD101		YD201		YNG151	
$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$	
1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5
245	285			255	295	240	280	230	265	220	255	215	250	210	245					270	315
210	245			220	255	205	240	200	230	190	220	185	215	180	210					235	270
200	230			205	240	195	225	185	215	180	205	175	200	170	200					220	255
175	200			180	210	170	200	165	190	155	180	155	175	150	175					195	220
160	190			170	195	160	185	150	175	145	170	140	165	140	160					180	210
210	245			220	255	205	240	200	230	190	220	185	215	180	210					235	270
175	200			180	210	170	200	165	190	155	180	155	175	150	175					195	220
160	190			170	195	160	185	150	175	145	170	140	165	140	160					180	210
135	160			145	165	135	155	130	150	125	145	120	140	120	135					150	180
125	145			130	150	120	140	115	135	110	130	110	125	105	125					140	160
90	100			90	105	85	100	85	95	80	90	80	90	75	90					100	110
125	145			130	150	120	140	115	135	110	130	110	125	105	125					135	160
105	120			110	125	105	120	100	115	95	110	95	105	90	105					115	135
130	155			140	160	130	150	125	145	120	140	115	135	115	130					145	170
105	120			110	125	105	120	100	115	95	110	95	105	90	105					115	135
				285	330	265	305	255	295	245	285	240	280	235	275						
				170	195	160	185	150	175	145	170	140	165	140	160						
				195	225	180	210	175	200	165	195	165	190	160	185						
				130	150	120	140	115	135	110	130	110	125	105	125						
				230	270	220	255	210	240	200	230	195	225	190	225						
				155	180	145	170	140	160	135	155	130	150	130	150						
		1505	1735													1205	1390	1040	1200		
		1225	1420													980	1140	850	980		
		540	620													435	500	375	435		
		435	505													350	405	300	350		
		220	255													180	205	155	180		
		170	195													140	160	120	140		
		210	245													170	200	150	170		
		385	445													310	360	265	310		
				75	85	70	80	65	75	65	75	65	75	60	70						
				50	55	50	55	45	50	45	50	45	50	40	45						
				60	70	55	65	55	65	50	55	50	55	50	55						
				35	40	35	40	30	35	30	35	30	35	30	35						
				45	50	45	50	40	45	40	45	40	45	40	45						
				75	85	70	80	65	75	65	75	65	75	60	70						
				75	85	70	80	65	75	65	75	65	75	60	70						

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 2 (FMA01/02/03/04, FME01/02, EMP01/02/03/04)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]				
						HC <sub>1</sub>				
						YNG151C				
						$a_e / D$				
						1/1   3/4	1/5			
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	285	335			
		approx. 0,45 % C	annealed	190	2	250	285			
		approx. 0,45 % C	tempered	250	3	235	270			
		approx. 0,75 % C	annealed	270	4	205	235			
		approx. 0,75 % C	tempered	300	5	190	225			
	B Milling	Low-alloyed steel		annealed	180	6	250	285		
				tempered	275	7	205	235		
				tempered	300	8	190	225		
				tempered	350	9	160	190		
	C Drilling	High-alloyed steel and high-alloyed tool steel		annealed	200	10	150	170		
			hardened and tempered	325	11	105	120			
D Technical Information	M Stainless steel	ferritic/martensitic	annealed	200	12	145	170			
			martensitic	tempered	240	13	120	145		
			austenitic	quench hardened	180	14	155	180		
			austenitic-ferritic		230	15	120	145		
E Index	K Cast iron with spheroidal graphite	Grey cast iron	perlitic/ferritic	180	16					
			perlitic (martensitic)	260	17					
	Malleable cast iron	ferritic	160	18						
		perlitic	250	19						
	N Drilling	Aluminium wrought alloys	cannot be hardened		60	22				
			hardenable	hardened	100	23				
Cast aluminium alloys		$\leq 12\% \text{ Si}$ , cannot be hardened		75	24					
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25					
S Heat-resistant alloys	Copper and copper alloys (bronze/brass)	$> 12\% \text{ Si}$ , cannot be hardened		130	26					
		machining steel, PB > 1%		110	27					
		CuZn, CuSnZn		90	28					
H Hardened steel	Heat-resistant alloys	Fe-based alloys	annealed	200	30					
			hardened	280	31					
		Ni or Co bass	annealed	250	32					
			hardened	350	33					
		cast	320	34						
Titanium alloys	pure titanium		$R_m$ 400	35						
X Non-metallic materials	Hardened steel	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36					
		hardened and tempered		55 HRC	37					
		hardened and tempered		60 HRC	38					
		cast		400	39					
F Index	Hardened cast iron	hardened and tempered		55 HRC	40					
		Thermoplasts			41					
		Thermosetting plastics			42					
		Plastic, glass-fibre reinforced GFRP			43					
		Plastic, carbon fibre reinforced CFRP			44					
	Graphite			45						
	Wood			46						

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.



## Indexable milling – group 3 (FMR01/02/03/04)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]							
						HC (CVD)							
						YBC302			YBC401				
						$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20								
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	260	300	390	225	260	340		
		approx. 0,45 % C	annealed	190	2	225	255	335	195	225	295		
		approx. 0,45 % C	tempered	250	3	210	240	315	180	210	275		
		approx. 0,75 % C	annealed	270	4	185	210	275	160	185	245		
		approx. 0,75 % C	tempered	300	5	170	195	255	150	170	225		
	Low-alloyed steel		annealed	180	6	225	255	335	195	225	295		
			tempered	275	7	185	210	275	160	185	245		
			tempered	300	8	170	195	255	150	170	225		
			tempered	350	9	145	165	215	125	145	190		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	130	150	195	115	130	170		
		hardened and tempered	325	11	95	105	140	80	95	125			
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
		$> 12\% \text{ Si}$ , cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
CuSn, Pb-free copper, electrolytic copper		100	29										
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
		cast	320	34									
Titanium alloys	pure titanium		$R_m$ 400	35									
	$\alpha$ and $\beta$ alloys	hardened		$R_m$ 1050	36								
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
<b>X</b>	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.



Starting values for cutting speed $v_c$ [m/min]																						
HC (CVD)									HC (PVD)													
YBD152			YBD252			YBM253			YBG102			YBG152			YB9320			YBG205				
$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20		
								260	300	390	270	315	410	255	295	385	245	285	375	235	275	360
								225	255	335	230	270	355	220	255	335	210	245	320	200	235	310
								210	240	315	220	255	335	205	240	315	200	230	300	190	220	290
								185	210	275	190	225	295	180	210	275	175	200	260	165	195	255
								170	195	255	180	205	270	170	195	255	160	190	250	155	180	235
								225	255	335	230	270	355	220	255	335	210	245	320	200	235	310
								185	210	275	190	225	295	180	210	275	175	200	260	165	195	255
								170	195	255	180	205	270	170	195	255	160	190	250	155	180	235
								145	165	215	150	175	230	145	165	215	135	160	210	130	155	205
								130	150	195	135	160	210	130	150	195	125	145	190	120	140	185
								95	105	140	95	115	150	90	105	140	90	100	130	85	100	130
								130	150	195	135	160	205	130	150	195	125	145	190	120	140	180
								110	130	165	115	135	175	110	125	165	105	120	160	100	120	155
								140	160	210	145	170	220	140	160	205	130	155	200	125	150	195
								110	130	165	115	135	175	110	125	165	105	120	160	100	120	155
	345	400	520	300	345	450					300	345	450	285	330	430	270	315	410	260	300	390
	210	245	320	180	205	270					180	205	270	170	195	255	160	190	250	155	180	235
	240	280	365	205	240	315					205	240	315	195	225	295	185	215	280	180	210	275
	160	185	245	135	160	210					135	160	210	130	150	195	125	145	190	120	140	185
	285	330	430	245	285	375					245	285	375	230	270	355	225	260	340	215	250	325
	190	220	290	165	190	250					165	190	250	155	180	235	150	175	230	145	165	215

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 3 (FMR01/02/03/04)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]						
						HC (PVD)						
						YBG212			YBG252			
						$a_e / D$			$a_e / D$			
	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20						
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	240	280	365	230	265	345	
		approx. 0,45 % C	annealed	190	2	205	240	315	200	230	300	
		approx. 0,45 % C	tempered	250	3	195	225	295	185	215	280	
		approx. 0,75 % C	annealed	270	4	170	200	260	165	190	250	
		approx. 0,75 % C	tempered	300	5	160	185	245	150	175	230	
	Low-alloyed steel		annealed	180	6	205	240	315	200	230	300	
			tempered	275	7	170	200	260	165	190	250	
			tempered	300	8	160	185	245	150	175	230	
			tempered	350	9	135	155	205	130	150	195	
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	140	185	115	135	180	
		hardened and tempered	325	11	85	100	130	85	95	125		
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12	120	140	185	115	135	175	
			martensitic	tempered	240	13	105	120	155	100	115	145
			austenitic	quench hardened	180	14	130	150	195	125	145	185
			austenitic-ferritic		230	15	105	120	155	100	115	145
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16	265	305	400	255	295	385	
		perlitic (martensitic)		260	17	160	185	245	150	175	230	
	Cast iron with spheroidal graphite	ferritic		160	18	180	210	275	175	200	260	
		perlitic		250	19	120	140	185	115	135	180	
	Malleable cast iron	ferritic		130	20	220	255	335	210	240	315	
		perlitic		230	21	145	170	225	140	160	210	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22							
		hardenable	hardened	100	23							
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24							
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25							
		$> 12\% \text{ Si}$ , cannot be hardened		130	26							
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27							
		CuZn, CuSnZn		90	28							
CuSn, Pb-free copper, electrolytic copper		100	29									
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30							
			hardened	280	31							
		Ni or Co base	annealed	250	32							
			hardened	350	33							
		cast	320	34								
Titanium alloys	pure titanium		$R_m$ 400	35								
	$\alpha$ and $\beta$ alloys	hardened		$R_m$ 1050	36							
<b>H</b>	Hardened steel	hardened and tempered		55 HRC	37							
		hardened and tempered		60 HRC	38							
	Hard cast iron	cast		400	39							
	Hardened cast iron	hardened and tempered		55 HRC	40							
<b>X</b>	Non-metallic materials	Thermoplasts			41							
		Thermosetting plastics			42							
		Plastic, glass-fibre reinforced GFRP			43							
		Plastic, carbon fibre reinforced CFRP			44							
		Graphite			45							
		Wood			46							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]										
HC (PVD)				HW						
YBG302				YD101		YD201				
$a_e / D$			$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/1   3/4	1/5				
225	260	340								
195	225	295								
180	210	275								
160	185	245								
150	170	225								
195	225	295								
160	185	245								
150	170	225								
125	145	190								
115	130	170								
80	95	125								
115	130	170								
95	110	145								
120	140	185								
95	110	145								
250	290	380								
150	170	225								
170	195	255								
115	130	170								
205	235	310								
135	160	210								
			1505	1735	1450	1670				
			1225	1420	1180	1370				
			540	620	515	600				
			435	505	420	485				
			220	255	215	250				
			170	195	160	190				
			210	245	205	235				
			385	445	370	430				

- HC Coated carbide
- HT Uncoated carbide, main component (TiC) o. (TiN), cermet
- HC<sub>1</sub> Coated cermet
- HW Uncoated carbide, main component (WC)

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## Indexable milling – group 4 (BMR01/02/03/04, TMP01,CMZ01,CMA01,CMD01)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]							
						HC (CVD)							
						YBC302			YBC401				
						$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20								
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	235	275	360	200	230	300		
		approx. 0,45 % C	annealed	190	2	200	235	310	170	200	260		
		approx. 0,45 % C	tempered	250	3	190	220	290	160	185	245		
		approx. 0,75 % C	annealed	270	4	165	195	255	140	165	215		
		approx. 0,75 % C	tempered	300	5	155	180	235	130	150	195		
	Low-alloyed steel		annealed	180	6	200	235	310	170	200	260		
			tempered	275	7	165	195	255	140	165	215		
			tempered	300	8	155	180	235	130	150	195		
			tempered	350	9	130	155	205	110	130	170		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	140	185	100	115	150		
		hardened and tempered	325	11	85	100	130	70	85	115			
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
		$> 12\% \text{ Si}$ , cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
CuSn, Pb-free copper, electrolytic copper		100	29										
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
		cast	320	34									
Titanium alloys	pure titanium		$R_m$ 400	35									
	$\alpha$ and $\beta$ alloys	hardened		$R_m$ 1050	36								
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
<b>X</b>	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
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Starting values for cutting speed $v_c$ [m/min]																						
HC (CVD)									HC (PVD)													
YBD152			YBD252			YBM253			YBG102			YBG152			YB9320			YBG205				
$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20		
								235	275	360	245	285	375	230	265	345	220	255	335	210	245	320
								200	235	310	210	245	320	200	230	300	190	220	290	180	210	275
								190	220	290	200	230	300	185	215	280	180	205	270	170	200	260
								165	195	255	175	200	260	165	190	250	155	180	235	150	175	230
								155	180	235	160	190	250	150	175	230	145	170	225	140	160	210
								200	235	310	210	245	320	200	230	300	190	220	290	180	210	275
								165	195	255	175	200	260	165	190	250	155	180	235	150	175	230
								155	180	235	160	190	250	150	175	230	145	170	225	140	160	210
								130	155	205	135	160	210	130	150	195	125	145	190	120	135	180
								120	140	185	125	145	190	115	135	180	110	130	170	105	125	165
								85	100	130	90	100	130	85	95	125	80	90	120	75	90	120
								120	140	180	125	145	190	115	135	175	110	130	170	105	125	160
								100	120	155	105	120	160	100	115	145	95	110	145	90	105	135
								125	150	195	130	155	200	125	145	185	120	140	180	115	130	170
								100	120	155	105	120	160	100	115	145	95	110	145	90	105	135
	300	345	450	260	300	390					270	315	410	255	295	385	245	285	375	235	275	360
	180	210	275	155	180	235					160	190	250	150	175	230	145	170	225	140	160	210
	210	245	320	180	210	275					185	215	280	175	200	260	165	195	255	160	185	245
	140	165	215	120	140	185					125	145	190	115	135	180	110	130	170	105	125	165
	250	290	380	215	250	325					225	260	340	210	240	315	200	230	300	190	225	295
	170	200	260	145	165	215					150	175	230	140	160	210	135	155	205	130	150	195

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]							
						HC (PVD)							
						YBG212			YBG252				
						$a_e / D$			$a_e / D$				
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20								
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	215	250	325	205	240	315		
		approx. 0,45 % C	annealed	190	2	185	215	280	175	205	270		
		approx. 0,45 % C	tempered	250	3	175	200	260	165	195	255		
		approx. 0,75 % C	annealed	270	4	155	175	230	145	170	225		
		approx. 0,75 % C	tempered	300	5	140	165	215	135	160	210		
	Low-alloyed steel		annealed	180	6	185	215	280	175	205	270		
			tempered	275	7	155	175	230	145	170	225		
			tempered	300	8	140	165	215	135	160	210		
			tempered	350	9	120	140	185	115	135	180		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	110	125	165	105	120	160		
		hardened and tempered	325	11	80	90	120	75	85	115			
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12	110	125	165	105	120	160		
			martensitic	tempered	240	13	95	105	140	90	105	135	
			austenitic	quench hardened	180	14	115	135	175	110	130	170	
			austenitic-ferritic		230	15	95	105	140	90	105	135	
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16	240	280	365	230	265	345		
			perlitic (martensitic)	260	17	140	165	215	135	160	210		
	Cast iron with spheroidal graphite	ferritic		160	18	165	190	250	155	180	235		
			perlitic	250	19	110	125	165	105	120	160		
Malleable cast iron	ferritic		130	20	195	225	295	185	220	290			
		perlitic	230	21	130	150	195	125	145	190			
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
		$> 12\% \text{ Si}$ , cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
CuSn, Pb-free copper, electrolytic copper		100	29										
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
		cast	320	34									
Titanium alloys	pure titanium	$R_m$ 400	35										
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36									
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
<b>X</b>	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]			
HC (PVD)			
YBG302			
$a_e / D$			
1/1   3/4	1/5	1/20	
200	230	300	
170	200	260	
160	185	245	
140	165	215	
130	150	195	
170	200	260	
140	165	215	
130	150	195	
110	130	170	
100	115	150	
70	85	115	
100	115	150	
85	100	130	
110	125	160	
85	100	130	
220	255	335	
130	150	195	
150	175	230	
100	115	150	
180	210	275	
120	140	185	

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 5 (SMP01/03/05)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]			
						HC (CVD)		HC (PVD)	
						YBC302	YBM253	YBG101	YB9320
		$a_e / D$	$a_e / D$	$a_e / D$	$a_e / D$				
						1/4	1/4	1/4	1/4
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	180	190	175
		approx. 0,45 % C	annealed	190	2	145	155	165	150
		approx. 0,45 % C	tempered	250	3	135	145	155	140
		approx. 0,75 % C	annealed	270	4	120	130	135	125
		approx. 0,75 % C	tempered	300	5	110	120	125	115
<b>P</b>	Low-alloyed steel		annealed	180	6	145	155	165	150
			tempered	275	7	120	130	135	125
			tempered	300	8	110	120	125	115
			tempered	350	9	95	100	105	100
<b>P</b>	High-alloyed steel and high-alloyed tool steel		annealed	200	10	85	90	95	90
			hardened and tempered	325	11	60	65	70	65
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12		90	95	90
		martensitic	tempered	240	13		80	80	75
		austenitic	quench hardened	180	14		100	105	95
		austenitic-ferritic		230	15		80	80	75
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16			215	190
		perlitic (martensitic)		260	17			125	115
	Cast iron with spheroidal graphite	ferritic		160	18			145	135
		perlitic		250	19			95	90
<b>K</b>	Malleable cast iron	ferritic		130	20			175	160
		perlitic		230	21			115	105
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22				
		hardenable	hardened	100	23				
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24				
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25				
		$> 12\% \text{ Si}$ , cannot be hardened		130	26				
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27				
CuZn, CuSnZn		90	28						
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30				
			hardened	280	31				
		Ni or Co base	annealed	250	32				
			hardened	350	33				
		cast	320	34					
Titanium alloys	pure titanium		$R_m$ 400	35					
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36					
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37				
			hardened and tempered	60 HRC	38				
	Hard cast iron		cast	400	39				
	Hardened cast iron		hardened and tempered	55 HRC	40				
<b>X</b>	Non-metallic materials	Thermoplasts			41				
		Thermosetting plastics			42				
		Plastic, glass-fibre reinforced GFRP			43				
		Plastic, carbon fibre reinforced CFRP			44				
		Graphite			45				
		Wood			46				

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.





## Indexable milling – group 6 (FMD03, FME04, FMP03, HMP01)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]							
						HC (CVD)							
						YBC302		YBC401		YBD152		YBD252	
						$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$	
1/1   3/4		1/5		1/1   3/4		1/5		1/1   3/4		1/5			
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	200	230	170	200				
		approx. 0,45 % C	annealed	190	2	170	200	145	170				
		approx. 0,45 % C	tempered	250	3	160	185	140	160				
		approx. 0,75 % C	annealed	270	4	140	165	120	140				
		approx. 0,75 % C	tempered	300	5	130	150	115	130				
	Low-alloyed steel		annealed	180	6	170	200	145	170				
			tempered	275	7	140	165	120	140				
			tempered	300	8	130	150	115	130				
			tempered	350	9	110	130	95	110				
		High-alloyed steel and high-alloyed tool steel		annealed	200	10	100	115	85	100			
	hardened and tempered		325	11	70	85	60	70					
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16				255	295	220	255	
		perlitic (martensitic)		260	17				150	175	130	150	
	Cast iron with spheroidal graphite	ferritic		160	18				175	205	150	175	
		perlitic		250	19				115	135	100	115	
	Malleable cast iron	ferritic		130	20				210	245	180	210	
		perlitic		230	21				140	165	120	140	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
		$> 12\% \text{ Si}$ , cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium	$R_m$ 400	35									
$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
<b>X</b>	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]																
HC (CVD)		HC (PVD)														
YBM253		YBG102		YBG152		YB9320		YBG205		YBG212		YBG252		YBG302		
$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		
1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	
200	230	205	240	195	225	190	220	185	215	185	215	180	210	175	205	
170	200	175	205	170	195	165	190	160	185	160	185	155	180	150	175	
160	185	165	195	160	180	155	180	150	175	150	175	145	170	140	165	
140	165	145	170	140	160	135	155	130	155	130	155	130	150	125	145	
130	150	135	160	130	150	125	145	125	140	125	140	120	140	115	135	
170	200	175	205	170	195	165	190	160	185	160	185	155	180	150	175	
140	165	145	170	140	160	135	155	130	155	130	155	130	150	125	145	
130	150	135	160	130	150	125	145	125	140	125	140	120	140	115	135	
110	130	115	135	110	125	105	125	105	120	105	120	100	120	100	115	
100	115	105	120	100	115	95	110	95	110	95	110	90	105	90	105	
70	85	75	85	70	80	70	80	65	80	65	80	65	75	65	75	
100	115	105	120	100	115	95	110	95	110	95	110	90	105	90	105	
85	100	90	105	85	95	80	95	80	95	80	95	80	90	75	90	
110	125	110	130	105	120	105	120	100	115	100	115	100	115	95	110	
85	100	90	105	85	95	80	95	80	95	80	95	80	90	75	90	
		230	265	215	250	210	245	205	240	205	240	200	230	195	225	
		135	160	130	150	125	145	125	140	125	140	120	140	115	135	
		155	180	150	170	145	165	140	165	140	165	135	160	135	155	
		105	120	100	115	95	110	95	110	95	110	90	105	90	105	
		185	220	180	205	175	200	170	195	170	195	165	190	160	185	
		125	145	120	135	115	135	115	130	115	130	110	130	105	125	

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 7 (XMR01, XMP01)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]						
						HC (CVD)						
						YBC302			YBD152			
						$a_e / D$			$a_e / D$			
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20							
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	260	300	390				
		approx. 0,45 % C	annealed	190	2	225	255	335				
		approx. 0,45 % C	tempered	250	3	210	240	315				
		approx. 0,75 % C	annealed	270	4	185	210	275				
		approx. 0,75 % C	tempered	300	5	170	195	255				
	Low-alloyed steel		annealed	180	6	225	255	335				
			tempered	275	7	185	210	275				
			tempered	300	8	170	195	255				
			tempered	350	9	145	165	215				
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	130	150	195				
		hardened and tempered	325	11	95	105	140					
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12							
		martensitic	tempered	240	13							
		austenitic	quench hardened	180	14							
		austenitic-ferritic		230	15							
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16				335	390	510	
		perlitic (martensitic)		260	17				200	230	300	
	Cast iron with spheroidal graphite	ferritic		160	18				225	260	340	
		perlitic		250	19				150	175	230	
	Malleable cast iron	ferritic		130	20				275	320	420	
		perlitic		230	21				185	215	280	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22							
		hardenable	hardened	100	23							
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24							
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25							
		$> 12\% \text{ Si}$ , cannot be hardened		130	26							
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27							
		CuZn, CuSnZn		90	28							
CuSn, Pb-free copper, electrolytic copper		100	29									
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30							
			hardened	280	31							
		Ni or Co base	annealed	250	32							
			hardened	350	33							
		cast	320	34								
Titanium alloys	pure titanium		$R_m$ 400	35								
	$\alpha$ and $\beta$ alloys	hardened		$R_m$ 1050	36							
<b>H</b>	Hardened steel		hardened and tempered	55 HRC	37							
			hardened and tempered	60 HRC	38							
	Hard cast iron		cast	400	39							
	Hardened cast iron		hardened and tempered	55 HRC	40							
<b>X</b>	Non-metallic materials	Thermoplasts			41							
		Thermosetting plastics			42							
		Plastic, glass-fibre reinforced GFRP			43							
		Plastic, carbon fibre reinforced CFRP			44							
		Graphite			45							
		Wood			46							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]																					
HC (CVD)									HC (PVD)												
YBD252			YBM253			YBG102			YBG152			YB9320			YBG205			YBG212			
$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			$a_e / D$			
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20	
			260	300	390	270	315	410	255	295	385	245	285	375	235	275	360	240	280	365	
			225	255	335	230	270	355	220	255	335	210	245	320	200	235	310	205	240	315	
			210	240	315	220	255	335	205	240	315	200	230	300	190	220	290	195	225	295	
			185	210	275	190	225	295	180	210	275	175	200	260	165	195	255	170	200	260	
			170	195	255	180	205	270	170	195	255	160	190	250	155	180	235	160	185	245	
			225	255	335	230	270	355	220	255	335	210	245	320	200	235	310	205	240	315	
			185	210	275	190	225	295	180	210	275	175	200	260	165	195	255	170	200	260	
			170	195	255	180	205	270	170	195	255	160	190	250	155	180	235	160	185	245	
			145	165	215	150	175	230	145	165	215	135	160	210	130	155	205	135	155	205	
			130	150	195	135	160	210	130	150	195	125	145	190	120	140	185	120	140	185	
			95	105	140	95	115	150	90	105	140	90	100	130	85	100	130	85	100	130	
			130	150	195	135	160	205	130	150	195	125	145	190	120	140	180	120	140	185	
			110	130	165	115	135	175	110	125	165	105	120	160	100	120	155	105	120	155	
			140	160	210	145	170	220	140	160	205	130	155	200	125	150	195	130	150	195	
			110	130	165	115	135	175	110	125	165	105	120	160	100	120	155	105	120	155	
	290	335	440				300	345	450	285	330	430	270	315	410	260	300	390	265	305	400
	170	195	255				180	205	270	170	195	255	160	190	250	155	180	235	160	185	245
	195	225	295				205	240	315	195	225	295	185	215	280	180	210	275	180	210	275
	130	150	195				135	160	210	130	150	195	125	145	190	120	140	185	120	140	185
	235	270	355				245	285	375	230	270	355	225	260	340	215	250	325	220	255	335
	160	180	235				165	190	250	155	180	235	150	175	230	145	165	215	145	170	225

HC Coated carbide  
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet  
 HC<sub>1</sub> Coated cermet  
 HW Uncoated carbide, main component (WC)

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## Indexable milling – group 7 (XMR01, XMP01)

	Material group	Composition / structure / heat treatment		HB	Machining group	Starting values for cutting speed $v_c$ [m/min]						
						HC (PVD)						
						YBG252			YBG302			
						$a_e / D$			$a_e / D$			
1/1   3/4	1/5	1/20	1/1   3/4	1/5	1/20							
<b>P</b>	Unalloyed steel	approx. 0,15 % C	annealed	125	1	230	265	345	225	260	340	
		approx. 0,45 % C	annealed	190	2	200	230	300	195	225	295	
		approx. 0,45 % C	tempered	250	3	185	215	280	180	210	275	
		approx. 0,75 % C	annealed	270	4	165	190	250	160	185	245	
		approx. 0,75 % C	tempered	300	5	150	175	230	150	170	225	
	Low-alloyed steel		annealed	180	6	200	230	300	195	225	295	
			tempered	275	7	165	190	250	160	185	245	
			tempered	300	8	150	175	230	150	170	225	
			tempered	350	9	130	150	195	125	145	190	
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	115	135	180	115	130	170	
		hardened and tempered	325	11	85	95	125	80	95	125		
<b>M</b>	Stainless steel	ferritic/martensitic	annealed	200	12	115	135	175	115	130	170	
			martensitic	tempered	240	13	100	115	145	95	110	145
			austenitic	quench hardened	180	14	125	145	185	120	140	185
			austenitic-ferritic		230	15	100	115	145	95	110	145
<b>K</b>	Grey cast iron	perlitic/ferritic		180	16	255	295	385	250	290	380	
		perlitic (martensitic)		260	17	150	175	230	150	170	225	
	Cast iron with spheroidal graphite	ferritic		160	18	175	200	260	170	195	255	
		perlitic		250	19	115	135	180	115	130	170	
	Malleable cast iron	ferritic		130	20	210	240	315	205	235	310	
		perlitic		230	21	140	160	210	135	160	210	
<b>N</b>	Aluminium wrought alloys	cannot be hardened		60	22							
		hardenable	hardened	100	23							
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24							
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25							
		$> 12\% \text{ Si}$ , cannot be hardened		130	26							
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27							
		CuZn, CuSnZn		90	28							
		CuSn, Pb-free copper, electrolytic copper		100	29							
<b>S</b>	Heat-resistant alloys	Fe-based alloys	annealed	200	30							
			hardened	280	31							
		Ni or Co base	annealed	250	32							
			hardened	350	33							
		cast	320	34								
Titanium alloys	pure titanium		$R_m$ 400	35								
	$\alpha$ and $\beta$ alloys		hardened	$R_m$ 1050	36							
<b>H</b>	Hardened steel	hardened and tempered		55 HRC	37							
		hardened and tempered		60 HRC	38							
	Hard cast iron	cast		400	39							
	Hardened cast iron	hardened and tempered		55 HRC	40							
<b>X</b>	Non-metallic materials	Thermoplasts			41							
		Thermosetting plastics			42							
		Plastic, glass-fibre reinforced GFRP			43							
		Plastic, carbon fibre reinforced CFRP			44							
		Graphite			45							
		Wood			46							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B248.  
 For examples of material for cutting tool groups view page D22.



## Recommended feed rate

### Indexable milling – group1 (FMA07/11/12, FMD02, EMP09/13)

Material group	Feed rate per cutting edge [mm]																	
	EMP09			EMP09			EMP13			EMP13			FMA07			FMA07		
	LNKT08/12			LNKT16			ANGX11			ANGX15			ONHU06			ONHU08		
	Application																	
	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
<b>P</b> Unalloyed steel		0,25	0,50		0,28	0,55		0,23			0,25		0,19	0,23		0,19	0,23	
	Low-alloyed steel		0,23	0,47		0,26	0,51		0,22			0,23		0,17	0,22		0,17	0,22
	High-alloyed steel and high-alloyed tool steel		0,22	0,44		0,24	0,48		0,20			0,22		0,16	0,20		0,16	0,20
<b>M</b> Stainless steel		0,18	0,35		0,19	0,39		0,16			0,18							
<b>K</b> Grey cast iron		0,28	0,55		0,30	0,61		0,26			0,28		0,20	0,26		0,20	0,26	
	Cast iron with spheroidal graphite		0,25	0,50		0,28	0,55		0,23			0,25		0,19	0,23		0,19	0,23
	Malleable cast iron		0,25	0,50		0,28	0,55		0,23			0,25		0,19	0,23		0,19	0,23
<b>N</b> Aluminum wrought alloys								0,20			0,21							
	Aluminum cast alloys								0,20			0,21						
	Copper and copper alloys (bronze/brass)								0,18			0,19						
<b>S</b> Heat-resistant alloys																		
	Titanium alloys																	
<b>H</b> Hardened steel																		
	Hard cast iron																	
	Hardened cast iron																	
<b>X</b> Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Indexable milling – group 2 (FMA01/02/03/04, FME01/02, EMP01/02/03/04)

Material group	Feed rate per cutting edge [mm]																		
	FMA01   FMA02			FMA03			FMA03			FMA04			FMA04			FME02			
	SEET12			SEKN12			SEKN15			OFKT05			OFKR07			SPK*12			
	Application																		
	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	
<b>P</b> Unalloyed steel		0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,20	
	Low-alloyed steel		0,14	0,19	0,23		0,17			0,19		0,19	0,23		0,19	0,23		0,19	0,19
	High-alloyed steel and high-alloyed tool steel		0,13	0,18	0,22		0,16			0,18		0,18	0,22		0,18	0,22		0,18	0,18
<b>M</b> Stainless steel		0,11	0,14	0,18		0,13			0,14		0,14	0,18		0,14	0,18		0,14	0,14	
<b>K</b> Grey cast iron		0,17	0,22	0,28		0,20			0,22		0,22	0,28		0,22	0,28		0,22	0,22	
	Cast iron with spheroidal graphite		0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,20
	Malleable cast iron		0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,20
<b>N</b> Aluminium wrought alloys		0,13	0,17	0,21							0,17	0,21		0,17	0,21				
	Aluminum cast alloys		0,13	0,17	0,21						0,17	0,21		0,17	0,21				
	Copper and copper alloys (bronze/brass)		0,11	0,15	0,19						0,15	0,19		0,15	0,19				
<b>S</b> Heat-resistant alloys		0,11	0,14	0,18							0,14	0,18		0,14	0,18				
	Titanium alloys		0,11	0,14	0,18						0,14	0,18		0,14	0,18				
<b>H</b> Hardened steel																			
	Hard cast iron																		
	Hardened cast iron																		
<b>X</b> Non-metallic materials																			

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.



Feed rate per cutting edge [mm]																										
FMA11			FMA11			FMA11			FMA12			FMD02			FMP12			FMP12								
SNEG12			SNEG15			SNEG19			ONHU08			PNEG11			HNEX09			WNHU06			WNHU08					
Application																										
F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
	0,20	0,23		0,22	0,25			0,29		0,23		0,15	0,20	0,30					0,23			0,25				
	0,19	0,21		0,20	0,24			0,27		0,22		0,14	0,19	0,28					0,22			0,23				
	0,18	0,20		0,19	0,22			0,26		0,20		0,13	0,18	0,26					0,20			0,22				
	0,14	0,16		0,15	0,18			0,20		0,16									0,16			0,18				
	0,22	0,25		0,24	0,28			0,32		0,26		0,17	0,22	0,33	0,17	0,22	0,33		0,26			0,28				
	0,20	0,23		0,22	0,25			0,29		0,23		0,15	0,20	0,30	0,15	0,20	0,30		0,23			0,25				
	0,20	0,23		0,22	0,25			0,29		0,23		0,15	0,20	0,30	0,15	0,20	0,30		0,23			0,25				

F Finishing  
M Medium machining  
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Feed rate per cutting edge [mm]																										
FME03			FME03			FMP01			FMP02			EMP01   EMP02			EMP01   EMP02			EMP03   EMP04								
SPK*12			SPK*15			TPKN22			SEET12			APKT11			APKT16			APKT11								
Application																										
F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
	0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25						
	0,17			0,19			0,19		0,14	0,19	0,23	0,09	0,14	0,19	0,11	0,16	0,21	0,09	0,19	0,23						
	0,16			0,18			0,18		0,13	0,18	0,22	0,09	0,13	0,18	0,10	0,15	0,20	0,09	0,18	0,22						
	0,13			0,14			0,14		0,11	0,14	0,18	0,07	0,11	0,14	0,08	0,12	0,16	0,07	0,14	0,18						
	0,20			0,22			0,22		0,17	0,22	0,28	0,11	0,17	0,22	0,13	0,19	0,25	0,11	0,22	0,28						
	0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25						
	0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25						
									0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20	0,09	0,17	0,21						
									0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20	0,09	0,17	0,21						
									0,11	0,15	0,19	0,08	0,11	0,15	0,09	0,13	0,18	0,08	0,15	0,19						

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## Recommended feed rate

### Indexable milling – group 3 (FMR01/02/03/04) Face milling

Material group		Feed rate per cutting edge [mm]																	
		FMR01			FMR01			FMR02			FMR02			FMR02			FMR03		
		RCKT10			RC*12			RC*12			RCKT16			RCKT20			RDKW07		
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
<b>P</b>	Unalloyed steel		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
	Low-alloyed steel		0,19	0,23		0,19	0,23		0,19	0,23		0,21	0,27		0,25	0,31		0,16	
	High-alloyed steel and high-alloyed tool steel		0,18	0,22		0,18	0,22		0,18	0,22		0,20	0,25		0,23	0,29		0,15	
<b>M</b>	Stainless steel		0,14	0,18		0,14	0,18		0,14	0,18		0,16	0,20		0,19	0,23		0,12	
<b>K</b>	Grey cast iron		0,22	0,28		0,22	0,28		0,22	0,28		0,25	0,32		0,29	0,36		0,19	
	Cast iron with spheroidal graphite		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
	Malleable cast iron		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
<b>N</b>	Aluminum wrought alloys					0,17	0,21		0,17	0,21									
	Aluminum cast alloys					0,17	0,21		0,17	0,21									
	Copper and copper alloys (bronze/brass)					0,15	0,19		0,15	0,19									
<b>S</b>	Heat-resistant alloys																		
	Titanium alloys																		
<b>H</b>	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
<b>X</b>	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Indexable milling – group 3 (FMR01/02/03/04) Circular milling

Material group		Feed rate per cutting edge [mm]															
		FMR01		FMR01		FMR02		FMR02		FMR03							
		RCKT10		RC*12		RC*12		RCKT16		RCKT20		RDKW07					
		Tool diameter [mm]															
		25-32		40-50		50-100		63-125		160-200		80-125		160-250		15	
<b>P</b>	Unalloyed steel		0,12		0,16		0,18		0,24		0,32		0,26		0,35		0,07
	Low-alloyed steel		0,11		0,14		0,16		0,21		0,28		0,23		0,31		0,06
	High-alloyed steel and high-alloyed tool steel		0,10		0,13		0,14		0,19		0,26		0,21		0,28		0,06
<b>M</b>	Stainless steel		0,07		0,09		0,10		0,14		0,18		0,15		0,20		0,04
<b>K</b>	Grey cast iron		0,11		0,14		0,16		0,22		0,29		0,23		0,32		0,06
	Cast iron with spheroidal graphite		0,10		0,13		0,14		0,19		0,26		0,21		0,28		0,06
	Malleable cast iron		0,10		0,13		0,14		0,19		0,26		0,21		0,28		0,06
<b>N</b>	Aluminium wrought alloys																
	Aluminum cast alloys																
	Copper and copper alloys (bronze/brass)																
<b>S</b>	Heat-resistant alloys																
	Titanium alloys																
<b>H</b>	Hardened steel																
	Hard cast iron																
	Hardened cast iron																
<b>X</b>	Non-metallic materials																

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

		Feed rate per cutting edge [mm]															
		FMR03			FMR03			FMR04			FMR04			FMR04			
		RDKW08			RD*10			RD*12			RDKW16			RDKW20			
		Application															
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	
			0,17			0,20			0,15	0,20	0,25	0,17	0,23	0,29	0,2	0,26	0,33
			0,16			0,19			0,14	0,19	0,23	0,16	0,21	0,27	0,19	0,25	0,31
			0,15			0,18			0,13	0,18	0,22	0,15	0,20	0,25	0,18	0,23	0,29
			0,12			0,14			0,11	0,14	0,18	0,12	0,16	0,20	0,14	0,19	0,23
			0,19			0,22			0,17	0,22	0,28	0,19	0,25	0,32	0,22	0,29	0,36
			0,17			0,20			0,15	0,20	0,25	0,17	0,23	0,29	0,20	0,26	0,33
			0,17			0,20			0,15	0,20	0,25	0,17	0,23	0,29	0,20	0,26	0,33
						0,17			0,13	0,17	0,21						
						0,17			0,13	0,17	0,21						
						0,15			0,11	0,15	0,19						

F Finishing  
M Medium machining  
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		Feed rate per cutting edge [mm]						
		FMR03		FMR04		FMR04		
		RDKW08		RD*10		RD*12		
		Tool diameter [mm]						
		16-25		32		50-63		
		80-100		125-160				
		0,07		0,12		0,17	0,24	0,30
		0,06		0,11		0,15	0,21	0,26
		0,06		0,10		0,14	0,19	0,24
		0,04		0,07		0,10	0,14	0,17
		0,06		0,11		0,15	0,22	0,27
		0,06		0,10		0,14	0,19	0,24
		0,06		0,10		0,14	0,19	0,24
				0,10		0,11		
				0,10		0,11		
				0,10		0,11		

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## Recommended feed rate

### Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

Material group		Feed rate per cutting edge [mm]								
		BMR01	BMR01	BMR01	BMR01	BMR02	BMR02	BMR02	BMR03	BMR03
		ZD*08 / SP*06	ZD*11 / SP*06	ZD*13 / SP*09	ZP*22 / SP*12	ROHX12	ROHX16	ROHX20	-	-
		Tool diameter [mm]								
		20	25	32	40-63	12	16	20	16	20
<b>P</b>	Unalloyed steel	0,14	0,21	0,26	0,32	0,10	0,13	0,14	0,13	0,14
	Low-alloyed steel	0,10	0,15	0,18	0,22	0,07	0,09	0,10	0,09	0,10
	High-alloyed steel and high-alloyed tool steel	0,09	0,14	0,17	0,21	0,07	0,08	0,09	0,08	0,09
<b>M</b>	Stainless steel	0,08	0,12	0,14	0,18	0,06	0,07	0,08	0,07	0,08
<b>K</b>	Grey cast iron	0,18	0,27	0,34	0,42	0,13	0,17	0,18	0,17	0,18
	Cast iron with spheroidal graphite	0,13	0,20	0,25	0,30	0,10	0,12	0,13	0,12	0,13
	Malleable cast iron	0,14	0,21	0,26	0,32	0,10	0,13	0,14	0,13	0,14
<b>N</b>	Aluminum wrought alloys									
	Aluminum cast alloys									
	Copper and copper alloys (bronze/brass)									
<b>S</b>	Heat-resistant alloys									
	Titanium alloys									
<b>H</b>	Hardened steel									
	Hard cast iron									
	Hardened cast iron									
<b>X</b>	Non-metallic materials									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Indexable milling – group 5 (SMP01/03/05)

Material group		Feed rate per cutting edge [mm]								
		SMP01	SMP01	SMP01	SMP01	SMP01	SMP03	SMP03	SMP03	SMP05
		XSEQ1202	XSEQ1203	XSEQ12T3	XSEQ1204	XSEQ12T4	MPHT06	MPHT08	MPHT12	QC16
		Tool diameter [mm]								
		63-100	63-100	63-160	63-160	63-160	80-125	125-200	120-200	25-39
<b>P</b>	Unalloyed steel	0,12	0,12	0,13	0,13	0,14	0,14	0,15	0,16	0,08
	Low-alloyed steel	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,15	0,08
	High-alloyed steel and high-alloyed tool steel	0,10	0,10	0,11	0,11	0,12	0,12	0,13	0,14	0,07
<b>M</b>	Stainless steel	0,10	0,10	0,11	0,11	0,12	0,12	0,13	0,14	0,07
<b>K</b>	Grey cast iron	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,15	0,08
	Cast iron with spheroidal graphite	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,15	0,07
	Malleable cast iron	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,15	0,07
<b>N</b>	Aluminium wrought alloys									
	Aluminum cast alloys									
	Copper and copper alloys (bronze/brass)									
<b>S</b>	Heat-resistant alloys									
	Titanium alloys									
<b>H</b>	Hardened steel									
	Hard cast iron									
	Hardened cast iron									
<b>X</b>	Non-metallic materials									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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Feed rate per cutting edge [mm]												
BMR03	BMR03	BMR03	BMR04	BMR04	BMR04	BMR04	BMR04	BMR04	CMZ01	CMA01	CMD01	
-	-	-	ZOHX12	ZOHX16	ZOHX20	ZOHX25	ZOHX30	SPMT12	SPMT12	SPMT12		
Tool diameter [mm]												
25	30-32	40-50	12	16	20	25	30	12-32	12-32	12-36		
0,21	0,26	0,30	0,10	0,13	0,14	0,16	0,17	0,23	0,23	0,23		
0,15	0,18	0,21	0,07	0,09	0,10	0,11	0,12	0,16	0,16	0,16		
0,14	0,17	0,20	0,07	0,08	0,09	0,10	0,11	0,15	0,15	0,15		
0,12	0,14	0,17	0,06	0,07	0,08	0,09	0,09	0,13	0,13	0,13		
0,27	0,34	0,39	0,13	0,17	0,18	0,21	0,22	0,30	0,30	0,30		
0,20	0,25	0,29	0,10	0,12	0,13	0,15	0,16	0,22	0,22	0,22		
0,21	0,26	0,30	0,10	0,13	0,14	0,16	0,17	0,23	0,23	0,23		

Feed rate per cutting edge [mm]		
SMP05	QC22	
Tool diameter [mm]		
44		
0,08		
0,08		
0,07		
0,07		
0,08		
0,07		
0,07		



## Recommended feed rate

### Indexable milling – group 6 (FMD03, FME04, FMP03, HMP01)

Material group	Feed rate per cutting edge [mm]																		
	FMD03			FMD03			FME04			FMP03			FMP03			FMP03			
	LNKT20			LNKT25			LNKT15			LNKT12			LNKT15			LNKT20			
	Application																		
	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	
<b>P</b>	Unalloyed steel			0,50			0,50			0,45			0,45			0,45			0,50
	Low-alloyed steel			0,47			0,47			0,42			0,42			0,42			0,47
	High-alloyed steel and high-alloyed tool steel			0,44			0,44			0,40			0,40			0,40			0,44
<b>M</b>	Stainless steel			0,45			0,45			0,40			0,40			0,40			0,45
	Grey cast iron			0,55			0,55			0,50			0,50			0,50			0,55
<b>K</b>	Cast iron with spheroidal graphite			0,50			0,50			0,45			0,45			0,45			0,50
	Malleable cast iron			0,50			0,50			0,45			0,45			0,45			0,50
<b>N</b>	Aluminum wrought alloys																		
	Aluminum cast alloys																		
	Copper and copper alloys (bronze/brass)																		
<b>S</b>	Heat-resistant alloys																		
	Titanium alloys																		
<b>H</b>	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
<b>X</b>	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Indexable milling – group 7 (XMR01, XMP01)

Material group	Feed rate per cutting edge [mm]									
	XMR01 face milling			XMR01 plunge milling			XMR01 circular milling			
	SDMT/WPGT			SDMT/WPGT			SDMT/WPGT			
	Tool diameter [mm]									
	20-25	30-50	63-160	20-25	30-50	63-160	20-25	30-50	63-160	
<b>P</b>	Unalloyed steel	1,00	1,20	2,00	0,20	0,25	0,30	0,80	0,96	1,40
	Low-alloyed steel	0,93	1,12	1,86	0,19	0,23	0,28	0,74	0,89	1,30
	High-alloyed steel and high-alloyed tool steel	0,70	0,84	1,40	0,18	0,22	0,26	0,70	0,84	1,23
<b>M</b>	Stainless steel	0,50	0,60	1,00	0,14	0,18	0,21	0,56	0,67	0,98
<b>K</b>	Grey cast iron	0,90	1,08	1,80	0,22	0,28	0,33	0,88	1,06	1,54
	Cast iron with spheroidal graphite	0,90	1,08	1,80	0,20	0,25	0,30	0,80	0,96	1,40
	Malleable cast iron	1,00	1,20	2,00	0,20	0,25	0,30	0,80	0,96	1,40
<b>N</b>	Aluminium wrought alloys									
	Aluminum cast alloys									
	Copper and copper alloys (bronze/brass)									
<b>S</b>	Heat-resistant alloys									
	Titanium alloys									
<b>H</b>	Hardened steel									
	Hard cast iron									
	Hardened cast iron									
<b>X</b>	Non-metallic materials									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

Feed rate per cutting edge [mm]						
FMP03			HMP01			
LNKT25			SPMT-APKT			
Application						
F	M	R	F	M	R	
		0,55		0,25		
		0,51		0,23		
		0,48		0,22		
		0,47		0,15		
		0,61		0,28		
		0,55		0,25		
		0,55		0,25		

F Finishing  
M Medium machining  
R Roughing

Feed rate per cutting edge [mm]							
XMP01	QCH	QCH	QCH	QCH	QCH	QCH	QCH
CNE	ZOHX	RD*	APKT	WPGT	SDMT	XPHT	
Tool diameter [mm]							
80-400	16-32	15-32	16-40	20-42	20-40	16-32	
0,20	0,20	0,20	0,15	1,00	1,00	0,20	
0,20	0,19	0,19	0,14	0,93	0,93	0,19	
0,20	0,18	0,18	0,13	0,70	0,70	0,18	
0,20	0,14	0,14	0,11	0,50	0,50	0,14	
0,20	0,22	0,22	0,17	0,90	0,90	0,22	
0,20	0,20	0,20	0,15	0,90	0,90	0,20	
0,20	0,20	0,20	0,15	1,00	1,00	0,20	
			0,13				
			0,13				
			0,11				

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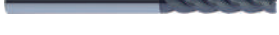






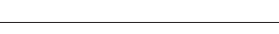
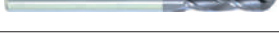




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## High performance milling

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
PM-2E		2	1.0-20.0	✓	✓	✓			✓	End mills	B330
PM-2EL		2	3.0-20.0	✓	✓	✓			✓	End mills	B331
PM-4E-G		4	1.0-20.0	✓	✓	✓			✓	End mills	B332
PM-4EL-G		4	3.0-20.0	✓	✓	✓			✓	End mills	B333
PM-4EX-G		4	3.0-20.0	✓	✓	✓			✓	End mills	B334
PM-4E		4	1.0-20.0	✓	✓	✓			✓	End mills	B335
PM-4EL		4	3.0-20.0	✓	✓	✓			✓	End mills	B336
PM-6E		6	6.0-20.0	✓	✓	✓			✓	End mills	B337
PM-6EL		6	6.0-20.0	✓	✓	✓			✓	End mills	B338
PM-2B		2	1.0-20.0	✓	✓	✓			✓	Ball nose cutters	B339
PM-2BL		2	2.0-20.0	✓	✓	✓			✓	Ball nose cutters	B340
PM-2BFP		2	1.0-20.0	✓	✓	✓			✓	Ball nose cutters	B341
PM-2BC		2	0.5-4.0	✓	✓	✓			✓	Ball nose cutter with conical neck	B342
PM-4B		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B345
PM-4BL		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B346
PM-2R		2	1.0-12.0	✓	✓	✓			✓	Torus mills	B347
PM-4R		4	3.0-12.0	✓	✓	✓			✓	Torus mills	B350
PM-4RL		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B351
PM-4H		4	3.0-12.0	✓	✓	✓			✓	High-feed mills	B348
PM-4HL		4	4.0-12.0	✓	✓	✓			✓	High-feed mills	B349

✓ Very suitable    ✓ Suitable

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**General machining**

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5501R302GM		2	3.0-20.0	✓	✓	✓				End mills	B272
5601R302GM		2	3.0-20.0	✓	✓	✓				End mills	B273
5502R302GM		2	1.0-20.0	✓	✓	✓				End mills	B274
5602R302GM		2	2.0-20.0	✓	✓	✓				End mills	B275
GM-2E		2	1.0-20.0	✓	✓	✓				End mills	B276
GM-2EL		2	3.0-20.0	✓	✓	✓				End mills	B277
GM-2EX		2	3.0-20.0	✓	✓	✓				End mills	B278
GM-2EFP		2	6.0-16.0	✓	✓	✓				End mills	B279
GM-2F		2	1.0-20.0	✓	✓	✓				End mills	B280
GM-2FL		2	3.0-20.0	✓	✓	✓				End mills	B281
GM-2EP		2	0.5-5.0	✓	✓	✓				Mini end mills	B282
GM-2ES		2	0.3-3.0	✓	✓	✓				Mini end mills	B284
GM-3E		3	1.0-20.0	✓	✓	✓				End mills	B285
GM-3EL		3	3.0-20.0	✓	✓	✓				End mills	B286
5501R303GM		3	3.0-20.0	✓	✓	✓				End mills	B287
5601R303GM		3	3.0-20.0	✓	✓	✓				End mills	B288
5502R303GM		3	3.0-20.0	✓	✓	✓				End mills	B289
5602R303GM		3	3.0-20.0	✓	✓	✓				End mills	B290
5502R453GM		3	3.0-20.0	✓	✓	✓				End mills	B291
5602R453GM		3	3.0-20.0	✓	✓	✓				End mills	B292
GM-4E-G		4	1.0-20.0	✓	✓	✓				End mills	B298

✓ Very suitable    ✓ Suitable

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## General machining

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
GM-4F-G		4	1.0-20.0	✓	✓	✓				End mills	B293
GM-4EL-G		4	3.0-20.0	✓	✓	✓				End mills	B294
GM-4FL-G		4	3.0-16.0	✓	✓	✓				End mills	B295
GM-4EX-G		4	3.0-20.0	✓	✓	✓				End mills	B296
GM-4E		4	1.0-20.0	✓	✓	✓				End mills	B297
GM-4EL		4	3.0-20.0	✓	✓	✓				End mills	B299
GM-4EFP		4	6.0-20.0	✓	✓	✓				End mills	B300
5501R304GF		4	3.0-20.0	✓	✓	✓				End mills	B301
5601R304GF		4	3.0-20.0	✓	✓	✓				End mills	B302
5502R304GF		4	3.0-20.0	✓	✓	✓				End mills	B303
5602R304GF		4	3.0-20.0	✓	✓	✓				End mills	B304
5508R454GM		4	3.0-20.0	✓	✓	✓				End mills	B305
5602R454GM		4	3.0-20.0	✓	✓	✓				End mills	B306
5589R45MGF		6-10	6.0-20.0	✓	✓	✓				End mills	B307
GM-6E		6	6.0-20.0	✓	✓	✓				End mills	B308
GM-6EL		6	6.0-20.0	✓	✓	✓				End mills	B309
5565R302GF		2	3.0-20.0	✓	✓	✓				Ball nose cutters	B310
5665R202GM		2	3.0-20.0	✓	✓	✓				Ball nose cutters	B311
5566R302GF		2	3.0-12.0	✓	✓	✓				Ball nose cutters	B312
GM-2B		2	1.0-20.0	✓	✓	✓				Ball nose cutters	B313
GM-2BL		2	2.0-20.0	✓	✓	✓				Ball nose cutters	B314

✓ Very suitable    ✓ Suitable

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### General machining

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
GM-2BFP		2	1.0-20.0	✓	✓	✓				Ball nose cutters	B315
GM-2BS		2	0.3-3.0	✓	✓	✓				Mini ball nose cutters	B316
GM-2BP		2	0.5-5.0	✓	✓	✓				Mini ball nose cutters	B317
GM-4B		4	3.0-20.0	✓	✓	✓				Ball nose cutters	B319
GM-4BL		4	3.0-20.0	✓	✓	✓				Ball nose cutters	B320
GM-2R		2	1.0-12.0	✓	✓	✓				Torus mills	B321
GM-4R		4	3.0-12.0	✓	✓	✓				Torus mills	B322
GM-4RL		4	6.0-16.0	✓	✓	✓				Torus mills	B323
5602R303GR		3	6.0-8.0	✓	✓	✓				Rippers	B324
5602R304GR		4	10.0-20.0	✓	✓	✓				Rippers	B325
5602R305GR		5	25.0	✓	✓	✓				Rippers	B326
GM-4W		4	6.0-20.0	✓	✓	✓				Rippers	B327

✓ Very suitable    ✓ Suitable

### Machining high hardness steel

HM-2E		2	1.0-20.0						✓	End mills	B354
HM-2EFP		2	6.0-20.0						✓	End mills	B355
HM-2EP		2	0.5-5.0						✓	Mini end mills	B356
HM-2ES		2	0.3-3.0						✓	Mini end mills	B358
HM-4E		4	1.0-20.0						✓	End mills	B359
HM-4EL		4	3.0-20.0						✓	End mills	B360
HM-4EFP		4	6.0-20.0						✓	End mills	B361
5502R55MHH		4-8	3.0-20.0						✓	End mills	B362

✓ Very suitable    ✓ Suitable

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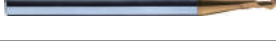
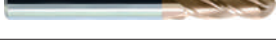
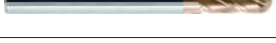



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## Machining high hardness steel

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
HM-6E		6	6.0-20.0						✓	End mills	B363
HM-6EL		6	6.0-20.0						✓	End mills	B364
HM-2B		2	1.0-20.0						✓	Ball nose cutters	B365
HM-2BL		2	2.0-20.0						✓	Ball nose cutters	B366
HM-2BFP		2	1.0-20.0						✓	Ball nose cutters	B367
HM-2BS		2	0.3-3.0						✓	Mini ball nose cutters	B368
HM-2BP		2	0.5-5.0						✓	Mini ball nose cutters	B369
HM-4B		4	3.0-20.0						✓	Ball nose cutters	B371
HM-4BL		4	3.0-20.0						✓	Ball nose cutters	B372
HM-4R		4	3.0-12.0						✓	Torus mills	B373
HM-4RF		4	6.0-12.0						✓	Torus mills	B374
HM-4RP		4	6.0-16.0						✓	Torus mills	B375















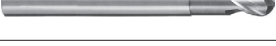






✓ Very suitable    ✓ Suitable

## Copper and copper alloys

5502R402NM		2	3.0-20.0				✓			End mills	B378
NM-2E		2	1.0-12.0				✓			End mills	B379
NM-2EP		2	0.5-5.0				✓			Mini end mills	B380
NM-4E		4	3.0-12.0				✓			End mills	B381
NM-2B		2	1.0-12.0				✓			Ball nose cutters	B382
NM-2BP		2	0.5-5.0				✓			Mini ball nose cutters	B383

✓ Very suitable    ✓ Suitable

## Aluminium and aluminium alloys

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
AL-2E		2	1.0-20.0				✓			End mills	B386
AL-2EL		2	3.0-20.0				✓			End mills	B387
ALG-2E		2	1.0-20.0				✓			End mills	B388
ALG-2R		2	6.0-25.0				✓			Torus mills	B403
ALG-2R-W		2	6.0-25.0				✓			Torus mills	B404
AL-3E		3	1.0-20.0				✓			End mills	B389
AL-3EL		3	3.0-20.0				✓			End mills	B390
ALG-3E		3	1.0-20.0				✓			End mills	B391
ALG-3E-W		3	3.0-20.0				✓			End mills	B392
ALP-3E		3	1.0-20.0				✓			End mills	B393
ALP-3E-W		3	3.0-20.0				✓			End mills	B394
ALP-4E		4	3.0-20.0				✓			End mills	B395
ALP-4E-W		4	3.0-20.0				✓			End mills	B396
AL-3W		3	6.0-20.0				✓			Rippers	B397
5565R302NH		2	3.0-16.0				✓			Ball nose cutters	B398
5566R302NH		2	3.0-16.0				✓			Ball nose cutters	B399
AL-2B		2	2.0-12.0				✓			Ball nose cutters	B400
AL-2R-AIR		2	6.0-20.0				✓			High performance torus mills	B401
AL-2RL-AIR		2	6.0-20.0				✓			High performance torus mills	B402
AL-3R-AIR		3	12.0-20.0				✓			High performance torus mills	B405
AL-3RL-AIR		3	12.0-20.0				✓			High performance torus mills	B406

✓ Very suitable    ✓ Suitable

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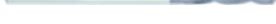

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## HPC with unequal helix angle




Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5501R38414GM		4	4.0-20.0	✓	✓	✓			✓	End mills	B408
5502R38414GM		4	4.0-20.0	✓	✓	✓			✓	End mills	B409
5601R38414GM		4	4.0-20.0	✓	✓	✓			✓	End mills	B410
5602R38414GM		4	3.0-20.0	✓	✓	✓			✓	End mills	B411
5502R38414GM-R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B412
5602R38414GM-R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B413
UM-4E		4	4.0-20.0	✓	✓	✓			✓	End mills	B416
UM-4E-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B417
UM-4EL		4	4.0-20.0	✓	✓	✓			✓	End mills	B418
UM-4EL-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B419
UM-4ELP-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B420
UM-4EFP		4	6.0-20.0	✓	✓	✓			✓	End mills	B421
UM-4R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B422
UM-4RL		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B423
UM-4RFP		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B424
VSM-4E		4	4.0-20.0	✓	✓			✓		End mills	B426
VSM-4E-C		4	10.0-20.0	✓	✓			✓		End mills	B427
VSM-4R		4	4.0-20.0	✓	✓			✓		Torus mills	B428

✓ Very suitable    ✓ Suitable

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### Deburring cutter

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5501/5601		3-4	0.2-0.7	✓	✓	✓	✓			Deburring cutters	B432
5501/5601		3-4	0.2-0.7	✓	✓	✓	✓			Deburring cutters	B433
5601		4	5.2-10.0	✓	✓	✓	✓			Deburring cutters	B434

✓ Very suitable    ✓ Suitable

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**A**

Turning

## Coated cemented carbide PVD

Grade	Grade description
<b>KMD401</b>	PVD coated carbide substrate for high performance milling application of non-ferrous metals, CFRP and GFRP and organic materials. The DLC layer has very good wear protection and high thermal stability.

**B**

Milling

<b>KMG303</b>	PVD coated carbide substrate for universal milling application of steel (up to HRC<=48), stainless steel and cast iron.
---------------	-------------------------------------------------------------------------------------------------------------------------

<b>KMG405</b>	PVD coated carbide substrate for high performance milling application of steel (up to HRC <55), stainless steel, super alloy material and cast iron. High wear resistance and toughness for a wide application field.
---------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**C**

Drilling

<b>KMG555</b>	PVD coated carbide substrate for hard milling application of steel (HRC 55–68), highest wear resistance and toughness for best cutting result.
---------------	------------------------------------------------------------------------------------------------------------------------------------------------

<b>KMG309</b>	PVD coated carbide substrate for non ferrous materials. High wear resistance even in abrasive materials.
---------------	----------------------------------------------------------------------------------------------------------

**D**

Technical Information

## Uncoated cemented carbide

Grade	Grade description
<b>YK30F</b>	Uncoated K30 carbide substrate for steel, stainless steel, cast iron and non ferrous materials.

**E**

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<b>YK40F</b>	Uncoated K20–K30/N20–N30 carbide substrate for cast iron and non ferrous materials.
--------------	-------------------------------------------------------------------------------------



# Solid carbide milling System code – DIN-ISO series

**5 5 0 1 R 30 2 GM R05 0800**

**1 2 3 4 5 6 7 8 9 10**

**A**

Turning

Type	
Code	Description
5	Milling cutter

Shank type	
Code	Description
1	Shank
5	DIN 6535 HA
6	Weldon shank DIN 6535 HB
7	Whistle Notch DIN 6535 HE
9	Morse taper shank

**B**

Milling

**1**

**2**

Cutting edge type	
Code	Description
0	Square shoulder mill
6	Ball nose cutter
8	Torus mill

Tool length	
Code	Description
1	DIN 6527 K
2	DIN 6527 L
5	Factory standard ZCC-A
6	Factory standard ZCC-B
8	DIN 6528
9	Factory standard ZCC-D

**C**

Drilling

**3**

**4**

Rotation direction	
Code	Description
R	Right
L	Left

Helix angle	
Code	Description
20	20°
30	30°
3841	38°/41°
45	45°
55	55°
60	60°

Number of teeth	
Code	Description
2	2
...	
M	Indicated when different diameters have a different number of teeth

**D**

**5**

**6**

**7**

Technical Information

Application	
Code	Description
GM	Semi-finishing
GF	Finishing
HM	Hard machining
MHH	High-speed hard machining
NH	High-performance machining of heat-resistant alloys

Radius [mm]	
Code	Description
R03	0,3
R15	1,5
R30	3,0
...	

Diameter [mm]	
Code	Description
0100	1,0
0800	8,0
2000	20,0
...	

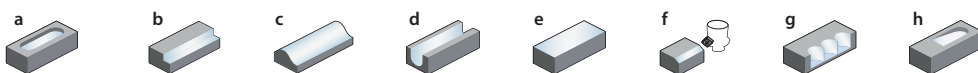
**8**

**9**

**10**

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a Groove milling  
g Plunge milling  
b Square shoulder milling  
h Circular milling/Ramping  
c Profile milling  
d Slot milling  
e Face milling  
f Chamfer milling

**GM – 2 E L P – D12 R0.5 – M08 – W**

**1      2      3      4      5      6      7      8      9**

Application	
Code	Description
GR	General roughing
GM	Semi-finishing
GF	Finishing
PM	High-performance machining
HM	Hard machining
HH	High-speed hard machining
NM	General machining of non-ferrous metals
AL	General machining of Al and Al alloys
ALP	High-performance machining of Al and Al alloys
ALG	General machining of Al and Al alloys
UM	HSC/HPC machining
VSM	General machining of heat-resistant alloys

**Number of teeth**

**1**
**2**

Cutting edge type		Cutting edge length	
Code	Description	Code	Description
E	Square shoulder mill with protective chamfer	L	Long
F	Square shoulder mill with sharp cutting edges	X	Extra long
B	Ball nose cutter	F	Short
R	Torus mill		
W	Ripper		
H	High-feed mill		

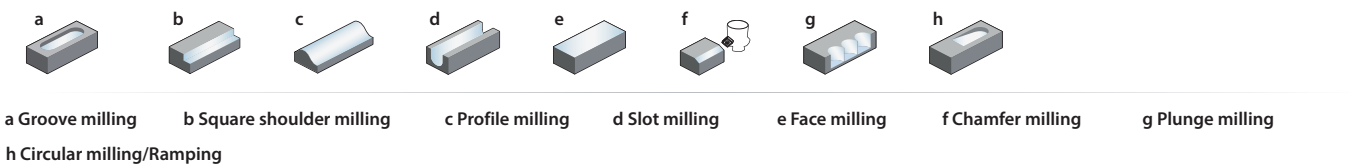
**3**
**4**

Type		Diameter [mm]	
Code	Description	Code	Description
S	Mini diameter	D3.0	3,0
P	Ground neck	D8.0	8,0
C	Conical neck	D20.0	20,0
		...	

**5**
**6**

Radius [mm]		Features		Weldon shank
Code	Description	Code	Description	
R0.5	0,5	G	Spiral angle 30°	
R1.0	1,5	M	Neck length [mm]	
R3.0	3,0	S	Thin shank	
...		AIR	For aerospace industry	

**7**
**8**
**9**



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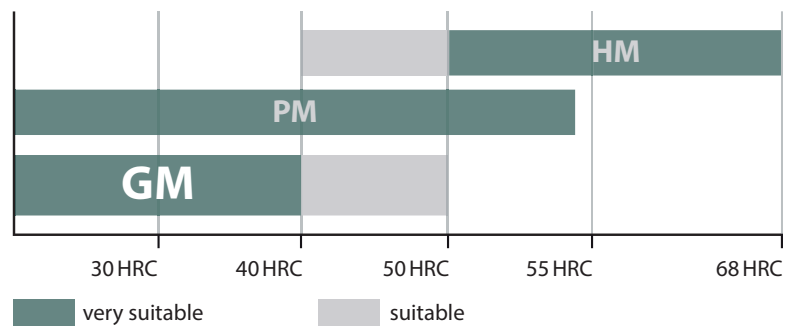
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# GM series

*For general applications*

- For machining of steel to max. 50 HRC and cast iron to heat-resistant alloys.
- Sharp cutting edge with high edge stability. Roughing to finishing with long tool life.
- End mills, ball nose cutters, torus mills, rippers and mini cutters.
- Diameter range 0.3–20.0 mm

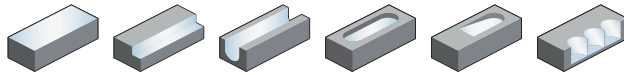
Application fields for machining of steel



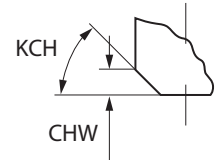
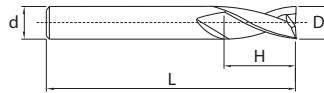
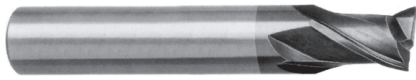
**A**

## End mill Semi-finishing

### 5501R302GM



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5501R302GM-0300		3	6	4	50	0	0	2	●	○
5501R302GM-0400		4	6	5	54	0	0	2	●	○
5501R302GM-0500		5	6	6	54	0	0	2	●	○
5501R302GM-0600		6	6	7	54	45	0.1	2	●	○
5501R302GM-0800		8	8	9	58	45	0.1	2	●	○
5501R302GM-1000		10	10	11	66	45	0.1	2	●	○
5501R302GM-1200		12	12	12	73	45	0.1	2	●	○
5501R302GM-1400		14	14	14	75	45	0.15	2	●	○
5501R302GM-1600		16	16	16	82	45	0.15	2	●	○
5501R302GM-1800		18	18	18	84	45	0.15	2	●	○
5501R302GM-2000		20	20	20	92	45	0.15	2	●	○

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

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System code > B268

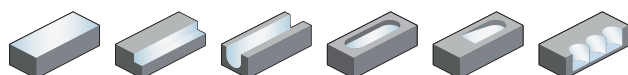
Cutting data > B436

Nonstandard order > B477

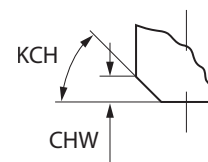
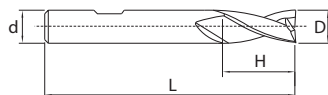


**End mill** **Semi-finishing**

**5601R302GM**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5601R302GM-0300		3	6	4	50	0	0	2	●	○
5601R302GM-0400		4	6	5	54	0	0	2	●	○
5601R302GM-0500		5	6	6	54	0	0	2	●	○
5601R302GM-0600		6	6	7	54	45	0.1	2	●	○
5601R302GM-0800		8	8	9	58	45	0.1	2	●	○
5601R302GM-1000		10	10	11	66	45	0.1	2	●	○
5601R302GM-1200		12	12	12	73	45	0.1	2	●	○
5601R302GM-1400		14	14	14	75	45	0.15	2	●	○
5601R302GM-1600		16	16	16	82	45	0.15	2	●	○
5601R302GM-1800		18	18	18	84	45	0.15	2	●	○
5601R302GM-2000		20	20	20	92	45	0.15	2	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

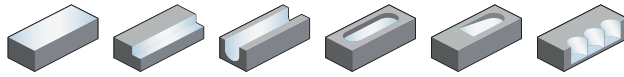
Nonstandard order > B477



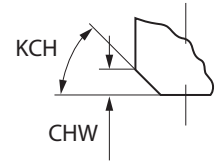
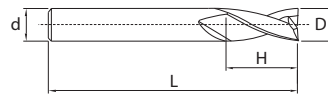
**A**

## End mill long cutting edge Semi-finishing

### 5502R302GM



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5502R302GM-0100		1	3	2	38	0	0	2	●	○
5502R302GM-0150		1.5	3	3	38	0	0	2	●	○
5502R302GM-0200		2	6	6	57	0	0	2	●	○
5502R302GM-0250		2.5	6	7	57	0	0	2	●	○
5502R302GM-0280		2.8	6	7	57	0	0	2	●	○
5502R302GM-0300		3	6	7	57	0	0	2	●	○
5502R302GM-0350		3.5	6	7	57	0	0	2	●	○
5502R302GM-0380		3.8	6	8	57	0	0	2	●	○
5502R302GM-0400		4	6	8	57	0	0	2	●	○
5502R302GM-0450		4.5	6	8	57	0	0	2	●	○
5502R302GM-0480		4.8	6	8	57	0	0	2	●	○
5502R302GM-0500		5	6	10	57	0	0	2	●	○
5502R302GM-0550		5.5	6	10	57	0	0	2	●	○
5502R302GM-0575		5.75	6	10	57	0	0	2	●	○
5502R302GM-0600		6	6	10	57	45	0.1	2	●	○
5502R302GM-0675		6.75	8	13	63	45	0.1	2	○	○
5502R302GM-0700		7	8	13	63	45	0.1	2	●	○
5502R302GM-0750		7.5	8	16	63	45	0.1	2	●	○
5502R302GM-0775		7.75	8	16	63	45	0.1	2	●	○
5502R302GM-0800		8	8	16	63	45	0.1	2	●	○
5502R302GM-0870		8.7	10	16	72	45	0.1	2	●	○
5502R302GM-0900		9	10	16	72	45	0.1	2	●	○
5502R302GM-0950		9.5	10	16	72	45	0.1	2	○	○
5502R302GM-1000		10	10	19	72	45	0.1	2	●	○
5502R302GM-1100		11	12	22	83	45	0.1	2	●	○
5502R302GM-1170		11.7	12	22	83	45	0.1	2	●	○
5502R302GM-1200		12	12	22	83	45	0.1	2	●	○
5502R302GM-1370		13.7	14	22	83	45	0.1	2	●	○
5502R302GM-1400		14	14	22	83	45	0.15	2	●	○
5502R302GM-1500		15	16	26	92	45	0.15	2	●	○
5502R302GM-1570		15.7	16	26	92	45	0.15	2	●	○
5502R302GM-1600		16	16	26	92	45	0.15	2	●	○
5502R302GM-1700		17	18	26	92	45	0.15	2	○	○
5502R302GM-1800		18	18	26	92	45	0.15	2	●	○
5502R302GM-2000		20	20	32	104	45	0.15	2	●	○

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Drilling

**D**

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**E**

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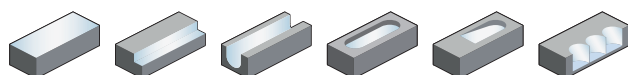
Application field					
P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

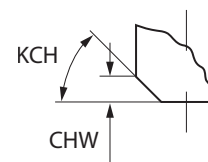
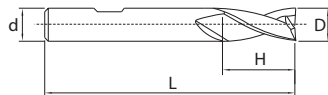
System code > B268    Cutting data > B436    Nonstandard order > B477

End mill long cutting edge **Semi-finishing**

**5602R302GM**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5602R302GM-0200		2	6	6	57	0	0	2	●	○
5602R302GM-0250		2.5	6	7	57	0	0	2	●	○
5602R302GM-0280		2.8	6	7	57	0	0	2	●	○
5602R302GM-0300		3	6	7	57	0	0	2	●	○
5602R302GM-0350		3.5	6	7	57	0	0	2	●	○
5602R302GM-0380		3.8	6	8	57	0	0	2	●	○
5602R302GM-0400		4	6	8	57	0	0	2	●	○
5602R302GM-0450		4.5	6	8	57	0	0	2	●	○
5602R302GM-0480		4.8	6	8	57	0	0	2	●	○
5602R302GM-0500		5	6	10	57	0	0	2	●	○
5602R302GM-0550		5.5	6	10	57	0	0	2	●	○
5602R302GM-0575		5.75	6	10	57	0	0	2	●	○
5602R302GM-0600		6	6	10	57	45	0.1	2	●	○
5602R302GM-0675		6.75	8	13	63	45	0.1	2	○	○
5602R302GM-0700		7	8	13	63	45	0.1	2	●	○
5602R302GM-0750		7.5	8	16	63	45	0.1	2	●	○
5602R302GM-0775		7.75	8	16	63	45	0.1	2	●	○
5602R302GM-0800		8	8	16	63	45	0.1	2	●	○
5602R302GM-0870		8.7	10	16	72	45	0.1	2	●	○
5602R302GM-0900		9	10	16	72	45	0.1	2	●	○
5602R302GM-1000		10	10	19	72	45	0.1	2	●	○
5602R302GM-1170		11.7	12	22	83	45	0.1	2	●	○
5602R302GM-1200		12	12	22	83	45	0.1	2	●	○
5602R302GM-1370		13.7	14	22	83	45	0.1	2	●	○
5602R302GM-1400		14	14	22	83	45	0.15	2	●	○
5602R302GM-1570		15.7	16	26	92	45	0.15	2	●	○
5602R302GM-1600		16	16	26	92	45	0.15	2	●	○
5602R302GM-1800		18	18	26	92	45	0.15	2	●	○
5602R302GM-2000		20	20	32	104	45	0.15	2	●	○

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477

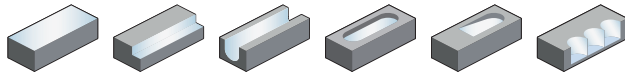


**A**

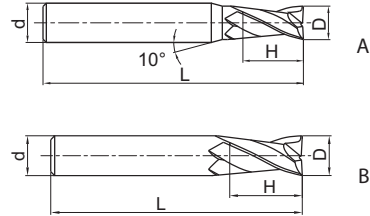
End mill

Semi-finishing

GM-2E



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2E-D1.0S		1	4	3	50	2	A	●
GM-2E-D1.5S		1.5	4	4	50	2	A	●
GM-2E-D2.0S		2	4	6	50	2	A	●
GM-2E-D2.5S		2.5	4	8	50	2	A	●
GM-2E-D3.0S		3	4	8	50	2	A	●
GM-2E-D4.0S		4	4	11	50	2	B	●
GM-2E-D1.0		1	6	3	50	2	A	●
GM-2E-D1.5		1.5	6	4	50	2	A	●
GM-2E-D2.0		2	6	6	50	2	A	●
GM-2E-D2.5		2.5	6	8	50	2	A	●
GM-2E-D3.0		3	6	8	50	2	A	●
GM-2E-D3.5		3.5	6	10	50	2	A	●
GM-2E-D4.0		4	6	11	50	2	A	●
GM-2E-D4.5		4.5	6	11	50	2	A	●
GM-2E-D5.0		5	6	13	50	2	A	●
GM-2E-D5.5		5.5	6	16	50	2	A	●
GM-2E-D6.0		6	6	16	50	2	B	●
GM-2E-D7.0		7	8	20	60	2	A	●
GM-2E-D8.0		8	8	20	60	2	B	●
GM-2E-D9.0		9	10	22	75	2	A	●
GM-2E-D10.0		10	10	25	75	2	B	●
GM-2E-D11.0		11	12	26	75	2	A	●
GM-2E-D12.0		12	12	30	75	2	B	●
GM-2E-D14.0		14	14	32	75	2	B	●
GM-2E-D16.0		16	16	45	100	2	B	●
GM-2E-D18.0		18	18	45	100	2	B	●
GM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

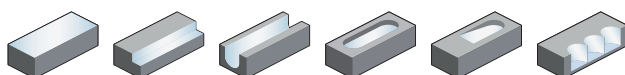
Cutting data > B436

Nonstandard order > B477

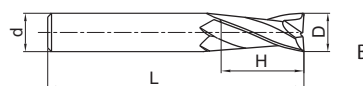
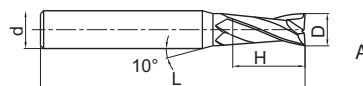
End mill long cutting edge

Semi-finishing

GM-2EL



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2EL-D3.0		3	6	12	75	2	A	●
GM-2EL-D4.0		4	6	15	75	2	A	●
GM-2EL-D5.0		5	6	20	75	2	A	●
GM-2EL-D6.0		6	6	20	75	2	B	●
GM-2EL-D8.0		8	8	25	100	2	B	●
GM-2EL-D10.0		10	10	30	100	2	B	●
GM-2EL-D12.0		12	12	35	100	2	B	●
GM-2EL-D14.0		14	14	40	100	2	B	●
GM-2EL-D16.0		16	16	50	150	2	B	●
GM-2EL-D20.0		20	20	55	150	2	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

A

Turning

B

Milling

C

Drilling

D

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System code > B268

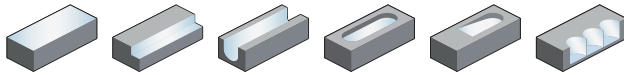
Cutting data > B436

Nonstandard order > B477

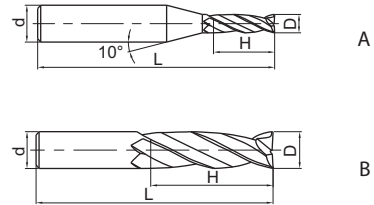
**A**

## End mill extra long cutting edge Semi-finishing

**GM-2EX**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2EX-D3.0		3	6	20	75	2	A	●
GM-2EX-D4.0		4	6	25	75	2	A	●
GM-2EX-D5.0		5	6	30	75	2	A	●
GM-2EX-D6.0		6	6	30	75	2	B	○
GM-2EX-D8.0		8	8	40	100	2	B	○
GM-2EX-D10.0		10	10	50	110	2	B	○
GM-2EX-D12.0		12	12	50	110	2	B	○
GM-2EX-D16.0		16	16	70	150	2	B	○
GM-2EX-D20.0		20	20	75	150	2	B	○

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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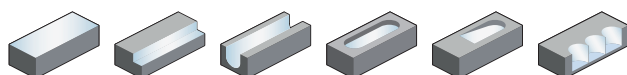
System code > B268

Cutting data > B436

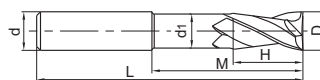
Nonstandard order > B477

End mill short cutting edge **Semi-finishing**

**GM-2EFP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG303
GM-2EFP-D6.0		6	6	5.8	9	30	30	2	○
GM-2EFP-D8.0		8	8	7.8	12	40	40	2	○
GM-2EFP-D10.0		10	10	9.6	15	50	50	2	○
GM-2EFP-D12.0		12	12	11.5	18	50	50	2	○
GM-2EFP-D16.0		16	16	15.5	24	50	50	2	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > B268

Cutting data > B436

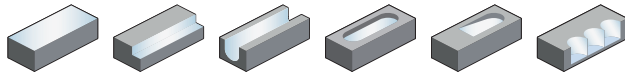
Nonstandard order > B477

**A**

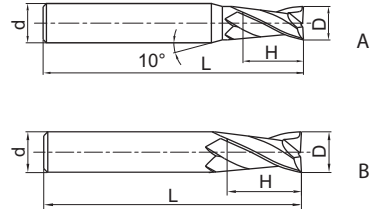
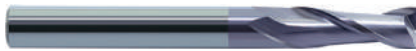
End mill

Semi-finishing

GM-2F



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2F-D1.0		1	6	3	50	2	A	○
GM-2F-D1.5		1.5	6	4	50	2	A	○
GM-2F-D2.0		2	6	6	50	2	A	○
GM-2F-D2.5		2.5	6	8	50	2	A	○
GM-2F-D3.0		3	6	8	50	2	A	●
GM-2F-D3.5		3.5	6	10	50	2	A	○
GM-2F-D4.0		4	6	11	50	2	A	●
GM-2F-D4.5		4.5	6	11	50	2	A	●
GM-2F-D5.0		5	6	13	50	2	A	●
GM-2F-D5.5		5.5	6	16	50	2	A	○
GM-2F-D6.0		6	6	16	50	2	B	●
GM-2F-D7.0		7	8	20	60	2	A	●
GM-2F-D8.0		8	8	20	60	2	B	●
GM-2F-D9.0		9	10	22	75	2	A	○
GM-2F-D10.0		10	10	25	75	2	B	○
GM-2F-D11.0		11	12	26	75	2	A	○
GM-2F-D12.0		12	12	30	75	2	B	●
GM-2F-D14.0		14	14	32	75	2	B	○
GM-2F-D16.0		16	16	45	100	2	B	○
GM-2F-D18.0		18	18	45	100	2	B	○
GM-2F-D20.0		20	20	45	100	2	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

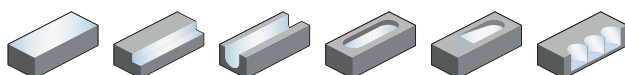
Nonstandard order > B477



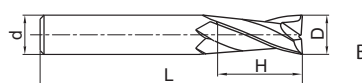
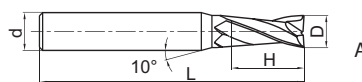
End mill long cutting edge

Semi-finishing

GM-2FL



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2FL-D3.0		3	6	12	75	2	A	○
GM-2FL-D4.0		4	6	15	75	2	A	○
GM-2FL-D5.0		5	6	20	75	2	A	○
GM-2FL-D6.0		6	6	20	75	2	B	○
GM-2FL-D8.0		8	8	25	100	2	B	○
GM-2FL-D10.0		10	10	30	100	2	B	○
GM-2FL-D12.0		12	12	35	100	2	B	○
GM-2FL-D14.0		14	14	40	100	2	B	○
GM-2FL-D16.0		16	16	50	150	2	B	○
GM-2FL-D20.0		20	20	55	150	2	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

System code > B268

Cutting data > B436

Nonstandard order > B477

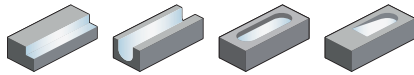


**A**

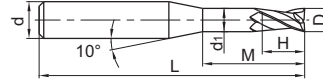
End mill

Semi-finishing

GM-2EP



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG303
GM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
GM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
GM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
GM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
GM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
GM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
GM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
GM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
GM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
GM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
GM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
GM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
GM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
GM-2EP-D1.2-M06		1.2	4	1.15	1.8	6	50	2	●
GM-2EP-D1.2-M08		1.2	4	1.15	1.8	8	50	2	●
GM-2EP-D1.2-M10		1.2	4	1.15	1.8	10	50	2	●
GM-2EP-D1.2-M12		1.2	4	1.15	1.8	12	50	2	○
GM-2EP-D1.5-M06		1.5	4	1.45	2.3	6	50	2	●
GM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
GM-2EP-D1.5-M10		1.5	4	1.45	2.3	10	50	2	●
GM-2EP-D1.5-M12		1.5	4	1.45	2.3	12	50	2	●
GM-2EP-D1.5-M14		1.5	4	1.45	2.3	14	50	2	●
GM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
GM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
GM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
GM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
GM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
GM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
GM-2EP-D2.5-M08		2.5	4	2.4	3.7	8	50	2	●
GM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
GM-2EP-D2.5-M12		2.5	4	2.4	3.7	12	50	2	●
GM-2EP-D2.5-M14		2.5	4	2.4	3.7	14	50	2	●
GM-2EP-D2.5-M16		2.5	4	2.4	3.7	16	60	2	●
GM-2EP-D2.5-M18		2.5	4	2.4	3.7	18	60	2	●
GM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
GM-2EP-D3.0-M06		3	6	2.85	4.5	6	50	2	●
GM-2EP-D3.0-M08		3	6	2.85	4.5	8	50	2	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

Index

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

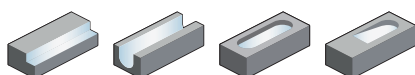
System code > B268

Cutting data > B436

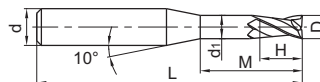
Nonstandard order > B477

End mill **Semi-finishing**

**GM-2EP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG303
GM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
GM-2EP-D3.0-M12		3	6	2.85	4.5	12	50	2	●
GM-2EP-D3.0-M14		3	6	2.85	4.5	14	60	2	●
GM-2EP-D3.0-M16		3	6	2.85	4.5	16	60	2	●
GM-2EP-D3.0-M18		3	6	2.85	4.5	18	60	2	●
GM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
GM-2EP-D4.0-M12		4	6	3.85	6	12	50	2	●
GM-2EP-D4.0-M14		4	6	3.85	6	14	60	2	●
GM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
GM-2EP-D4.0-M20		4	6	3.85	6	20	60	2	●
GM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
GM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●
GM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477

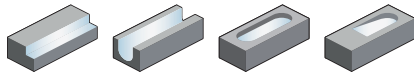


**A**

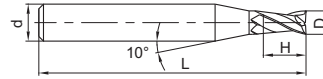
End mill

Semi-finishing

GM-2ES



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG303
GM-2ES-D0.3		0.3	4	0.6	50	2	●
GM-2ES-D0.4		0.4	4	0.8	50	2	●
GM-2ES-D0.5		0.5	4	1	50	2	●
GM-2ES-D0.6		0.6	4	1.2	50	2	●
GM-2ES-D0.7		0.7	4	1.4	50	2	●
GM-2ES-D0.8		0.8	4	1.6	50	2	●
GM-2ES-D0.9		0.9	4	1.8	50	2	●
GM-2ES-D1.0		1	4	2	50	2	●
GM-2ES-D1.1		1.1	4	2	50	2	●
GM-2ES-D1.2		1.2	4	2.5	50	2	●
GM-2ES-D1.3		1.3	4	2.5	50	2	●
GM-2ES-D1.4		1.4	4	3	50	2	●
GM-2ES-D1.5		1.5	4	3	50	2	●
GM-2ES-D1.6		1.6	4	3.5	50	2	●
GM-2ES-D1.7		1.7	4	3.5	50	2	●
GM-2ES-D1.8		1.8	4	4	50	2	●
GM-2ES-D1.9		1.9	4	4	50	2	●
GM-2ES-D2.0		2	4	4	50	2	●
GM-2ES-D2.1		2.1	4	4	50	2	●
GM-2ES-D2.2		2.2	4	4.5	50	2	●
GM-2ES-D2.3		2.3	4	4.5	50	2	●
GM-2ES-D2.4		2.4	4	5	50	2	●
GM-2ES-D2.5		2.5	4	5	50	2	●
GM-2ES-D2.6		2.6	4	5	50	2	●
GM-2ES-D2.7		2.7	4	5.5	50	2	●
GM-2ES-D2.8		2.8	4	5.5	50	2	●
GM-2ES-D2.9		2.9	4	6	50	2	●
GM-2ES-D3.0		3	4	6	50	2	●

Milling

**C**

Drilling

**D**

Technical Information

● Ex stock ○ On demand

\* With internal cooling

**E**

Index

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

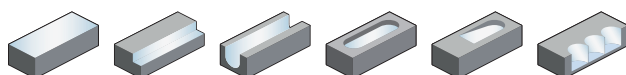
System code > B268

Cutting data > B436

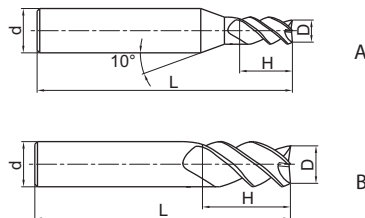
Nonstandard order > B477

End mill **Semi-finishing**

**GM-3E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-3E-D1.0S		1	4	3	50	3	A	○
GM-3E-D1.5S		1.5	4	4	50	3	A	○
GM-3E-D2.0S		2	4	6	50	3	A	○
GM-3E-D2.5S		2.5	4	8	50	3	A	○
GM-3E-D3.0S		3	4	8	50	3	A	○
GM-3E-D4.0S		4	4	11	50	3	B	○
GM-3E-D1.0		1	6	3	50	3	A	○
GM-3E-D1.5		1.5	6	4	50	3	A	○
GM-3E-D2.0		2	6	6	50	3	A	○
GM-3E-D2.5		2.5	6	8	50	3	A	○
GM-3E-D3.0		3	6	8	50	3	A	○
GM-3E-D3.5		3.5	6	10	50	3	A	○
GM-3E-D4.0		4	6	11	50	3	A	○
GM-3E-D4.5		4.5	6	11	50	3	A	○
GM-3E-D5.0		5	6	13	50	3	A	○
GM-3E-D5.5		5.5	6	16	50	3	A	○
GM-3E-D6.0		6	6	16	50	3	B	○
GM-3E-D7.0		7	8	20	60	3	A	○
GM-3E-D8.0		8	8	20	60	3	B	○
GM-3E-D9.0		9	10	22	75	3	A	○
GM-3E-D10.0		10	10	25	75	3	B	○
GM-3E-D11.0		11	12	26	75	3	A	○
GM-3E-D12.0		12	12	30	75	3	B	○
GM-3E-D14.0		14	14	32	75	3	B	○
GM-3E-D16.0		16	16	45	100	3	B	○
GM-3E-D18.0		18	18	45	100	3	B	○
GM-3E-D20.0		20	20	45	100	3	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

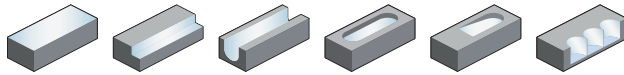
Nonstandard order > B477



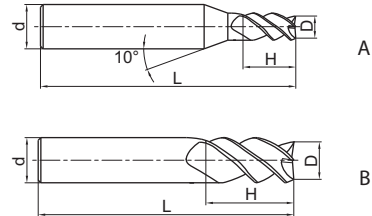
**A**

## End mill long cutting edge Semi-finishing

**GM-3EL**



- Factory standard
- Centre cutting
- Helix angle 45°



Turning

**B**

Milling

**C**

Drilling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-3EL-D3.0		3	6	12	75	3	A	●
GM-3EL-D4.0		4	6	15	75	3	A	●
GM-3EL-D5.0		5	6	20	75	3	A	●
GM-3EL-D6.0		6	6	20	75	3	B	●
GM-3EL-D8.0		8	8	25	100	3	B	●
GM-3EL-D10.0		10	10	30	100	3	B	●
GM-3EL-D12.0		12	12	35	100	3	B	●
GM-3EL-D14.0		14	14	40	100	3	B	●
GM-3EL-D16.0		16	16	50	150	3	B	●
GM-3EL-D20.0		20	20	55	150	3	B	●

● Ex stock ○ On demand

\* With internal cooling

**D**

Technical Information

**E**

Index

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

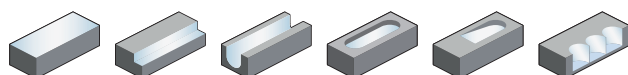
System code > B268

Cutting data > B436

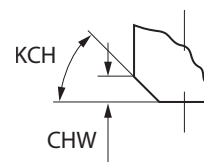
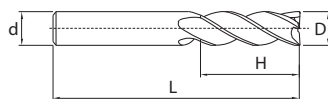
Nonstandard order > B477

**End mill** **Semi-finishing**

**5501R303GM**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5501R303GM-0300		3	6	4	50	0	0	3	●	○
5501R303GM-0400		4	6	5	54	0	0	3	●	○
5501R303GM-0500		5	6	6	54	0	0	3	●	○
5501R303GM-0600		6	6	7	54	45	0.1	3	●	○
5501R303GM-0800		8	8	9	58	45	0.1	3	●	○
5501R303GM-1000		10	10	11	66	45	0.1	3	●	○
5501R303GM-1200		12	12	12	73	45	0.1	3	●	○
5501R303GM-1400		14	14	14	75	45	0.15	3	●	○
5501R303GM-1600		16	16	16	82	45	0.15	3	●	○
5501R303GM-1800		18	18	18	84	45	0.15	3	●	○
5501R303GM-2000		20	20	20	92	45	0.15	3	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



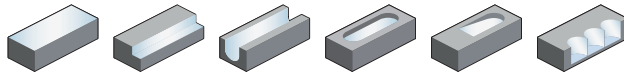
**A**

End mill

Semi-finishing

Turning

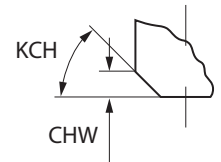
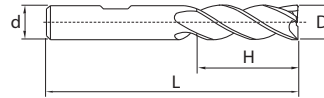
5601R303GM



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°

**B**

Milling



**C**

Drilling

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5601R303GM-0300		3	6	4	50	0	0	3	●	○
5601R303GM-0400		4	6	5	54	0	0	3	●	○
5601R303GM-0500		5	6	6	54	0	0	3	●	○
5601R303GM-0600		6	6	7	54	45	0.1	3	●	○
5601R303GM-0800		8	8	9	58	45	0.1	3	●	○
5601R303GM-1000		10	10	11	66	45	0.1	3	●	○
5601R303GM-1200		12	12	12	73	45	0.1	3	●	○
5601R303GM-1400		14	14	14	75	45	0.15	3	●	○
5601R303GM-1600		16	16	16	82	45	0.15	3	●	○
5601R303GM-1800		18	18	18	84	45	0.15	3	●	○
5601R303GM-2000		20	20	20	92	45	0.15	3	●	○

● Ex stock ○ On demand

\* With internal cooling

**D**

Technical Information

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

**E**

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System code > B268

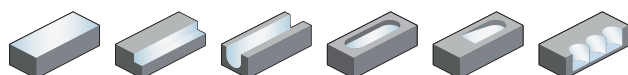
Cutting data > B436

Nonstandard order > B477

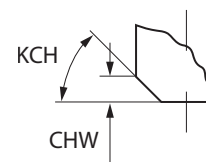
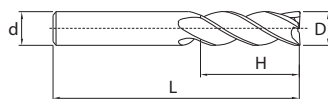
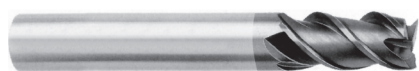


End mill long cutting edge **Semi-finishing**

**5502R303GM**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5502R303GM-0300		3	6	7	57	0	0	3	●	○
5502R303GM-0400		4	6	8	57	0	0	3	●	○
5502R303GM-0500		5	6	10	57	0	0	3	●	○
5502R303GM-0600		6	6	10	57	45	0.1	3	●	○
5502R303GM-0800		8	8	16	63	45	0.1	3	●	○
5502R303GM-1000		10	10	19	72	45	0.1	3	●	○
5502R303GM-1200		12	12	22	83	45	0.1	3	●	○
5502R303GM-1400		14	14	22	83	45	0.15	3	●	○
5502R303GM-1600		16	16	26	92	45	0.15	3	●	○
5502R303GM-1800		18	18	26	92	45	0.15	3	●	○
5502R303GM-2000		20	20	32	104	45	0.15	3	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

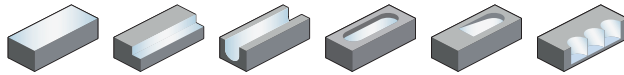
Nonstandard order > B477



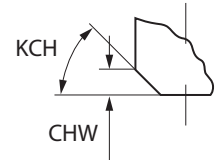
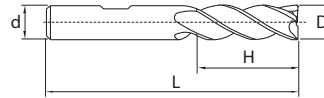
**A**

## End mill long cutting edge Semi-finishing

### 5602R303GM



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5602R303GM-0300		3	6	7	57	0	0	3	●	○
5602R303GM-0400		4	6	8	57	0	0	3	●	○
5602R303GM-0500		5	6	10	57	0	0	3	●	○
5602R303GM-0600		6	6	10	57	45	0.1	3	●	○
5602R303GM-0800		8	8	16	63	45	0.1	3	●	○
5602R303GM-1000		10	10	19	72	45	0.1	3	●	○
5602R303GM-1200		12	12	22	83	45	0.1	3	●	○
5602R303GM-1400		14	14	22	83	45	0.15	3	●	○
5602R303GM-1600		16	16	26	92	45	0.15	3	●	○
5602R303GM-1800		18	18	26	92	45	0.15	3	●	○
5602R303GM-2000		20	20	32	104	45	0.15	3	●	○

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

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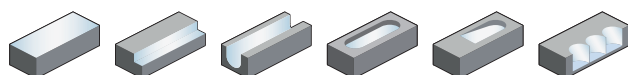
System code > B268

Cutting data > B436

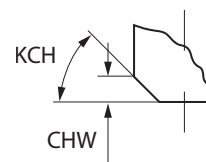
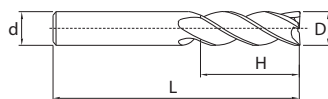
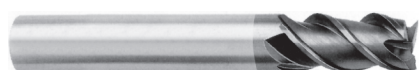
Nonstandard order > B477

End mill long cutting edge **Semi-finishing**

**5502R453GM**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG405
5502R453GM-0300		3	6	7	57	0	0	3	●
5502R453GM-0400		4	6	8	57	0	0	3	●
5502R453GM-0500		5	6	10	57	0	0	3	●
5502R453GM-0600		6	6	10	57	45	0.1	3	●
5502R453GM-0800		8	8	16	63	45	0.1	3	●
5502R453GM-1000		10	10	19	72	45	0.1	3	●
5502R453GM-1200		12	12	22	83	45	0.1	3	●
5502R453GM-1400		14	14	22	83	45	0.15	3	●
5502R453GM-1600		16	16	26	92	45	0.15	3	●
5502R453GM-1800		18	18	26	92	45	0.15	3	●
5502R453GM-2000		20	20	32	104	45	0.15	3	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

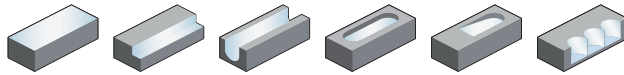
Nonstandard order > B477



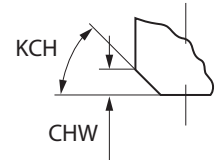
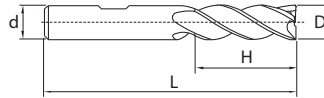
**A**

## End mill long cutting edge Semi-finishing

### 5602R453GM



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 45°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	KMG405
5602R453GM-0300		3	6	7	57	0	0	3	●	●
5602R453GM-0400		4	6	8	57	0	0	3	●	●
5602R453GM-0500		5	6	10	57	0	0	3	●	●
5602R453GM-0600		6	6	10	57	45	0.1	3	●	●
5602R453GM-0800		8	8	16	63	45	0.1	3	●	●
5602R453GM-1000		10	10	19	72	45	0.1	3	●	●
5602R453GM-1200		12	12	22	83	45	0.1	3	●	●
5602R453GM-1400		14	14	22	83	45	0.15	3	●	●
5602R453GM-1600		16	16	26	92	45	0.15	3	●	●
5602R453GM-1800		18	18	26	92	45	0.15	3	●	●
5602R453GM-2000		20	20	32	104	45	0.15	3	●	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

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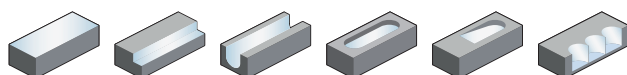
System code > B268

Cutting data > B436

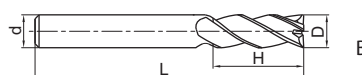
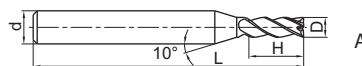
Nonstandard order > B477

**End mill** **Semi-finishing**

**GM-4F-G**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4F-D2.0S-G		2	4	6	50	4	A	○
GM-4F-D4.0S-G		4	4	11	50	4	B	○
GM-4F-D1.0-G		1	6	3	50	4	A	○
GM-4F-D1.5-G		1.5	6	4	50	4	A	○
GM-4F-D2.0-G		2	6	6	50	4	A	○
GM-4F-D2.5-G		2.5	6	8	50	4	A	○
GM-4F-D3.0-G		3	6	8	50	4	A	○
GM-4F-D3.5-G		3.5	6	10	50	4	A	○
GM-4F-D4.0-G		4	6	11	50	4	A	○
GM-4F-D4.5-G		4.5	6	11	50	4	A	○
GM-4F-D5.0-G		5	6	13	50	4	A	○
GM-4F-D5.5-G		5.5	6	16	50	4	A	○
GM-4F-D6.0-G		6	6	16	50	4	B	○
GM-4F-D7.0-G		7	8	20	60	4	A	○
GM-4F-D8.0-G		8	8	20	60	4	B	○
GM-4F-D9.0-G		9	10	22	75	4	A	○
GM-4F-D10.0-G		10	10	25	75	4	B	○
GM-4F-D11.0-G		11	12	26	75	4	A	○
GM-4F-D12.0-G		12	12	30	75	4	B	○
GM-4F-D14.0-G		14	14	32	75	4	B	○
GM-4F-D16.0-G		16	16	45	100	4	B	○
GM-4F-D18.0-G		18	18	45	100	4	B	○
GM-4F-D20.0-G		20	20	45	100	4	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

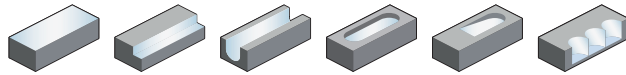
Nonstandard order > B477



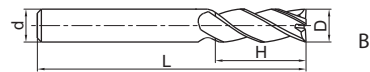
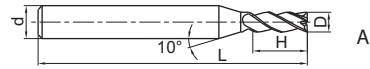
**A**

## End mill long cutting edge Semi-finishing

**GM-4EL-G**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EL-D3.0-G		3	6	12	75	4	A	○
GM-4EL-D4.0-G		4	6	15	75	4	A	○
GM-4EL-D5.0-G		5	6	20	75	4	A	○
GM-4EL-D6.0-G		6	6	20	75	4	B	○
GM-4EL-D8.0-G		8	8	25	100	4	B	○
GM-4EL-D10.0-G		10	10	30	100	4	B	○
GM-4EL-D12.0-G		12	12	35	100	4	B	○
GM-4EL-D14.0-G		14	14	40	100	4	B	○
GM-4EL-D16.0-G		16	16	50	150	4	B	○
GM-4EL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

**D**

Technical Information

**E**

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System code > B268

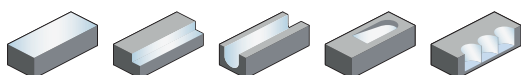
Cutting data > B436

Nonstandard order > B477

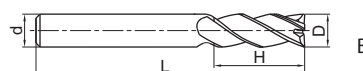
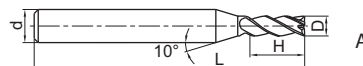
End mill long cutting edge

Semi-finishing

GM-4FL-G



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4FL-D3.0-G		3	6	12	75	4	A	○
GM-4FL-D4.0-G		4	6	15	75	4	A	○
GM-4FL-D5.0-G		5	6	20	75	4	A	●
GM-4FL-D6.0-G		6	6	20	75	4	B	●
GM-4FL-D8.0-G		8	8	25	100	4	B	●
GM-4FL-D10.0-G		10	10	30	100	4	B	●
GM-4FL-D12.0-G		12	12	35	100	4	B	●
GM-4FL-D14.0-G		14	14	40	100	4	B	○
GM-4FL-D16.0-G		16	16	50	150	4	B	○
GM-4FL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

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System code > B268

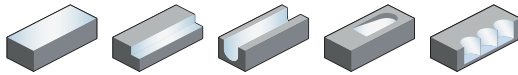
Cutting data > B436

Nonstandard order > B477

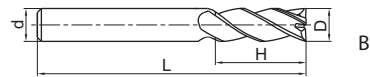
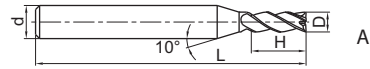
**A**

## End mill extra long cutting edge Semi-finishing

### GM-4EX-G



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EX-D3.0-G		3	6	20	75	4	A	●
GM-4EX-D4.0-G		4	6	25	75	4	A	●
GM-4EX-D5.0-G		5	6	30	75	4	A	●
GM-4EX-D6.0-G		6	6	30	75	4	B	●
GM-4EX-D8.0-G		8	8	40	100	4	B	●
GM-4EX-D10.0-G		10	10	50	110	4	B	●
GM-4EX-D12.0-G		12	12	50	110	4	B	●
GM-4EX-D16.0-G		16	16	70	150	4	B	●
GM-4EX-D20.0-G		20	20	75	150	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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System code > B268

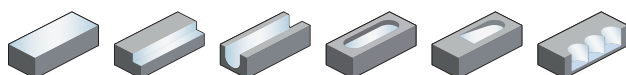
Cutting data > B436

Nonstandard order > B477

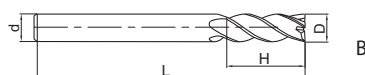
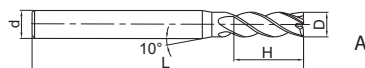


End mill **Semi-finishing**

**GM-4E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4E-D1.0S		1	4	3	50	4	A	●
GM-4E-D1.5S		1.5	4	4	50	4	A	●
GM-4E-D2.0S		2	4	6	50	4	A	●
GM-4E-D2.5S		2.5	4	8	50	4	A	●
GM-4E-D3.0S		3	4	8	50	4	A	●
GM-4E-D4.0S		4	4	11	50	4	B	●
GM-4E-D1.0		1	6	3	50	4	A	●
GM-4E-D1.5		1.5	6	4	50	4	A	●
GM-4E-D2.0		2	6	6	50	4	A	●
GM-4E-D2.5		2.5	6	8	50	4	A	●
GM-4E-D3.0		3	6	8	50	4	A	●
GM-4E-D3.5		3.5	6	10	50	4	A	●
GM-4E-D4.0		4	6	11	50	4	A	●
GM-4E-D4.5		4.5	6	11	50	4	A	●
GM-4E-D5.0		5	6	13	50	4	A	●
GM-4E-D5.5		5.5	6	16	50	4	A	●
GM-4E-D6.0		6	6	16	50	4	B	●
GM-4E-D7.0		7	8	20	60	4	A	●
GM-4E-D8.0		8	8	20	60	4	B	●
GM-4E-D9.0		9	10	22	75	4	A	●
GM-4E-D10.0		10	10	25	75	4	B	●
GM-4E-D11.0		11	12	26	75	4	A	●
GM-4E-D12.0		12	12	30	75	4	B	●
GM-4E-D14.0		14	14	32	75	4	B	●
GM-4E-D16.0		16	16	45	100	4	B	●
GM-4E-D18.0		18	18	45	100	4	B	●
GM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477

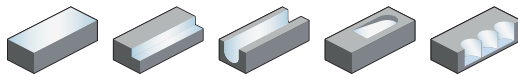


**A**

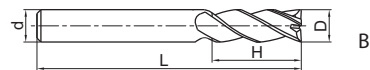
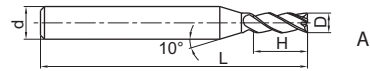
End mill

Semi-finishing

GM-4E-G



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4E-D1.0S-G		1	4	3	50	4	A	●
GM-4E-D1.5S-G		1.5	4	4	50	4	A	●
GM-4E-D2.0S-G		2	4	6	50	4	A	●
GM-4E-D2.5S-G		2.5	4	8	50	4	A	●
GM-4E-D3.0S-G		3	4	8	50	4	A	●
GM-4E-D4.0S-G		4	4	11	50	4	B	●
GM-4E-D1.0-G		1	6	3	50	4	A	●
GM-4E-D1.5-G		1.5	6	4	50	4	A	●
GM-4E-D2.0-G		2	6	6	50	4	A	●
GM-4E-D2.5-G		2.5	6	8	50	4	A	●
GM-4E-D3.0-G		3	6	8	50	4	A	●
GM-4E-D3.5-G		3.5	6	10	50	4	A	●
GM-4E-D4.0-G		4	6	11	50	4	A	●
GM-4E-D4.5-G		4.5	6	11	50	4	A	○
GM-4E-D5.0-G		5	6	13	50	4	A	●
GM-4E-D5.5-G		5.5	6	16	50	4	A	●
GM-4E-D6.0-G		6	6	16	50	4	B	●
GM-4E-D7.0-G		7	8	20	60	4	A	●
GM-4E-D8.0-G		8	8	20	60	4	B	●
GM-4E-D9.0-G		9	10	22	75	4	A	●
GM-4E-D10.0-G		10	10	25	75	4	B	●
GM-4E-D11.0-G		11	12	26	75	4	A	●
GM-4E-D12.0-G		12	12	30	75	4	B	●
GM-4E-D14.0-G		14	14	32	75	4	B	●
GM-4E-D16.0-G		16	16	45	100	4	B	●
GM-4E-D18.0-G		18	18	45	100	4	B	●
GM-4E-D20.0-G		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

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Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

System code > B268

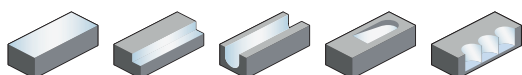
Cutting data > B436

Nonstandard order > B477

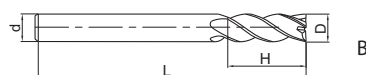
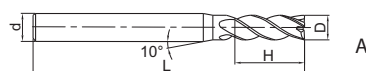
End mill long cutting edge

Semi-finishing

GM-4EL



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EL-D3.0		3	6	12	75	4	A	●
GM-4EL-D4.0		4	6	15	75	4	A	●
GM-4EL-D5.0		5	6	20	75	4	A	●
GM-4EL-D6.0		6	6	20	75	4	B	●
GM-4EL-D8.0		8	8	25	100	4	B	●
GM-4EL-D10.0		10	10	30	100	4	B	●
GM-4EL-D12.0		12	12	35	100	4	B	●
GM-4EL-D14.0		14	14	40	100	4	B	●
GM-4EL-D16.0		16	16	50	150	4	B	●
GM-4EL-D20.0		20	20	55	150	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

A

Turning

B

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System code > B268

Cutting data > B436

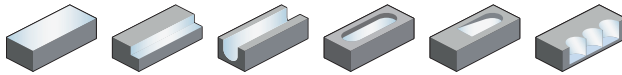
Nonstandard order > B477

**A**

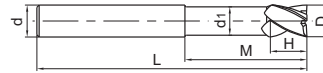
End mill short cutting edge

Semi-finishing

**GM-4EFP**



- Factory standard
- Centre cutting
- Helix angle 45°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG303
GM-4EFP-D6.0		6	6	5.8	9	30	75	4	○
GM-4EFP-D8.0		8	8	7.8	12	40	100	4	○
GM-4EFP-D10.0		10	10	9.6	15	50	100	4	○
GM-4EFP-D12.0		12	12	11.5	18	50	100	4	○
GM-4EFP-D16.0		16	16	15.5	24	50	150	4	○
GM-4EFP-D20.0		20	20	19.5	30	60	150	4	○

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

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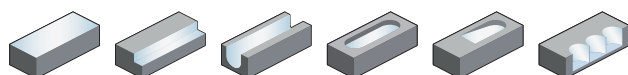
System code > B268

Cutting data > B436

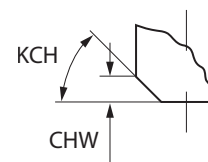
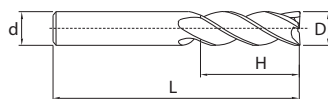
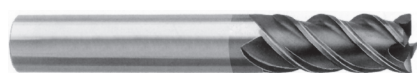
Nonstandard order > B477

**End mill** **Finishing**

**5501R304GF**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5501R304GF-0300		3	6	5	50	0	0	4	●	○
5501R304GF-0400		4	6	8	54	0	0	4	●	○
5501R304GF-0500		5	6	9	54	0	0	4	●	○
5501R304GF-0600		6	6	10	54	45	0.1	4	●	○
5501R304GF-0800		8	8	12	58	45	0.1	4	●	○
5501R304GF-1000		10	10	14	66	45	0.1	4	●	○
5501R304GF-1200		12	12	16	73	45	0.1	4	●	○
5501R304GF-1400		14	14	18	75	45	0.15	4	●	○
5501R304GF-1600		16	16	22	82	45	0.15	4	●	○
5501R304GF-1800		18	18	24	84	45	0.15	4	●	○
5501R304GF-2000		20	20	26	92	45	0.15	4	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

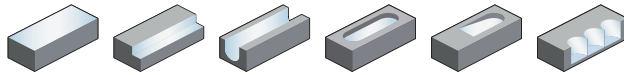
Nonstandard order > B477



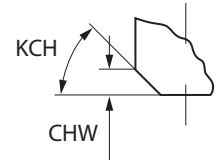
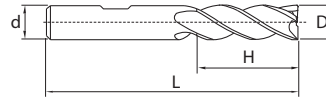
**A**

**End mill Finishing**

**5601R304GF**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5601R304GF-0300		3	6	5	50	0	0	4	●	○
5601R304GF-0400		4	6	8	54	0	0	4	●	○
5601R304GF-0500		5	6	9	54	0	0	4	●	○
5601R304GF-0600		6	6	10	54	45	0.1	4	●	○
5601R304GF-0800		8	8	12	58	45	0.1	4	●	○
5601R304GF-1000		10	10	14	66	45	0.1	4	●	○
5601R304GF-1200		12	12	16	73	45	0.1	4	●	●
5601R304GF-1400		14	14	18	75	45	0.15	4	●	○
5601R304GF-1600		16	16	22	82	45	0.15	4	●	○
5601R304GF-1800		18	18	24	84	45	0.15	4	●	○
5601R304GF-2000		20	20	26	92	45	0.15	4	●	○

- Ex stock ○ On demand
- \* With internal cooling

Milling

**C**

**Application field**

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

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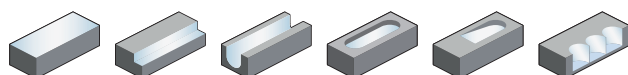
System code > B268

Cutting data > B436

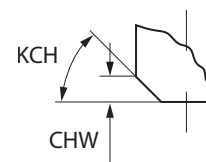
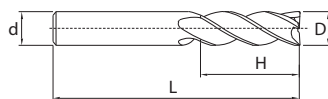
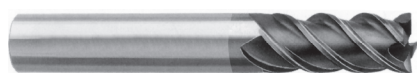
Nonstandard order > B477

End mill long cutting edge **Finishing**

**5502R304GF**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5502R304GF-0300		3	6	8	57	0	0	4	●	○
5502R304GF-0400		4	6	11	57	0	0	4	●	○
5502R304GF-0500		5	6	13	57	0	0	4	●	○
5502R304GF-0600		6	6	13	57	45	0.1	4	●	○
5502R304GF-0800		8	8	19	63	45	0.1	4	●	○
5502R304GF-1000		10	10	22	72	45	0.1	4	●	○
5502R304GF-1200		12	12	26	83	45	0.1	4	●	○
5502R304GF-1400		14	14	26	83	45	0.15	4	●	○
5502R304GF-1600		16	16	32	92	45	0.15	4	●	○
5502R304GF-1800		18	18	32	92	45	0.15	4	●	○
5502R304GF-2000		20	20	38	104	45	0.15	4	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

A

Turning

B

Milling

C

Drilling

D

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System code > B268

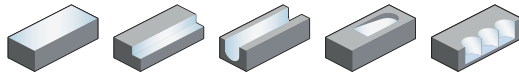
Cutting data > B436

Nonstandard order > B477

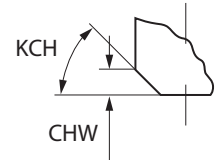
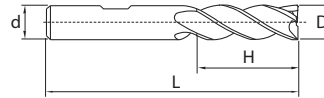
**A**

## End mill long cutting edge Finishing

**5602R304GF**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5602R304GF-0300		3	6	8	57	0	0	4	●	○
5602R304GF-0400		4	6	11	57	0	0	4	●	○
5602R304GF-0500		5	6	13	57	0	0	4	●	○
5602R304GF-0600		6	6	13	57	45	0.1	4	●	○
5602R304GF-0800		8	8	19	63	45	0.1	4	●	○
5602R304GF-1000		10	10	22	72	45	0.1	4	●	○
5602R304GF-1200		12	12	26	83	45	0.1	4	●	○
5602R304GF-1400		14	14	26	83	45	0.15	4	●	○
5602R304GF-1600		16	16	32	92	45	0.15	4	●	○
5602R304GF-1800		18	18	32	92	45	0.15	4	●	○
5602R304GF-2000		20	20	38	104	45	0.15	4	●	○

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

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System code > B268

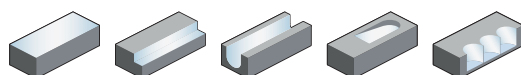
Cutting data > B436

Nonstandard order > B477

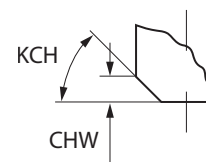
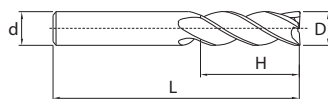


End mill long cutting edge **Semi-finishing**

**5508R454GM**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5508R454GM-0300		3	3	8	45	0	0	4	●	○
5508R454GM-0400		4	4	11	50	0	0	4	●	○
5508R454GM-0500		5	5	13	50	0	0	4	●	○
5508R454GM-0600		6	6	13	57	45	0.1	4	●	○
5508R454GM-0800		8	8	19	63	45	0.1	4	●	○
5508R454GM-1000		10	10	22	72	45	0.1	4	●	○
5508R454GM-1200		12	12	26	83	45	0.1	4	●	○
5508R454GM-1400		14	14	26	83	45	0.15	4	●	○
5508R454GM-1600		16	16	32	92	45	0.15	4	●	○
5508R454GM-1800		18	18	32	92	45	0.15	4	●	○
5508R454GM-2000		20	20	38	104	45	0.15	4	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

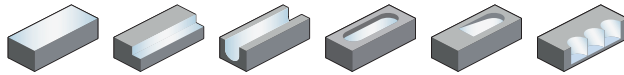
Nonstandard order > B477



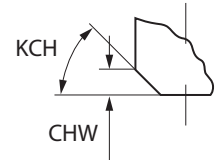
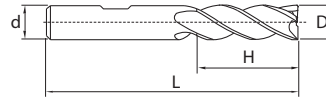
**A**

## End mill long cutting edge Semi-finishing

**5602R454GM**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 45°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R454GM-0300		3	6	8	57	0	0	4	●
5602R454GM-0400		4	6	11	57	0	0	4	●
5602R454GM-0500		5	6	13	57	0	0	4	●
5602R454GM-0600		6	6	13	57	45	0.1	4	●
5602R454GM-0800		8	8	19	63	45	0.1	4	●
5602R454GM-1000		10	10	22	72	45	0.1	4	●
5602R454GM-1200		12	12	26	83	45	0.1	4	●
5602R454GM-1400		14	14	26	83	45	0.15	4	●
5602R454GM-1600		16	16	32	92	45	0.15	4	●
5602R454GM-1800		18	18	32	92	45	0.15	4	●
5602R454GM-2000		20	20	38	104	45	0.15	4	●

● Ex stock   ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

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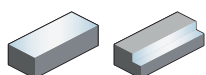
System code > B268

Cutting data > B436

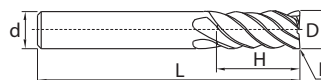
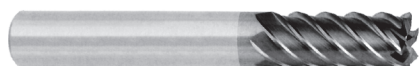
Nonstandard order > B477

**Torus mill long cutting edge** Finishing

**5589R45MGF**



- Type of shank DIN 6535HA
- Helix angle 45°



Article	*	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
5589R45MGFR02-0600		6	0.2	6	19	63	6	●
5589R45MGFR02-0800		8	0.2	8	28	72	6	●
5589R45MGFR02-1000		10	0.2	10	34	84	6	●
5589R45MGFR02-1200		12	0.2	12	40	97	6	●
5589R45MGFR03-1600		16	0.3	16	48	108	8	○
5589R45MGFR03-2000		20	0.3	20	56	122	10	○

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

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System code > B268

Cutting data > B436

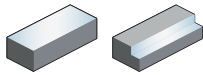
Nonstandard order > B477



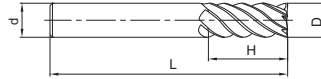
**A**

## End mill Semi-finishing

### GM-6E



- Factory standard
- Non-centre cutting
- Helix angle 45°



Turning

**B**

Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG303
GM-6E-D6.0		6	6	18	60	6	●
GM-6E-D8.0		8	8	20	60	6	●
GM-6E-D10.0		10	10	30	75	6	●
GM-6E-D12.0		12	12	32	75	6	●
GM-6E-D16.0		16	16	40	100	6	●
GM-6E-D20.0		20	20	45	100	6	●

● Ex stock   ○ On demand

\* With internal cooling

Milling

**C**

Application field						
P	M	K	N	S	H	
✓	✓	✓				✓ Very suitable
						✓ Suitable

Drilling

**D**

Technical Information

**E**

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System code > B268

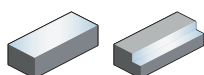
Cutting data > B436

Nonstandard order > B477

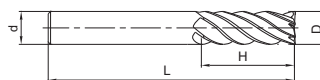
End mill long cutting edge

Semi-finishing

GM-6EL



- Factory standard
- Non-centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG303
GM-6EL-D6.0		6	6	24	75	6	●
GM-6EL-D8.0		8	8	32	75	6	●
GM-6EL-D10.0		10	10	40	100	6	●
GM-6EL-D12.0		12	12	45	100	6	●
GM-6EL-D16.0		16	16	64	150	6	●
GM-6EL-D20.0		20	20	75	150	6	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

System code > B268

Cutting data > B436

Nonstandard order > B477

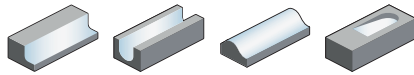
A

Ball nose cutter

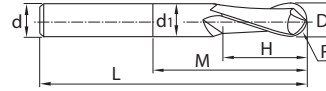
Finishing

Turning

5565R302GF



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



B

Milling

Article	*	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	M	L		
5565R302GF-0300		3	1.5	6	2.8	4	9	57	2	●
5565R302GF-0400		4	2	6	3.7	5	12	57	2	●
5565R302GF-0500		5	2.5	6	4.6	6	15	57	2	●
5565R302GF-0600		6	3	6	5.5	7	20	57	2	●
5565R302GF-0800		8	4	8	7.4	9	26	63	2	●
5565R302GF-1000		10	5	10	9.2	11	31	72	2	●
5565R302GF-1200		12	6	12	11	12	37	83	2	●
5565R302GF-1600		16	8	16	15	16	43	92	2	●
5565R302GF-2000		20	10	20	19	20	50	104	2	●

- Ex stock ○ On demand
- \* With internal cooling

C

Drilling

Application field						
P	M	K	N	S	H	
✓	✓	✓				✓ Very suitable ✓ Suitable

D

Technical Information

E

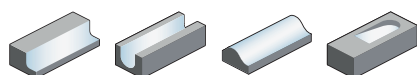
Index

System code > B268      Cutting data > B436      Nonstandard order > B477

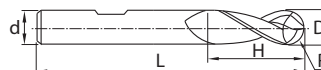


**Ball nose cutter** **Semi-finishing**

**5665R202GM**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 20°



Article	*	Dimensions [mm]						Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	L		KMG303
5665R202GM-0300		3	1.5	6	2.8	4	57	2	●
5665R202GM-0400		4	2	6	3.7	5	57	2	●
5665R202GM-0500		5	2.5	6	4.6	6	57	2	●
5665R202GM-0600		6	3	6	5.5	7	57	2	●
5665R202GM-0800		8	4	8	7.4	9	63	2	●
5665R202GM-1000		10	5	10	9.2	11	72	2	●
5665R202GM-1200		12	6	12	11	12	83	2	●
5665R202GM-1600		16	8	16	15	16	92	2	●
5665R202GM-2000		20	10	20	19	20	104	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

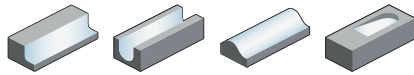
Nonstandard order > B477



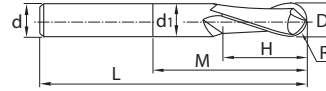
**A**

## Ball nose cutter long shank Finishing

**5566R302GF**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	M	L		KMG303
5566R302GF-0300		3	1.5	6	2.8	4	15	75	2	●
5566R302GF-0400		4	2	6	3.7	5	20	75	2	●
5566R302GF-0500		5	2.5	6	4.6	6	25	80	2	●
5566R302GF-0600		6	3	6	5.5	7	30	80	2	●
5566R302GF-0800		8	4	8	7.4	9	35	90	2	●
5566R302GF-1000		10	5	10	9.2	11	40	100	2	●
5566R302GF-1200		12	6	12	11	12	50	120	2	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

Index

System code > B268

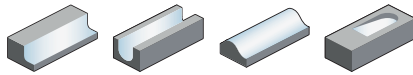
Cutting data > B436

Nonstandard order > B477

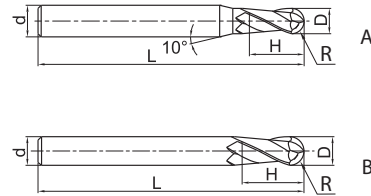


**Ball nose cutter** **Semi-finishing**

**GM-2B**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			
GM-2B-R0.5S		0.5	1	4	2	50	2	A	●
GM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
GM-2B-R1.0S		1	2	4	4	50	2	A	●
GM-2B-R1.25S		1.25	2.5	4	5	50	2	A	●
GM-2B-R1.5S		1.5	3	4	6	50	2	A	●
GM-2B-R2.0S		2	4	4	8	50	2	B	●
GM-2B-R0.5		0.5	1	6	2	50	2	A	○
GM-2B-R0.75		0.75	1.5	6	3	50	2	A	○
GM-2B-R1.0		1	2	6	4	50	2	A	●
GM-2B-R1.25		1.25	2.5	6	5	50	2	A	○
GM-2B-R1.5		1.5	3	6	6	50	2	A	●
GM-2B-R1.75		1.75	3.5	6	8	50	2	A	○
GM-2B-R2.0		2	4	6	8	50	2	A	●
GM-2B-R2.5		2.5	5	6	10	50	2	A	●
GM-2B-R2.75		2.75	5.5	6	12	50	2	A	○
GM-2B-R3.0		3	6	6	12	50	2	B	●
GM-2B-R3.5		3.5	7	8	14	60	2	A	○
GM-2B-R4.0		4	8	8	16	60	2	B	●
GM-2B-R4.5		4.5	9	10	18	75	2	A	○
GM-2B-R5.0		5	10	10	20	75	2	B	●
GM-2B-R6.0		6	12	12	24	75	2	B	●
GM-2B-R7.0		7	14	14	28	75	2	B	●
GM-2B-R8.0		8	16	16	32	100	2	B	●
GM-2B-R10.0		10	20	20	40	100	2	B	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

System code > B268    Cutting data > B436    Nonstandard order > B477



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

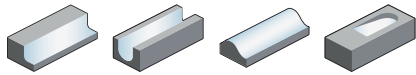
**E**

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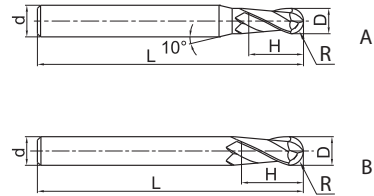
**A**

## Ball nose cutter long shank Semi-finishing

**GM-2BL**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-2BL-R1.0		1	2	6	4	75	2	A	●
GM-2BL-R1.25		1.25	2.5	6	5	75	2	A	●
GM-2BL-R1.5		1.5	3	6	6	75	2	A	●
GM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
GM-2BL-R2.0		2	4	6	8	75	2	A	●
GM-2BL-R2.5		2.5	5	6	10	75	2	A	●
GM-2BL-R2.75		2.75	5.5	6	12	75	2	A	●
GM-2BL-R3.0		3	6	6	12	75	2	B	●
GM-2BL-R3.5		3.5	7	8	14	75	2	A	●
GM-2BL-R4.0		4	8	8	16	100	2	B	●
GM-2BL-R4.5		4.5	9	10	18	100	2	A	●
GM-2BL-R5.0		5	10	10	20	100	2	B	●
GM-2BL-R6.0		6	12	12	24	100	2	B	●
GM-2BL-R7.0		7	14	14	28	100	2	B	●
GM-2BL-R8.0		8	16	16	32	150	2	B	●
GM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

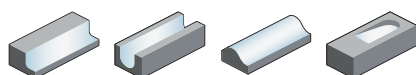
System code > B268

Cutting data > B436

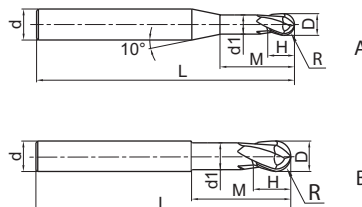
Nonstandard order > B477

**Ball nose cutter short cutting edge** Semi-finishing

**GM-2BFP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]								Teeth	Geometry	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L	KMG303			
GM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	○	
GM-2BFP-R0.75		0.75	1.5	6	1.45	1	3	75	2	A	○	
GM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●	
GM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	○	
GM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	○	
GM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	○	
GM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	○	
GM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	○	
GM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	○	
GM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	○	
GM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	○	
GM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	○	

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

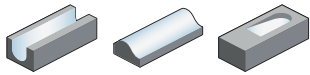
Nonstandard order > B477



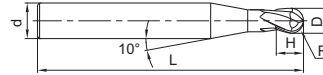
**A**

## Ball nose cutter Semi-finishing

### GM-2BS



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG303
GM-2BS-R0.15		0.15	0.3	4	0.5	50	2	●
GM-2BS-R0.20		0.2	0.4	4	0.6	50	2	●
GM-2BS-R0.25		0.25	0.5	4	0.8	50	2	●
GM-2BS-R0.30		0.3	0.6	4	0.9	50	2	●
GM-2BS-R0.35		0.35	0.7	4	1	50	2	●
GM-2BS-R0.40		0.4	0.8	4	1.2	50	2	●
GM-2BS-R0.45		0.45	0.9	4	1.3	50	2	●
GM-2BS-R0.50		0.5	1	4	1.5	50	2	●
GM-2BS-R0.60		0.6	1.2	4	1.8	50	2	●
GM-2BS-R0.70		0.7	1.4	4	2	50	2	●
GM-2BS-R0.75		0.75	1.5	4	2.3	50	2	●
GM-2BS-R0.80		0.8	1.6	4	2.5	50	2	●
GM-2BS-R0.90		0.9	1.8	4	2.7	50	2	●
GM-2BS-R1.00		1	2	4	3	50	2	●
GM-2BS-R1.25		1.25	2.5	4	3.7	50	2	●
GM-2BS-R1.50		1.5	3	4	4.5	50	2	●

Milling

**C**

- Ex stock ○ On demand
- \* With internal cooling

Drilling

**D**

### Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

Technical Information

**E**

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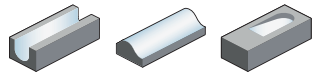
System code > B268

Cutting data > B436

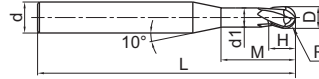
Nonstandard order > B477

**Ball nose cutter** **Semi-finishing**

**GM-2BP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]							Teeth	Grade KMG303
		R	D	d (h6)	d <sub>1</sub>	H	M	L		
GM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
GM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
GM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
GM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
GM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
GM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
GM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
GM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
GM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●
GM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
GM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
GM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
GM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
GM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
GM-2BP-R0.6-M06		0.6	1.2	4	1.15	1.8	6	50	2	●
GM-2BP-R0.6-M08		0.6	1.2	4	1.15	1.8	8	50	2	●
GM-2BP-R0.6-M12		0.6	1.2	4	1.15	1.8	12	50	2	●
GM-2BP-R0.6-M16		0.6	1.2	4	1.15	1.8	16	50	2	●
GM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
GM-2BP-R0.75-M12		0.75	1.5	4	1.45	2.3	12	50	2	●
GM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
GM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●
GM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
GM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
GM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
GM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
GM-2BP-R1.0-M20		1	2	4	1.95	3	20	50	2	●
GM-2BP-R1.25-M08		1.25	2.5	4	2.4	3.7	8	50	2	●
GM-2BP-R1.25-M12		1.25	2.5	4	2.4	3.7	12	50	2	●
GM-2BP-R1.25-M16		1.25	2.5	4	2.4	3.7	16	60	2	●
GM-2BP-R1.25-M20		1.25	2.5	4	2.4	3.7	20	60	2	●
GM-2BP-R1.5-M08		1.5	3	6	2.85	4.5	8	50	2	●
GM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
GM-2BP-R1.5-M12		1.5	3	6	2.85	4.5	12	50	2	●
GM-2BP-R1.5-M16		1.5	3	6	2.85	4.5	16	60	2	●
GM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●
GM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

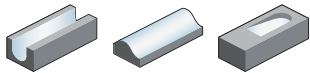
System code > B268    Cutting data > B436    Nonstandard order > B477



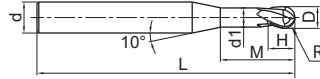
**A**

## Ball nose cutter Semi-finishing

### GM-2BP



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		KMG303
GM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
GM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
GM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
GM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
GM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

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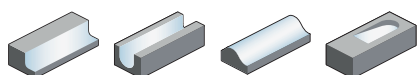
System code > B268

Cutting data > B436

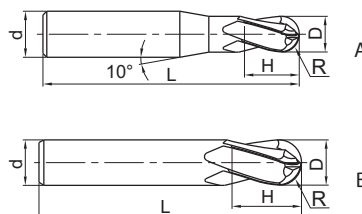
Nonstandard order > B477

**Ball nose cutter** Semi-finishing

**GM-4B**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-4B-R1.5		1.5	3	6	6	50	4	A	●
GM-4B-R2.0		2	4	6	8	50	4	A	●
GM-4B-R2.5		2.5	5	6	10	50	4	A	●
GM-4B-R3.0		3	6	6	12	50	4	B	●
GM-4B-R4.0		4	8	8	16	60	4	B	●
GM-4B-R5.0		5	10	10	20	75	4	B	●
GM-4B-R6.0		6	12	12	24	75	4	B	●
GM-4B-R7.0		7	14	14	28	75	4	B	●
GM-4B-R8.0		8	16	16	32	100	4	B	●
GM-4B-R9.0		9	18	18	36	100	4	B	●
GM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

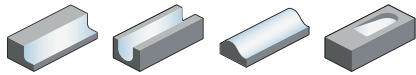
Nonstandard order > B477



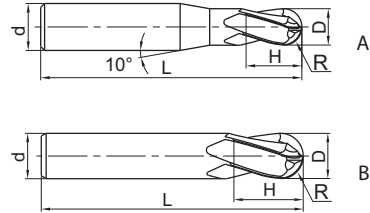
**A**

## Ball nose cutter long shank Semi-finishing

**GM-4BL**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-4BL-R1.5		1.5	3	6	6	75	4	A	○
GM-4BL-R2.0		2	4	6	8	75	4	A	○
GM-4BL-R2.5		2.5	5	6	10	75	4	A	○
GM-4BL-R3.0		3	6	6	12	75	4	B	○
GM-4BL-R4.0		4	8	8	16	100	4	B	○
GM-4BL-R5.0		5	10	10	20	100	4	B	○
GM-4BL-R6.0		6	12	12	24	100	4	B	○
GM-4BL-R7.0		7	14	14	28	100	4	B	○
GM-4BL-R8.0		8	16	16	32	150	4	B	○
GM-4BL-R9.0		9	18	18	36	150	4	B	○
GM-4BL-R10.0		10	20	20	40	150	4	B	○

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

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### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

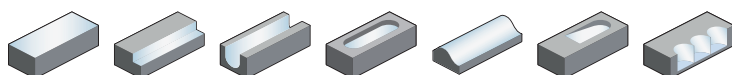
Nonstandard order > B477



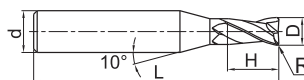
**Torus mill**

**Semi-finishing**

**GM-2R**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG303
GM-2R-D1.0R0.2		0.2	1	4	3	50	2	○
GM-2R-D1.5R0.2		0.2	1.5	4	4	50	2	○
GM-2R-D2.0R0.2		0.2	2	4	6	50	2	○
GM-2R-D2.0R0.5		0.5	2	4	6	50	2	○
GM-2R-D2.5R0.2		0.2	2.5	4	8	50	2	○
GM-2R-D2.5R0.5		0.5	2.5	4	8	50	2	○
GM-2R-D3.0R0.2		0.2	3	4	8	50	2	○
GM-2R-D3.0R0.3		0.3	3	4	8	50	2	○
GM-2R-D3.0R0.5		0.5	3	4	8	50	2	○
GM-2R-D4.0R0.2		0.2	4	4	11	50	2	○
GM-2R-D4.0R0.3		0.3	4	4	11	50	2	○
GM-2R-D4.0R0.5		0.5	4	4	11	50	2	○
GM-2R-D4.0R1.0		1	4	4	11	50	2	○
GM-2R-D5.0R0.3		0.3	5	6	13	50	2	○
GM-2R-D5.0R0.5		0.5	5	6	13	50	2	○
GM-2R-D5.0R1.0		1	5	6	13	50	2	○
GM-2R-D6.0R0.3		0.3	6	6	16	50	2	○
GM-2R-D6.0R0.5		0.5	6	6	16	50	2	○
GM-2R-D6.0R1.0		1	6	6	16	50	2	○
GM-2R-D8.0R0.3		0.3	8	8	20	60	2	○
GM-2R-D8.0R0.5		0.5	8	8	20	60	2	○
GM-2R-D8.0R1.0		1	8	8	20	60	2	○
GM-2R-D10.0R0.5		0.5	10	10	25	75	2	○
GM-2R-D10.0R1.0		1	10	10	25	75	2	○
GM-2R-D10.0R1.5		1.5	10	10	25	75	2	●
GM-2R-D10.0R2.0		2	10	10	25	75	2	○
GM-2R-D12.0R0.5		0.5	12	12	30	75	2	○
GM-2R-D12.0R1.0		1	12	12	30	75	2	○
GM-2R-D12.0R1.5		1.5	12	12	30	75	2	○
GM-2R-D12.0R2.0		2	12	12	30	75	2	●

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477

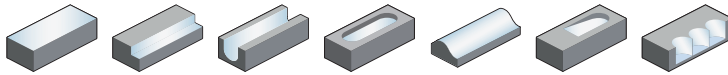


A

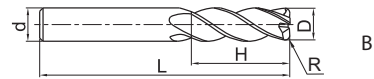
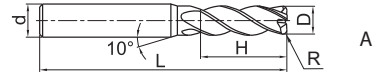
Torus mill

Semi-finishing

GM-4R



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

B

Milling

C

Drilling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-4R-D3.0R0.2		0.2	3	4	8	50	4	A	●
GM-4R-D4.0R0.3		0.3	4	4	10	50	4	B	○
GM-4R-D4.0R0.5		0.5	4	4	10	50	4	B	●
GM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
GM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
GM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
GM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
GM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
GM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
GM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
GM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
GM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
GM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
GM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
GM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
GM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
GM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand

\* With internal cooling

D

Technical Information

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

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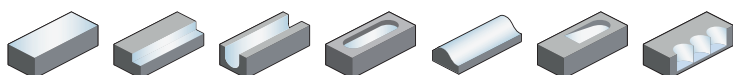
System code > B268

Cutting data > B436

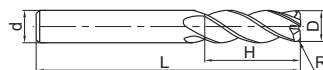
Nonstandard order > B477

**Torus mill long shank** Semi-finishing

**GM-4RL**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG303
GM-4RL-D6.0R0.5		0.5	6	6	16	75	4	●
GM-4RL-D6.0R1.0		1	6	6	16	75	4	●
GM-4RL-D8.0R0.5		0.5	8	8	20	100	4	●
GM-4RL-D8.0R1.0		1	8	8	20	100	4	●
GM-4RL-D10.0R0.5		0.5	10	10	25	100	4	●
GM-4RL-D10.0R1.0		1	10	10	25	100	4	●
GM-4RL-D10.0R2.0		2	10	10	25	100	4	●
GM-4RL-D12.0R0.5		0.5	12	12	30	100	4	○
GM-4RL-D12.0R1.0		1	12	12	30	100	4	●
GM-4RL-D12.0R2.0		2	12	12	30	100	4	●
GM-4RL-D16.0R1.0		1	16	16	45	150	4	●
GM-4RL-D16.0R2.0		2	16	16	45	150	4	●

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

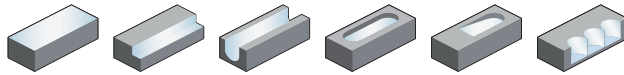
Nonstandard order > B477



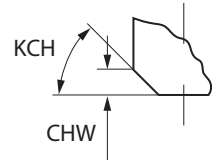
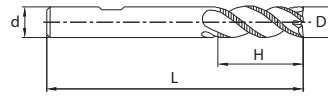
**A**

**End mill long cutting edge General roughing**

**5602R303GR**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R303GR-0600		6	6	13	57	45	0.25	3	●
5602R303GR-0800		8	8	19	63	45	0.25	3	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

**Application field**

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

Drilling

**D**

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**E**

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System code > B268

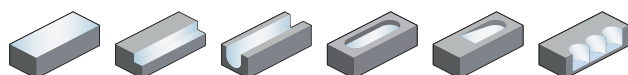
Cutting data > B436

Nonstandard order > B477

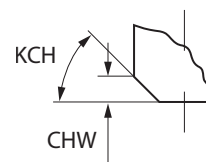
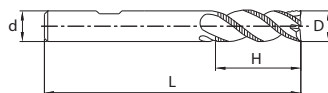
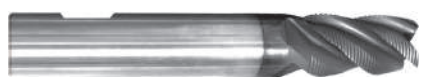
End mill long cutting edge

General roughing

**5602R304GR**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R304GR-1000		10	10	22	72	45	0.5	4	●
5602R304GR-1200		12	12	26	83	45	0.5	4	●
5602R304GR-1400		14	14	30	90	45	0.5	4	○
5602R304GR-1600		16	16	32	92	45	0.5	4	●
5602R304GR-2000		20	20	38	104	45	0.5	4	●

● Ex stock ○ On demand

\* With internal cooling

Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

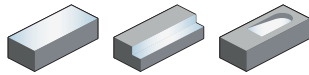
Nonstandard order > B477



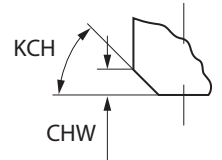
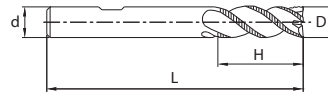
**A**

## End mill long cutting edge General roughing

**5602R305GR**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]					Teeth	Grade	
		D	d (h6)	H	L	KCH		CHW	KMG303
5602R305GR-2500		25	25	45	121	45	0.5	5	○

- Ex stock ○ On demand
- \* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

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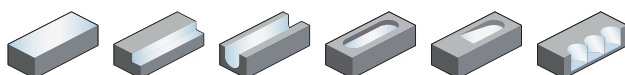
System code > B268

Cutting data > B436

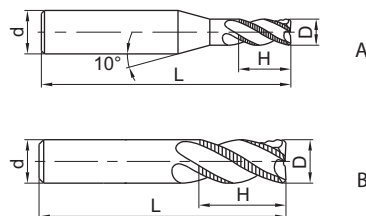
Nonstandard order > B477

**End mill serrated teeth** **Semi-finishing**

**GM-4W**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
GM-4W-D6.0		6	6	16	50	4	B	●
GM-4W-D7.0		7	8	20	60	4	A	●
GM-4W-D8.0		8	8	20	60	4	B	●
GM-4W-D9.0		9	10	22	75	4	A	●
GM-4W-D10.0		10	10	25	75	4	B	●
GM-4W-D11.0		11	12	26	75	4	A	●
GM-4W-D12.0		12	12	30	75	4	B	●
GM-4W-D16.0		16	16	45	100	4	B	●
GM-4W-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

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System code > B268

Cutting data > B436

Nonstandard order > B477



## Notes

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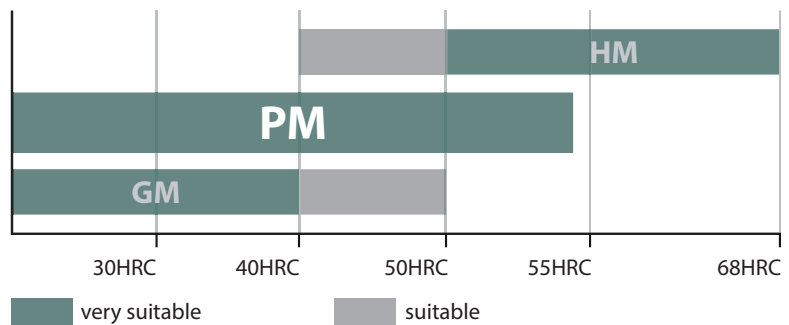


# PM series

*For demanding applications*

- For machining of steel to max. 55 HRC and cast iron to heat-resistant alloys.
- Very solid cutting edge with high stiffness for higher cutting speeds and feed rates.
- End mills, ball nose cutters, torus mills and high feed mills
- Diameter range 3.0–20.0 mm

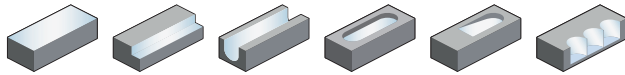
Application fields for machining of steel



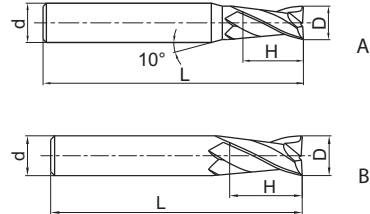
**A**

## End mill High-performance machining

**PM-2E**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-2E-D1.0S		1	4	3	50	2	A	●
PM-2E-D1.5S		1.5	4	4	50	2	A	●
PM-2E-D2.0S		2	4	6	50	2	A	●
PM-2E-D2.5S		2.5	4	8	50	2	A	●
PM-2E-D3.0S		3	4	8	50	2	A	●
PM-2E-D4.0S		4	4	11	50	2	B	●
PM-2E-D1.0		1	6	3	50	2	A	●
PM-2E-D1.5		1.5	6	4	50	2	A	●
PM-2E-D2.0		2	6	6	50	2	A	●
PM-2E-D2.5		2.5	6	8	50	2	A	●
PM-2E-D3.0		3	6	8	50	2	A	●
PM-2E-D3.5		3.5	6	10	50	2	A	●
PM-2E-D4.0		4	6	11	50	2	A	●
PM-2E-D4.5		4.5	6	11	50	2	A	●
PM-2E-D5.0		5	6	13	50	2	A	●
PM-2E-D5.5		5.5	6	16	50	2	A	●
PM-2E-D6.0		6	6	16	50	2	B	●
PM-2E-D7.0		7	8	20	60	2	A	●
PM-2E-D8.0		8	8	20	60	2	B	●
PM-2E-D9.0		9	10	22	75	2	A	●
PM-2E-D10.0		10	10	25	75	2	B	●
PM-2E-D11.0		11	12	26	75	2	A	○
PM-2E-D12.0		12	12	30	75	2	B	●
PM-2E-D14.0		14	14	32	75	2	B	●
PM-2E-D16.0		16	16	45	100	2	B	●
PM-2E-D18.0		18	18	45	100	2	B	○
PM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand

\* With internal cooling

**E**

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### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

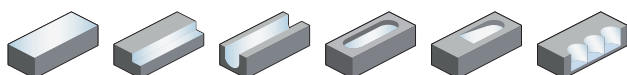
System code > B268

Cutting data > B436

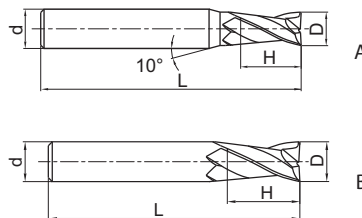
Nonstandard order > B477

**End mill long cutting edge** **High-performance machining**

**PM-2EL**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-2EL-D3.0		3	6	12	75	2	A	●
PM-2EL-D4.0		4	6	15	75	2	A	●
PM-2EL-D5.0		5	6	20	75	2	A	●
PM-2EL-D6.0		6	6	20	75	2	B	●
PM-2EL-D8.0		8	8	25	100	2	B	●
PM-2EL-D10.0		10	10	30	100	2	B	●
PM-2EL-D12.0		12	12	35	100	2	B	●
PM-2EL-D14.0		14	14	40	100	2	B	○
PM-2EL-D16.0		16	16	50	150	2	B	●
PM-2EL-D20.0		20	20	55	150	2	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

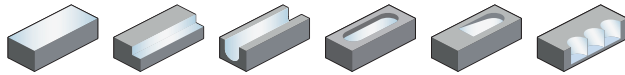
Nonstandard order > B477



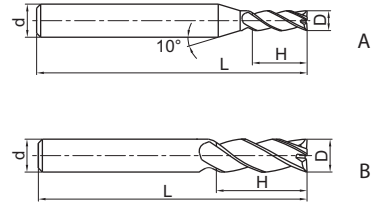
**A**

## End mill High-performance machining

### PM-4E-G



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4E-D1.0S-G		1	4	3	50	4	A	●
PM-4E-D1.5S-G		1.5	4	4	50	4	A	●
PM-4E-D2.0S-G		2	4	6	50	4	A	●
PM-4E-D2.5S-G		2.5	4	8	50	4	A	●
PM-4E-D3.0S-G		3	4	8	50	4	A	●
PM-4E-D4.0S-G		4	4	11	50	4	B	●
PM-4E-D1.0-G		1	6	3	50	4	A	●
PM-4E-D1.5-G		1.5	6	4	50	4	A	●
PM-4E-D2.0-G		2	6	6	50	4	A	●
PM-4E-D2.5-G		2.5	6	8	50	4	A	●
PM-4E-D3.0-G		3	6	8	50	4	A	●
PM-4E-D3.5-G		3.5	6	10	50	4	A	●
PM-4E-D4.0-G		4	6	11	50	4	A	●
PM-4E-D4.5-G		4.5	6	11	50	4	A	●
PM-4E-D5.0-G		5	6	13	50	4	A	●
PM-4E-D5.5-G		5.5	6	16	50	4	A	●
PM-4E-D6.0-G		6	6	16	50	4	B	●
PM-4E-D7.0-G		7	8	20	60	4	A	●
PM-4E-D8.0-G		8	8	20	60	4	B	●
PM-4E-D9.0-G		9	10	22	75	4	A	●
PM-4E-D10.0-G		10	10	25	75	4	B	●
PM-4E-D11.0-G		11	12	26	75	4	A	●
PM-4E-D12.0-G		12	12	30	75	4	B	●
PM-4E-D14.0-G		14	14	32	75	4	B	●
PM-4E-D16.0-G		16	16	45	100	4	B	●
PM-4E-D18.0-G		18	18	45	100	4	B	●
PM-4E-D20.0-G		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

Index

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable  
✓ Suitable

System code > B268

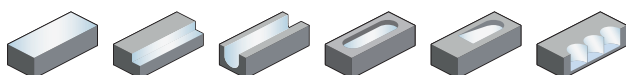
Cutting data > B436

Nonstandard order > B477

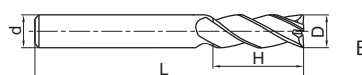
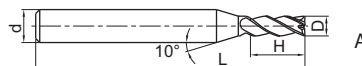
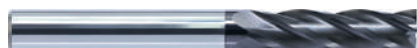
End mill long cutting edge

High-performance machining

PM-4EL-G



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4EL-D3.0-G		3	6	12	75	4	A	○
PM-4EL-D4.0-G		4	6	15	75	4	A	○
PM-4EL-D5.0-G		5	6	20	75	4	A	○
PM-4EL-D6.0-G		6	6	20	75	4	B	○
PM-4EL-D8.0-G		8	8	25	100	4	B	○
PM-4EL-D10.0-G		10	10	30	100	4	B	○
PM-4EL-D12.0-G		12	12	35	100	4	B	○
PM-4EL-D14.0-G		14	14	40	100	4	B	○
PM-4EL-D16.0-G		16	16	50	150	4	B	○
PM-4EL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

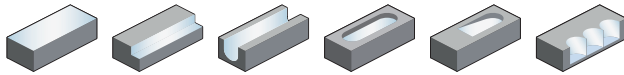
Nonstandard order > B477



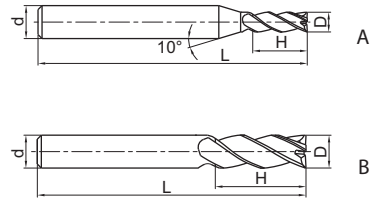
**A**

## End mill extra long cutting edge High-performance machining

### PM-4EX-G



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4EX-D3.0-G		3	6	20	75	4	A	●
PM-4EX-D4.0-G		4	6	25	75	4	A	●
PM-4EX-D5.0-G		5	6	30	75	4	A	●
PM-4EX-D6.0-G		6	6	30	75	4	B	●
PM-4EX-D8.0-G		8	8	40	100	4	B	●
PM-4EX-D10.0-G		10	10	50	110	4	B	●
PM-4EX-D12.0-G		12	12	50	110	4	B	●
PM-4EX-D16.0-G		16	16	70	150	4	B	●
PM-4EX-D20.0-G		20	20	75	150	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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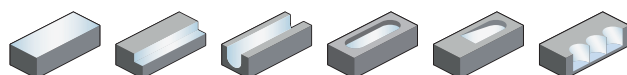
System code > B268

Cutting data > B436

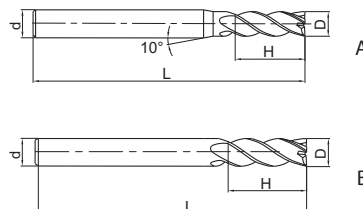
Nonstandard order > B477

**End mill** **High-performance machining**

**PM-4E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4E-D1.0S		1	4	3	50	4	A	●
PM-4E-D1.5S		1.5	4	4	50	4	A	●
PM-4E-D2.0S		2	4	6	50	4	A	●
PM-4E-D2.5S		2.5	4	8	50	4	A	●
PM-4E-D3.0S		3	4	8	50	4	A	●
PM-4E-D4.0S		4	4	11	50	4	B	●
PM-4E-D1.0		1	6	3	50	4	A	●
PM-4E-D1.5		1.5	6	4	50	4	A	●
PM-4E-D2.0		2	6	6	50	4	A	●
PM-4E-D2.5		2.5	6	8	50	4	A	●
PM-4E-D3.0		3	6	8	50	4	A	●
PM-4E-D3.5		3.5	6	10	50	4	A	●
PM-4E-D4.0		4	6	11	50	4	A	●
PM-4E-D4.5		4.5	6	11	50	4	A	●
PM-4E-D5.0		5	6	13	50	4	A	●
PM-4E-D5.5		5.5	6	16	50	4	A	●
PM-4E-D6.0		6	6	16	50	4	B	●
PM-4E-D7.0		7	8	20	60	4	A	●
PM-4E-D8.0		8	8	20	60	4	B	●
PM-4E-D9.0		9	10	22	75	4	A	●
PM-4E-D10.0		10	10	25	75	4	B	●
PM-4E-D11.0		11	12	26	75	4	A	●
PM-4E-D12.0		12	12	30	75	4	B	●
PM-4E-D14.0		14	14	32	75	4	B	●
PM-4E-D16.0		16	16	45	100	4	B	●
PM-4E-D18.0		18	18	45	100	4	B	●
PM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

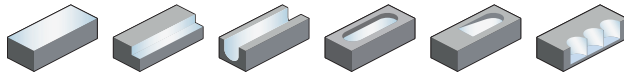
Nonstandard order > B477



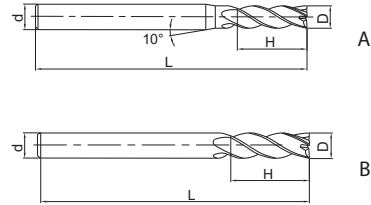
**A**

## End mill long cutting edge High-performance machining

**PM-4EL**



- Factory standard
- Centre cutting
- Helix angle 45°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4EL-D3.0		3	6	12	75	4	A	●
PM-4EL-D4.0		4	6	15	75	4	A	●
PM-4EL-D5.0		5	6	20	75	4	A	●
PM-4EL-D6.0		6	6	20	75	4	B	●
PM-4EL-D8.0		8	8	25	100	4	B	●
PM-4EL-D10.0		10	10	30	100	4	B	●
PM-4EL-D12.0		12	12	35	100	4	B	●
PM-4EL-D14.0		14	14	40	100	4	B	●
PM-4EL-D16.0		16	16	50	150	4	B	●
PM-4EL-D20.0		20	20	55	150	4	B	●

- Ex stock ○ On demand
- \* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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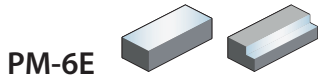
System code > B268

Cutting data > B436

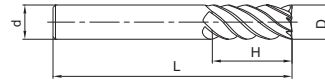
Nonstandard order > B477



**End mill** **High-performance machining**



- Factory standard
- Non-centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
PM-6E-D6.0		6	6	18	60	6	●
PM-6E-D8.0		8	8	20	60	6	●
PM-6E-D10.0		10	10	30	75	6	●
PM-6E-D12.0		12	12	32	75	6	●
PM-6E-D16.0		16	16	40	100	6	●
PM-6E-D20.0		20	20	45	100	6	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > B268

Cutting data > B436

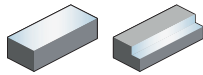
Nonstandard order > B477



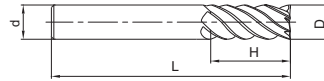
**A**

## End mill long cutting edge High-performance machining

**PM-6EL**



- Factory standard
- Non-centre cutting
- Helix angle 45°



Turning

**B**

Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
PM-6EL-D6.0		6	6	24	75	6	●
PM-6EL-D8.0		8	8	32	75	6	●
PM-6EL-D10.0		10	10	40	100	6	●
PM-6EL-D12.0		12	12	45	100	6	●
PM-6EL-D16.0		16	16	64	150	6	●
PM-6EL-D20.0		20	20	75	150	6	●

- Ex stock ○ On demand
- \* With internal cooling

Milling

**C**

Application field						
P	M	K	N	S	H	
✓	✓	✓			✓	✓ Very suitable
						✓ Suitable

Drilling

**D**

Technical Information

**E**

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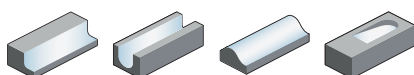
System code > B268

Cutting data > B436

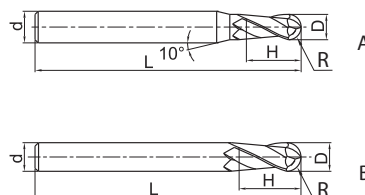
Nonstandard order > B477

**Ball nose cutter** **High-performance machining**

**PM-2B**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			
PM-2B-R0.5S		0.5	1	4	2	50	2	A	●
PM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
PM-2B-R1.0S		1	2	4	4	50	2	A	●
PM-2B-R1.25S		1.25	2.5	4	5	50	2	A	●
PM-2B-R1.5S		1.5	3	4	6	50	2	A	●
PM-2B-R2.0S		2	4	4	8	50	2	B	●
PM-2B-R0.5		0.5	1	6	2	50	2	A	●
PM-2B-R0.75		0.75	1.5	6	3	50	2	A	●
PM-2B-R1.0		1	2	6	4	50	2	A	●
PM-2B-R1.25		1.25	2.5	6	5	50	2	A	●
PM-2B-R1.5		1.5	3	6	6	50	2	A	●
PM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
PM-2B-R2.0		2	4	6	8	50	2	A	●
PM-2B-R2.5		2.5	5	6	10	50	2	A	●
PM-2B-R2.75		2.75	5.5	6	12	50	2	A	●
PM-2B-R3.0		3	6	6	12	50	2	B	●
PM-2B-R3.5		3.5	7	8	14	60	2	A	●
PM-2B-R4.0		4	8	8	16	60	2	B	●
PM-2B-R4.5		4.5	9	10	18	75	2	A	●
PM-2B-R5.0		5	10	10	20	75	2	B	●
PM-2B-R6.0		6	12	12	24	75	2	B	●
PM-2B-R7.0		7	14	14	28	75	2	B	●
PM-2B-R8.0		8	16	16	32	100	2	B	●
PM-2B-R10.0		10	20	20	40	100	2	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

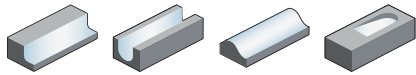
Nonstandard order > B477



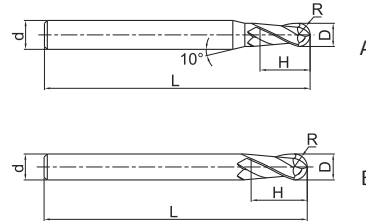
**A**

## Ball nose cutter long shank High-performance machining

**PM-2BL**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

**C**

Drilling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-2BL-R1.0		1	2	6	4	75	2	A	●
PM-2BL-R1.25		1.25	2.5	6	5	75	2	A	●
PM-2BL-R1.5		1.5	3	6	6	75	2	A	●
PM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
PM-2BL-R2.0		2	4	6	8	75	2	A	●
PM-2BL-R2.5		2.5	5	6	10	75	2	A	●
PM-2BL-R2.75		2.75	5.5	6	12	75	2	A	●
PM-2BL-R3.0		3	6	6	12	75	2	B	●
PM-2BL-R3.5		3.5	7	8	14	75	2	A	●
PM-2BL-R4.0		4	8	8	16	100	2	B	●
PM-2BL-R4.5		4.5	9	10	18	100	2	A	●
PM-2BL-R5.0		5	10	10	20	100	2	B	●
PM-2BL-R6.0		6	12	12	24	100	2	B	●
PM-2BL-R7.0		7	14	14	28	100	2	B	●
PM-2BL-R8.0		8	16	16	32	150	2	B	●
PM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand

\* With internal cooling

**D**

Technical Information

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

**F**

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System code > B268

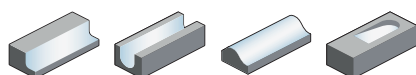
Cutting data > B436

Nonstandard order > B477

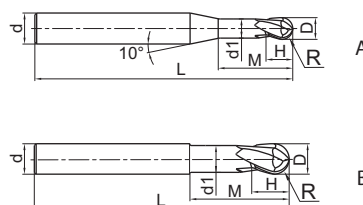
**Ball nose cutter short cutting edge**

**High-performance machining**

**PM-2BFP**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]								Teeth	Geometry	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L	KMG405			
PM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	●	
PM-2BFP-R0.75		0.75	1.5	6	1.45	1.5	3	75	2	A	●	
PM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●	
PM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	●	
PM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	●	
PM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	●	
PM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	●	
PM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	●	
PM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	●	
PM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	●	
PM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	●	
PM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	●	

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

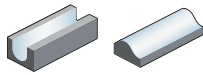
Nonstandard order > B477



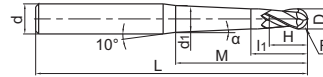
## Ball nose cutter conical neck

## High-performance machining

### PM-2BC



- Straight shank
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]										Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	M	H	L	α	I <sub>1</sub>	KMG405		
PM-2BC05-R0.25-M03		0.25	0.5	4	0.49	3	0.5	50	0.5	1.5	2	○	
PM-2BC05-R0.25-M05		0.25	0.5	4	0.53	5	0.5	50	0.5	1.5	2	○	
PM-2BC10-R0.25-M03		0.25	0.5	4	0.52	3	0.5	50	1	1.5	2	○	
PM-2BC10-R0.25-M05		0.25	0.5	4	0.59	5	0.5	50	1	1.5	2	○	
PM-2BC15-R0.25-M03		0.25	0.5	4	0.54	3	0.5	50	1.5	1.5	2	○	
PM-2BC15-R0.25-M05		0.25	0.5	4	0.65	5	0.5	50	1.5	1.5	2	○	
PM-2BC05-R0.30-M05		0.3	0.6	4	0.62	5	0.6	50	0.5	1.6	2	○	
PM-2BC05-R0.30-M08		0.3	0.6	4	0.68	8	0.6	50	0.5	1.6	2	○	
PM-2BC10-R0.30-M05		0.3	0.6	4	0.68	5	0.6	50	1	1.6	2	○	
PM-2BC10-R0.30-M08		0.3	0.6	4	0.79	8	0.6	50	1	1.6	2	○	
PM-2BC10-R0.30-M10		0.3	0.6	4	0.86	10	0.6	50	1	1.6	2	○	
PM-2BC10-R0.30-M12		0.3	0.6	4	0.93	12	0.6	50	1	1.6	2	○	
PM-2BC10-R0.30-M15		0.3	0.6	4	1.03	15	0.6	50	1	1.6	2	○	
PM-2BC15-R0.30-M05		0.3	0.6	4	0.74	5	0.6	50	1.5	1.6	2	○	
PM-2BC15-R0.30-M08		0.3	0.6	4	0.9	8	0.6	50	1.5	1.6	2	○	
PM-2BC05-R0.40-M08		0.4	0.8	4	0.87	8	0.8	50	0.5	1.8	2	○	
PM-2BC10-R0.40-M08		0.4	0.8	4	0.98	8	0.8	50	1	1.8	2	○	
PM-2BC15-R0.40-M08		0.4	0.8	4	1.09	8	0.8	50	1.5	1.8	2	○	
PM-2BC05-R0.40-M12		0.4	0.8	4	0.94	12	0.8	60	0.5	1.8	2	○	
PM-2BC10-R0.40-M12		0.4	0.8	4	1.12	12	0.8	60	1	1.8	2	○	
PM-2BC15-R0.40-M12		0.4	0.8	4	1.3	12	0.8	60	1.5	1.8	2	○	
PM-2BC05-R0.50-M10		0.5	1	6	1.08	10	1	60	0.5	2.5	2	○	
PM-2BC05-R0.50-M15		0.5	1	6	1.16	15	1	60	0.5	2.5	2	○	
PM-2BC10-R0.50-M10		0.5	1	6	1.21	10	1	60	1	2.5	2	○	
PM-2BC10-R0.50-M15		0.5	1	6	1.38	15	1	60	1	2.5	2	○	
PM-2BC15-R0.50-M10		0.5	1	6	1.34	10	1	60	1.5	2.5	2	○	
PM-2BC15-R0.50-M15		0.5	1	6	1.6	15	1	60	1.5	2.5	2	○	
PM-2BC20-R0.50-M15		0.5	1	6	1.82	15	1	60	2	2.5	2	○	
PM-2BC05-R0.50-M20		0.5	1	6	1.25	20	1	70	0.5	2.5	2	○	
PM-2BC05-R0.50-M25		0.5	1	6	1.34	25	1	70	0.5	2.5	2	○	
PM-2BC05-R0.50-M30		0.5	1	6	1.42	30	1	70	0.5	2.5	2	○	
PM-2BC10-R0.50-M20		0.5	1	6	1.56	20	1	70	1	2.5	2	○	
PM-2BC10-R0.50-M25		0.5	1	6	1.73	25	1	70	1	2.5	2	○	
PM-2BC10-R0.50-M30		0.5	1	6	1.91	30	1	70	1	2.5	2	○	
PM-2BC15-R0.50-M20		0.5	1	6	1.86	20	1	70	1.5	2.5	2	○	
PM-2BC20-R0.50-M20		0.5	1	6	2.17	20	1	70	2	2.5	2	○	
PM-2BC30-R0.50-M20		0.5	1	6	2.78	20	1	70	3	2.5	2	○	

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

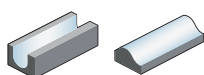
Cutting data > B436

Nonstandard order > B477

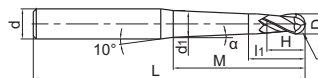
**Ball nose cutter conical neck**

**High-performance machining**

**PM-2BC**



- Straight shank
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]										Teeth	Grade KMG405
		R	D	d (h6)	d <sub>1</sub>	M	H	L	α	l <sub>1</sub>			
PM-2BC50-R0.50-M20		0.5	1	6	4.01	20	1	70	5	2.5	2	○	
PM-2BC10-R0.50-M35		0.5	1	6	2.08	35	1	80	1	2.5	2	○	
PM-2BC05-R0.60-M12		0.6	1.2	6	1.31	12	1.2	60	0.5	2.7	2	○	
PM-2BC10-R0.60-M12		0.6	1.2	6	1.47	12	1.2	60	1	2.7	2	○	
PM-2BC15-R0.60-M12		0.6	1.2	6	1.63	12	1.2	60	1.5	2.7	2	○	
PM-2BC05-R0.60-M24		0.6	1.2	6	1.52	24	1.2	70	0.5	2.7	2	○	
PM-2BC10-R0.60-M24		0.6	1.2	6	1.89	24	1.2	70	1	2.7	2	○	
PM-2BC15-R0.60-M24		0.6	1.2	6	2.26	24	1.2	70	1.5	2.7	2	○	
PM-2BC05-R0.75-M10		0.75	1.5	6	1.57	10	1.5	60	0.5	3	2	○	
PM-2BC05-R0.75-M15		0.75	1.5	6	1.65	15	1.5	60	0.5	3	2	○	
PM-2BC10-R0.75-M10		0.75	1.5	6	1.69	10	1.5	60	1	3	2	○	
PM-2BC10-R0.75-M15		0.75	1.5	6	1.86	15	1.5	60	1	3	2	○	
PM-2BC15-R0.75-M10		0.75	1.5	6	1.81	10	1.5	60	1.5	3	2	○	
PM-2BC15-R0.75-M15		0.75	1.5	6	2.07	15	1.5	60	1.5	3	2	○	
PM-2BC05-R0.75-M30		0.75	1.5	6	1.92	30	1.5	70	0.5	3	2	○	
PM-2BC10-R0.75-M20		0.75	1.5	6	2.04	20	1.5	70	1	3	2	○	
PM-2BC10-R0.75-M30		0.75	1.5	6	2.39	30	1.5	70	1	3	2	○	
PM-2BC15-R0.75-M30		0.75	1.5	6	2.86	30	1.5	70	1.5	3	2	○	
PM-2BC05-R1.0-M20		1	2	6	2.18	20	2	60	0.5	4	2	○	
PM-2BC10-R1.0-M20		1	2	6	2.46	20	2	60	1	4	2	○	
PM-2BC10-R1.0-M25		1	2	6	2.64	25	2	60	1	4	2	○	
PM-2BC15-R1.0-M20		1	2	6	2.74	20	2	60	1.5	4	2	○	
PM-2BC05-R1.0-M30		1	2	6	2.36	30	2	70	0.5	4	2	○	
PM-2BC10-R1.0-M30		1	2	6	2.81	30	2	70	1	4	2	○	
PM-2BC15-R1.0-M30		1	2	6	3.27	30	2	70	1.5	4	2	○	
PM-2BC20-R1.0-M30		1	2	6	3.72	30	2	70	2	4	2	○	
PM-2BC30-R1.0-M30		1	2	6	4.63	30	2	70	3	4	2	○	
PM-2BC05-R1.0-M40		1	2	6	2.53	40	2	80	0.5	4	2	○	
PM-2BC10-R1.0-M35		1	2	6	2.99	35	2	80	1	4	2	○	
PM-2BC10-R1.0-M40		1	2	6	3.16	40	2	80	1	4	2	○	
PM-2BC15-R1.0-M40		1	2	6	3.79	40	2	80	1.5	4	2	○	
PM-2BC20-R1.0-M40		1	2	6	4.42	40	2	80	2	4	2	○	
PM-2BC30-R1.0-M40		1	2	6	5.68	40	2	80	3	4	2	○	
PM-2BC10-R1.0-M50		1	2	6	3.51	50	2	90	1	4	2	○	
PM-2BC05-R1.5-M30		1.5	3	6	3.32	30	3	70	0.5	6	2	○	
PM-2BC10-R1.5-M30		1.5	3	6	3.74	30	3	70	1	6	2	○	
PM-2BC15-R1.5-M30		1.5	3	6	4.16	30	3	70	1.5	6	2	○	

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268    Cutting data > B436    Nonstandard order > B477



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

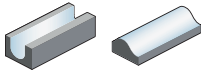
**E**

Index

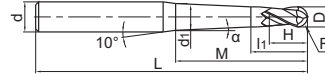
A

## Ball nose cutter conical neck High-performance machining

**PM-2BC**



- Straight shank
- Centre cutting
- Helix angle 30°



Turning

B

Article	*	Dimensions [mm]										Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	M	H	L	α	I <sub>1</sub>	KMG405		
PM-2BC05-R1.5-M40		1.5	3	6	3.5	40	3	80	0.5	6	2	○	
PM-2BC10-R1.5-M40		1.5	3	6	4.09	40	3	80	1	6	2	○	
PM-2BC15-R1.5-M40		1.5	3	6	4.69	40	3	80	1.5	6	2	○	
PM-2BC05-R1.5-M50		1.5	3	6	3.67	50	3	90	0.5	6	2	○	
PM-2BC10-R1.5-M50		1.5	3	6	4.44	50	3	90	1	6	2	○	
PM-2BC15-R1.5-M50		1.5	3	6	5.21	50	3	90	1.5	6	2	○	
PM-2BC05-R2.0-M60		2	4	6	4.83	60	4	110	0.5	7	2	○	
PM-2BC10-R2.0-M60		2	4	6	5.76	60	4	110	1	7	2	○	

● Ex stock ○ On demand

\* With internal cooling

Milling

C

Application field						
P	M	K	N	S	H	
✓	✓	✓			✓	✓ Very suitable ✓ Suitable

Drilling

D

Technical Information

E

Index

System code > B268

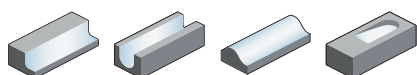
Cutting data > B436

Nonstandard order > B477

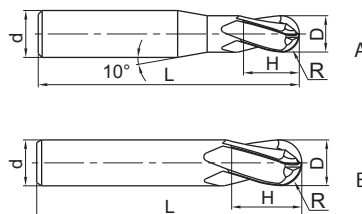


**Ball nose cutter** **High-performance machining**

**PM-4B**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-4B-R1.5		1.5	3	6	6	50	4	A	●
PM-4B-R2.0		2	4	6	8	50	4	A	●
PM-4B-R2.5		2.5	5	6	10	50	4	A	●
PM-4B-R3.0		3	6	6	12	50	4	B	●
PM-4B-R4.0		4	8	8	16	60	4	B	●
PM-4B-R5.0		5	10	10	20	75	4	B	●
PM-4B-R6.0		6	12	12	24	75	4	B	●
PM-4B-R7.0		7	14	14	28	75	4	B	●
PM-4B-R8.0		8	16	16	32	100	4	B	●
PM-4B-R9.0		9	18	18	36	100	4	B	●
PM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > B268

Cutting data > B436

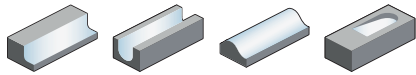
Nonstandard order > B477



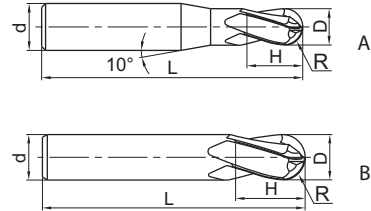
**A**

## Ball nose cutter long shank High-performance machining

**PM-4BL**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-4BL-R1.5		1.5	3	6	6	75	4	A	●
PM-4BL-R2.0		2	4	6	8	75	4	A	●
PM-4BL-R2.5		2.5	5	6	10	75	4	A	●
PM-4BL-R3.0		3	6	6	12	75	4	B	●
PM-4BL-R4.0		4	8	8	16	100	4	B	●
PM-4BL-R5.0		5	10	10	20	100	4	B	●
PM-4BL-R6.0		6	12	12	24	100	4	B	●
PM-4BL-R7.0		7	14	14	28	100	4	B	●
PM-4BL-R8.0		8	16	16	32	150	4	B	●
PM-4BL-R9.0		9	18	18	36	150	4	B	●
PM-4BL-R10.0		10	20	20	40	150	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

Index

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

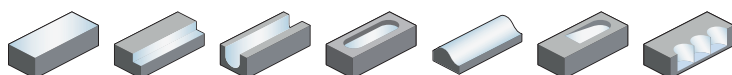
Cutting data > B436

Nonstandard order > B477

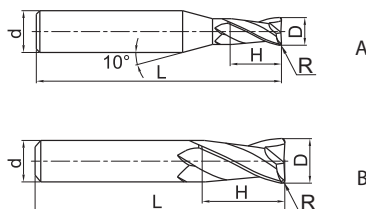
**Torus mill**

**High-performance machining**

**PM-2R**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			
PM-2R-D1.0R0.2		0.2	1	4	3	50	2	A	●
PM-2R-D1.5R0.2		0.2	1.5	4	4	50	2	A	●
PM-2R-D2.0R0.2		0.2	2	4	6	50	2	A	●
PM-2R-D2.0R0.5		0.5	2	4	6	50	2	A	●
PM-2R-D2.5R0.2		0.2	2.5	4	8	50	2	A	●
PM-2R-D2.5R0.5		0.5	2.5	4	8	50	2	A	●
PM-2R-D3.0R0.2		0.2	3	4	8	50	2	A	●
PM-2R-D3.0R0.3		0.3	3	4	8	50	2	A	○
PM-2R-D3.0R0.5		0.5	3	4	8	50	2	A	●
PM-2R-D4.0R0.2		0.2	4	4	11	50	2	B	●
PM-2R-D4.0R0.3		0.3	4	4	11	50	2	B	●
PM-2R-D4.0R0.5		0.5	4	4	11	50	2	B	●
PM-2R-D4.0R1.0		1	4	4	11	50	2	B	●
PM-2R-D5.0R0.3		0.3	5	6	13	50	2	A	○
PM-2R-D5.0R0.5		0.5	5	6	13	50	2	A	●
PM-2R-D5.0R1.0		1	5	6	13	50	2	A	●
PM-2R-D6.0R0.3		0.3	6	6	16	50	2	B	●
PM-2R-D6.0R0.5		0.5	6	6	16	50	2	B	●
PM-2R-D6.0R1.0		1	6	6	16	50	2	B	●
PM-2R-D8.0R0.3		0.3	8	8	20	60	2	B	○
PM-2R-D8.0R0.5		0.5	8	8	20	60	2	B	●
PM-2R-D8.0R1.0		1	8	8	20	60	2	B	●
PM-2R-D10.0R0.5		0.5	10	10	25	75	2	B	●
PM-2R-D10.0R1.0		1	10	10	25	75	2	B	●
PM-2R-D10.0R1.5		1.5	10	10	25	75	2	B	●
PM-2R-D10.0R2.0		2	10	10	25	75	2	B	●
PM-2R-D12.0R0.5		0.5	12	12	30	75	2	B	●
PM-2R-D12.0R1.0		1	12	12	30	75	2	B	●
PM-2R-D12.0R1.5		1.5	12	12	30	75	2	B	●
PM-2R-D12.0R2.0		2	12	12	30	75	2	B	●

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

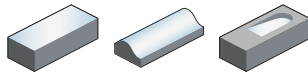
Nonstandard order > B477



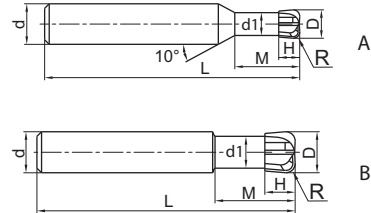
**A**

## End mill High-performance machining

**PM-4H**



- Factory standard
- Centre cutting
- Helix angle 0°



Turning

**B**

Milling

Article	*	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L			KMG405
PM-4H-D3.0R0.8		0.8	3	6	2.7	1.2	8	50	4	A	●
PM-4H-D4.0R1.0		1	4	6	3.6	1.6	10	50	4	A	●
PM-4H-D5.0R1.2		1.2	5	6	4.5	2	12.5	50	4	A	●
PM-4H-D6.0R1.0		1	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D6.0R1.5		1.5	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D6.0R2.0		2	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D8.0R1.0		1	8	8	7	3.5	16	60	4	B	●
PM-4H-D8.0R2.0		2	8	8	7	3.5	16	60	4	B	●
PM-4H-D10.0R1.0		1	10	10	9	4	20	75	4	B	●
PM-4H-D10.0R2.0		2	10	10	9	4	20	75	4	B	●
PM-4H-D10.0R3.0		3	10	10	9	4	20	75	4	B	●
PM-4H-D12.0R2.0		2	12	12	11	5	24	75	4	B	●
PM-4H-D12.0R3.0		3	12	12	11	5	24	75	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

**E**

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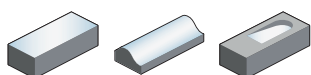
System code > B268

Cutting data > B436

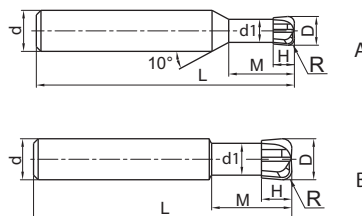
Nonstandard order > B477

**End mill long shank** **High-performance machining**

**PM-4HL**



- Factory standard
- Centre cutting
- Helix angle 0°



Article	*	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L			
PM-4HL-D4.0R1.0		1	4	6	3.6	1.6	10	75	4	A	●
PM-4HL-D5.0R1.2		1.2	5	6	4.5	2	12.5	75	4	A	●
PM-4HL-D6.0R1.0		1	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D6.0R1.5		1.5	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D6.0R2.0		2	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D8.0R1.0		1	8	8	7	3.5	16	100	4	B	●
PM-4HL-D8.0R2.0		2	8	8	7	3.5	16	100	4	B	●
PM-4HL-D10.0R1.0		1	10	10	9	4	20	100	4	B	●
PM-4HL-D10.0R2.0		2	10	10	9	4	20	100	4	B	●
PM-4HL-D10.0R3.0		3	10	10	9	4	20	100	4	B	●
PM-4HL-D12.0R2.0		2	12	12	11	5	24	100	4	B	●
PM-4HL-D12.0R3.0		3	12	12	11	5	24	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

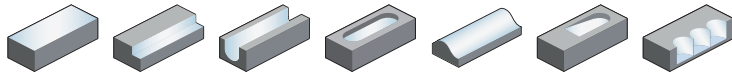
Nonstandard order > B477



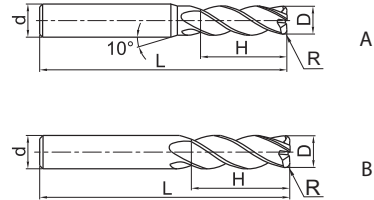
**A**

## Torus mill High-performance machining

**PM-4R**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-4R-D3.0R0.2		0.2	3	6	8	50	4	A	●
PM-4R-D4.0R0.3		0.3	4	6	10	50	4	A	●
PM-4R-D4.0R0.5		0.5	4	6	10	50	4	A	●
PM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
PM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
PM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
PM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
PM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
PM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
PM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
PM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
PM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
PM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
PM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
PM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
PM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
PM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

**E**

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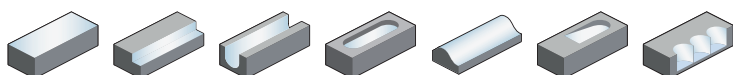
System code > B268

Cutting data > B436

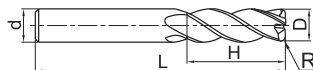
Nonstandard order > B477

**Torus mill long shank** **High-performance machining**

**PM-4RL**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG405
PM-4RL-D6.0R0.5		0.5	6	6	16	75	4	●
PM-4RL-D6.0R1.0		1	6	6	16	75	4	●
PM-4RL-D8.0R0.5		0.5	8	8	20	100	4	●
PM-4RL-D8.0R1.0		1	8	8	20	100	4	○
PM-4RL-D10.0R0.5		0.5	10	10	25	100	4	○
PM-4RL-D10.0R1.0		1	10	10	25	100	4	●
PM-4RL-D10.0R2.0		2	10	10	25	100	4	●
PM-4RL-D12.0R0.5		0.5	12	12	30	100	4	●
PM-4RL-D12.0R1.0		1	12	12	30	100	4	●
PM-4RL-D12.0R2.0		2	12	12	30	100	4	●
PM-4RL-D16.0R1.0		1	16	16	45	150	4	●
PM-4RL-D16.0R2.0		2	16	16	45	150	4	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



## Notes

**A**

Turning

**B**

Milling

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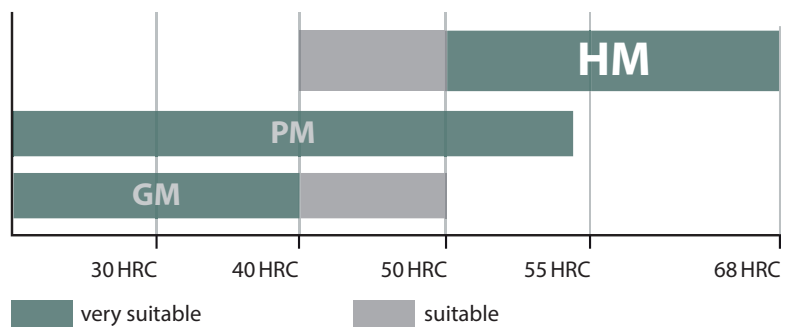


# HM series

## For machining of hardened materials

- For machining of steel up to 68 HRC.
- Very stable cutting edge with high stiffness and newest coating technology for high cutting speeds and feed rates.
- End mills, ball nose cutters, torus mills and mini cutters
- Diameter range 0.3–20.0 mm

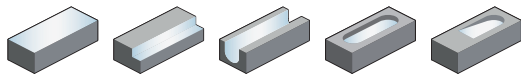
### Application fields for machining of steel



**A**

End mill

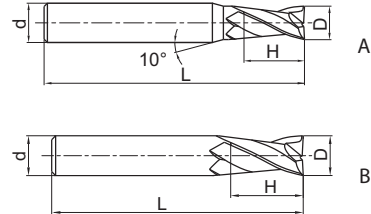
Hard machining



HM-2E

- Factory standard
- Centre cutting
- Helix angle 35°

Turning



**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-2E-D1.0S		1	4	3	50	2	A	●
HM-2E-D1.5S		1.5	4	4	50	2	A	●
HM-2E-D2.0S		2	4	6	50	2	A	●
HM-2E-D2.5S		2.5	4	8	50	2	A	●
HM-2E-D3.0S		3	4	8	50	2	A	●
HM-2E-D4.0S		4	4	11	50	2	B	●
HM-2E-D1.0		1	6	3	50	2	A	●
HM-2E-D1.5		1.5	6	4	50	2	A	●
HM-2E-D2.0		2	6	6	50	2	A	●
HM-2E-D2.5		2.5	6	8	50	2	A	●
HM-2E-D3.0		3	6	8	50	2	A	●
HM-2E-D3.5		3.5	6	10	50	2	A	●
HM-2E-D4.0		4	6	11	50	2	A	●
HM-2E-D4.5		4.5	6	11	50	2	A	●
HM-2E-D5.0		5	6	13	50	2	A	●
HM-2E-D5.5		5.5	6	16	50	2	A	●
HM-2E-D6.0		6	6	16	50	2	B	●
HM-2E-D7.0		7	8	20	60	2	A	●
HM-2E-D8.0		8	8	20	60	2	B	●
HM-2E-D9.0		9	10	22	75	2	A	●
HM-2E-D10.0		10	10	25	75	2	B	●
HM-2E-D11.0		11	12	26	75	2	A	○
HM-2E-D12.0		12	12	30	75	2	B	●
HM-2E-D14.0		14	14	32	100	2	B	●
HM-2E-D16.0		16	16	45	100	2	B	●
HM-2E-D18.0		18	18	45	100	2	B	○
HM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

Index

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable  
 ✓ Suitable

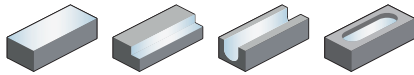
System code > B268

Cutting data > B436

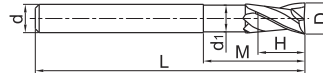
Nonstandard order > B477

End mill short cutting edge **Hard machining**

**HM-2EFP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG555
HM-2EFP-D6.0		6	6	5.8	9	30	75	2	○
HM-2EFP-D8.0		8	8	7.8	12	40	100	2	○
HM-2EFP-D10.0		10	10	9.6	15	50	100	2	○
HM-2EFP-D12.0		12	12	11.5	18	50	100	2	○
HM-2EFP-D16.0		16	16	15.5	24	50	150	2	○
HM-2EFP-D20.0		20	20	19.5	30	60	150	2	○

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

A

Turning

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System code > B268

Cutting data > B436

Nonstandard order > B477

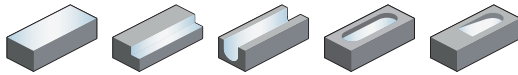


**A**

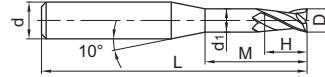
End mill

Hard machining

HM-2EP



- Straight shank
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG555
HM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
HM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
HM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
HM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
HM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
HM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
HM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
HM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
HM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
HM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
HM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
HM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
HM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
HM-2EP-D1.2-M06		1.2	4	1.15	1.8	6	50	2	●
HM-2EP-D1.2-M08		1.2	4	1.15	1.8	8	50	2	●
HM-2EP-D1.2-M10		1.2	4	1.15	1.8	10	50	2	●
HM-2EP-D1.2-M12		1.2	4	1.15	1.8	12	50	2	●
HM-2EP-D1.5-M06		1.5	4	1.45	2.3	6	50	2	●
HM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
HM-2EP-D1.5-M10		1.5	4	1.45	2.3	10	50	2	●
HM-2EP-D1.5-M12		1.5	4	1.45	2.3	12	50	2	●
HM-2EP-D1.5-M14		1.5	4	1.45	2.3	14	50	2	●
HM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
HM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
HM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
HM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
HM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
HM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
HM-2EP-D2.5-M08		2.5	4	2.4	3.7	8	50	2	●
HM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
HM-2EP-D2.5-M12		2.5	4	2.4	3.7	12	50	2	●
HM-2EP-D2.5-M14		2.5	4	2.4	3.7	14	50	2	●
HM-2EP-D2.5-M16		2.5	4	2.4	3.7	16	60	2	●
HM-2EP-D2.5-M18		2.5	4	2.4	3.7	18	60	2	●
HM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
HM-2EP-D3.0-M06		3	6	2.85	4.5	6	50	2	●
HM-2EP-D3.0-M08		3	6	2.85	4.5	8	50	2	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

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Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

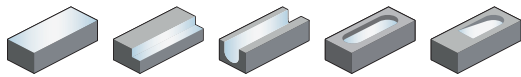
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Cutting data > B436

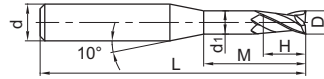
Nonstandard order > B477

**End mill** **Hard machining**

**HM-2EP**



- Straight shank
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG555
HM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
HM-2EP-D3.0-M12		3	6	2.85	4.5	12	50	2	●
HM-2EP-D3.0-M14		3	6	2.85	4.5	14	60	2	●
HM-2EP-D3.0-M16		3	6	2.85	4.5	16	60	2	●
HM-2EP-D3.0-M18		3	6	2.85	4.5	18	60	2	●
HM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
HM-2EP-D4.0-M12		4	6	3.85	6	12	60	2	●
HM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
HM-2EP-D4.0-M20		4	6	3.85	6	20	60	2	●
HM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
HM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●
HM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

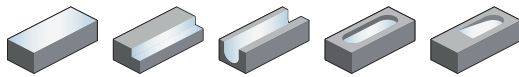
Nonstandard order > B477



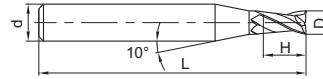
## End mill

### Hard machining

## HM-2ES



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG555
HM-2ES-D0.3		0.3	4	0.6	50	2	●
HM-2ES-D0.4		0.4	4	0.8	50	2	●
HM-2ES-D0.5		0.5	4	1	50	2	●
HM-2ES-D0.6		0.6	4	1.2	50	2	●
HM-2ES-D0.7		0.7	4	1.4	50	2	●
HM-2ES-D0.8		0.8	4	1.6	50	2	●
HM-2ES-D0.9		0.9	4	1.8	50	2	●
HM-2ES-D1.0		1	4	2	50	2	●
HM-2ES-D1.1		1.1	4	2	50	2	●
HM-2ES-D1.2		1.2	4	2.5	50	2	●
HM-2ES-D1.3		1.3	4	2.5	50	2	●
HM-2ES-D1.4		1.4	4	3	50	2	●
HM-2ES-D1.5		1.5	4	3	50	2	●
HM-2ES-D1.6		1.6	4	3.5	50	2	●
HM-2ES-D1.7		1.7	4	3.5	50	2	●
HM-2ES-D1.8		1.8	4	4	50	2	●
HM-2ES-D1.9		1.9	4	4	50	2	●
HM-2ES-D2.0		2	4	4	50	2	●
HM-2ES-D2.1		2.1	4	4	50	2	●
HM-2ES-D2.2		2.2	4	4.5	50	2	●
HM-2ES-D2.3		2.3	4	4.5	50	2	●
HM-2ES-D2.4		2.4	4	5	50	2	●
HM-2ES-D2.5		2.5	4	5	50	2	●
HM-2ES-D2.6		2.6	4	5	50	2	●
HM-2ES-D2.7		2.7	4	5.5	50	2	●
HM-2ES-D2.8		2.8	4	5.5	50	2	●
HM-2ES-D2.9		2.9	4	6	50	2	●
HM-2ES-D3.0		3	4	6	50	2	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

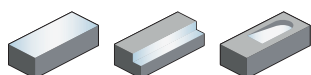
System code > B268

Cutting data > B436

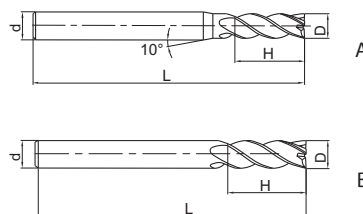
Nonstandard order > B477

**End mill** **Hard machining**

**HM-4E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-4E-D1.0S		1	4	3	50	4	A	●
HM-4E-D1.5S		1.5	4	4	50	4	A	●
HM-4E-D2.0S		2	4	6	50	4	A	●
HM-4E-D2.5S		2.5	4	8	50	4	A	●
HM-4E-D3.0S		3	4	8	50	4	A	●
HM-4E-D4.0S		4	4	11	50	4	B	●
HM-4E-D1.0		1	6	3	50	4	A	●
HM-4E-D1.5		1.5	6	4	50	4	A	●
HM-4E-D2.0		2	6	6	50	4	A	●
HM-4E-D2.5		2.5	6	8	50	4	A	●
HM-4E-D3.0		3	6	8	50	4	A	●
HM-4E-D3.5		3.5	6	10	50	4	A	●
HM-4E-D4.0		4	6	11	50	4	A	●
HM-4E-D4.5		4.5	6	11	50	4	A	●
HM-4E-D5.0		5	6	13	50	4	A	●
HM-4E-D5.5		5.5	6	16	50	4	A	●
HM-4E-D6.0		6	6	16	50	4	B	●
HM-4E-D7.0		7	8	20	60	4	A	●
HM-4E-D8.0		8	8	20	60	4	B	●
HM-4E-D9.0		9	10	22	75	4	A	●
HM-4E-D10.0		10	10	25	75	4	B	●
HM-4E-D11.0		11	12	26	75	4	A	●
HM-4E-D12.0		12	12	30	75	4	B	●
HM-4E-D14.0		14	14	32	75	4	B	●
HM-4E-D16.0		16	16	45	100	4	B	●
HM-4E-D18.0		18	18	45	100	4	B	●
HM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

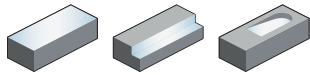
Nonstandard order > B477



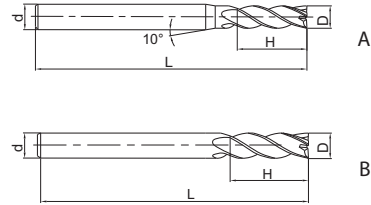
**A**

## End mill long shank Hard machining

**HM-4EL**



- Factory standard
- Centre cutting
- Helix angle 45°



Turning

**B**

Milling

**C**

Drilling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-4EL-D3.0		3	6	12	75	4	A	●
HM-4EL-D4.0		4	6	15	75	4	A	●
HM-4EL-D5.0		5	6	20	75	4	A	●
HM-4EL-D6.0		6	6	20	75	4	B	●
HM-4EL-D8.0		8	8	25	100	4	B	●
HM-4EL-D10.0		10	10	30	100	4	B	●
HM-4EL-D12.0		12	12	35	100	4	B	●
HM-4EL-D14.0		14	14	40	100	4	B	●
HM-4EL-D16.0		16	16	50	150	4	B	●
HM-4EL-D20.0		20	20	55	150	4	B	●

- Ex stock   ○ On demand
- \* With internal cooling

**D**

Technical Information

**E**

Index

### Application field

P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

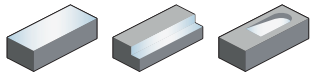
Cutting data > B436

Nonstandard order > B477

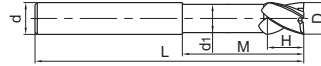


End mill short cutting edge **Hard machining**

**HM-4EFP**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG555
HM-4EFP-D6.0		6	6	5.8	9	30	75	4	●
HM-4EFP-D8.0		8	8	7.8	12	40	100	4	●
HM-4EFP-D10.0		10	10	9.6	15	50	100	4	●
HM-4EFP-D12.0		12	12	11.5	18	50	100	4	●
HM-4EFP-D16.0		16	16	15.5	24	50	150	4	●
HM-4EFP-D20.0		20	20	19.5	30	60	150	4	○

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

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System code > B268

Cutting data > B436

Nonstandard order > B477



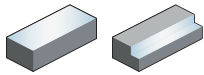
**A**

End mill long cutting edge

High-speed hard machining

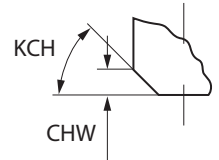
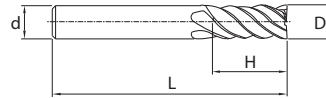
Turning

5502R55MHH



- Type of shank DIN 6535HA
- Non-centre cutting
- Helix angle 55°

**B**



Milling

Article	*	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG405	KMG555
5502R55MHH-0300		3	6	8	57	0	0	4	●	●
5502R55MHH-0400		4	6	11	57	0	0	4	●	●
5502R55MHH-0500		5	6	13	57	0	0	5	●	●
5502R55MHH-0600		6	6	13	57	45	0.1	6	●	●
5502R55MHH-0800		8	8	19	63	45	0.1	6	●	●
5502R55MHH-1000		10	10	22	72	45	0.1	6	●	●
5502R55MHH-1200		12	12	26	83	45	0.1	6	●	●
5502R55MHH-1600		16	16	32	92	45	0.1	6	●	●
5502R55MHH-2000		20	20	38	104	45	0.1	8	●	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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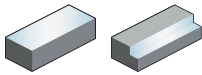
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Cutting data > B436

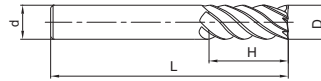
Nonstandard order > B477

**End mill** **Hard machining**

**HM-6E**



- Factory standard
- Non-centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG555
HM-6E-D6.0		6	6	18	60	6	○
HM-6E-D8.0		8	8	20	60	6	○
HM-6E-D10.0		10	10	30	75	6	○
HM-6E-D12.0		12	12	32	75	6	○
HM-6E-D16.0		16	16	40	100	6	○
HM-6E-D20.0		20	20	45	100	6	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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System code > B268

Cutting data > B436

Nonstandard order > B477



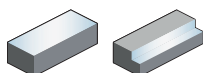
**A**

End mill long shank

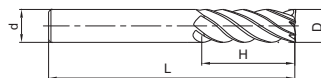
Hard machining

Turning

HM-6EL



- Factory standard
- Non-centre cutting
- Helix angle 45°



**B**

Milling

Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG555
HM-6EL-D6.0		6	6	24	75	6	●
HM-6EL-D8.0		8	8	32	75	6	●
HM-6EL-D10.0		10	10	40	100	6	●
HM-6EL-D12.0		12	12	45	100	6	●
HM-6EL-D16.0		16	16	64	150	6	●
HM-6EL-D20.0		20	20	75	150	6	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

**D**

Technical Information

**E**

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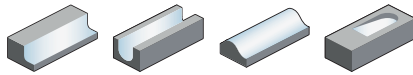
System code > B268

Cutting data > B436

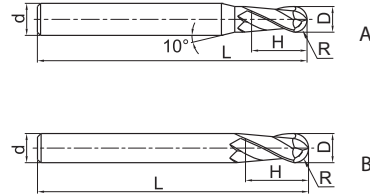
Nonstandard order > B477

**Ball nose cutter** **Hard machining**

**HM-2B**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			
HM-2B-R0.5S		0.5	1	4	2	50	2	A	●
HM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
HM-2B-R1.0S		1	2	4	4	50	2	A	●
HM-2B-R1.25S		1.25	2.5	4	5	50	2	A	●
HM-2B-R1.5S		1.5	3	4	6	50	2	A	●
HM-2B-R2.0S		2	4	4	8	50	2	B	●
HM-2B-R0.5		0.5	1	6	2	50	2	A	●
HM-2B-R0.75		0.75	1.5	6	3	50	2	A	●
HM-2B-R1.0		1	2	6	4	50	2	A	●
HM-2B-R1.25		1.25	2.5	6	5	50	2	A	●
HM-2B-R1.5		1.5	3	6	6	50	2	A	●
HM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
HM-2B-R2.0		2	4	6	8	50	2	A	●
HM-2B-R2.5		2.5	5	6	10	50	2	A	●
HM-2B-R2.75		2.75	5.5	6	12	50	2	A	●
HM-2B-R3.0		3	6	6	12	50	2	B	●
HM-2B-R3.5		3.5	7	8	14	60	2	A	●
HM-2B-R4.0		4	8	8	16	60	2	B	●
HM-2B-R4.5		4.5	9	10	18	75	2	A	●
HM-2B-R5.0		5	10	10	20	75	2	B	●
HM-2B-R6.0		6	12	12	24	75	2	B	●
HM-2B-R7.0		7	14	14	28	75	2	B	●
HM-2B-R8.0		8	16	16	32	100	2	B	●
HM-2B-R10.0		10	20	20	40	100	2	B	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

System code > B268    Cutting data > B436    Nonstandard order > B477



**A**  
Turning

**B**  
Milling

**C**  
Drilling

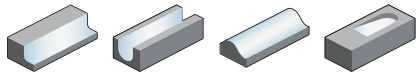
**D**  
Technical Information

**E**  
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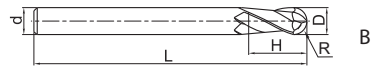
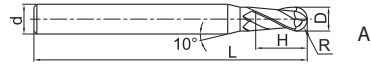
**A**

## Ball nose cutter long shank Hard machining

**HM-2BL**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG555
HM-2BL-R1.0		1	2	6	4	75	2	A	●
HM-2BL-R1.25		1.25	2.5	6	6	75	2	A	●
HM-2BL-R1.5		1.5	3	6	6	75	2	A	●
HM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
HM-2BL-R2.0		2	4	6	8	75	2	A	●
HM-2BL-R2.5		2.5	5	6	10	75	2	A	●
HM-2BL-R2.75		2.75	5.5	6	12	75	2	A	●
HM-2BL-R3.0		3	6	6	12	75	2	B	●
HM-2BL-R3.5		3.5	7	8	14	75	2	A	●
HM-2BL-R4.0		4	8	8	16	100	2	B	●
HM-2BL-R4.5		4.5	9	10	18	100	2	A	●
HM-2BL-R5.0		5	10	10	20	100	2	B	●
HM-2BL-R6.0		6	12	12	24	100	2	B	●
HM-2BL-R7.0		7	14	14	28	100	2	B	●
HM-2BL-R8.0		8	16	16	32	150	2	B	●
HM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

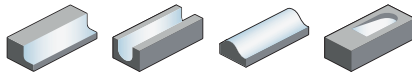
System code > B268

Cutting data > B436

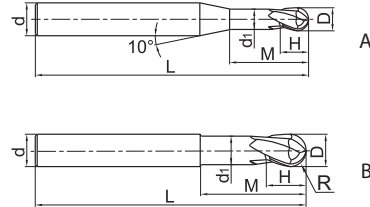
Nonstandard order > B477

**Ball nose cutter short cutting edge** **Hard machining**

**HM-2BFP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]								Teeth	Geometry	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L	KMG555			
HM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	●	
HM-2BFP-R0.75		0.75	1.5	6	1.45	1.5	3	75	2	A	●	
HM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●	
HM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	●	
HM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	●	
HM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	●	
HM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	●	
HM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	●	
HM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	●	
HM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	●	
HM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	●	
HM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	○	

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



A

Turning

B

Milling

C

Drilling

D

Technical Information

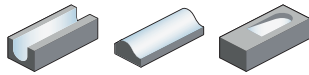
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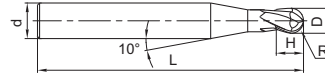
**A**

**Ball nose cutter** **Hard machining**

**HM-2BS**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG555
HM-2BS-R0.15		0.15	0.3	4	0.5	50	2	●
HM-2BS-R0.20		0.2	0.4	4	0.6	50	2	●
HM-2BS-R0.25		0.25	0.5	4	0.8	50	2	●
HM-2BS-R0.30		0.3	0.6	4	0.9	50	2	●
HM-2BS-R0.35		0.35	0.7	4	1	50	2	●
HM-2BS-R0.40		0.4	0.8	4	1.2	50	2	●
HM-2BS-R0.45		0.45	0.9	4	1.3	50	2	●
HM-2BS-R0.50		0.5	1	4	1.5	50	2	●
HM-2BS-R0.60		0.6	1.2	4	1.8	50	2	●
HM-2BS-R0.70		0.7	1.4	4	2	50	2	●
HM-2BS-R0.75		0.75	1.5	4	2.3	50	2	●
HM-2BS-R0.80		0.8	1.6	4	2.5	50	2	●
HM-2BS-R0.90		0.9	1.8	4	2.7	50	2	●
HM-2BS-R1.00		1	2	4	3	50	2	●
HM-2BS-R1.25		1.25	2.5	4	3.7	50	2	●
HM-2BS-R1.50		1.5	3	4	4.5	50	2	●

Milling

**C**

- Ex stock ○ On demand
- \* With internal cooling

Drilling

**D**

**Application field**

P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

Technical Information

**F**

Index

System code > B268

Cutting data > B436

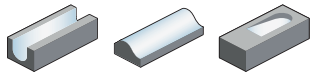
Nonstandard order > B477



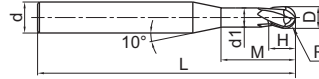
End mill

Hard machining

HM-2BP



- Straight shank
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]								Teeth	Grade KMG555
		R	D	d (h6)	d <sub>1</sub>	H	M	L			
HM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●	
HM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●	
HM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●	
HM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●	
HM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●	
HM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●	
HM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●	
HM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●	
HM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●	
HM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●	
HM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●	
HM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●	
HM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●	
HM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●	
HM-2BP-R0.6-M06		0.6	1.2	4	1.15	1.8	6	50	2	●	
HM-2BP-R0.6-M08		0.6	1.2	4	1.15	1.8	8	50	2	●	
HM-2BP-R0.6-M12		0.6	1.2	4	1.15	1.8	12	50	2	●	
HM-2BP-R0.6-M16		0.6	1.2	4	1.15	1.8	16	50	2	●	
HM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●	
HM-2BP-R0.75-M12		0.75	1.5	4	1.45	2.3	12	50	2	●	
HM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●	
HM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●	
HM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●	
HM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●	
HM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●	
HM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●	
HM-2BP-R1.0-M20		1	2	4	1.95	3	20	50	2	●	
HM-2BP-R1.25-M08		1.25	2.5	4	2.4	3.7	8	50	2	●	
HM-2BP-R1.25-M12		1.25	2.5	4	2.4	3.7	12	50	2	●	
HM-2BP-R1.25-M16		1.25	2.5	4	2.4	3.7	16	60	2	●	
HM-2BP-R1.25-M20		1.25	2.5	4	2.4	3.7	20	60	2	●	
HM-2BP-R1.5-M08		1.5	3	6	2.85	4.5	8	50	2	●	
HM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●	
HM-2BP-R1.5-M12		1.5	3	6	2.85	4.5	12	50	2	●	
HM-2BP-R1.5-M16		1.5	3	6	2.85	4.5	16	60	2	●	
HM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●	
HM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●	

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



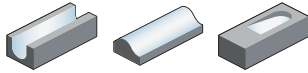
**A**

End mill

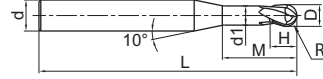
Hard machining

Turning

HM-2BP



- Straight shank
- Centre cutting
- Helix angle 35°



**B**

Milling

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		KMG555
HM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
HM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
HM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
HM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
HM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

**D**

Technical Information

**E**

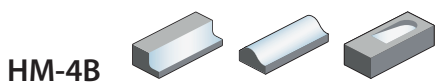
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System code > B268

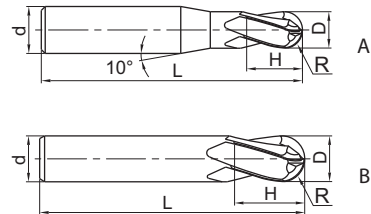
Cutting data > B436

Nonstandard order > B477

**Ball nose cutter** **Hard machining**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG555
HM-4B-R1.5		1.5	3	6	6	50	4	A	●
HM-4B-R2.0		2	4	6	8	50	4	A	●
HM-4B-R2.5		2.5	5	6	10	50	4	A	●
HM-4B-R3.0		3	6	6	12	50	4	B	●
HM-4B-R4.0		4	8	8	16	60	4	B	●
HM-4B-R5.0		5	10	10	20	75	4	B	●
HM-4B-R6.0		6	12	12	24	75	4	B	●
HM-4B-R7.0		7	14	14	28	75	4	B	●
HM-4B-R8.0		8	16	16	32	100	4	B	●
HM-4B-R9.0		9	18	18	36	100	4	B	●
HM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



A

Turning

B

Milling

C

Drilling

D

Technical Information

E

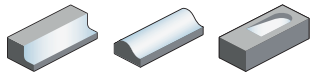
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**A**

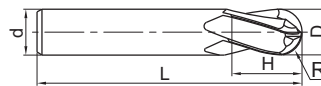
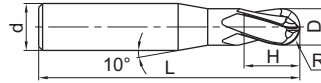
## Ball nose cutter long shank Hard machining

Turning

**HM-4BL**



- Factory standard
- Centre cutting
- Helix angle 35°



**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG555
HM-4BL-R1.5		1.5	3	6	6	75	4	A	●
HM-4BL-R2.0		2	4	6	8	75	4	A	●
HM-4BL-R2.5		2.5	5	6	10	75	4	A	●
HM-4BL-R3.0		3	6	6	12	75	4	B	●
HM-4BL-R4.0		4	8	8	16	100	4	B	●
HM-4BL-R5.0		5	10	10	20	100	4	B	●
HM-4BL-R6.0		6	12	12	24	100	4	B	●
HM-4BL-R7.0		7	14	14	28	100	4	B	●
HM-4BL-R8.0		8	16	16	32	150	4	B	●
HM-4BL-R9.0		9	18	18	36	150	4	B	●
HM-4BL-R10.0		10	20	20	40	150	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

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### Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

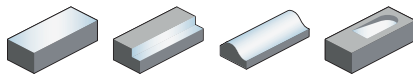
System code > B268

Cutting data > B436

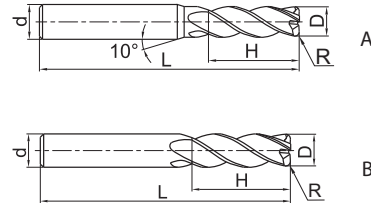
Nonstandard order > B477

**Torus mill** **Hard machining**

**HM-4R**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			
HM-4R-D3.0R0.2		0.2	3	4	8	50	4	A	●
HM-4R-D4.0R0.3		0.3	4	4	10	50	4	B	●
HM-4R-D4.0R0.5		0.5	4	4	10	50	4	B	●
HM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
HM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
HM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
HM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
HM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
HM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
HM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
HM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
HM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
HM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
HM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
HM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
HM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
HM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

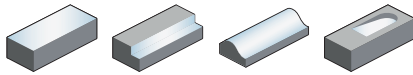
**E**

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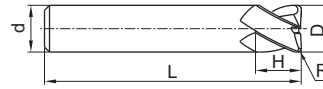
**A**

## Torus mill short cutting edge Hard machining

**HM-4RF**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG555
HM-4RF-D6.0R0.5		0.5	6	6	6	50	4	○
HM-4RF-D6.0R1.0		1	6	6	6	50	4	○
HM-4RF-D8.0R0.5		0.5	8	8	8	60	4	○
HM-4RF-D8.0R1.0		1	8	8	8	60	4	○
HM-4RF-D10.0R1.0		1	10	10	10	75	4	○
HM-4RF-D10.0R2.0		2	10	10	10	75	4	○
HM-4RF-D12.0R0.5		0.5	12	12	12	75	4	○
HM-4RF-D12.0R1.0		1	12	12	12	75	4	○
HM-4RF-D12.0R2.0		2	12	12	12	75	4	○

- Ex stock ○ On demand
- \* With internal cooling

Milling

**C**

### Application field

P	M	K	N	S	H
					✓

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

Technical Information

**E**

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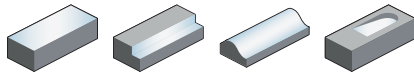
System code > B268

Cutting data > B436

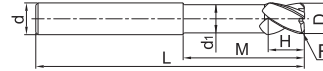
Nonstandard order > B477

**Torus mill long shank** **Hard machining**

**HM-4RP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		
HM-4RP-D6.0R0.5		0.5	6	6	5.8	6	18	75	4	○
HM-4RP-D6.0R1.0		1	6	6	5.8	6	18	75	4	○
HM-4RP-D8.0R0.5		0.5	8	8	7.8	8	24	100	4	○
HM-4RP-D8.0R1.0		1	8	8	7.8	8	24	100	4	○
HM-4RP-D10.0R0.5		0.5	10	10	9.6	10	30	100	4	○
HM-4RP-D10.0R1.0		1	10	10	9.6	10	30	100	4	○
HM-4RP-D10.0R2.0		2	10	10	9.6	10	30	100	4	○
HM-4RP-D12.0R0.5		0.5	12	12	11.5	12	36	100	4	○
HM-4RP-D12.0R1.0		1	12	12	11.5	12	36	100	4	○
HM-4RP-D12.0R2.0		2	12	12	11.5	12	36	100	4	○
HM-4RP-D16.0R1.0		1	16	16	15.5	16	40	150	4	●
HM-4RP-D16.0R2.0		2	16	16	15.5	16	40	150	4	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



## Notes

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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Notes section containing horizontal dotted lines for writing.



# NM series

## For machining of copper

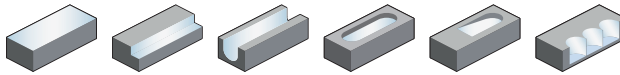
- For machining of copper and copper alloys (brass, bronze).
- Excellent sharpness of cutting edge for very good surface quality.
- End mills, ball nose cutters and mini cutters.
- Diameter range 0.5–20.0 mm



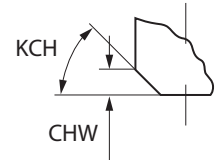
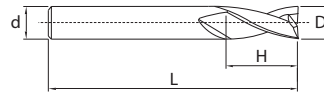
**A**

## End mill General machining of non-ferrous metals

### 5502R402NM



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 40°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		YK30F
5502R402NM-0300		3	6	8	57	0	0	2	●
5502R402NM-0400		4	6	11	57	0	0	2	●
5502R402NM-0500		5	6	13	57	0	0	2	●
5502R402NM-0600		6	6	13	57	45	0.1	2	●
5502R402NM-0800		8	8	19	63	45	0.1	2	●
5502R402NM-1000		10	10	22	72	45	0.1	2	●
5502R402NM-1200		12	12	26	83	45	0.1	2	●
5502R402NM-1400		14	14	26	83	45	0.15	2	●
5502R402NM-1600		16	16	32	92	45	0.15	2	●
5502R402NM-1800		18	18	32	92	45	0.15	2	●
5502R402NM-2000		20	20	38	104	45	0.15	2	●

● Ex stock   ○ On demand

\* With internal cooling

Milling

**C**

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

Drilling

**D**

Technical Information

**E**

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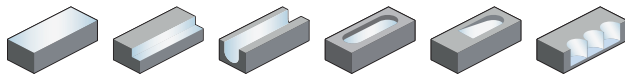
System code > B268

Cutting data > B436

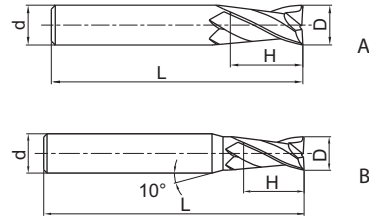
Nonstandard order > B477

**End mill** **General machining of non-ferrous metals**

**NM-2E**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG309
NM-2E-D1.0		1	4	3	50	2	A	●
NM-2E-D2.0		2	4	6	50	2	A	●
NM-2E-D3.0		3	6	8	50	2	A	●
NM-2E-D4.0		4	6	11	50	2	A	●
NM-2E-D5.0		5	6	13	50	2	A	●
NM-2E-D6.0		6	6	16	50	2	B	●
NM-2E-D8.0		8	8	20	60	2	B	●
NM-2E-D10.0		10	10	25	75	2	B	●
NM-2E-D12.0		12	12	30	75	2	B	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

System code > B268

Cutting data > B436

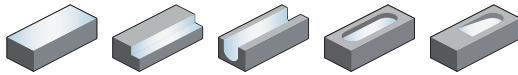
Nonstandard order > B477



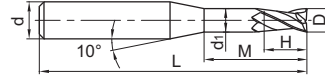
**A**

## End mill General machining of non-ferrous metals

### NM-2EP



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG309
NM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
NM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
NM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
NM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
NM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
NM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
NM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
NM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
NM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
NM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
NM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
NM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
NM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
NM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
NM-2EP-D1.5-M16		1.5	4	1.45	2.3	16	50	2	●
NM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
NM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
NM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
NM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
NM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
NM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
NM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
NM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
NM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
NM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
NM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
NM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
NM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●
NM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Drilling

**D**

Technical Information

**E**

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#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

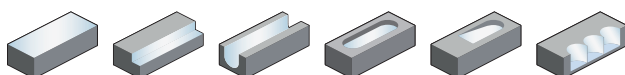
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Cutting data > B436

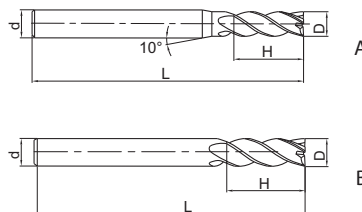
Nonstandard order > B477

**End mill** **General machining of non-ferrous metals**

**NM-4E**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG309
NM-4E-D3.0		3	6	8	50	4	A	●
NM-4E-D4.0		4	6	11	50	4	A	●
NM-4E-D5.0		5	6	13	50	4	A	●
NM-4E-D6.0		6	6	16	50	4	B	●
NM-4E-D8.0		8	8	20	60	4	B	●
NM-4E-D10.0		10	10	25	75	4	B	●
NM-4E-D12.0		12	12	30	75	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

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System code > B268

Cutting data > B436

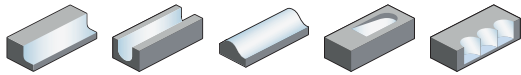
Nonstandard order > B477



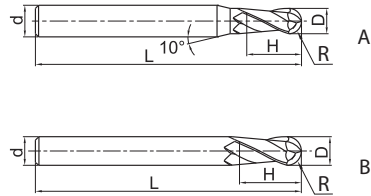
**A**

## Ball nose cutter General machining of non-ferrous metals

**NM-2B**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

**C**

Drilling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG309
NM-2B-R0.5		0.5	1	4	2	50	2	A	●
NM-2B-R0.75		0.75	1.5	4	3	50	2	A	●
NM-2B-R1.0		1	2	4	4	50	2	A	●
NM-2B-R1.25		1.25	2.5	4	5	50	2	A	●
NM-2B-R1.5		1.5	3	6	6	50	2	A	●
NM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
NM-2B-R2.0		2	4	6	8	50	2	A	●
NM-2B-R2.5		2.5	5	6	10	50	2	A	●
NM-2B-R3.0		3	6	6	12	50	2	B	●
NM-2B-R4.0		4	8	8	16	60	2	B	●
NM-2B-R5.0		5	10	10	20	75	2	B	●
NM-2B-R6.0		6	12	12	24	75	2	B	●

● Ex stock ○ On demand

\* With internal cooling

**D**

Technical Information

### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

**E**

Index

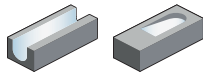
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Cutting data > B436

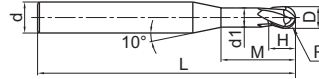
Nonstandard order > B477

**Ball nose cutter** **General machining of non-ferrous metals**

**NM-2BP**



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]							Teeth	Grade KMG309
		R	D	d (h6)	d <sub>1</sub>	H	M	L		
NM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
NM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
NM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
NM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
NM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
NM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
NM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
NM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
NM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●
NM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
NM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
NM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
NM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
NM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
NM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
NM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
NM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●
NM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
NM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
NM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
NM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
NM-2BP-R1.0-M20		1	2	4	1.95	3	20	60	2	●
NM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
NM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●
NM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●
NM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
NM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
NM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
NM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
NM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



## Notes

**A**

Turning

**B**

Milling

**C**

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# AL series

*For machining of aluminium alloys*

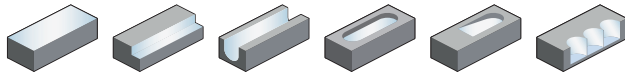
- Newly developed geometries expand our standard program:
  - ALP for high-speed roughing
  - ALG for finishing with very good surface quality
  - AIR torus mills for ultra high-speed machining
- With our diamond-like carbon grade KMD401, tool life is significantly increased.
- End mills, ball nose cutters, torus mills and rippers
- Diameter range 1.0–20.0 mm



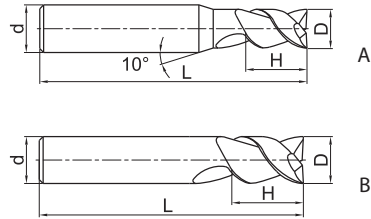
**A**

## End mill General machining of Al and Al alloys

**AL-2E**



- Factory standard
- Centre cutting
- Helix angle 55°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-2E-D1.0		1	4	3	50	2	A	●
AL-2E-D1.5		1.5	4	4	50	2	A	●
AL-2E-D2.0		2	4	6	50	2	A	●
AL-2E-D2.5		2.5	4	7	50	2	A	●
AL-2E-D3.0		3	6	9	50	2	A	●
AL-2E-D4.0		4	6	12	50	2	A	●
AL-2E-D5.0		5	6	15	50	2	A	●
AL-2E-D6.0		6	6	18	60	2	B	●
AL-2E-D8.0		8	8	20	60	2	B	●
AL-2E-D10.0		10	10	30	75	2	B	●
AL-2E-D12.0		12	12	32	75	2	B	●
AL-2E-D16.0		16	16	45	100	2	B	●
AL-2E-D20.0		20	20	45	100	2	B	●

● Ex stock   ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

**E**

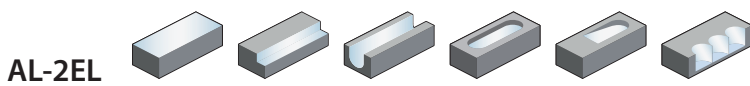
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System code > B268

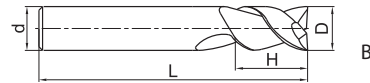
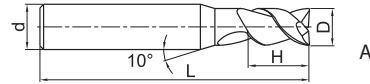
Cutting data > B436

Nonstandard order > B477

**End mill long cutting edge**    **General machining of Al and Al alloys**



- Factory standard
- Centre cutting
- Helix angle 55°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-2EL-D3.0		3	6	12	60	2	A	●
AL-2EL-D4.0		4	6	16	60	2	A	●
AL-2EL-D5.0		5	6	20	60	2	A	●
AL-2EL-D6.0		6	6	25	75	2	B	●
AL-2EL-D8.0		8	8	32	75	2	B	●
AL-2EL-D10.0		10	10	45	100	2	B	●
AL-2EL-D12.0		12	12	45	100	2	B	●
AL-2EL-D16.0		16	16	65	150	2	B	●
AL-2EL-D20.0		20	20	75	150	2	B	●

● Ex stock    ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

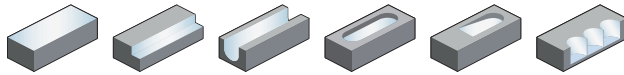
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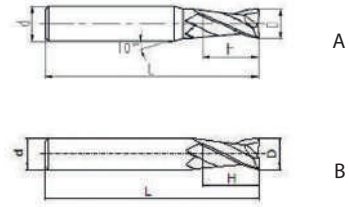
**A**

## End mill General machining of Al and Al alloys

**ALG-2E**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

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Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK40F
ALG-2E-D1.0		1	4	3	50	2	A	●
ALG-2E-D1.5		1.5	4	4	50	2	A	○
ALG-2E-D2.0		2	4	6	50	2	A	●
ALG-2E-D2.5		2.5	4	8	50	2	A	○
ALG-2E-D3.0S		3	4	8	50	2	A	●
ALG-2E-D3.5S		3.5	4	10	50	2	A	○
ALG-2E-D4.0S		4	4	11	50	2	B	○
ALG-2E-D3.0		3	6	8	50	2	A	●
ALG-2E-D3.5		3.5	6	10	50	2	A	○
ALG-2E-D4.0		4	6	11	50	2	A	●
ALG-2E-D4.5		4.5	6	11	50	2	A	○
ALG-2E-D5.0		5	6	13	50	2	A	●
ALG-2E-D5.5		5.5	6	16	50	2	A	○
ALG-2E-D6.0		6	6	16	50	2	B	●
ALG-2E-D7.0		7	8	20	60	2	A	○
ALG-2E-D8.0		8	8	20	60	2	B	●
ALG-2E-D9.0		9	10	22	75	2	A	○
ALG-2E-D10.0		10	10	25	75	2	B	●
ALG-2E-D11.0		11	12	26	75	2	A	○
ALG-2E-D12.0		12	12	30	75	2	B	●
ALG-2E-D14.0		14	14	32	75	2	B	●
ALG-2E-D16.0		16	16	45	100	2	B	●
ALG-2E-D18.0		18	18	45	100	2	B	○
ALG-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

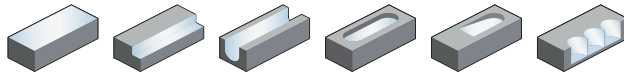
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Cutting data > B436

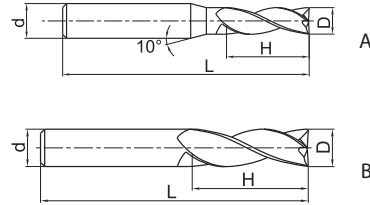
Nonstandard order > B477

**End mill**    **General machining of Al and Al alloys**

**AL-3E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-3E-D1.0		1	4	3	50	3	A	●
AL-3E-D1.5		1.5	4	4	50	3	A	●
AL-3E-D2.0		2	4	6	50	3	A	●
AL-3E-D2.5		2.5	4	7	50	3	A	●
AL-3E-D3.0		3	6	9	50	3	A	●
AL-3E-D4.0		4	6	12	50	3	A	●
AL-3E-D5.0		5	6	15	50	3	A	●
AL-3E-D6.0		6	6	18	60	3	B	●
AL-3E-D8.0		8	8	20	60	3	B	●
AL-3E-D10.0		10	10	30	75	3	B	●
AL-3E-D12.0		12	12	32	75	3	B	●
AL-3E-D16.0		16	16	45	100	3	B	●
AL-3E-D20.0		20	20	45	100	3	B	●

- Ex stock    ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

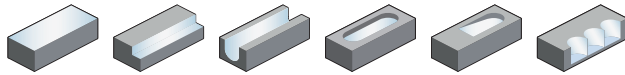
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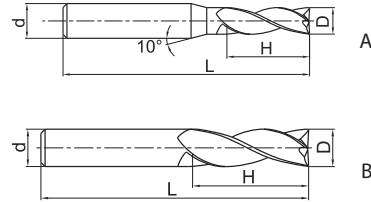
**A**

## End mill long cutting edge General machining of Al and Al alloys

**AL-3EL**



- Factory standard
- Centre cutting
- Helix angle 45°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-3EL-D3.0		3	6	12	60	3	A	●
AL-3EL-D4.0		4	6	16	60	3	A	●
AL-3EL-D5.0		5	6	20	60	3	A	●
AL-3EL-D6.0		6	6	25	75	3	B	●
AL-3EL-D8.0		8	8	32	75	3	B	●
AL-3EL-D10.0		10	10	45	100	3	B	●
AL-3EL-D12.0		12	12	45	100	3	B	●
AL-3EL-D16.0		16	16	65	150	3	B	●
AL-3EL-D20.0		20	20	75	150	3	B	●

- Ex stock ○ On demand
- \* With internal cooling

**C**

Drilling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

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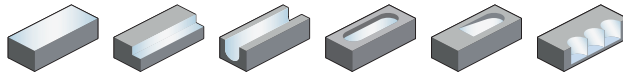
System code > B268

Cutting data > B436

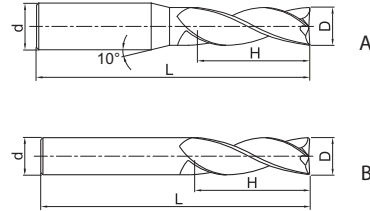
Nonstandard order > B477

**End mill** **General machining of Al and Al alloys**

**ALG-3E**



- Factory standard
- Centre cutting
- Helix angle 45°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALG-3E-D1.0		1	4	3	50	3	A	○	●
ALG-3E-D1.5		1.5	4	4	50	3	A	○	●
ALG-3E-D2.0		2	4	6	50	3	A	○	●
ALG-3E-D2.5		2.5	4	8	50	3	A	○	○
ALG-3E-D3.0S		3	4	8	50	3	A	○	●
ALG-3E-D3.5S		3.5	4	10	50	3	A	○	○
ALG-3E-D4.0S		4	4	11	50	3	B	○	●
ALG-3E-D3.0		3	6	8	50	3	A	●	●
ALG-3E-D3.5		3.5	6	10	50	3	A	●	○
ALG-3E-D4.0		4	6	11	50	3	A	●	●
ALG-3E-D4.5		4.5	6	11	50	3	A	●	○
ALG-3E-D5.0		5	6	13	50	3	A	●	●
ALG-3E-D5.5		5.5	6	16	50	3	A	●	○
ALG-3E-D6.0		6	6	16	50	3	B	●	●
ALG-3E-D7.0		7	8	20	60	3	A	●	○
ALG-3E-D8.0		8	8	20	60	3	B	●	●
ALG-3E-D9.0		9	10	22	75	3	A	●	○
ALG-3E-D10.0		10	10	25	75	3	B	●	●
ALG-3E-D11.0		11	12	26	75	3	A	●	○
ALG-3E-D12.0		12	12	30	75	3	B	●	●
ALG-3E-D14.0		14	14	32	75	3	B	●	●
ALG-3E-D16.0		16	16	45	100	3	B	●	●
ALG-3E-D18.0		18	18	45	100	3	B	●	○
ALG-3E-D20.0		20	20	45	100	3	B	○	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

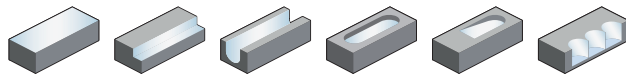
**E**

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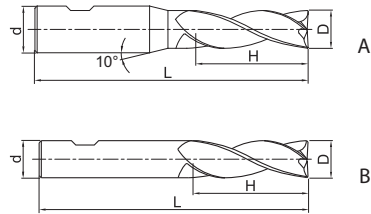
**A**

## End mill General machining of Al and Al alloys

**ALG-3E-W**



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 45°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALG-3E-D3.0-W		3	6	8	50	3	A	●
ALG-3E-D3.5-W		3.5	6	10	50	3	A	●
ALG-3E-D4.0-W		4	6	11	50	3	A	●
ALG-3E-D4.5-W		4.5	6	11	50	3	A	●
ALG-3E-D5.0-W		5	6	13	50	3	A	●
ALG-3E-D5.5-W		5.5	6	16	50	3	A	●
ALG-3E-D6.0-W		6	6	16	50	3	B	●
ALG-3E-D7.0-W		7	8	20	60	3	A	●
ALG-3E-D8.0-W		8	8	20	60	3	B	●
ALG-3E-D9.0-W		9	10	22	75	3	A	●
ALG-3E-D10.0-W		10	10	25	75	3	B	●
ALG-3E-D11.0-W		11	12	26	75	3	A	●
ALG-3E-D12.0-W		12	12	30	75	3	B	●
ALG-3E-D14.0-W		14	14	32	75	3	B	●
ALG-3E-D16.0-W		16	16	45	100	3	B	●
ALG-3E-D18.0-W		18	18	45	100	3	B	●
ALG-3E-D20.0-W		20	20	45	100	3	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

**E**

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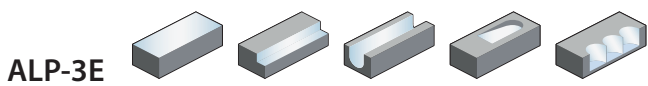
System code > B268

Cutting data > B436

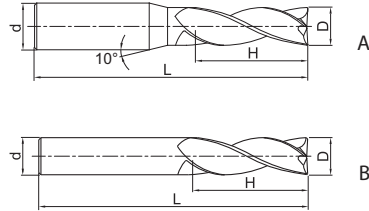
Nonstandard order > B477



**End mill** High-performance machining of Al and Al alloys



- Factory standard
- Centre cutting
- Helix angle 35°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALP-3E-D1.0		1	4	3	50	3	A	○	○
ALP-3E-D1.5		1.5	4	4	50	3	A	○	●
ALP-3E-D2.0		2	4	6	50	3	A	○	●
ALP-3E-D2.5		2.5	4	8	50	3	A	○	○
ALP-3E-D3.0S		3	4	8	50	3	A	○	●
ALP-3E-D4.0S		4	4	11	50	3	B	○	●
ALP-3E-D3.0		3	6	8	50	3	A	●	●
ALP-3E-D4.0		4	6	11	50	3	A	●	●
ALP-3E-D4.5		4.5	6	11	50	3	A	●	○
ALP-3E-D5.0		5	6	13	50	3	A	●	●
ALP-3E-D5.5		5.5	6	16	50	3	A	●	○
ALP-3E-D6.0		6	6	16	50	3	B	●	●
ALP-3E-D7.0		7	8	20	60	3	B	●	○
ALP-3E-D8.0		8	8	20	60	3	B	●	●
ALP-3E-D9.0		9	10	22	75	3	B	●	○
ALP-3E-D10.0		10	10	25	75	3	B	●	●
ALP-3E-D11.0		11	12	26	75	3	B	●	●
ALP-3E-D12.0		12	12	30	75	3	B	●	●
ALP-3E-D14.0		14	14	32	75	3	B	●	●
ALP-3E-D16.0		16	16	45	100	3	B	●	●
ALP-3E-D20.0		20	20	45	100	3	B	●	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



A

Turning

B

Milling

C

Drilling

D

Technical Information

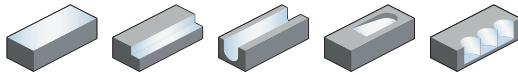
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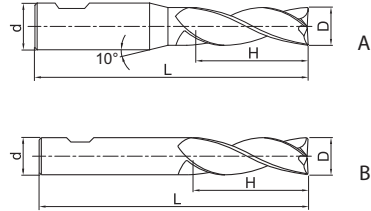
A

## End mill High-performance machining of Al and Al alloys

### ALP-3E-W



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 35°



Turning

B

Milling

C

Drilling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALP-3E-D3.0-W		3	6	8	50	3	A	●
ALP-3E-D4.0-W		4	6	11	50	3	A	●
ALP-3E-D4.5-W		4.5	6	11	50	3	A	●
ALP-3E-D5.0-W		5	6	13	50	3	A	●
ALP-3E-D5.5-W		5.5	6	16	50	3	A	●
ALP-3E-D6.0-W		6	6	16	50	3	B	●
ALP-3E-D7.0-W		7	8	20	60	3	B	●
ALP-3E-D8.0-W		8	8	20	60	3	B	●
ALP-3E-D9.0-W		9	10	22	75	3	B	●
ALP-3E-D10.0-W		10	10	25	75	3	B	●
ALP-3E-D11.0-W		11	12	26	75	3	B	●
ALP-3E-D12.0-W		12	12	30	75	3	B	●
ALP-3E-D14.0-W		14	14	32	75	3	B	●
ALP-3E-D16.0-W		16	16	45	100	3	B	●
ALP-3E-D20.0-W		20	20	45	100	3	B	●

● Ex stock   ○ On demand

\* With internal cooling

D

Technical Information

#### Application field

P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

E

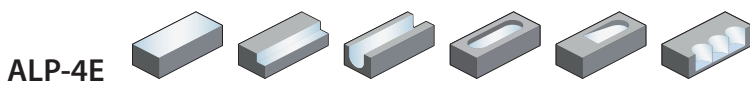
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System code > B268

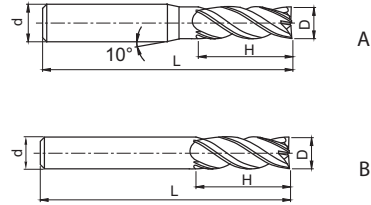
Cutting data > B436

Nonstandard order > B477

**End mill** High-performance machining of Al and Al alloys



- Factory standard
- Centre cutting
- Helix angle 38°



Article	*	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALP-4E-D3.0S	*	3	4	9	50	4	A	○	●
ALP-4E-D4.0S	*	4	4	11	50	4	B	○	●
ALP-4E-D3.0		3	6	9	50	4	A	●	●
ALP-4E-D4.0		4	6	11	50	4	A	●	●
ALP-4E-D5.0		5	6	13	50	4	A	●	●
ALP-4E-D6.0		6	6	16	50	4	B	●	●
ALP-4E-D8.0		8	8	20	60	4	B	●	●
ALP-4E-D10.0		10	10	25	75	4	B	●	●
ALP-4E-D12.0		12	12	30	75	4	B	●	●
ALP-4E-D16.0		16	16	45	100	4	B	●	●
ALP-4E-D18.0		18	18	45	100	4	B	●	○
ALP-4E-D20.0		20	20	45	100	4	B	●	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

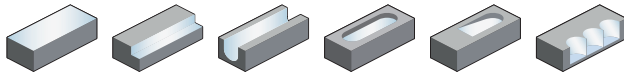
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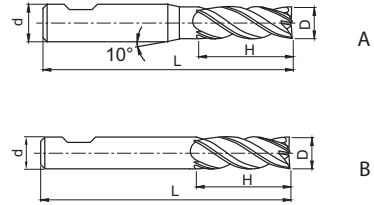
**A**

## End mill High-performance machining of Al and Al alloys

### ALP-4E-W



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 38°



Turning

**B**

Milling

Article	*	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALP-4E-D3.0-W		3	6	9	50	4	A	●
ALP-4E-D4.0-W		4	6	11	50	4	A	●
ALP-4E-D5.0-W		5	6	13	50	4	A	●
ALP-4E-D6.0-W		6	6	16	50	4	B	●
ALP-4E-D8.0-W		8	8	20	60	4	B	●
ALP-4E-D10.0-W		10	10	25	75	4	B	●
ALP-4E-D12.0-W		12	12	30	75	4	B	●
ALP-4E-D16.0-W		16	16	45	100	4	B	●
ALP-4E-D18.0-W		18	18	45	100	4	B	●
ALP-4E-D20.0-W		20	20	45	100	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

**D**

Technical Information

**E**

Index

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

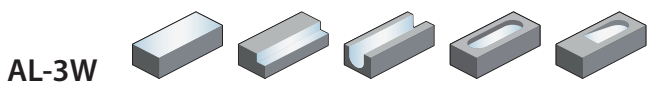
✓ Suitable

System code > B268

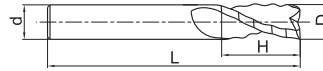
Cutting data > B436

Nonstandard order > B477

**End mill serrated teeth**    **General machining of Al and Al alloys**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		YK30F
AL-3W-D6.0		6	6	16	50	3	●
AL-3W-D8.0		8	8	20	60	3	●
AL-3W-D10.0		10	10	25	75	3	●
AL-3W-D12.0		12	12	30	75	3	●
AL-3W-D16.0		16	16	45	100	3	●
AL-3W-D20.0		20	20	45	100	3	●

- Ex stock    ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

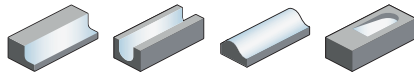
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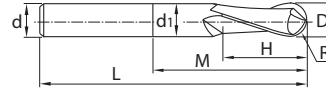
**A**

## Ball nose cutter High performance machining of heat-resistant alloys

**5565R302NH**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	M	L		YK40F
5565R302NH-0300		3	1.5	6	2.8	6	9	57	2	●
5565R302NH-0400		4	2	6	3.7	8	12	57	2	●
5565R302NH-0500		5	2.5	6	4.6	10	15	57	2	●
5565R302NH-0600		6	3	6	5.5	12	20	57	2	●
5565R302NH-0800		8	4	8	7.4	16	26	63	2	●
5565R302NH-1000		10	5	10	9.2	20	31	72	2	●
5565R302NH-1200		12	6	12	11	24	37	83	2	●
5565R302NH-1600		16	8	16	15	32	43	92	2	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

Technical Information

**E**

Index

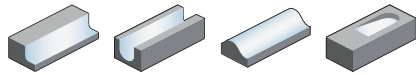
System code > B268

Cutting data > B436

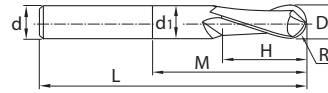
Nonstandard order > B477

**Ball nose cutter long shank** High performance machining of heat-resistant alloys

**5566R302NH**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	M	L		YK40F
5566R302NH-0300		3	1.5	6	2.8	6	9	75	2	●
5566R302NH-0400		4	2	6	3.7	8	12	75	2	●
5566R302NH-0500		5	2.5	6	4.6	10	15	80	2	●
5566R302NH-0600		6	3	6	5.5	12	20	80	2	●
5566R302NH-0800		8	4	8	7.4	16	26	90	2	●
5566R302NH-1000		10	5	10	9.2	20	31	100	2	●
5566R302NH-1200		12	6	12	11	24	37	120	2	●
5566R302NH-1600		16	8	16	15	32	43	140	2	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**A**

Turning

**B**

Milling

**C**

Drilling

**D**

Technical Information

**E**

Index

System code > B268

Cutting data > B436

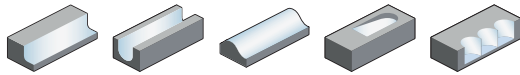
Nonstandard order > B477



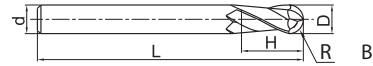
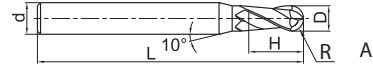
**A**

## Ball nose cutter General machining of Al and Al alloys

**AL-2B**



- Factory standard
- Centre cutting
- Helix angle 35°



Turning

**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			YK30F
AL-2B-R1.0		1	2	6	4	60	2	A	○
AL-2B-R1.5		1.5	3	6	6	60	2	A	○
AL-2B-R2.0		2	4	6	8	60	2	A	○
AL-2B-R2.5		2.5	5	6	10	60	2	A	○
AL-2B-R3.0		3	6	6	12	60	2	B	○
AL-2B-R4.0		4	8	8	16	75	2	B	○
AL-2B-R5.0		5	10	10	20	75	2	B	○
AL-2B-R6.0		6	12	12	24	75	2	B	○

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

**D**

Technical Information

**E**

Index

System code > B268

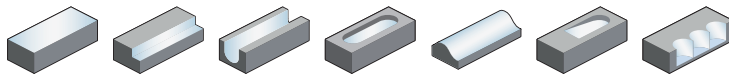
Cutting data > B436

Nonstandard order > B477

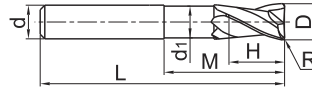


**Torus mill** **General machining of Al and Al alloys**

**AL-2R-AIR**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		YK40F
AL-2R-D6.0R1.0-AIR		1	6	6	5.5	7	20	57	2	●
AL-2R-D8.0R1.0-AIR		1	8	8	7.4	9	26	63	2	●
AL-2R-D10.0R1.0-AIR		1	10	10	9.2	11	31	72	2	○
AL-2R-D10.0R2.0-AIR		2	10	10	9.2	11	31	72	2	○
AL-2R-D12.0R1.0-AIR		1	12	12	11	12	37	83	2	●
AL-2R-D12.0R2.0-AIR		2	12	12	11	12	37	83	2	○
AL-2R-D12.0R3.0-AIR		3	12	12	11	12	37	83	2	○
AL-2R-D16.0R1.0-AIR		1	16	16	15	16	43	92	2	○
AL-2R-D16.0R2.0-AIR		2	16	16	15	16	43	92	2	○
AL-2R-D16.0R3.0-AIR		3	16	16	15	16	43	92	2	○
AL-2R-D16.0R4.0-AIR		4	16	16	15	16	43	92	2	○
AL-2R-D20.0R1.0-AIR		1	20	20	19	20	53	104	2	●
AL-2R-D20.0R2.0-AIR		2	20	20	19	20	53	104	2	○
AL-2R-D20.0R3.0-AIR		3	20	20	19	20	53	104	2	○
AL-2R-D20.0R4.0-AIR		4	20	20	19	20	53	104	2	○
AL-2R-D20.0R5.0-AIR		5	20	20	19	20	53	104	2	●
AL-2R-D20.0R6.0-AIR		6	20	20	19	20	53	104	2	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

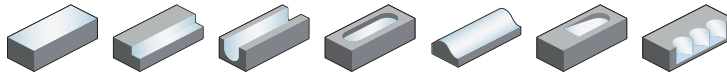
Nonstandard order > B477



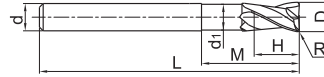
A

## Torus mill long shank General machining of Al and Al alloys

### AL-2RL-AIR



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

B

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		YK40F
AL-2RL-D6.0R1.0-AIR		1	6	6	5.5	7	43	80	2	●
AL-2RL-D8.0R1.0-AIR		1	8	8	7.4	9	53	90	2	●
AL-2RL-D10.0R1.0-AIR		1	10	10	9.2	11	59	100	2	●
AL-2RL-D10.0R2.0-AIR		2	10	10	9.2	11	59	100	2	●
AL-2RL-D12.0R1.0-AIR		1	12	12	11	12	74	120	2	●
AL-2RL-D12.0R2.0-AIR		2	12	12	11	12	74	120	2	●
AL-2RL-D12.0R3.0-AIR		3	12	12	11	12	74	120	2	●
AL-2RL-D16.0R1.0-AIR		1	16	16	15	16	84	140	2	●
AL-2RL-D16.0R2.0-AIR		2	16	16	15	16	84	140	2	●
AL-2RL-D16.0R3.0-AIR		3	16	16	15	16	84	140	2	●
AL-2RL-D16.0R4.0-AIR		4	16	16	15	16	84	140	2	●
AL-2RL-D20.0R1.0-AIR		1	20	20	19	20	89	140	2	○
AL-2RL-D20.0R2.0-AIR		2	20	20	19	20	89	140	2	●
AL-2RL-D20.0R3.0-AIR		3	20	20	19	20	89	140	2	●
AL-2RL-D20.0R4.0-AIR		4	20	20	19	20	89	140	2	●
AL-2RL-D20.0R5.0-AIR		5	20	20	19	20	89	140	2	○
AL-2RL-D20.0R6.0-AIR		6	20	20	19	20	89	140	2	○

● Ex stock ○ On demand

\* With internal cooling

Milling

C

Drilling

D

Technical Information

E

Index

### Application field

P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

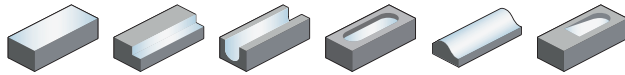
System code > B268

Cutting data > B436

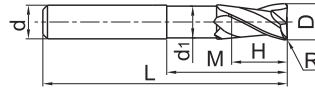
Nonstandard order > B477

**End mill** **General machining of Al and Al alloys**

**ALG-2R**



- Straight shank
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]								Teeth	Grade	
		R	D	d (h6)	d <sub>1</sub>	H	M	L	KMD401		YK40F	
ALG-2R-D6.0R0.3		0.3	6	6	5.7	8	16	75	2	●	●	
ALG-2R-D6.0R0.5		0.5	6	6	5.7	8	16	75	2	●	●	
ALG-2R-D6.0R1.0		1	6	6	5.7	8	16	75	2	●	●	
ALG-2R-D8.0R0.3		0.3	8	8	7.4	10	20	75	2	●	●	
ALG-2R-D8.0R0.5		0.5	8	8	7.4	10	20	75	2	●	●	
ALG-2R-D8.0R1.0		1	8	8	7.4	10	20	75	2	●	●	
ALG-2R-D10.0R0.5		0.5	10	10	9.4	12	35	100	2	●	●	
ALG-2R-D10.0R1.0		1	10	10	9.4	12	35	100	2	●	●	
ALG-2R-D10.0R1.6		1.6	10	10	9.4	12	35	100	2	●	●	
ALG-2R-D10.0R2.5		2.5	10	10	9.4	12	35	100	2	●	●	
ALG-2R-D12.0R0.5		0.5	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D12.0R1.0		1	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D12.0R1.6		1.6	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D12.0R2.5		2.5	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D12.0R3.2		3.2	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D12.0R4.0		4	12	12	11.4	15	35	100	2	●	●	
ALG-2R-D16.0R1.0		1	16	16	15.4	15	45	125	2	●	●	
ALG-2R-D16.0R1.6		1.6	16	16	15.4	15	45	125	2	●	●	
ALG-2R-D16.0R2.5		2.5	16	16	15.4	15	45	125	2	●	●	
ALG-2R-D16.0R3.2		3.2	16	16	15.4	15	45	125	2	●	●	
ALG-2R-D16.0R4.0		4	16	16	15.4	15	45	125	2	●	●	
ALG-2R-D16.0R6.3		6.3	16	16	15.4	15	45	125	2	○	○	
ALG-2R-D20.0R1.0		1	20	20	18	20	50	125	2	●	●	
ALG-2R-D20.0R1.6		1.6	20	20	18	20	50	125	2	●	●	
ALG-2R-D20.0R2.5		2.5	20	20	18	20	50	125	2	●	●	
ALG-2R-D20.0R3.2		3.2	20	20	18	20	50	125	2	●	●	
ALG-2R-D20.0R4.0		4	20	20	18	20	50	125	2	●	●	
ALG-2R-D20.0R6.3		6.3	20	20	18	20	50	125	2	○	○	
ALG-2R-D25.0R6.3		6.3	25	25	23	25	75	150	2	○	○	

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



A

Turning

B

Milling

C

Drilling

D

Technical Information

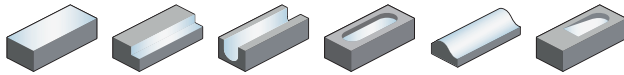
E

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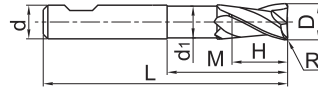
**A**

## End mill General machining of Al and Al alloys

### ALG-2R-W



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 30°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		KMD401
ALG-2R-D6.0R0.3-W	*	0.3	6	6		8		75	2	●
ALG-2R-D6.0R0.5-W	*	0.5	6	6		8		75	2	●
ALG-2R-D6.0R1.0-W	*	1	6	6		8		75	2	●
ALG-2R-D8.0R0.3-W	*	0.3	8	8		10		75	2	●
ALG-2R-D8.0R0.5-W	*	0.5	8	8		10		75	2	●
ALG-2R-D8.0R1.0-W	*	1	8	8		10		75	2	●
ALG-2R-D10.0R0.5-W	*	0.5	10	10		12		100	2	●
ALG-2R-D10.0R1.0-W	*	1	10	10		12		100	2	●
ALG-2R-D10.0R1.6-W	*	1.6	10	10		12		100	2	●
ALG-2R-D10.0R2.5-W	*	2.5	10	10		12		100	2	●
ALG-2R-D12.0R0.5-W	*	0.5	12	12		15		100	2	●
ALG-2R-D12.0R1.0-W	*	1	12	12		15		100	2	●
ALG-2R-D12.0R1.6-W	*	1.6	12	12		15		100	2	●
ALG-2R-D12.0R2.5-W	*	2.5	12	12		15		100	2	●
ALG-2R-D12.0R3.2-W	*	3.2	12	12		15		100	2	●
ALG-2R-D12.0R4.0-W	*	4	12	12		15		100	2	●
ALG-2R-D16.0R1.0-W	*	1	16	16		15		125	2	●
ALG-2R-D16.0R1.6-W	*	1.6	16	16		15		125	2	●
ALG-2R-D16.0R2.5-W	*	2.5	16	16		15		125	2	●
ALG-2R-D16.0R3.2-W	*	3.2	16	16		15		125	2	●
ALG-2R-D16.0R4.0-W	*	4	16	16		15		125	2	●
ALG-2R-D16.0R6.3-W	*	6.3	16	16		15		125	2	○
ALG-2R-D20.0R1.0-W	*	1	20	20		20		125	2	●
ALG-2R-D20.0R1.6-W	*	1.6	20	20		20		125	2	●
ALG-2R-D20.0R2.5-W	*	2.5	20	20		20		125	2	●
ALG-2R-D20.0R3.2-W	*	3.2	20	20		20		125	2	●
ALG-2R-D20.0R4.0-W	*	4	20	20		20		125	2	●
ALG-2R-D20.0R6.3-W	*	6.3	20	20		20		125	2	○
ALG-2R-D25.0R6.3-W	*	6.3	25	25		25		150	2	○

Milling

**C**

Drilling

**D**

Technical Information

● Ex stock ○ On demand

\* With internal cooling

**E**

Index

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

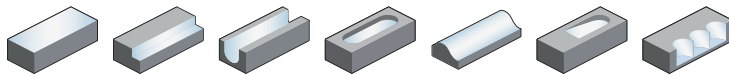
System code > B268

Cutting data > B436

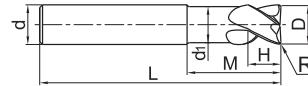
Nonstandard order > B477

**Torus mill** **General machining of Al and Al alloys**

**AL-3R-AIR**



- Factory standard
- Centre cutting
- Helix angle 30°



Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		YK40F
AL-3R-D12.0R1.0-AIR		1	12	12	11	12	37	83	3	●
AL-3R-D12.0R2.0-AIR		2	12	12	11	12	37	83	3	●
AL-3R-D12.0R3.0-AIR		3	12	12	11	12	37	83	3	●
AL-3R-D16.0R1.0-AIR		1	16	16	15	16	43	92	3	●
AL-3R-D16.0R2.0-AIR		2	16	16	15	16	43	92	3	●
AL-3R-D16.0R3.0-AIR		3	16	16	15	16	43	92	3	●
AL-3R-D16.0R4.0-AIR		4	16	16	15	16	43	92	3	●
AL-3R-D20.0R1.0-AIR		1	20	20	19	20	53	104	3	●
AL-3R-D20.0R2.0-AIR		2	20	20	19	20	53	104	3	○
AL-3R-D20.0R3.0-AIR		3	20	20	19	20	53	104	3	○
AL-3R-D20.0R4.0-AIR		4	20	20	19	20	53	104	3	○
AL-3R-D20.0R5.0-AIR		5	20	20	19	20	53	104	3	●
AL-3R-D20.0R6.0-AIR		6	20	20	19	20	53	104	3	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

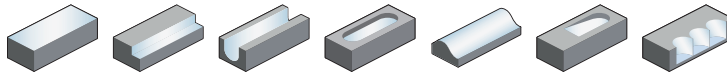
Nonstandard order > B477



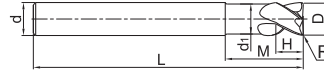
A

## Torus mill long shank General machining of Al and Al alloys

**AL-3RL-AIR**



- Factory standard
- Centre cutting
- Helix angle 30°



Turning

B

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>i</sub>	H	M	L		YK40F
AL-3RL-D12.0R1.0-AIR		1	12	12	11	12	74	120	3	●
AL-3RL-D12.0R2.0-AIR		2	12	12	11	12	74	120	3	●
AL-3RL-D12.0R3.0-AIR		3	12	12	11	12	74	120	3	●
AL-3RL-D16.0R1.0-AIR		1	16	16	15	16	84	140	3	●
AL-3RL-D16.0R2.0-AIR		2	16	16	15	16	84	140	3	○
AL-3RL-D16.0R3.0-AIR		3	16	16	15	16	84	140	3	●
AL-3RL-D16.0R4.0-AIR		4	16	16	15	16	84	140	3	●
AL-3RL-D20.0R1.0-AIR		1	20	20	19	20	89	140	3	●
AL-3RL-D20.0R2.0-AIR		2	20	20	19	20	89	140	3	○
AL-3RL-D20.0R3.0-AIR		3	20	20	19	20	89	140	3	○
AL-3RL-D20.0R4.0-AIR		4	20	20	19	20	89	140	3	○
AL-3RL-D20.0R5.0-AIR		5	20	20	19	20	89	140	3	○
AL-3RL-D20.0R6.0-AIR		6	20	20	19	20	89	140	3	○

Milling

C

- Ex stock ○ On demand
- \* With internal cooling

Drilling

### Application field

P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

D

Technical Information

E

Index

System code > B268

Cutting data > B436

Nonstandard order > B477

# HPC series

## High Performance Cutter (HPC)

- For roughing and finishing of steel up to 55 HRC, stainless steel and cast iron.
- Geometry with unequal helix angle ( $38^{\circ}/41^{\circ}$ ) and unequal pitch for smooth machining without vibrations.
- End mills and torus mills
- Diameter range 4.0–20.0 mm



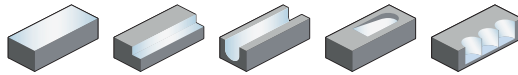
A

End mill

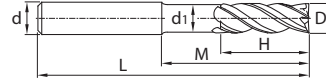
HSC/HPC machining

Turning

5501R38414GM



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 38°/41°



B

Milling

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
5501R38414GM-0400		4	6	3.7	8	16	54	4	●
5501R38414GM-0500		5	6	4.7	9	17	54	4	●
5501R38414GM-0600		6	6	5.7	10	18	54	4	●
5501R38414GM-0800		8	8	7.7	12	22	58	4	●
5501R38414GM-1000		10	10	9.5	14	26	66	4	●
5501R38414GM-1200		12	12	11.5	16	28	73	4	●
5501R38414GM-1400		14	14	13.5	18	30	75	4	●
5501R38414GM-1600		16	16	15.5	22	34	82	4	●
5501R38414GM-1800		18	18	17.5	24	36	84	4	●
5501R38414GM-2000		20	20	19.5	26	42	92	4	●

- Ex stock ○ On demand
- \* With internal cooling

C

Drilling

Application field						
P	M	K	N	S	H	
✓	✓	✓			✓	✓ Very suitable ✓ Suitable

D

Technical Information

E

Index

System code > B268

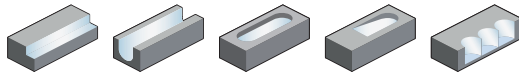
Cutting data > B436

Nonstandard order > B477

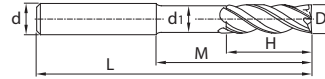


**End mill long cutting edge** **HSC/HPC machining**

**5502R38414GM**



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
5502R38414GM-0400		4	6	3.7	11	19	57	4	●
5502R38414GM-0500		5	6	4.7	13	21	57	4	●
5502R38414GM-0600		6	6	5.7	13	21	57	4	●
5502R38414GM-0800		8	8	7.7	19	27	63	4	●
5502R38414GM-1000		10	10	9.5	22	32	72	4	●
5502R38414GM-1200		12	12	11.5	26	38	83	4	●
5502R38414GM-1400		14	14	13.5	26	38	83	4	●
5502R38414GM-1600		16	16	15.5	32	44	92	4	●
5502R38414GM-1800		18	18	17.5	32	44	92	4	●
5502R38414GM-2000		20	20	19.5	38	54	104	4	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

System code > B268

Cutting data > B436

Nonstandard order > B477



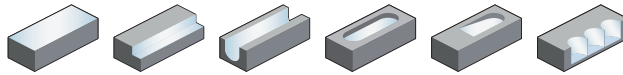
A

End mill

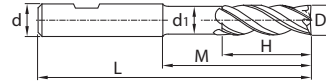
HSC/HPC machining

Turning

5601R38414GM



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 38°/41°



B

Milling

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
5601R38414GM-0400		4	6	3.7	8	16	54	4	●
5601R38414GM-0500		5	6	4.7	9	17	54	4	●
5601R38414GM-0600		6	6	5.7	10	18	54	4	●
5601R38414GM-0800		8	8	7.7	12	22	58	4	●
5601R38414GM-1000		10	10	9.5	14	26	66	4	●
5601R38414GM-1200		12	12	11.5	16	28	73	4	●
5601R38414GM-1400		14	14	13.5	18	30	75	4	●
5601R38414GM-1600		16	16	15.5	22	34	82	4	●
5601R38414GM-1800		18	18	17.5	24	36	84	4	●
5601R38414GM-2000		20	20	19.5	26	42	92	4	●

- Ex stock ○ On demand
- \* With internal cooling

C

Drilling

Application field						
P	M	K	N	S	H	
✓	✓	✓			✓	✓ Very suitable ✓ Suitable

D

Technical Information

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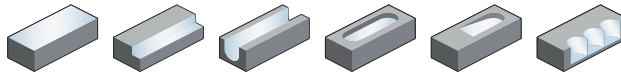
System code > B268

Cutting data > B436

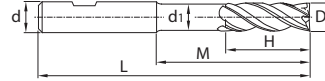
Nonstandard order > B477

End mill long cutting edge **HSC/HPC machining**

**5602R38414GM**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
5602R38414GM-0300L		3	6	2.7	6.5	15	58	4	○
5602R38414GM-0400L		4	6	3.7	8.5	20	62	4	○
5602R38414GM-0400		4	6	3.7	11	19	57	4	●
5602R38414GM-0500		5	6	4.7	13	21	57	4	●
5602R38414GM-0500L		5	6	4.7	10.5	25	70	4	○
5602R38414GM-0600L		6	6	5.7	13	30	70	4	○
5602R38414GM-0600		6	6	5.7	13	21	57	4	●
5602R38414GM-0800		8	8	7.7	19	27	63	4	●
5602R38414GM-0800L		8	8	7.7	17	40	80	4	○
5602R38414GM-1000		10	10	9.5	22	32	72	4	●
5602R38414GM-1000L		10	10	9.5	21	50	94	4	○
5602R38414GM-1200		12	12	11.5	26	38	83	4	●
5602R38414GM-1200L		12	12	11.5	25	60	109	4	○
5602R38414GM-1400		14	14	13.5	26	38	83	4	●
5602R38414GM-1600L		16	16	15.5	33	80	132	4	○
5602R38414GM-1600		16	16	15.5	32	44	92	4	●
5602R38414GM-1800		18	18	17.5	32	44	92	4	●
5602R38414GM-2000		20	20	19.5	38	54	104	4	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

A

Turning

B

Milling

C

Drilling

D

Technical Information

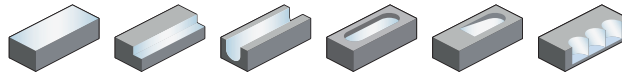
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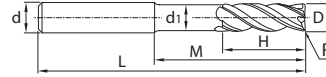
**A**

## Torus mill long cutting edge HSC/HPC machining

### 5502R38414GM-R



- Type of shank DIN 6535HA
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d <sub>1</sub>	H	M	L		KMG405
5502R38414GM-R02-0400		4	0.2	6	3.7	11	19	57	4	●
5502R38414GM-R05-0400		4	0.5	6	3.7	11	19	57	4	●
5502R38414GM-R02-0500		5	0.2	6	4.7	13	21	57	4	●
5502R38414GM-R05-0500		5	0.5	6	4.7	13	21	57	4	●
5502R38414GM-R02-0600		6	0.2	6	5.7	13	21	57	4	●
5502R38414GM-R05-0600		6	0.5	6	5.7	13	21	57	4	●
5502R38414GM-R10-0600		6	1	6	5.7	13	21	57	4	●
5502R38414GM-R02-0800		8	0.2	8	7.7	19	27	63	4	●
5502R38414GM-R05-0800		8	0.5	8	7.7	19	27	63	4	●
5502R38414GM-R10-0800		8	1	8	7.7	19	27	63	4	●
5502R38414GM-R15-0800		8	1.5	8	7.7	19	27	63	4	●
5502R38414GM-R20-0800		8	2	8	7.7	19	27	63	4	●
5502R38414GM-R02-1000		10	0.2	10	9.5	22	32	72	4	●
5502R38414GM-R05-1000		10	0.5	10	9.5	22	32	72	4	●
5502R38414GM-R10-1000		10	1	10	9.5	22	32	72	4	●
5502R38414GM-R15-1000		10	1.5	10	9.5	22	32	72	4	●
5502R38414GM-R20-1000		10	2	10	9.5	22	32	72	4	●
5502R38414GM-R05-1200		12	0.5	12	11.5	26	38	83	4	●
5502R38414GM-R10-1200		12	1	12	11.5	26	38	83	4	●
5502R38414GM-R15-1200		12	1.5	12	11.5	26	38	83	4	●
5502R38414GM-R20-1200		12	2	12	11.5	26	38	83	4	●
5502R38414GM-R10-1600		16	1	16	15.5	32	44	92	4	●
5502R38414GM-R15-1600		16	1.5	16	15.5	32	44	92	4	●
5502R38414GM-R20-1600		16	2	16	15.5	32	44	92	4	●
5502R38414GM-R30-1600		16	3	16	15.5	32	44	92	4	●
5502R38414GM-R10-2000		20	1	20	19.5	38	54	104	4	●
5502R38414GM-R15-2000		20	1.5	20	19.5	38	54	104	4	●
5502R38414GM-R20-2000		20	2	20	19.5	38	54	104	4	●
5502R38414GM-R30-2000		20	3	20	19.5	38	54	104	4	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Drilling

**D**

Technical Information

**E**

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#### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

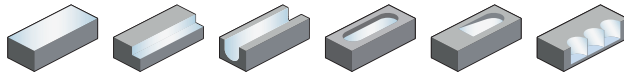
System code > B268

Cutting data > B436

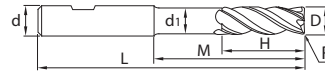
Nonstandard order > B477

**Torus mill long cutting edge** **HSC/HPC machining**

**5602R38414GM-R**



- Type of shank: DIN 6535HB
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]							Teeth	Grade KMG405
		D	R	d (h6)	d <sub>1</sub>	H	M	L		
5602R38414GM-R02-0400		4	0.2	6	3.7	11	19	57	4	●
5602R38414GM-R05-0400		4	0.5	6	3.7	11	19	57	4	●
5602R38414GM-R02-0500		5	0.2	6	4.7	13	21	57	4	●
5602R38414GM-R05-0500		5	0.5	6	4.7	13	21	57	4	●
5602R38414GM-R02-0600		6	0.2	6	5.7	13	21	57	4	●
5602R38414GM-R05-0600		6	0.5	6	5.7	13	21	57	4	●
5602R38414GM-R10-0600		6	1	6	5.7	13	21	57	4	●
5602R38414GM-R02-0800		8	0.2	8	7.7	19	27	63	4	●
5602R38414GM-R05-0800		8	0.5	8	7.7	19	27	63	4	●
5602R38414GM-R10-0800		8	1	8	7.7	19	27	63	4	●
5602R38414GM-R15-0800		8	1.5	8	7.7	19	27	63	4	●
5602R38414GM-R20-0800		8	2	8	7.7	19	27	63	4	●
5602R38414GM-R02-1000		10	0.2	10	9.5	22	32	72	4	●
5602R38414GM-R05-1000		10	0.5	10	9.5	22	32	72	4	●
5602R38414GM-R10-1000		10	1	10	9.5	22	32	72	4	●
5602R38414GM-R15-1000		10	1.5	10	9.5	22	32	72	4	●
5602R38414GM-R20-1000		10	2	10	9.5	22	32	72	4	●
5602R38414GM-R05-1200		12	0.5	12	11.5	26	38	83	4	●
5602R38414GM-R10-1200		12	1	12	11.5	26	38	83	4	●
5602R38414GM-R15-1200		12	1.5	12	11.5	26	38	83	4	●
5602R38414GM-R20-1200		12	2	12	11.5	26	38	83	4	●
5602R38414GM-R10-1600		16	1	16	15.5	32	44	92	4	●
5602R38414GM-R15-1600		16	1.5	16	15.5	32	44	92	4	●
5602R38414GM-R20-1600		16	2	16	15.5	32	44	92	4	●
5602R38414GM-R30-1600		16	3	16	15.5	32	44	92	4	●
5602R38414GM-R10-2000		20	1	20	19.5	38	54	104	4	●
5602R38414GM-R15-2000		20	1.5	20	19.5	38	54	104	4	●
5602R38414GM-R20-2000		20	2	20	19.5	38	54	104	4	●
5602R38414GM-R30-2000		20	3	20	19.5	38	54	104	4	●

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



## Notes

**A**

Turning

**B**

Milling

**C**

Drilling

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# UM series

## High Speed Cutter (HSC)

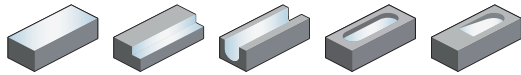
- For roughing and finishing of steel up to 55 HRC, stainless steel and cast iron with high metal removal rate.
- Optimised geometry with unequal helix angle (38°/41°) and unequal pitch.
- End mills and torus mills
- Diameter range 4.0–20.0 mm



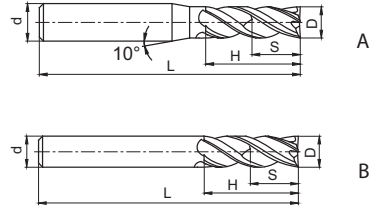
**A**

End mill **HSC/HPC machining**

**UM-4E**



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Milling

**C**

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Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		D	d (h6)	H	L	S			KMG405
UM-4E-D4.0S		4	4	11	50	6	4	B	●
UM-4E-D4.0		4	6	11	50	6	4	A	●
UM-4E-D4.5		4.5	6	11	50	6.75	4	A	●
UM-4E-D5.0		5	6	13	50	7.5	4	A	●
UM-4E-D5.5		5.5	6	16	50	8.25	4	A	●
UM-4E-D6.0		6	6	16	50	9	4	B	●
UM-4E-D7.0		7	8	20	60	10.5	4	A	●
UM-4E-D8.0		8	8	20	60	12	4	B	●
UM-4E-D9.0		9	10	22	75	13.5	4	A	●
UM-4E-D10.0		10	10	25	75	15	4	B	●
UM-4E-D11.0		11	12	26	75	16.5	4	A	●
UM-4E-D12.0		12	12	30	75	18	4	B	●
UM-4E-D14.0		14	14	32	75	21	4	B	●
UM-4E-D16.0		16	16	45	100	24	4	B	●
UM-4E-D18.0		18	18	45	100	27	4	B	●
UM-4E-D20.0		20	20	45	100	30	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**Application field**

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

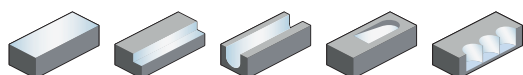
Cutting data > B436

Nonstandard order > B477

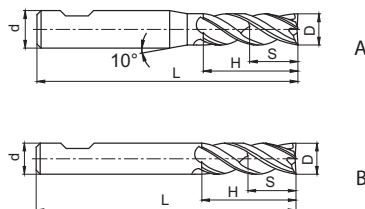


End mill **HSC/HPC machining**

**UM-4E-W**



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade KMG405
		D	d (h6)	H	L	S			
UM-4E-D4.0-W		4	6	11	50	6	4	A	●
UM-4E-D4.5-W		4.5	6	11	50	6.75	4	A	●
UM-4E-D5.0-W		5	6	13	50	7.5	4	A	●
UM-4E-D5.5-W		5.5	6	16	50	8.25	4	A	●
UM-4E-D6.0-W		6	6	16	50	9	4	B	●
UM-4E-D7.0-W		7	8	20	60	10.5	4	A	●
UM-4E-D8.0-W		8	8	20	60	12	4	B	●
UM-4E-D9.0-W		9	10	22	75	13.5	4	A	●
UM-4E-D10.0-W		10	10	25	75	15	4	B	●
UM-4E-D11.0-W		11	12	26	75	16.5	4	A	●
UM-4E-D12.0-W		12	12	30	75	18	4	B	●
UM-4E-D14.0-W		14	14	32	75	21	4	B	●
UM-4E-D16.0-W		16	16	45	100	24	4	B	●
UM-4E-D18.0-W		18	18	45	100	27	4	B	●
UM-4E-D20.0-W		20	20	45	100	30	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

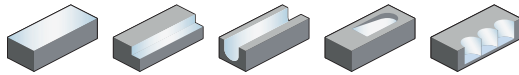
Nonstandard order > B477



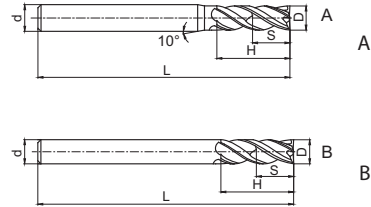
**A**

## End mill long cutting edge HSC/HPC machining

### UM-4EL



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Milling

Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		D	d (h6)	H	L	S			KMG405
UM-4EL-D4.0		4	6	15	75	6	4	A	●
UM-4EL-D5.0		5	6	20	75	7.5	4	A	●
UM-4EL-D6.0		6	6	20	75	9	4	B	●
UM-4EL-D8.0		8	8	25	100	12	4	B	●
UM-4EL-D10.0		10	10	30	100	15	4	B	●
UM-4EL-D12.0		12	12	35	100	18	4	B	●
UM-4EL-D14.0		14	14	40	100	21	4	B	●
UM-4EL-D16.0		16	16	50	150	24	4	B	●
UM-4EL-D20.0		20	20	55	150	30	4	B	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

### Application field

P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

**D**

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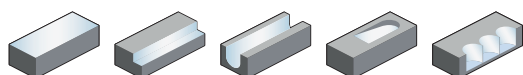
System code > B268

Cutting data > B436

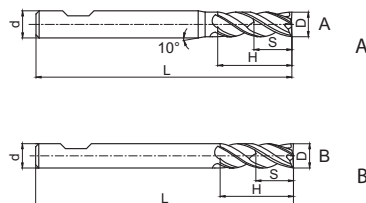
Nonstandard order > B477

**End mill long cutting edge** **HSC/HPC machining**

**UM-4EL-W**



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]					Teeth	Geometry	Grade
		D	d (h6)	H	L	S			KMG405
UM-4EL-D4.0-W		4	6	15	75	6	4	A	●
UM-4EL-D5.0-W		5	6	20	75	7.5	4	A	●
UM-4EL-D6.0-W		6	6	20	75	9	4	B	●
UM-4EL-D8.0-W		8	8	25	100	12	4	B	●
UM-4EL-D10.0-W		10	10	30	100	15	4	B	●
UM-4EL-D12.0-W		12	12	35	100	18	4	B	●
UM-4EL-D14.0-W		14	14	40	100	21	4	B	●
UM-4EL-D16.0-W		16	16	50	150	24	4	B	●
UM-4EL-D20.0-W		20	20	55	150	30	4	B	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

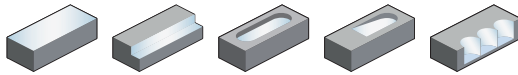
Nonstandard order > B477



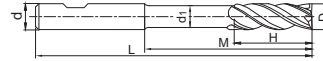
**A**

## End mill reduced neck HSC/HPC machining

### UM-4ELP-W



- Factory standard with weldon clamping surface
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
UM-4ELP-D4.0-W		4	6	3.8	15	36	75	4	●
UM-4ELP-D5.0-W		5	6	4.8	20	36	75	4	●
UM-4ELP-D6.0-W		6	6	5.7	20	36	75	4	●
UM-4ELP-D8.0-W		8	8	7.7	25	60	100	4	●
UM-4ELP-D10.0-W		10	10	9.5	30	55	100	4	●
UM-4ELP-D12.0-W		12	12	11.5	35	50	100	4	●
UM-4ELP-D14.0-W		14	14	13.5	40	50	100	4	●
UM-4ELP-D16.0-W		16	16	15.5	50	100	150	4	●
UM-4ELP-D20.0-W		20	20	19.5	55	98	150	4	●

Milling

● Ex stock ○ On demand

\* With internal cooling

**C**

#### Application field

P	M	K	N	S	H
✓	✓	✓			✓

- ✓ Very suitable
- ✓ Suitable

Drilling

**D**

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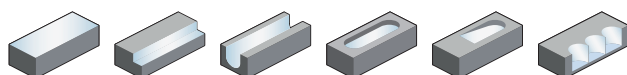
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Cutting data > B436

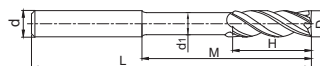
Nonstandard order > B477

End mill short cutting edge **HSC/HPC machining**

**UM-4EFP**



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d <sub>1</sub>	H	M	L		KMG405
UM-4EFP-D6.0		6	6	5.8	9	30	75	4	●
UM-4EFP-D8.0		8	8	7.8	12	40	100	4	●
UM-4EFP-D10.0		10	10	9.6	15	50	100	4	●
UM-4EFP-D12.0		12	12	11.5	18	50	100	4	●
UM-4EFP-D16.0		16	16	15.5	24	50	150	4	●
UM-4EFP-D20.0		20	20	19.5	30	60	150	4	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

A

Turning

B

Milling

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System code > B268

Cutting data > B436

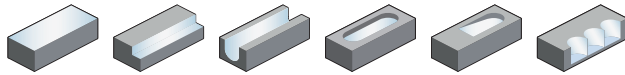
Nonstandard order > B477



**A**

**Torus mill HSC/HPC machining**

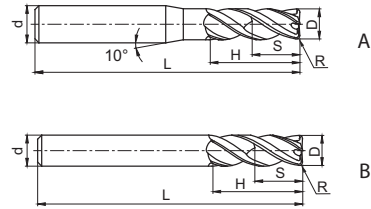
**UM-4R**



- Factory standard
- Centre cutting
- Helix angle 38°/41°

Turning

**B**



Milling

Article	*	Dimensions [mm]						Teeth	Geometry	Grade
		R	D	d (h6)	H	L	S			
UM-4R-D4.0R0.3		0.3	4	6	10	50	6	4	A	●
UM-4R-D4.0R0.5		0.5	4	6	10	50	6	4	A	●
UM-4R-D5.0R0.5		0.5	5	6	13	50	7.5	4	A	●
UM-4R-D5.0R1.0		1	5	6	13	50	7.5	4	A	●
UM-4R-D6.0R0.5		0.5	6	6	16	50	9	4	B	●
UM-4R-D6.0R1.0		1	6	6	16	50	9	4	B	●
UM-4R-D8.0R0.5		0.5	8	8	20	60	12	4	B	●
UM-4R-D8.0R1.0		1	8	8	20	60	12	4	B	●
UM-4R-D10.0R0.5		0.5	10	10	25	75	15	4	B	●
UM-4R-D10.0R1.0		1	10	10	25	75	15	4	B	●
UM-4R-D10.0R2.0		2	10	10	25	75	15	4	B	●
UM-4R-D10.0R3.0		3	10	10	25	75	15	4	B	●
UM-4R-D12.0R0.5		0.5	12	12	30	75	18	4	B	●
UM-4R-D12.0R1.0		1	12	12	30	75	18	4	B	●
UM-4R-D12.0R2.0		2	12	12	30	75	18	4	B	●
UM-4R-D12.0R3.0		3	12	12	30	75	18	4	B	●
UM-4R-D16.0R1.0		1	16	16	45	100	24	4	B	●
UM-4R-D16.0R2.0		2	16	16	45	100	24	4	B	●
UM-4R-D16.0R3.0		3	16	16	45	100	24	4	B	●
UM-4R-D20.0R1.0		1	20	20	45	100	30	4	B	●
UM-4R-D20.0R2.0		2	20	20	45	100	30	4	B	●
UM-4R-D20.0R3.0		3	20	20	45	100	30	4	B	●

- Ex stock ○ On demand
- \* With internal cooling

**C**

Drilling

**D**

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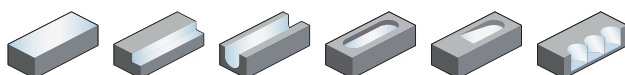
Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable  
 ✓ Suitable

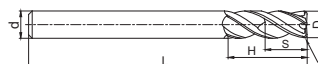


**Torus mill long shank** **HSC/HPC machining**

**UM-4RL**



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]						Teeth	Grade
		R	D	d (h6)	H	L	S		KMG405
UM-4RL-D6.0R0.5		0.5	6	6	16	75	9	4	●
UM-4RL-D6.0R1.0		1	6	6	16	75	9	4	●
UM-4RL-D8.0R0.5		0.5	8	8	20	100	12	4	●
UM-4RL-D8.0R1.0		1	8	8	20	100	12	4	●
UM-4RL-D10.0R0.5		0.5	10	10	25	100	15	4	●
UM-4RL-D10.0R1.0		1	10	10	25	100	15	4	●
UM-4RL-D10.0R2.0		2	10	10	25	100	15	4	●
UM-4RL-D12.0R0.5		0.5	12	12	30	100	18	4	●
UM-4RL-D12.0R1.0		1	12	12	30	100	18	4	●
UM-4RL-D12.0R2.0		2	12	12	30	100	18	4	●
UM-4RL-D16.0R1.0		1	16	16	45	150	24	4	●
UM-4RL-D16.0R2.0		2	16	16	45	150	24	4	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓			✓

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

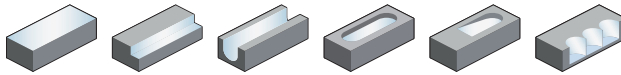
Nonstandard order > B477



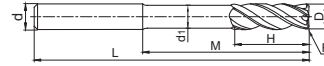
**A**

## Torus mill short cutting edge HSC/HPC machining

**UM-4RFP**



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Article	*	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d <sub>1</sub>	H	M	L		
UM-4RFP-D6.0R0.5	*	0.5	6	6	5.8	6	18	75	4	●
UM-4RFP-D6.0R1.0		1	6	6	5.8	6	18	75	4	●
UM-4RFP-D8.0R0.5		0.5	8	8	7.7	8	24	100	4	●
UM-4RFP-D8.0R1.0		1	8	8	7.7	8	24	100	4	●
UM-4RFP-D10.0R0.5		0.5	10	10	9.6	10	30	100	4	●
UM-4RFP-D10.0R1.0		1	10	10	9.6	10	30	100	4	●
UM-4RFP-D10.0R2.0		2	10	10	9.6	10	30	100	4	●
UM-4RFP-D12.0R0.5		0.5	12	12	11.5	12	36	100	4	●
UM-4RFP-D12.0R1.0		1	12	12	11.5	12	36	100	4	●
UM-4RFP-D12.0R2.0		2	12	12	11.5	12	36	100	4	●
UM-4RFP-D16.0R1.0		1	16	16	15.5	16	40	150	4	●
UM-4RFP-D16.0R2.0		2	16	16	15.5	16	40	150	4	●

Milling

- Ex stock ○ On demand
- \* With internal cooling

**C**

Application field						
P	M	K	N	S	H	
✓	✓	✓			✓	✓ Very suitable ✓ Suitable

Drilling

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System code > B268

Cutting data > B436

Nonstandard order > B477



# VSM series

*With sharp cutting edge for heat-resistant alloys*

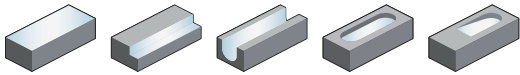
- For roughing and finishing of steel, stainless steel and heat-resistant alloys with high metal removal rates.
- Sharp cutting edge with unequal helix angle (38°/41°) and unequal pitch.
- Smooth machining without vibrations.
- End mills and torus mills
- Diameter range 4.0–20.0 mm



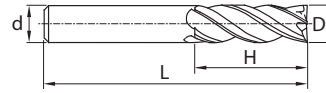
**A**

## End mill General machining of heat-resistant alloys

### VSM-4E



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
VSM-4E-D4.0		4	6	11	50	4	●
VSM-4E-D5.0		5	6	13	50	4	●
VSM-4E-D6.0		6	6	16	50	4	●
VSM-4E-D8.0		8	8	20	60	4	●
VSM-4E-D10.0		10	10	25	75	4	●
VSM-4E-D12.0		12	12	30	75	4	●
VSM-4E-D16.0		16	16	45	100	4	●
VSM-4E-D20.0		20	20	45	100	4	●

● Ex stock ○ On demand

\* With internal cooling

Milling

**C**

Application field						
P	M	K	N	S	H	
✓	✓			✓		✓ Very suitable ✓ Suitable

Drilling

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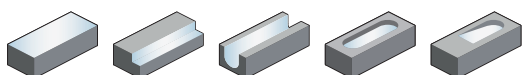
System code > B268

Cutting data > B436

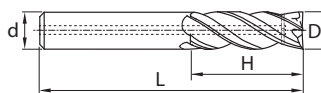
Nonstandard order > B477

**End mill**    **General machining of heat-resistant alloys**

**VSM-4E-C**



- Factory standard
- Coolant exit, radial
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
VSM-4E-C-D10.0	*	10	10	25	75	4	○
VSM-4E-C-D12.0	*	12	12	30	75	4	○
VSM-4E-C-D16.0	*	16	16	45	100	4	○
VSM-4E-C-D20.0	*	20	20	45	100	4	○

● Ex stock    ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

**A**

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System code > B268

Cutting data > B436

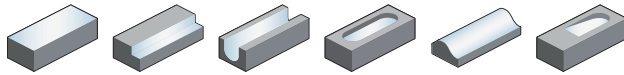
Nonstandard order > B477



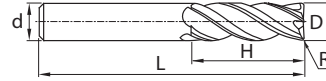
**A**

## Torus mill General machining of heat-resistant alloys

### VSM-4R



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Turning

**B**

Article	*	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
VSM-4R-D4.0R0.2		4	0.2	6	11	50	4	●
VSM-4R-D4.0R0.5		4	0.5	6	11	50	4	●
VSM-4R-D5.0R0.2		5	0.2	6	13	50	4	●
VSM-4R-D5.0R0.5		5	0.5	6	13	50	4	●
VSM-4R-D6.0R0.2		6	0.2	6	16	50	4	●
VSM-4R-D6.0R0.5		6	0.5	6	16	50	4	●
VSM-4R-D6.0R1.0		6	1	6	16	50	4	●
VSM-4R-D6.0R1.5		6	1.5	6	16	50	4	●
VSM-4R-D8.0R0.5		8	0.5	8	20	63	4	●
VSM-4R-D8.0R0.8		8	0.8	8	20	63	4	●
VSM-4R-D8.0R1.0		8	1	8	20	63	4	●
VSM-4R-D8.0R1.5		8	1.5	8	20	63	4	●
VSM-4R-D8.0R2.0		8	2	8	20	63	4	●
VSM-4R-D10.0R0.5		10	0.5	10	25	75	4	●
VSM-4R-D10.0R0.8		10	0.8	10	25	75	4	●
VSM-4R-D10.0R1.0		10	1	10	25	75	4	●
VSM-4R-D10.0R1.5		10	1.5	10	25	75	4	●
VSM-4R-D10.0R2.0		10	2	10	25	75	4	●
VSM-4R-D12.0R0.5		12	0.5	12	30	75	4	●
VSM-4R-D12.0R0.8		12	0.8	12	30	75	4	●
VSM-4R-D12.0R1.0		12	1	12	30	75	4	●
VSM-4R-D12.0R1.5		12	1.5	12	30	75	4	●
VSM-4R-D12.0R2.0		12	2	12	30	75	4	●
VSM-4R-D12.0R2.5		12	2.5	12	30	75	4	●
VSM-4R-D12.0R3.0		12	3	12	30	75	4	●
VSM-4R-D12.0R4.0		12	4	12	30	75	4	●
VSM-4R-D16.0R0.5		16	0.5	16	45	100	4	●
VSM-4R-D16.0R0.8		16	0.8	16	45	100	4	●
VSM-4R-D16.0R1.0		16	1	16	45	100	4	●
VSM-4R-D16.0R1.5		16	1.5	16	45	100	4	●
VSM-4R-D16.0R2.0		16	2	16	45	100	4	●
VSM-4R-D16.0R2.5		16	2.5	16	45	100	4	●
VSM-4R-D16.0R3.0		16	3	16	45	100	4	●
VSM-4R-D16.0R4.0		16	4	16	45	100	4	●
VSM-4R-D20.0R0.5		20	0.5	20	45	100	4	●
VSM-4R-D20.0R1.0		20	1	20	45	100	4	●
VSM-4R-D20.0R1.5		20	1.5	20	45	100	4	●

● Ex stock ○ On demand

\* With internal cooling

**C**

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#### Application field

P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

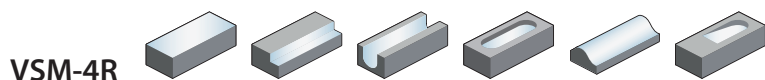
✓ Suitable

System code > B268

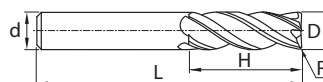
Cutting data > B436

Nonstandard order > B477

**Torus mill**    **General machining of heat-resistant alloys**



- Factory standard
- Centre cutting
- Helix angle 38°/41°



Article	*	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
VSM-4R-D20.0R2.0		20	2	20	45	100	4	●
VSM-4R-D20.0R2.5		20	2.5	20	45	100	4	●
VSM-4R-D20.0R3.0		20	3	20	45	100	4	●
VSM-4R-D20.0R4.0		20	4	20	45	100	4	●

- Ex stock    ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

- ✓ Very suitable
- ✓ Suitable

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## Notes

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**FM** *series*

**Deburring Cutter**



**A**

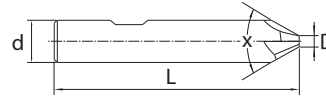
## Deburring cutter 60° General machining

Turning

### 5501/5601R60\*FM



- Type of shank DIN 6535HA
- Type of shank: DIN 6535HB
- Non-centre cutting
- Helix angle 0°



**B**

Milling

Article	*	Dimensions [mm]					Teeth	Grade
		d(h6)	L	D	Shank	X		KMG303
5501R603FM-0300		3	48	0.2	HA	60	3	●
5501R604FM-0400		4	48	0.2	HA	60	4	●
5601R604FM-0600		6	55	0.2	HB	60	4	●
5601R604FM-0800		8	58	0.5	HB	60	4	●
5601R604FM-1000		10	65	0.5	HB	60	4	●
5601R606FM-1000		10	65	0.7	HB	60	6	○
5601R604FM-1200		12	75	0.5	HB	60	4	●
5601R606FM-1200		12	75	0.7	HB	60	6	○
5601R604FM-1600		16	85	0.7	HB	60	4	●
5601R606FM-1600		16	85	0.7	HB	60	6	○

- Ex stock ○ On demand
- \* With internal cooling

**C**

Drilling

Application field						
P	M	K	N	S	H	
✓	✓	✓	✓			✓ Very suitable
						✓ Suitable

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System code > B268

Cutting data > B436

Nonstandard order > B477



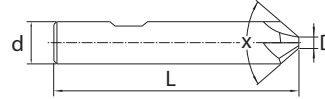
Deburring cutter 90°

General machining

5501/5601R90\*FM



- Type of shank DIN 6535HA
- Type of shank: DIN 6535HB
- Non-centre cutting
- Helix angle 0°



Article	*	Dimensions [mm]					Teeth	Grade
		d(h6)	L	D	Shank	X		KMG303
5501R903FM-0300		3	48	0.2	HA	90	3	●
5501R904FM-0400		4	48	0.2	HA	90	4	●
5601R904FM-0600		6	55	0.2	HB	90	4	●
5601R904FM-0800		8	58	0.5	HB	90	4	●
5601R904FM-1000		10	65	0.5	HB	90	4	●
5601R906FM-1000		10	65	0.7	HB	90	6	○
5601R904FM-1200		12	75	0.5	HB	90	4	●
5601R906FM-1200		12	75	0.7	HB	90	6	○
5601R904FM-1600		16	85	0.7	HB	90	4	●
5601R906FM-1600		16	85	0.7	HB	90	6	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓	✓	✓		

- ✓ Very suitable
- ✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477



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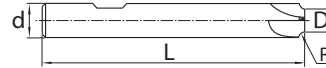
## Quarter round profile mill

## General machining

### 5601R90\*FM-R



- Type of shank: DIN 6535HB
- Non-centre cutting
- Helix angle 0°



Article	*	Dimensions [mm]				Teeth	Grade
		d(h6)	L	D	R		KMG303
5601R904FM-R02-0600		6	60	5.6	0.2	4	●
5601R904FM-R03-0600		6	60	5.4	0.3	4	●
5601R904FM-R04-0600		6	60	5.2	0.4	4	●
5601R904FM-R05-0800		8	70	7	0.5	4	●
5601R904FM-R06-0800		8	70	6.8	0.6	4	●
5601R904FM-R075-0800		8	70	6.5	0.75	4	●
5601R904FM-R08-0800		8	70	6.4	0.8	4	●
5601R904FM-R10-0800		8	70	6	1	4	●
5601R904FM-R15-1000		10	75	7	1.5	4	●
5601R904FM-R20-1000		10	75	6	2	4	●
5601R904FM-R25-1200		12	75	7	2.5	4	●
5601R904FM-R30-1200		12	75	6	3	4	●
5601R904FM-R40-1600		16	80	8	4	4	●
5601R904FM-R50-2000		20	80	10	5	4	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓	✓		

✓ Very suitable

✓ Suitable

System code > B268

Cutting data > B436

Nonstandard order > B477

**Notes**

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<b>A</b>	Turning
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## Guide for recommended cutting data – solid carbide milling

### End mill – GM series

1	Material group	Composition / structure / heat treatment	2 Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
					5501R302GM 5601R302GM 5502R302GM 5602R302GM				GM-2E GM-2EFP GM-2F				
					Slot milling		Shoulder milling		Slot milling		Shoulder milling		
					$\phi$ [mm]	$a_{p,max}$	$\phi$ [mm]	$a_{e,max}$	$\phi$ [mm]	$a_{p,max}$	$\phi$ [mm]	$a_{e,max}$	
					$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	
					$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$			
					KMG303				KMG303				
					$a_e / D$				$a_e / D$				
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	ca. 0,15 % C	annealed	125	1	150	200	270	2	150	200	270	2
		ca. 0,45 % C	annealed	190	2	145	190	260	2	145	190	260	2
		ca. 0,45 % C	tempered	250	3	105	140	190	2	105	140	190	2
		ca. 0,75 % C	annealed	270	4	90	120	165	2	90	120	165	2
		ca. 0,75 % C	tempered	300	5	85	110	150	2	85	110	150	2
	Low-alloyed steel		annealed	180	6	115	150	205	2	115	150	205	2
			tempered	275	7	90	120	165	2	90	120	165	2
			tempered	300	8	85	110	150	2	85	110	150	2
			tempered	350	9	80	105	145	2	80	105	145	2
			tempered	300	10	85	110	150	2	85	110	150	2
High-alloyed steel and high-alloyed tool steel		annealed	200	10	105	140	190	2	105	140	190	2	
		hardened and tempered	325	11	80	110	145	2	80	110	145	2	
M	Stainless steel	ferritic/martensitic	annealed	200	12	50	65	90	2	50	65	90	2
		martensitic	tempered	240	13	45	60	80	2	45	60	80	2
		austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2
		austenitic-ferritic		230	15	45	60	80	2	45	60	80	2
K	Grey cast iron	perlite/ferritic		180	16	110	150	200	2	110	150	200	2
		perlite (martensitic)		260	17	90	120	165	2	90	120	165	2
K	Cast iron with spheroidal graphite	ferritic		160	18	135	180	245	2	135	180	245	2
		perlite		250	19	105	140	190	2	105	140	190	2
		ferritic		130	20	150	200	270	2	150	200	270	2
K	Malleable cast iron	ferritic		130	20	150	200	270	2	150	200	270	2
		perlite		230	21	120	160	220	2	120	160	220	2
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
D	Copper and copper alloys (bronze/brass)	$> 12\% \text{ Si}$ , cannot be hardened		130	26								
		machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
S	Heat-resistant alloys	CuSn, Pb-free copper, electrolytic copper		100	25								
		Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
hardened	350		33										
S	Titanium alloys	cast		320	34								
		pure titanium		$R_m 400$	35								
H	Hardened steel	$\alpha$ and $\beta$ alloys	hardened	$R_m 1050$	36								
		hardened and tempered		55 HRC	37								
		hardened and tempered		60 HRC	38								
H	Hard cast iron	cast		400	39								
		hardened and tempered		55 HRC	40								
E	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics				42							
		Plastic, glass-fibre reinforced GFRP				43							
		Plastic, carbon fibre reinforced CFRP				44							
		Graphite				45							
		Wood				46							

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. Feed rate recommendations on page B460. For examples of material for cutting tool groups view page D22.

**Recommend feed rate**

**Solid carbide milling group 2 – Square shoulder mills GM series**

4 <sub>a<sub>p</sub>/D</sub>	a <sub>p</sub> /D	Feed rate per cutting edge (f <sub>s</sub> ) [mm]																		
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20				
P	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09				
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12				
M	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18				
	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07				
K	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09				
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15				
5	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09				
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12				
5	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18				

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases.

1. Select the appropriate product series.
2. Determine the immersion.
3. Select the used material and read the cutting speed.
4. Determine the feed rate group and have a look at the appropriate feed rate recommendations.
5. Select the diameter of tool and determine the immersion.

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## End mill – GM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
				5501R302GM 5601R302GM 5502R302GM 5602R302GM					GM-2E GM-2EFP GM-2F				
				Slot milling		Shoulder milling			Slot milling		Shoulder milling		
				$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max	$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max		
				$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$		
				$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$				
KMG303					KMG303								
$a_e / D$		$a_e / D$			$a_e / D$		$a_e / D$						
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group						
P Unalloyed steel	approx. 0,15 % C	annealed	125	1	150	200	270	2	150	200	270	2	
	approx. 0,45 % C	annealed	190	2	145	190	260	2	145	190	260	2	
	approx. 0,45 % C	tempered	250	3	105	140	190	2	105	140	190	2	
	approx. 0,75 % C	annealed	270	4	90	120	165	2	90	120	165	2	
	approx. 0,75 % C	tempered	300	5	85	110	150	2	85	110	150	2	
P Low-alloyed steel		annealed	180	6	115	150	205	2	115	150	205	2	
		tempered	275	7	90	120	165	2	90	120	165	2	
		tempered	300	8	85	110	150	2	85	110	150	2	
		tempered	350	9	80	105	145	2	80	105	145	2	
P High-alloyed steel and high-alloyed tool steel		annealed	200	10	105	140	190	2	105	140	190	2	
		hardened and tempered	325	11	80	110	145	2	80	110	145	2	
M Stainless steel	ferritic/martensitic	annealed	200	12	50	65	90	2	50	65	90	2	
	martensitic	tempered	240	13	45	60	80	2	45	60	80	2	
	austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2	
	austenitic-ferritic		230	15	45	60	80	2	45	60	80	2	
K Grey cast iron	perlitic/ferritic		180	16	110	150	200	2	110	150	200	2	
	perlitic (martensitic)		260	17	90	120	165	2	90	120	165	2	
K Cast iron with spheroidal graphite	ferritic		160	18	135	180	245	2	135	180	245	2	
	perlitic		250	19	105	140	190	2	105	140	190	2	
K Malleable cast iron	ferritic		130	20	150	200	270	2	150	200	270	2	
	perlitic		230	21	120	160	220	2	120	160	220	2	
N Aluminium wrought alloys	cannot be hardened		60	22									
	hardenable	hardened	100	23									
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
	$> 12\% \text{ Si}$ , cannot be hardened		130	26									
N Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
	$> 12\% \text{ Si}$ , cannot be hardened		130	26									
N Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27									
	CuZn, CuSnZn		90	28									
	CuSn, Pb-free copper, electrolytic copper		100	29									
S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co base	annealed	250	32									
		hardened	350	33									
		cast	320	34									
S Titanium alloys	pure titanium		$R_m$ 400	35									
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36									
H Hardened steel		hardened and tempered	55 HRC	37									
		hardened and tempered	60 HRC	38									
H Hard cast iron		cast	400	39									
H Hardened cast iron		hardened and tempered	55 HRC	40									
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
Feed rate recommendations on page B460.  
For examples of material for cutting tool groups view page D22.

Starting values for cutting speed $v_c$ [m/min]																							
GM-2EL GM-2EX GM-2FL				GM-2EP GM-2ES				GM-3E GM-4E GM-4E-G				GM-2EL GM-4EL-G				5501R303GM 5601R303GM 5502R303GM 5602R303GM							
Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling					
$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]			
$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$< 0,5 \times D$			
$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$						
KMG303				KMG303				KMG303				KMG303				KMG303							
$a_e / D$				$a_e / D$				$a_e / D$				$a_e / D$				$a_e / D$							
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1			
130	170	230	2	150	200	270	2	150	200	270	2	130	170	230	2	140	185	245	2	140	185	245	2
125	165	220	2	145	190	260	2	145	190	260	2	125	165	220	2	135	180	235	2	135	180	235	2
95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2	100	130	175	2
80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2	85	115	150	2
75	95	130	2	85	110	150	2	85	110	150	2	75	95	130	2	80	105	135	2	80	105	135	2
100	130	175	2	115	150	205	2	115	150	205	2	100	130	175	2	105	140	185	2	105	140	185	2
80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2	85	115	150	2
75	95	130	2	85	110	150	2	85	110	150	2	75	95	130	2	80	105	135	2	80	105	135	2
70	90	120	2	80	105	145	2	80	105	145	2	70	90	120	2	75	100	130	2	75	100	130	2
95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2	100	130	175	2
70	95	125	2	80	110	145	2	80	110	145	2	70	95	125	2	75	100	130	2	75	100	130	2
45	55	75	2	50	65	90	2	50	65	90	2	45	55	75	2	45	60	80	2	45	60	80	2
40	50	65	2	45	60	80	2	45	60	80	2	40	50	65	2	40	55	70	2	40	55	70	2
45	60	80	2	55	70	95	2	55	70	95	2	45	60	80	2	50	65	85	2	50	65	85	2
40	50	65	2	45	60	80	2	45	60	80	2	40	50	65	2	40	55	70	2	40	55	70	2
95	125	170	2	110	150	200	2	110	150	200	2	95	125	170	2	105	140	180	2	105	140	180	2
80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2	85	115	150	2
120	155	210	2	135	180	245	2	135	180	245	2	120	155	210	2	130	170	225	2	130	170	225	2
95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2	100	130	175	2
130	170	230	2	150	200	270	2	150	200	270	2	130	170	230	2	140	185	245	2	140	185	245	2
105	140	185	2	120	160	220	2	120	160	220	2	105	140	185	2	115	150	200	2	115	150	200	2

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# Solid carbide milling Recommended cutting data

## End mill – GM series

	Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
					5501R304GF 5601R304GF 5502R304GF 5602R304GF				GM-4F-G GM-4EFP					
					Slot milling		Shoulder milling		Slot milling		Shoulder milling			
					$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max	$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max		
					$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$		
						$3 \leq x \leq 20$	$0,8 \times D$		$3 \leq x \leq 20$	$0,8 \times D$				
					KMG303				KMG303					
					$a_e / D$				$a_e / D$					
					1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group		
<b>A</b> Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	155	200	265	2	150	200	270	2	
		approx. 0,45 % C	annealed	190	2	150	190	255	2	145	190	260	2	
		approx. 0,45 % C	tempered	250	3	110	140	190	2	105	140	190	2	
		approx. 0,75 % C	annealed	270	4	95	120	160	2	90	120	165	2	
		approx. 0,75 % C	tempered	300	5	90	110	150	2	85	110	150	2	
<b>B</b> Milling	P Low-alloyed steel		annealed	180	6	120	150	200	2	115	150	205	2	
			tempered	275	7	95	120	160	2	90	120	165	2	
			tempered	300	8	90	110	150	2	85	110	150	2	
			tempered	350	9	85	105	140	2	80	105	145	2	
<b>C</b> Drilling	P High-alloyed steel and high-alloyed tool steel		annealed	200	10	110	140	190	2	105	140	190	2	
			hardened and tempered	325	11	85	110	145	2	80	110	145	2	
<b>C</b> Milling	M Stainless steel	ferritic/martensitic	annealed	200	12	50	65	85	2	50	65	90	2	
			tempered	240	13	45	60	75	2	45	60	80	2	
		austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2	
				230	15	45	60	75	2	45	60	80	2	
<b>D</b> Drilling	K Grey cast iron	perlitic/ferritic		180	16	115	150	195	2	110	150	200	2	
		perlitic (martensitic)		260	17	95	120	160	2	90	120	165	2	
	K Cast iron with spheroidal graphite	ferritic		160	18	140	180	240	2	135	180	245	2	
		perlitic		250	19	110	140	190	2	105	140	190	2	
	K Malleable cast iron	ferritic		130	20	155	200	265	2	150	200	270	2	
perlitic			230	21	125	160	215	2	120	160	220	2		
<b>D</b> Milling	N Aluminium wrought alloys	cannot be hardened		60	22									
		hardenable	hardened	100	23									
	N Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
		$> 12\% \text{ Si}$ , cannot be hardened		130	26									
N Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27									
	CuZn, CuSnZn			90	28									
	CuSn, Pb-free copper, electrolytic copper			100	29									
<b>E</b> Technical Information	S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
			hardened	280	31									
		Ni or Co base	annealed	250	32									
			hardened	350	33									
	S Titanium alloys	pure titanium		$R_m$ 400	35									
$\alpha$ and $\beta$ alloys		hardened	$R_m$ 1050	36										
<b>F</b> Index	H Hardened steel		hardened and tempered	55 HRC	37									
			hardened and tempered	60 HRC	38									
			cast	400	39									
<b>F</b> Index	X Non-metallic materials		hardened and tempered	55 HRC	40									
			Thermoplasts		41									
			Thermosetting plastics		42									
			Plastic, glass-fibre reinforced GFRP		43									
			Plastic, carbon fibre reinforced CFRP		44									
			Graphite		45									
	Wood		46											

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
Feed rate recommendations on page B460.  
For examples of material for cutting tool groups view page D22.



Starting values for cutting speed $v_c$ [m/min]																			
GM-4FL-G GM-4EX-G				GM-6E				GM-6E 5589R45MGFR				5565R302GF 5565R302GM 5566R302GF				GM-2B GM-4B GM-2BS GM-2BP			
Slot milling		Shoulder milling				Shoulder milling				Shoulder milling		Slot milling		Shoulder milling					
$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max			$\varnothing$ [mm]	$a_e$ max			$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max				
$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$			$0 < x \leq 20$	$< 0,5 \times D$			$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$				
$3 \leq x \leq 20$	$0,8 \times D$											$3 \leq x \leq 20$	$0,8 \times D$						
KMG303				KMG303				KMG303				KMG303				KMG303			
a <sub>e</sub> / D				a <sub>e</sub> / D				a <sub>e</sub> / D				a <sub>e</sub> / D				a <sub>e</sub> / D			
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group
130	170	230	2			270	2			230	2		250	280	5		250	280	5
125	165	220	2			260	2			220	2		240	270	5		240	270	5
95	120	165	2			190	2			165	2		175	200	5		175	200	5
80	105	140	2			165	2			140	2		150	170	5		150	170	5
75	95	130	2			150	2			130	2		140	155	5		140	155	5
100	130	175	2			205	2			175	2		190	210	5		190	210	5
80	105	140	2			165	2			140	2		150	170	5		150	170	5
75	95	130	2			150	2			130	2		140	155	5		140	155	5
70	90	120	2			145	2			120	2		130	150	5		130	150	5
95	120	165	2			190	2			165	2		175	200	5		175	200	5
70	95	125	2			145	2			125	2		135	150	5		135	150	5
45	55	75	2			90	2			75	2		80	90	5		80	90	5
40	50	65	2			80	2			65	2		70	80	5		70	80	5
45	60	80	2			95	2			80	2		85	100	5		85	100	5
40	50	65	2			80	2			65	2		70	80	5		70	80	5
95	125	170	2			200	2			170	2		185	205	5		185	205	5
80	105	140	2			165	2			140	2		150	170	5		150	170	5
120	155	210	2			245	2			210	2		225	255	5		225	255	5
95	120	165	2			190	2			165	2		175	200	5		175	200	5
130	170	230	2			270	2			230	2		250	280	5		250	280	5
105	140	185	2			220	2			185	2		200	225	5		200	225	5

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## End mill – GM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]										
				GM-2BL GM-4BL GM-2BFP					GM-2R GM-4R					
									Slot milling		Shoulder milling			
									$\varnothing$ [mm]	$a_{p\max}$	$\varnothing$ [mm]	$a_{e\max}$		
					$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$						
					KMG303					KMG303				
					$a_e / D$					$a_e / D$				
					1/1	1/10	1/20	f-group	1/1	1/2	1/10	f-group		
P Unalloyed steel	approx. 0,15 % C	annealed	125	1	220	250	5	160	215	275	2			
	approx. 0,45 % C	annealed	190	2	210	240	5	155	205	265	2			
	approx. 0,45 % C	tempered	250	3	155	175	5	115	155	195	2			
	approx. 0,75 % C	annealed	270	4	135	150	5	100	130	165	2			
	approx. 0,75 % C	tempered	300	5	125	140	5	90	120	155	2			
P Low-alloyed steel		annealed	180	6	165	190	5	120	165	210	2			
		tempered	275	7	135	150	5	100	130	165	2			
		tempered	300	8	125	140	5	90	120	155	2			
		tempered	350	9	115	130	5	85	115	145	2			
P High-alloyed steel and high-alloyed tool steel		annealed	200	10	155	175	5	115	155	195	2			
		hardened and tempered	325	11	120	135	5	85	115	150	2			
M Stainless steel	ferritic/martensitic	annealed	200	12	75	80	5	55	70	90	2			
	martensitic	tempered	240	13	65	70	5	45	65	80	2			
	austenitic	quench hardened	180	14	75	85	5	55	75	95	2			
	austenitic-ferritic		230	15	65	70	5	45	65	80	2			
K Grey cast iron	perlitic/ferritic		180	16	165	185	5	120	160	205	2			
	perlitic (martensitic)		260	17	135	150	5	100	130	165	2			
K Cast iron with spheroidal graphite	ferritic		160	18	200	225	5	145	195	250	2			
	perlitic		250	19	155	175	5	115	155	195	2			
K Malleable cast iron	ferritic		130	20	220	250	5	160	215	275	2			
	perlitic		230	21	180	200	5	130	175	220	2			
N Aluminium wrought alloys	cannot be hardened		60	22										
	hardenable	hardened	100	23										
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24										
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25										
N Cast aluminium alloys	$> 12\% \text{ Si}$ , cannot be hardened		130	26										
	machining steel, PB> 1%		110	27										
	CuZn, CuSnZn		90	28										
S Copper and copper alloys (bronze/brass)	CuSn, Pb-free copper, electrolytic copper		100	29										
	Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31										
	Ni or Co bass	annealed	250	32										
hardened		350	33											
Titanium alloys	cast	320	34											
	pure titanium		$R_m$ 400	35										
H Hardened steel	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
	hardened and tempered	55 HRC		37										
H Hard cast iron	hardened and tempered	60 HRC		38										
	cast	400		39										
H Hardened cast iron	hardened and tempered	55 HRC		40										
X Non-metallic materials	Thermoplasts				41									
	Thermosetting plastics				42									
	Plastic, glass-fibre reinforced GFRP				43									
	Plastic, carbon fibre reinforced CFRP				44									
	Graphite				45									
	Wood				46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
Feed rate recommendations on page B460.  
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Starting values for cutting speed $v_c$ [m/min]											
GM-4RL				5602R303GR 5602R304GR 5602R305GR GM-4W							
Slot milling		Shoulder milling		Slot milling		Shoulder milling					
$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max	$\emptyset$ [mm]	$a_p$ max	$\emptyset$ [mm]	$a_e$ max				
$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$	$0 < x < 3$	$0,1 \times D$	$0 < x \leq 20$	$< 0,5 \times D$				
$3 \leq x \leq 20$	$0,8 \times D$			$3 \leq x \leq 20$	$0,8 \times D$						
KMG303				KMG303							
$a_e / D$				$a_e / D$							
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group				
145	200	240	2	135	180	240	2				
140	190	230	2	130	175	230	2				
105	140	170	2	95	130	170	2				
90	120	145	2	85	110	145	2				
80	110	135	2	75	100	135	2				
110	150	180	2	105	135	180	2				
90	120	145	2	85	110	145	2				
80	110	135	2	75	100	135	2				
80	105	125	2	75	95	125	2				
105	140	170	2	95	130	170	2				
80	110	130	2	75	100	130	2				
50	65	80	2	45	60	80	2				
45	60	70	2	40	55	70	2				
50	70	85	2	50	65	85	2				
45	60	70	2	40	55	70	2				
110	150	180	2	100	135	180	2				
90	120	145	2	85	110	145	2				
135	180	220	2	125	165	220	2				
105	140	170	2	95	130	170	2				
145	200	240	2	135	180	240	2				
120	160	195	2	110	145	195	2				

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## End mill – HM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
				HM-2E HM-2EP HM-2ES HM-4E					HM-2EFP HM-4EL HM-4EFP				
				Shoulder milling				Shoulder milling					
				$\varnothing$ [mm]	$a_{e \max}$	$\varnothing$ [mm]	$a_{e \max}$	$\varnothing$ [mm]	$a_{e \max}$	$\varnothing$ [mm]	$a_{e \max}$		
$0 < x \leq 20$		$0,05 \times D$		$0 < x \leq 20$		$0,05 \times D$							
KMG555					KMG555								
$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$							
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group						
P Unalloyed steel	approx. 0,15 % C	annealed	125	1									
	approx. 0,45 % C	annealed	190	2									
	approx. 0,45 % C	tempered	250	3									
	approx. 0,75 % C	annealed	270	4									
	approx. 0,75 % C	tempered	300	5									
P Low-alloyed steel		annealed	180	6									
		tempered	275	7									
		tempered	300	8									
		tempered	350	9									
High-alloyed steel and high-alloyed tool steel		annealed	200	10									
		hardened and tempered	325	11									
M Stainless steel	ferritic/martensitic	annealed	200	12									
	martensitic	tempered	240	13									
	austenitic	quench hardened	180	14									
	austenitic-ferritic		230	15									
K Grey cast iron	perlitic/ferritic		180	16									
	perlitic (martensitic)		260	17									
K Cast iron with spheroidal graphite	ferritic		160	18									
	perlitic		250	19									
K Malleable cast iron	ferritic		130	20									
	perlitic		230	21									
N Aluminium wrought alloys	cannot be hardened		60	22									
	hardenable	hardened	100	23									
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
N Cast aluminium alloys	$> 12\% \text{ Si}$ , cannot be hardened		130	26									
	machining steel, PB> 1%		110	27									
	CuZn, CuSnZn		90	28									
S Copper and copper alloys (bronze/brass)	CuSn, Pb-free copper, electrolytic copper		100	29									
	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co bass	annealed	250	32									
hardened		350	33										
S Titanium alloys	cast	320	34										
	pure titanium		$R_m$ 400	35									
H Hardened steel	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36									
	hardened and tempered	55 HRC	37	55	100	125	3	50	95	115	3		
H Hard cast iron	hardened and tempered	60 HRC	38	55	95	120	3	50	95	110	3		
	cast	400	39	70	125	160	3	65	120	145	3		
H Hardened cast iron	hardened and tempered	55 HRC	40	55	100	125	3	50	95	115	3		
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
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## End mill – NM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
				NM-2E 5502R402NM NM-4E NM-2EP				NM-2B NM-4BP					
				Slot milling		Shoulder milling							
				$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max						
				$0 < x < 12$	$0.5 \times D$	$0 < x \leq 20$	$< 0.5 \times D$						
				$12 \leq x \leq 20$	$1.0 \times D$								
				KMG309				KMG309					
				$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$	
				1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group		
P Unalloyed steel	approx. 0,15 % C	annealed	125	1									
	approx. 0,45 % C	annealed	190	2									
	approx. 0,45 % C	tempered	250	3									
	approx. 0,75 % C	annealed	270	4									
	approx. 0,75 % C	tempered	300	5									
Low-alloyed steel		annealed	180	6									
		tempered	275	7									
		tempered	300	8									
		tempered	350	9									
High-alloyed steel and high-alloyed tool steel		annealed	200	10									
		hardened and tempered	325	11									
M Stainless steel	ferritic/martensitic	annealed	200	12									
		tempered	240	13									
	austenitic	quench hardened	180	14									
			230	15									
Grey cast iron	perlitic/ferritic		180	16									
	perlitic (martensitic)		260	17									
K Cast iron with spheroidal graphite	ferritic		160	18									
	perlitic		250	19									
Malleable cast iron	ferritic		130	20									
	perlitic		230	21									
N Aluminium wrought alloys	cannot be hardened		60	22	920	1100	1200	4	1400	1550	4		
	hardenable	hardened	100	23	555	660	720	4	840	930	4		
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24	370	440	480	4	560	620	4		
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25	460	550	600	4	700	775	4		
	$> 12\% \text{ Si}$ , cannot be hardened		130	26	140	165	180	4	210	235	4		
Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	280	330	360	4	420	465	4		
	CuZn, CuSnZn		90	28	325	385	420	4	490	545	4		
	CuSn, Pb-free copper, electrolytic copper		100	29	280	330	360	4	420	465	4		
S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co bass	annealed	250	32									
		hardened	350	33									
		cast	320	34									
Titanium alloys	pure titanium		$R_m$ 400	35									
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36									
H Hardened steel		hardened and tempered	55 HRC	37									
		hardened and tempered	60 HRC	38									
H Hard cast iron		cast	400	39									
H Hardened cast iron		hardened and tempered	55 HRC	40									
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
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## End mill – AL series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
				AL-1E AL-2E AL-3E (W) ALG-2E				AL-2EL AL-3EL					
				Slot milling		Shoulder milling		Slot milling		Shoulder milling			
				$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max		
				$0 < x < 12$	$0.5 \times D$	$0 < x \leq 20$	$< 0.5 \times D$	$0 < x < 12$	$0.5 \times D$	$0 < x \leq 20$	$< 0.5 \times D$		
P Unalloyed steel	approx. 0,15 % C	annealed	125	1									
	approx. 0,45 % C	annealed	190	2									
	approx. 0,45 % C	tempered	250	3									
	approx. 0,75 % C	annealed	270	4									
	approx. 0,75 % C	tempered	300	5									
P Low-alloyed steel		annealed	180	6									
		tempered	275	7									
		tempered	300	8									
		tempered	350	9									
High-alloyed steel and high-alloyed tool steel		annealed	200	10									
		hardened and tempered	325	11									
M Stainless steel	ferritic/martensitic	annealed	200	12									
		tempered	240	13									
	austenitic	quench hardened	180	14									
			230	15									
K Grey cast iron	perlitic/ferritic		180	16									
	perlitic (martensitic)		260	17									
K Cast iron with spheroidal graphite	ferritic		160	18									
	perlitic		250	19									
K Malleable cast iron	ferritic		130	20									
	perlitic		230	21									
N Aluminium wrought alloys	cannot be hardened		60	22	920	1100	1200	4	830	990	1080	4	
	hardenable	hardened	100	23	555	660	720	4	500	595	650	4	
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24	370	440	480	4	335	400	435	4	
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25	460	550	600	4	415	495	540	4	
	$> 12\% \text{ Si}$ , cannot be hardened		130	26	140	165	180	4	125	150	165	4	
N Cast aluminium alloys			110	27	280	330	360	4	250	300	325	4	
			90	28	325	385	420	4	295	350	380	4	
			100	29	280	330	360	4	250	300	325	4	
N Copper and copper alloys (bronze/brass)			110	27	280	330	360	4	250	300	325	4	
			90	28	325	385	420	4	295	350	380	4	
S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co bass	annealed	250	32									
		hardened	350	33									
		cast	320	34									
	Titanium alloys	pure titanium		$R_m$ 400	35								
		$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36								
H Hardened steel		hardened and tempered	55 HRC	37									
		hardened and tempered	60 HRC	38									
H Hard cast iron		cast	400	39									
H Hardened cast iron		hardened and tempered	55 HRC	40									
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
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## End mill – AL series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]											
				AL-2RL-AIR AL-3RL-AIR											
				Slot milling		Shoulder milling									
				$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max								
				$0 < x < 12$	$0.5 \times D$	$0 < x \leq 20$	$< 0.5 \times D$								
				$12 \leq x \leq 20$	$1.0 \times D$										
				YK40F											
				$a_e / D$											
				1/1	1/2	1/10	f-group								
P Unalloyed steel	approx. 0,15 % C	annealed	125	1											
	approx. 0,45 % C	annealed	190	2											
	approx. 0,45 % C	tempered	250	3											
	approx. 0,75 % C	annealed	270	4											
	approx. 0,75 % C	tempered	300	5											
P Low-alloyed steel		annealed	180	6											
		tempered	275	7											
		tempered	300	8											
		tempered	350	9											
High-alloyed steel and high-alloyed tool steel		annealed	200	10											
		hardened and tempered	325	11											
M Stainless steel	ferritic/martensitic	annealed	200	12											
		tempered	240	13											
	austenitic	quench hardened	180	14											
			230	15											
K Grey cast iron	perlitic/ferritic		180	16											
	perlitic (martensitic)		260	17											
K Cast iron with spheroidal graphite	ferritic		160	18											
	perlitic		250	19											
Malleable cast iron	ferritic		130	20											
	perlitic		230	21											
N Aluminium wrought alloys	cannot be hardened		60	22	1035	1250	1350	8							
	hardenable	hardened	100	23	625	750	810	8							
	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24	415	500	540	8							
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25	520	625	675	8							
	$> 12\% \text{ Si}$ , cannot be hardened		130	26	160	190	205	8							
N Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24	415	500	540	8							
	$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25	520	625	675	8							
	$> 12\% \text{ Si}$ , cannot be hardened		130	26	160	190	205	8							
N Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27	315	375	405	8							
	CuZn, CuSnZn		90	28	365	440	475	8							
	CuSn, Pb-free copper, electrolytic copper		100	29	315	375	405	8							
S Heat-resistant alloys	Fe-based alloys	annealed	200	30											
		hardened	280	31											
	Ni or Co bass	annealed	250	32											
		hardened	350	33											
		cast	320	34											
Titanium alloys	pure titanium		$R_m$ 400	35											
	$\alpha$ and $\beta$ alloys	hardened		$R_m$ 1050	36										
H Hardened steel		hardened and tempered	55 HRC	37											
		hardened and tempered	60 HRC	38											
H Hard cast iron		cast	400	39											
H Hardened cast iron		hardened and tempered	55 HRC	40											
X Non-metallic materials	Thermoplasts				41										
	Thermosetting plastics				42										
	Plastic, glass-fibre reinforced GFRP				43										
	Plastic, carbon fibre reinforced CFRP				44										
	Graphite				45										
	Wood				46										

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B460.  
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## End mill – PM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
				PM-2E PM-4E PM-4E-G				PM-4EL PM-4EL-G PM-4EX-G					
				Slot milling		Shoulder milling		Slot milling		Shoulder milling			
				$\varnothing$ [mm]	$a_{p\max}$	$\varnothing$ [mm]	$a_{e\max}$	$\varnothing$ [mm]	$a_{p\max}$	$\varnothing$ [mm]	$a_{e\max}$		
				$0 < x < 3$	$0,15 \times D$	$0 < x \leq 20$	$0,15 \times D$	$0 < x < 3$	$0,15 \times D$	$0 < x \leq 20$	$0,15 \times D$		
				$3 \leq x < 6$	$0,3 \times D$			$3 \leq x < 6$	$0,3 \times D$				
				$6 \leq x \leq 20$	$0,5 \times D$			$6 \leq x \leq 20$	$0,5 \times D$				
				KMG405				KMG405					
				$a_e / D$				$a_e / D$					
				1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group		
P Unalloyed steel Low-alloyed steel High-alloyed steel and high-alloyed tool steel	approx. 0,15 % C annealed approx. 0,45 % C annealed approx. 0,45 % C tempered approx. 0,75 % C annealed approx. 0,75 % C tempered	125	1	165	220	300	1	140	190	255	1		
		190	2	160	210	285	1	135	185	245	1		
		250	3	120	155	210	1	100	135	180	1		
		270	4	100	135	180	1	85	115	155	1		
		300	5	95	125	165	1	80	105	145	1		
	annealed tempered tempered tempered	180	6	125	165	225	1	110	145	195	1		
		275	7	100	135	180	1	85	115	155	1		
		300	8	95	125	165	1	80	105	145	1		
	350	9	90	115	160	1	75	100	135	1			
	annealed hardened and tempered	200	10	120	155	210	1	100	135	180	1		
325		11	90	120	160	1	75	105	140	1			
M Stainless steel	ferritic/martensitic annealed	200	12	55	75	100	1	45	65	85	1		
	martensitic tempered	240	13	50	65	85	1	40	55	75	1		
	austenitic quench hardened	180	14	60	75	105	1	50	65	90	1		
	austenitic-ferritic	230	15	50	65	85	1	40	55	75	1		
K Grey cast iron Cast iron with spheroidal graphite Malleable cast iron	perlitic/ferritic	180	16	125	165	220	1	105	140	190	1		
	perlitic (martensitic)	260	17	100	135	180	1	85	115	155	1		
	ferritic	160	18	150	200	270	1	130	175	230	1		
	perlitic	250	19	120	155	210	1	100	135	180	1		
	ferritic	130	20	165	220	300	1	145	190	255	1		
perlitic	230	21	135	180	240	1	115	155	205	1			
N Aluminium wrought alloys Cast aluminium alloys Copper and copper alloys (bronze/brass)	cannot be hardened	60	22										
	hardenable hardened	100	23										
	$\leq 12\% \text{ Si}$ , cannot be hardened	75	24										
	$\leq 12\% \text{ Si}$ , hardenable hardened	90	25										
	$> 12\% \text{ Si}$ , cannot be hardened	130	26										
S Heat-resistant alloys Titanium alloys	machining steel, PB> 1%		110	27									
	CuZn, CuSnZn		90	28									
	CuSn, Pb-free copper, electrolytic copper		100	29									
	Fe-based alloys	annealed	200	30									
		hardened	280	31									
Ni or Co bass		annealed	250	32									
		hardened	350	33									
cast	320	34											
pure titanium		$R_m$ 400	35										
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36									
H Hardened steel Hard cast iron Hardened cast iron	hardened and tempered		55 HRC	37	80	105	140	1	65	90	120	1	
	hardened and tempered		60 HRC	38									
	cast		400	39	105	140	185	1	85	120	160	1	
hardened and tempered		55 HRC	40										
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.  
Feed rate recommendations on page B460.  
For examples of material for cutting tool groups view page D22.

Starting values for cutting speed  $v_c$  [m/min]

																				PM-6E				PM-6EL				PM-2B PM-4B				PM-2BL PM-2BFP PM-4BL				PM-2BC			
																				Shoulder milling				Shoulder milling															
																				Ø [mm]	$a_p$ max			Ø [mm]	$a_p$ max														
																				0 < x ≤ 20	0.15 × D			0 < x ≤ 20	0.15 × D														
																				KMG405				KMG405				KMG405				KMG405				KMG405			
																				$a_e / D$				$a_e / D$				$a_e / D$				$a_e / D$				$a_e / D$			
																				1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group
		220	300	1		190	255	1		270	300	5		230	255	5		230	255	5																			
		210	285	1		185	245	1		260	285	5		220	245	5		220	245	5																			
		155	210	1		135	180	1		190	210	5		165	180	5		165	180	5																			
		135	180	1		115	155	1		165	180	5		140	155	5		140	155	5																			
		125	165	1		105	145	1		150	165	5		130	145	5		130	145	5																			
		165	225	1		145	195	1		205	225	5		175	195	5		175	195	5																			
		135	180	1		115	155	1		165	180	5		140	155	5		140	155	5																			
		125	165	1		105	145	1		150	165	5		130	145	5		130	145	5																			
		115	160	1		100	135	1		145	160	5		120	135	5		120	135	5																			
		155	210	1		135	180	1		190	210	5		165	180	5		165	180	5																			
		120	160	1		105	140	1		145	160	5		125	140	5		125	140	5																			
		75	100	1		65	85	1		90	100	5		75	85	5		75	85	5																			
		65	85	1		55	75	1		80	85	5		65	75	5		65	75	5																			
		75	105	1		65	90	1		95	105	5		80	90	5		80	90	5																			
		65	85	1		55	75	1		80	85	5		65	75	5		65	75	5																			
		165	220	1		140	190	1		200	220	5		170	190	5		170	190	5																			
		135	180	1		115	155	1		165	180	5		140	155	5		140	155	5																			
		200	270	1		175	230	1		245	270	5		210	230	5		210	230	5																			
		155	210	1		135	180	1		190	210	5		165	180	5		165	180	5																			
		220	300	1		190	255	1		270	300	5		230	255	5		230	255	5																			
		180	240	1		155	205	1		220	240	5		185	205	5		185	205	5																			
		105	140	1		90	120	1		125	140	5		110	120	5		110	120	5																			
		140	185	1		120	160	1		165	185	1		145	160	1		145	160	1																			

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Turning

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## End mill – PM series

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
					PM-2R PM-4R				PM-4RL				
					Slot milling		Shoulder milling		Slot milling		Shoulder milling		
					$\emptyset$ [mm]	$a_{p \max}$	$\emptyset$ [mm]	$a_{e \max}$	$\emptyset$ [mm]	$a_{p \max}$	$\emptyset$ [mm]	$a_{e \max}$	
					$0 < x < 3$	$0,15 \times D$	$0 < x \leq 20$	$0,15 \times D$	$0 < x < 3$	$0,15 \times D$	$0 < x \leq 20$	$0,15 \times D$	
					$3 \leq x < 6$	$0,3 \times D$			$3 \leq x < 6$	$0,3 \times D$			
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	220	300	1	150	200	265	1
		approx. 0,45 % C	annealed	190	2	160	210	285	1	145	190	255	1
		approx. 0,45 % C	tempered	250	3	120	155	210	1	105	140	190	1
		approx. 0,75 % C	annealed	270	4	100	135	180	1	90	120	160	1
		approx. 0,75 % C	tempered	300	5	95	125	165	1	85	110	150	1
	Low-alloyed steel		annealed	180	6	125	165	225	1	115	150	200	1
			tempered	275	7	100	135	180	1	90	120	160	1
			tempered	300	8	95	125	165	1	85	110	150	1
			tempered	350	9	90	115	160	1	80	105	140	1
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	155	210	1	105	140	190	1
		hardened and tempered	325	11	90	120	160	1	80	110	145	1	
M	Stainless steel	ferritic/martensitic	annealed	200	12	55	75	100	1	50	65	85	1
		martensitic	tempered	240	13	50	65	85	1	45	60	75	1
		austenitic	quench hardened	180	14	60	75	105	1	55	70	95	1
		austenitic-ferritic		230	15	50	65	85	1	45	60	75	1
K	Grey cast iron	perlitic/ferritic		180	16	125	165	220	1	110	150	195	1
		perlitic (martensitic)		260	17	100	135	180	1	90	120	160	1
	Cast iron with spheroidal graphite	ferritic		160	18	150	200	270	1	135	180	240	1
		perlitic		250	19	120	155	210	1	105	140	190	1
	Malleable cast iron	ferritic		130	20	165	220	300	1	150	200	265	1
		perlitic		230	21	135	180	240	1	120	160	215	1
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25								
		$> 12\% \text{ Si}$ , cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27							
		CuZn, CuSnZn			90	28							
CuSn, Pb-free copper, electrolytic copper			100	29									
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
	Titanium alloys	cast	320	34									
		pure titanium		$R_m$ 400	35								
$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
H	Hardened steel		hardened and tempered	55 HRC	37	85	110	145	1	70	95	125	1
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39	115	145	190	1	95	125	165	1
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.

The values have to be adapted in individual cases.

Feed rate recommendations on page B460.

For examples of material for cutting tool groups view page D22.



## End mill – UM/HPC/VSM series

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
						5501R38414GM (-R) 5502R38414GM (-R) 5602R38414GM (-R)				5501R38414GM (-R) long series 5502R38414GM (-R) long series 5602R38414GM (-R) long series					
						Slot milling		Shoulder milling		Slot milling		Shoulder milling			
$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max								
	$0 < x < 3$	$0,3xD$	$0 < x < 3$	$0,15xD$	$0 < x < 3$	$0,3xD$	$0 < x < 3$	$0,15xD$							
	$3 \leq x < 12$	$0,7xD$	$3 \leq x < 20$	$0,3xD$	$3 \leq x < 12$	$0,7xD$	$3 \leq x < 20$	$0,3xD$							
	$12 \leq x \leq 20$	$1,5xD$			$12 \leq x \leq 20$	$1,5xD$									
					KMG405				KMG405						
					$a_e / D$		$a_e / D$		$a_e / D$		$a_e / D$				
					1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group			
B Milling	P Unalloyed steel		approx. 0,15 % C	annealed	125	1	250	300	380	9	190	225	285	9	
			approx. 0,45 % C	annealed	190	2	240	285	365	9	185	215	275	9	
			approx. 0,45 % C	tempered	250	3	175	210	270	9	135	160	200	9	
			approx. 0,75 % C	annealed	270	4	150	180	230	9	115	135	175	9	
			approx. 0,75 % C	tempered	300	5	140	165	210	9	105	125	160	9	
	Low-alloyed steel			annealed	180	6	190	225	285	9	145	170	215	9	
				tempered	275	7	150	180	230	9	115	135	175	9	
				tempered	300	8	140	165	210	9	105	125	160	9	
				tempered	350	9	130	160	200	9	100	120	150	9	
	High-alloyed steel and high-alloyed tool steel			annealed	200	10	175	210	270	9	135	160	200	9	
			hardened and tempered	325	11	135	160	205	9	105	120	155	9		
C Drilling	M Stainless steel		ferritic/martensitic	annealed	200	12	80	100	125	9	65	75	95	9	
			martensitic	tempered	240	13	70	85	110	9	55	65	80	9	
			austenitic	quench hardened	180	14	85	105	130	9	65	80	100	9	
			austenitic-ferritic		230	15	70	85	110	9	55	65	80	9	
K Drilling	Grey cast iron		perlitic/ferritic		180	16	185	220	280	9	140	165	210	9	
			perlitic (martensitic)		260	17	150	180	230	9	115	135	175	9	
	Cast iron with spheroidal graphite		ferritic		160	18	225	270	345	9	175	205	260	9	
			perlitic		250	19	175	210	270	9	135	160	200	9	
	Malleable cast iron		ferritic		130	20	250	300	380	9	190	225	285	9	
			perlitic		230	21	200	240	305	9	155	180	230	9	
N Technical Information	Aluminium wrought alloys		cannot be hardened		60	22									
			hardenable	hardened	100	23									
	Cast aluminium alloys		$\leq 12\% \text{ Si}$ , cannot be hardened		75	24									
			$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25									
			$> 12\% \text{ Si}$ , cannot be hardened		130	26									
	Copper and copper alloys (bronze/brass)		machining steel, PB $> 1\%$		110	27									
		CuZn, CuSnZn		90	28										
		CuSn, Pb-free copper, electrolytic copper		100	29										
S Technical Information	Heat-resistant alloys		Fe-based alloys	annealed	200	30									
				hardened	280	31									
			Ni or Co bass	annealed	250	32									
				hardened	350	33									
			cast	320	34										
	Titanium alloys		pure titanium		$R_m$ 400	35									
		$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
H Index	Hardened steel			hardened and tempered	55 HRC	37	115	140	175	9					
				hardened and tempered	60 HRC	38									
	Hard cast iron			cast	400	39	135	165	205	9					
	Hardened cast iron			hardened and tempered	55 HRC	40									
X Index	Non-metallic materials		Thermoplasts			41									
			Thermosetting plastics			42									
			Plastic, glass-fibre reinforced GFRP			43									
			Plastic, carbon fibre reinforced CFRP			44									
			Graphite			45									
			Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B460.  
 For examples of material for cutting tool groups view page D22.



Starting values for cutting speed $v_c$ [m/min]																
UM-4E UM-4E-W UM-4R				UM-4EL UM-4EL-W UM-4ELP UM-4EFP				UM-4RL UM-4RFP				VSM-4E VSM-4R				
Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		
$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	$\varnothing$ [mm]	$a_p$ max	$\varnothing$ [mm]	$a_e$ max	
$0 < x < 3$	$0,3x D$	$0 < x < 3$	$0,15x D$	$0 < x < 3$	$0,3x D$	$0 < x < 3$	$0,15x D$	$0 < x < 3$	$0,3x D$	$0 < x < 3$	$0,15x D$	$0 < x < 3$	$0,3x D$	$0 < x < 3$	$0,15x D$	
$3 \leq x < 12$	$0,7x D$	$3 \leq x < 20$	$0,3x D$	$3 \leq x < 12$	$0,7x D$	$3 \leq x < 20$	$0,3x D$	$3 \leq x < 12$	$0,7x D$	$3 \leq x < 20$	$0,3x D$	$3 \leq x < 12$	$0,7x D$	$3 \leq x < 20$	$0,3x D$	
$12 \leq x \leq 20$	$1,5x D$			$12 \leq x \leq 20$	$1,5x D$			$12 \leq x \leq 20$	$1,5x D$			$12 \leq x \leq 20$	$1,5x D$			
KMG405				KMG405				KMG405				KMG405				
$a_e / D$				$a_e / D$				$a_e / D$				$a_e / D$				
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	
250	300	380	9	150	180	230	9	150	180	230	9	145	180	250	10	
240	285	365	9	145	175	220	9	145	175	220	9	140	175	240	10	
175	210	270	9	105	130	165	9	105	130	165	9	105	130	175	10	
150	180	230	9	90	110	140	9	90	110	140	9	90	110	150	10	
140	165	210	9	85	100	130	9	85	100	130	9	80	100	140	10	
190	225	285	9	115	135	175	9	115	135	175	9	110	135	190	10	
150	180	230	9	90	110	140	9	90	110	140	9	90	110	150	10	
140	165	210	9	85	100	130	9	85	100	130	9	80	100	140	10	
130	160	200	9	80	95	120	9	80	95	120	9	80	95	130	10	
175	210	270	9	105	130	165	9	105	130	165	9	105	130	175	10	
135	160	205	9	80	100	125	9	80	100	125	9	80	100	135	10	
80	100	125	9	50	60	75	9	50	60	75	9	50	60	80	10	
70	85	110	9	45	55	65	9	45	55	65	9	45	55	70	10	
85	105	130	9	55	65	80	9	55	65	80	9	50	65	85	10	
70	85	110	9	45	55	65	9	45	55	65	9	45	55	70	10	
185	220	280	9	110	135	170	9	110	135	170	9					
150	180	230	9	90	110	140	9	90	110	140	9					
225	270	345	9	135	165	210	9	135	165	210	9					
175	210	270	9	105	130	165	9	105	130	165	9					
250	300	380	9	150	180	230	9	150	180	230	9					
200	240	305	9	120	145	185	9	120	145	185	9					
													45	55	85	10
													25	30	45	10
													45	55	85	10
													25	30	45	10
													25	30	45	10
													75	90	135	10
													45	55	85	10
115	140	175	9	70	85	110	9	70	85	110	9					
135	165	205	9	85	100	130	9	85	100	130	9					

**A**

Turning

**B**

Milling

**C**

Drilling

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Technical Information

**E**

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## Deburring cutters – FM series

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]					
				5501 / 5601 5501 / 5601 5601					
				KMG303					
				$a_e / D$				f-group	
				1/1	1/2	1/10			
P Unalloyed steel	approx. 0,15 % C	annealed	125	1			230	11	
	approx. 0,45 % C	annealed	190	2			220	11	
	approx. 0,45 % C	tempered	250	3			165	11	
	approx. 0,75 % C	annealed	270	4			140	11	
	approx. 0,75 % C	tempered	300	5			130	11	
P Low-alloyed steel		annealed	180	6			175	11	
		tempered	275	7			140	11	
		tempered	300	8			130	11	
		tempered	350	9			120	11	
P High-alloyed steel and high-alloyed tool steel		annealed	200	10			165	11	
		hardened and tempered	325	11			125	11	
M Stainless steel	ferritic/martensitic	annealed	200	12			75	11	
	martensitic	tempered	240	13			65	11	
	austenitic	quench hardened	180	14			80	11	
	austenitic-ferritic		230	15			65	11	
K Grey cast iron	perlitic/ferritic		180	16			170	11	
	perlitic (martensitic)		260	17			140	11	
K Cast iron with spheroidal graphite	ferritic		160	18			210	11	
	perlitic		250	19			165	11	
K Malleable cast iron	ferritic		130	20			230	11	
	perlitic		230	21			185	11	
N Aluminium wrought alloys	cannot be hardened		60	22			1200	11	
	hardenable	hardened	100	23			720	11	
	≤ 12 % Si, cannot be hardened		75	24			480	11	
	Cast aluminium alloys	≤ 12 % Si, hardenable	hardened	90	25			600	11
		> 12 % Si, cannot be hardened		130	26			180	11
N Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27			360	11	
	CuZn, CuSnZn		90	28			420	11	
	CuSn, Pb-free copper, electrolytic copper		100	29			360	11	
S Heat-resistant alloys	Fe-based alloys	annealed	200	30					
		hardened	280	31					
	Ni or Co bass	annealed	250	32					
		hardened	350	33					
		cast	320	34					
S Titanium alloys	pure titanium		R <sub>m</sub> 400	35					
	α and β alloys	hardened	R <sub>m</sub> 1050	36					
H Hardened steel		hardened and tempered	55 HRC	37					
		hardened and tempered	60 HRC	38					
H Hard cast iron		cast	400	39					
H Hardened cast iron		hardened and tempered	55 HRC	40					
X Non-metallic materials	Thermoplasts				41				
	Thermosetting plastics				42				
	Plastic, glass-fibre reinforced GFRP				43				
	Plastic, carbon fibre reinforced CFRP				44				
	Graphite				45				
	Wood				46				

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 Feed rate recommendations on page B460.  
 For examples of material for cutting tool groups view page D22.



## Recommended feed rate

### Solid carbide milling group 1 – Square shoulder mills PM series

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]																						
		$\emptyset 0,5$	$\emptyset 0,8$	$\emptyset 1$	$\emptyset 2$	$\emptyset 3$	$\emptyset 4$	$\emptyset 5$	$\emptyset 6$	$\emptyset 8$	$\emptyset 10$	$\emptyset 12$	$\emptyset 14$	$\emptyset 16$	$\emptyset 18$	$\emptyset 20$								
<b>P</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,05	0,07	0,08	0,08	0,09	0,09	0,10							
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,09	0,10	0,10	0,12	0,12	0,13							
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20							
<b>M</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,07	0,08							
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,04	0,04	0,05	0,07	0,08	0,08	0,10	0,10	0,11							
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16							
<b>K</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,05	0,07	0,08	0,08	0,09	0,09	0,10								
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,09	0,10	0,10	0,12	0,12	0,13								
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20								
<b>H</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,07	0,08								
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,04	0,04	0,05	0,07	0,08	0,08	0,10	0,10	0,11								
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Solid carbide milling group 2 – Square shoulder mills GM series

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]																						
		$\emptyset 0,5$	$\emptyset 0,8$	$\emptyset 1$	$\emptyset 2$	$\emptyset 3$	$\emptyset 4$	$\emptyset 5$	$\emptyset 6$	$\emptyset 8$	$\emptyset 10$	$\emptyset 12$	$\emptyset 14$	$\emptyset 16$	$\emptyset 18$	$\emptyset 20$								
<b>P</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09								
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12								
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18								
<b>M</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07								
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09								
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15								
<b>K</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09								
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12								
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Solid carbide milling group 3 – Square shoulder mills HM series

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]																						
		$\emptyset 0,5$	$\emptyset 0,8$	$\emptyset 1$	$\emptyset 2$	$\emptyset 3$	$\emptyset 4$	$\emptyset 5$	$\emptyset 6$	$\emptyset 8$	$\emptyset 10$	$\emptyset 12$	$\emptyset 14$	$\emptyset 16$	$\emptyset 18$	$\emptyset 20$								
<b>H</b>	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07								
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09								
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Solid carbide milling group 4 – Square shoulder mills AL/NM series

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]																						
		$\emptyset 0,5$	$\emptyset 0,8$	$\emptyset 1$	$\emptyset 2$	$\emptyset 3$	$\emptyset 4$	$\emptyset 5$	$\emptyset 6$	$\emptyset 8$	$\emptyset 10$	$\emptyset 12$	$\emptyset 14$	$\emptyset 16$	$\emptyset 18$	$\emptyset 20$								
<b>N</b>	1/1	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,09	0,11	0,11	0,12	0,12	0,14								
	3/4	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18								
	1/10	0,03	0,06	0,06	0,06	0,06	0,06	0,09	0,09	0,12	0,19	0,22	0,22	0,25	0,25	0,28								
	1/20	0,04	0,08	0,08	0,08	0,08	0,08	0,12	0,12	0,16	0,23	0,27	0,27	0,31	0,31	0,35								

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

**Recommended feed rate**

**Solid carbide milling group 5 – Ball nose cutters GM series**

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]															
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	
<b>P</b>	1/1																
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20	
	1/20	0,03	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,11	0,17	0,20	0,20	0,23	0,23	0,25	
<b>M</b>	1/1																
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16	
	1/20	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21	
<b>K</b>	1/1																
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20	
	1/20	0,03	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,11	0,17	0,20	0,20	0,23	0,23	0,25	
<b>H</b>	1/1																
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16	
	1/20	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21	

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

**Solid carbide milling group 6 – High feed mills PM series**

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]							
		Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	
<b>P</b>	1/1								
	1/10								
	1/20	0,15	0,25	0,28	0,33	0,44	0,55	0,66	
<b>M</b>	1/1								
	1/10								
	1/20	0,12	0,22	0,25	0,30	0,41	0,52	0,63	
<b>K</b>	1/1								
	1/10								
	1/20	0,15	0,25	0,28	0,33	0,44	0,55	0,66	
<b>H</b>	1/1								
	1/10								
	1/20	0,12	0,22	0,25	0,30	0,41	0,52	0,63	

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

**Solid carbide milling group 7 – Ball nose cutters HM series**

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]															
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	
<b>H</b>	1/1																
	1/2	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16	
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21	

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

**Solid carbide milling group 8 – High feed mills AL series**

	$a_e / D$	Feed rate per cutting edge ( $f_z$ ) [mm]								
		Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	
<b>N</b>	1/1	0,04	0,05	0,08	0,09	0,11	0,13	0,16	0,18	
	3/4	0,05	0,07	0,10	0,12	0,14	0,16	0,20	0,23	
	1/10	0,08	0,11	0,16	0,19	0,22	0,25	0,31	0,36	

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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## Recommended feed rate

### Solid carbide milling group 9 – Square shoulder mills UM series HSC/HPC

	a <sub>e</sub> / D	Feed rate per cutting edge (f <sub>z</sub> ) [mm]																
		Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20							
<b>P</b>	1/1	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08							
	1/2	0,08	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10	0,10							
	1/10	0,14	0,14	0,16	0,18	0,22	0,25	0,27	0,3	0,32	0,36							
<b>M</b>	1/1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,06	0,06	0,06							
	1/2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08							
	1/10	0,10	0,10	0,10	0,12	0,12	0,14	0,16	0,16	0,18	0,18							
<b>K</b>	1/1	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08							
	1/2	0,08	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10	0,10							
	1/10	0,14	0,14	0,16	0,18	0,22	0,25	0,27	0,3	0,32	0,36							
<b>H</b>	1/1	0,045	0,045	0,045	0,053	0,053	0,053	0,053	0,06	0,06	0,06							
	1/2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08							
	1/10	0,10	0,10	0,10	0,12	0,12	0,14	0,16	0,16	0,18	0,18							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Solid carbide milling group 10 – Square shoulder mills VSM series

	a <sub>e</sub> / D	Feed rate per cutting edge (f <sub>z</sub> ) [mm]																
		Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20							
<b>P</b>	1/1	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,07	0,08							
	1/2	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11							
	1/10	0,05	0,08	0,09	0,09	0,09	0,09	0,11	0,12	0,14	0,15							
<b>M</b>	1/1	0,02	0,03	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,06							
	1/2	0,03	0,05	0,05	0,05	0,05	0,05	0,06	0,07	0,08	0,08							
	1/10	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11							
<b>S</b>	1/1	0,02	0,03	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,06							
	1/2	0,03	0,05	0,05	0,05	0,05	0,05	0,06	0,07	0,08	0,08							
	1/10	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11							

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

### Solid carbide milling group 11 – Deburring cutters FM series

	a <sub>e</sub> / D	Feed rate per cutting edge (f <sub>z</sub> ) [mm]																
		Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20						
<b>P</b>	1/1																	
	1/2																	
	1/10	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09						
<b>M</b>	1/1																	
	1/2																	
	1/10	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07						
<b>K</b>	1/1																	
	1/2																	
	1/10	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09						
<b>N</b>	1/1																	
	1/2																	
	1/10	0,03	0,03	0,05	0,05	0,06	0,09	0,11	0,11	0,12	0,12	0,14						

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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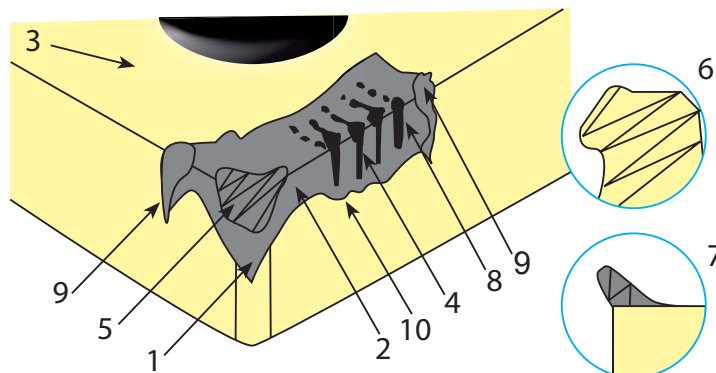
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## Trouble shooting – indexable milling

Fig.	Type of wear	Effects	Reason	Countermeasure
1+2	Flank wear	<ul style="list-style-type: none"> <li>– Bad surface quality and dimensional stability</li> <li>– Increase of cutting force</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Clearance angle too small</li> <li>– Feed rate too low</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Reduce cutting speed</li> <li>– Increase clearance angle</li> <li>– Reduce feed rate</li> </ul>
3	Crater wear	<ul style="list-style-type: none"> <li>– Bad surface quality and chip control</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Feed rate too low</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Reduce cutting speed</li> <li>– Reduce feed rate</li> </ul>
4	Chipping	<ul style="list-style-type: none"> <li>– Unstable tool life</li> <li>– Sudden breakage of cutting edge</li> </ul>	<ul style="list-style-type: none"> <li>– Grade too hard</li> <li>– Feed rate too high</li> <li>– Cutting edge not stable enough</li> <li>– Stability of the holder or tension insufficient</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce feed rate</li> <li>– Change honing of cutting edge</li> <li>– Use a more stable tool holder</li> </ul>
5	Breakage	<ul style="list-style-type: none"> <li>– Increase of cutting force</li> <li>– Bad surface quality and dimensional stability</li> </ul>	<ul style="list-style-type: none"> <li>– Grade too hard</li> <li>– Feed rate too high</li> <li>– Cutting edge not stable enough</li> <li>– Stability of the holder or tension insufficient</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce feed rate</li> <li>– Change honing of cutting edge</li> <li>– Use a more stable tool holder</li> </ul>
6	Plastic deformation	<ul style="list-style-type: none"> <li>– Bad dimensional stability</li> <li>– Damage to cutting edge</li> </ul>	<ul style="list-style-type: none"> <li>– Grade not wear-resistant enough</li> <li>– Cutting speed too high</li> <li>– Cutting depth and/or feed rate too high</li> <li>– Temperature on the cutting edge too high</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher toughness</li> <li>– Reduce cutting speed</li> <li>– Reduce cutting depth and feed rate</li> <li>– Grade with higher heat-resistance</li> </ul>
7	Welding	<ul style="list-style-type: none"> <li>– Increase of cutting force</li> <li>– Bad surface quality</li> </ul>	<ul style="list-style-type: none"> <li>– Cutting speed too low</li> <li>– Cutting edge not sharp enough</li> <li>– Grade not suitable</li> </ul>	<ul style="list-style-type: none"> <li>– Increase cutting speed</li> <li>– Increase rake angle</li> <li>– Use a more suitable grade</li> </ul>
8	Thermal cracks	<ul style="list-style-type: none"> <li>– Breakage due to thermal interaction, often caused when cutting is interrupted (milling)</li> </ul>	<ul style="list-style-type: none"> <li>– Temperature fluctuation when machining</li> <li>– Grade too hard</li> </ul>	<ul style="list-style-type: none"> <li>– Dry machining</li> <li>– Grade with higher toughness</li> </ul>
9	Notch wear	<ul style="list-style-type: none"> <li>– Burr formation</li> <li>– Increase of cutting force</li> </ul>	<ul style="list-style-type: none"> <li>– Damage through chips (jagged edges)</li> <li>– Feed rate and cutting speed too high</li> </ul>	<ul style="list-style-type: none"> <li>– Grade with higher wear-resistance</li> <li>– Increase rake angle to get a sharper cutting edge</li> <li>– Reduce cutting speed</li> </ul>
10	Flaking (coating)	<ul style="list-style-type: none"> <li>– Often appears when machining hardened materials or caused by vibration</li> </ul>	<ul style="list-style-type: none"> <li>– Cutting edge adhesion and chipping</li> <li>– Bad chip removal</li> </ul>	<ul style="list-style-type: none"> <li>– Increase rake angle to get a sharper cutting edge</li> <li>– Chip breaker with bigger chip space</li> </ul>



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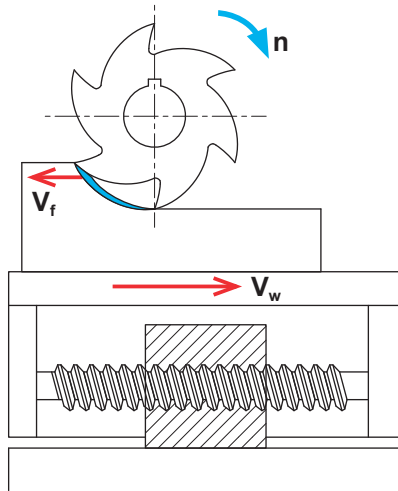
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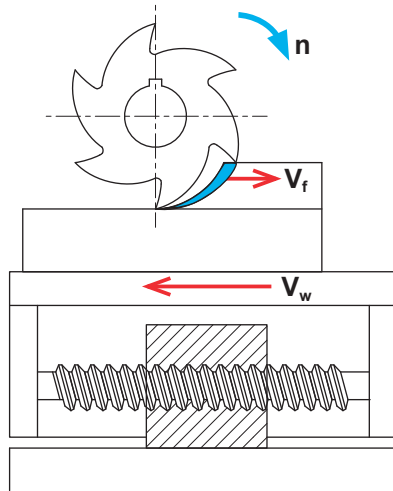


## Indexable milling

Difference between up-milling and down-milling



Up-milling



Down-milling

$V_f$  Feed rate tool  
 $V_w$  Feed rate work piece  
 $n$  Rotation

Up-milling: the feed direction of the work piece is opposite to that of the milling rotation at the connecting position.

Down-milling: the feed direction of the work piece is the same as that of the milling rotation at the connecting position.

### Advantages and disadvantages

Direction	Advantages	Disadvantages
Up-milling	<ul style="list-style-type: none"> <li>– Prevents hooking of tool</li> <li>– More smooth cut</li> </ul>	<ul style="list-style-type: none"> <li>– Bigger stress on cutting edge</li> <li>– Shorter tool life</li> </ul>
Down-milling	<ul style="list-style-type: none"> <li>– Higher tool life</li> <li>– Less thermal stress</li> </ul>	<ul style="list-style-type: none"> <li>– Hooking of tool possible</li> </ul>

A

Turning

B

Milling

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A

## Indexable milling

### Pitch selection

The pitch is the distance between one point on one cutting edge and the same point on the next edge. Milling cutters are mainly classified into wide, normal and fine pitches.

Turning

Operational stability		
L (low)	M (medium)	H (high)
Wide pitch	Normal pitch	Fine pitch
		
When the milling width is equal to the diameter of the cutter, the machining system is stable and main power of machine is sufficient, selecting a wide pitch can achieve high productive efficiency.	General milling function and multiple mixed productions.	When the milling width is less than the diameter of cutter, cutting by maximum edges can achieve high productive efficiency.

B

Milling

C

### Approach angle

The approach angle is composed by insert. Tool body, chip thickness, cutting forces and tool life are affected especially by the approach angle. Decreasing the approach angle reduces chip thickness and spreads the cutting area between cutting edge and work piece for a given feed rate. A smaller approach angle also guarantees stable entering or exiting the work piece, to protect the cutting edge and extend tool life. However this will increase higher axial cutting forces on the work piece, thus it is not suitable for machining thin work pieces such as thin plates.

Drilling

Approach angle	Feed rate per tooth	Max. cutting depth
90°	$f_z$	$h_{ex} = f_z \times \sin \alpha_r$
75°		$h_{ex} = 0,96 \times f_z$
60°		$h_{ex} = 0,86 \times f_z$
45°		$h_{ex} = 0,707 \times f_z$
Round		$h_{ex} = \frac{\sqrt{iC^2 \times (iC - 2a_p)^2}}{iC} \times f_z$

D

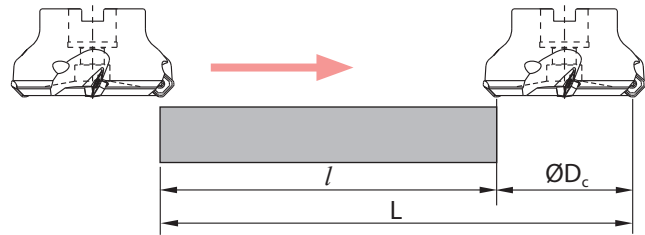
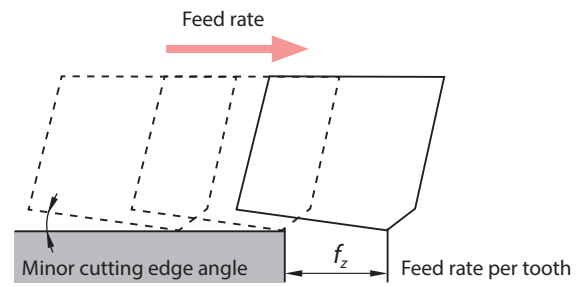
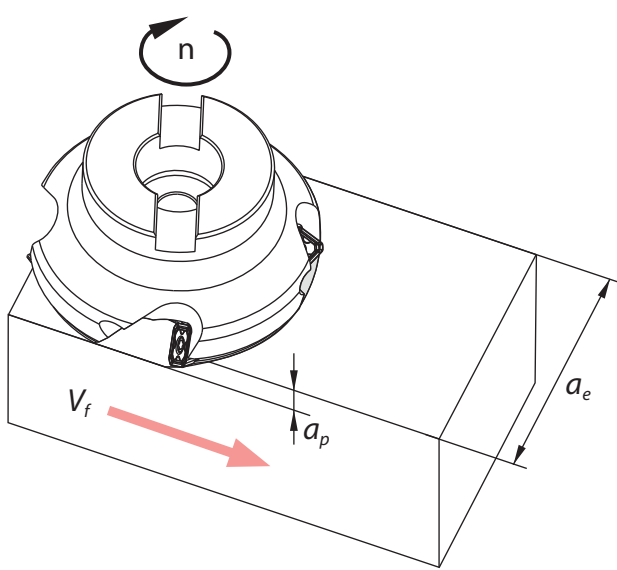
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## Indexable milling

### General formulas



- $V_c$ : Feed rate [m/min]
- $D_c$ : Nominal diameter of milling tool [mm]
- $n$ : Spindle speed [u/min]
- $z_n$ : Number of teeth
- $Q$ : Metal removal rate [cm<sup>3</sup>/min]

- $V_f$ : Feed rate of worktable (feed speed) [mm/min]
- $f_z$ : Feed rate per tooth [mm/z]
- $\pi$ : ~3,14
- $T_c$ : Machining time [min]
- $f_n$ : Feed rate per revolution [mm/u]

Cutting speed	$V_c = \frac{\pi \times D_c \times n}{1000} \text{ [m/min]}$
Spindle speed	$n = \frac{1000 \times V_c}{\pi \times D_c} \text{ [rev/min]}$
Feed rate of work table	$V_f = f_z \times n \times z_n \text{ [mm/min]}$
Feed rate per tooth	$f_z = \frac{V_f}{n \times z_n} \text{ [mm/z]}$
Feed rate per revolution	$f_n = \frac{V_f}{n} \text{ [mm/rev]}$
Machining time	$T_c = \frac{1000 \times V_c}{\pi \times D_c} \text{ [min]}$
Metal removal rate	$Q = \frac{a_p \times a_e \times V_f}{1000} \text{ [cm}^3\text{/min]}$

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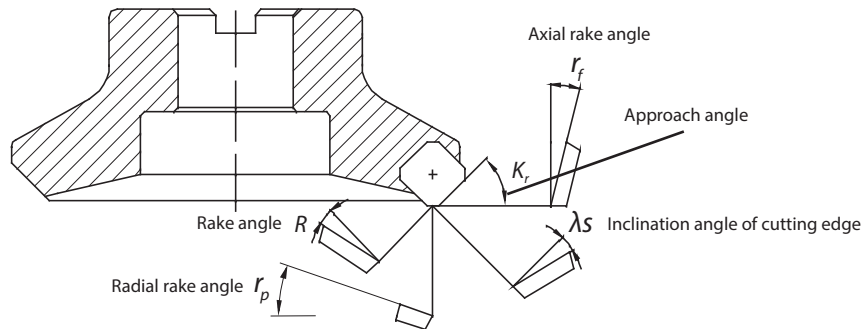
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A

## Indexable milling

### Function of angles when face milling

Turning



B

### Main angles

Angle	Feature	Effet		
Axial rake angle $r_f$	Influences chip direction	Negative angle, good chip removal		
Radial rake angle $r_p$	Influences cutting edge sharpness	Positive angle, good cutting performance		
Approach angle $K_r$	Influences chip thickness	$K_r \uparrow$ , chip thickness $\uparrow$ ; $K_r \downarrow$ , chip thickness $\downarrow$ ;		
Rake angle $R$	Influences cutting force	Poor cutting performance, stable cutting edge	$(-) \leftarrow 0 \rightarrow (+)$	Good cutting performance, unstable cutting edge
Inclination angle $\lambda_s$	Influences chip flow direction	Poor cutting performance, stable cutting edge	$(-) \leftarrow 0 \rightarrow (+)$	Good cutting performance, unstable cutting edge

Milling

C

### Combination of different rake angles

		Double positive	Double negative	Positive/Negative
Negative rake angle				
Neutral angle				
Positive angle				
Axial rake angle $r_f$		+	-	+
Radial rake angle $r_p$		+	-	-
Application field	P	√		√
	M	√		√
	K		√	√
	N	√		
	S	√		√

Drilling

D

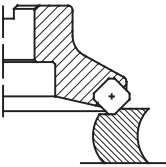
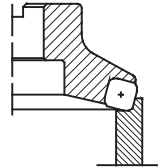
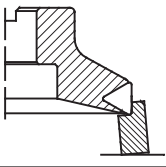
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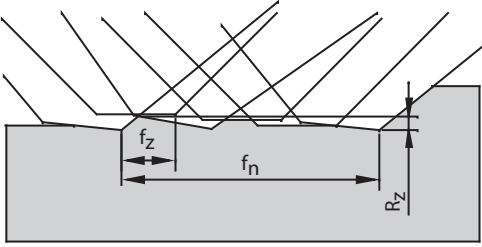
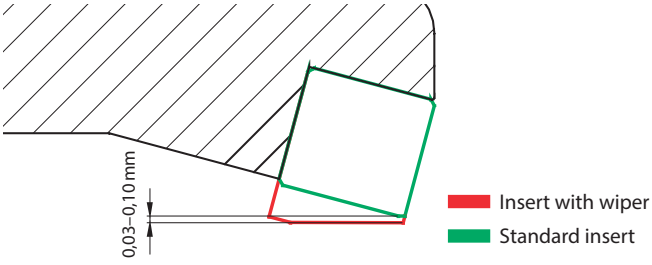
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## Indexable milling

### Cutting performances of different approach angles

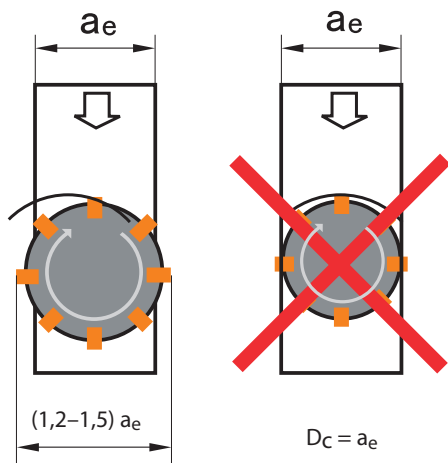
Approach angle	Depiction	Explanation
45°		Axial force is largest. It will bend when machining thin-wall work piece, and reduces the precision of work piece. It is benefit to avoid fringe breakage of work piece when machining cast iron.
75°		The main purpose is to resolve the radial cutting force, it is often used for general face milling.
90°		The axial force is zero in theory, suitable for milling thin plate workpiece.

### Inserts with wiper

Using standard inserts	Using inserts with wiper
 <p>Normal surface quality</p>	 <p>High surface quality</p>

The wiper insert must protrude below the other inserts by 0.03–0.10 mm at axial direction, only that the wiping function can take into effect. Generally speaking, a cutter can assemble only one wiper insert. If the diameter of cutter is much bigger or cutter's feed rate per revolution is bigger than the length of wiper edge, 2 to 3 wiper inserts can be assembled.

### Cutting width



Generally speaking, the relation between cutting width and tool cutting diameter is  $D_c = (1.2-1.5) a_e$ .

In the machining practice, it needs to avoid coincidence of tool center and workpiece center as much as possible.

$D_c$ : Tool diameter  
 $a_e$ : Lateral infeed

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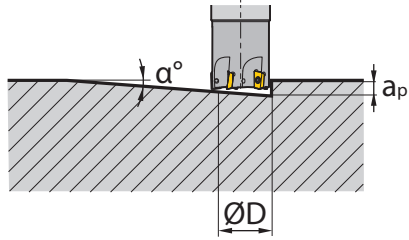
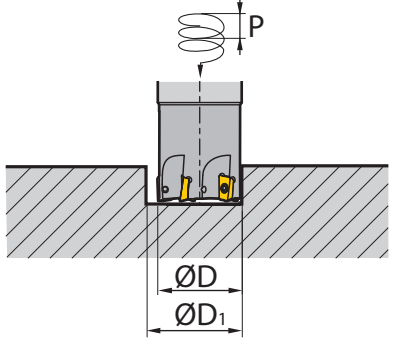
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## Indexable milling

### Plunging and circular milling with insert APKT

		Plunging		Circular milling	
					
		$L_m = \frac{a_p}{\tan \alpha}$ <p><math>\alpha</math> : Angle de plongée</p>		$P = \tan \alpha \times \pi \times D_1$ <p><math>\alpha</math> : Angle d'hélice</p>	
Insert	Diameter $\phi D$ [mm]	Max. cutting depth $a_p$ [mm]	Max. plunge angle $\alpha^\circ$	Min. diameter $\phi D_1$ [mm]	Max. diameter [mm]
AP**11**	16	10	10	20	30
	20	10	5	28	38
	25	10	4	40	48
	32	10	3	56	60
	40	10	2	70	76

Reduce the feed rate when plunging and circular milling.  
 For drilling operations (axial) set the feed rate under 0.2mm.  
 „Attention“ – drilling can form long chips.

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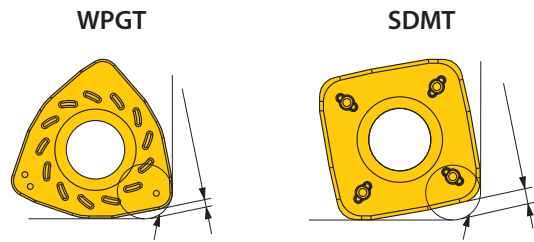
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## Indexable milling

### Plunging and circular milling with insert WPGT or SDMT

#### Approx. programmed radius

Insert	approx. R [mm]	Residual material K [mm]
WPGT050315ZSR	2	0,5
WPGT060415ZSR	2,5	0,7
WPGT080615ZSR	2,5	0,7
WPGT090725ZSR	4,5	1,2
SDMT06T208	1,6	0,5
SDMT09T312	2,5	0,87
SDMT120412	4,0	0,93
SDMT150620	4,0	1,38



#### Insert WPGT

Insert	Diameter ØD [mm]	Plunging		Circular milling	
		Max. cutting depth a <sub>p</sub> [mm]	Max. plunge angle α°	Min. diameter ØD <sub>1</sub> [mm]	Max. diameter [mm]
WP**05**	20	1,5	12	24	37
	25	1,5	8,8	31	47
WP**06**	32	1,5	5	45	61
	40	1,5	3,2	61	77
	50	1,5	2,8	81	97
WP**08**	40	1,5	9	52	77
	50	1,5	5,4	71	97
	63	1,5	4,3	97	123
	80	1,5	2,9	131	157
	100	1,5	2,1	171	197
	125	1,5	1,3	221	247
WP**09**	160	1,5	1,1	291	317
	50	3,0	7,2	70	96
	63	3,0	4,5	96	122
	80	3,0	2,8	130	156
	100	3,0	2,2	170	196
	125	3,0	1,6	220	246
	160	3,0	1,2	290	316

Reduce the feed rate when plunging and circular milling.  
For drilling operations (axial) set the feed rate under 0.2 mm.  
„Attention“ – drilling can form long chips.

## Indexable milling

### Insert SDMT

A

Turning

B

Milling

C

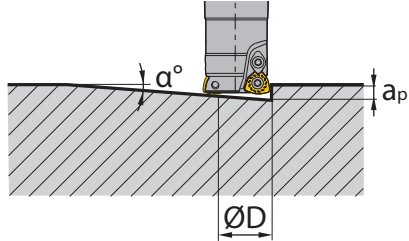
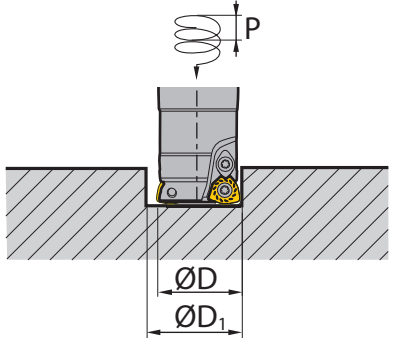
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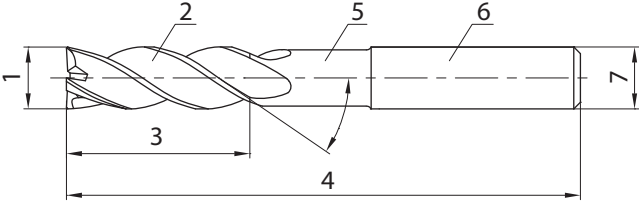
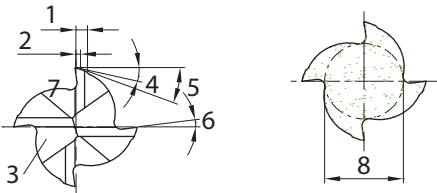
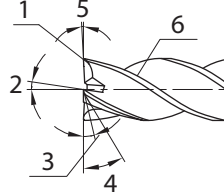
		Plunging		Circular milling	
					
		$L_m = \frac{a_p}{\tan \alpha}$ <p><math>\alpha</math>: Plunge angle</p>		$P = \tan \alpha \times \pi \times D_1$ <p><math>\alpha</math>: Helix angle</p>	
Insert	Diameter $\varnothing D$ [mm]	Max. cutting depth $a_p$ [mm]	Max. plunge angle $\alpha^\circ$	Min. diameter $\varnothing D_1$ [mm]	Max. diameter [mm]
SD**06**	20	0,8	3,6	30	38
	25	0,8	2,8	40	48
	32	0,8	1,6	52	60
	40	0,8	1,1	70	78
	50	0,8	0,8	90	98
SD**09**	63	0,8	0,7	114	122
	25	1,4	6,5	34	48
	32	1,4	4,5	48	62
	35	1,4	3,6	54	68
	50	1,4	1,8	84	98
SD**12**	63	1,4	1,3	110	124
	32	1,8	10,4	44	60
	40	1,8	5,7	60	76
	50	1,8	3,5	80	96
	63	1,8	2,5	106	122
SD**15**	80	1,8	1,6	140	156
	100	1,8	1,2	180	196
	40	2,2	7,3	54	76
	80	2,2	1,4	134	156
	100	2,2	1,0	174	196
	125	2,2	0,9	234	246
	160	2,2	0,6	304	316

Reduce the feed rate when plunging and circular milling.  
 For drilling operations (axial) set the feed rate under 0,2mm.  
 „Attention“ – drilling can form long chips.

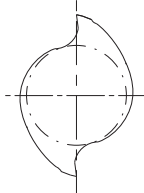
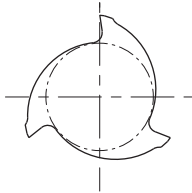
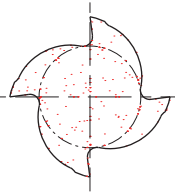


Solid carbide mills

Terminology

<p><b>A</b></p>		<ol style="list-style-type: none"> <li>1. Cutting edge diameter</li> <li>2. Chip pocket</li> <li>3. Length of cutting edge</li> <li>4. Total length</li> <li>5. Neck</li> <li>6. Shank</li> <li>7. Shank diameter</li> </ol>
<p><b>B</b></p>		<ol style="list-style-type: none"> <li>1. Chamfer width, main cutting edge</li> <li>2. Chamfer width, diameter</li> <li>3. Neck, front side</li> <li>4. Primary radial clearance angle</li> <li>5. Secondary radial clearance angle</li> <li>6. Radial rake angle</li> <li>7. Axial main cutting edge</li> <li>8. Core diameter</li> </ol>
<p><b>C</b></p>		<ol style="list-style-type: none"> <li>1. Cutting edge</li> <li>2. Axial rake angle</li> <li>3. Primary axial clearance angle</li> <li>4. Secondary axial clearance angle</li> <li>5. Inclination angle</li> <li>6. Radial cutting edge</li> </ol>

Teeth, chip pocket and tool rigidity

Teeth	2 flutes	3 flutes	4 flutes
Cross section			
Cutting edge ratio	54 %	56 %	60 %
Advantages	<ul style="list-style-type: none"> <li>- Large chip pocket</li> <li>- Good chip removal</li> </ul>	<ul style="list-style-type: none"> <li>- Good chip removal</li> <li>- Good surface quality</li> </ul>	<ul style="list-style-type: none"> <li>- Good rigidity</li> <li>- Good surface</li> </ul>
Application	<ul style="list-style-type: none"> <li>- Slot milling</li> <li>- Square shoulder milling</li> <li>- Drilling</li> </ul>	<ul style="list-style-type: none"> <li>- Slot milling</li> <li>- Square shoulder milling</li> <li>- Finishing</li> </ul>	<ul style="list-style-type: none"> <li>- Slot milling (flat)</li> <li>- Square shoulder milling</li> <li>- Finishing</li> </ul>

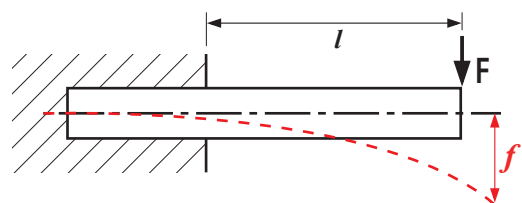
Length of cutting edge (overhang) and cutting diameter

The shorter the overhang, the stronger the rigidity. Thus isn't easy to generate. Bend and vibration in the cutting process may occur.

Length (overhang) increases by 1 time, the deflection degree (f) will be 8 times of the former one.

**Reduce the overhang by 20 %  
the deflection degree (f) will decrease by 50 %**

**Increase the diameter by 20 %  
the deflection degree (f) will decrease by 50 %**



$$f = \frac{F \times l^3}{3 \times E \times I} = \frac{F \times l^3 \times 64}{3 \times E \times I}$$

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A

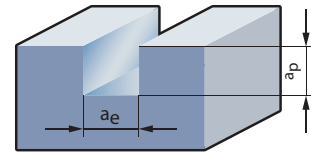
## Solid carbide mills

### Machining strategy – HPC/UM (HSC) milling cutters

Turning

#### HPC = High Performance Cutting

Machining with significantly increased metal removal rate through higher cutting speeds and feed rates compared with conventional machine cutting processes.



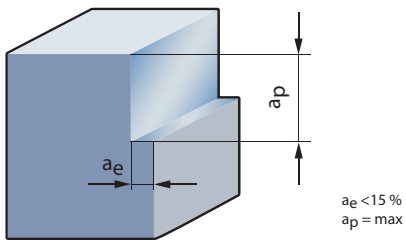
Full-slot milling

B

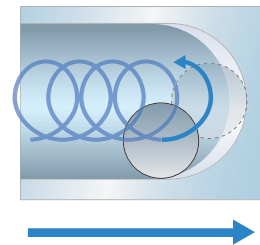
#### HSC (UM) = High Speed Cutting

High cutting speeds and feed rates in combination with low cutting depths lead to lower chip thickness as in normal machining.

Milling



Profiling



Trochoidal milling

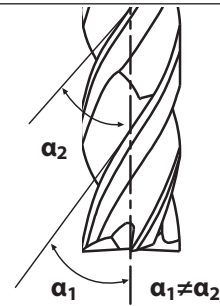
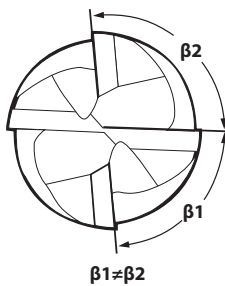
C

Drilling

The UM milling cutter is specifically optimised for HSC machining.

D

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High metal removal rates can be realised with this tool.

Especially on highly dynamic machines with optimised tool paths this milling cutter shows its full potential.

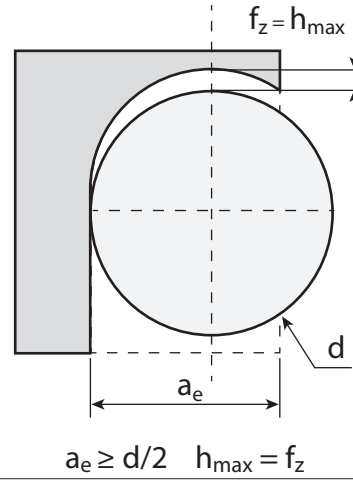
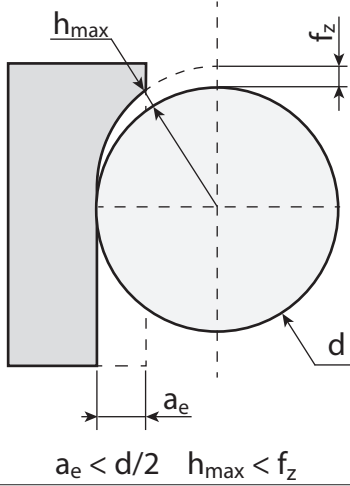
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### Solid carbide mills

#### HSC strategy


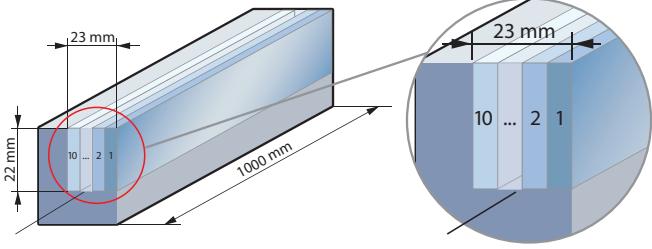
It's important to use the right strategy. When programming make sure the width of cut is kept. The width of cut is usually not higher than 15 %. Regarding the depth of cut, the total length of the cutting edge can be used.



$$h_{max} = 2f_z \sqrt{\frac{a_e}{d} \left(1 - \frac{a_e}{d}\right)}$$

When changing the width of cut the cutting data needs to be adjusted. As calculatory size applies a chip thickness from approx. 0.15–0.2 mm on basis of the usual steel types.

#### Example

Tool	Machining
 UM-4E-D20.0-W KMG405	 HSC strategy

#### Workpiece material

16MnCr5 (1.7131) ca. 700 N/mm<sup>3</sup>

#### Cutting data

$V_c$	550 m/min
$n$	8750 1/min
$f_z$	0,3 mm ( $h_{max} = 0,19$ mm)
$V_f$	10500 mm/min
$a_p$	22 mm
$a_e$	2,3 mm

#### Result

Chip removal rate **530 cm<sup>3</sup>/min!** Machining time 58 seconds! The maximum chip thickness is 0.19 mm.

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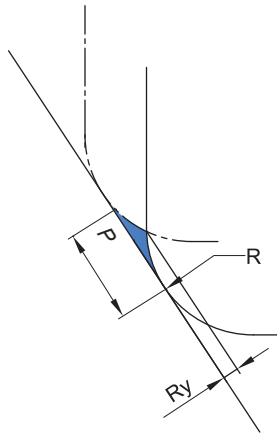
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## Solid carbide mills

Feed rate selecting table for profile machining with ball nose cutters and torus mills



$$Ry = R \times \{1 - \cos [\arcsin (fr/2R)]\}$$

Ry: Theoretical values of surface quality

P: Feed rate

R: Radius of the ball nose cutter or torus mill

R \ Ry	Feed rate									
	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
0,5	0,003	0,010	0,023	0,042	0,067	0,100				
1,0	0,001	0,005	0,011	0,020	0,032	0,046	0,063	0,083	0,107	
1,5	0,001	0,003	0,008	0,013	0,021	0,030	0,041	0,054	0,069	0,086
2,0	0,001	0,003	0,006	0,010	0,015	0,023	0,031	0,040	0,051	0,064
2,5	0,001	0,002	0,005	0,008	0,013	0,018	0,025	0,032	0,041	0,051
3,0		0,001	0,004	0,007	0,010	0,015	0,020	0,027	0,034	0,042
4,0		0,001	0,003	0,005	0,008	0,011	0,015	0,020	0,025	0,031
5,0		0,001	0,002	0,004	0,006	0,009	0,012	0,016	0,020	0,025
6,0			0,002	0,003	0,005	0,008	0,010	0,013	0,017	0,021
8,0			0,001	0,003	0,004	0,006	0,008	0,010	0,013	0,016
10,0			0,001	0,002	0,003	0,005	0,006	0,008	0,010	0,013
12,5			0,001	0,002	0,003	0,004	0,005	0,006	0,008	0,010

R \ Ry	Feed rate									
	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0
0,5										
1,0										
1,5	0,104									
2,0	0,077	0,092	0,109							
2,5	0,061	0,073	0,086	0,100						
3,0	0,051	0,061	0,071	0,083	0,095	0,109				
4,0	0,038	0,045	0,053	0,062	0,071	0,081	0,091	0,103		
5,0	0,030	0,036	0,042	0,049	0,057	0,064	0,073	0,082	0,091	0,101
6,0	0,025	0,030	0,035	0,041	0,047	0,054	0,061	0,068	0,076	0,084
8,0	0,019	0,023	0,026	0,031	0,035	0,040	0,045	0,051	0,057	0,063
10,0	0,015	0,018	0,021	0,025	0,028	0,032	0,036	0,041	0,045	0,050
12,5	0,012	0,014	0,017	0,020	0,023	0,026	0,029	0,032	0,036	0,040

## Nonstandard – solid carbide end mills




<b>Name/Company:</b>	 <b>ZCC-CT</b>  <b>Wanheimer Str. 57</b> <b>40472 Düsseldorf, Germany</b>  <b>Fax: +49-(0)211-989240-111</b> <b>E-mail: technik@zccct-europe.com</b>
<b>Address:</b>	
<b>Tel.:</b>	
<b>Fax:</b>	
<b>E-mail:</b>	




Material	
Material	
Tensile strength (N/mm <sup>2</sup> )	
Hardness	




Coating	
Yes <input type="checkbox"/>	No <input type="checkbox"/>

Series			
GM		NM	
PM		AL	
UM		VSM	
HM		HPC	

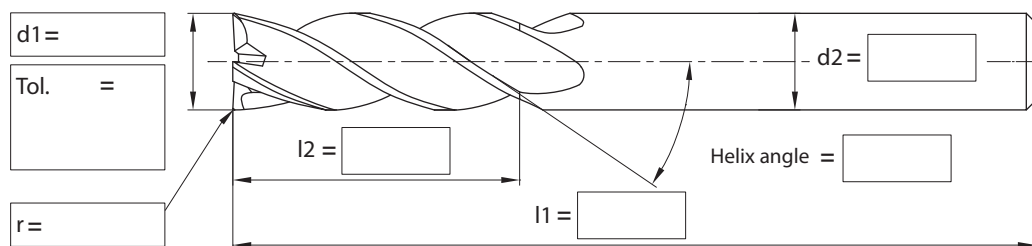
Centre cutting	
Yes <input type="checkbox"/>	No <input type="checkbox"/>

Machining operations		
		
<input type="checkbox"/> Slot milling	<input type="checkbox"/> Square shoulder milling	<input type="checkbox"/> Profile milling

Tool holder type			
DIN6535			Special type <input type="checkbox"/>
			
Form HA <input type="checkbox"/>	Form HB <input type="checkbox"/>	Normal straight shaft <input type="checkbox"/>	

Type		
		
<input type="checkbox"/> Square shoulder mill	<input type="checkbox"/> Ball nose cutter	<input type="checkbox"/> Torus mill

Number of teeth



Remarks:	
Order quantity:	Desired delivery date:
Date:	Signature:

## Notes

**A**

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## Indexable drills

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## Indexable insert drill



<b>ZD03</b>	<b>ZTD02</b>	<b>ZTD03</b>	<b>ZTD04</b>	<b>ZTD05</b>	
16-58	13-50	13-50	13-50	17-50	Diameter
C16	C8	C10	C12	C14	Page

**B**

Milling

## Drilling inserts



<b>SPGT-EM</b>	<b>SPGT-PM</b>	<b>WCMX-53</b>	<b>WCMX-D</b>	<b>WCMX-PG</b>	
05 06 07 09 11 14	05 06 07 09 11 14	03 04 05 06 08	05 06 08	03 04 05 06 08	Edge length
C19	C19	C20	C20	C20	Page

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Drilling

**PM** **P** **M** **K**



For machining of steel, stainless steel and cast iron.

**EM** **P** **M** **S**



For machining of steel, stainless steel and heat-resistant alloys.

**PG** **P** **K**



For machining of steel and cast iron.

**D** **P** **M** **K**



For machining of steel, stainless steel and cast iron.

**53** **P** **M** **K** **N**



For machining of steel, stainless steel, cast iron and non-ferrous metals.

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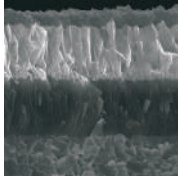

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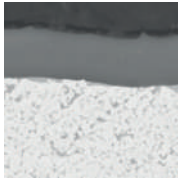

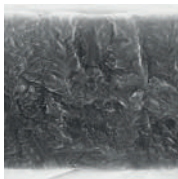
## Coated cemented carbide CVD

Grade	ISO	Micro structure	Grade description
<b>YB6338</b>	P20 - P40 K20 - K40		CVD coated P20-P40/K20-K40 carbide substrate for operation with higher cutting speed and feed rate in steel and cast iron.
<b>YBD252</b>	K20 - K35		CVD coated K20-K35 carbide substrate. Optimized for medium to roughing operation of cast iron and Steel. Good wear resistance and toughness at higher cutting speed.

**B**

Milling

## Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
<b>YBG202</b>	P10 - P30 M10 - M25		PVD coated M10-M25/P10-P30 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.
<b>YBG205</b>	P10 - P30 M20 - M40 S15-S25		PVD multilayer coated P10-P30/M20-M40/S15-S25 carbide substrate for finishing to medium application of stainless steel, super alloy and steel (milling). Good wear resistance and thermal stability in a wide application field.
<b>YBG212</b>	P25 - P35 M25-M40		PVD coated M25-M40/P25-P35 carbide substrate for steel and stainless steel. Especially for inner insert at drilling operation.

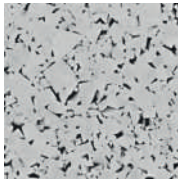
**C**

Drilling

**D**

Technical Information

## Uncoated cemented carbide

Grade	ISO	Micro structure	Grade description
<b>YD201</b>	K10 - K30 N10 - N30		Uncoated N10-N30/K10-K30 carbide substrate for medium application in aluminum and other material.

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Application fields of grades – Indexable drills

	ISO	HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HT	HW	PCBN & PCD
<b>P</b>	P01					
	P10					
	P20	YBD252	YBG202			
	P30	YB6338	YBG205			
	P40		YBG212			
<b>M</b>	M01					
	M10		YBG202			
	M20		YBG205			
	M30					
	M40					
<b>K</b>	K01					
	K10	YBD252	YBG202			
	K20	YB6338	YBG205			
	K30					
	K40					
<b>N</b>	N01					
	N10					
	N20				YD201	
	N30					
<b>S</b>	S01					
	S10		YBG202			
	S20		YBG205			
	S30					
<b>H</b>	H01					
	H10					
	H20					
	H30					

<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron

<b>N</b>	Non-ferrous alloys
<b>S</b>	Heat-resistant alloys
<b>H</b>	Hardened materials

HC<sup>1</sup> Coated cemented carbide  
 HT Uncoated cermet  
 HW Uncoated cemented carbide

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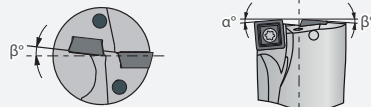
# ZTD series

## Indexable drills ZTD02/03/04/05

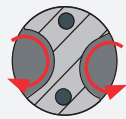
ZTD02



- For machining of steel, stainless steel, cast iron and heat-resistant alloys.
- Drilling bodies with PVD coated surfaces.
- Big chip pocket for better chip removal.
- Optional adapter for inner cooling in conventional machines.
- Diameter range 13.0–50.0 mm



Precise insert seat and stable insert clamping



Big chip pocket



Adapter for inner cooling

### Insert grades

**YB6338**

CVD  
P15–P35

**YBG205**

PVD  
P10–P30  
M20–M30  
S15–S35

**YBG212**

PVD  
M10–M25

### Chip breakers

-PM



• Steel and cast iron

-EM



• Stainless steel and heat-resistant alloys

# ZD – 03 300 – XP – 32 W C 05 – 02

1      2      3      4      5      6      7      8      9

Type	
Code	Description
ZD	Indexable drill (WCMX*)
ZTD	Indexable drill (SPGT*)

**1**

L/D relation	
Code	Description
02	2xD
03	3xD
04	4xD
05	5xD

**2**

Diameter [mm]	
Code	Description
130	13
...	



**3**

Shank type	
Code	Description
XP	Weldon shank

**4**

Coupling size [mm]
--------------------

**5**

Insert shape
W 
S 

**6**

Clearance angle	
Code	Description
C	7°
P	11°

**7**

Cutting edge length [mm]		
Code	Insert shape	
	W	S
03	3,8	
04	4,3	
05	5,4	5
06	6,5	6
08	8,7	7,94
09		9,8
11		11,5
12		12,7
14		14,3

**8**

Number of teeth
-----------------

**9**

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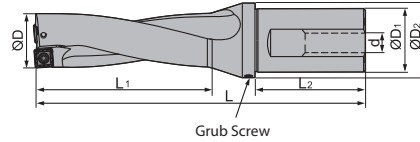
Technical Information

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## Indexable drills series

ZTD02



Article	*	Stock	Dimensions [mm]								kg	Inserts	Adapter
			ØD	ØD1	ØD2	L1	L2	L	d				
ZTD02-130-XP20-SP05-02	*	●	13	20	25	31	50	98	M13×1	0.165	SPGT0502**	ZTD-XP20-Thin	
ZTD02-140-XP20-SP05-02	*	●	14	20	25	33	50	100	M13×1	0.171	SPGT0502**	ZTD-XP20-Thin	
ZTD02-150-XP20-SP05-02	*	●	15	20	25	35	50	102	M13×1	0.176	SPGT0502**	ZTD-XP20-Thin	
ZTD02-160-XP20-SP05-02	*	●	16	20	25	37	50	104	M13×1	0.184	SPGT0502**	ZTD-XP20-Thin	
ZTD02-170-XP25-SP06-02	*	●	17	25	32	39	56	117	M16×1,5	0.325	SPGT0602**	ZTD-XP20-Thin	
ZTD02-180-XP25-SP06-02	*	●	18	25	32	41	56	119	M16×1,5	0.332	SPGT0602**	ZTD-XP25-Thin	
ZTD02-190-XP25-SP06-02	*	●	19	25	32	43	56	121	M16×1,5	0.342	SPGT0602**	ZTD-XP25-Thin	
ZTD02-200-XP25-SP06-02	*	●	20	25	32	45	56	123	M16×1,5	0.353	SPGT0602**	ZTD-XP25-Thin	
ZTD02-210-XP25-SP06-02	*	●	21	25	32	47	56	125	M16×1,5	0.35	SPGT0602**	ZTD-XP25-Thin	
ZTD02-220-XP25-SP07-02	*	●	22	25	32	49	56	127	M16×1,5	0.367	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-230-XP25-SP07-02	*	●	23	25	32	51	56	129	M16×1,5	0.38	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-240-XP25-SP07-02	*	●	24	25	32	53	56	131	M16×1,5	0.443	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-250-XP25-SP07-02	*	●	25	25	32	55	56	133	M16×1,5	0.41	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-260-XP25-SP07-02	*	●	26	25	32	57	56	135	M16×1,5	0.454	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-270-XP25-SP07-02	*	●	27	25	32	59	56	137	M16×1,5	0.445	SPGT07T3**	ZTD-XP25-Thin	
ZTD02-280-XP32-SP09-02	*	●	28	32	37	61	60	146	M22×2	0.661	SPGT0904**	ZTD-XP32-Thin	
ZTD02-290-XP32-SP09-02	*	●	29	32	37	63	60	148	M22×2	0.682	SPGT0904**	ZTD-XP32-Thin	
ZTD02-300-XP32-SP09-02	*	●	30	32	37	65	60	150	M22×2	0.702	SPGT0904**	ZTD-XP32-Thin	
ZTD02-310-XP32-SP09-02	*	●	31	32	37	67	60	152	M22×2	0.759	SPGT0904**	ZTD-XP32-Thin	
ZTD02-320-XP32-SP09-02	*	●	32	32	37	69	60	154	M22×2	0.742	SPGT0904**	ZTD-XP32-Thin	
ZTD02-330-XP32-SP09-02	*	●	33	32	37	71	60	156	M22×2	0.774	SPGT0904**	ZTD-XP32-Thin	
ZTD02-340-XP40-SP11-02	*	●	34	40	47	73	70	173	(BSPT)RC1/4	1.2	SPGT1104**		
ZTD02-350-XP40-SP11-02	*	●	35	40	47	75	70	175	(BSPT)RC1/4	1.23	SPGT1104**		
ZTD02-360-XP40-SP11-02	*	●	36	40	47	77	70	177	(BSPT)RC1/4	1.26	SPGT1104**		
ZTD02-370-XP40-SP11-02	*	●	37	40	47	79	70	179	(BSPT)RC1/4	1.29	SPGT1104**		
ZTD02-380-XP40-SP11-02	*	●	38	40	47	81	70	181	(BSPT)RC1/4	1.33	SPGT1104**		
ZTD02-390-XP40-SP11-02	*	●	39	40	47	83	70	183	(BSPT)RC1/4	1.39	SPGT1104**		
ZTD02-400-XP40-SP11-02	*	●	40	40	47	85	70	185	(BSPT)RC1/4	1.43	SPGT1104**		
ZTD02-410-XP40-SP11-02	*	●	41	40	47	87	70	187	(BSPT)RC1/4	1.44	SPGT1104**		
ZTD02-420-XP40-SP14-02	*	●	42	40	52	89	70	199	(BSPT)RC1/4	1.62	SPGT1405**		
ZTD02-430-XP40-SP14-02	*	●	43	40	52	91	70	201	(BSPT)RC1/4	1.67	SPGT1405**		
ZTD02-440-XP40-SP14-02	*	●	44	40	52	93	70	203	(BSPT)RC1/4	1.71	SPGT1405**		
ZTD02-450-XP40-SP14-02	*	●	45	40	52	95	70	205	(BSPT)RC1/4	1.76	SPGT1405**		

● Ex stock ○ On demand




\* Internal cooling

System code > C7

Grade selection > C5




Technical info > C165

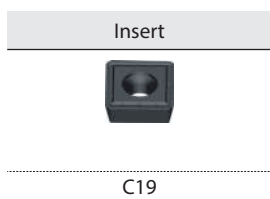
Cutting data > C22

Article	* Stock	Dimensions [mm]							d		Inserts 	Adapter 
		ØD	ØD1	ØD2	L1	L2	L					
ZTD02-460-XP40-SP14-02	* ●	46	40	52	97	70	207	(BSPT)RC1/4	1.81	SPGT1405**		
ZTD02-470-XP40-SP14-02	* ●	47	40	52	99	70	209	(BSPT)RC1/4	1.87	SPGT1405**		
ZTD02-480-XP40-SP14-02	* ●	48	40	52	101	70	211	(BSPT)RC1/4	1.92	SPGT1405**		
ZTD02-490-XP40-SP14-02	* ●	49	40	52	103	70	213	(BSPT)RC1/4	1.98	SPGT1405**		
ZTD02-500-XP40-SP14-02	* ●	50	40	52	105	70	215	(BSPT)RC1/4	2.05	SPGT1405**		

● Ex stock ○ On demand

\* Internal cooling

Spare parts							
	Insert	SPGT0502**	SPGT0602**	SPGT07T3**	SPGT0904**	SPGT1104**	SPGT1405**
	Grub screw					M6x6 (7.0Nm)	M8x8 (10.2Nm)
	Screw	I60M2x4,3 (0.5Nm)	I60M2,2x5,5 (0.8Nm)	I60M2.5*6.5 (1.0Nm)	I60M3,5x8 (2.7Nm)	I60M4x10 (3.4Nm)	I60M5x13 (6.7Nm)
	Wrench	WT06IP	WT07IP	WT07IP	WT15IP	WT15IP	WT20IP



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System code > C7

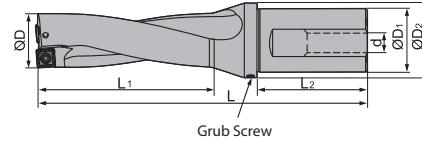
Grade selection > C5

Technical info > C165

Cutting data > C22

## Indexable drills series

ZTD03



Article	*	Stock	Dimensions [mm]								kg	Inserts	Adapter
			ØD	ØD1	ØD2	L1	L2	L	d				
ZTD03-130-XP20-SP05-02	*	•	13	20	25	44	50	111	M13×1	0.179	SPGT0502**	ZTD-XP20-Thin	
ZTD03-140-XP20-SP05-02	*	•	14	20	25	47	50	114	M13×1	0.186	SPGT0502**	ZTD-XP20-Thin	
ZTD03-150-XP20-SP05-02	*	•	15	20	25	50	50	117	M13×1	0.195	SPGT0502**	ZTD-XP20-Thin	
ZTD03-160-XP20-SP05-02	*	•	16	20	25	53	50	120	M13×1	0.214	SPGT0502**	ZTD-XP20-Thin	
ZTD03-170-XP25-SP06-02	*	•	17	25	32	56	56	134	M16×1,5	0.32	SPGT0602**	ZTD-XP25-Thin	
ZTD03-180-XP25-SP06-02	*	•	18	25	32	59	56	137	M16×1,5	0.331	SPGT0602**	ZTD-XP25-Thin	
ZTD03-190-XP25-SP06-02	*	•	19	25	32	62	56	140	M16×1,5	0.342	SPGT0602**	ZTD-XP25-Thin	
ZTD03-200-XP25-SP06-02	*	•	20	25	32	65	56	143	M16×1,5	0.356	SPGT0602**	ZTD-XP25-Thin	
ZTD03-210-XP25-SP06-02	*	•	21	25	32	68	56	146	M16×1,5	0.391	SPGT0602**	ZTD-XP25-Thin	
ZTD03-220-XP25-SP07-02	*	•	22	25	32	71	56	149	M16×1,5	0.391	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-230-XP25-SP07-02	*	•	23	25	32	74	56	152	M16×1,5	0.442	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-240-XP25-SP07-02	*	•	24	25	32	77	56	155	M16×1,5	0.485	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-250-XP25-SP07-02	*	•	25	25	32	80	56	158	M16×1,5	0.492	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-260-XP25-SP07-02	*	•	26	25	32	83	56	161	M16×1,5	0.497	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-270-XP25-SP07-02	*	•	27	25	32	86	56	164	M16×1,5	0.521	SPGT07T3**	ZTD-XP25-Thin	
ZTD03-280-XP32-SP09-02	*	•	28	32	37	89	60	174	M22×2	0.75	SPGT0904**	ZTD-XP32-Thin	
ZTD03-290-XP32-SP09-02	*	•	29	32	37	92	60	177	M22×2	0.777	SPGT0904**	ZTD-XP32-Thin	
ZTD03-300-XP32-SP09-02	*	•	30	32	37	95	60	180	M22×2	0.81	SPGT0904**	ZTD-XP32-Thin	
ZTD03-310-XP32-SP09-02	*	•	31	32	37	98	60	183	M22×2	0.831	SPGT0904**	ZTD-XP32-Thin	
ZTD03-320-XP32-SP09-02	*	•	32	32	37	101	60	186	M22×2	0.867	SPGT0904**	ZTD-XP32-Thin	
ZTD03-330-XP32-SP09-02	*	•	33	32	37	104	60	189	M22×2	0.928	SPGT0904**	ZTD-XP32-Thin	
ZTD03-340-XP40-SP11-02	*	•	34	40	47	107	70	207	(BSPT)RC1/4	1.33	SPGT1104**		
ZTD03-350-XP40-SP11-02	*	•	35	40	47	110	70	210	(BSPT)RC1/4	1.371	SPGT1104**		
ZTD03-360-XP40-SP11-02	*	•	36	40	47	113	70	213	(BSPT)RC1/4	1.414	SPGT1104**		
ZTD03-370-XP40-SP11-02	*	•	37	40	47	116	70	216	(BSPT)RC1/4	1.448	SPGT1104**		
ZTD03-380-XP40-SP11-02	*	•	38	40	47	119	70	219	(BSPT)RC1/4	1.498	SPGT1104**		
ZTD03-390-XP40-SP11-02	*	•	39	40	47	122	70	222	(BSPT)RC1/4	1.554	SPGT1104**		
ZTD03-400-XP40-SP11-02	*	•	40	40	47	125	70	225	(BSPT)RC1/4	1.667	SPGT1104**		
ZTD03-410-XP40-SP11-02	*	•	41	40	47	128	70	228	(BSPT)RC1/4	1.653	SPGT1104**		
ZTD03-420-XP40-SP14-02	*	•	42	40	52	131	70	241	(BSPT)RC1/4	1.903	SPGT1405**		
ZTD03-430-XP40-SP14-02	*	•	43	40	52	134	70	244	(BSPT)RC1/4	1.951	SPGT1405**		
ZTD03-440-XP40-SP14-02	*	•	44	40	52	137	70	247	(BSPT)RC1/4	2.039	SPGT1405**		
ZTD03-450-XP40-SP14-02	*	•	45	40	52	140	70	250	(BSPT)RC1/4	2.12	SPGT1405**		

• Ex stock    ○ On demand

\* Internal cooling




System code > C7

Grade selection > C5

Technical info > C165




Cutting data > C22

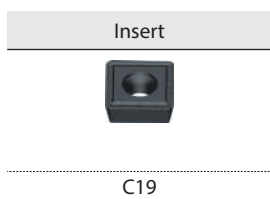


Article	* Stock	Dimensions [mm]							d		Inserts 	Adapter 
		ØD	ØD1	ØD2	L1	L2	L					
ZTD03-460-XP40-SP14-02	* ●	46	40	52	143	70	253	(BSPT)RC1/4	2.186	SPGT1405**		
ZTD03-470-XP40-SP14-02	* ●	47	40	52	146	70	256	(BSPT)RC1/4	2.264	SPGT1405**		
ZTD03-480-XP40-SP14-02	* ●	48	40	52	149	70	259	(BSPT)RC1/4	2.341	SPGT1405**		
ZTD03-490-XP40-SP14-02	* ●	49	40	52	152	70	262	(BSPT)RC1/4	2.43	SPGT1405**		
ZTD03-500-XP40-SP14-02	* ●	50	40	52	155	70	265	(BSPT)RC1/4	2.52	SPGT1405**		

● Ex stock ○ On demand

\* Internal cooling

Spare parts							
	Insert	SPGT0502**	SPGT0602**	SPGT07T3**	SPGT0904**	SPGT1104**	SPGT1405**
	Grub screw					M6x6 (7.0Nm)	M8x8 (10.2Nm)
	Screw	I60M2x4,3 (0.5Nm)	I60M2,2x5,5 (0.8Nm)	I60M2.5*6.5 (1.0Nm)	I60M3,5x8 (2.7Nm)	I60M4x10 (3.4Nm)	I60M5x13 (6.7Nm)
	Wrench	WT06IP	WT07IP	WT07IP	WT15IP	WT15IP	WT20IP



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Milling

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Drilling

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System code > C7

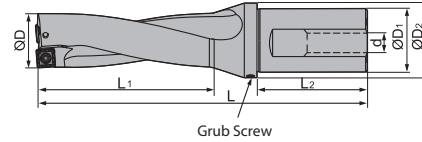
Grade selection > C5

Technical info > C165

Cutting data > C22

## Indexable drills series

ZTD04



Article	*	Stock	Dimensions [mm]							d	kg	Inserts	Adapter
			ØD	ØD1	ØD2	L1	L2	L					
ZTD04-130-XP20-SP05-02	*	●	13	20	25	57	50	124	M13×1	0.185	SPGT0502**	ZTD-XP20-Thin	
ZTD04-140-XP20-SP05-02	*	○	14	20	25	61	50	128	M13×1	0.195	SPGT0502**	ZTD-XP20-Thin	
ZTD04-150-XP20-SP05-02	*	○	15	20	25	65	50	132	M13×1	0.205	SPGT0502**	ZTD-XP20-Thin	
ZTD04-160-XP20-SP05-02	*	●	16	20	25	69	50	136	M13×1	0.216	SPGT0502**	ZTD-XP20-Thin	
ZTD04-170-XP25-SP06-02	*	●	17	25	32	73	56	151	M16×1,5	0.333	SPGT0602**	ZTD-XP25-Thin	
ZTD04-180-XP25-SP06-02	*	●	18	25	32	77	56	155	M16×1,5	0.347	SPGT0602**	ZTD-XP25-Thin	
ZTD04-190-XP25-SP06-02	*	●	19	25	32	81	56	159	M16×1,5	0.362	SPGT0602**	ZTD-XP25-Thin	
ZTD04-200-XP25-SP06-02	*	●	20	25	32	85	56	163	M16×1,5	0.381	SPGT0602**	ZTD-XP25-Thin	
ZTD04-210-XP25-SP06-02	*	●	21	25	32	89	56	167	M16×1,5	0.4	SPGT0602**	ZTD-XP25-Thin	
ZTD04-220-XP25-SP07-02	*	●	22	25	32	93	56	171	M16×1,5	0.391	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-230-XP25-SP07-02	*	●	23	25	32	97	56	175	M16×1,5	0.484	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-240-XP25-SP07-02	*	●	24	25	32	101	56	179	M16×1,5	0.513	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-250-XP25-SP07-02	*	●	25	25	32	105	56	183	M16×1,5	0.494	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-260-XP25-SP07-02	*	●	26	25	32	109	56	187	M16×1,5	0.535	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-270-XP25-SP07-02	*	●	27	25	32	113	56	191	M16×1,5	0.582	SPGT07T3**	ZTD-XP25-Thin	
ZTD04-280-XP32-SP09-02	*	●	28	32	37	117	60	202	M22×2	0.653	SPGT0904**	ZTD-XP32-Thin	
ZTD04-290-XP32-SP09-02	*	●	29	32	37	121	60	206	M22×2	0.846	SPGT0904**	ZTD-XP32-Thin	
ZTD04-300-XP32-SP09-02	*	●	30	32	37	125	60	210	M22×2	0.893	SPGT0904**	ZTD-XP32-Thin	
ZTD04-310-XP32-SP09-02	*	●	31	32	37	129	60	214	M22×2	0.914	SPGT0904**	ZTD-XP32-Thin	
ZTD04-320-XP32-SP09-02	*	●	32	32	37	133	60	218	M22×2	0.966	SPGT0904**	ZTD-XP32-Thin	
ZTD04-330-XP32-SP09-02	*	●	33	32	37	137	60	222	M22×2	1.016	SPGT0904**	ZTD-XP32-Thin	
ZTD04-340-XP40-SP11-02	*	●	34	40	47	141	70	241	(BSPT)RC1/4	1.46	SPGT1104**		
ZTD04-350-XP40-SP11-02	*	●	35	40	47	145	70	245	(BSPT)RC1/4	1.52	SPGT1104**		
ZTD04-360-XP40-SP11-02	*	●	36	40	47	149	70	249	(BSPT)RC1/4	1.579	SPGT1104**		
ZTD04-370-XP40-SP11-02	*	●	37	40	47	153	70	253	(BSPT)RC1/4	1.592	SPGT1104**		
ZTD04-380-XP40-SP11-02	*	●	38	40	47	157	70	257	(BSPT)RC1/4	1.801	SPGT1104**		
ZTD04-390-XP40-SP11-02	*	●	39	40	47	161	70	261	(BSPT)RC1/4	1.801	SPGT1104**		
ZTD04-400-XP40-SP11-02	*	●	40	40	47	165	70	265	(BSPT)RC1/4	1.874	SPGT1104**		
ZTD04-410-XP40-SP11-02	*	●	41	40	47	169	70	269	(BSPT)RC1/4	1.861	SPGT1104**		
ZTD04-420-XP40-SP14-02	*	●	42	40	52	173	70	283	(BSPT)RC1/4	2.168	SPGT1405**		
ZTD04-430-XP40-SP14-02	*	●	43	40	52	177	70	287	(BSPT)RC1/4	2.17	SPGT1405**		
ZTD04-440-XP40-SP14-02	*	●	44	40	52	181	70	291	(BSPT)RC1/4	2.31	SPGT1405**		
ZTD04-450-XP40-SP14-02	*	●	45	40	52	185	70	295	(BSPT)RC1/4	2.421	SPGT1405**		

● Ex stock    ○ On demand




\* Internal cooling

System code > C7

Grade selection > C5




Technical info > C165

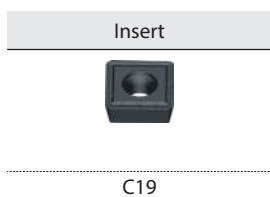
Cutting data > C22

Article	* Stock	Dimensions [mm]							d		Inserts 	Adapter 
		ØD	ØD1	ØD2	L1	L2	L					
ZTD04-460-XP40-SP14-02	* ●	46	40	52	189	70	299	(BSPT)RC1/4	2.507	SPGT1405**		
ZTD04-470-XP40-SP14-02	* ●	47	40	52	193	70	303	(BSPT)RC1/4	2.612	SPGT1405**		
ZTD04-480-XP40-SP14-02	* ●	48	40	52	197	70	307	(BSPT)RC1/4	2.66	SPGT1405**		
ZTD04-490-XP40-SP14-02	* ●	49	40	52	201	70	311	(BSPT)RC1/4	2.836	SPGT1405**		
ZTD04-500-XP40-SP14-02	* ●	50	40	52	205	70	315	(BSPT)RC1/4	2.954	SPGT1405**		

● Ex stock ○ On demand

\* Internal cooling

Spare parts							
Insert	SPGT0502**	SPGT0602**	SPGT07T3**	SPGT0904**	SPGT1104**	SPGT1405**	
 Grub screw					M6x6 (7.0Nm)	M8x8 (10.2Nm)	
 Screw	I60M2x4,3 (0.5Nm)	I60M2.5x6.5 (1.0Nm)	I60M2.5x6.5 (1.0Nm)	I60M3,5x8 (2.7Nm)	I60M4x10 (3.4Nm)	I60M5x13 (6.7Nm)	
 Wrench	WT06IP	WT07IP	WT07IP	WT15IP	WT15IP	WT20IP	



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System code > C7

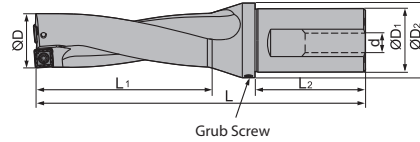
Grade selection > C5

Technical info > C165

Cutting data > C22

### Indexable drills series

ZTD05



Article	*	Stock	Dimensions [mm]								kg	Inserts	Adapter
			ØD	ØD1	ØD2	L1	L2	L	d				
ZTD05-170-XP25-SP06-02	*	•	17	25	32	90	56	168	M13×1	0.374	SPGT0602**	ZTD-XP25-Thin	
ZTD05-180-XP25-SP06-02	*	•	18	25	32	95	56	173	M13×1	0.394	SPGT0602**	ZTD-XP25-Thin	
ZTD05-190-XP25-SP06-02	*	•	19	25	32	100	56	178	M13×1	0.415	SPGT0602**	ZTD-XP25-Thin	
ZTD05-200-XP25-SP06-02	*	•	20	25	32	105	56	183	M13×1	0.44	SPGT0602**	ZTD-XP25-Thin	
ZTD05-210-XP25-SP06-02	*	•	21	25	32	110	56	188	M16×1,5	0.466	SPGT0602**	ZTD-XP25-Thin	
ZTD05-220-XP25-SP07-02	*	•	22	25	32	115	56	193	M16×1,5	0.476	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-230-XP25-SP07-02	*	○	23	25	32	120	56	198	M16×1,5	0.507	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-240-XP25-SP07-02	*	•	24	25	32	125	56	203	M16×1,5	0.542	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-250-XP25-SP07-02	*	•	25	25	32	130	56	208	M16×1,5	0.561	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-260-XP25-SP07-02	*	•	26	25	32	135	56	213	M16×1,5	0.613	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-270-XP25-SP07-02	*	•	27	25	32	140	56	218	M16×1,5	0.665	SPGT07T3**	ZTD-XP25-Thin	
ZTD05-280-XP32-SP09-02	*	•	28	32	37	145	60	230	M16×1,5	0.891	SPGT0904**	ZTD-XP32-Thin	
ZTD05-290-XP32-SP09-02	*	•	29	32	37	150	60	235	M16×1,5	0.965	SPGT0904**	ZTD-XP32-Thin	
ZTD05-300-XP32-SP09-02	*	•	30	32	37	155	60	240	M16×1,5	0.959	SPGT0904**	ZTD-XP32-Thin	
ZTD05-310-XP32-SP09-02	*	•	31	32	37	160	60	245	M16×1,5	1.042	SPGT0904**	ZTD-XP32-Thin	
ZTD05-320-XP32-SP09-02	*	•	32	32	37	165	60	250	M22×2	1.11	SPGT0904**	ZTD-XP32-Thin	
ZTD05-330-XP32-SP09-02	*	•	33	32	37	170	60	255	M22×2	1.117	SPGT0904**	ZTD-XP32-Thin	
ZTD05-340-XP40-SP11-02	*	•	34	40	47	175	70	275	M22×2	1.57	SPGT1104**		
ZTD05-350-XP40-SP11-02	*	•	35	40	47	180	70	280	M22×2	1.65	SPGT1104**		
ZTD05-360-XP40-SP11-02	*	•	36	40	47	185	70	285	M22×2	1.712	SPGT1104**		
ZTD05-370-XP40-SP11-02	*	•	37	40	47	190	70	290	M22×2	1.802	SPGT1104**		
ZTD05-380-XP40-SP11-02	*	•	38	40	47	195	70	295	(BSPT)RC1/4	1.873	SPGT1104**		
ZTD05-390-XP40-SP11-02	*	•	39	40	47	200	70	300	(BSPT)RC1/4	1.962	SPGT1104**		
ZTD05-400-XP40-SP11-02	*	•	40	40	47	205	70	305	(BSPT)RC1/4	2.068	SPGT1104**		
ZTD05-410-XP40-SP11-02	*	•	41	40	47	210	70	310	(BSPT)RC1/4	2.167	SPGT1104**		
ZTD05-420-XP40-SP14-02	*	•	42	40	52	215	70	325	(BSPT)RC1/4	2.39	SPGT1405**		
ZTD05-430-XP40-SP14-02	*	•	43	40	52	220	70	330	(BSPT)RC1/4	2.502	SPGT1405**		
ZTD05-440-XP40-SP14-02	*	•	44	40	52	225	70	335	(BSPT)RC1/4	2.612	SPGT1405**		
ZTD05-450-XP40-SP14-02	*	•	45	40	52	230	70	340	(BSPT)RC1/4	2.733	SPGT1405**		
ZTD05-460-XP40-SP14-02	*	•	46	40	52	235	70	345	(BSPT)RC1/4	2.854	SPGT1405**		
ZTD05-470-XP40-SP14-02	*	•	47	40	52	240	70	350	(BSPT)RC1/4	2.894	SPGT1405**		
ZTD05-480-XP40-SP14-02	*	•	48	40	52	245	70	355	(BSPT)RC1/4	3.109	SPGT1405**		
ZTD05-490-XP40-SP14-02	*	•	49	40	52	250	70	360	(BSPT)RC1/4	3.271	SPGT1405**		
ZTD05-500-XP40-SP14-02	*	•	50	40	52	255	70	365	(BSPT)RC1/4	3.425	SPGT1405**		

• Ex stock    ○ On demand




\* Internal cooling


System code > C7

Grade selection > C5

Technical info > C165

Cutting data > C22

Spare parts						
	Insert	SPGT0602**	SPGT07T3**	SPGT0904**	SPGT1104**	SPGT1405**
	Grub screw				M6x6 (7.0Nm)	M8x8 (10.2Nm)
	Screw	I60M2.5x6.5 (1.0Nm)	I60M2.5x6.5 (1.0Nm)	I60M3,5x8 (2.7Nm)	I60M4x10 (3.4Nm)	I60M5x13 (6.7Nm)
	Wrench	WT07IP	WT06IP	WT15IP	WT15IP	WT20IP

Insert

C19

**A**

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**B**

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System code > C7

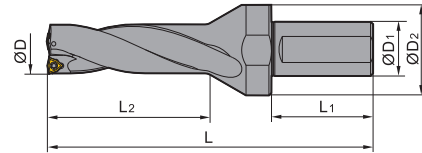
Grade selection > C5

Technical info > C165

Cutting data > C22

## Indexable drills series

ZD03



Article	*	Stock	Dimensions [mm]							kg	Inserts
			ØD	ØD1	ØD2	L1	L2	L			
ZD03-160-XP25-WC03-02	*	●	16	25	32	56	52	129	0.33	WCMX0302**	
ZD03-170-XP25-WC03-02	*	●	17	25	32	56	55	133	0.33	WCMX0302**	
ZD03-180-XP25-WC03-02	*	●	18	25	32	56	58	137	0.35	WCMX0302**	
ZD03-190-XP25-WC03-02	*	●	19	25	32	56	61	140	0.36	WCMX0302**	
ZD03-200-XP25-WC03-02	*	●	20	25	32	56	64	143	0.37	WCMX0302**	
ZD03-210-XP25-WC04-02	*	●	21	25	45	56	67	153	0.51	WCMX0402**	
ZD03-220-XP25-WC04-02	*	●	22	25	45	56	70	156	0.54	WCMX0402**	
ZD03-230-XP25-WC04-02	*	●	23	25	45	56	73	159	0.55	WCMX0402**	
ZD03-240-XP25-WC04-02	*	●	24	25	45	56	76	162	0.57	WCMX0402**	
ZD03-250-XP25-WC04-02	*	●	25	25	45	56	79	165	0.6	WCMX0402**	
ZD03-260-XP32-WC05-02	*	●	26	32	55	60	83	176	0.93	WCMX0503**	
ZD03-270-XP32-WC05-02	*	●	27	32	55	60	86	180	0.97	WCMX0503**	
ZD03-280-XP32-WC05-02	*	●	28	32	55	60	89	184	1.01	WCMX0503**	
ZD03-290-XP32-WC05-02	*	●	29	32	55	60	92	188	1.05	WCMX0503**	
ZD03-300-XP32-WC05-02	*	●	30	32	55	60	95	192	1.08	WCMX0503**	
ZD03-310-XP40-WC06-02	*	●	31	40	60	70	98	203	1.44	WCMX06T3**	
ZD03-320-XP40-WC06-02	*	●	32	40	60	70	101	206	1.48	WCMX06T3**	
ZD03-330-XP40-WC06-02	*	●	33	40	60	70	104	209	1.52	WCMX06T3**	
ZD03-340-XP40-WC06-02	*	●	34	40	60	70	107	212	1.55	WCMX06T3**	
ZD03-350-XP40-WC06-02	*	●	35	40	60	70	110	215	1.61	WCMX06T3**	
ZD03-360-XP40-WC06-02	*	●	36	40	60	70	113	218	1.66	WCMX06T3**	
ZD03-370-XP40-WC06-02	*	●	37	40	60	70	116	221	1.71	WCMX06T3**	
ZD03-380-XP40-WC06-02	*	●	38	40	60	70	119	225	1.76	WCMX06T3**	
ZD03-390-XP40-WC06-02	*	●	39	40	60	70	122	228	1.82	WCMX06T3**	
ZD03-400-XP40-WC06-02	*	●	40	40	60	70	125	231	1.93	WCMX06T3**	
ZD03-410-XP40-WC06-02	*	●	41	40	60	70	128	234	1.94	WCMX06T3**	
ZD03-420-XP40-WC08-02	*	●	42	40	60	70	131	239	2.18	WCMX0804**	
ZD03-430-XP40-WC08-02	*	●	43	40	60	70	134	242	2.245	WCMX0804**	
ZD03-440-XP40-WC08-02	*	●	44	40	60	70	137	245	2.34	WCMX0804**	
ZD03-450-XP40-WC08-02	*	●	45	40	60	70	140	248	2.34	WCMX0804**	
ZD03-460-XP40-WC08-02	*	●	46	40	60	70	143	251	2.49	WCMX0804**	
ZD03-470-XP40-WC08-02	*	●	47	40	60	70	146	253	2.88	WCMX0804**	
ZD03-480-XP40-WC08-02	*	●	48	40	70	70	149	255	2.55	WCMX0804**	

● Ex stock ○ On demand


\* Internal cooling

System code > C7

Grade selection > C5



Technical info > C165

Cutting data > C22


Article	*	Stock	Dimensions [mm]							kg	Inserts 
			ØD	ØD1	ØD2	L1	L2	L			
ZD03-490-XP40-WC08-02	*	○	49	40	70	70	152	257	2.619	WCMX0804**	
ZD03-500-XP40-WC08-02	*	●	50	40	70	70	155	259	2.62	WCMX0804**	
ZD03-510-XP40-WC08-02	*	○	51	40	70	70	158	261	2.62	WCMX0804**	
ZD03-520-XP40-WC08-02	*	○	52	40	70	70	161	263	2.808	WCMX0804**	
ZD03-530-XP40-WC08-02	*	○	53	40	70	70	164	265	2.906	WCMX0804**	
ZD03-540-XP40-WC08-02	*	●	54	40	70	70	167	267	2.983	WCMX0804**	
ZD03-550-XP40-WC08-02	*	○	55	40	70	70	170	269	3.126	WCMX0804**	
ZD03-560-XP40-WC08-02	*	○	56	40	70	70	173	271	3.157	WCMX0804**	
ZD03-580-XP40-WC08-02	*	●	58	40	70	70	179	275	3.501	WCMX0804**	

● Ex stock    ○ On demand

\* Internal cooling

Spare parts		WCMX0302**	WCMX0402**	WCMX0503**	WCMX06T3**	WCMX0804**
	Insert Screw	I60M2.5x6.5 (1.0Nm)	I60M2.5x6.5T (1.0Nm)	I60M3x7 (1.8Nm)	I60M3x7 (1.8Nm)	I60M3.5x10.4 (2.7Nm)
	Wrench	WT06IP	WT07IP	WT15IP	WT15IP	WT20IP

Insert



Medium Cut  
C20

System code > C7

Grade selection > C5

Technical info > C165

Cutting data > C22



A

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**W C M X 08 04 12 R – PG**



**1 2 3 4 5 6 7 8 9**

**A**


Turning

Insert shape	
W	
S	

**1**

Clearance angle	
C	
P	


**2**

Tolerance class			
			
Code	I.C [mm]	m [mm]	S [mm]
G	±0,025	±0,025	±0,130
M	±0,05-0,13	±0,08-0,18	±0,130

**3**

**B**

Milling

Fastening features (metric)	
Insert shape	
T	
X	Special

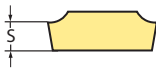
**4**

Cutting edge length l [mm]		
I.C [mm]	Insert shape	
	S	W
3,8		03
4,3		04
5,4		05
6,35	06	
6,5		06
8,0		08
8,7	08	
9,252	09	
12,7	12	

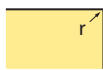
**5**

**C**

Drilling

Insert thickness S [mm]			
			
Code	S	Code	S
00	0,79	05	5,56
T0	0,99	T5	5,95
01	1,59	06	6,35
T1	1,98	T6	6,75
02	2,38	07	7,94
T2	2,58	09	9,52
03	3,18	T9	9,72
T3	3,97	11	11,11
04	4,76	12	12,70
T4	4,96		

**6**

Nose radius r [mm]	
	
Code	r
04	0,4
08	0,8
12	1,2

**7**

Rotation direction	
Code	Description
R	Right
L	Left

**8**

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Chip breaker overview (on page C3)

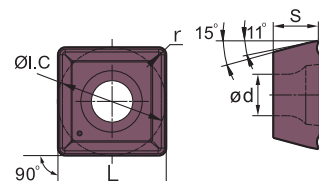















**9**



SPGT	L	I.C	S	d
05 02	5	5	2.38	2.2
06 02	6	6	2.38	2.6
07 T3	7.94	7.94	3.97	2.8
09 04	9.8	9.8	4.76	4.2
11 04	11.5	11.5	4.76	4.4
14 05	14.3	14.3	5.2	5.75





-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

**Drilling inserts**

SP** drilling insert			HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HW
	<b>P</b>		 	  	
	<b>M</b>			  	
	<b>K</b>				
	<b>N</b>				
	<b>S</b>			 	
	<b>H</b>				
ISO		r	YB6338 YBD252	YBG202 YBG205 YBG212	YD201
	<b>SPGT050204-PM</b>	0.4	●	● ●	
	<b>SPGT060204-PM</b>	0.4	●	● ●	
	<b>SPGT07T308-PM</b>	0.8	●	● ●	
	<b>SPGT090408-PM</b>	0.8	●	● ●	
	<b>SPGT110408-PM</b>	0.8	●	● ●	
	<b>SPGT140512-PM</b>	1.2	●	● ●	
	<b>SPGT050204-EM</b>	0.4		● ●	
	<b>SPGT060204-EM</b>	0.4		● ●	
	<b>SPGT07T308-EM</b>	0.8		● ●	
	<b>SPGT090408-EM</b>	0.8		● ●	
	<b>SPGT110408-EM</b>	0.8		● ●	
	<b>SPGT140512-EM</b>	1.2		● ●	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide

Tool holder			
ZTD02	ZTD03	ZTD04	ZTD05
			
C8	C10	C12	C14

System code > C18

Grade selection > C5

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Cutting data > C22



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**D**

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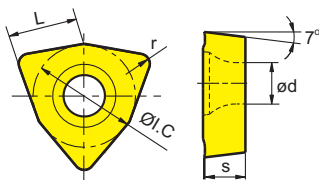
















**E**

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WCMX	L	I.C	S	d
03 02	3.8	5.56	2.38	2.8
04 02	4.3	6.35	2.38	3.1
05 03	5.4	7.94	3.18	3.2
06 T3	6.5	9.525	3.97	3.7
08 04	8.7	12.7	4.76	4.3

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

## Drilling inserts

WC** drilling insert			HC <sup>1</sup> (CVD)	HC <sup>1</sup> (PVD)	HW
	<b>P</b>		 	  	
	<b>M</b>			  	
	<b>K</b>				
	<b>N</b>				
	<b>S</b>			 	
	<b>H</b>				
ISO		r	YB6338 YBD252	YBG202 YBG205 YBG212	YD201
	<b>WCMX030208R-53</b>	0.8	●	●	
	<b>WCMX040208R-53</b>	0.8	●	●	○
	<b>WCMX050308R-53</b>	0.8	●	●	
	<b>WCMX06T308R-53</b>	0.8	●	●	○
	<b>WCMX080412R-53</b>	1.2	●	●	
	<b>WCMX050308-D</b>	0.8	○		
	<b>WCMX06T308-D</b>	0.8	○		
	<b>WCMX080412-D</b>	1.2	●		
	<b>WCMX030208R-PG</b>	0.8		●	
	<b>WCMX040208R-PG</b>	0.8		●	
	<b>WCMX050308R-PG</b>	0.8	○	● ○	
	<b>WCMX06T308R-PG</b>	0.8		●	
	<b>WCMX080412R-PG</b>	1.2		●	

● Ex stock      ○ On demand

HC<sup>1</sup> Coated carbide  
HW Uncoated carbide



**Notes**

A series of horizontal dotted lines for taking notes, organized into five sections:

- Section 1: 7 lines
- Section 2: 7 lines
- Section 3: 7 lines
- Section 4: 7 lines
- Section 5: 7 lines

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## Indexable drills

	Material group	Composition / structure / heat treatment		HB	Machining group	ZTD*		ZTD*		
						SPGT05/06		SPGT07/09		
						v <sub>c</sub> [m/min]	f [mm]	v <sub>c</sub> [m/min]	f [mm]	
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	200-300	0,05-0,08	200-300	0,06-0,11	
		approx. 0,45 % C	annealed	190	2	200-300	0,05-0,08	200-300	0,06-0,11	
		approx. 0,45 % C	tempered	250	3	200-300	0,05-0,08	200-300	0,06-0,11	
		approx. 0,75 % C	annealed	270	4	200-300	0,05-0,08	200-300	0,06-0,11	
		approx. 0,75 % C	tempered	300	5	200-300	0,05-0,08	200-300	0,06-0,11	
	P Low-alloyed steel			annealed	180	6	140-220	0,05-0,08	140-220	0,07-0,12
				tempered	275	7	140-220	0,05-0,08	140-220	0,07-0,12
				tempered	300	8	140-220	0,05-0,08	140-220	0,07-0,12
				tempered	350	9	140-220	0,05-0,08	140-220	0,07-0,12
		High-alloyed steel and high-alloyed tool steel			annealed	200	10	120-180	0,05-0,08	120-180
			hardened and tempered	325	11	120-180	0,05-0,08	120-180	0,07-0,12	
B Milling	M Stainless steel	ferritic/martensitic	annealed	200	12	110-230	0,05-0,08	110-230	0,06-0,11	
		martensitic	tempered	240	13	110-230	0,05-0,08	110-230	0,06-0,11	
		austenitic	quench hardened	180	14	110-230	0,05-0,08	110-230	0,06-0,11	
		austenitic-ferritic		230	15	110-230	0,05-0,08	110-230	0,06-0,11	
		Grey cast iron	perlitic/ferritic		180	16	170-240	0,05-0,08	170-240	0,08-0,14
C Drilling	K Cast iron with spheroidal graphite	perlitic (martensitic)		260	17	170-240	0,05-0,08	170-240	0,08-0,14	
		ferritic		160	18	130-200	0,05-0,08	130-200	0,08-0,14	
	Malleable cast iron	perlitic		250	19	130-200	0,05-0,08	130-200	0,08-0,14	
		ferritic		130	20	120-220	0,05-0,08	120-220	0,08-0,14	
		perlitic		230	21	120-220	0,05-0,08	120-220	0,08-0,14	
N Drilling	Aluminium wrought alloys	cannot be hardened		60	22					
		hardenable	hardened	100	23					
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24					
		≤ 12 % Si, hardenable	hardened	90	25					
		> 12 % Si, cannot be hardened		130	26					
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27					
		CuZn, CuSnZn		90	28					
CuSn, Pb-free copper, electrolytic copper		100	29							
D Technical Information	S Heat-resistant alloys	Fe-based alloys	annealed	200	30					
			hardened	280	31					
		Ni or Co bass	annealed	250	32					
			hardened	350	33					
			cast	320	34					
	Titanium alloys	pure titanium	R <sub>m</sub> 400	35						
H Hardened steel	Hardened steel		hardened and tempered	55 HRC	37					
			hardened and tempered	60 HRC	38					
	Hard cast iron		cast	400	39					
	Hardened cast iron		hardened and tempered	55 HRC	40					
E Index	X Non-metallic materials	Thermoplasts			41					
		Thermosetting plastics			42					
		Plastic, glass-fibre reinforced GFRP			43					
		Plastic, carbon fibre reinforced CFRP			44					
		Graphite			45					
		Wood			46					

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 With hole depths of 5xD adjust the cutting data accordingly to the application.  
 For examples of material for cutting tool groups view page D22.

	ZTD*		ZD03		ZD03		
	SPGT11/14		WCMX03-05		WCMX06-08		
	$v_c$ [m/min]	$f$ [mm]	$v_c$ [m/min]	$f$ [mm]	$v_c$ [m/min]	$f$ [mm]	
	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
	200-300	0,08-0,14	200-300	0,05-0,08	200-300	0,06-0,11	
	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
	140-220	0,09-0,16	140-220	0,05-0,08	140-220	0,07-0,12	
	120-180	0,09-0,16	120-180	0,05-0,08	120-180	0,07-0,12	
	120-180	0,09-0,16	120-180	0,05-0,08	120-180	0,07-0,12	
	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
	110-230	0,08-0,14	110-230	0,05-0,08	110-230	0,06-0,11	
	170-240	0,12-0,21	170-240	0,05-0,08	170-240	0,08-0,14	
	170-240	0,12-0,21	170-240	0,05-0,08	170-240	0,08-0,14	
	130-200	0,12-0,21	130-200	0,05-0,08	130-200	0,08-0,14	
	130-200	0,12-0,21	130-200	0,05-0,08	130-200	0,08-0,14	
	120-220	0,12-0,21	120-220	0,05-0,08	120-220	0,08-0,14	
	120-220	0,12-0,21	120-220	0,05-0,08	120-220	0,08-0,14	

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## Solid carbide drills

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# Solid carbide drills Product overview

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	Products	Solid Carbide Drills	L/D	*	Ø	Application						Type	Page
						P	M	K	N	S	H		
SU	1534SU03		3xD		0.9-20	✓	✓	✓				Twist drills	C32
	1534SU03C		3xD	*	3-20	✓	✓	✓				Twist drills	C32
	1634SU03C		3xD	*	3-20	✓	✓	✓				Twist drills	C56
	1734SU03C		3xD	*	3-20	✓	✓	✓				Twist drills	C64
	1536SU05		5xD		2-20	✓	✓	✓				Twist drills	C43
	1536SU05C		5xD	*	3-20	✓	✓	✓				Twist drills	C43
	1636SU05C		5xD	*	3-20	✓	✓	✓				Twist drills	C60
	1736SU05C		5xD	*	3-20	✓	✓	✓				Twist drills	C68
	1538SU08C		8xD	*	3-18	✓	✓	✓				Twist drills	C53
	1557SU03		3xD		M4-M16	✓	✓	✓				Step drills	C72
SL SP	1588SL10C		10xD	*	3-14	✓	✓	✓	✓	✓		Deep hole drills	C74
	1588SL12C		12xD	*	3-21	✓	✓	✓	✓	✓		Deep hole drills	C77
	1588SL15C		15xD	*	3-14	✓	✓	✓	✓	✓		Deep hole drills	C81
	1588SL20C		20xD	*	3-14	✓	✓	✓	✓	✓		Deep hole drills	C84
	1588SL30C		30xD	*	3-10	✓	✓	✓	✓	✓		Deep hole drills	C87
	1534SP03C		3xD	*	3.03-20.03	✓	✓	✓	✓	✓		Pilot drills	C89
ST	1534ST03C		3xD	*	3-20	✓	✓			✓		Twist drills	C94
	1536ST05C		5xD	*	3-20	✓	✓			✓		Twist drills	C98
	1636ST05C		5xD	*	3-20	✓	✓			✓		Twist drills	C102
SH	1534SH03		3xD		3-16						✓	Twist drills	C106
SC	1105SC03		3xD		2-16				✓			Twist drills	C107
	1101SC05		5xD		2-16				✓			Twist drills	C110
PA	1165PA03		3xD		3-20				✓			Three-lips drills	C111
PC	1576PC05		5xD		4-20			✓				Straight flute drills	C116
	1576PC05C		5xD	*	4-20			✓				Straight flute drills	C116
	1579PC15C		15xD	*	5-14			✓				Straight flute drills	C118
SC*	1143SC90		-		5-20	✓	✓	✓	✓			Centuring drills	C119
	1143SC120		-	*	5-20	✓	✓	✓	✓			Centuring drills	C120

✓ Very suitable    ✓ Suitable  
 \* With internal cooling    SC\*: Centuring drills



**Coated cemented carbide PVD**

Grade	Grade description
<b>KDG303</b>	PVD coated P10–P20/M10–M20/K10–K20 carbide grade for steel, stainless steel and cast iron. Good wear resistance and toughness for a wide application field.

**Uncoated cemented carbide**

Grade	Grade description
<b>YK20F</b>	Uncoated K20 carbide substrate for steel, cast iron and non ferrous materials.
<b>YK30F</b>	Uncoated K30 carbide substrate for steel, stainless steel, cast iron and non ferrous materials.

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## 1 5 3 6 SU 05 (C) – 0850 (S)

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A

Turning

Type	
Code	Description
1	Forets

1

Shank type	
Code	Description
1	Straight shank
2	Square shank DIN 10
3	Double flattened straight shank DIN 1809
5	Straight shank DIN 6535 HA
6	Weldon shank DIN 6535 HB
7	Whistle Notch shank DIN 6535 HE
9	Morse taper shank

2

B

Milling

Drill type	
Code	Description
0	Twist drill
3	Universal twist drill
4	NC tapping device
5	Step drill
6	Three-lips drill
7	Straight flute drill
8	Deep hole drill

3

Tool length	
Code	Description
1	DIN 338
2	DIN 1897
3	QJ/ZZQ(TO)01.001.002
4	DIN 6537 K
5	DIN 6539
6	DIN 6537 L
7	Factory standard ZCC-C
8	Factory standard ZCC-D
9	Factory standard ZCC-E

4

C

Drilling

Application	
Code	Description
SU	Twist drill for general machining
SUK	Twist drill for cast iron
SL	Twist drill for deep hole drilling
SLK	Deep hole drill for cast iron
SP	Pilot drill
ST	Twist drill for soft steel and stainless steel
SH	Twist drill for hardened materials
SC	Twist drill for non-ferrous metals and cast iron
PA	Three-lips drill for non-ferrous metals and cast iron
PC	Straight flute drill for non-ferrous metals and cast iron

5

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L/D relation		Angle	
Drill		NC tapping device	
Code	Description	Code	Description
03	3xD	90	90°
05	5xD	120	120°
08	8xD		
10	10xD		
12	12xD		
15	15xD		
20	20xD		
30	30xD		

With inner cooling

**6**

**7**

Bore diameter [mm]	
Code	Description
0200	2,0
0850	8,5
1800	18,0
...	

Shank diameter [mm]	
Code	Description
S	4,0

**8**

**9**



a Boring      b Drilling      c Profile drilling      d Centering

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# SU series

## Twist drills for general applications

- For high-speed machining of steel and stainless steel.
- Longer tool life with AlTiN coating.
- Diameter range 0.9–20.0 mm (3xD, 5xD, 8xD)



S cut

1538SU

# SUK series

## Twist drills for machining of cast iron

- Special cut for cast iron with ductile iron and malleable cast iron.
- Improved tool life due to impact resistant cutting edges.



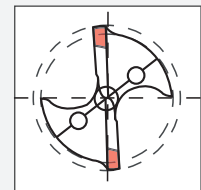
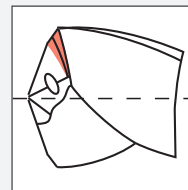
S cut

For cast iron



Twist drill

Form D: Cut for cast iron



**SUK**: all articles on demand

Please add **K** when ordering:

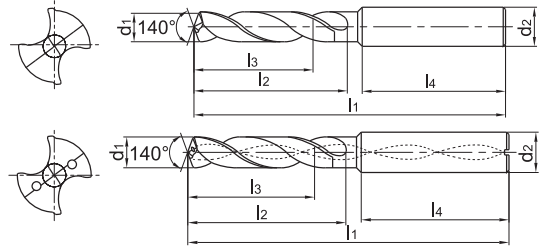
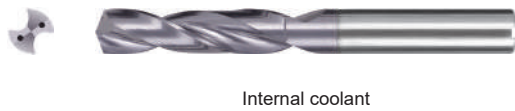
**1534SUK03-0100**

**SU(K) drill 3xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1534SU03/1534SU03C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-0090S		0.9	4	47	4.2	3.4	37.9	○
1534SU03-0100S		1	4	47	4.7	3.8	37.6	●
1534SU03-0105S		1.05	4	47	4.9	3.9	37.5	●
1534SU03-0110S		1.1	4	47	5.2	4.1	37.2	○
1534SU03-0115S		1.15	4	47	5.4	4.3	37.1	○
1534SU03-0120S		1.2	4	47	5.6	4.5	37	●
1534SU03-0125S		1.25	4	47	5.9	4.7	36.8	○
1534SU03-0130S		1.3	4	47	6.1	4.9	36.6	●
1534SU03-0135S		1.35	4	47	6.3	5.1	36.5	○
1534SU03-0140S		1.4	4	47	6.6	5.3	36.3	○
1534SU03-0145S		1.45	4	47	6.8	5.4	36.2	○
1534SU03-0147S		1.47	4	47	6.9	5.5	36.1	●
1534SU03-0150S		1.5	4	47	7.1	5.6	36	●
1534SU03-0155S		1.55	4	47	7.3	5.8	35.8	○
1534SU03-0160S		1.6	4	47	7.5	6	35.7	●
1534SU03-0165S		1.65	4	47	7.8	6.2	35.5	○
1534SU03-0170S		1.7	4	47	8	6.4	35.4	●
1534SU03-0175S		1.75	4	47	8.2	6.6	35.2	○
1534SU03-0180S		1.8	4	47	8.5	6.8	35	●
1534SU03-0185S		1.85	4	47	8.7	6.9	34.9	○
1534SU03-0190S		1.9	4	47	8.9	7.1	34.8	●
1534SU03-0195S		1.95	4	47	9.2	7.3	34.5	○
1534SU03-0200		2	6	62	20	14	36	●
1534SU03-0210		2.1	6	62	20	14	36	●
1534SU03-0220		2.2	6	62	20	14	36	●
1534SU03-0230		2.33	3	59	13.8	14	36	●
1534SU03-0240		2.4	6	62	20	14	36	●
1534SU03-0250		2.5	6	62	20	14	36	●
1534SU03-0260		2.6	6	62	20	14	36	●
1534SU03-0270		2.7	6	62	20	14	36	●
1534SU03-0280		2.8	6	62	20	14	36	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 3xD**

**General machining**

Add K (SUK) to the code for use on Cast Iron

**1534SU03/1534SU03C**



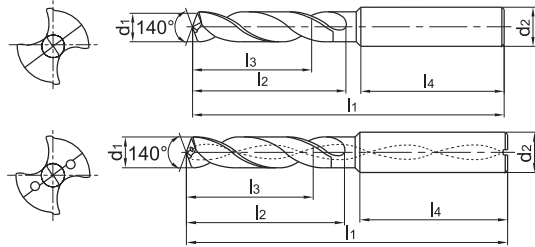
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-0290		2.9	6	62	20	14	36	●
1534SU03-0300		3	6	62	20	14	36	●
1534SU03C-0300	*	3	6	62	20	14	36	●
1534SU03-0310		3.1	6	62	20	14	36	●
1534SU03C-0310	*	3.1	6	62	20	14	36	●
1534SU03-0320		3.2	6	62	20	14	36	●
1534SU03C-0320	*	3.2	6	62	20	14	36	●
1534SU03-0325		3.25	6	62	20	14	36	●
1534SU03C-0325	*	3.25	6	62	20	14	36	●
1534SU03-0330		3.3	6	62	20	14	36	●
1534SU03C-0330	*	3.3	6	62	20	14	36	●
1534SU03-0340		3.4	6	62	20	14	36	●
1534SU03C-0340	*	3.4	6	62	20	14	36	●
1534SU03-0350		3.5	6	62	20	14	36	●
1534SU03C-0350	*	3.5	6	62	20	14	36	●
1534SU03-0360		3.6	6	62	20	14	36	●
1534SU03C-0360	*	3.6	6	62	20	14	36	●
1534SU03-0370		3.7	6	62	20	14	36	●
1534SU03C-0370	*	3.7	6	62	20	14	36	●
1534SU03-0380		3.8	6	66	24	17	36	●
1534SU03C-0380	*	3.8	6	66	24	17	36	●
1534SU03-0390		3.9	6	66	24	17	36	●
1534SU03C-0390	*	3.9	6	66	24	17	36	●
1534SU03-0400		4	6	66	24	17	36	●
1534SU03C-0400	*	4	6	66	24	17	36	●
1534SU03-0410		4.1	6	66	24	17	36	●
1534SU03C-0410	*	4.1	6	66	24	17	36	●
1534SU03-0420		4.2	6	66	24	17	36	●
1534SU03C-0420	*	4.2	6	66	24	17	36	●
1534SU03-0430		4.3	6	66	24	17	36	●
1534SU03C-0430	*	4.3	6	66	24	17	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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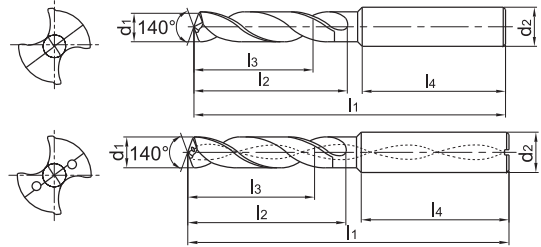
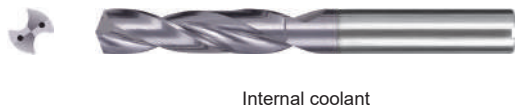
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**SU(K) drill 3xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1534SU03/1534SU03C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-0440		4.4	6	66	24	17	36	●
1534SU03C-0440	*	4.4	6	66	24	17	36	●
1534SU03-0450		4.5	6	66	24	17	36	●
1534SU03C-0450	*	4.5	6	66	24	17	36	●
1534SU03-0460		4.6	6	66	24	17	36	●
1534SU03C-0460	*	4.6	6	66	24	17	36	●
1534SU03-0465		4.65	6	66	24	17	36	●
1534SU03C-0465	*	4.65	6	66	24	17	36	●
1534SU03-0470		4.7	6	66	24	17	36	●
1534SU03C-0470	*	4.7	6	66	24	17	36	●
1534SU03-0480		4.8	6	66	28	20	36	●
1534SU03C-0480	*	4.8	6	66	28	20	36	●
1534SU03-0490		4.9	6	66	28	20	36	●
1534SU03C-0490	*	4.9	6	66	28	20	36	●
1534SU03-0500		5	6	66	28	20	36	●
1534SU03C-0500	*	5	6	66	28	20	36	●
1534SU03-0510		5.1	6	66	28	20	36	●
1534SU03C-0510	*	5.1	6	66	28	20	36	●
1534SU03-0520		5.2	6	66	28	20	36	●
1534SU03C-0520	*	5.2	6	66	28	20	36	●
1534SU03-0530		5.3	6	66	28	20	36	●
1534SU03C-0530	*	5.3	6	66	28	20	36	●
1534SU03-0540		5.4	6	66	28	20	36	●
1534SU03C-0540	*	5.4	6	66	28	20	36	●
1534SU03-0550		5.5	6	66	28	20	36	●
1534SU03C-0550	*	5.5	6	66	28	20	36	●
1534SU03-0555		5.55	6	66	28	20	36	●
1534SU03C-0555	*	5.55	6	66	28	20	36	●
1534SU03-0560		5.6	6	66	28	20	36	●
1534SU03C-0560	*	5.6	6	66	28	20	36	●
1534SU03-0570		5.7	6	66	28	20	36	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

1534SU03/1534SU03C



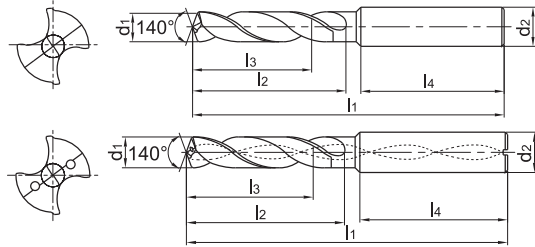
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03C-0570	*	5.7	6	66	28	20	36	●
1534SU03-0580		5.8	6	66	28	20	36	●
1534SU03C-0580	*	5.8	6	66	28	20	36	●
1534SU03-0590		5.9	6	66	28	20	36	●
1534SU03C-0590	*	5.9	6	66	28	20	36	●
1534SU03-0600		6	6	66	28	20	36	●
1534SU03C-0600	*	6	6	66	28	20	36	●
1534SU03-0610		6.1	8	79	34	24	36	●
1534SU03C-0610	*	6.1	8	79	34	24	36	●
1534SU03-0620		6.2	8	79	34	24	36	●
1534SU03C-0620	*	6.2	8	79	34	24	36	●
1534SU03-0630		6.3	8	79	34	24	36	●
1534SU03C-0630	*	6.3	8	79	34	24	36	●
1534SU03-0640		6.4	8	79	34	24	36	●
1534SU03C-0640	*	6.4	8	79	34	24	36	●
1534SU03-0650		6.5	8	79	34	24	36	●
1534SU03C-0650	*	6.5	8	79	34	24	36	●
1534SU03-0660		6.6	8	79	34	24	36	●
1534SU03C-0660	*	6.6	8	79	34	24	36	●
1534SU03-0670		6.7	8	79	34	24	36	●
1534SU03C-0670	*	6.7	8	79	34	24	36	●
1534SU03-0675		6.75	8	79	34	24	36	●
1534SU03C-0675	*	6.75	8	79	34	24	36	●
1534SU03-0680		6.8	8	79	34	24	36	●
1534SU03C-0680	*	6.8	8	79	34	24	36	●
1534SU03-0690		6.9	8	79	34	24	36	●
1534SU03C-0690	*	6.9	8	79	34	24	36	●
1534SU03-0700		7	8	79	34	24	36	●
1534SU03C-0700	*	7	8	79	34	24	36	●
1534SU03-0710		7.1	8	79	41	29	36	●
1534SU03C-0710	*	7.1	8	79	41	29	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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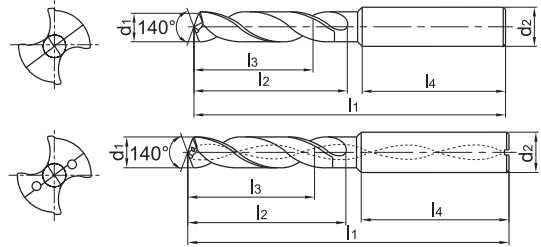
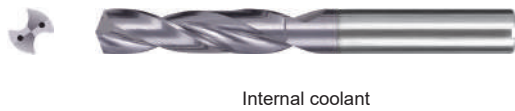
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**SU(K) drill 3xD** **General machining** Add K (SUK) to the code for use on Cast Iron

1534SU03/1534SU03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-0720		7.2	8	79	41	29	36	●
1534SU03C-0720	*	7.2	8	79	41	29	36	●
1534SU03-0730		7.3	8	79	41	29	36	●
1534SU03C-0730	*	7.3	8	79	41	29	36	●
1534SU03-0740		7.4	8	79	41	29	36	●
1534SU03C-0740	*	7.4	8	79	41	29	36	●
1534SU03-0745		7.45	8	79	41	29	36	○
1534SU03C-0745	*	7.45	8	79	41	29	36	○
1534SU03-0750		7.5	8	79	41	29	36	●
1534SU03C-0750	*	7.5	8	79	41	29	36	●
1534SU03-0760		7.6	8	79	41	29	36	●
1534SU03C-0760	*	7.6	8	79	41	29	36	●
1534SU03-0770		7.7	8	79	41	29	36	●
1534SU03C-0770	*	7.7	8	79	41	29	36	●
1534SU03-0780		7.8	8	79	41	29	36	●
1534SU03C-0780	*	7.8	8	79	41	29	36	●
1534SU03-0790		7.9	8	79	41	29	36	●
1534SU03C-0790	*	7.9	8	79	41	29	36	●
1534SU03-0800		8	8	79	41	29	36	●
1534SU03C-0800	*	8	8	79	41	29	36	●
1534SU03-0810		8.1	10	89	47	35	40	●
1534SU03C-0810	*	8.1	10	89	47	35	40	●
1534SU03-0820		8.2	10	89	47	35	40	●
1534SU03C-0820	*	8.2	10	89	47	35	40	●
1534SU03-0830		8.3	10	89	47	35	40	●
1534SU03C-0830	*	8.3	10	89	47	35	40	●
1534SU03-0840		8.4	10	89	47	35	40	●
1534SU03C-0840	*	8.4	10	89	47	35	40	●
1534SU03-0850		8.5	10	89	47	35	40	●
1534SU03C-0850	*	8.5	10	89	47	35	40	●
1534SU03-0860		8.6	10	89	47	35	40	●

- Ex stock ○ On demand
- All articles SUK on demand
- \* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

1534SU03/1534SU03C



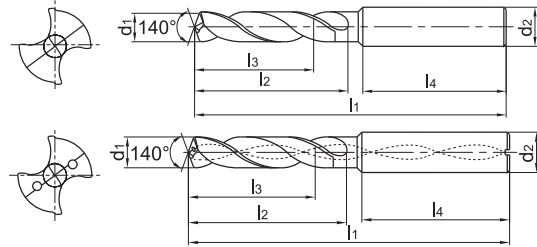
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03C-0860	*	8.6	10	89	47	35	40	●
1534SU03-0870		8.7	10	89	47	35	40	●
1534SU03C-0870	*	8.7	10	89	47	35	40	●
1534SU03-0880		8.8	10	89	47	35	40	●
1534SU03C-0880	*	8.8	10	89	47	35	40	●
1534SU03-0890		8.9	10	89	47	35	40	●
1534SU03C-0890	*	8.9	10	89	47	35	40	●
1534SU03-0900		9	10	89	47	35	40	●
1534SU03C-0900	*	9	10	89	47	35	40	●
1534SU03-0910		9.1	10	89	47	35	40	●
1534SU03C-0910	*	9.1	10	89	47	35	40	●
1534SU03-0920		9.2	10	89	47	35	40	●
1534SU03C-0920	*	9.2	10	89	47	35	40	●
1534SU03-0930		9.3	10	89	47	35	40	●
1534SU03C-0930	*	9.3	10	89	47	35	40	●
1534SU03-0935		9.35	10	89	47	35	40	○
1534SU03C-0935	*	9.35	10	89	47	35	40	○
1534SU03-0940		9.4	10	89	47	35	40	●
1534SU03C-0940	*	9.4	10	89	47	35	40	●
1534SU03-0945		9.45	10	89	47	35	40	○
1534SU03C-0945	*	9.45	10	89	47	35	40	○
1534SU03-0950		9.5	10	89	47	35	40	●
1534SU03C-0950	*	9.5	10	89	47	35	40	●
1534SU03-0960		9.6	10	89	47	35	40	●
1534SU03C-0960	*	9.6	10	89	47	35	40	●
1534SU03-0970		9.7	10	89	47	35	40	●
1534SU03C-0970	*	9.7	10	89	47	35	40	●
1534SU03-0980		9.8	10	89	47	35	40	●
1534SU03C-0980	*	9.8	10	89	47	35	40	●
1534SU03-0990		9.9	10	89	47	35	40	●
1534SU03C-0990	*	9.9	10	89	47	35	40	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**SU(K) drill 3xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1534SU03/1534SU03C**



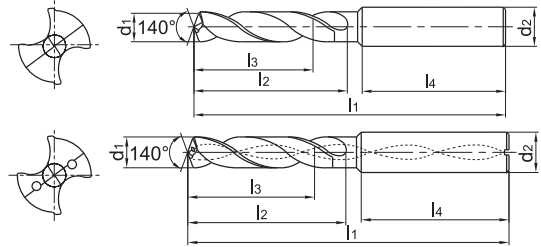
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-1000		10	10	89	47	35	40	●
1534SU03C-1000	*	10	10	89	47	35	40	●
1534SU03-1010		10.1	12	102	55	40	45	●
1534SU03C-1010	*	10.1	12	102	55	40	45	●
1534SU03-1020		10.2	12	102	55	40	45	●
1534SU03C-1020	*	10.2	12	102	55	40	45	●
1534SU03-1025		10.25	12	102	55	40	45	●
1534SU03C-1025	*	10.25	12	102	55	40	45	●
1534SU03-1030		10.3	12	102	55	40	45	●
1534SU03C-1030	*	10.3	12	102	55	40	45	●
1534SU03-1040		10.4	12	102	55	40	45	●
1534SU03C-1040	*	10.4	12	102	55	40	45	●
1534SU03-1050		10.5	12	102	55	40	45	●
1534SU03C-1050	*	10.5	12	102	55	40	45	●
1534SU03-1060		10.6	12	102	55	40	45	●
1534SU03C-1060	*	10.6	12	102	55	40	45	●
1534SU03-1070		10.7	12	102	55	40	45	●
1534SU03C-1070	*	10.7	12	102	55	40	45	●
1534SU03-1080		10.8	12	102	55	40	45	●
1534SU03C-1080	*	10.8	12	102	55	40	45	●
1534SU03-1090		10.9	12	102	55	40	45	●
1534SU03C-1090	*	10.9	12	102	55	40	45	●
1534SU03-1100		11	12	102	55	40	45	●
1534SU03C-1100	*	11	12	102	55	40	45	●
1534SU03-1110		11.1	12	102	55	40	45	●
1534SU03C-1110	*	11.1	12	102	55	40	45	●
1534SU03-1120		11.2	12	102	55	40	45	●
1534SU03C-1120	*	11.2	12	102	55	40	45	●
1534SU03-1125		11.25	12	102	55	40	45	○
1534SU03C-1125	*	11.25	12	102	55	40	45	○
1534SU03-1130		11.3	12	102	55	40	45	●

● Ex stock    ○ On demand

All articles SUK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 3xD

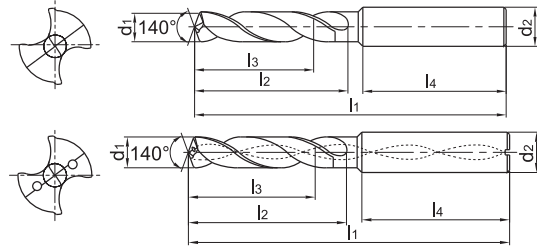
General machining

Add K (SUK) to the code for use on Cast Iron

1534SU03/1534SU03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03C-1130	*	11.3	12	102	55	40	45	●
1534SU03-1135		11.35	12	102	55	40	45	○
1534SU03C-1135	*	11.35	12	102	55	40	45	○
1534SU03-1140		11.4	12	102	55	40	45	●
1534SU03C-1140	*	11.4	12	102	55	40	45	●
1534SU03-1145		11.45	12	102	55	40	45	○
1534SU03C-1145	*	11.45	12	102	55	40	45	○
1534SU03-1150		11.5	12	102	55	40	45	●
1534SU03C-1150	*	11.5	12	102	55	40	45	●
1534SU03-1160		11.6	12	102	55	40	45	●
1534SU03C-1160	*	11.6	12	102	55	40	45	●
1534SU03-1170		11.7	12	102	55	40	45	●
1534SU03C-1170	*	11.7	12	102	55	40	45	●
1534SU03-1180		11.8	12	102	55	40	45	●
1534SU03C-1180	*	11.8	12	102	55	40	45	●
1534SU03-1190		11.9	12	102	55	40	45	●
1534SU03C-1190	*	11.9	12	102	55	40	45	●
1534SU03-1200		12	12	102	55	40	45	●
1534SU03C-1200	*	12	12	102	55	40	45	●
1534SU03-1210		12.1	14	107	60	43	45	●
1534SU03C-1210	*	12.1	14	107	60	43	45	●
1534SU03-1220		12.2	14	107	60	43	45	●
1534SU03C-1220	*	12.2	14	107	60	43	45	●
1534SU03-1225		12.25	14	107	60	43	45	●
1534SU03C-1225	*	12.25	14	107	60	43	45	●
1534SU03-1230		12.3	14	107	60	43	45	●
1534SU03C-1230	*	12.3	14	107	60	43	45	●
1534SU03-1250		12.5	14	107	60	43	45	●
1534SU03C-1250	*	12.5	14	107	60	43	45	●
1534SU03-1270		12.7	14	107	60	43	45	●
1534SU03C-1270	*	12.7	14	107	60	43	45	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

Turning

B

Milling

C

Drilling

D

Technical Information

E

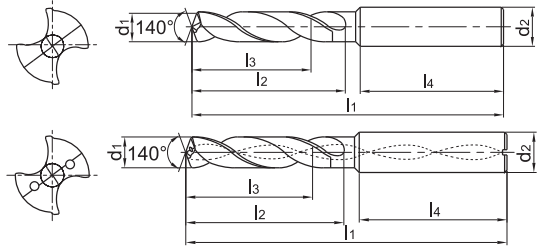
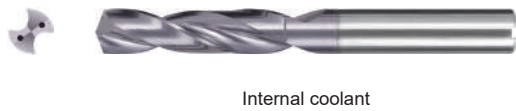
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**SU(K) drill 3xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1534SU03/1534SU03C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-1275		12.75	14	107	60	43	45	●
1534SU03C-1275	*	12.75	14	107	60	43	45	●
1534SU03-1280		12.8	14	107	60	43	45	●
1534SU03C-1280	*	12.8	14	107	60	43	45	●
1534SU03-1300		13	14	107	60	43	45	●
1534SU03C-1300	*	13	14	107	60	43	45	●
1534SU03-1310		13.1	14	107	60	43	45	●
1534SU03C-1310	*	13.1	14	107	60	43	45	●
1534SU03-1335	*	13.35	14	107	60	43	45	●
1534SU03-1350		13.5	14	107	60	43	45	●
1534SU03C-1350	*	13.5	14	107	60	43	45	●
1534SU03-1380		13.8	14	107	60	43	45	●
1534SU03C-1380	*	13.8	14	107	60	43	45	●
1534SU03-1400		14	14	107	60	43	45	●
1534SU03C-1400	*	14	14	107	60	43	45	●
1534SU03-1420		14.2	16	107	60	43	45	●
1534SU03C-1420	*	14.2	16	107	60	43	45	●
1534SU03-1425		14.25	16	115	65	45	48	●
1534SU03C-1425	*	14.25	16	115	65	45	48	●
1534SU03-1430		14.3	16	115	65	45	48	●
1534SU03C-1430	*	14.3	16	115	65	45	48	●
1534SU03-1450		14.5	16	115	65	45	48	●
1534SU03C-1450	*	14.5	16	115	65	45	48	●
1534SU03-1475		14.75	16	115	65	45	48	●
1534SU03C-1475	*	14.75	16	115	65	45	48	●
1534SU03-1480		14.8	16	115	65	45	48	●
1534SU03C-1480	*	14.8	16	115	65	45	48	●
1534SU03-1500		15	16	115	65	45	48	●
1534SU03C-1500	*	15	16	115	65	45	48	●
1534SU03-1510		15.1	16	115	65	45	48	●
1534SU03C-1510	*	15.1	16	115	65	45	48	●

● Ex stock    ○ On demand

All articles SUK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

1534SU03/1534SU03C



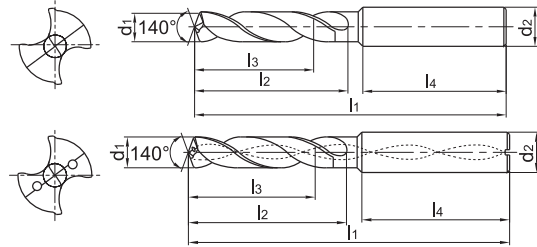
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-1530		15.3	16	115	65	45	48	●
1534SU03C-1535	*	15.35	16	115	65	45	48	○
1534SU03-1550		15.5	16	115	65	45	48	●
1534SU03C-1550	*	15.5	16	115	65	45	48	●
1534SU03-1580		15.8	16	115	65	45	48	●
1534SU03C-1580	*	15.8	16	115	65	45	48	●
1534SU03-1600		16	16	115	65	45	48	●
1534SU03C-1600	*	16	16	115	65	45	48	●
1534SU03-1610		16.1	18	123	73	51	48	●
1534SU03-1650		16.5	18	123	73	51	48	●
1534SU03C-1650	*	16.5	18	123	73	51	48	●
1534SU03-1675		16.75	18	123	73	51	48	●
1534SU03C-1675	*	16.75	18	123	73	51	48	●
1534SU03-1680		16.8	18	123	73	51	48	●
1534SU03C-1680	*	16.8	18	123	73	51	48	●
1534SU03-1700		17	18	123	73	51	48	●
1534SU03C-1700	*	17	18	123	73	51	48	●
1534SU03-1750		17.5	18	123	73	51	48	●
1534SU03C-1750	*	17.5	18	123	73	51	48	●
1534SU03-1780		17.8	18	123	73	51	48	●
1534SU03C-1780	*	17.8	18	123	73	51	48	●
1534SU03-1800		18	18	123	73	51	48	●
1534SU03C-1800	*	18	18	123	73	51	48	●
1534SU03-1850		18.5	20	131	79	55	50	●
1534SU03C-1850	*	18.5	20	131	79	55	50	●
1534SU03-1880		18.8	20	131	79	55	50	●
1534SU03C-1880	*	18.8	20	131	79	55	50	●
1534SU03-1900		19	20	131	79	55	50	●
1534SU03C-1900	*	19	20	131	79	55	50	●
1534SU03-1950		19.5	20	131	79	55	50	●
1534SU03C-1950	*	19.5	20	131	79	55	50	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

SU(K) drill 3xD **General machining** Add K (SUK) to the code for use on Cast Iron

Turning

1534SU03/1534SU03C



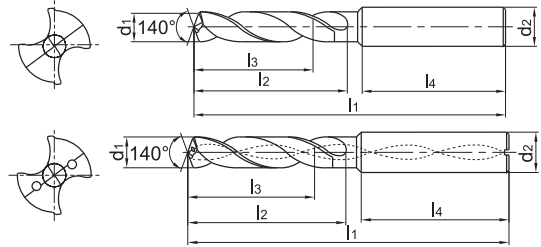
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



B

Milling

Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SU03-1980		19.8	20	131	79	55	50	●
1534SU03C-1980	*	19.8	20	131	79	55	50	●
1534SU03-2000		20	20	131	79	55	50	●
1534SU03C-2000	*	20	20	131	79	55	50	●

- Ex stock ○ On demand
- All articles SUK on demand
- \* With internal cooling

C

Drilling

Application field						
Type	P	M	K	N	S	H
1534SU*	✓	✓	✓			
1534SUK*			✓			

✓ Very suitable  
 ✓ Suitable

D

Technical Information

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

1536SU05/1536SU05C



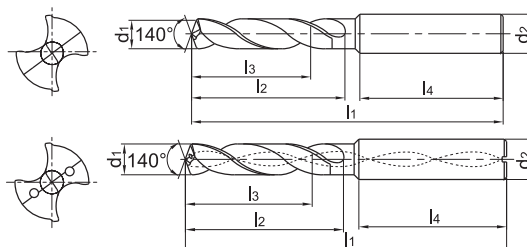
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05-0200		2	6	66	28	23	36	●
1536SU05-0210		2.1	6	66	28	23	36	●
1536SU05-0220		2.2	6	66	28	23	36	●
1536SU05-0230		2.3	6	66	28	23	36	●
1536SU05-0240		2.4	6	66	28	23	36	●
1536SU05-0250		2.5	6	66	28	23	36	●
1536SU05-0260		2.6	6	66	28	23	36	●
1536SU05-0270		2.7	6	66	28	23	36	●
1536SU05-0280		2.8	6	66	28	23	36	●
1536SU05-0290		2.9	6	66	28	23	36	●
1536SU05-0300		3	6	66	28	23	36	●
1536SU05C-0300	*	3	6	66	28	23	36	●
1536SU05-0310		3.1	6	66	28	23	36	●
1536SU05C-0310	*	3.1	6	66	28	23	36	●
1536SU05-0320		3.2	6	66	28	23	36	●
1536SU05C-0320	*	3.2	6	66	28	23	36	●
1536SU05-0325		3.25	6	66	28	23	36	●
1536SU05C-0325	*	3.25	6	66	28	23	36	●
1536SU05-0330		3.3	6	66	28	23	36	●
1536SU05C-0330	*	3.3	6	66	28	23	36	●
1536SU05-0340		3.4	6	66	28	23	36	●
1536SU05C-0340	*	3.4	6	66	28	23	36	●
1536SU05-0350		3.5	6	66	28	23	36	●
1536SU05C-0350	*	3.5	6	66	28	23	36	●
1536SU05-0360		3.6	6	66	28	23	36	●
1536SU05C-0360	*	3.6	6	66	28	23	36	●
1536SU05-0370		3.7	6	66	28	23	36	●
1536SU05C-0370	*	3.7	6	66	28	23	36	●
1536SU05-0380		3.8	6	74	36	29	36	●
1536SU05C-0380	*	3.8	6	74	36	29	36	●
1536SU05-0390		3.9	6	74	36	29	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

Turning

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# Solid carbide drills SU series

**SU(K) drill 5xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1536SU05/1536SU05C**



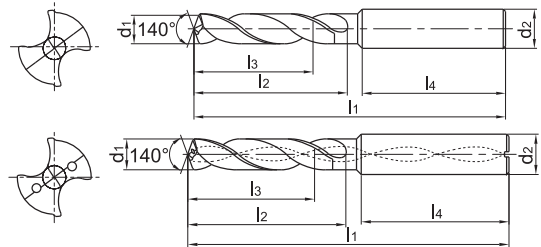
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05C-0390	*	3.9	6	74	36	29	36	●
1536SU05-0400		4	6	74	36	29	36	●
1536SU05C-0400	*	4	6	74	36	29	36	●
1536SU05-0410		4.1	6	74	36	29	36	●
1536SU05C-0410	*	4.1	6	74	36	29	36	●
1536SU05-0420		4.2	6	74	36	29	36	●
1536SU05C-0420	*	4.2	6	74	36	29	36	●
1536SU05-0430		4.3	6	74	36	29	36	●
1536SU05C-0430	*	4.3	6	74	36	29	36	●
1536SU05-0440		4.4	6	74	36	29	36	●
1536SU05C-0440	*	4.4	6	74	36	29	36	●
1536SU05-0450		4.5	6	74	36	29	36	●
1536SU05C-0450	*	4.5	6	74	36	29	36	●
1536SU05-0460		4.6	6	74	36	29	36	●
1536SU05C-0460	*	4.6	6	74	36	29	36	●
1536SU05-0465		4.65	6	74	36	29	36	●
1536SU05C-0465	*	4.65	6	74	36	29	36	●
1536SU05-0470		4.7	6	74	36	29	36	●
1536SU05C-0470	*	4.7	6	74	36	29	36	●
1536SU05-0480		4.8	6	82	44	35	36	●
1536SU05C-0480	*	4.8	6	82	44	35	36	●
1536SU05-0490		4.9	6	82	44	35	36	●
1536SU05C-0490	*	4.9	6	82	44	35	36	●
1536SU05-0500		5	6	82	44	35	36	●
1536SU05C-0500	*	5	6	82	44	35	36	●
1536SU05-0510		5.1	6	82	44	35	36	●
1536SU05C-0510	*	5.1	6	82	44	35	36	●
1536SU05-0520		5.2	6	82	44	35	36	●
1536SU05C-0520	*	5.2	6	82	44	35	36	●
1536SU05-0530		5.3	6	82	44	35	36	●
1536SU05C-0530	*	5.3	6	82	44	35	36	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 5xD**

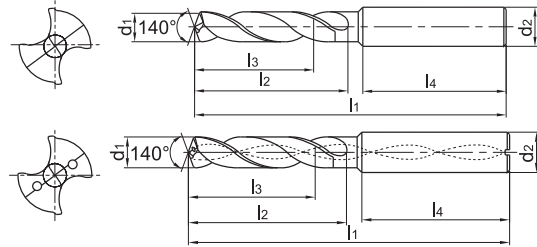
**General machining**

**Add K (SUK) to the code for use on Cast Iron**

**1536SU05/1536SU05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05-0540		5.4	6	82	44	35	36	●
1536SU05C-0540	*	5.4	6	82	44	35	36	●
1536SU05-0550		5.5	6	82	44	35	36	●
1536SU05C-0550	*	5.5	6	82	44	35	36	●
1536SU05-0555		5.55	6	82	44	35	36	●
1536SU05C-0555	*	5.55	6	82	44	35	36	●
1536SU05-0560		5.6	6	82	44	35	36	●
1536SU05C-0560	*	5.6	6	82	44	35	36	●
1536SU05-0570		5.7	6	82	44	35	36	●
1536SU05C-0570	*	5.7	6	82	44	35	36	●
1536SU05-0580		5.8	6	82	44	35	36	●
1536SU05C-0580	*	5.8	6	82	44	35	36	●
1536SU05-0590		5.9	6	82	44	35	36	●
1536SU05C-0590	*	5.9	6	82	44	35	36	●
1536SU05-0600		6	6	82	44	35	36	●
1536SU05C-0600	*	6	6	82	44	35	36	●
1536SU05-0610		6.1	8	91	53	43	36	●
1536SU05C-0610	*	6.1	8	91	53	43	36	●
1536SU05-0620		6.2	8	91	53	43	36	●
1536SU05C-0620	*	6.2	8	91	53	43	36	●
1536SU05-0630		6.3	8	91	53	43	36	●
1536SU05C-0630	*	6.3	8	91	53	43	36	●
1536SU05-0640		6.4	8	91	53	43	36	●
1536SU05C-0640	*	6.4	8	91	53	43	36	●
1536SU05-0650		6.5	8	91	53	43	36	●
1536SU05C-0650	*	6.5	8	91	53	43	36	●
1536SU05-0660		6.6	8	91	53	43	36	●
1536SU05C-0660	*	6.6	8	91	53	43	36	●
1536SU05-0670		6.7	8	91	53	43	36	●
1536SU05C-0670	*	6.7	8	91	53	43	36	●
1536SU05-0675		6.75	8	91	53	43	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

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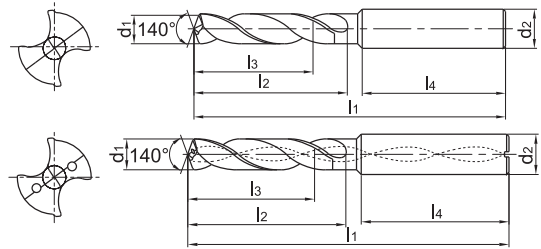
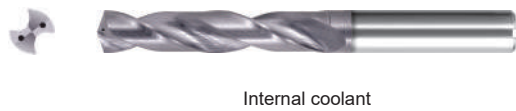
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**SU(K) drill 5xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1536SU05/1536SU05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05C-0675	*	6.75	8	91	53	43	36	●
1536SU05-0680		6.8	8	91	53	43	36	●
1536SU05C-0680	*	6.8	8	91	53	43	36	●
1536SU05-0690		6.9	8	91	53	43	36	●
1536SU05C-0690	*	6.9	8	91	53	43	36	●
1536SU05-0700		7	8	91	53	43	36	●
1536SU05C-0700	*	7	8	91	53	43	36	●
1536SU05-0710		7.1	8	91	53	43	36	●
1536SU05C-0710	*	7.1	8	91	53	43	36	●
1536SU05-0720		7.2	8	91	53	43	36	●
1536SU05C-0720	*	7.2	8	91	53	43	36	●
1536SU05-0730		7.3	8	91	53	43	36	●
1536SU05C-0730	*	7.3	8	91	53	43	36	●
1536SU05-0740		7.4	8	91	53	43	36	●
1536SU05C-0740	*	7.4	8	91	53	43	36	●
1536SU05-0745		7.45	8	91	53	43	36	●
1536SU05C-0745	*	7.45	8	91	53	43	36	●
1536SU05-0750		7.5	8	91	53	43	36	●
1536SU05C-0750	*	7.5	8	91	53	43	36	●
1536SU05-0760		7.6	8	91	53	43	36	●
1536SU05C-0760	*	7.6	8	91	53	43	36	●
1536SU05-0770		7.7	8	91	53	43	36	●
1536SU05C-0770	*	7.7	8	91	53	43	36	●
1536SU05-0780		7.8	8	91	53	43	36	●
1536SU05C-0780	*	7.8	8	91	53	43	36	●
1536SU05-0790		7.9	8	91	53	43	36	●
1536SU05C-0790	*	7.9	8	91	53	43	36	●
1536SU05-0800		8	8	91	53	43	36	●
1536SU05C-0800	*	8	8	91	53	43	36	●
1536SU05-0810		8.1	10	103	61	49	40	●
1536SU05C-0810	*	8.1	10	103	61	49	40	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 5xD**

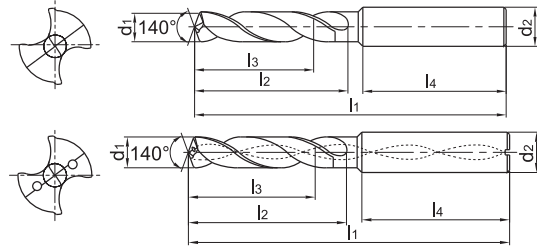
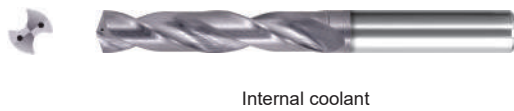
**General machining**

**Add K (SUK) to the code for use on Cast Iron**

**1536SU05/1536SU05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05-0820		8.2	10	103	61	49	40	●
1536SU05C-0820	*	8.2	10	103	61	49	40	●
1536SU05-0830		8.3	10	103	61	49	40	●
1536SU05C-0830	*	8.3	10	103	61	49	40	●
1536SU05-0840		8.4	10	103	61	49	40	●
1536SU05C-0840	*	8.4	10	103	61	49	40	●
1536SU05-0850		8.5	10	103	61	49	40	●
1536SU05C-0850	*	8.5	10	103	61	49	40	●
1536SU05-0860		8.6	10	103	61	49	40	●
1536SU05C-0860	*	8.6	10	103	61	49	40	●
1536SU05-0870		8.7	10	103	61	49	40	●
1536SU05C-0870	*	8.7	10	103	61	49	40	●
1536SU05-0880		8.8	10	103	61	49	40	●
1536SU05C-0880	*	8.8	10	103	61	49	40	●
1536SU05-0890		8.9	10	103	61	49	40	●
1536SU05C-0890	*	8.9	10	103	61	49	40	●
1536SU05-0900		9	10	103	61	49	40	●
1536SU05C-0900	*	9	10	103	61	49	40	●
1536SU05-0910		9.1	10	103	61	49	40	●
1536SU05C-0910	*	9.1	10	103	61	49	40	●
1536SU05-0920		9.2	10	103	61	49	40	●
1536SU05C-0920	*	9.2	10	103	61	49	40	●
1536SU05-0930		9.3	10	103	61	49	40	●
1536SU05C-0930	*	9.3	10	103	61	49	40	●
1536SU05-0935		9.35	10	103	61	49	40	●
1536SU05C-0935	*	9.35	10	103	61	49	40	○
1536SU05-0940		9.4	10	103	61	49	40	●
1536SU05C-0940	*	9.4	10	103	61	49	40	●
1536SU05-0945		9.45	10	103	61	49	40	●
1536SU05C-0945	*	9.45	10	103	61	49	40	○
1536SU05-0950		9.5	10	103	61	49	40	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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# Solid carbide drills SU series

**SU(K) drill 5xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1536SU05/1536SU05C**



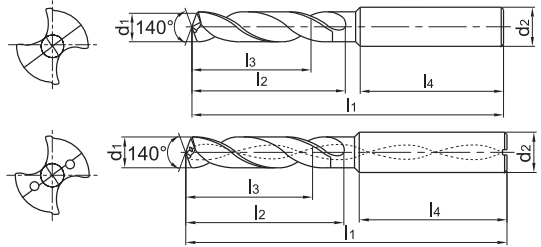
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05C-0950	*	9.5	10	103	61	49	40	●
1536SU05-0960		9.6	10	103	61	49	40	●
1536SU05C-0960	*	9.6	10	103	61	49	40	●
1536SU05-0970		9.7	10	103	61	49	40	●
1536SU05C-0970	*	9.7	10	103	61	49	40	●
1536SU05-0980		9.8	10	103	61	49	40	●
1536SU05C-0980	*	9.8	10	103	61	49	40	●
1536SU05-0990		9.9	10	103	61	49	40	●
1536SU05C-0990	*	9.9	10	103	61	49	40	●
1536SU05-1000		10	10	103	61	49	40	●
1536SU05C-1000	*	10	10	103	61	49	40	●
1536SU05-1010		10.1	12	118	71	56	45	●
1536SU05C-1010	*	10.1	12	118	71	56	45	●
1536SU05-1020		10.2	12	118	71	56	45	●
1536SU05C-1020	*	10.2	12	118	71	56	45	●
1536SU05-1025		10.25	12	118	71	56	45	●
1536SU05C-1025	*	10.25	12	118	71	56	45	●
1536SU05-1030		10.3	12	118	71	56	45	●
1536SU05C-1030	*	10.3	12	118	71	56	45	●
1536SU05-1040		10.4	12	118	71	56	45	●
1536SU05C-1040	*	10.4	12	118	71	56	45	●
1536SU05-1050		10.5	12	118	71	56	45	●
1536SU05C-1050	*	10.5	12	118	71	56	45	●
1536SU05-1060		10.6	12	118	71	56	45	●
1536SU05C-1060	*	10.6	12	118	71	56	45	●
1536SU05-1070		10.7	12	118	71	56	45	●
1536SU05C-1070	*	10.7	12	118	71	56	45	●
1536SU05-1080		10.8	12	118	71	56	45	●
1536SU05C-1080	*	10.8	12	118	71	56	45	●
1536SU05-1090		10.9	12	118	71	56	45	●
1536SU05C-1090	*	10.9	12	118	71	56	45	●

● Ex stock    ○ On demand

All articles SUK on demand

\* With internal cooling

### Application field

Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 5xD**

**General machining**

Add K (SUK) to the code for use on Cast Iron

**1536SU05/1536SU05C**



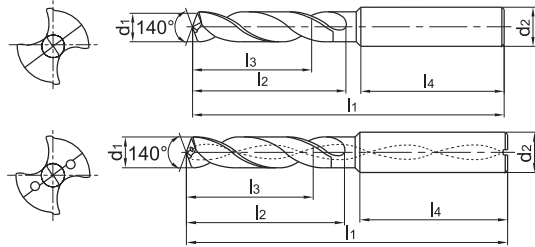
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	
1536SU05-1100		11	12	118	71	56	45	●
1536SU05C-1100	*	11	12	118	71	56	45	●
1536SU05-1110		11.1	12	118	71	56	45	●
1536SU05C-1110	*	11.1	12	118	71	56	45	●
1536SU05-1120		11.2	12	118	71	56	45	●
1536SU05C-1120	*	11.2	12	118	71	56	45	●
1536SU05-1125		11.25	12	118	71	56	45	●
1536SU05C-1125	*	11.25	12	118	71	56	45	○
1536SU05-1130		11.3	12	118	71	56	45	●
1536SU05C-1130	*	11.3	12	118	71	56	45	●
1536SU05-1135		11.35	12	118	71	56	45	●
1536SU05C-1135	*	11.35	12	118	71	56	45	○
1536SU05-1140		11.4	12	118	71	56	45	●
1536SU05C-1140	*	11.4	12	118	71	56	45	●
1536SU05-1145		11.45	12	118	71	56	45	○
1536SU05C-1145	*	11.45	12	118	71	56	45	○
1536SU05-1150		11.5	12	118	71	56	45	●
1536SU05C-1150	*	11.5	12	118	71	56	45	●
1536SU05-1160		11.6	12	118	71	56	45	●
1536SU05C-1160	*	11.6	12	118	71	56	45	●
1536SU05-1170		11.7	12	118	71	56	45	●
1536SU05C-1170	*	11.7	12	118	71	56	45	●
1536SU05-1180		11.8	12	118	71	56	45	●
1536SU05C-1180	*	11.8	12	118	71	56	45	●
1536SU05-1190		11.9	12	118	71	56	45	●
1536SU05C-1190	*	11.9	12	118	71	56	45	●
1536SU05-1200		12	12	118	71	56	45	●
1536SU05C-1200	*	12	12	118	71	56	45	●
1536SU05-1210		12.1	14	124	77	60	45	●
1536SU05C-1210	*	12.1	14	124	77	60	45	●
1536SU05-1220		12.2	14	124	77	60	45	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

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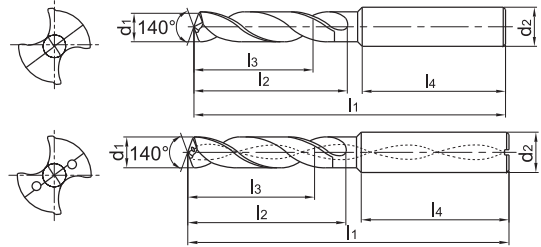
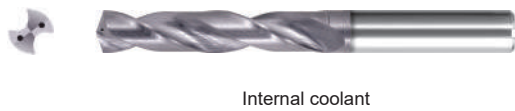
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**SU(K) drill 5xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

**1536SU05/1536SU05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05C-1220	*	12.2	14	124	77	60	45	●
1536SU05-1225		12.25	14	124	77	60	45	●
1536SU05C-1225	*	12.25	14	124	77	60	45	●
1536SU05-1230		12.3	14	124	77	60	45	●
1536SU05C-1230	*	12.3	14	124	77	60	45	●
1536SU05-1250		12.5	14	124	77	60	45	●
1536SU05C-1250	*	12.5	14	124	77	60	45	●
1536SU05-1270		12.7	14	124	77	60	45	●
1536SU05C-1270	*	12.7	14	124	77	60	45	●
1536SU05-1275		12.75	14	124	77	60	45	●
1536SU05C-1275	*	12.75	14	124	77	60	45	●
1536SU05-1280		12.8	14	124	77	60	45	●
1536SU05C-1280	*	12.8	14	124	77	60	45	●
1536SU05-1300		13	14	124	77	60	45	●
1536SU05C-1300	*	13	14	124	77	60	45	●
1536SU05-1310		13.1	14	124	77	60	45	●
1536SU05C-1310	*	13.1	14	124	77	60	45	●
1536SU05-1335		13.35	14	124	77	60	56	○
1536SU05C-1335	*	13.35	14	124	77	60	56	○
1536SU05-1350		13.5	14	124	77	60	45	●
1536SU05C-1350	*	13.5	14	124	77	60	45	●
1536SU05-1380		13.8	14	124	77	60	45	●
1536SU05C-1380	*	13.8	14	124	77	60	45	●
1536SU05-1400		14	14	124	77	60	45	●
1536SU05C-1400	*	14	14	124	77	60	45	●
1536SU05-1420		14.2	16	124	77	60	45	●
1536SU05C-1420	*	14.2	16	124	77	60	45	●
1536SU05-1425		14.25	16	133	83	63	48	●
1536SU05C-1425	*	14.25	16	133	83	63	48	●
1536SU05-1430		14.3	16	133	83	63	48	●
1536SU05C-1430	*	14.3	16	133	83	63	48	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SU(K) drill 5xD

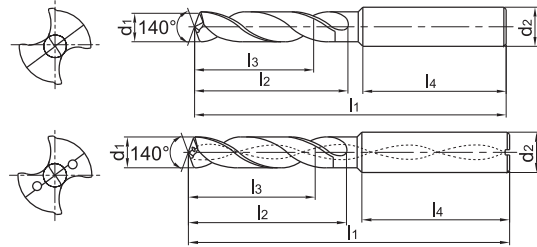
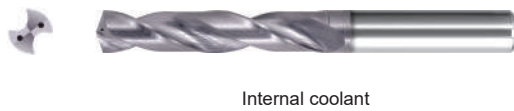
General machining

Add K (SUK) to the code for use on Cast Iron

1536SU05/1536SU05C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05-1450		14.5	16	133	83	63	48	●
1536SU05C-1450	*	14.5	16	133	83	63	48	●
1536SU05-1475		14.75	16	133	83	63	48	●
1536SU05C-1475	*	14.75	16	133	83	63	48	●
1536SU05-1480		14.8	16	133	83	63	48	●
1536SU05C-1480	*	14.8	16	133	83	63	48	●
1536SU05-1500		15	16	133	83	63	48	●
1536SU05C-1500	*	15	16	133	83	63	48	●
1536SU05-1510		15.1	16	133	83	63	48	●
1536SU05C-1510	*	15.1	16	133	83	63	48	●
1536SU05C-1530	*	15.3	16	133	83	63	48	●
1536SU05-1535		15.35	16	133	83	63	48	○
1536SU05C-1535	*	15.35	16	133	83	63	48	○
1536SU05-1550		15.5	16	133	83	63	48	●
1536SU05C-1550	*	15.5	16	133	83	63	48	●
1536SU05-1580		15.8	16	133	83	63	48	●
1536SU05C-1580	*	15.8	16	133	83	63	48	●
1536SU05-1600		16	16	133	83	63	48	●
1536SU05C-1600	*	16	16	133	83	63	48	●
1536SU05-1650		16.5	18	143	93	71	48	●
1536SU05C-1650	*	16.5	18	143	93	71	48	●
1536SU05-1675		16.75	18	143	93	71	48	●
1536SU05C-1675	*	16.75	18	143	93	71	48	●
1536SU05-1680		16.8	18	143	93	71	48	●
1536SU05C-1680	*	16.8	18	143	93	71	48	●
1536SU05-1700		17	18	143	93	71	48	●
1536SU05C-1700	*	17	18	143	93	71	48	●
1536SU05-1750		17.5	18	143	93	71	48	●
1536SU05C-1750	*	17.5	18	143	93	71	48	●
1536SU05-1780		17.8	18	143	93	71	48	●
1536SU05C-1780	*	17.8	18	143	93	71	48	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**A**

**SU(K) drill 5xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

Turning

**1536SU05/1536SU05C**



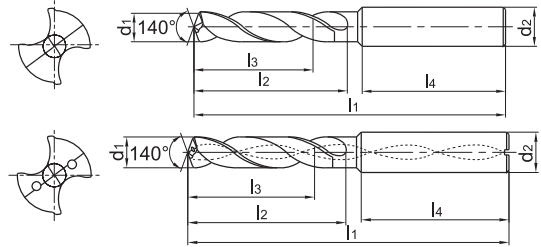
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



**B**

Milling

Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536SU05-1800		18	18	143	93	71	48	●
1536SU05C-1800	*	18	18	143	93	71	48	●
1536SU05-1850		18.5	20	153	101	77	50	●
1536SU05C-1850	*	18.5	20	153	101	77	50	●
1536SU05-1880		18.8	20	153	101	77	50	●
1536SU05C-1880	*	18.8	20	153	101	77	50	●
1536SU05-1900		19	20	153	101	77	50	●
1536SU05C-1900	*	19	20	153	101	77	50	●
1536SU05-1950		19.5	20	153	101	77	50	●
1536SU05C-1950	*	19.5	20	153	101	77	50	●
1536SU05-1980		19.8	20	153	101	77	50	●
1536SU05C-1980	*	19.8	20	153	101	77	50	●
1536SU05-2000		20	20	153	101	77	50	●
1536SU05C-2000	*	20	20	153	101	77	50	●

- Ex stock    ○ On demand
- All articles SUK on demand
- \* With internal cooling

**C**

Drilling

**D**

Technical Information

**Application field**

Type	P	M	K	N	S	H
1536SU*	✓	✓	✓			
1536SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

**E**

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 8xD

General machining

Add K (SUK) to the code for use on Cast Iron

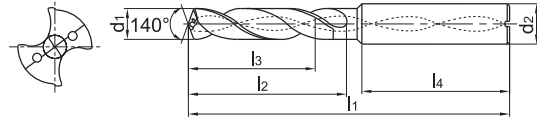
1538SU08C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade KDG303
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	
1538SU08C-0300	*	3	6	72	34	29	36	●
1538SU08C-0310	*	3.1	6	72	34	29	36	●
1538SU08C-0320	*	3.2	6	72	34	29	36	●
1538SU08C-0330	*	3.3	6	72	34	29	36	●
1538SU08C-0340	*	3.4	6	72	34	29	36	●
1538SU08C-0350	*	3.5	6	72	34	29	36	●
1538SU08C-0360	*	3.6	6	72	34	29	36	●
1538SU08C-0370	*	3.7	6	72	34	29	36	●
1538SU08C-0380	*	3.8	6	81	43	36	36	●
1538SU08C-0390	*	3.9	6	81	43	36	36	●
1538SU08C-0400	*	4	6	81	43	36	36	●
1538SU08C-0410	*	4.1	6	81	43	36	36	●
1538SU08C-0420	*	4.2	6	81	43	36	36	●
1538SU08C-0430	*	4.3	6	81	43	36	36	●
1538SU08C-0440	*	4.4	6	81	43	36	36	●
1538SU08C-0450	*	4.5	6	81	43	36	36	●
1538SU08C-0460	*	4.6	6	81	43	36	36	●
1538SU08C-0470	*	4.7	6	81	43	36	36	●
1538SU08C-0480	*	4.8	6	95	57	48	36	●
1538SU08C-0490	*	4.9	6	95	57	48	36	●
1538SU08C-0500	*	5	6	95	57	48	36	●
1538SU08C-0510	*	5.1	6	95	57	48	36	●
1538SU08C-0520	*	5.2	6	95	57	48	36	●
1538SU08C-0530	*	5.3	6	95	57	48	36	●
1538SU08C-0540	*	5.4	6	95	57	48	36	●
1538SU08C-0550	*	5.5	6	95	57	48	36	●
1538SU08C-0560	*	5.6	6	95	57	48	36	●
1538SU08C-0570	*	5.7	6	95	57	48	36	●
1538SU08C-0580	*	5.8	6	95	57	48	36	●
1538SU08C-0590	*	5.9	6	95	57	48	36	●
1538SU08C-0600	*	6	6	95	57	48	36	●
1538SU08C-0610	*	6.1	8	114	76	66	36	●
1538SU08C-0620	*	6.2	8	114	76	66	36	●
1538SU08C-0630	*	6.3	8	114	76	66	36	●
1538SU08C-0640	*	6.4	8	114	76	66	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field

Type	P	M	K	N	S	H
1538SU*	✓	✓	✓			
1538SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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# Solid carbide drills SU series

SU(K) drill 8x2

General machining

Add K (SUK) to the code for use on Cast Iron

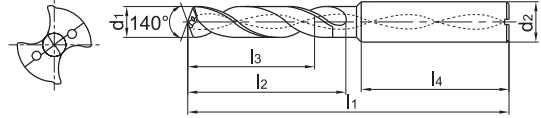
1538SU08C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1538SU08C-0650	*	6.5	8	114	76	66	36	●
1538SU08C-0660	*	6.6	8	114	76	66	36	●
1538SU08C-0670	*	6.7	8	114	76	66	36	●
1538SU08C-0680	*	6.8	8	114	76	66	36	●
1538SU08C-0690	*	6.9	8	114	76	66	36	●
1538SU08C-0700	*	7	8	116	76	66	36	●
1538SU08C-0710	*	7.1	8	116	76	66	36	●
1538SU08C-0720	*	7.2	8	116	76	66	36	●
1538SU08C-0730	*	7.3	8	116	76	66	36	●
1538SU08C-0740	*	7.4	8	116	76	66	36	●
1538SU08C-0750	*	7.5	8	116	76	66	36	●
1538SU08C-0760	*	7.6	8	116	76	66	36	●
1538SU08C-0770	*	7.7	8	116	76	66	36	●
1538SU08C-0780	*	7.8	8	116	76	66	36	●
1538SU08C-0790	*	7.9	8	116	76	66	36	●
1538SU08C-0800	*	8	8	116	76	66	36	●
1538SU08C-0810	*	8.1	10	142	95	83	40	●
1538SU08C-0820	*	8.2	10	142	95	83	40	●
1538SU08C-0830	*	8.3	10	142	95	83	40	●
1538SU08C-0840	*	8.4	10	142	95	83	40	●
1538SU08C-0850	*	8.5	10	142	95	83	40	●
1538SU08C-0860	*	8.6	10	142	95	83	40	●
1538SU08C-0870	*	8.7	10	142	95	83	40	●
1538SU08C-0880	*	8.8	10	142	95	83	40	●
1538SU08C-0890	*	8.9	10	142	95	83	40	●
1538SU08C-0900	*	9	10	142	95	83	40	●
1538SU08C-0910	*	9.1	10	142	95	83	40	●
1538SU08C-0920	*	9.2	10	142	95	83	40	●
1538SU08C-0930	*	9.3	10	142	95	83	40	●
1538SU08C-0940	*	9.4	10	142	95	83	40	●
1538SU08C-0950	*	9.5	10	142	95	83	40	●
1538SU08C-0960	*	9.6	10	142	95	83	40	●
1538SU08C-0970	*	9.7	10	142	95	83	40	●
1538SU08C-0980	*	9.8	10	142	95	83	40	●
1538SU08C-0990	*	9.9	10	142	95	83	40	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

### Application field

Type	P	M	K	N	S	H
1538SU*	✓	✓	✓			
1538SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 8xD**

**General machining**

**Add K (SUK) to the code for use on Cast Iron**

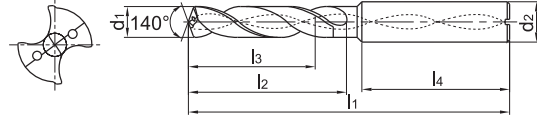
**1538SU08C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1538SU08C-1000	*	10	10	142	95	83	40	●
1538SU08C-1010	*	10.1	12	162	114	99	45	●
1538SU08C-1020	*	10.2	12	162	114	99	45	●
1538SU08C-1030	*	10.3	12	162	114	99	45	●
1538SU08C-1040	*	10.4	12	162	114	99	45	●
1538SU08C-1050	*	10.5	12	162	114	99	45	●
1538SU08C-1060	*	10.6	12	162	114	99	45	●
1538SU08C-1070	*	10.7	12	162	114	99	45	●
1538SU08C-1080	*	10.8	12	162	114	99	45	●
1538SU08C-1090	*	10.9	12	162	114	99	45	●
1538SU08C-1100	*	11	12	162	114	99	45	●
1538SU08C-1110	*	11.1	12	162	114	99	45	●
1538SU08C-1120	*	11.2	12	162	114	99	45	●
1538SU08C-1130	*	11.3	12	162	114	99	45	●
1538SU08C-1140	*	11.4	12	162	114	99	45	●
1538SU08C-1150	*	11.5	12	162	114	99	45	●
1538SU08C-1160	*	11.6	12	162	114	99	45	●
1538SU08C-1170	*	11.7	12	162	114	99	45	●
1538SU08C-1180	*	11.8	12	162	114	99	45	●
1538SU08C-1190	*	11.9	12	162	114	99	45	●
1538SU08C-1200	*	12	12	162	114	99	45	●
1538SU08C-1250	*	12.5	14	178	133	116	45	●
1538SU08C-1270	*	12.7	14	178	133	116	45	●
1538SU08C-1280	*	12.8	14	178	133	116	45	●
1538SU08C-1300	*	13	14	178	133	116	45	●
1538SU08C-1350	*	13.5	14	178	133	116	45	●
1538SU08C-1400	*	14	14	178	133	116	45	●
1538SU08C-1450	*	14.5	16	204	152	132	48	●
1538SU08C-1480	*	14.8	16	204	152	132	48	●
1538SU08C-1500	*	15	16	204	152	132	48	●
1538SU08C-1550	*	15.5	16	204	152	132	48	●
1538SU08C-1600	*	16	16	204	152	132	48	●
1538SU08C-1650	*	16.5	18	223	171	149	48	●
1538SU08C-1700	*	17	18	223	171	149	48	●
1538SU08C-1750	*	17.5	18	223	171	149	48	●
1538SU08C-1800	*	18	18	223	171	149	48	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1538SU*	✓	✓	✓			
1538SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

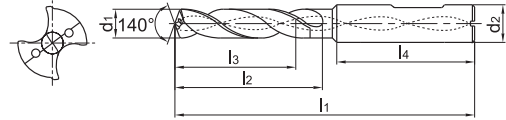
### 1634SU03C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1634SU03C-0300	*	3	6	62	20	14	36	●
1634SU03C-0310	*	3.1	6	62	20	14	36	●
1634SU03C-0320	*	3.2	6	62	20	14	36	●
1634SU03C-0325	*	3.25	6	62	20	14	36	○
1634SU03C-0330	*	3.3	6	62	20	14	36	●
1634SU03C-0340	*	3.4	6	62	20	14	36	●
1634SU03C-0350	*	3.5	6	62	20	14	36	●
1634SU03C-0360	*	3.6	6	62	20	14	36	●
1634SU03C-0370	*	3.7	6	62	20	14	36	●
1634SU03C-0380	*	3.8	6	66	24	17	36	●
1634SU03C-0390	*	3.9	6	66	24	17	36	●
1634SU03C-0400	*	4	6	66	24	17	36	●
1634SU03C-0410	*	4.1	6	66	24	17	36	●
1634SU03C-0420	*	4.2	6	66	24	17	36	●
1634SU03C-0430	*	4.3	6	66	24	17	36	●
1634SU03C-0440	*	4.4	6	66	24	17	36	●
1634SU03C-0450	*	4.5	6	66	24	17	36	●
1634SU03C-0460	*	4.6	6	66	24	17	36	●
1634SU03C-0465	*	4.65	6	66	24	17	36	○
1634SU03C-0470	*	4.7	6	66	24	17	36	●
1634SU03C-0480	*	4.8	6	66	28	20	36	●
1634SU03C-0490	*	4.9	6	66	28	20	36	●
1634SU03C-0500	*	5	6	66	28	20	36	●
1634SU03C-0510	*	5.1	6	66	28	20	36	●
1634SU03C-0520	*	5.2	6	66	28	20	36	●
1634SU03C-0530	*	5.3	6	66	28	20	36	●
1634SU03C-0540	*	5.4	6	66	28	20	36	●
1634SU03C-0550	*	5.5	6	66	28	20	36	●
1634SU03C-0555	*	5.55	6	66	28	20	36	●
1634SU03C-0560	*	5.6	6	66	28	20	36	●
1634SU03C-0570	*	5.7	6	66	28	20	36	●
1634SU03C-0580	*	5.8	6	66	28	20	36	●
1634SU03C-0590	*	5.9	6	66	28	20	36	●
1634SU03C-0600	*	6	6	66	28	20	36	●
1634SU03C-0610	*	6.1	8	79	34	24	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1634SU*	✓	✓	✓			
1634SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SU(K) drill 3xD**

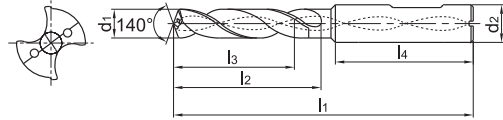
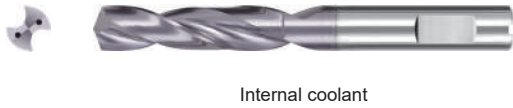
**General machining**

Add K (SUK) to the code for use on Cast Iron

**1634SU03C**



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1634SU03C-0620	*	6.2	8	79	34	24	36	●
1634SU03C-0630	*	6.3	8	79	34	24	36	●
1634SU03C-0640	*	6.4	8	79	34	24	36	●
1634SU03C-0650	*	6.5	8	79	34	24	36	●
1634SU03C-0660	*	6.6	8	79	34	24	36	●
1634SU03C-0670	*	6.7	8	79	34	24	36	●
1634SU03C-0675	*	6.75	8	79	34	24	36	○
1634SU03C-0680	*	6.8	8	79	34	24	36	●
1634SU03C-0690	*	6.9	8	79	34	24	36	●
1634SU03C-0700	*	7	8	79	34	24	36	●
1634SU03C-0710	*	7.1	8	79	41	29	36	●
1634SU03C-0720	*	7.2	8	79	41	29	36	●
1634SU03C-0730	*	7.3	8	79	41	29	36	●
1634SU03C-0740	*	7.4	8	79	41	29	36	●
1634SU03C-0745	*	7.45	8	79	41	29	36	○
1634SU03C-0750	*	7.5	8	79	41	29	36	●
1634SU03C-0760	*	7.6	8	79	41	29	36	●
1634SU03C-0770	*	7.7	8	79	41	29	36	●
1634SU03C-0780	*	7.8	8	79	41	29	36	●
1634SU03C-0790	*	7.9	8	79	41	29	36	●
1634SU03C-0800	*	8	8	79	41	29	36	●
1634SU03C-0810	*	8.1	10	89	47	35	40	●
1634SU03C-0820	*	8.2	10	89	47	35	40	●
1634SU03C-0830	*	8.3	10	89	47	35	40	●
1634SU03C-0840	*	8.4	10	89	47	35	40	●
1634SU03C-0850	*	8.5	10	89	47	35	40	●
1634SU03C-0860	*	8.6	10	89	47	35	40	●
1634SU03C-0870	*	8.7	10	89	47	35	40	●
1634SU03C-0880	*	8.8	10	89	47	35	40	●
1634SU03C-0890	*	8.9	10	89	47	35	40	●
1634SU03C-0900	*	9	10	89	47	35	40	●
1634SU03C-0910	*	9.1	10	89	47	35	40	●
1634SU03C-0920	*	9.2	10	89	47	35	40	●
1634SU03C-0930	*	9.3	10	89	47	35	40	●
1634SU03C-0935	*	9.35	10	89	47	35	40	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1634SU*	✓	✓	✓			
1634SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

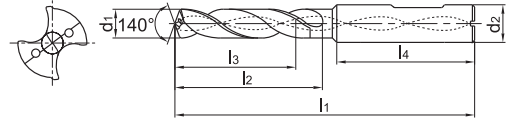
### 1634SU03C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1634SU03C-0940	*	9.4	10	89	47	35	40	●
1634SU03C-0945	*	9.45	10	89	47	35	40	○
1634SU03C-0950	*	9.5	10	89	47	35	40	●
1634SU03C-0960	*	9.6	10	89	47	35	40	●
1634SU03C-0970	*	9.7	10	89	47	35	40	●
1634SU03C-0980	*	9.8	10	89	47	35	40	●
1634SU03C-0990	*	9.9	10	89	47	35	40	●
1634SU03C-1000	*	10	10	89	47	35	40	●
1634SU03C-1010	*	10.1	12	102	55	40	45	●
1634SU03C-1020	*	10.2	12	102	55	40	45	●
1634SU03C-1025	*	10.25	12	102	55	40	45	○
1634SU03C-1030	*	10.3	12	102	55	40	45	●
1634SU03C-1040	*	10.4	12	102	55	40	45	●
1634SU03C-1050	*	10.5	12	102	55	40	45	●
1634SU03C-1060	*	10.6	12	102	55	40	45	●
1634SU03C-1070	*	10.7	12	102	55	40	45	●
1634SU03C-1080	*	10.8	12	102	55	40	45	●
1634SU03C-1090	*	10.9	12	102	55	40	45	●
1634SU03C-1100	*	11	12	102	55	40	45	●
1634SU03C-1110	*	11.1	12	102	55	40	45	●
1634SU03C-1120	*	11.2	12	102	55	40	45	●
1634SU03C-1125	*	11.25	12	102	55	40	45	○
1634SU03C-1130	*	11.3	12	102	55	40	45	●
1634SU03C-1135	*	11.35	12	102	55	40	45	○
1634SU03C-1140	*	11.4	12	102	55	40	45	●
1634SU03C-1145	*	11.45	12	102	55	40	45	○
1634SU03C-1150	*	11.5	12	102	55	40	45	●
1634SU03C-1160	*	11.6	12	102	55	40	45	●
1634SU03C-1170	*	11.7	12	102	55	40	45	●
1634SU03C-1180	*	11.8	12	102	55	40	45	●
1634SU03C-1190	*	11.9	12	102	55	40	45	●
1634SU03C-1200	*	12	12	102	55	40	45	●
1634SU03C-1210	*	12.1	14	107	60	43	45	●
1634SU03C-1220	*	12.2	14	107	60	43	45	●
1634SU03C-1225	*	12.25	14	107	60	43	45	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1634SU*	✓	✓	✓			
1634SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SU(K) drill 3xD

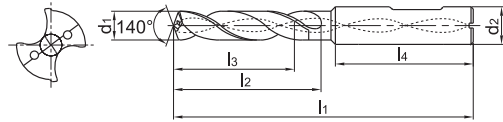
General machining

Add K (SUK) to the code for use on Cast Iron

1634SU03C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1634SU03C-1230	*	12.3	14	107	60	43	45	●
1634SU03C-1250	*	12.5	14	107	60	43	45	●
1634SU03C-1270	*	12.7	14	107	60	43	45	●
1634SU03C-1275	*	12.75	14	107	60	43	45	○
1634SU03C-1280	*	12.8	14	107	60	43	45	●
1634SU03C-1300	*	13	14	107	60	43	45	●
1634SU03C-1310	*	13.1	14	107	60	43	45	●
1634SU03C-1335	*	13.35	14	107	60	43	45	○
1634SU03C-1350	*	13.5	14	107	60	43	45	●
1634SU03C-1380	*	13.8	14	107	60	43	45	●
1634SU03C-1400	*	14	14	107	60	43	45	●
1634SU03C-1420	*	14.2	16	107	60	43	45	○
1634SU03C-1425	*	14.25	16	115	65	45	48	○
1634SU03C-1430	*	14.3	16	115	65	45	48	○
1634SU03C-1450	*	14.5	16	115	65	45	48	●
1634SU03C-1475	*	14.75	16	115	65	45	48	○
1634SU03C-1480	*	14.8	16	115	65	45	48	●
1634SU03C-1500	*	15	16	115	65	45	48	●
1634SU03C-1510	*	15.1	16	115	65	45	48	○
1634SU03C-1535	*	15.35	16	115	65	45	48	○
1634SU03C-1550	*	15.5	16	115	65	45	48	○
1634SU03C-1580	*	15.8	16	115	65	45	48	○
1634SU03C-1600	*	16	16	115	65	45	48	●
1634SU03C-1650	*	16.5	18	123	73	51	48	○
1634SU03C-1675	*	16.75	18	123	73	51	48	○
1634SU03C-1680	*	16.8	18	123	73	51	48	○
1634SU03C-1700	*	17	18	123	73	51	48	●
1634SU03C-1750	*	17.5	18	123	73	51	48	●
1634SU03C-1780	*	17.8	18	123	73	51	48	○
1634SU03C-1800	*	18	18	123	73	51	48	●
1634SU03C-1850	*	18.5	20	131	79	55	50	○
1634SU03C-1880	*	18.8	20	131	79	55	50	○
1634SU03C-1900	*	19	20	131	79	55	50	○
1634SU03C-1950	*	19.5	20	131	79	55	50	●
1634SU03C-1980	*	19.8	20	131	79	55	50	○
1634SU03C-2000	*	20	20	131	79	55	50	●

- Ex stock ○ On demand
- All articles SUK on demand
- \* With internal cooling

Application field						
Type	P	M	K	N	S	H
1634SU*	✓	✓	✓			
1634SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28    Machining instructions > C165    Cutting data > C122    Nonstandard order > C178



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## SU(K) drill 5x2

General machining

Add K (SUK) to the code for use on Cast Iron

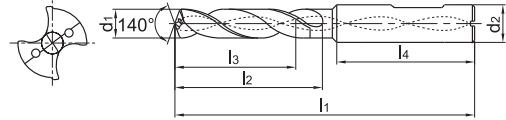
### 1636SU05C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636SU05C-0300	*	3	6	62	20	14	36	●
1636SU05C-0310	*	3.1	6	66	28	23	36	●
1636SU05C-0320	*	3.2	6	66	28	23	36	●
1636SU05C-0325	*	3.25	6	66	28	23	36	○
1636SU05C-0330	*	3.3	6	66	28	23	36	●
1636SU05C-0340	*	3.4	6	66	28	23	36	●
1636SU05C-0350	*	3.5	6	66	28	23	36	●
1636SU05C-0360	*	3.6	6	66	28	23	36	●
1636SU05C-0370	*	3.7	6	66	28	23	36	●
1636SU05C-0380	*	3.8	6	74	36	29	36	●
1636SU05C-0390	*	3.9	6	74	36	29	36	●
1636SU05C-0400	*	4	6	74	36	29	36	●
1636SU05C-0410	*	4.1	6	74	36	29	36	●
1636SU05C-0420	*	4.2	6	74	36	29	36	●
1636SU05C-0430	*	4.3	6	74	36	29	36	●
1636SU05C-0440	*	4.4	6	74	36	29	36	●
1636SU05C-0450	*	4.5	6	74	36	29	36	●
1636SU05C-0460	*	4.6	6	74	36	29	36	●
1636SU05C-0465	*	4.65	6	74	36	29	36	●
1636SU05C-0470	*	4.7	6	74	36	29	36	●
1636SU05C-0480	*	4.8	6	82	44	35	36	●
1636SU05C-0490	*	4.9	6	82	44	35	36	●
1636SU05C-0500	*	5	6	82	44	35	36	●
1636SU05C-0510	*	5.1	6	82	44	35	36	●
1636SU05C-0520	*	5.2	6	82	44	35	36	●
1636SU05C-0530	*	5.3	6	82	44	35	36	●
1636SU05C-0540	*	5.4	6	82	44	35	36	●
1636SU05C-0550	*	5.5	6	82	44	35	36	●
1636SU05C-0555	*	5.55	6	82	44	35	36	●
1636SU05C-0560	*	5.6	6	82	44	35	36	●
1636SU05C-0570	*	5.7	6	82	44	35	36	●
1636SU05C-0580	*	5.8	6	82	44	35	36	●
1636SU05C-0590	*	5.9	6	82	44	35	36	●
1636SU05C-0600	*	6	6	82	44	35	36	●
1636SU05C-0610	*	6.1	8	91	53	43	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1636SU*	✓	✓	✓			
1636SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

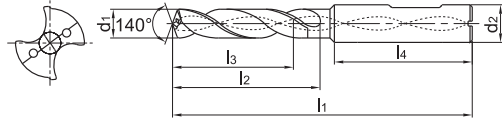
1636SU05C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636SU05C-0620	*	6.2	8	91	53	43	36	●
1636SU05C-0630	*	6.3	8	91	53	43	36	●
1636SU05C-0640	*	6.4	8	91	53	43	36	●
1636SU05C-0650	*	6.5	8	91	53	43	36	●
1636SU05C-0660	*	6.6	8	91	53	43	36	●
1636SU05C-0670	*	6.7	8	91	53	43	36	●
1636SU05C-0675	*	6.75	8	91	53	43	36	●
1636SU05C-0680	*	6.8	8	91	53	43	36	●
1636SU05C-0690	*	6.9	8	91	53	43	36	●
1636SU05C-0700	*	7	8	91	53	43	36	●
1636SU05C-0710	*	7.1	8	91	53	43	36	●
1636SU05C-0720	*	7.2	8	91	53	43	36	●
1636SU05C-0730	*	7.3	8	91	53	43	36	●
1636SU05C-0740	*	7.4	8	91	53	43	36	●
1636SU05C-0745	*	7.45	8	91	53	43	36	●
1636SU05C-0750	*	7.5	8	91	53	43	36	●
1636SU05C-0760	*	7.6	8	91	53	43	36	●
1636SU05C-0770	*	7.7	8	91	53	43	36	●
1636SU05C-0780	*	7.8	8	91	53	43	36	●
1636SU05C-0790	*	7.9	8	91	53	43	36	●
1636SU05C-0800	*	8	8	91	53	43	36	●
1636SU05C-0810	*	8.1	10	103	61	49	40	●
1636SU05C-0820	*	8.2	10	103	61	49	40	●
1636SU05C-0830	*	8.3	10	103	61	49	40	●
1636SU05C-0840	*	8.4	10	103	61	49	40	●
1636SU05C-0850	*	8.5	10	103	61	49	40	●
1636SU05C-0860	*	8.6	10	103	61	49	40	●
1636SU05C-0870	*	8.7	10	103	61	49	40	●
1636SU05C-0880	*	8.8	10	103	61	49	40	●
1636SU05C-0890	*	8.9	10	103	61	49	40	●
1636SU05C-0900	*	9	10	103	61	49	40	●
1636SU05C-0910	*	9.1	10	103	61	49	40	●
1636SU05C-0920	*	9.2	10	103	61	49	40	●
1636SU05C-0930	*	9.3	10	103	61	49	40	●
1636SU05C-0935	*	9.35	10	103	61	49	40	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field

Type	P	M	K	N	S	H
1636SU*	✓	✓	✓			
1636SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

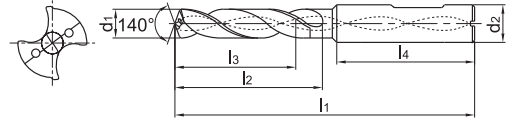
### 1636SU05C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636SU05C-0940	*	9.4	10	103	61	49	40	●
1636SU05C-0945	*	9.45	10	103	61	49	40	○
1636SU05C-0950	*	9.5	10	103	61	49	40	●
1636SU05C-0960	*	9.6	10	103	61	49	40	●
1636SU05C-0970	*	9.7	10	103	61	49	40	●
1636SU05C-0980	*	9.8	10	103	61	49	40	●
1636SU05C-0990	*	9.9	10	103	61	49	40	●
1636SU05C-1000	*	10	10	103	61	49	40	●
1636SU05C-1010	*	10.1	12	118	71	56	45	●
1636SU05C-1020	*	10.2	12	118	71	56	45	●
1636SU05C-1025	*	10.25	12	118	71	56	45	●
1636SU05C-1030	*	10.3	12	118	71	56	45	●
1636SU05C-1040	*	10.4	12	118	71	56	45	●
1636SU05C-1050	*	10.5	12	118	71	56	45	●
1636SU05C-1060	*	10.6	12	118	71	56	45	●
1636SU05C-1070	*	10.7	12	118	71	56	45	●
1636SU05C-1080	*	10.8	12	118	71	56	45	●
1636SU05C-1090	*	10.9	12	118	71	56	45	●
1636SU05C-1100	*	11	12	118	71	56	45	●
1636SU05C-1110	*	11.1	12	118	71	56	45	●
1636SU05C-1120	*	11.2	12	118	71	56	45	●
1636SU05C-1125	*	11.25	12	118	71	56	45	○
1636SU05C-1130	*	11.3	12	118	71	56	45	●
1636SU05C-1135	*	11.35	12	118	71	56	45	○
1636SU05C-1140	*	11.4	12	118	71	56	45	●
1636SU05C-1145	*	11.45	12	118	71	56	45	○
1636SU05C-1150	*	11.5	12	118	71	56	45	●
1636SU05C-1160	*	11.6	12	118	71	56	45	●
1636SU05C-1170	*	11.7	12	118	71	56	45	●
1636SU05C-1180	*	11.8	12	118	71	56	45	●
1636SU05C-1190	*	11.9	12	118	71	56	45	●
1636SU05C-1200	*	12	12	118	71	56	45	●
1636SU05C-1210	*	12.1	14	124	77	60	45	●
1636SU05C-1220	*	12.2	14	124	77	60	45	●
1636SU05C-1225	*	12.25	14	124	77	60	45	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1636SU*	✓	✓	✓			
1636SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

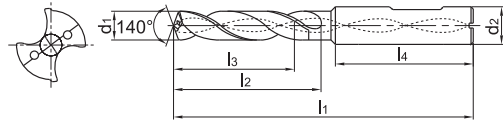
1636SU05C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636SU05C-1230	*	12.3	14	124	77	60	45	●
1636SU05C-1250	*	12.5	14	124	77	60	45	●
1636SU05C-1270	*	12.7	14	124	77	60	45	●
1636SU05C-1275	*	12.75	14	124	77	60	45	○
1636SU05C-1280	*	12.8	14	124	77	60	45	●
1636SU05C-1300	*	13	14	124	77	60	45	●
1636SU05C-1310	*	13.1	14	124	77	60	45	●
1636SU05C-1335	*	13.35	14	124	77	60	56	○
1636SU05C-1350	*	13.5	14	124	77	60	45	●
1636SU05C-1380	*	13.8	14	124	77	60	45	●
1636SU05C-1400	*	14	14	124	77	60	45	●
1636SU05C-1420	*	14.2	16	124	77	60	45	●
1636SU05C-1425	*	14.25	16	133	83	63	48	●
1636SU05C-1430	*	14.3	16	133	83	63	48	●
1636SU05C-1450	*	14.5	16	133	83	63	48	●
1636SU05C-1475	*	14.75	16	133	83	63	48	○
1636SU05C-1480	*	14.8	16	133	83	63	48	●
1636SU05C-1500	*	15	16	133	83	63	48	●
1636SU05C-1510	*	15.1	16	133	83	63	48	●
1636SU05C-1535	*	15.35	16	133	83	63	48	○
1636SU05C-1550	*	15.5	16	133	83	63	48	●
1636SU05C-1580	*	15.8	16	133	83	63	48	●
1636SU05C-1600	*	16	16	133	83	63	48	●
1636SU05C-1650	*	16.5	18	143	93	71	48	●
1636SU05C-1675	*	16.75	18	143	93	71	48	○
1636SU05C-1680	*	16.8	18	143	93	71	48	●
1636SU05C-1700	*	17	18	143	93	71	48	●
1636SU05C-1750	*	17.5	18	143	93	71	48	●
1636SU05C-1780	*	17.8	18	143	93	71	48	●
1636SU05C-1800	*	18	18	143	93	71	48	●
1636SU05C-1850	*	18.5	20	153	101	77	50	●
1636SU05C-1880	*	18.8	20	153	101	77	50	●
1636SU05C-1900	*	19	20	153	101	77	50	●
1636SU05C-1950	*	19.5	20	153	101	77	50	●
1636SU05C-1980	*	19.8	20	153	101	77	50	●
1636SU05C-2000	*	20	20	153	101	77	50	●

- Ex stock ○ On demand
- All articles SUK on demand
- \* With internal cooling

Application field						
Type	P	M	K	N	S	H
1636SU*	✓	✓	✓			
1636SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28    Machining instructions > C165    Cutting data > C122    Nonstandard order > C178



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## SU(K) drill 3xD

General machining

Add K (SUK) to the code for use on Cast Iron

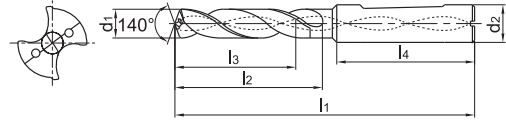
### 1734SU03C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1734SU03C-0300	*	3	6	66	28	23	36	●
1734SU03C-0310	*	3.1	6	62	20	14	36	●
1734SU03C-0320	*	3.2	6	62	20	14	36	●
1734SU03C-0325	*	3.25	6	62	20	14	36	○
1734SU03C-0330	*	3.3	6	62	20	14	36	●
1734SU03C-0340	*	3.4	6	62	20	14	36	●
1734SU03C-0350	*	3.5	6	62	20	14	36	●
1734SU03C-0360	*	3.6	6	62	20	14	36	●
1734SU03C-0370	*	3.7	6	62	20	14	36	●
1734SU03C-0380	*	3.8	6	66	24	17	36	●
1734SU03C-0390	*	3.9	6	66	24	17	36	●
1734SU03C-0400	*	4	6	66	24	17	36	●
1734SU03C-0410	*	4.1	6	66	24	17	36	●
1734SU03C-0420	*	4.2	6	66	24	17	36	●
1734SU03C-0430	*	4.3	6	66	24	17	36	●
1734SU03C-0440	*	4.4	6	66	24	17	36	●
1734SU03C-0450	*	4.5	6	66	24	17	36	●
1734SU03C-0460	*	4.6	6	66	24	17	36	●
1734SU03C-0465	*	4.65	6	66	24	17	36	○
1734SU03C-0470	*	4.7	6	66	24	17	36	●
1734SU03C-0480	*	4.8	6	66	28	20	36	●
1734SU03C-0490	*	4.9	6	66	28	20	36	●
1734SU03C-0500	*	5	6	66	28	20	36	●
1734SU03C-0510	*	5.1	6	66	28	20	36	●
1734SU03C-0520	*	5.2	6	66	28	20	36	●
1734SU03C-0530	*	5.3	6	66	28	20	36	●
1734SU03C-0540	*	5.4	6	66	28	20	36	●
1734SU03C-0550	*	5.5	6	66	28	20	36	●
1734SU03C-0555	*	5.55	6	66	28	20	36	●
1734SU03C-0560	*	5.6	6	66	28	20	36	●
1734SU03C-0570	*	5.7	6	66	28	20	36	●
1734SU03C-0580	*	5.8	6	66	28	20	36	●
1734SU03C-0590	*	5.9	6	66	28	20	36	●
1734SU03C-0600	*	6	6	66	28	20	36	●
1734SU03C-0610	*	6.1	8	79	34	24	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1734SU*	✓	✓	✓			
1734SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 3xD

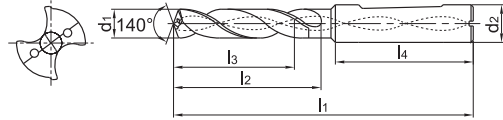
General machining

Add K (SUK) to the code for use on Cast Iron

1734SU03C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1734SU03C-0620	*	6.2	8	79	34	24	36	●
1734SU03C-0630	*	6.3	8	79	34	24	36	●
1734SU03C-0640	*	6.4	8	79	34	24	36	●
1734SU03C-0650	*	6.5	8	79	34	24	36	●
1734SU03C-0660	*	6.6	8	79	34	24	36	●
1734SU03C-0670	*	6.7	8	79	34	24	36	●
1734SU03C-0675	*	6.75	8	79	34	24	36	●
1734SU03C-0680	*	6.8	8	79	34	24	36	●
1734SU03C-0690	*	6.9	8	79	34	24	36	●
1734SU03C-0700	*	7	8	79	34	24	36	●
1734SU03C-0710	*	7.1	8	79	41	29	36	●
1734SU03C-0720	*	7.2	8	79	41	29	36	●
1734SU03C-0730	*	7.3	8	79	41	29	36	●
1734SU03C-0740	*	7.4	8	79	41	29	36	●
1734SU03C-0745	*	7.45	8	79	41	29	36	○
1734SU03C-0750	*	7.5	8	79	41	29	36	●
1734SU03C-0760	*	7.6	8	79	41	29	36	●
1734SU03C-0770	*	7.7	8	79	41	29	36	●
1734SU03C-0780	*	7.8	8	79	41	29	36	●
1734SU03C-0790	*	7.9	8	79	41	29	36	●
1734SU03C-0800	*	8	8	79	41	29	36	●
1734SU03C-0810	*	8.1	10	89	47	35	40	●
1734SU03C-0820	*	8.2	10	89	47	35	40	●
1734SU03C-0830	*	8.3	10	89	47	35	40	●
1734SU03C-0840	*	8.4	10	89	47	35	40	●
1734SU03C-0850	*	8.5	10	89	47	35	40	●
1734SU03C-0860	*	8.6	10	89	47	35	40	●
1734SU03C-0870	*	8.7	10	89	47	35	40	●
1734SU03C-0880	*	8.8	10	89	47	35	40	●
1734SU03C-0890	*	8.9	10	89	47	35	40	●
1734SU03C-0900	*	9	10	89	47	35	40	●
1734SU03C-0910	*	9.1	10	89	47	35	40	●
1734SU03C-0920	*	9.2	10	89	47	35	40	●
1734SU03C-0930	*	9.3	10	89	47	35	40	●
1734SU03C-0935	*	9.35	10	89	47	35	40	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1734SU*	✓	✓	✓			
1734SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**SU(K) drill 3xD**    **General machining**    Add K (SUK) to the code for use on Cast Iron

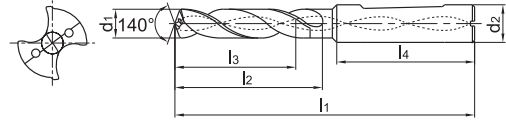
**1734SU03C**



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1734SU03C-0940	*	9.4	10	89	47	35	40	●
1734SU03C-0945	*	9.45	10	89	47	35	40	○
1734SU03C-0950	*	9.5	10	89	47	35	40	●
1734SU03C-0960	*	9.6	10	89	47	35	40	●
1734SU03C-0970	*	9.7	10	89	47	35	40	●
1734SU03C-0980	*	9.8	10	89	47	35	40	●
1734SU03C-0990	*	9.9	10	89	47	35	40	●
1734SU03C-1000	*	10	10	89	47	35	40	●
1734SU03C-1010	*	10.1	12	102	55	40	45	●
1734SU03C-1020	*	10.2	12	102	55	40	45	●
1734SU03C-1025	*	10.25	12	102	55	40	45	●
1734SU03C-1030	*	10.3	12	102	55	40	45	●
1734SU03C-1040	*	10.4	12	102	55	40	45	●
1734SU03C-1050	*	10.5	12	102	55	40	45	●
1734SU03C-1060	*	10.6	12	102	55	40	45	●
1734SU03C-1070	*	10.7	12	102	55	40	45	●
1734SU03C-1080	*	10.8	12	102	55	40	45	●
1734SU03C-1090	*	10.9	12	102	55	40	45	●
1734SU03C-1100	*	11	12	102	55	40	45	●
1734SU03C-1110	*	11.1	12	102	55	40	45	●
1734SU03C-1120	*	11.2	12	102	55	40	45	●
1734SU03C-1125	*	11.25	12	102	55	40	45	○
1734SU03C-1130	*	11.3	12	102	55	40	45	●
1734SU03C-1135	*	11.35	12	102	55	40	45	○
1734SU03C-1140	*	11.4	12	102	55	40	45	●
1734SU03C-1145	*	11.45	12	102	55	40	45	○
1734SU03C-1150	*	11.5	12	102	55	40	45	●
1734SU03C-1160	*	11.6	12	102	55	40	45	●
1734SU03C-1170	*	11.7	12	102	55	40	45	●
1734SU03C-1180	*	11.8	12	102	55	40	45	●
1734SU03C-1190	*	11.9	12	102	55	40	45	●
1734SU03C-1200	*	12	12	102	55	40	45	●
1734SU03C-1210	*	12.1	14	107	60	43	45	●
1734SU03C-1220	*	12.2	14	107	60	43	45	●
1734SU03C-1225	*	12.25	14	107	60	43	45	●

● Ex stock    ○ On demand

All articles SUK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1734SU*	✓	✓	✓			
1734SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SU(K) drill 3xD

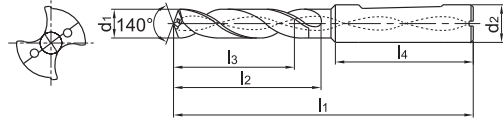
General machining

Add K (SUK) to the code for use on Cast Iron

1734SU03C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1734SU03C-1230	*	12.3	14	107	60	43	45	●
1734SU03C-1250	*	12.5	14	107	60	43	45	●
1734SU03C-1270	*	12.7	14	107	60	43	45	●
1734SU03C-1275	*	12.75	14	107	60	43	45	●
1734SU03C-1280	*	12.8	14	107	60	43	45	●
1734SU03C-1300	*	13	14	107	60	43	45	●
1734SU03C-1310	*	13.1	14	107	60	43	45	●
1734SU03C-1335	*	13.35	14	107	60	43	45	○
1734SU03C-1350	*	13.5	14	107	60	43	45	●
1734SU03C-1380	*	13.8	14	107	60	43	45	●
1734SU03C-1400	*	14	14	107	60	43	45	●
1734SU03C-1420	*	14.2	16	107	60	43	45	●
1734SU03C-1425	*	14.25	16	115	65	45	48	●
1734SU03C-1430	*	14.3	16	115	65	45	48	●
1734SU03C-1450	*	14.5	16	115	65	45	48	●
1734SU03C-1475	*	14.75	16	115	65	45	48	●
1734SU03C-1480	*	14.8	16	115	65	45	48	●
1734SU03C-1500	*	15	16	115	65	45	48	●
1734SU03C-1510	*	15.1	16	115	65	45	48	●
1734SU03C-1535	*	15.35	16	115	65	45	48	○
1734SU03C-1550	*	15.5	16	115	65	45	48	●
1734SU03C-1580	*	15.8	16	115	65	45	48	●
1734SU03C-1600	*	16	16	115	65	45	48	●
1734SU03C-1650	*	16.5	18	123	73	51	48	●
1734SU03C-1675	*	16.75	18	123	73	51	48	●
1734SU03C-1680	*	16.8	18	123	73	51	48	●
1734SU03C-1700	*	17	18	123	73	51	48	●
1734SU03C-1750	*	17.5	18	123	73	51	48	●
1734SU03C-1780	*	17.8	18	123	73	51	48	●
1734SU03C-1800	*	18	18	123	73	51	48	●
1734SU03C-1850	*	18.5	20	131	79	55	50	●
1734SU03C-1880	*	18.8	20	131	79	55	50	●
1734SU03C-1900	*	19	20	131	79	55	50	●
1734SU03C-1950	*	19.5	20	131	79	55	50	●
1734SU03C-1980	*	19.8	20	131	79	55	50	●
1734SU03C-2000	*	20	20	131	79	55	50	●

- Ex stock ○ On demand
- All articles SUK on demand
- \* With internal cooling

Application field						
Type	P	M	K	N	S	H
1734SU*	✓	✓	✓			
1734SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28    Machining instructions > C165    Cutting data > C122    Nonstandard order > C178



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## SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

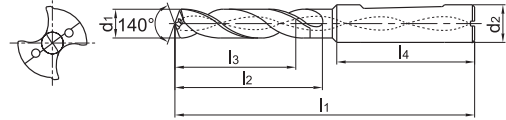
### 1736SU05C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1736SU05C-0300	*	3	6	66	28	23	36	●
1736SU05C-0310	*	3.1	6	66	28	23	36	●
1736SU05C-0320	*	3.2	6	66	28	23	36	●
1736SU05C-0325	*	3.25	6	66	28	23	36	○
1736SU05C-0330	*	3.3	6	66	28	23	36	●
1736SU05C-0340	*	3.4	6	66	28	23	36	●
1736SU05C-0350	*	3.5	6	66	28	23	36	●
1736SU05C-0360	*	3.6	6	66	28	23	36	●
1736SU05C-0370	*	3.7	6	66	28	23	36	●
1736SU05C-0380	*	3.8	6	74	36	29	36	●
1736SU05C-0390	*	3.9	6	74	36	29	36	●
1736SU05C-0400	*	4	6	74	36	29	36	●
1736SU05C-0410	*	4.1	6	74	36	29	36	●
1736SU05C-0420	*	4.2	6	74	36	29	36	●
1736SU05C-0430	*	4.3	6	74	36	29	36	●
1736SU05C-0440	*	4.4	6	74	36	29	36	●
1736SU05C-0450	*	4.5	6	74	36	29	36	●
1736SU05C-0460	*	4.6	6	74	36	29	36	●
1736SU05C-0465	*	4.65	6	74	36	29	36	○
1736SU05C-0470	*	4.7	6	74	36	29	36	●
1736SU05C-0480	*	4.8	6	82	44	35	36	●
1736SU05C-0490	*	4.9	6	82	44	35	36	●
1736SU05C-0500	*	5	6	82	44	35	36	●
1736SU05C-0510	*	5.1	6	82	44	35	36	●
1736SU05C-0520	*	5.2	6	82	44	35	36	●
1736SU05C-0530	*	5.3	6	82	44	35	36	●
1736SU05C-0540	*	5.4	6	82	44	35	36	●
1736SU05C-0550	*	5.5	6	82	44	35	36	●
1736SU05C-0555	*	5.55	6	82	44	35	36	●
1736SU05C-0560	*	5.6	6	82	44	35	36	●
1736SU05C-0570	*	5.7	6	82	44	35	36	●
1736SU05C-0580	*	5.8	6	82	44	35	36	●
1736SU05C-0590	*	5.9	6	82	44	35	36	●
1736SU05C-0600	*	6	6	82	44	35	36	●
1736SU05C-0610	*	6.1	8	91	53	43	36	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1736SU*	✓	✓	✓			
1736SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

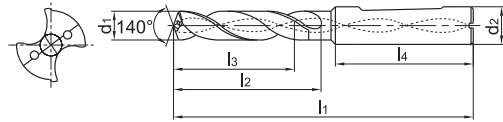
1736SU05C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1736SU05C-0620	*	6.2	8	91	53	43	36	●
1736SU05C-0630	*	6.3	8	91	53	43	36	●
1736SU05C-0640	*	6.4	8	91	53	43	36	●
1736SU05C-0650	*	6.5	8	91	53	43	36	●
1736SU05C-0660	*	6.6	8	91	53	43	36	●
1736SU05C-0670	*	6.7	8	91	53	43	36	●
1736SU05C-0675	*	6.75	8	91	53	43	36	●
1736SU05C-0680	*	6.8	8	91	53	43	36	●
1736SU05C-0690	*	6.9	8	91	53	43	36	●
1736SU05C-0700	*	7	8	91	53	43	36	●
1736SU05C-0710	*	7.1	8	91	53	43	36	●
1736SU05C-0720	*	7.2	8	91	53	43	36	●
1736SU05C-0730	*	7.3	8	91	53	43	36	●
1736SU05C-0740	*	7.4	8	91	53	43	36	●
1736SU05C-0745	*	7.45	8	91	53	43	36	○
1736SU05C-0750	*	7.5	8	91	53	43	36	●
1736SU05C-0760	*	7.6	8	91	53	43	36	●
1736SU05C-0770	*	7.7	8	91	53	43	36	●
1736SU05C-0780	*	7.8	8	91	53	43	36	●
1736SU05C-0790	*	7.9	8	91	53	43	36	●
1736SU05C-0800	*	8	8	91	53	43	36	●
1736SU05C-0810	*	8.1	10	103	61	49	40	●
1736SU05C-0820	*	8.2	10	103	61	49	40	●
1736SU05C-0830	*	8.3	10	103	61	49	40	●
1736SU05C-0840	*	8.4	10	103	61	49	40	●
1736SU05C-0850	*	8.5	10	103	61	49	40	●
1736SU05C-0860	*	8.6	10	103	61	49	40	●
1736SU05C-0870	*	8.7	10	103	61	49	40	●
1736SU05C-0880	*	8.8	10	103	61	49	40	●
1736SU05C-0890	*	8.9	10	103	61	49	40	●
1736SU05C-0900	*	9	10	103	61	49	40	●
1736SU05C-0910	*	9.1	10	103	61	49	40	●
1736SU05C-0920	*	9.2	10	103	61	49	40	●
1736SU05C-0930	*	9.3	10	103	61	49	40	●
1736SU05C-0935	*	9.35	10	103	61	49	40	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1736SU*	✓	✓	✓			
1736SUK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

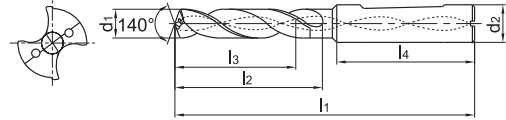
### 1736SU05C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1736SU05C-0940	*	9.4	10	103	61	49	40	●
1736SU05C-0945	*	9.45	10	103	61	49	40	○
1736SU05C-0950	*	9.5	10	103	61	49	40	●
1736SU05C-0960	*	9.6	10	103	61	49	40	●
1736SU05C-0970	*	9.7	10	103	61	49	40	●
1736SU05C-0980	*	9.8	10	103	61	49	40	●
1736SU05C-0990	*	9.9	10	103	61	49	40	●
1736SU05C-1000	*	10	10	103	61	49	40	●
1736SU05C-1010	*	10.1	12	118	71	56	45	●
1736SU05C-1020	*	10.2	12	118	71	56	45	●
1736SU05C-1025	*	10.25	12	118	71	56	45	●
1736SU05C-1030	*	10.3	12	118	71	56	45	●
1736SU05C-1040	*	10.4	12	118	71	56	45	●
1736SU05C-1050	*	10.5	12	118	71	56	45	●
1736SU05C-1060	*	10.6	12	118	71	56	45	●
1736SU05C-1070	*	10.7	12	118	71	56	45	●
1736SU05C-1080	*	10.8	12	118	71	56	45	●
1736SU05C-1090	*	10.9	12	118	71	56	45	●
1736SU05C-1100	*	11	12	118	71	56	45	●
1736SU05C-1110	*	11.1	12	118	71	56	45	●
1736SU05C-1120	*	11.2	12	118	71	56	45	●
1736SU05C-1125	*	11.25	12	118	71	56	45	○
1736SU05C-1130	*	11.3	12	118	71	56	45	●
1736SU05C-1135	*	11.35	12	118	71	56	45	○
1736SU05C-1140	*	11.4	12	118	71	56	45	●
1736SU05C-1145	*	11.45	12	118	71	56	45	○
1736SU05C-1150	*	11.5	12	118	71	56	45	●
1736SU05C-1160	*	11.6	12	118	71	56	45	●
1736SU05C-1170	*	11.7	12	118	71	56	45	●
1736SU05C-1180	*	11.8	12	118	71	56	45	●
1736SU05C-1190	*	11.9	12	118	71	56	45	●
1736SU05C-1200	*	12	12	118	71	56	45	●
1736SU05C-1210	*	12.1	14	124	77	60	45	●
1736SU05C-1220	*	12.2	14	124	77	60	45	●
1736SU05C-1225	*	12.25	14	124	77	60	45	○

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1736SU*	✓	✓	✓			
1736SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SU(K) drill 5xD

General machining

Add K (SUK) to the code for use on Cast Iron

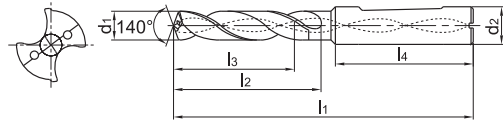
1736SU05C



- Whistle Notch clamping surface
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1736SU05C-1230	*	12.3	14	124	77	60	45	●
1736SU05C-1250	*	12.5	14	124	77	60	45	●
1736SU05C-1270	*	12.7	14	124	77	60	45	●
1736SU05C-1275	*	12.75	14	124	77	60	45	●
1736SU05C-1280	*	12.8	14	124	77	60	45	●
1736SU05C-1300	*	13	14	124	77	60	45	●
1736SU05C-1310	*	13.1	14	124	77	60	45	●
1736SU05C-1335	*	13.35	14	124	77	60	56	○
1736SU05C-1350	*	13.5	14	124	77	60	45	●
1736SU05C-1380	*	13.8	14	124	77	60	45	●
1736SU05C-1400	*	14	14	124	77	60	45	●
1736SU05C-1420	*	14.2	16	124	77	60	45	●
1736SU05C-1425	*	14.25	16	133	83	63	48	●
1736SU05C-1430	*	14.3	16	133	83	63	48	●
1736SU05C-1450	*	14.5	16	133	83	63	48	●
1736SU05C-1475	*	14.75	16	133	83	63	48	●
1736SU05C-1480	*	14.8	16	133	83	63	48	●
1736SU05C-1500	*	15	16	133	83	63	48	●
1736SU05C-1510	*	15.1	16	133	83	63	48	●
1736SU05C-1535	*	15.35	16	133	83	63	48	○
1736SU05C-1550	*	15.5	16	133	83	63	48	●
1736SU05C-1580	*	15.8	16	133	83	63	48	●
1736SU05C-1600	*	16	16	133	83	63	48	●
1736SU05C-1650	*	16.5	18	143	93	71	48	●
1736SU05C-1675	*	16.75	18	143	93	71	48	●
1736SU05C-1680	*	16.8	18	143	93	71	48	●
1736SU05C-1700	*	17	18	143	93	71	48	●
1736SU05C-1750	*	17.5	18	143	93	71	48	●
1736SU05C-1780	*	17.8	18	143	93	71	48	●
1736SU05C-1800	*	18	18	143	93	71	48	●
1736SU05C-1850	*	18.5	20	153	101	77	50	●
1736SU05C-1880	*	18.8	20	153	101	77	50	●
1736SU05C-1900	*	19	20	153	101	77	50	●
1736SU05C-1950	*	19.5	20	153	101	77	50	●
1736SU05C-1980	*	19.8	20	153	101	77	50	●
1736SU05C-2000	*	20	20	153	101	77	50	●

● Ex stock ○ On demand

All articles SUK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1736SU*	✓	✓	✓			
1736SUK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



## SU drill 3xD

## General machining

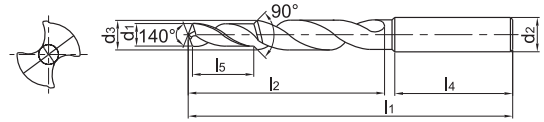
1557SU03



– Type of shank DIN 6535HA



External coolant



Article	*	Dimensions [mm]							Grade
		d <sub>1</sub> (m8)	d <sub>2</sub> (h6)	d <sub>3</sub> (m7)	l <sub>1</sub>	l <sub>2</sub>	l <sub>4</sub>	l <sub>5</sub>	
1557SU03-M4		3.3	6	4.5	66	28	36	11.4	●
1557SU03-M5		4.2	6	6	66	28	36	13.6	●
1557SU03-M6		5	8	7	79	41	36	16.5	●
1557SU03-M8		6.75	10	9.5	89	47	40	21	●
1557SU03-M8x1.0		7	10	9.8	89	47	40	21	●
1557SU03-M10		8.5	12	12	102	55	45	25.5	●
1557SU03-M10x1.0		9	12	12	102	55	45	25.5	○
1557SU03-M12		10.25	14	14	107	60	45	30	●
1557SU03-M12x1.5		10.5	14	14	107	60	45	30	●
1557SU03-M14		12	16	16	115	65	48	34.5	●
1557SU03-M14x1.5		12.5	16	16	115	65	48	34.5	●
1557SU03-M16		14	18	18	123	73	48	38.5	●
1557SU03-M16x1.5		14.5	18	18	123	73	48	38.5	●

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓			

✓ Very suitable

✓ Suitable

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

# 1588SL *For deep hole drilling*

10xD, 12xD, 15xD, 20xD and 30xD drills

- For machining of steel, non-ferrous metals, stainless steel and heat-resistant alloys.
- Double margin for high accuracy and stable machining.
- Special flute design for less friction and good chip flow.

# 1588SLK DIN 1412 D

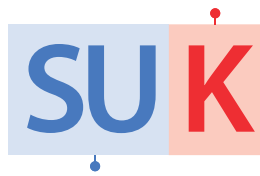
*Deep hole drills for machining of cast iron*

- Special cut for cast iron with ductile iron and malleable cast iron.
- Improved tool life due to impact resistant cutting edges.



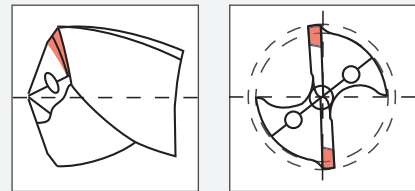
Straight cut

For cast iron



Deep hole drill

Form D: Cut for cast iron



1588SL

**SLK** : All articles on demand.

Please add **K** when ordering:

**1534SLK03-0100**

## **SU** series

*For drilling pilot holes*

- Recommended for deep hole drills with 15xD and larger.

## SL(K) drill 10xD General machining Add K (SLK) to the code for use on Cast Iron

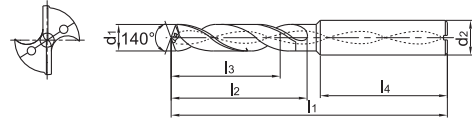
### 1588SL10C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL10C-0300	*	3	6	80	43	39	36	●
1588SL10C-0310	*	3.1	6	80	43	39	36	○
1588SL10C-0320	*	3.2	6	80	43	39	36	●
1588SL10C-0330	*	3.3	6	80	43	39	36	●
1588SL10C-0340	*	3.4	6	80	43	39	36	●
1588SL10C-0350	*	3.5	6	80	43	39	36	●
1588SL10C-0360	*	3.6	6	80	43	39	36	●
1588SL10C-0370	*	3.7	6	80	43	39	36	●
1588SL10C-0380	*	3.8	6	80	43	39	36	●
1588SL10C-0390	*	3.9	6	80	43	39	36	●
1588SL10C-0400	*	4	6	92	55	50	36	●
1588SL10C-0410	*	4.1	6	92	55	50	36	●
1588SL10C-0420	*	4.2	6	92	55	50	36	●
1588SL10C-0430	*	4.3	6	92	55	50	36	●
1588SL10C-0440	*	4.4	6	92	55	50	36	●
1588SL10C-0450	*	4.5	6	92	55	50	36	●
1588SL10C-0460	*	4.6	6	92	55	50	36	●
1588SL10C-0470	*	4.7	6	92	55	50	36	●
1588SL10C-0480	*	4.8	6	92	55	50	36	●
1588SL10C-0490	*	4.9	6	92	55	50	36	●
1588SL10C-0500	*	5	6	104	68	61	36	●
1588SL10C-0510	*	5.1	6	104	68	61	36	●
1588SL10C-0520	*	5.2	6	104	68	61	36	●
1588SL10C-0530	*	5.3	6	104	68	61	36	●
1588SL10C-0540	*	5.4	6	104	68	61	36	●
1588SL10C-0550	*	5.5	6	104	68	61	36	●
1588SL10C-0560	*	5.6	6	104	68	61	36	●
1588SL10C-0570	*	5.7	6	104	68	61	36	●
1588SL10C-0580	*	5.8	6	104	68	61	36	●
1588SL10C-0590	*	5.9	6	104	68	61	36	●
1588SL10C-0600	*	6	6	104	68	61	36	●
1588SL10C-0610	*	6.1	8	117	80	71	36	●
1588SL10C-0620	*	6.2	8	117	80	71	36	●
1588SL10C-0630	*	6.3	8	117	80	71	36	●
1588SL10C-0640	*	6.4	8	117	80	71	36	●

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



**SL(K) drill 10xD** **General machining** Add K (SLK) to the code for use on Cast Iron

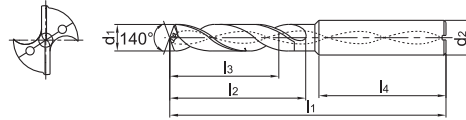
**1588SL10C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL10C-0650	*	6.5	8	117	80	71	36	●
1588SL10C-0660	*	6.6	8	117	80	71	36	●
1588SL10C-0670	*	6.7	8	117	80	71	36	●
1588SL10C-0680	*	6.8	8	117	80	71	36	●
1588SL10C-0690	*	6.9	8	117	80	71	36	●
1588SL10C-0700	*	7	8	117	80	71	36	●
1588SL10C-0710	*	7.1	8	130	94	84	36	●
1588SL10C-0720	*	7.2	8	130	94	84	36	●
1588SL10C-0730	*	7.3	8	130	94	84	36	●
1588SL10C-0740	*	7.4	8	130	94	84	36	●
1588SL10C-0750	*	7.5	8	130	94	84	36	●
1588SL10C-0760	*	7.6	8	130	94	84	36	●
1588SL10C-0770	*	7.7	8	130	94	84	36	●
1588SL10C-0780	*	7.8	8	130	94	84	36	●
1588SL10C-0790	*	7.9	8	130	94	84	36	●
1588SL10C-0800	*	8	8	130	94	84	36	●
1588SL10C-0810	*	8.1	10	148	105	94	40	●
1588SL10C-0820	*	8.2	10	148	105	94	40	●
1588SL10C-0830	*	8.3	10	148	105	94	40	●
1588SL10C-0840	*	8.4	10	148	105	94	40	●
1588SL10C-0850	*	8.5	10	148	105	94	40	●
1588SL10C-0860	*	8.6	10	148	105	94	40	●
1588SL10C-0870	*	8.7	10	148	105	94	40	●
1588SL10C-0880	*	8.8	10	148	105	94	40	●
1588SL10C-0890	*	8.9	10	148	105	94	40	●
1588SL10C-0900	*	9	10	148	105	94	40	●
1588SL10C-0910	*	9.1	10	158	115	103	40	●
1588SL10C-0920	*	9.2	10	158	115	103	40	●
1588SL10C-0930	*	9.3	10	158	115	103	40	●
1588SL10C-0940	*	9.4	10	158	115	103	40	●
1588SL10C-0950	*	9.5	10	158	115	103	40	●
1588SL10C-0960	*	9.6	10	158	115	103	40	●
1588SL10C-0970	*	9.7	10	158	115	103	40	●
1588SL10C-0980	*	9.8	10	158	115	103	40	●
1588SL10C-0990	*	9.9	10	158	115	103	40	●

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SL(K) drill 10xD General machining Add K (SLK) to the code for use on Cast Iron

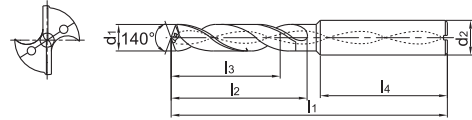
### 1588SL10C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL10C-1000	*	10	10	158	115	103	40	●
1588SL10C-1010	*	10.1	12	183	135	121	45	●
1588SL10C-1020	*	10.2	12	183	135	121	45	●
1588SL10C-1030	*	10.3	12	183	135	121	45	●
1588SL10C-1040	*	10.4	12	183	135	121	45	●
1588SL10C-1050	*	10.5	12	183	135	121	45	●
1588SL10C-1060	*	10.6	12	183	135	121	45	●
1588SL10C-1070	*	10.7	12	183	135	121	45	●
1588SL10C-1080	*	10.8	12	183	135	121	45	●
1588SL10C-1090	*	10.9	12	183	135	121	45	●
1588SL10C-1100	*	11	12	183	135	121	45	●
1588SL10C-1110	*	11.1	12	183	135	121	45	●
1588SL10C-1120	*	11.2	12	183	135	121	45	●
1588SL10C-1130	*	11.3	12	183	135	121	45	●
1588SL10C-1140	*	11.4	12	183	135	121	45	●
1588SL10C-1150	*	11.5	12	183	135	121	45	●
1588SL10C-1160	*	11.6	12	183	135	121	45	●
1588SL10C-1170	*	11.7	12	183	135	121	45	●
1588SL10C-1180	*	11.8	12	183	135	121	45	●
1588SL10C-1190	*	11.9	12	183	135	121	45	●
1588SL10C-1200	*	12	12	183	135	121	45	●
1588SL10C-1225	*	12.25	14	209	160	144	45	●
1588SL10C-1250	*	12.5	14	209	160	144	45	●
1588SL10C-1270	*	12.7	14	209	160	144	45	●
1588SL10C-1275	*	12.75	14	209	160	144	45	●
1588SL10C-1280	*	12.8	14	209	160	144	45	●
1588SL10C-1300	*	13	14	209	160	144	45	●
1588SL10C-1310	*	13.1	14	209	160	144	45	●
1588SL10C-1350	*	13.5	14	209	160	144	45	●
1588SL10C-1380	*	13.8	14	209	160	144	45	●
1588SL10C-1400	*	14	14	209	160	144	45	●

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SL(K) drill 12xD** **General machining** Add K (SLK) to the code for use on Cast Iron

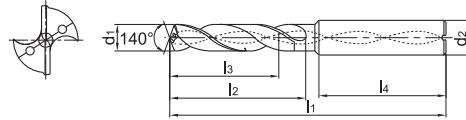
**1588SL12C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	
1588SL12C-0300	*	3	6	90	50	40	36	●
1588SL12C-0310	*	3.1	6	90	50	40	36	●
1588SL12C-0320	*	3.2	6	90	50	40	36	●
1588SL12C-0330	*	3.3	6	90	50	40	36	●
1588SL12C-0340	*	3.4	6	90	50	40	36	●
1588SL12C-0350	*	3.5	6	90	50	40	36	●
1588SL12C-0360	*	3.6	6	90	50	40	36	●
1588SL12C-0370	*	3.7	6	90	50	46	36	●
1588SL12C-0380	*	3.8	6	90	50	46	36	●
1588SL12C-0390	*	3.9	6	90	50	46	36	●
1588SL12C-0400	*	4	6	102	64	56	36	●
1588SL12C-0410	*	4.1	6	102	64	56	36	●
1588SL12C-0420	*	4.2	6	102	64	56	36	●
1588SL12C-0430	*	4.3	6	102	64	56	36	●
1588SL12C-0440	*	4.4	6	102	64	56	36	●
1588SL12C-0450	*	4.5	6	102	64	56	36	●
1588SL12C-0460	*	4.6	6	102	64	56	36	●
1588SL12C-0470	*	4.7	6	102	64	56	36	●
1588SL12C-0480	*	4.8	6	102	64	56	36	●
1588SL12C-0490	*	4.9	6	102	64	56	36	●
1588SL12C-0500	*	5	6	116	78	72	36	●
1588SL12C-0510	*	5.1	6	116	78	72	36	●
1588SL12C-0520	*	5.2	6	116	78	72	36	●
1588SL12C-0530	*	5.3	6	116	78	72	36	○
1588SL12C-0540	*	5.4	6	116	78	72	36	○
1588SL12C-0550	*	5.5	6	116	78	72	36	●
1588SL12C-0560	*	5.6	6	116	78	72	36	●
1588SL12C-0570	*	5.7	6	116	78	72	36	●
1588SL12C-0580	*	5.8	6	116	78	72	36	●
1588SL12C-0590	*	5.9	6	116	78	72	36	●
1588SL12C-0600	*	6	6	116	78	72	36	●
1588SL12C-0610	*	6.1	8	131	93	84	36	●
1588SL12C-0620	*	6.2	8	131	93	84	36	●
1588SL12C-0630	*	6.3	8	131	93	84	36	●
1588SL12C-0640	*	6.4	8	131	93	84	36	●

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SL(K) drill 12xD General machining Add K (SLK) to the code for use on Cast Iron

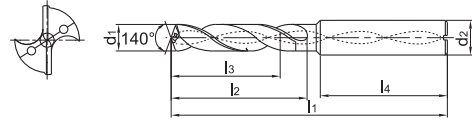
### 1588SL12C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL12C-0650	*	6.5	8	131	93	84	36	●
1588SL12C-0660	*	6.6	8	131	93	84	36	●
1588SL12C-0670	*	6.7	8	131	93	84	36	●
1588SL12C-0680	*	6.8	8	131	93	84	36	●
1588SL12C-0690	*	6.9	8	131	93	84	36	●
1588SL12C-0700	*	7	8	131	93	84	36	●
1588SL12C-0710	*	7.1	8	146	108	96	36	●
1588SL12C-0720	*	7.2	8	146	108	96	36	●
1588SL12C-0730	*	7.3	8	146	108	96	36	●
1588SL12C-0740	*	7.4	8	146	108	96	36	●
1588SL12C-0750	*	7.5	8	146	108	96	36	●
1588SL12C-0760	*	7.6	8	146	108	96	36	○
1588SL12C-0770	*	7.7	8	146	108	96	36	○
1588SL12C-0780	*	7.8	8	146	108	96	36	●
1588SL12C-0790	*	7.9	8	146	108	96	36	○
1588SL12C-0800	*	8	8	146	108	96	36	●
1588SL12C-0810	*	8.1	10	162	120	108	40	●
1588SL12C-0820	*	8.2	10	162	120	108	40	●
1588SL12C-0830	*	8.3	10	162	120	108	40	●
1588SL12C-0840	*	8.4	10	162	120	108	40	●
1588SL12C-0850	*	8.5	10	162	120	108	40	●
1588SL12C-0860	*	8.6	10	162	120	108	40	●
1588SL12C-0870	*	8.7	10	162	120	108	40	●
1588SL12C-0880	*	8.8	10	162	120	108	40	●
1588SL12C-0890	*	8.9	10	162	120	108	40	●
1588SL12C-0900	*	9	10	162	120	108	40	●
1588SL12C-0910	*	9.1	10	174	132	120	40	○
1588SL12C-0920	*	9.2	10	174	132	120	40	●
1588SL12C-0930	*	9.3	10	174	132	120	40	●
1588SL12C-0940	*	9.4	10	174	132	120	40	●
1588SL12C-0950	*	9.5	10	174	132	120	40	●
1588SL12C-0960	*	9.6	10	174	132	120	40	○
1588SL12C-0970	*	9.7	10	174	132	120	40	●
1588SL12C-0980	*	9.8	10	174	132	120	40	●
1588SL12C-0990	*	9.9	10	174	132	120	40	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SL(K) drill 12xD**    **General machining**    Add K (SLK) to the code for use on Cast Iron

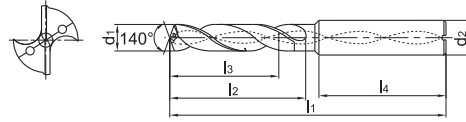
**1588SL12C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL12C-1000	*	10	10	174	132	120	40	●
1588SL12C-1010	*	10.1	12	204	156	144	45	●
1588SL12C-1020	*	10.2	12	204	156	144	45	●
1588SL12C-1030	*	10.3	12	204	156	144	45	●
1588SL12C-1040	*	10.4	12	204	156	144	45	●
1588SL12C-1050	*	10.5	12	204	156	144	45	●
1588SL12C-1060	*	10.6	12	204	156	144	45	●
1588SL12C-1070	*	10.7	12	204	156	144	45	○
1588SL12C-1080	*	10.8	12	204	156	144	45	○
1588SL12C-1090	*	10.9	12	204	156	144	45	○
1588SL12C-1100	*	11	12	204	156	144	45	●
1588SL12C-1110	*	11.1	12	204	156	144	45	●
1588SL12C-1120	*	11.2	12	204	156	144	45	●
1588SL12C-1130	*	11.3	12	204	156	144	45	○
1588SL12C-1140	*	11.4	12	204	156	144	45	○
1588SL12C-1150	*	11.5	12	204	156	144	45	●
1588SL12C-1160	*	11.6	12	204	156	144	45	○
1588SL12C-1170	*	11.7	12	204	156	144	45	●
1588SL12C-1180	*	11.8	12	204	156	144	45	●
1588SL12C-1190	*	11.9	12	204	156	144	45	○
1588SL12C-1200	*	12	12	204	156	144	45	●
1588SL12C-1250	*	12.5	14	230	182	168	45	○
1588SL12C-1270	*	12.7	14	230	182	168	45	○
1588SL12C-1280	*	12.8	14	230	182	168	45	○
1588SL12C-1300	*	13	14	230	182	168	45	○
1588SL12C-1350	*	13.5	14	230	182	168	45	○
1588SL12C-1400	*	14	14	230	182	168	45	○
1588SL12C-1450	*	14.5	16	260	208	194	48	○
1588SL12C-1500	*	15	16	260	208	194	48	○
1588SL12C-1550	*	15.5	16	260	208	194	48	○
1588SL12C-1600	*	16	16	260	208	194	48	○
1588SL12C-1650	*	16.5	18	286	234	218	48	○
1588SL12C-1700	*	17	18	286	234	218	48	○
1588SL12C-1750	*	17.5	18	286	234	218	48	○
1588SL12C-1800	*	18	18	286	234	218	48	○

● Ex stock    ○ On demand

All articles SLK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**A**

**SL(K) drill 12xD** **General machining** Add K (SLK) to the code for use on Cast Iron

Turning

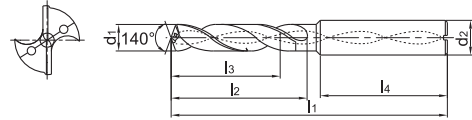
**1588SL12C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



**B**

Milling

Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL12C-1850	*	18.5	20	310	258	240	48	○
1588SL12C-1900	*	19	20	310	258	240	48	○
1588SL12C-1950	*	19.5	20	310	258	240	48	○
1588SL12C-2000	*	20	20	310	258	240	48	○
1588SL12C-2050	*	20.5	22	310	258	240	48	○
1588SL12C-2100	*	21	22	310	258	240	48	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**C**

Drilling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

**D**

Technical Information

**E**

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SL(K) drill 15xD**    **General machining**    Add K (SLK) to the code for use on Cast Iron

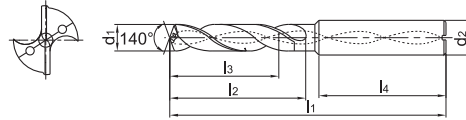
**1588SL15C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL15C-0300	*	3	6	100	60	50	36	●
1588SL15C-0310	*	3.1	6	105	65	55	36	●
1588SL15C-0320	*	3.2	6	105	65	55	36	○
1588SL15C-0330	*	3.3	6	105	65	55	36	●
1588SL15C-0340	*	3.4	6	105	65	55	36	●
1588SL15C-0350	*	3.5	6	105	65	55	36	●
1588SL15C-0360	*	3.6	6	112	72	62	36	○
1588SL15C-0370	*	3.7	6	112	72	68	36	●
1588SL15C-0380	*	3.8	6	112	72	68	36	●
1588SL15C-0390	*	3.9	6	112	72	68	36	○
1588SL15C-0400	*	4	6	112	72	64	36	●
1588SL15C-0410	*	4.1	6	120	80	72	36	○
1588SL15C-0420	*	4.2	6	120	80	72	36	○
1588SL15C-0430	*	4.3	6	120	80	72	36	○
1588SL15C-0440	*	4.4	6	120	80	72	36	○
1588SL15C-0450	*	4.5	6	120	80	72	36	●
1588SL15C-0460	*	4.6	6	128	88	80	36	●
1588SL15C-0470	*	4.7	6	128	88	80	36	○
1588SL15C-0480	*	4.8	6	128	88	80	36	●
1588SL15C-0490	*	4.9	6	128	88	80	36	●
1588SL15C-0500	*	5	6	128	88	82	36	●
1588SL15C-0510	*	5.1	6	136	96	90	36	●
1588SL15C-0520	*	5.2	6	136	96	90	36	○
1588SL15C-0530	*	5.3	6	136	96	90	36	●
1588SL15C-0540	*	5.4	6	136	96	90	36	○
1588SL15C-0550	*	5.5	6	136	96	90	36	○
1588SL15C-0560	*	5.6	6	144	104	98	36	○
1588SL15C-0570	*	5.7	6	144	104	98	36	○
1588SL15C-0580	*	5.8	6	144	104	98	36	○
1588SL15C-0590	*	5.9	6	144	104	98	36	○
1588SL15C-0600	*	6	6	144	104	98	36	○
1588SL15C-0610	*	6.1	8	152	112	103	36	●
1588SL15C-0620	*	6.2	8	152	112	103	36	●
1588SL15C-0630	*	6.3	8	152	112	103	36	○
1588SL15C-0640	*	6.4	8	152	112	103	36	●

● Ex stock    ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SL(K) drill 15xD

General machining

Add K (SLK) to the code for use on Cast Iron

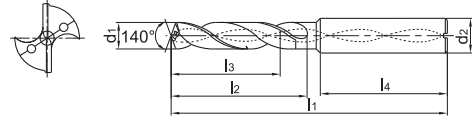
### 1588SL15C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL15C-0650	*	6.5	8	152	112	103	36	●
1588SL15C-0660	*	6.6	8	160	120	111	36	○
1588SL15C-0670	*	6.7	8	160	120	111	36	●
1588SL15C-0680	*	6.8	8	160	120	111	36	○
1588SL15C-0690	*	6.9	8	160	120	111	36	○
1588SL15C-0700	*	7	8	160	120	111	36	●
1588SL15C-0710	*	7.1	8	170	130	118	36	○
1588SL15C-0720	*	7.2	8	170	130	118	36	○
1588SL15C-0730	*	7.3	8	170	130	118	36	○
1588SL15C-0740	*	7.4	8	170	130	118	36	○
1588SL15C-0750	*	7.5	8	170	130	118	36	○
1588SL15C-0760	*	7.6	8	180	140	128	36	○
1588SL15C-0770	*	7.7	8	180	140	128	36	○
1588SL15C-0780	*	7.8	8	180	140	128	36	○
1588SL15C-0790	*	7.9	8	180	140	128	36	○
1588SL15C-0800	*	8	8	180	140	128	36	●
1588SL15C-0810	*	8.1	10	194	150	138	40	○
1588SL15C-0820	*	8.2	10	194	150	138	40	○
1588SL15C-0830	*	8.3	10	194	150	138	40	○
1588SL15C-0840	*	8.4	10	194	150	138	40	○
1588SL15C-0850	*	8.5	10	194	150	138	40	●
1588SL15C-0860	*	8.6	10	204	160	148	40	●
1588SL15C-0870	*	8.7	10	204	160	148	40	○
1588SL15C-0880	*	8.8	10	204	160	148	40	●
1588SL15C-0890	*	8.9	10	204	160	148	40	○
1588SL15C-0900	*	9	10	204	160	148	40	○
1588SL15C-0910	*	9.1	10	216	172	160	40	○
1588SL15C-0920	*	9.2	10	216	172	160	40	○
1588SL15C-0930	*	9.3	10	216	172	160	40	○
1588SL15C-0940	*	9.4	10	216	172	160	40	○
1588SL15C-0950	*	9.5	10	216	172	160	40	○
1588SL15C-0960	*	9.6	10	226	182	170	40	○
1588SL15C-0970	*	9.7	10	226	182	170	40	○
1588SL15C-0980	*	9.8	10	226	182	170	40	○
1588SL15C-0990	*	9.9	10	226	182	170	40	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

#### Application field

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



**SL(K) drill 15xD** **General machining** Add K (SLK) to the code for use on Cast Iron

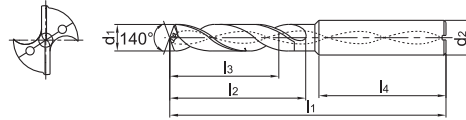
**1588SL15C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL15C-1000	*	10	10	226	182	170	40	●
1588SL15C-1010	*	10.1	12	240	190	178	45	○
1588SL15C-1020	*	10.2	12	240	190	178	45	○
1588SL15C-1030	*	10.3	12	240	190	178	45	○
1588SL15C-1040	*	10.4	12	240	190	178	45	○
1588SL15C-1050	*	10.5	12	240	190	178	45	○
1588SL15C-1060	*	10.6	12	248	198	186	45	○
1588SL15C-1070	*	10.7	12	248	198	186	45	○
1588SL15C-1080	*	10.8	12	248	198	186	45	○
1588SL15C-1090	*	10.9	12	248	198	186	45	○
1588SL15C-1100	*	11	12	248	198	186	45	●
1588SL15C-1110	*	11.1	12	262	212	200	45	○
1588SL15C-1120	*	11.2	12	262	212	200	45	○
1588SL15C-1130	*	11.3	12	262	212	200	45	○
1588SL15C-1140	*	11.4	12	262	212	200	45	○
1588SL15C-1150	*	11.5	12	262	212	200	45	●
1588SL15C-1160	*	11.6	12	272	222	210	45	○
1588SL15C-1170	*	11.7	12	272	222	210	45	○
1588SL15C-1180	*	11.8	12	272	222	210	45	○
1588SL15C-1190	*	11.9	12	272	222	210	45	○
1588SL15C-1200	*	12	12	272	222	210	45	●

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**SL(K) drill 20xD** **General machining** Add K (SLK) to the code for use on Cast Iron

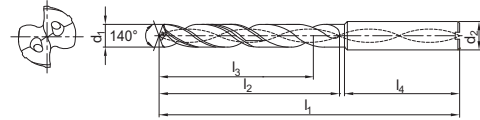
**1588SL20C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL20C-0300	*	3	6	110	70	62	36	●
1588SL20C-0310	*	3.1	6	123	83	72	36	●
1588SL20C-0320	*	3.2	6	123	83	72	36	●
1588SL20C-0330	*	3.3	6	123	83	72	36	●
1588SL20C-0340	*	3.4	6	123	83	72	36	●
1588SL20C-0350	*	3.5	6	123	83	72	36	●
1588SL20C-0360	*	3.6	6	136	96	84	36	●
1588SL20C-0370	*	3.7	6	136	96	84	36	●
1588SL20C-0380	*	3.8	6	136	96	84	36	●
1588SL20C-0390	*	3.9	6	136	96	84	36	●
1588SL20C-0400	*	4	6	136	96	84	36	●
1588SL20C-0410	*	4.1	6	148	108	96	36	●
1588SL20C-0420	*	4.2	6	148	108	96	36	●
1588SL20C-0430	*	4.3	6	148	108	96	36	○
1588SL20C-0440	*	4.4	6	148	108	96	36	○
1588SL20C-0450	*	4.5	6	148	108	96	36	●
1588SL20C-0460	*	4.6	6	158	118	106	36	○
1588SL20C-0470	*	4.7	6	158	118	106	36	○
1588SL20C-0480	*	4.8	6	158	118	106	36	●
1588SL20C-0490	*	4.9	6	158	118	106	36	○
1588SL20C-0500	*	5	6	158	118	106	36	●
1588SL20C-0510	*	5.1	6	168	128	116	36	○
1588SL20C-0520	*	5.2	6	168	128	116	36	●
1588SL20C-0530	*	5.3	6	168	128	116	36	●
1588SL20C-0540	*	5.4	6	168	128	116	36	●
1588SL20C-0550	*	5.5	6	168	128	116	36	●
1588SL20C-0560	*	5.6	6	180	140	126	36	○
1588SL20C-0570	*	5.7	6	180	140	126	36	○
1588SL20C-0580	*	5.8	6	180	140	126	36	●
1588SL20C-0590	*	5.9	6	180	140	126	36	○
1588SL20C-0600	*	6	6	180	140	126	36	●
1588SL20C-0610	*	6.1	8	192	150	132	36	○
1588SL20C-0620	*	6.2	8	192	150	132	36	○
1588SL20C-0630	*	6.3	8	192	150	132	36	○
1588SL20C-0640	*	6.4	8	192	150	132	36	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**SL(K) drill 20xD** **General machining** Add K (SLK) to the code for use on Cast Iron

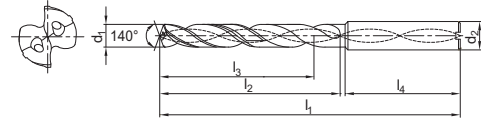
**1588SL20C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL20C-0650	*	6.5	8	192	150	132	36	●
1588SL20C-0660	*	6.6	8	202	162	144	36	○
1588SL20C-0670	*	6.7	8	202	162	144	36	○
1588SL20C-0680	*	6.8	8	202	162	144	36	●
1588SL20C-0690	*	6.9	8	202	162	144	36	○
1588SL20C-0700	*	7	8	202	162	144	36	●
1588SL20C-0710	*	7.1	8	213	173	155	36	○
1588SL20C-0720	*	7.2	8	213	173	155	36	○
1588SL20C-0730	*	7.3	8	213	173	155	36	○
1588SL20C-0740	*	7.4	8	213	173	155	36	○
1588SL20C-0750	*	7.5	8	213	173	155	36	●
1588SL20C-0760	*	7.6	8	223	183	165	36	○
1588SL20C-0770	*	7.7	8	223	183	165	36	○
1588SL20C-0780	*	7.8	8	223	183	165	36	○
1588SL20C-0790	*	7.9	8	223	183	165	36	○
1588SL20C-0800	*	8	8	223	183	165	36	●
1588SL20C-0810	*	8.1	10	239	195	176	40	○
1588SL20C-0820	*	8.2	10	239	195	176	40	○
1588SL20C-0830	*	8.3	10	239	195	176	40	○
1588SL20C-0840	*	8.4	10	239	195	176	40	○
1588SL20C-0850	*	8.5	10	239	195	176	40	●
1588SL20C-0860	*	8.6	10	249	205	186	40	○
1588SL20C-0870	*	8.7	10	249	205	186	40	○
1588SL20C-0880	*	8.8	10	249	205	186	40	○
1588SL20C-0890	*	8.9	10	249	205	186	40	○
1588SL20C-0900	*	9	10	249	205	186	40	○
1588SL20C-0910	*	9.1	10	262	218	196	36	○
1588SL20C-0920	*	9.2	10	262	218	196	36	○
1588SL20C-0930	*	9.3	10	262	218	196	36	○
1588SL20C-0940	*	9.4	10	262	218	196	36	○
1588SL20C-0950	*	9.5	10	262	218	196	36	○
1588SL20C-0960	*	9.6	10	272	228	206	40	○
1588SL20C-0970	*	9.7	10	272	228	206	40	○
1588SL20C-0980	*	9.8	10	272	228	206	40	○
1588SL20C-0990	*	9.9	10	272	228	206	40	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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**SL(K) drill 20xD** **General machining** Add K (SLK) to the code for use on Cast Iron

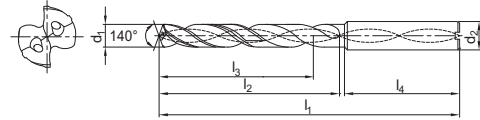
**1588SL20C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL20C-1000	*	10	10	272	228	206	40	●
1588SL20C-1010	*	10.1	12	292	242	220	45	○
1588SL20C-1020	*	10.2	12	292	242	220	45	○
1588SL20C-1030	*	10.3	12	292	242	220	45	○
1588SL20C-1040	*	10.4	12	292	242	220	45	○
1588SL20C-1050	*	10.5	12	292	242	220	45	○
1588SL20C-1060	*	10.6	12	300	250	228	45	○
1588SL20C-1070	*	10.7	12	300	250	228	45	○
1588SL20C-1080	*	10.8	12	300	250	228	45	○
1588SL20C-1090	*	10.9	12	300	250	228	45	○
1588SL20C-1100	*	11	12	300	250	228	45	○
1588SL20C-1110	*	11.1	12	315	265	240	45	○
1588SL20C-1120	*	11.2	12	315	265	240	45	○
1588SL20C-1130	*	11.3	12	315	265	240	45	○
1588SL20C-1140	*	11.4	12	315	265	240	45	○
1588SL20C-1150	*	11.5	12	315	265	240	45	○
1588SL20C-1160	*	11.6	12	325	275	250	45	○
1588SL20C-1170	*	11.7	12	325	275	250	45	○
1588SL20C-1180	*	11.8	12	325	275	250	45	○
1588SL20C-1190	*	11.9	12	325	275	250	45	○
1588SL20C-1200	*	12	12	325	275	250	45	○
1588SL20C-1250	*	12.5	14	325	275	250	45	○
1588SL20C-1300	*	13	14	338	290	265	45	○
1588SL20C-1350	*	13.5	14	338	290	265	45	○
1588SL20C-1400	*	14	14	367	318	290	45	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

**Application field**

Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

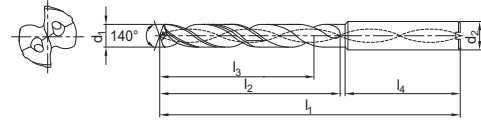
Nonstandard order > C178

**SL(K) drill 30xD** **General machining** Add K (SLK) to the code for use on Cast Iron

**1588SL30C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL30C-0300	*	3	6	140	100	92	36	●
1588SL30C-0310	*	3.1	6	160	120	108	36	○
1588SL30C-0320	*	3.2	6	160	120	108	36	●
1588SL30C-0330	*	3.3	6	160	120	108	36	○
1588SL30C-0340	*	3.4	6	160	120	108	36	●
1588SL30C-0350	*	3.5	6	160	120	108	36	●
1588SL30C-0360	*	3.6	6	176	136	124	36	○
1588SL30C-0370	*	3.7	6	176	136	124	36	○
1588SL30C-0380	*	3.8	6	176	136	124	36	●
1588SL30C-0390	*	3.9	6	176	136	124	36	●
1588SL30C-0400	*	4	6	176	136	124	36	●
1588SL30C-0410	*	4.1	6	192	152	140	36	○
1588SL30C-0420	*	4.2	6	192	152	140	36	○
1588SL30C-0430	*	4.3	6	192	152	140	36	○
1588SL30C-0440	*	4.4	6	192	152	140	36	○
1588SL30C-0450	*	4.5	6	192	152	140	36	●
1588SL30C-0460	*	4.6	6	208	168	156	36	○
1588SL30C-0470	*	4.7	6	208	168	156	36	○
1588SL30C-0480	*	4.8	6	208	168	156	36	●
1588SL30C-0490	*	4.9	6	208	168	156	36	●
1588SL30C-0500	*	5	6	208	168	156	36	●
1588SL30C-0510	*	5.1	6	228	188	170	36	○
1588SL30C-0520	*	5.2	6	228	188	170	36	●
1588SL30C-0530	*	5.3	6	228	188	170	36	○
1588SL30C-0540	*	5.4	6	228	188	170	36	○
1588SL30C-0550	*	5.5	6	228	188	170	36	●
1588SL30C-0560	*	5.6	6	240	200	182	36	○
1588SL30C-0570	*	5.7	6	240	200	182	36	○
1588SL30C-0580	*	5.8	6	240	200	182	36	●
1588SL30C-0590	*	5.9	6	240	200	182	36	○
1588SL30C-0600	*	6	6	240	200	182	36	●
1588SL30C-0610	*	6.1	8	260	220	202	36	○
1588SL30C-0620	*	6.2	8	260	220	202	36	○
1588SL30C-0630	*	6.3	8	260	220	202	36	●
1588SL30C-0640	*	6.4	8	260	220	202	36	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SL(K) drill 30xD General machining Add K (SLK) to the code for use on Cast Iron

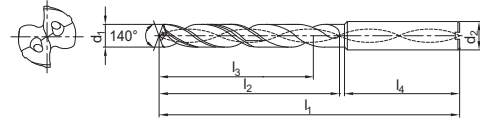
### 1588SL30C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1588SL30C-0650	*	6.5	8	260	220	202	36	●
1588SL30C-0660	*	6.6	8	272	232	214	36	○
1588SL30C-0670	*	6.7	8	272	232	214	36	○
1588SL30C-0680	*	6.8	8	272	232	214	36	●
1588SL30C-0690	*	6.9	8	272	232	214	36	○
1588SL30C-0700	*	7	8	272	232	214	36	●
1588SL30C-0710	*	7.1	8	290	250	232	36	○
1588SL30C-0720	*	7.2	8	290	250	232	36	○
1588SL30C-0730	*	7.3	8	290	250	232	36	○
1588SL30C-0740	*	7.4	8	290	250	232	36	○
1588SL30C-0750	*	7.5	8	290	250	232	36	○
1588SL30C-0760	*	7.6	8	305	265	246	36	○
1588SL30C-0770	*	7.7	8	305	265	246	36	○
1588SL30C-0780	*	7.8	8	305	265	246	36	○
1588SL30C-0790	*	7.9	8	305	265	246	36	○
1588SL30C-0800	*	8	8	305	265	246	36	●
1588SL30C-0810	*	8.1	10	330	285	265	40	○
1588SL30C-0820	*	8.2	10	330	285	265	40	○
1588SL30C-0830	*	8.3	10	330	285	265	40	○
1588SL30C-0840	*	8.4	10	330	285	265	40	○
1588SL30C-0850	*	8.5	10	330	285	265	40	●
1588SL30C-0860	*	8.6	10	340	295	275	40	○
1588SL30C-0870	*	8.7	10	340	295	275	40	○
1588SL30C-0880	*	8.8	10	340	295	275	40	○
1588SL30C-0890	*	8.9	10	340	295	275	40	○
1588SL30C-0900	*	9	10	340	295	275	40	○
1588SL30C-0910	*	9.1	10	360	315	292	40	○
1588SL30C-0920	*	9.2	10	360	315	292	40	○
1588SL30C-0930	*	9.3	10	360	315	292	40	○
1588SL30C-0940	*	9.4	10	360	315	292	40	○
1588SL30C-0950	*	9.5	10	360	315	292	40	○
1588SL30C-0960	*	9.6	10	372	328	305	40	○
1588SL30C-0970	*	9.7	10	372	328	305	40	○
1588SL30C-0980	*	9.8	10	372	328	305	40	○
1588SL30C-0990	*	9.9	10	372	328	305	40	○
1588SL30C-1000	*	10	10	372	328	305	40	○

● Ex stock ○ On demand

All articles SLK on demand

\* With internal cooling

Application field						
Type	P	M	K	N	S	H
1588SL*	✓	✓	✓	✓	✓	
1588SLK*			✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SP drill 3xD

General machining

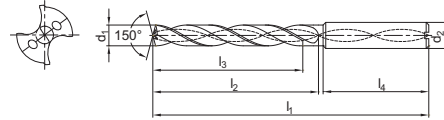
1534SP03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade KDG303
		d <sub>1</sub> (h7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	
1534SP03C-0303	*	3.03	6	62	20	14	36	●
1534SP03C-0313	*	3.13	6	62	20	14	36	○
1534SP03C-0323	*	3.23	6	62	20	14	36	○
1534SP03C-0333	*	3.33	6	62	20	14	36	●
1534SP03C-0343	*	3.43	6	62	20	14	36	●
1534SP03C-0353	*	3.53	6	62	20	14	36	●
1534SP03C-0363	*	3.63	6	62	20	14	36	○
1534SP03C-0373	*	3.73	6	62	20	14	36	○
1534SP03C-0383	*	3.83	6	66	24	17	36	○
1534SP03C-0393	*	3.93	6	66	24	17	36	○
1534SP03C-0403	*	4.03	6	66	24	17	36	●
1534SP03C-0413	*	4.13	6	66	24	17	36	○
1534SP03C-0423	*	4.23	6	66	24	17	36	○
1534SP03C-0433	*	4.33	6	66	24	17	36	○
1534SP03C-0443	*	4.43	6	66	24	17	36	○
1534SP03C-0453	*	4.53	6	66	24	17	36	●
1534SP03C-0463	*	4.63	6	66	24	17	36	○
1534SP03C-0473	*	4.73	6	66	24	17	36	○
1534SP03C-0483	*	4.83	6	66	28	20	36	○
1534SP03C-0493	*	4.93	6	66	28	20	36	○
1534SP03C-0503	*	5.03	6	66	28	20	36	●
1534SP03C-0513	*	5.13	6	66	28	20	36	○
1534SP03C-0523	*	5.23	6	66	28	20	36	○
1534SP03C-0533	*	5.33	6	66	28	20	36	○
1534SP03C-0543	*	5.43	6	66	28	20	36	○
1534SP03C-0553	*	5.53	6	66	28	20	36	●
1534SP03C-0563	*	5.63	6	66	28	20	36	○
1534SP03C-0573	*	5.73	6	66	28	20	36	○
1534SP03C-0583	*	5.83	6	66	28	20	36	○
1534SP03C-0593	*	5.93	6	66	28	20	36	○
1534SP03C-0603	*	6.03	6	66	28	20	36	●
1534SP03C-0613	*	6.13	8	79	34	24	36	○
1534SP03C-0623	*	6.23	8	79	34	24	36	○
1534SP03C-0633	*	6.33	8	79	34	24	36	○
1534SP03C-0643	*	6.43	8	79	34	24	36	○
1534SP03C-0653	*	6.53	8	79	34	24	36	●
1534SP03C-0663	*	6.63	8	79	34	24	36	○

● Ex stock ○ On demand

Pilot drill Ø = Deep drill Ø + 0,03 mm

\* With internal cooling

Application field

P	M	K	N	S	H
✓	✓	✓	✓	✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



## SP drill 3xD

## General machining

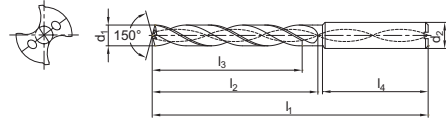
### 1534SP03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (h7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SP03C-0673	*	6.73	8	79	34	24	36	○
1534SP03C-0683	*	6.83	8	79	34	24	36	○
1534SP03C-0693	*	6.93	8	79	34	24	36	○
1534SP03C-0703	*	7.03	8	79	34	24	36	●
1534SP03C-0713	*	7.13	8	79	41	29	36	○
1534SP03C-0723	*	7.23	8	79	41	29	36	○
1534SP03C-0733	*	7.33	8	79	41	29	36	●
1534SP03C-0743	*	7.43	8	79	41	29	36	○
1534SP03C-0753	*	7.53	8	79	41	29	36	●
1534SP03C-0763	*	7.63	8	79	41	29	36	○
1534SP03C-0773	*	7.73	8	79	41	29	36	○
1534SP03C-0783	*	7.83	8	79	41	29	36	○
1534SP03C-0793	*	7.93	8	79	41	29	36	○
1534SP03C-0803	*	8.03	8	79	41	29	36	●
1534SP03C-0813	*	8.13	10	89	47	35	40	○
1534SP03C-0823	*	8.23	10	89	47	35	40	○
1534SP03C-0833	*	8.33	10	89	47	35	40	●
1534SP03C-0843	*	8.43	10	89	47	35	40	○
1534SP03C-0853	*	8.53	10	89	47	35	40	○
1534SP03C-0863	*	8.63	10	89	47	35	40	○
1534SP03C-0873	*	8.73	10	89	47	35	40	○
1534SP03C-0883	*	8.83	10	89	47	35	40	●
1534SP03C-0893	*	8.93	10	89	47	35	40	○
1534SP03C-0903	*	9.03	10	89	47	35	40	●
1534SP03C-0913	*	9.13	10	89	47	35	40	○
1534SP03C-0923	*	9.23	10	89	47	35	40	○
1534SP03C-0933	*	9.33	10	89	47	35	40	○
1534SP03C-0943	*	9.43	10	89	47	35	40	○
1534SP03C-0953	*	9.53	10	89	47	35	40	●
1534SP03C-0963	*	9.63	10	89	47	35	40	○
1534SP03C-0973	*	9.73	10	89	47	35	40	●
1534SP03C-0983	*	9.83	10	89	47	35	40	●
1534SP03C-0993	*	9.93	10	89	47	35	40	○
1534SP03C-1003	*	10.03	10	89	47	35	40	●
1534SP03C-1013	*	10.13	12	102	55	40	45	○
1534SP03C-1023	*	10.23	12	102	55	40	45	○
1534SP03C-1033	*	10.33	12	102	55	40	45	○

● Ex stock ○ On demand

Pilot drill Ø = Deep drill Ø + 0,03 mm

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓	✓	✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SP drill 3xD

General machining

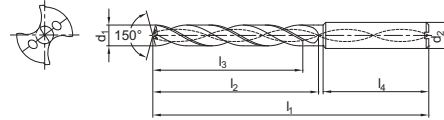
1534SP03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (h7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SP03C-1043	*	10.43	12	102	55	40	45	○
1534SP03C-1053	*	10.53	12	102	55	40	45	●
1534SP03C-1063	*	10.63	12	102	55	40	45	○
1534SP03C-1073	*	10.73	12	102	55	40	45	○
1534SP03C-1083	*	10.83	12	102	55	40	45	●
1534SP03C-1093	*	10.93	12	102	55	40	45	○
1534SP03C-1103	*	11.03	12	102	55	40	45	●
1534SP03C-1113	*	11.13	12	102	55	40	45	○
1534SP03C-1123	*	11.23	12	102	55	40	45	○
1534SP03C-1133	*	11.33	12	102	55	40	45	○
1534SP03C-1143	*	11.43	12	102	55	40	45	○
1534SP03C-1153	*	11.53	12	102	55	40	45	●
1534SP03C-1163	*	11.63	12	102	55	40	45	○
1534SP03C-1173	*	11.73	12	102	55	40	45	○
1534SP03C-1183	*	11.83	12	102	55	40	45	●
1534SP03C-1193	*	11.93	12	102	55	40	45	○
1534SP03C-1203	*	12.03	12	102	55	40	45	●
1534SP03C-1213	*	12.13	14	107	60	43	45	○
1534SP03C-1223	*	12.23	14	107	60	43	45	○
1534SP03C-1233	*	12.33	14	107	60	43	45	○
1534SP03C-1243	*	12.43	14	107	60	43	45	○
1534SP03C-1253	*	12.53	14	107	60	43	45	●
1534SP03C-1263	*	12.63	14	107	60	43	45	○
1534SP03C-1273	*	12.73	14	107	60	43	45	○
1534SP03C-1283	*	12.83	14	107	60	43	45	○
1534SP03C-1293	*	12.93	14	107	60	43	45	○
1534SP03C-1303	*	13.03	14	107	60	43	45	○
1534SP03C-1353	*	13.53	14	107	60	43	45	○
1534SP03C-1403	*	14.03	14	107	60	43	45	○
1534SP03C-1453	*	14.53	16	115	65	45	48	○
1534SP03C-1503	*	15.03	16	115	65	45	48	○
1534SP03C-1553	*	15.53	16	115	65	45	48	○
1534SP03C-1603	*	16.03	16	115	65	45	48	○
1534SP03C-1653	*	16.53	18	123	73	51	48	○
1534SP03C-1703	*	17.03	18	123	73	51	48	○
1534SP03C-1753	*	17.53	18	123	73	51	48	○
1534SP03C-1803	*	18.03	18	123	73	51	48	○

● Ex stock ○ On demand

Pilot drill Ø = Deep drill Ø + 0,03 mm

\* With internal cooling

Application field

P	M	K	N	S	H
✓	✓	✓	✓	✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



**A**

SP drill 3xD

General machining

Turning

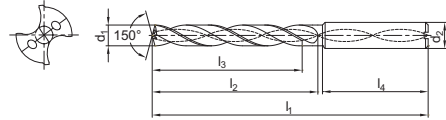
1534SP03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



**B**

Milling

Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (h7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SP03C-1853	*	18.53	20	131	79	55	50	○
1534SP03C-1903	*	19.03	20	131	79	55	50	○
1534SP03C-1953	*	19.53	20	131	79	55	50	○
1534SP03C-2003	*	20.03	20	131	79	55	50	○

- Ex stock ○ On demand

Pilot drill Ø = Deep drill Ø + 0,03 mm

- \* With internal cooling

**C**

Drilling

Application field

P	M	K	N	S	H
✓	✓	✓	✓	✓	

✓ Very suitable

✓ Suitable

**D**

Technical Information

**E**

Index

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

# ST series

## Twist drills with sharp cutting edge

- For machining of tough steel, stainless steel and heat-resistant alloys.
- Diameter range 3.0–20.0 mm (3xD, 5xD)



Straight cut

### Chip comparison



Chip (competitor A)



1534ST03C-1000 chip (ZCC-CT)

1536ST

## ST drill 3xD

Steel, stainless steel, heat-resistant alloys

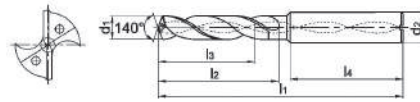
### 1534ST03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]				Grade		
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>		l <sub>3</sub>	l <sub>4</sub>
1534ST03C-0300	*	3	6	62	20	14	36	●
1534ST03C-0310	*	3.1	6	62	20	14	36	●
1534ST03C-0320	*	3.2	6	62	20	14	36	●
1534ST03C-0325	*	3.25	6	62	20	14	36	○
1534ST03C-0330	*	3.3	6	62	20	14	36	●
1534ST03C-0340	*	3.4	6	62	20	14	36	●
1534ST03C-0350	*	3.5	6	62	20	14	36	●
1534ST03C-0360	*	3.6	6	62	20	14	36	●
1534ST03C-0370	*	3.7	6	62	20	14	36	●
1534ST03C-0380	*	3.8	6	66	24	17	36	●
1534ST03C-0390	*	3.9	6	66	24	17	36	●
1534ST03C-0400	*	4	6	66	24	17	36	●
1534ST03C-0410	*	4.1	6	66	24	17	36	●
1534ST03C-0420	*	4.2	6	66	24	17	36	●
1534ST03C-0430	*	4.3	6	66	24	17	36	●
1534ST03C-0440	*	4.4	6	66	24	17	36	●
1534ST03C-0450	*	4.5	6	66	24	17	36	●
1534ST03C-0460	*	4.6	6	66	24	17	36	●
1534ST03C-0465	*	4.65	6	66	24	17	36	○
1534ST03C-0470	*	4.7	6	66	24	17	36	●
1534ST03C-0480	*	4.8	6	66	28	20	36	●
1534ST03C-0490	*	4.9	6	66	28	20	36	●
1534ST03C-0500	*	5	6	66	28	20	36	●
1534ST03C-0510	*	5.1	6	66	28	20	36	●
1534ST03C-0520	*	5.2	6	66	28	20	36	●
1534ST03C-0530	*	5.3	6	66	28	20	36	●
1534ST03C-0540	*	5.4	6	66	28	20	36	●
1534ST03C-0550	*	5.5	6	66	28	20	36	●
1534ST03C-0555	*	5.55	6	66	28	20	36	○
1534ST03C-0560	*	5.6	6	66	28	20	36	●
1534ST03C-0570	*	5.7	6	66	28	20	36	●
1534ST03C-0580	*	5.8	6	66	28	20	36	●
1534ST03C-0590	*	5.9	6	66	28	20	36	●
1534ST03C-0600	*	6	6	66	28	20	36	●
1534ST03C-0610	*	6.1	8	79	34	24	36	○
1534ST03C-0620	*	6.2	8	79	34	24	36	●
1534ST03C-0630	*	6.3	8	79	34	24	36	●

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**ST drill 3xD**

**Steel, stainless steel, heat-resistant alloys**

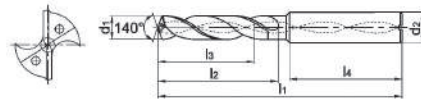
**1534ST03C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534ST03C-0640	*	6.4	8	79	34	24	36	●
1534ST03C-0650	*	6.5	8	79	34	24	36	●
1534ST03C-0660	*	6.6	8	79	34	24	36	●
1534ST03C-0670	*	6.7	8	79	34	24	36	●
1534ST03C-0675	*	6.75	8	79	34	24	36	○
1534ST03C-0690	*	6.9	8	79	34	24	36	●
1534ST03C-0700	*	7	8	79	34	24	36	●
1534ST03C-0710	*	7.1	8	79	41	29	36	●
1534ST03C-0720	*	7.2	8	79	41	29	36	●
1534ST03C-0730	*	7.3	8	79	41	29	36	●
1534ST03C-0740	*	7.4	8	79	41	29	36	●
1534ST03C-0750	*	7.5	8	79	41	29	36	●
1534ST03C-0760	*	7.6	8	79	41	29	36	●
1534ST03C-0770	*	7.7	8	79	41	29	36	●
1534ST03C-0780	*	7.8	8	79	41	29	36	●
1534ST03C-0790	*	7.9	8	79	41	29	36	●
1534ST03C-0800	*	8	8	79	41	29	36	●
1534ST03C-0810	*	8.1	10	89	47	35	40	●
1534ST03C-0820	*	8.2	10	89	47	35	40	●
1534ST03C-0830	*	8.3	10	89	47	35	40	●
1534ST03C-0840	*	8.4	10	89	47	35	40	●
1534ST03C-0850	*	8.5	10	89	47	35	40	●
1534ST03C-0860	*	8.6	10	89	47	35	40	●
1534ST03C-0870	*	8.7	10	89	47	35	40	●
1534ST03C-0880	*	8.8	10	89	47	35	40	●
1534ST03C-0890	*	8.9	10	89	47	35	40	●
1534ST03C-0900	*	9	10	89	47	35	40	○
1534ST03C-0910	*	9.1	10	89	47	35	40	●
1534ST03C-0930	*	9.3	10	89	47	35	40	●
1534ST03C-0940	*	9.4	10	89	47	35	40	●
1534ST03C-0950	*	9.5	10	89	47	35	40	●
1534ST03C-0960	*	9.6	10	89	47	35	40	●
1534ST03C-0970	*	9.7	10	89	47	35	40	●
1534ST03C-0980	*	9.8	10	89	47	35	40	●
1534ST03C-0990	*	9.9	10	89	47	35	40	●
1534ST03C-1000	*	10	10	89	47	35	40	●
1534ST03C-1010	*	10.1	12	102	55	40	45	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



A

Turning

B

Milling

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Drilling

D

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## ST drill 3xD

Steel, stainless steel, heat-resistant alloys

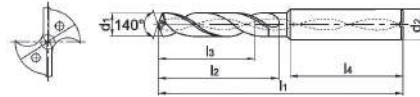
### 1534ST03C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534ST03C-1025	*	10.25	12	102	55	40	45	●
1534ST03C-1030	*	10.3	12	102	55	40	45	●
1534ST03C-1040	*	10.4	12	102	55	40	45	●
1534ST03C-1050	*	10.5	12	102	55	40	45	○
1534ST03C-1060	*	10.6	12	102	55	40	45	●
1534ST03C-1070	*	10.7	12	102	55	40	45	●
1534ST03C-1080	*	10.8	12	102	55	40	45	●
1534ST03C-1090	*	10.9	12	102	55	40	45	●
1534ST03C-1100	*	11	12	102	55	40	45	●
1534ST03C-1110	*	11.1	12	102	55	40	45	●
1534ST03C-1120	*	11.2	12	102	55	40	45	●
1534ST03C-1130	*	11.3	12	102	55	40	45	●
1534ST03C-1140	*	11.4	12	102	55	40	45	●
1534ST03C-1150	*	11.5	12	102	55	40	45	●
1534ST03C-1160	*	11.6	12	102	55	40	45	●
1534ST03C-1170	*	11.7	12	102	55	40	45	●
1534ST03C-1180	*	11.8	12	102	55	40	45	●
1534ST03C-1190	*	11.9	12	102	55	40	45	●
1534ST03C-1200	*	12	12	102	55	40	45	●
1534ST03C-1225	*	12.25	14	107	60	43	45	●
1534ST03C-1230	*	12.3	14	107	60	43	45	●
1534ST03C-1250	*	12.5	14	107	60	43	45	●
1534ST03C-1270	*	12.7	14	107	60	43	45	●
1534ST03C-1275	*	12.75	14	107	60	43	45	●
1534ST03C-1280	*	12.8	14	107	60	43	45	●
1534ST03C-1300	*	13	14	107	60	43	45	○
1534ST03C-1310	*	13.1	14	107	60	43	45	●
1534ST03C-1350	*	13.5	14	107	60	43	45	●
1534ST03C-1380	*	13.8	14	107	60	43	45	●
1534ST03C-1400	*	14	14	107	60	43	45	●
1534ST03C-1425	*	14.25	16	115	65	45	48	●
1534ST03C-1430	*	14.3	16	115	65	45	48	●
1534ST03C-1450	*	14.5	16	115	65	45	48	●
1534ST03C-1475	*	14.75	16	115	65	45	48	●
1534ST03C-1480	*	14.8	16	115	65	45	48	●
1534ST03C-1500	*	15	16	115	65	45	48	●
1534ST03C-1510	*	15.1	16	115	65	45	48	●

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**ST drill 3xD** **Steel, stainless steel, heat-resistant alloys**

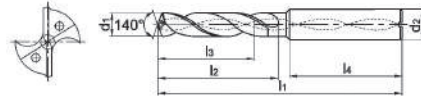
**1534ST03C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534ST03C-1550	*	15.5	16	115	65	45	48	●
1534ST03C-1580	*	15.8	16	115	65	45	48	●
1534ST03C-1600	*	16	16	115	65	45	48	●
1534ST03C-1650	*	16.5	18	123	73	51	48	●
1534ST03C-1675	*	16.75	18	123	73	51	48	●
1534ST03C-1680	*	16.8	18	123	73	51	48	●
1534ST03C-1700	*	17	18	123	73	51	48	●
1534ST03C-1750	*	17.5	18	123	73	51	48	●
1534ST03C-1780	*	17.8	18	123	73	51	48	●
1534ST03C-1800	*	18	18	123	73	51	48	●
1534ST03C-1850	*	18.5	20	131	79	55	50	●
1534ST03C-1880	*	18.8	20	131	79	55	50	●
1534ST03C-1900	*	19	20	131	79	55	50	●
1534ST03C-1950	*	19.5	20	131	79	55	50	●
1534ST03C-1980	*	19.8	20	131	79	55	50	●
1534ST03C-2000	*	20	20	131	79	55	50	●

- Ex stock ○ On demand
- \* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

- ✓ Very suitable
- ✓ Suitable



## ST drill 5xD

Steel, stainless steel, heat-resistant alloys

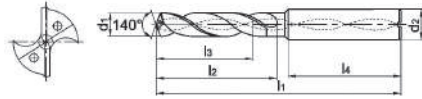
### 1536ST05C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536ST05C-0300	*	3	6	66	28	23	36	●
1536ST05C-0310	*	3.1	6	66	28	23	36	●
1536ST05C-0320	*	3.2	6	66	28	23	36	●
1536ST05C-0325	*	3.25	6	66	28	23	36	○
1536ST05C-0330	*	3.3	6	66	28	23	36	●
1536ST05C-0340	*	3.4	6	66	28	23	36	●
1536ST05C-0350	*	3.5	6	66	28	23	36	●
1536ST05C-0360	*	3.6	6	66	28	23	36	●
1536ST05C-0370	*	3.7	6	66	28	23	36	●
1536ST05C-0380	*	3.8	6	74	36	29	36	●
1536ST05C-0390	*	3.9	6	74	36	29	36	●
1536ST05C-0400	*	4	6	74	36	29	36	●
1536ST05C-0410	*	4.1	6	74	36	29	36	●
1536ST05C-0420	*	4.2	6	74	36	29	36	●
1536ST05C-0430	*	4.3	6	74	36	29	36	●
1536ST05C-0440	*	4.4	6	74	36	29	36	●
1536ST05C-0450	*	4.5	6	74	36	29	36	●
1536ST05C-0460	*	4.6	6	74	36	29	36	●
1536ST05C-0465	*	4.65	6	74	36	29	36	○
1536ST05C-0470	*	4.7	6	74	36	29	36	●
1536ST05C-0480	*	4.8	6	82	44	35	36	●
1536ST05C-0490	*	4.9	6	82	44	35	36	●
1536ST05C-0500	*	5	6	82	44	35	36	●
1536ST05C-0510	*	5.1	6	82	44	35	36	●
1536ST05C-0520	*	5.2	6	82	44	35	36	●
1536ST05C-0530	*	5.3	6	82	44	35	36	●
1536ST05C-0540	*	5.4	6	82	44	35	36	●
1536ST05C-0550	*	5.5	6	82	44	35	36	●
1536ST05C-0555	*	5.55	6	82	44	35	36	○
1536ST05C-0560	*	5.6	6	82	44	35	36	●
1536ST05C-0570	*	5.7	6	82	44	35	36	●
1536ST05C-0580	*	5.8	6	82	44	35	36	●
1536ST05C-0590	*	5.9	6	82	44	35	36	●
1536ST05C-0600	*	6	6	82	44	35	36	●
1536ST05C-0610	*	6.1	8	91	53	43	36	●
1536ST05C-0620	*	6.2	8	91	53	43	36	●
1536ST05C-0630	*	6.3	8	91	53	43	36	●

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



**ST drill 5xD**

**Steel, stainless steel, heat-resistant alloys**

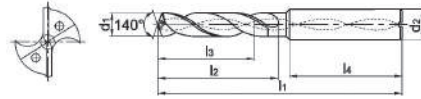
**1536ST05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade KDG303
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	
1536ST05C-0640	*	6.4	8	91	53	43	36	●
1536ST05C-0650	*	6.5	8	91	53	43	36	●
1536ST05C-0660	*	6.6	8	91	53	43	36	●
1536ST05C-0670	*	6.7	8	91	53	43	36	●
1536ST05C-0675	*	6.75	8	91	53	43	36	○
1536ST05C-0680	*	6.8	8	91	53	43	36	●
1536ST05C-0690	*	6.9	8	91	53	43	36	●
1536ST05C-0700	*	7	8	91	53	43	36	●
1536ST05C-0710	*	7.1	8	91	53	43	36	●
1536ST05C-0720	*	7.2	8	91	53	43	36	●
1536ST05C-0730	*	7.3	8	91	53	43	36	●
1536ST05C-0740	*	7.4	8	91	53	43	36	●
1536ST05C-0750	*	7.5	8	91	53	43	36	●
1536ST05C-0760	*	7.6	8	91	53	43	36	●
1536ST05C-0770	*	7.7	8	91	53	43	36	●
1536ST05C-0780	*	7.8	8	91	53	43	36	●
1536ST05C-0790	*	7.9	8	91	53	43	36	●
1536ST05C-0800	*	8	8	91	53	43	36	●
1536ST05C-0810	*	8.1	10	103	61	49	40	●
1536ST05C-0820	*	8.2	10	103	61	49	40	●
1536ST05C-0830	*	8.3	10	103	61	49	40	●
1536ST05C-0840	*	8.4	10	103	61	49	40	●
1536ST05C-0850	*	8.5	10	103	61	49	40	●
1536ST05C-0860	*	8.6	10	103	61	49	40	●
1536ST05C-0870	*	8.7	10	103	61	49	40	●
1536ST05C-0880	*	8.8	10	103	61	49	40	●
1536ST05C-0890	*	8.9	10	103	61	49	40	●
1536ST05C-0900	*	9	10	103	61	49	40	●
1536ST05C-0910	*	9.1	10	103	61	49	40	●
1536ST05C-0920	*	9.2	10	103	61	49	40	●
1536ST05C-0930	*	9.3	10	103	61	49	40	●
1536ST05C-0940	*	9.4	10	103	61	49	40	●
1536ST05C-0950	*	9.5	10	103	61	49	40	●
1536ST05C-0960	*	9.6	10	103	61	49	40	●
1536ST05C-0970	*	9.7	10	103	61	49	40	●
1536ST05C-0980	*	9.8	10	103	61	49	40	●
1536ST05C-0990	*	9.9	10	103	61	49	40	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## ST drill 5xD

Steel, stainless steel, heat-resistant alloys

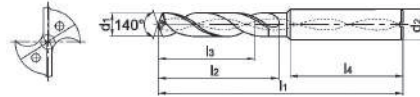
### 1536ST05C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536ST05C-1000	*	10	10	103	61	49	40	●
1536ST05C-1010	*	10.1	12	118	71	56	45	●
1536ST05C-1020	*	10.2	12	118	71	56	45	●
1536ST05C-1025	*	10.25	12	118	71	56	45	○
1536ST05C-1030	*	10.3	12	118	71	56	45	●
1536ST05C-1040	*	10.4	12	118	71	56	45	●
1536ST05C-1050	*	10.5	12	118	71	56	45	●
1536ST05C-1060	*	10.6	12	118	71	56	45	●
1536ST05C-1070	*	10.7	12	118	71	56	45	●
1536ST05C-1080	*	10.8	12	118	71	56	45	●
1536ST05C-1090	*	10.9	12	118	71	56	45	●
1536ST05C-1100	*	11	12	118	71	56	45	●
1536ST05C-1110	*	11.1	12	118	71	56	45	●
1536ST05C-1120	*	11.2	12	118	71	56	45	●
1536ST05C-1130	*	11.3	12	118	71	56	45	●
1536ST05C-1140	*	11.4	12	118	71	56	45	●
1536ST05C-1150	*	11.5	12	118	71	56	45	●
1536ST05C-1160	*	11.6	12	118	71	56	45	●
1536ST05C-1170	*	11.7	12	118	71	56	45	●
1536ST05C-1180	*	11.8	12	118	71	56	45	●
1536ST05C-1190	*	11.9	12	118	71	56	45	●
1536ST05C-1200	*	12	12	118	71	56	45	●
1536ST05C-1220	*	12.2	14	124	77	60	45	●
1536ST05C-1225	*	12.25	14	124	77	60	45	○
1536ST05C-1230	*	12.3	14	124	77	60	45	●
1536ST05C-1250	*	12.5	14	124	77	60	45	●
1536ST05C-1270	*	12.7	14	124	77	60	45	●
1536ST05C-1275	*	12.75	14	124	77	60	45	○
1536ST05C-1280	*	12.8	14	124	77	60	45	●
1536ST05C-1300	*	13	14	124	77	60	45	●
1536ST05C-1310	*	13.1	14	124	77	60	45	●
1536ST05C-1350	*	13.5	14	124	77	60	45	●
1536ST05C-1380	*	13.8	14	124	77	60	45	●
1536ST05C-1400	*	14	14	124	77	60	45	●
1536ST05C-1425	*	14.25	16	133	83	63	48	○
1536ST05C-1430	*	14.3	16	133	83	63	48	●
1536ST05C-1450	*	14.5	16	133	83	63	48	●

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**ST drill 5xD** **Steel, stainless steel, heat-resistant alloys**

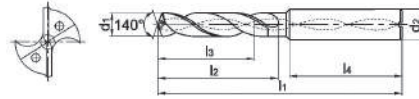
**1536ST05C**



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1536ST05C-1475	*	14.75	16	133	83	63	48	○
1536ST05C-1480	*	14.8	16	133	83	63	48	●
1536ST05C-1500	*	15	16	133	83	63	48	●
1536ST05C-1510	*	15.1	16	133	83	63	48	●
1536ST05C-1550	*	15.5	16	133	83	63	48	●
1536ST05C-1580	*	15.8	16	133	83	63	48	●
1536ST05C-1600	*	16	16	133	83	63	48	●
1536ST05C-1650	*	16.5	18	143	93	71	48	●
1536ST05C-1675	*	16.75	18	143	93	71	48	○
1536ST05C-1680	*	16.8	18	143	93	71	48	●
1536ST05C-1700	*	17	18	143	93	71	48	●
1536ST05C-1750	*	17.5	18	143	93	71	48	●
1536ST05C-1780	*	17.8	18	143	93	71	48	●
1536ST05C-1800	*	18	18	143	93	71	48	●
1536ST05C-1850	*	18.5	20	153	101	77	50	●
1536ST05C-1880	*	18.8	20	153	101	77	50	●
1536ST05C-1900	*	19	20	153	101	77	50	●
1536ST05C-1950	*	19.5	20	153	101	77	50	●
1536ST05C-1980	*	19.8	20	153	101	77	50	●
1536ST05C-2000	*	20	20	153	101	77	50	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## ST drill 5xD

Steel, stainless steel, heat-resistant alloys

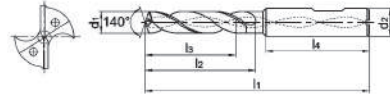
### 1636ST05C



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636ST05C-0520	*	5.2	6	82	44	35	36	○
1636ST05C-0730	*	7.3	8	91	53	43	36	○
1636ST05C-0800	*	8	8	91	53	43	36	○
1636ST05C-0810	*	8.1	10	103	61	49	40	○
1636ST05C-0820	*	8.2	10	103	61	49	40	○
1636ST05C-0830	*	8.3	10	103	61	49	40	○
1636ST05C-0840	*	8.4	10	103	61	49	40	○
1636ST05C-0850	*	8.5	10	103	61	49	40	○
1636ST05C-0860	*	8.6	10	103	61	49	40	○
1636ST05C-0870	*	8.7	10	103	61	49	40	○
1636ST05C-0880	*	8.8	10	103	61	49	40	○
1636ST05C-0890	*	8.9	10	103	61	49	40	○
1636ST05C-0900	*	9	10	103	61	49	40	○
1636ST05C-0910	*	9.1	10	103	61	49	40	○
1636ST05C-0930	*	9.3	10	103	61	49	40	○
1636ST05C-0940	*	9.4	10	103	61	49	40	○
1636ST05C-0950	*	9.5	10	103	61	49	40	○
1636ST05C-0960	*	9.6	10	103	61	49	40	○
1636ST05C-0970	*	9.7	10	103	61	49	40	○
1636ST05C-0980	*	9.8	10	103	61	49	40	○
1636ST05C-0990	*	9.9	10	103	61	49	40	○
1636ST05C-1000	*	10	10	103	61	49	40	○
1636ST05C-1010	*	10.1	12	118	71	56	45	○
1636ST05C-1025	*	10.25	12	118	71	56	45	○
1636ST05C-1030	*	10.3	12	118	71	56	45	○
1636ST05C-1040	*	10.4	12	118	71	56	45	○
1636ST05C-1050	*	10.5	12	118	71	56	45	○
1636ST05C-1060	*	10.6	12	118	71	56	45	○
1636ST05C-1070	*	10.7	12	118	71	56	45	○
1636ST05C-1080	*	10.8	12	118	71	56	45	○
1636ST05C-1090	*	10.9	12	118	71	56	45	○
1636ST05C-1100	*	11	12	118	71	56	45	○
1636ST05C-1110	*	11.1	12	118	71	56	45	○
1636ST05C-1120	*	11.2	12	118	71	56	45	○
1636ST05C-1130	*	11.3	12	118	71	56	45	○
1636ST05C-1140	*	11.4	12	118	71	56	45	○
1636ST05C-1150	*	11.5	12	118	71	56	45	○

- Ex stock ○ On demand
- \* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓			✓	

- ✓ Very suitable
- ✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

**ST drill 5xD**

**Steel, stainless steel, heat-resistant alloys**

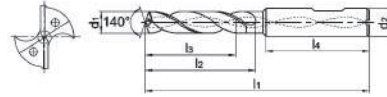
**1636ST05C**



- Type of shank: DIN 6535HB
- Coolant exit, axial concentric



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1636ST05C-1160	*	11.6	12	118	71	56	45	○
1636ST05C-1170	*	11.7	12	118	71	56	45	○
1636ST05C-1180	*	11.8	12	118	71	56	45	○
1636ST05C-1190	*	11.9	12	118	71	56	45	○
1636ST05C-1200	*	12	12	118	71	56	45	○
1636ST05C-1225	*	12.25	14	124	77	60	45	○
1636ST05C-1230	*	12.3	14	124	77	60	45	○
1636ST05C-1250	*	12.5	14	124	77	60	45	○
1636ST05C-1270	*	12.7	14	124	77	60	45	○
1636ST05C-1275	*	12.75	14	124	77	60	45	○
1636ST05C-1280	*	12.8	14	124	77	60	45	○
1636ST05C-1300	*	13	14	124	77	60	45	○
1636ST05C-1310	*	13.1	14	124	77	60	45	○
1636ST05C-1350	*	13.5	14	124	77	60	45	○
1636ST05C-1380	*	13.8	14	124	77	60	45	○
1636ST05C-1400	*	14	14	124	77	60	45	○
1636ST05C-1425	*	14.25	16	133	83	63	48	○
1636ST05C-1430	*	14.3	16	133	83	63	48	○
1636ST05C-1450	*	14.5	16	133	83	63	48	○
1636ST05C-1475	*	14.75	16	133	83	63	48	○
1636ST05C-1480	*	14.8	16	133	83	63	48	○
1636ST05C-1500	*	15	16	133	83	63	48	○
1636ST05C-1510	*	15.1	16	133	83	63	48	○
1636ST05C-1550	*	15.5	16	133	83	63	48	○
1636ST05C-1580	*	15.8	16	133	83	63	48	○
1636ST05C-1600	*	16	16	133	83	63	48	○
1636ST05C-1650	*	16.5	18	143	93	71	48	○
1636ST05C-1675	*	16.75	18	143	93	71	48	○
1636ST05C-1680	*	16.8	18	143	93	71	48	○
1636ST05C-1700	*	17	18	143	93	71	48	●
1636ST05C-1750	*	17.5	18	143	93	71	48	○
1636ST05C-1780	*	17.8	18	143	93	71	48	○
1636ST05C-1800	*	18	18	143	93	71	48	○
1636ST05C-1850	*	18.5	20	153	101	77	50	○
1636ST05C-1880	*	18.8	20	153	101	77	50	○
1636ST05C-1900	*	19	20	153	101	77	50	○
1636ST05C-1950	*	19.5	20	153	101	77	50	○
1636ST05C-1980	*	19.8	20	153	101	77	50	○
1636ST05C-2000	*	20	20	153	101	77	50	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
✓	✓			✓	

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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1534SH

## SH series

### Twist drills for hardened materials

- Specially designed chip geometry for very high stability.
- High performance coating for longer tool life.
- Diameter range 3.0–16.0 mm (3xD)



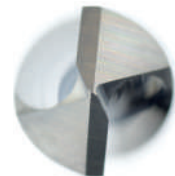
S cut

1105SC

## SC series

### Twist drills for aluminium alloys

- Equal nominal diameter and shank diameter.
- Diameter meter 2.0–16.0 mm (3xD, 5xD)



Straight cut

1165PA

## PA series

### Three-lips drills for aluminium alloys

- Three cutting edges provide high concentricity and therefore high feed rates.
- Equal nominal diameter and shank diameter.
- Diameter range 3.0–20.0 mm (3xD)



Straight cut

## SH drill 3xD

Hard materials

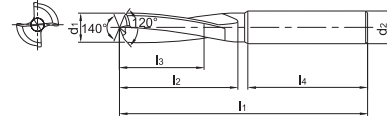
### 1534SH03



– Type of shank DIN 6535HA



External coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	KDG303
1534SH03-0300		3	6	62	20	14	36	○
1534SH03-0330		3.3	6	62	20	14	36	●
1534SH03-0400		4	6	66	24	17	36	○
1534SH03-0420		4.2	6	66	24	17	36	●
1534SH03-0500		5	6	66	28	20	36	○
1534SH03-0600		6	6	66	28	20	36	○
1534SH03-0675		6.75	8	79	34	24	36	○
1534SH03-0700		7	8	79	34	24	36	○
1534SH03-0800		8	8	79	41	29	36	○
1534SH03-0850		8.5	10	89	47	35	40	○
1534SH03-0900		9	10	89	47	35	40	○
1534SH03-1000		10	10	89	47	35	40	○
1534SH03-1025		10.25	12	102	55	40	45	○
1534SH03-1050		10.5	12	102	55	40	45	○
1534SH03-1200		12	12	102	55	40	45	○
1534SH03-1250		12.5	14	107	60	43	45	○
1534SH03-1400		14	14	107	60	43	45	○
1534SH03-1450		14.5	16	115	65	45	48	○
1534SH03-1600		16	16	115	65	45	48	○

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
					✓

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



SC drill 3xD

Non-ferrous metals

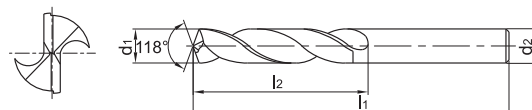
1105SC03



- Factory standard



External coolant



Article	*	Dimensions [mm]				Grade
		d <sub>1</sub> (h8)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	YK20F
1105SC03-0200		2	2	38	12	○
1105SC03-0250		2.5	2.5	43	14	○
1105SC03-0280		2.8	2.8	46	16	○
1105SC03-0300		3	3	46	16	○
1105SC03-0310		3.1	3.1	49	18	○
1105SC03-0320		3.2	3.2	49	18	○
1105SC03-0330		3.3	3.3	49	18	○
1105SC03-0340		3.4	3.4	52	20	○
1105SC03-0350		3.5	3.5	52	20	○
1105SC03-0360		3.6	3.6	52	20	○
1105SC03-0370		3.7	3.7	52	20	○
1105SC03-0380		3.8	3.8	55	22	○
1105SC03-0390		3.9	3.9	55	22	○
1105SC03-0400		4	4	55	22	○
1105SC03-0410		4.1	4.1	55	22	○
1105SC03-0420		4.2	4.2	55	22	○
1105SC03-0430		4.3	4.3	58	24	○
1105SC03-0440		4.4	4.4	58	24	○
1105SC03-0450		4.5	4.5	58	24	○
1105SC03-0460		4.6	4.6	58	24	○
1105SC03-0470		4.7	4.7	58	24	○
1105SC03-0480		4.8	4.8	62	26	○
1105SC03-0490		4.9	4.9	62	26	○
1105SC03-0500		5	5	62	26	○
1105SC03-0510		5.1	5.1	62	26	○
1105SC03-0520		5.2	5.2	62	26	○
1105SC03-0530		5.3	5.3	62	26	○
1105SC03-0540		5.4	5.4	66	28	○
1105SC03-0550		5.5	5.5	66	28	○
1105SC03-0560		5.6	5.6	66	28	○
1105SC03-0570		5.7	5.7	66	28	○
1105SC03-0580		5.8	5.8	66	28	○
1105SC03-0590		5.9	5.9	66	28	○
1105SC03-0600		6	6	66	28	○
1105SC03-0610		6.1	6.1	70	31	○
1105SC03-0620		6.2	6.2	70	31	○
1105SC03-0630		6.3	6.3	70	31	○
1105SC03-0640		6.4	6.4	70	31	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## SC drill 3xD

Non-ferrous metals

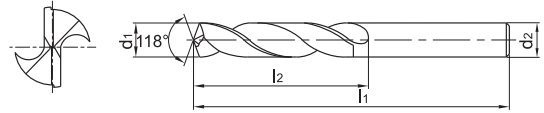
### 1105SC03



– Factory standard



External coolant



Article	*	Dimensions [mm]				Grade
		d <sub>1</sub> (h8)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	YK20F
1105SC03-0650		6.5	6.5	70	31	○
1105SC03-0660		6.6	6.6	70	31	○
1105SC03-0670		6.7	6.7	70	31	○
1105SC03-0680		6.8	6.8	74	34	○
1105SC03-0690		6.9	6.9	74	34	○
1105SC03-0700		7	7	74	34	○
1105SC03-0710		7.1	7.1	74	34	○
1105SC03-0720		7.2	7.2	74	34	○
1105SC03-0730		7.3	7.3	74	34	○
1105SC03-0740		7.4	7.4	74	34	○
1105SC03-0750		7.5	7.5	74	34	○
1105SC03-0760		7.6	7.6	79	37	○
1105SC03-0770		7.7	7.7	79	37	○
1105SC03-0780		7.8	7.8	79	37	○
1105SC03-0790		7.9	7.9	79	37	○
1105SC03-0800		8	8	79	37	○
1105SC03-0810		8.1	8.1	79	37	○
1105SC03-0820		8.2	8.2	79	37	○
1105SC03-0830		8.3	8.3	79	37	○
1105SC03-0840		8.4	8.4	79	37	○
1105SC03-0850		8.5	8.5	79	37	○
1105SC03-0860		8.6	8.6	84	40	○
1105SC03-0870		8.7	8.7	84	40	○
1105SC03-0880		8.8	8.8	84	40	○
1105SC03-0890		8.9	8.9	84	40	○
1105SC03-0900		9	9	84	40	○
1105SC03-0910		9.1	9.1	84	40	○
1105SC03-0920		9.2	9.2	84	40	○
1105SC03-0930		9.3	9.3	84	40	○
1105SC03-0940		9.4	9.4	84	40	○
1105SC03-0950		9.5	9.5	84	40	○
1105SC03-0960		9.6	9.6	89	43	○
1105SC03-0970		9.7	9.7	89	43	○
1105SC03-0980		9.8	9.8	89	43	○
1105SC03-0990		9.9	9.9	89	43	○
1105SC03-1000		10	10	89	43	○
1105SC03-1010		10.1	10.1	89	43	○
1105SC03-1020		10.2	10.2	89	43	○

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

SC drill 3xD

Non-ferrous metals

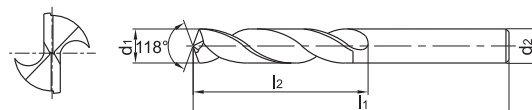
1105SC03



– Factory standard



External coolant



Article	*	Dimensions [mm]				Grade
		d <sub>1</sub> (h8)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	YK20F
1105SC03-1040		10.4	10.4	89	43	○
1105SC03-1050		10.5	10.5	89	43	○
1105SC03-1070		10.7	10.7	95	47	○
1105SC03-1080		10.8	10.8	95	47	○
1105SC03-1100		11	11	95	47	○
1105SC03-1150		11.5	11.5	95	47	○
1105SC03-1200		12	12	102	51	○
1105SC03-1250		12.5	12.5	102	51	○
1105SC03-1280		12.8	12.8	102	51	○
1105SC03-1300		13	13	102	51	○
1105SC03-1310		13.1	13.1	102	51	○
1105SC03-1350		13.5	13.5	107	54	○
1105SC03-1400		14	14	107	54	○
1105SC03-1430		14.3	14.3	111	56	○
1105SC03-1450		14.5	14.5	111	56	○
1105SC03-1500		15	15	111	56	○
1105SC03-1600		16	16	115	58	○

● Ex stock ○ On demand

\* With internal cooling

Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



## SC drill 5xD

Non-ferrous metals

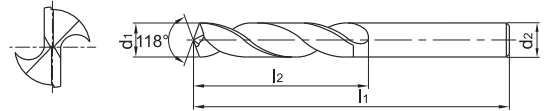
### 1101SC05



– Factory standard



External coolant



Article	*	Dimensions [mm]				Grade
		d <sub>1</sub> (h8)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	YK20F
1101SC05-0200		2	2	49	24	○
1101SC05-0250		2.5	2.5	57	30	○
1101SC05-0280		2.8	2.8	61	33	○
1101SC05-0300		3	3	61	33	○
1101SC05-0350		3.5	3.5	70	39	○
1101SC05-0380		3.8	3.8	75	43	○
1101SC05-0400		4	4	75	43	○
1101SC05-0420		4.2	4.2	75	43	○
1101SC05-0450		4.5	4.5	80	47	○
1101SC05-0480		4.8	4.8	86	52	○
1101SC05-0500		5	5	86	52	○
1101SC05-0550		5.5	5.5	93	57	○
1101SC05-0580		5.8	5.8	93	57	○
1101SC05-0600		6	6	93	57	○
1101SC05-0650		6.5	6.5	101	63	○
1101SC05-0680		6.8	6.8	109	69	○
1101SC05-0700		7	7	109	69	○
1101SC05-0750		7.5	7.5	109	69	○
1101SC05-0780		7.8	7.8	117	75	○
1101SC05-0800		8	8	117	75	○
1101SC05-0850		8.5	8.5	117	75	○
1101SC05-0880		8.8	8.8	125	81	○
1101SC05-0900		9	9	125	81	○
1101SC05-0950		9.5	9.5	125	81	○
1101SC05-0980		9.8	9.8	133	87	○
1101SC05-1000		10	10	133	87	○
1101SC05-1050		10.5	10.5	133	87	○
1101SC05-1080		10.8	10.8	142	94	○
1101SC05-1100		11	11	142	94	○
1101SC05-1150		11.5	11.5	142	94	○
1101SC05-1200		12	12	151	101	○
1101SC05-1250		12.5	12.5	151	101	○
1101SC05-1300		13	13	151	101	○
1101SC05-1350		13.5	13.5	160	108	○
1101SC05-1400		14	14	160	108	○
1101SC05-1450		14.5	14.5	169	114	○
1101SC05-1500		15	15	169	114	○
1101SC05-1550		15.5	15.5	178	120	○
1101SC05-1600		16	16	178	120	○

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

PA drill 3xD

Non-ferrous metals

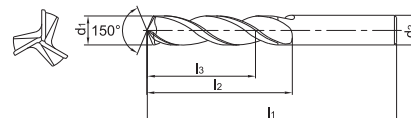
1165PA03



- Factory standard



External coolant



Article	*	Dimensions [mm]					Grade	
		d <sub>1</sub> (h7)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	KDG303	YK30F
1165PA03-0300		3	3	46	16	12	●	●
1165PA03-0310		3.1	3.1	49	18	14	○	○
1165PA03-0320		3.2	3.2	49	18	14	○	●
1165PA03-0330		3.3	3.3	49	18	14	○	○
1165PA03-0340		3.4	3.4	52	20	15	○	●
1165PA03-0350		3.5	3.5	52	20	15	○	○
1165PA03-0360		3.6	3.6	52	20	15	○	○
1165PA03-0370		3.7	3.7	52	20	15	○	○
1165PA03-0380		3.8	3.8	55	22	17	○	○
1165PA03-0390		3.9	3.9	55	22	17	○	○
1165PA03-0400		4	4	55	22	17	○	○
1165PA03-0410		4.1	4.1	55	22	17	○	○
1165PA03-0420		4.2	4.2	55	22	17	○	○
1165PA03-0430		4.3	4.3	58	24	18	○	○
1165PA03-0440		4.4	4.4	58	24	18	○	○
1165PA03-0450		4.5	4.5	58	24	18	○	○
1165PA03-0460		4.6	4.6	58	24	18	○	○
1165PA03-0470		4.7	4.7	58	24	18	○	○
1165PA03-0480		4.8	4.8	62	26	20	○	○
1165PA03-0490		4.9	4.9	62	26	20	○	○
1165PA03-0500		5	5	62	26	20	○	○
1165PA03-0510		5.1	5.1	62	26	20	○	○
1165PA03-0520		5.2	5.2	62	26	20	○	○
1165PA03-0530		5.3	5.3	62	26	20	○	○
1165PA03-0540		5.4	5.4	66	28	21	○	○
1165PA03-0550		5.5	5.5	66	28	21	○	○
1165PA03-0560		5.6	5.6	66	28	21	○	○
1165PA03-0570		5.7	5.7	66	28	21	○	○
1165PA03-0580		5.8	5.8	66	28	21	○	○
1165PA03-0590		5.9	5.9	66	28	21	○	○
1165PA03-0600		6	6	66	28	21	○	○
1165PA03-0610		6.1	6.1	70	31	23	○	○
1165PA03-0620		6.2	6.2	70	31	23	○	○
1165PA03-0630		6.3	6.3	70	31	23	○	○
1165PA03-0640		6.4	6.4	70	31	23	○	○
1165PA03-0650		6.5	6.5	70	31	23	○	○
1165PA03-0660		6.6	6.6	70	31	23	○	●
1165PA03-0670		6.7	6.7	70	31	23	○	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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## PA drill 3xD

## Non-ferrous metals

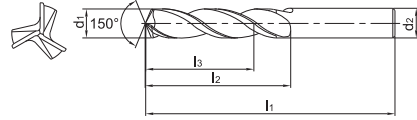
### 1165PA03



– Factory standard



External coolant



Article	*	Dimensions [mm]					Grade	
		d <sub>1</sub> (h7)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	KDG303	YK30F
1165PA03-0680		6.8	6.8	74	34	25	○	○
1165PA03-0690		6.9	6.9	74	34	25	○	○
1165PA03-0700		7	7	74	34	25	○	○
1165PA03-0710		7.1	7.1	74	34	25	○	○
1165PA03-0720		7.2	7.2	74	34	25	○	○
1165PA03-0730		7.3	7.3	74	34	25	○	○
1165PA03-0740		7.4	7.4	74	34	25	○	○
1165PA03-0750		7.5	7.5	74	34	25	○	○
1165PA03-0760		7.6	7.6	79	37	27	○	○
1165PA03-0770		7.7	7.7	79	37	27	○	○
1165PA03-0780		7.8	7.8	79	37	27	○	○
1165PA03-0790		7.9	7.9	79	37	27	○	○
1165PA03-0800		8	8	79	37	27	○	○
1165PA03-0810		8.1	8.1	79	37	27	○	○
1165PA03-0820		8.2	8.2	79	37	27	○	○
1165PA03-0830		8.3	8.3	79	37	27	○	○
1165PA03-0840		8.4	8.4	79	37	27	○	○
1165PA03-0850		8.5	8.5	79	37	27	○	○
1165PA03-0860		8.6	8.6	84	40	29	○	●
1165PA03-0870		8.7	8.7	84	40	29	○	○
1165PA03-0880		8.8	8.8	84	40	29	○	○
1165PA03-0890		8.9	8.9	84	40	29	○	○
1165PA03-0900		9	9	84	40	29	○	○
1165PA03-0910		9.1	9.1	84	40	29	○	○
1165PA03-0920		9.2	9.2	84	40	29	○	○
1165PA03-0930		9.3	9.3	84	40	29	○	○
1165PA03-0940		9.4	9.4	84	40	29	○	○
1165PA03-0950		9.5	9.5	84	40	29	○	○
1165PA03-0960		9.6	9.6	89	43	31	○	○
1165PA03-0970		9.7	9.7	89	43	31	○	○
1165PA03-0980		9.8	9.8	89	43	31	○	○
1165PA03-0990		9.9	9.9	89	43	31	○	○
1165PA03-1000		10	10	89	43	31	○	○
1165PA03-1010		10.1	10.1	89	43	31	○	○
1165PA03-1020		10.2	10.2	89	43	31	○	○
1165PA03-1030		10.3	10.3	89	43	31	○	○
1165PA03-1050		10.5	10.5	89	43	31	○	○
1165PA03-1100		11	11	95	47	33	○	○

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

PA drill 3xD

Non-ferrous metals

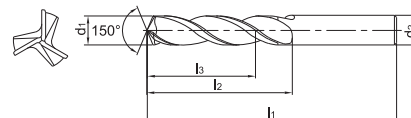
1165PA03



- Factory standard



External coolant



Article	*	Dimensions [mm]					Grade	
		d <sub>1</sub> (h7)	d <sub>2</sub> (h7)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	KDG303	YK30F
1165PA03-1120		11.2	11.2	95	47	33	○	○
1165PA03-1150		11.5	11.5	95	47	33	○	○
1165PA03-1180		11.8	11.8	95	47	33	○	○
1165PA03-1200		12	12	102	51	35	○	○
1165PA03-1210		12.1	12.1	102	51	35	○	○
1165PA03-1250		12.5	12.5	102	51	35	○	○
1165PA03-1300		13	13	102	51	35	○	○
1165PA03-1350		13.5	13.5	107	54	37	○	○
1165PA03-1400		14	14	107	54	37	○	○
1165PA03-1450		14.5	14.5	111	56	38	○	○
1165PA03-1500		15	15	111	56	38	○	○
1165PA03-1550		15.5	15.5	115	58	38	○	○
1165PA03-1600		16	16	115	58	38	○	○
1165PA03-1650		16.5	16.5	119	60	39	○	○
1165PA03-1700		17	17	119	60	39	○	○
1165PA03-1750		17.5	17.5	123	62	40	○	○
1165PA03-1800		18	18	123	62	40	○	○
1165PA03-1850		18.5	18.5	127	64	41	○	○
1165PA03-1900		19	19	127	64	41	○	○
1165PA03-1950		19.5	19.5	131	66	42	○	○
1165PA03-2000		20	20	131	66	42	○	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



## Notes

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1576PC

## PC series

### *Straight flute drill for cast iron*

- High precision (hole quality up to H7) and good surface quality on the complete bore length.
- Diameter range 4.0–20.0 mm (5xD, 15xD)



Straight cut

1143SC

## SC series

### *NC tapping device for steel, stainless steel, cast iron and non-ferrous metals*

- For centring and chamfering.
- With 90° and 120° point angle.
- Diameter range 5.0–20.0 mm

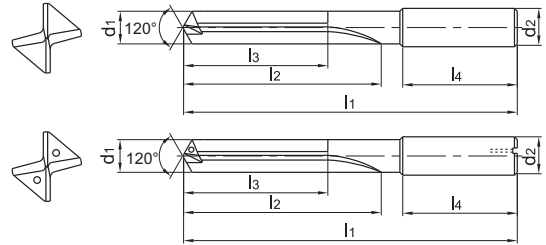
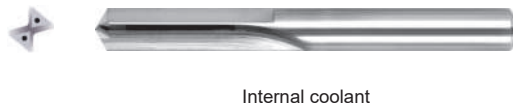
## PC drill 5xD

Cast iron

### 1576PC05/1576PC05C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Article	*	Dimensions [mm]				Grade		
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	YK20F
1576PC05-0400		4	6	74	36	29	36	○
1576PC05C-0400	*	4	6	74	36	29	36	●
1576PC05-0420		4.2	6	74	36	29	36	○
1576PC05C-0420	*	4.2	6	74	36	29	36	●
1576PC05-0500		5	6	82	44	35	36	○
1576PC05C-0500	*	5	6	82	44	35	36	●
1576PC05-0600		6	6	82	44	35	36	○
1576PC05C-0600	*	6	6	82	44	35	36	●
1576PC05-0675		6.75	8	91	53	43	36	○
1576PC05C-0675	*	6.75	8	91	53	43	36	●
1576PC05-0700		7	8	91	53	43	36	○
1576PC05C-0700	*	7	8	91	53	43	36	●
1576PC05-0800		8	8	91	53	43	36	○
1576PC05C-0800	*	8	8	91	53	43	36	●
1576PC05-0850		8.5	10	103	61	49	40	○
1576PC05C-0850	*	8.5	10	103	61	49	40	●
1576PC05-0900		9	10	103	61	49	40	○
1576PC05C-0900	*	9	10	103	61	49	40	●
1576PC05-1000		10	10	103	61	49	40	○
1576PC05C-1000	*	10	10	103	61	49	40	●
1576PC05-1025		10.25	12	118	71	56	45	○
1576PC05C-1025	*	10.25	12	118	71	56	45	●
1576PC05-1100		11	12	118	71	56	45	○
1576PC05C-1100	*	11	12	118	71	56	45	●
1576PC05-1200		12	12	118	71	56	45	○
1576PC05C-1200	*	12	12	118	71	56	45	●
1576PC05-1300		13	14	124	77	60	45	○
1576PC05C-1300	*	13	14	124	77	60	45	●
1576PC05-1400		14	14	124	77	60	45	○
1576PC05C-1400	*	14	14	124	77	60	45	●
1576PC05-1500		15	16	133	83	63	48	○
1576PC05C-1500	*	15	16	133	83	63	48	○
1576PC05-1550		15.5	16	133	83	63	48	○

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
		✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

PC drill 5xD

Cast iron

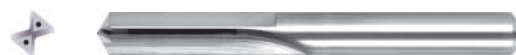
1576PC05/1576PC05C



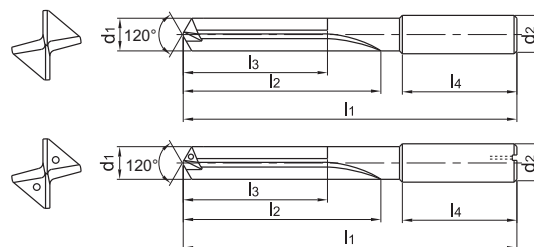
- Type of shank DIN 6535HA
- Coolant exit, axial concentric



External coolant



Internal coolant



Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	YK20F
1576PC05C-1550	*	15.5	16	133	83	63	48	○
1576PC05-1600		16	16	133	83	63	48	○
1576PC05C-1600	*	16	16	133	83	63	48	○
1576PC05-1700		17	18	143	93	71	48	○
1576PC05C-1700	*	17	18	143	93	71	48	○
1576PC05-1750		17.5	18	143	93	71	48	○
1576PC05C-1750	*	17.5	18	143	93	71	48	○
1576PC05-1800		18	18	143	93	71	48	○
1576PC05C-1800	*	18	18	143	93	71	48	●
1576PC05-1950		19.5	20	153	101	77	50	○
1576PC05C-1950	*	19.5	20	153	101	77	50	○
1576PC05-2000		20	20	153	101	77	50	○
1576PC05C-2000	*	20	20	153	101	77	50	○

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
		✓			

✓ Very suitable

✓ Suitable

System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178



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A

PC drill 15xD

Cast iron

Turning

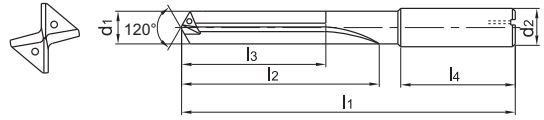
1579PC15C



- Type of shank DIN 6535HA
- Coolant exit, axial concentric



Internal coolant



B

Milling

Article	*	Dimensions [mm]						Grade
		d <sub>1</sub> (m7)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	YK20F
1579PC15C-0500	*	5	6	145	105	96	36	○
1579PC15C-0600	*	6	6	145	105	96	36	○
1579PC15C-0800	*	8	8	180	137	127	36	○
1579PC15C-0900	*	9	10	217	170	158	40	○
1579PC15C-1000	*	10	10	217	170	158	40	○
1579PC15C-1100	*	11	12	258	205	190	45	○
1579PC15C-1200	*	12	12	258	205	190	45	○
1579PC15C-1400	*	14	14	290	236	219	45	○

● Ex stock ○ On demand

\* With internal cooling

C

Drilling

Application field					
P	M	K	N	S	H
		✓			

✓ Very suitable

✓ Suitable

D

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System code > C28

Machining instructions > C165

Cutting data > C122

Nonstandard order > C178

## SC drill – NC tapping device 90°

## General machining

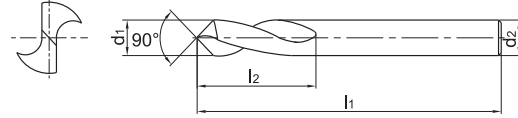
1143SC90



– Factory standard



External coolant



Article	*	Dimensions [mm]				Grade	
		d <sub>1</sub> (h6)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	KDG303	YK30F
1143SC90-0500		5	5	62	10	●	
1143SC90-0600		6	6	66	15	●	
1143SC90-0800		8	8	79	17	●	
1143SC90-1000		10	10	89	20	●	
1143SC90-1200		12	12	102	25	●	
1143SC90-1400		14	14	107	30	●	
1143SC90-1600		16	16	115	35	●	
1143SC90-2000		20	20	131	40	●	○

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
✓	✓	✓	✓		

✓ Very suitable

✓ Suitable

**A**

## SC drill – NC tapping device 120°

## General machining

Turning

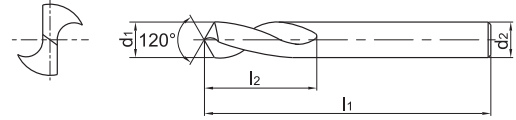
**1143SC120**



– Factory standard



External coolant



**B**

Milling

Article	*	Dimensions [mm]				Grade
		d <sub>1</sub> (h6)	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>2</sub>	KDG303
1143SC120-0500		5	5	62	10	●
1143SC120-0600		6	6	66	15	●
1143SC120-0800		8	8	79	17	●
1143SC120-1000		10	10	89	20	●
1143SC120-1200		12	12	102	25	●
1143SC120-1400		14	14	107	30	●
1143SC120-1600		16	16	115	35	●
1143SC120-2000		20	20	131	42	●

● Ex stock ○ On demand

\* With internal cooling

**C**

Drilling

Application field					
P	M	K	N	S	H
✓	✓	✓	✓		

✓ Very suitable

✓ Suitable

**D**

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System code > C28

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Cutting data > C122

Nonstandard order > C178



## Guide for recommended cutting data – solid carbide drilling

### Solid carbide drills

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]									
					SU Series			SU-Drill			SU Step Drill			
					3-5xD	8xD	3xD	KDG 303	KDG 303	KDG 303	internal	external	f-group	internal
<b>P</b> Unalloyed steel	ca. 0,15 % C	annealed	125	1	150	135	8	135	125	7	150	135	8	
	ca. 0,45 % C	annealed	190	2	130	120	8	120	110	7	130	120	8	
	ca. 0,45 % C	tempered	250	3	120	110	6	110	100	5	120	110	6	
	ca. 0,75 % C	annealed	270	4	110	100	6	100	90	5	110	100	6	
	ca. 0,75 % C	tempered	300	5	100	90	6	90	85	5	100	90	6	
	Low-alloyed steel		annealed	180	6	130	120	8	120	110	7	130	120	8
			tempered	275	7	110	100	6	100	90	5	110	100	6
			tempered	300	8	100	90	6	90	85	5	100	90	6
			tempered	350	9	90	85	6	85	80	5	90	85	6
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	110	8	110	100	7	120	110	8
		hardened and tempered	325	11	100	90	6	90	85	5	100	90	6	
<b>M</b> Stainless steel	ferritic/martensitic	annealed	200	12	80	75	5	75	70	5	80	75	5	
	martensitic	tempered	240	13	55	50	5	50	45	5	55	50	5	
	austenitic	quench hardened	180	14	60	55	5	55	50	5	60	55	5	
	austenitic-ferritic		230	15	50	45	5	45	45	5	50	45	5	
<b>K</b> Grey cast iron	perlitic/ferritic		180	16	135	125	8	125	115	7	135	125	8	
	perlitic (martensitic)		260	17	110	100	8	100	90	7	110	100	8	
	ferritic		160	18	120	110	8	110	100	7	120	110	8	
	perlitic		250	19	80	75	8	75	70	7	80	75	8	
	ferritic		130	20	130	120	8	120	110	7	130	120	8	
<b>N</b> Aluminium wrought alloys	perlitic		230	21	80	75	8	75	70	7	80	75	8	
	cannot be hardened		60	22										
	hardenable	hardened	100	23										
	Cast aluminium alloys	≤ 12% Si, cannot be hardened	75	24										
Copper and copper alloys (bronze/brass)	≤ 12% Si, hardenable	hardened	90	25										
	> 12% Si, cannot be hardened		130	26										
	machining steel, PB> 1%		110	27										
<b>S</b> Heat-resistant alloys	CuZn, CuSnZn		90	28										
	CuSn, Pb-free copper, electrolytic copper		100	29										
	Fe-based alloys	annealed	200	30										
		hardened	280	31										
		Ni or Co base	annealed	250	32									
hardened			350	33										
cast	320	34												
Titanium alloys	pure titanium		R <sub>m</sub> 400	35										
	α and β alloys	hardened	R <sub>m</sub> 1050	36										
<b>H</b> Hardened steel	hardened and tempered		55 HRC	37										
	hardened and tempered		60 HRC	38										
	cast		400	39										
<b>X</b> Non-metallic materials	hardened and tempered		55 HRC	40										
	Thermoplasts			41										
	Thermosetting plastics			42										
	Plastic, glass-fibre reinforced GFRP			43										
	Plastic, carbon fibre reinforced CFRP			44										
Graphite			45											
Wood			46											

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. With hole depths of 5xD adjust the cutting data accordingly to the application. f-group = feed rate recommendations on page C126. For examples of material for cutting tool groups view page D22.



**Recommend feed rate**

**Solid carbide drilling**

f-group	Feed rate [mm]																				
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	
4	1	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10	
	2	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,09	0,10	0,10	0,10	0,10	0,11	0,11	0,11
	3	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13	0,13
	4	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,14	0,15	0,15
	5	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16	0,17	0,17
	6	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19	0,20
	7	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22	0,23
5	8	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,26
	9	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29	0,30
	10	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34	0,35
	11	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39	0,40
	12	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45	0,46
	13	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52	0,53
	14	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59	0,61
	15	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68	0,70

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

1. Select the appropriate product series.
2. Determine the immersion.
3. Select the used material and read the cutting speed.
4. Determine the feed rate group and have a look at the appropriate feed rate recommendations.
5. Select the diameter of tool and determine the immersion.

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## Solid carbide drills

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]										
				SU Series			SU-Drill			SU Step Drill				
				3-5xD			8xD			3xD				
				KDG 303			KDG 303			KDG 303				
Coolant									Int.	Ext.	f-group	Int.	Ext.	f-group
Int.	Ext.	f-group	Int.	Ext.	f-group	Int.	Ext.	f-group						
P Unalloyed steel	approx. 0,15 % C	annealed	125	1	150	135	8	135	125	7	150	135	8	
	approx. 0,45 % C	annealed	190	2	130	120	8	120	110	7	130	120	8	
	approx. 0,45 % C	tempered	250	3	120	110	6	110	100	5	120	110	6	
	approx. 0,75 % C	annealed	270	4	110	100	6	100	90	5	110	100	6	
	approx. 0,75 % C	tempered	300	5	100	90	6	90	85	5	100	90	6	
P Low-alloyed steel		annealed	180	6	130	120	8	120	110	7	130	120	8	
		tempered	275	7	110	100	6	100	90	5	110	100	6	
		tempered	300	8	100	90	6	90	85	5	100	90	6	
		tempered	350	9	90	85	6	85	80	5	90	85	6	
P High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	110	8	110	100	7	120	110	8	
		hardened and tempered	325	11	100	90	6	90	85	5	100	90	6	
M Stainless steel	ferritic/martensitic	annealed	200	12	80	75	5	75	70	5	80	75	5	
	martensitic	tempered	240	13	55	50	5	50	45	5	55	50	5	
	austenitic	quench hardened	180	14	60	55	5	55	50	5	60	55	5	
	austenitic-ferritic		230	15	50	45	5	45	45	5	50	45	5	
K Grey cast iron	perlitic/ferritic		180	16	135	125	8	125	115	7	135	125	8	
	perlitic (martensitic)		260	17	110	100	8	100	90	7	110	100	8	
K Cast iron with spheroidal graphite	ferritic		160	18	120	110	8	110	100	7	120	110	8	
	perlitic		250	19	80	75	8	75	70	7	80	75	8	
K Malleable cast iron	ferritic		130	20	130	120	8	120	110	7	130	120	8	
	perlitic		230	21	80	75	8	75	70	7	80	75	8	
N Aluminium wrought alloys	cannot be hardened		60	22										
	hardenable	hardened	100	23										
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24									
		$\leq 12\%$ Si, hardenable	hardened	90	25									
		$> 12\%$ Si, cannot be hardened		130	26									
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27									
CuZn, CuSnZn		90	28											
CuSn, Pb-free copper, electrolytic copper		100	29											
S Heat-resistant alloys	Fe-based alloys	annealed	200	30										
		hardened	280	31										
	Ni or Co bass	annealed	250	32										
		hardened	350	33										
		cast	320	34										
Titanium alloys	pure titanium	$R_m$ 400	35											
	$\alpha$ and $\beta$ alloys	hardened	$R_m$ 1050	36										
H Hardened steel		hardened and tempered	55 HRC	37										
		hardened and tempered	60 HRC	38										
	Hard cast iron	cast	400	39										
H Hardened cast iron		hardened and tempered	55 HRC	40										
X Non-metallic materials	Thermoplasts			41										
	Thermosetting plastics			42										
	Plastic, glass-fibre reinforced GFRP			43										
	Plastic, carbon fibre reinforced CFRP			44										
	Graphite			45										
	Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. With hole depths of 5xD adjust the cutting data accordingly to the application. f-group = feed rate recommendations on page C126. For examples of material for cutting tool groups view page D22.

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Starting values for cutting speed $v_c$ [m/min]																					
SL-Drill		SL-Drill		SP-Drill		ST-Drill		SH-Drill		SC-Drill		PA-Drill		PC-Drill		PC-Drill		SC-Drill			
12-15xD		20-30xD		3xD		3-5xD		3xD		3-5xD		3xD		3-5xD		15xD		Centering drill			
KDG 303		KDG 303		KDG 303		KDG 303		KDG 303		YK20F		YK 30F		YK20F		YK20F		KDG 303			
Int.	f-group	Int.	f-group	Int.	f-group	Int.	f-group	Ext.	f-group	Ext.	f-group	Ext.	f-group	Ext.	f-group	Int.	f-group	Ext.	f-group		
130	7	95	7	165	8	150	8												135	8	
110	7	80	7	145	8	130	8												120	8	
100	5	70	5	135	6	120	6												110	6	
85	5	60	5	125	6	110	6												100	6	
75	5	55	5	110	6	100	6												90	6	
110	7	80	7	145	8	130	8												120	8	
85	5	60	5	125	6	110	6												100	6	
75	5	55	5	110	6	100	6												90	6	
65	5	50	5	100	6	90	6												85	6	
100	7	70	7	135	8	120	8												110	8	
75	5	55	5	110	6	100	6												90	6	
60	4	55	4	90	5	80	5												75	5	
35	4	30	4	65	5	55	5												50	5	
40	4	35	4	70	5	60	5												55	5	
35	4	35	4	55	5	50	5												45	5	
125	7	90	7	150	8										120	8	100	7	120	8	
100	7	70	7	125	8										100	8	80	7	100	8	
110	7	80	7	135	8										100	8	80	7	100	8	
70	7	50	7	90	8										80	8	65	7	80	8	
120	7	85	7	145	8										120	8	100	7	120	8	
70	7	50	7	90	8										90	8	75	7	90	8	
150	8	105	8	170	8						180	9	180	9					180	9	
150	8	105	8	170	8						180	9	180	9					180	9	
150	8	105	8	170	8						130	9	130	9					130	9	
150	8	105	8	170	8						130	9	130	9					130	9	
150	8	105	8	170	8						120	9	120	9					120	9	
150	8	105	8	170	8						130	9	130	9					130	9	
150	8	105	8	170	8						130	9	130	9					130	9	
150	8	105	8	170	8						130	9	130	9					130	9	
30	4	20	4	30	5	30	5														
35	4	25	4	35	5	35	5														
35	4	25	4	35	5	35	5														
15	4	10	4	15	5	15	5														
15	4	10	4	15	5	15	5														
30	4	20	4	30	5	30	5														
30	4	20	4	30	5	30	5														
											25	2									
											20	1									
											50	3									
											25	2									

**A**

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**A**

## Recommended feed rate

### Solid carbide drills

f-group	Feed rate [mm]																			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20
<b>1</b>	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10
<b>2</b>	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,09	0,10	0,10	0,10	0,11	0,11	0,11
<b>3</b>	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13	0,13
<b>4</b>	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,14	0,15	0,15
<b>5</b>	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16	0,17	0,17
<b>6</b>	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19	0,20
<b>7</b>	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22	0,23
<b>8</b>	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,26
<b>9</b>	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29	0,30
<b>10</b>	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34	0,35
<b>11</b>	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39	0,40
<b>12</b>	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45	0,46
<b>13</b>	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52	0,53
<b>14</b>	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59	0,61
<b>15</b>	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68	0,70

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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## Solid carbide reamers

Product overview	C128
Grade overview	C129
System code – solid carbide reamers	C130
Solid carbide reamers	C131-C135
Recommended cutting data	C136-C140
Technical information	C173-C174
Form nonstandard order	C181



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**A**

Turning

Products	Solid carbide reamers	Ø	Application						Type	Page
			P	M	K	N	S	H		
3101H7		4-20			✓	✓			Right helical flute	C131
3102H7		4-20			✓	✓			Straight flute	C132
3112H7		4-20	✓		✓				Straight flute with inner hole	C133
3103H7		4-20			✓	✓			Left helical flute	C134

✓ Very suitable    ✓ Suitable

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**Coated cemented carbide PVD**

Grade	Grade description
-------	-------------------

**KRG102** PVD coated P10–P20/K10–K20 carbide substrate for steel and cast iron.

**Uncoated cemented carbide**

Grade	Grade description
-------	-------------------

**YK10F** Uncoated N10/K10 carbide substrate for cast iron and non ferrous materials.

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## 3 1 0 1 H7 – 0850

1

2

3

4

5

6

**A**

Turning

Type	
Code	Description
3	Reamer

Shank type	
Code	Description
1	Straight shank
2	Straight shank DIN10
5	Straight shank DIN 6535 HA
9	Morse taper shank

**B**

Milling

**1**

**2**

Coolant supply	
Code	Description
0	External
1	Internal

Flute	
Code	Description
1	Right-hand twist
2	Straight flute
3	Left-hand twist

**3**

**4**

**C**

Drilling

Classe de tolérance	
Code	Description
H7	The tolerance class of the reamed hole is equivalent to H7 (GB/T1800-1804)

Diameter [mm]	
Code	Description
0850	8,5
...	

**5**

**6**

**D**

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a Reaming



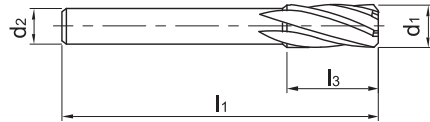
## Reamer, right-hand twist

Cast iron, non-ferrous metals

3101H7



– Factory standard



Article	*	Dimensions [mm]				Teeth	Grade
		d <sub>1</sub>	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>3</sub>		YK10F
3101H7-0400		4	3.55	56	20	4	●
3101H7-0500		5	4	63	22	6	○
3101H7-0600		6	5	63	22	6	○
3101H7-0700		7	6.3	71	25	6	○
3101H7-0800		8	6.3	71	25	6	○
3101H7-0900		9	8	71	25	6	○
3101H7-1000		10	8	71	25	6	○
3101H7-1100		11	10	80	28	6	○
3101H7-1200		12	10	80	28	6	○
3101H7-1300		13	10	80	28	6	○
3101H7-1400		14	12.5	90	32	6	○
3101H7-1450		14.5	12.5	90	32	6	○
3101H7-1500		15	12.5	90	32	6	○
3101H7-1600		16	12.5	90	32	6	○
3101H7-1700		17	12.5	90	32	6	○
3101H7-1800		18	16	100	36	6	○
3101H7-1900		19	16	100	36	6	○
3101H7-2000		20	16	100	36	6	○

● Ex stock ○ On demand

\* With internal cooling

## Application field

P	M	K	N	S	H
		✓	✓		

✓ Very suitable

✓ Suitable

System code &gt; C130

Machining instructions &gt; C165

Cutting data &gt; C136

Nonstandard order &gt; C181

A

Reamer, straight flute

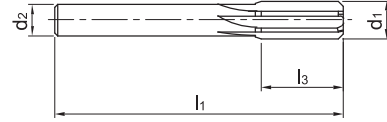
Cast iron, non-ferrous metals

Turning

3102H7



– Factory standard



B

Milling

Article	*	Dimensions [mm]				Teeth	Grade
		d <sub>1</sub>	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>3</sub>		YK10F
3102H7-0400		4	3.55	56	20	4	○
3102H7-0500		5	4	63	22	6	○
3102H7-0600		6	5	63	22	6	○
3102H7-0700		7	6.3	71	25	6	○
3102H7-0800		8	6.3	71	25	6	○
3102H7-0900		9	8	71	25	6	○
3102H7-1000		10	8	71	25	6	○
3102H7-1050		10.5	8	71	25	6	○
3102H7-1100		11	10	80	28	6	○
3102H7-1200		12	10	80	28	6	○
3102H7-1300		13	10	80	28	6	○
3102H7-1400		14	12.5	90	32	6	○
3102H7-1450		14.5	12.5	90	32	6	○
3102H7-1500		15	12.5	90	32	6	○
3102H7-1600		16	12.5	90	32	6	○
3102H7-1700		17	12.5	90	32	6	○
3102H7-1800		18	16	100	36	6	○
3102H7-1900		19	16	100	36	6	○
3102H7-2000		20	16	100	36	6	○

● Ex stock ○ On demand

\* With internal cooling

C

Drilling

D

Technical Information

Application field

P	M	K	N	S	H
		✓	✓		

✓ Very suitable  
✓ Suitable

E

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System code > C130

Machining instructions > C165

Cutting data > C136

Nonstandard order > C181

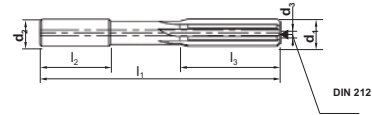
## Reamer, straight flute

Steel, cast iron

3112H7



- Factory standard
- Coolant exit, axial concentric



Article	*	Dimensions [mm]						Teeth	Grade
		d <sub>1</sub>	d <sub>2</sub> (h6)	d <sub>3</sub> (m7)	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>		KRG102
3112H7-0400	*	4	4	0.6	70	28	20	6	●
3112H7-0500	*	5	5	1	70	28	22	6	●
3112H7-0600	*	6	6	1	100	36	22	6	●
3112H7-0700	*	7	8	1.3	110	42	25	6	●
3112H7-0800	*	8	8	1.3	110	42	25	6	●
3112H7-0900	*	9	10	2	110	42	25	6	●
3112H7-1000	*	10	10	2	110	38	25	6	●
3112H7-1100	*	11	12	2	110	38	28	6	●
3112H7-1200	*	12	12	2	110	38	28	6	●
3112H7-1300	*	13	14	2	110	38	28	6	●
3112H7-1400	*	14	14	2	110	38	32	6	●
3112H7-1500	*	15	16	2	110	38	32	6	●
3112H7-1600	*	16	16	2	150	52	32	6	●
3112H7-1800	*	18	18	3	150	52	36	6	●
3112H7-2000	*	20	20	3	150	50	36	6	●

● Ex stock ○ On demand

\* With internal cooling

## Application field

P	M	K	N	S	H
✓		✓			

✓ Very suitable

✓ Suitable

System code &gt; C130

Machining instructions &gt; C165

Cutting data &gt; C136

Nonstandard order &gt; C181

A

Reamer, left-hand twist

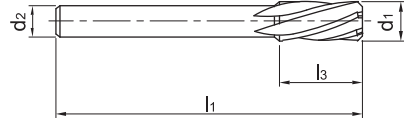
Cast iron, non-ferrous metals

Turning

3103H7



– Factory standard



B

Milling

Article	*	Dimensions [mm]				Teeth	Grade
		d <sub>1</sub>	d <sub>2</sub> (h6)	l <sub>1</sub>	l <sub>3</sub>		YK10F
3103H7-0400		4	3.55	56	20	4	○
3103H7-0450		4.5	4	63	22	6	○
3103H7-0500		5	4	63	22	6	○
3103H7-0600		6	5	63	22	6	○
3103H7-0700		7	6.3	71	25	6	○
3103H7-0800		8	6.3	71	25	6	○
3103H7-0900		9	8	71	25	6	○
3103H7-1000		10	8	71	25	6	○
3103H7-1100		11	10	80	28	6	○
3103H7-1150		11.5	10	80	28	6	○
3103H7-1200		12	10	80	28	6	○
3103H7-1300		13	10	80	28	6	○
3103H7-1350		13.5	12.5	90	32	6	○
3103H7-1400		14	12.5	90	32	6	○
3103H7-1500		15	12.5	90	32	6	○
3103H7-1600		16	12.5	90	32	6	○
3103H7-1700		17	12.5	90	32	6	○
3103H7-1800		18	16	100	36	6	○
3103H7-1900		19	16	100	36	6	○
3103H7-2000		20	16	100	36	6	○

● Ex stock ○ On demand

\* With internal cooling

C

Drilling

D

Technical Information

Application field

P	M	K	N	S	H
		✓	✓		

✓ Very suitable

✓ Suitable

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System code > C130

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Nonstandard order > C181



## Guide for recommended cutting data – Solid carbide reamers

### Solid carbide reamers

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
					3101H7		3102H7		3112H7		3103H7		
					YK10F		YK10F		KRG102		YK10F		
					Coolant								
	external	f-group	external	f-group	internal	f-group	external	f-group	external	f-group			
P Unalloyed steel	ca. 0,15 % C	annealed	125	1									
	ca. 0,45 % C	annealed	190	2									
	ca. 0,45 % C	tempered	250	3									
	ca. 0,75 % C	annealed	270	4									
	ca. 0,75 % C	tempered	300	5									
P Low-alloyed steel		annealed	180	6									
		tempered	275	7									
		tempered	300	8									
		tempered	350	9									
High-alloyed steel and high-alloyed tool steel		annealed	200	10									
		hardened and tempered	325	11									
M Stainless steel	ferritic/martensitic	annealed	200	12									
	martensitic	tempered	240	13									
	austenitic	quench hardened	180	14									
	austenitic-ferritic		230	15									
K Grey cast iron	perlite/ferritic		180	16	23	5	23	5	75	5	23	5	
	perlite (martensitic)		260	17	19	5	19	5	60	5	19	5	
	ferritic		160	18	19	5	19	5	60	5	19	5	
	perlite		250	19	17	5	17	5	50	5	17	5	
K Malleable cast iron	ferritic		130	20	23	5	23	5	75	5	23	5	
	perlite		230	21	14	5	14	5	55	5	14	5	
N Aluminium wrought alloys	cannot be hardened		60	22	45	6	45	6			45	6	
	hardenable	hardened	100	23	40	6	40	6			40	6	
	≤ 12% Si, cannot be hardened		75	24	37	6	37	6			37	6	
	≤ 12% Si, hardenable	hardened	90	25	35	6	35	6			35	6	
	> 12% Si, cannot be hardened		130	26	32	6	32	6			32	6	
Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	37	6	37	6			37	6	
	CuZn, CuSnZn		90	28	34	6	34	6			34	6	
	CuSn, Pb-free copper, electrolytic copper		100	29	37	6	37	6			37	6	
S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co base	annealed	250	32									
		hardened	350	33									
Titanium alloys	pure titanium		R <sub>m</sub> 400	35									
	α and β alloys	hardened	R <sub>m</sub> 1050	36									
H Hardened steel		hardened and tempered	55 HRC	37									
		hardened and tempered	60 HRC	38									
	Hard cast iron	cast	400	39									
X Non-metallic materials		hardened and tempered	55 HRC	40									
	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
	Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. With hole depths of 5xD adjust the cutting data accordingly to the application. f-group = feed rate recommendations on page C140. For examples of material for cutting tool groups view page D22.

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**Recommend feed rate**

**Solid carbide reamers**

f-group	Feed rate [mm]																			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20
<b>4</b>	1	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10
	2	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,10	0,10	0,11	0,11
	3	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13
	4	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,14	0,15
<b>5</b>	5	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16	0,17
	6	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19
	7	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22
	8	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26
	9	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29
	10	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34
	11	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39
	12	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45
	13	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52
	14	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59
	15	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases.

1. Select the appropriate product series.
2. Determine the immersion.
3. Select the used material and read the cutting speed.
4. Determine the feed rate group and have a look at the appropriate feed rate recommendations.
5. Select the diameter of tool and determine the immersion.

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## Solid carbide reamers

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
					3101H7		3102H7		3112H7		3103H7		
					YK10F		YK10F		KRG102		YK10F		
					Coolant								
				Ext.		f-group		Ext.		f-group			
P Unalloyed steel	approx. 0,15 % C	annealed	125	1					85	5			
	approx. 0,45 % C	annealed	190	2					75	5			
	approx. 0,45 % C	tempered	250	3					70	5			
	approx. 0,75 % C	annealed	270	4					60	5			
	approx. 0,75 % C	tempered	300	5					55	5			
P Low-alloyed steel		annealed	180	6					75	5			
		tempered	275	7					60	5			
		tempered	300	8					55	5			
		tempered	350	9					55	5			
P High-alloyed steel and high-alloyed tool steel		annealed	200	10					70	5			
		hardened and tempered	325	11					55	5			
M Stainless steel	ferritic/martensitic	annealed	200	12									
	martensitic	tempered	240	13									
	austenitic	quench hardened	180	14									
	austenitic-ferritic		230	15									
K Grey cast iron	perlitic/ferritic		180	16	23	5	23	5	75	5	23	5	
	perlitic (martensitic)		260	17	19	5	19	5	60	5	19	5	
K Cast iron with spheroidal graphite	ferritic		160	18	19	5	19	5	60	5	19	5	
	perlitic		250	19	17	5	17	5	50	5	17	5	
K Malleable cast iron	ferritic		130	20	23	5	23	5	75	5	23	5	
	perlitic		230	21	14	5	14	5	55	5	14	5	
N Aluminium wrought alloys	cannot be hardened		60	22	45	6	45	6			45	6	
	hardenable	hardened	100	23	40	6	40	6			40	6	
	Cast aluminium alloys	$\leq 12\%$ Si, cannot be hardened		75	24	37	6	37	6			37	6
		$\leq 12\%$ Si, hardenable	hardened	90	25	35	6	35	6			35	6
		$> 12\%$ Si, cannot be hardened		130	26	32	6	32	6			32	6
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27	37	6	37	6			37	6
CuZn, CuSnZn		90	28	34	6	34	6			34	6		
CuSn, Pb-free copper, electrolytic copper		100	29	37	6	37	6			37	6		
S Heat-resistant alloys	Fe-based alloys	annealed	200	30									
		hardened	280	31									
	Ni or Co bass	annealed	250	32									
		hardened	350	33									
		cast	320	34									
Titanium alloys	pure titanium		R <sub>m</sub> 400	35									
	$\alpha$ and $\beta$ alloys	hardened	R <sub>m</sub> 1050	36									
H Hardened steel		hardened and tempered	55 HRC	37									
		hardened and tempered	60 HRC	38									
	Hard cast iron	cast	400	39									
H Hardened cast iron		hardened and tempered	55 HRC	40									
X Non-metallic materials	Thermoplasts			41									
	Thermosetting plastics			42									
	Plastic, glass-fibre reinforced GFRP			43									
	Plastic, carbon fibre reinforced CFRP			44									
	Graphite			45									
X Wood				46									

Note: The given cutting values are guide values, which were determined under ideal conditions.  
 The values have to be adapted in individual cases.  
 With hole depths of 5xD adjust the cutting data accordingly to the application.  
 f-group = feed rate recommendations on page C140.  
 For examples of material for cutting tool groups view page D22.

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## Recommended feed rate

### Solid carbide reamers

f-group	Feed rate [mm]																			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20
<b>1</b>	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10
<b>2</b>	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,09	0,10	0,10	0,10	0,11	0,11	0,11
<b>3</b>	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13	0,13
<b>4</b>	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,14	0,15	0,15
<b>5</b>	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16	0,17	0,17
<b>6</b>	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19	0,20
<b>7</b>	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22	0,23
<b>8</b>	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,26
<b>9</b>	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29	0,30
<b>10</b>	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34	0,35
<b>11</b>	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39	0,40
<b>12</b>	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45	0,46
<b>13</b>	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52	0,53
<b>14</b>	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59	0,61
<b>15</b>	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68	0,70

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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## Solid carbide threading tools

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Products	Solid carbide threading tools	Ø	Application						Type	Page
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4222A		M3-M16				✓			Solid carbide thread formers	C146
4122M		M1-M2.5	✓	✓					Solid carbide thread formers	C148
4222M		M3-M16	✓	✓					Solid carbide thread formers	C149
4201C		M3-M16			✓				Solid carbide tap, right-hand twist	C151
4202C		M3-M16			✓				Solid carbide tap, straight flute	C153
4201A		M3-M16				✓			Solid carbide tap, right-hand twist	C155
4202A		M3-M16				✓			Solid carbide tap, straight flute	C157
4111		M3-M20	✓		✓	✓			Solid carbide thread milling cutters	C159

✓ Very suitable    ✓ Suitable

### Coated cemented carbide PVD

Grade	Grade description
<b>KTG402</b>	PVD coated P20–P30/M20–M30 carbide substrate for steel and stainless steel. Especially for thread forming tools.

<b>KTG4015</b>	PVD coated P20–P30/K20–K30 carbide substrate for steel and cast iron. Especially for thread forming tools.
----------------	------------------------------------------------------------------------------------------------------------

### Uncoated cemented carbide

Grade	Grade description
<b>YK40F</b>	Uncoated K20–K30/N20–N30 carbide substrate for cast iron and non ferrous materials.

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**4 2 0 1 A (C) (S) – M5x0.8 – 6H**

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**A**

Turning

Type	
Code	Description
4	Threading tool

Shank type	
Code	Description
1	Straight shank
2	Straight shank DIN10
5	Straight shank DIN 6535 HA
9	Conical shank

**B**

Milling

**1**

**2**

Tool type	
Code	Description
0	Tap
1	Thread milling cutter
2	Thread former

Flute	
Code	Description
1	Right-hand twist
2	Straight
3	Left-hand twist

**3**

**4**

**C**

Drilling

Material	
Code	Description
A	Aluminum alloy
C	Cast iron
M	Stainless steel
P	Steel
H	Hardened steel

Coolant supply	
Code	Description
C	Internal

**5**

**6**

**D**

Technical Information

Blind hole	
Code	Description
S	Blind hole

Thread type	
Code	Description
M5x0.8	Standard production tolerance
...	Fine production tolerance

**7**

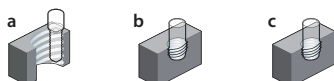
**8**

Precision class	
Code	Description
6H	Nominal diameter x pitch
6HX	Fine production tolerance

**9**

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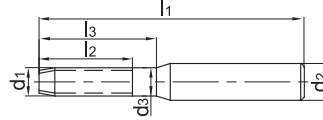
Thread former

Non-ferrous metals

4122A



– Factory standard



Article	*	Dimensions [mm]								Teeth	Coredrill	Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>		d	YK40F
4122A-M1*0.25-6H		3P	M1	0.25	3		40	5	6	3	0.9	●
4122AS-M1*0.25-6H		1.5P	M1	0.25	3		40	5	6	3	0.9	○
4122A-M1.2*0.25-6H		3P	M1.2	0.25	3		40	5	6	3	1.1	●
4122AS-M1.2*0.25-6H		1.5P	M1.2	0.25	3		40	5	6	3	1.1	○
4122A-M1.6*0.35-6H		3P	M1.6	0.35	3	1.1	40	5	11	3	1.47	●
4122AS-M1.6*0.35-6H		1.5P	M1.6	0.35	3	1.1	40	5	11	3	1.47	●
4122A-M2*0.4-6H		3P	M2	0.4	3	1.5	45	6	12	3	1.85	●
4122AS-M2*0.4-6H		1.5P	M2	0.4	3	1.5	45	6	12	3	1.85	●
4122A-M2.5*0.45-6H		3P	M2.5	0.45	3	1.9	50	6	14	3	2.33	○
4122AS-M2.5*0.45-6H		1.5P	M2.5	0.45	3	1.9	50	6	14	3	2.33	●

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



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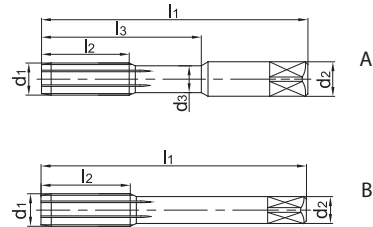
### Thread former

### Non-ferrous metals

4222A



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4222A-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	6	18	4	A	2.8	○		
4222AS-M3*0.5-6H	*	1.5P	M3	0.5	3.5	2.3	56	6	18	4	A	2.8	●		
4222A-M4*0.5-6H		3P	M4	0.5	4.5	3.1	63	8	21	4	A	3.8	○		
4222AS-M4*0.5-6H	*	1.5P	M4	0.5	4.5	3.1	63	8	21	4	A	3.8	○		
4222A-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	8	21	4	A	3.7	○		
4222AS-M4*0.7-6H	*	1.5P	M4	0.7	4.5	3.1	63	8	21	4	A	3.7	○		
4222A-M5*0.5-6H		3P	M5	0.5	6	4.3	70	10	25	4	A	4.8	○		
4222AS-M5*0.5-6H	*	1.5P	M5	0.5	6	4.3	70	10	25	4	A	4.8	○		
4222A-M5*0.8-6H		3P	M5	0.8	6	4	70	10	25	4	A	4.65	○		
4222AS-M5*0.8-6H	*	1.5P	M5	0.8	6	4	70	10	25	4	A	4.65	○		
4222A-M6*0.75-6H		3P	M6	0.75	6	5	80	12	30	4	A	5.7	○		
4222AS-M6*0.75-6H	*	1.5P	M6	0.75	6	5	80	12	30	4	A	5.7	○		
4222A-M6*1-6H		3P	M6	1	6	4.7	80	12	30	4	A	5.6	○		
4222AS-M6*1-6H	*	1.5P	M6	1	6	4.7	80	12	30	4	A	5.6	○		
4222A-M7*1-6H		3P	M7	1	7	5.7	80	14	30	4	A	6.6	○		
4222AS-M7*1-6H	*	1.5P	M7	1	7	5.7	80	14	30	4	A	6.6	○		
4222A-M8*1-6H		3P	M8	1	8	6.7	90	16	35	4	A	7.6	○		
4222AS-M8*1-6H	*	1.5P	M8	1	8	6.7	90	16	35	4	A	7.6	○		
4222A-M8*1.25-6H		3P	M8	1.25	8	6.4	90	16	35	4	A	7.45	○		
4222AS-M8*1.25-6H	*	1.5P	M8	1.25	8	6.4	90	16	35	4	A	7.45	○		
4222A-M10*1-6H		3P	M10	1	10	8.7	100	20	39	5	A	9.6	○		
4222AS-M10*1-6H	*	1.5P	M10	1	10	8.7	100	20	39	5	A	9.6	○		
4222A-M10*1.25-6H		3P	M10	1.25	10	8.4	100	20	39	5	A	9.45	○		
4222AS-M10*1.25-6H	*	1.5P	M10	1.25	10	8.4	100	20	39	5	A	9.45	○		
4222A-M10*1.5-6H		3P	M10	1.5	10	8.1	100	20	39	5	A	9.35	○		
4222AC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	20	39	5	A	9.35	○		
4222AS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	20	39	5	A	9.35	○		
4222ACS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	20	39	5	A	9.35	○		
4222A-M12*1.25-6H		3P	M12	1.25	9		110	24		5	B	11.45	○		
4222AS-M12*1.25-6H	*	1.5P	M12	1.25	9		110	24		5	B	11.45	○		
4222A-M12*1.5-6H		3P	M12	1.5	9		110	24		5	B	11.35	○		
4222AS-M12*1.5-6H	*	1.5P	M12	1.5	9		110	24		5	B	11.35	○		
4222A-M12*1.75-6H		3P	M12	1.75	9		110	24		5	B	11.25	○		

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



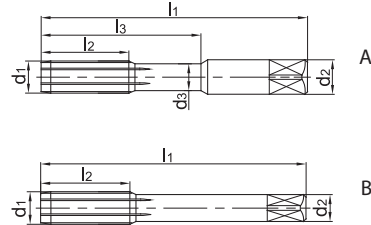
## Thread former

## Non-ferrous metals

4222A



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]								Teeth	Geometry	Coredrill	Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>			d	YK40F
4222AC-M12*1.75-6H	*	3P	M12	1.75	9		110	24	5	B	11.25	○	
4222AS-M12*1.75-6H		1.5P	M12	1.75	9		110	24	5	B	11.25	○	
4222ACS-M12*1.75-6H	*	1.5P	M12	1.75	9		110	24	5	B	11.25	○	
4222A-M14*1.5-6H		3P	M14	1.5	11		110	26	6	B	13.35	○	
4222AS-M14*1.5-6H		1.5P	M14	1.5	11		110	26	6	B	13.35	○	
4222A-M14*2-6H		3P	M14	2	11		110	26	6	B	13.1	○	
4222AS-M14*2-6H		1.5P	M14	2	11		110	26	6	B	13.1	○	
4222A-M16*1.5-6H		3P	M16	1.5	12		110	27	6	B	15.35	○	
4222AS-M16*1.5-6H		1.5P	M16	1.5	12		110	27	6	B	15.35	○	
4222A-M16*2-6H		3P	M16	2	12		110	27	6	B	15.1	○	
4222AC-M16*2-6H	*	3P	M16	2	12		110	27	6	B	15.1	○	
4222AS-M16*2-6H		1.5P	M16	2	12		110	27	6	B	15.1	○	
4222ACS-M16*2-6H	*	1.5P	M16	2	12		110	27	6	B	15.1	○	

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

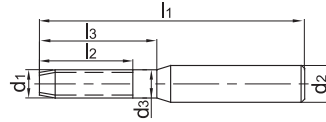
A

Thread former **Steel, stainless steel**

4122M



– Factory standard



Turning

B

Milling

Article	*	Dimensions [mm]									Teeth	Coredrill		Grade	
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d		KTG402	YK40F		
4122M-M1*0.25-6H		3P	M1	0.25	3		40	5	6	4	0.9	●	○		
4122MS-M1*0.25-6H		2P	M1	0.25	3		40	5	6	4	0.9	●	○		
4122M-M1.2*0.25-6H		3P	M1.2	0.25	3		40	5	6	4	1.1	○	○		
4122MS-M1.2*0.25-6H		2P	M1.2	0.25	3		40	5	6	4	1.1	○	○		
4122M-M1.6*0.35-6H		3P	M1.6	0.35	3	1.1	40	5	11	4	1.47	○	○		
4122MS-M1.6*0.35-6H		2P	M1.6	0.35	3	1.1	40	5	11	4	1.47	○	○		
4122M-M2*0.4-6H		3P	M2	0.4	3	1.5	45	6	12	4	1.85	●	○		
4122MS-M2*0.4-6H		2P	M2	0.4	3	1.5	45	6	12	4	1.85	●	○		
4122M-M2.5*0.45-6H		3P	M2.5	0.45	3	1.9	50	6	14	4	2.33	○	○		
4122MS-M2.5*0.45-6H		2P	M2.5	0.45	3	1.9	50	6	14	4	2.33	●	○		

● Ex stock ○ On demand

\* With internal cooling

C

Drilling

Application field

P	M	K	N	S	H
✓	✓				

✓ Very suitable

✓ Suitable

D

Technical Information

E

Index

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182

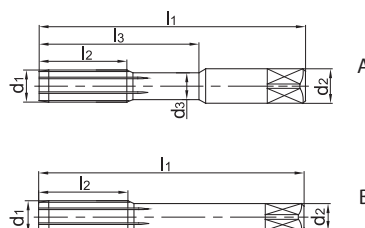
## Thread former

Steel, stainless steel

### 4222M



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade	
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			KTG402	YK40F		
4222M-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	6	18	4	A	2.8	●	○		
4222MS-M3*0.5-6H		2P	M3	0.5	3.5	2.3	56	6	18	4	A	2.8	○	○		
4222M-M4*0.5-6H		3P	M4	0.5	4.5	3.1	63	8	21	4	A	3.8	●	○		
4222MS-M4*0.5-6H		2P	M4	0.5	4.5	3.1	63	8	21	4	A	3.8	○	○		
4222M-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	8	21	4	A	3.7	●	○		
4222MS-M4*0.7-6H		2P	M4	0.7	4.5	3.1	63	8	21	4	A	3.7	●	○		
4222M-M5*0.5-6H		3P	M5	0.5	6	4.3	70	10	25	4	A	4.8	●	○		
4222MS-M5*0.5-6H		2P	M5	0.5	6	4.3	70	10	25	4	A	4.8	●	○		
4222M-M5*0.8-6H		3P	M5	0.8	6	4	70	10	25	4	A	4.65	●	○		
4222MS-M5*0.8-6H		2P	M5	0.8	6	4	70	10	25	4	A	4.65	●	○		
4222M-M6*0.75-6H		3P	M6	0.75	6	5	80	12	30	4	A	5.7	●	○		
4222MS-M6*0.75-6H		2P	M6	0.75	6	5	80	12	30	4	A	5.7	●	○		
4222M-M6*1-6H		3P	M6	1	6	4.7	80	12	30	4	A	5.6	○	○		
4222MS-M6*1-6H		2P	M6	1	6	4.7	80	12	30	4	A	5.6	○	○		
4222M-M7*1-6H		3P	M7	1	7	5.7	80	14	30	4	A	6.6	○	○		
4222MS-M7*1-6H		2P	M7	1	7	5.7	80	14	30	4	A	6.6	○	○		
4222M-M8*1-6H		3P	M8	1	8	6.7	90	16	35	4	A	7.6	○	○		
4222MS-M8*1-6H		2P	M8	1	8	6.7	90	16	35	4	A	7.6	○	○		
4222M-M8*1.25-6H		3P	M8	1.25	8	6.4	90	16	35	4	A	7.45	●	○		
4222MS-M8*1.25-6H		2P	M8	1.25	8	6.4	90	16	35	4	A	7.45	●	○		
4222M-M10*1-6H		3P	M10	1	10	8.7	100	20	39	5	A	9.6	○	○		
4222MS-M10*1-6H		2P	M10	1	10	8.7	100	20	39	5	A	9.6	○	○		
4222M-M10*1.25-6H		3P	M10	1.25	10	8.4	100	20	39	5	A	9.45	○	○		
4222MS-M10*1.25-6H		2P	M10	1.25	10	8.4	100	20	39	5	A	9.45	●	○		
4222M-M10*1.5-6H		3P	M10	1.5	10	8.1	100	20	39	5	A	9.35	○	○		
4222MC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	20	39	5	A	9.35	●	○		
4222MS-M10*1.5-6H		2P	M10	1.5	10	8.1	100	20	39	5	A	9.35	●	○		
4222MCS-M10*1.5-6H	*	2P	M10	1.5	10	8.1	100	20	39	5	A	9.35	●	○		
4222M-M12*1.25-6H		3P	M12	1.25	9		110	24		5	B	11.45	●	○		
4222MS-M12*1.25-6H		2P	M12	1.25	9		110	24		5	B	11.45	●	○		
4222M-M12*1.5-6H		3P	M12	1.5	9		110	24		5	B	11.35	○	○		
4222MS-M12*1.5-6H		2P	M12	1.5	9		110	24		5	B	11.35	○	○		
4222M-M12*1.75-6H		3P	M12	1.75	9		110	24		5	B	11.25	○	○		

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
✓	✓				

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



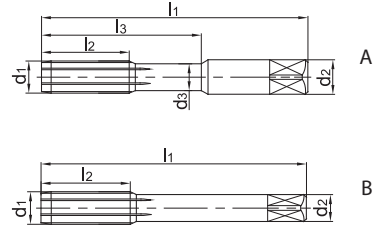
A

Thread former **Steel, stainless steel**

4222M



- Type of shank DIN 10
- Coolant exit, axial concentric



Turning

B

Milling

C

Drilling

Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade	
		$\frac{1}{2}$	d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			KTG402	YK40F		
4222MC-M12*1.75-6H	*	3P	M12	1.75	9		110	24	5	B	11.25	○	○			
4222MS-M12*1.75-6H		2P	M12	1.75	9		110	24	5	B	11.25	●	○			
4222MCS-M12*1.75-6H	*	2P	M12	1.75	9		110	24	5	B	11.25	○	○			
4222M-M14*1.5-6H		3P	M14	1.5	11		110	26	6	B	13.35	●	○			
4222MS-M14*1.5-6H		2P	M14	1.5	11		110	26	6	B	13.35	○	○			
4222M-M14*2-6H		3P	M14	2	11		110	26	6	B	13.1	○	○			
4222MS-M14*2-6H		2P	M14	2	11		110	26	6	B	13.1	○	○			
4222M-M16*1.5-6H		3P	M16	1.5	12		110	27	6	B	15.35	●	○			
4222MS-M16*1.5-6H		2P	M16	1.5	12		110	27	6	B	15.35	○	○			
4222M-M16*2-6H		3P	M16	2	12		110	27	6	B	15.1	○	○			
4222MC-M16*2-6H	*	3P	M16	2	12		110	27	6	B	15.1	○	○			
4222MS-M16*2-6H		2P	M16	2	12		110	27	6	B	15.1	○	○			
4222MCS-M16*2-6H	*	2P	M16	2	12		110	27	6	B	15.1	○	○			

● Ex stock ○ On demand

\* With internal cooling

D

Technical Information

E

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### Application field

P	M	K	N	S	H
✓	✓				

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182

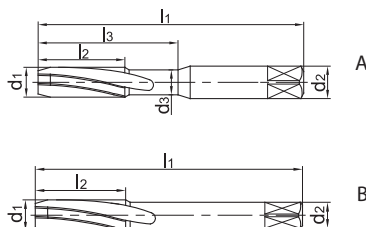
## Tap, right-hand twist

Cast iron

## 4201C



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill d	Grade YK40F
		$\frac{d_1}{P}$	$d_1$	P	$d_2$	$d_3$	$l_1$	$l_2$	$l_3$					
4201C-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●	
4201C-M3*0.5-6HX		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●	
4201CS-M3*0.5-6H		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●	
4201CS-M3*0.5-6HX		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●	
4201C-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●	
4201C-M4*0.7-6HX		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●	
4201CS-M4*0.7-6H		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●	
4201CS-M4*0.7-6HX		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●	
4201C-M5*0.8-6H		3P	M5	0.8	6	4	70	16	25	3	A	4.2	●	
4201C-M5*0.8-6HX		3P	M5	0.8	6	4	70	16	25	3	A	4.2	●	
4201CS-M5*0.8-6H		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	●	
4201CS-M5*0.8-6HX		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	●	
4201C-M6*0.75-6H		3P	M6	0.75	6	5	80	19	30	3	A	5.25	●	
4201C-M6*0.75-6HX		3P	M6	0.75	6	5	80	19	30	3	A	5.25	●	
4201CS-M6*0.75-6H		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	●	
4201CS-M6*0.75-6HX		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	●	
4201C-M6*1-6H		3P	M6	1	6	4.7	80	19	30	3	A	5	○	
4201CC-M6*1-6H	*	3P	M6	1	6	4.7	80	19	30	3	A	5	○	
4201C-M6*1-6HX		3P	M6	1	6	4.7	80	19	30	3	A	5	○	
4201CS-M6*1-6H		1.5P	M6	1	6	4.7	80	19	30	3	A	5	○	
4201CCS-M6*1-6H	*	1.5P	M6	1	6	4.7	80	19	30	3	A	5	●	
4201CS-M6*1-6HX		1.5P	M6	1	6	4.7	80	19	30	3	A	5	○	
4201C-M7*1-6H		3P	M7	1	7	5.7	80	19	30	3	A	6	○	
4201CS-M7*1-6H		1.5P	M7	1	7	5.7	80	19	30	3	A	6	○	
4201C-M8*1-6H		3P	M8	1	8	6.7	90	20	35	3	A	7	○	
4201CS-M8*1-6H		1.5P	M8	1	8	6.7	90	20	35	3	A	7	○	
4201C-M8*1.25-6H		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●	
4201CC-M8*1.25-6H	*	3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●	
4201C-M8*1.25-6HX		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●	
4201CS-M8*1.25-6H		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○	
4201CCS-M8*1.25-6H	*	1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○	
4201CS-M8*1.25-6HX		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○	
4201C-M10*1-6H		3P	M10	1	10	8.7	100	20	39	4	A	9	○	

● Ex stock ○ On demand

\* With internal cooling

## Application field

P	M	K	N	S	H
		✓			

✓ Very suitable

✓ Suitable

System code &gt; C144

Machining instructions &gt; C165

Cutting data &gt; C160

Nonstandard order &gt; C182



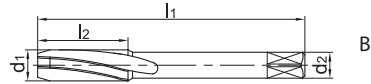
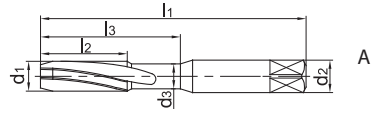
## Tap, right-hand twist

Cast iron

### 4201C



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4201CS-M10*1-6H		1.5P	M10	1	10	8.7	100	20	39	4	A	9	○		
4201C-M10*1.25-6H		3P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4201CS-M10*1.25-6H		1.5P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4201C-M10*1.5-6H		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201CC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201C-M10*1.5-6HX		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201CS-M10*1.5-6H		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201CCS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	●		
4201CS-M10*1.5-6HX		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201C-M12*1.25-6H		3P	M12	1.25	9		110	29		4	B	10.75	○		
4201CS-M12*1.25-6H		1.5P	M12	1.25	9		110	29		4	B	10.75	○		
4201C-M12*1.5-6H		3P	M12	1.5	9		110	29		4	B	10.5	○		
4201CS-M12*1.5-6H		1.5P	M12	1.5	9		110	29		4	B	10.5	○		
4201C-M12*1.75-6H		3P	M12	1.75	9		110	29		4	B	10.25	○		
4201CC-M12*1.75-6H	*	3P	M12	1.75	9		110	29		4	B	10.25	●		
4201C-M12*1.75-6HX		3P	M12	1.75	9		110	29		4	B	10.25	○		
4201CS-M12*1.75-6H		1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4201CCS-M12*1.75-6H	*	1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4201CS-M12*1.75-6HX		1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4201C-M14*1.5-6H		3P	M14	1.5	11		110	30		4	B	12.5	○		
4201CS-M14*1.5-6H		1.5P	M14	1.5	11		110	30		4	B	12.5	○		
4201C-M14*2-6H		3P	M14	2	11		110	30		4	B	12	○		
4201CS-M14*2-6H		1.5P	M14	2	11		110	30		4	B	12	○		
4201C-M16*1.5-6H		3P	M16	1.5	12		110	32		4	B	14.5	○		
4201CS-M16*1.5-6H		1.5P	M16	1.5	12		110	32		4	B	14.5	○		
4201C-M16*2-6H		3P	M16	2	12		110	32		4	B	14	○		
4201CS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4201C-M16*2-6HX		3P	M16	2	12		110	32		4	B	14	○		
4201CS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4201CS-M16*2-6HX		1.5P	M16	2	12		110	32		4	B	14	○		

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
		✓			

- ✓ Very suitable
- ✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182

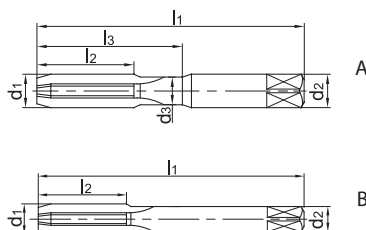
## Tap, straight flute

Cast iron

## 4202C



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill d	Grade YK40F
		$\frac{d_1}{P}$	$d_1$	P	$d_2$	$d_3$	$l_1$	$l_2$	$l_3$					
4202C-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o	
4202C-M3*0.5-6HX		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o	
4202CS-M3*0.5-6H		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o	
4202CS-M3*0.5-6HX		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o	
4202C-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o	
4202C-M4*0.7-6HX		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o	
4202CS-M4*0.7-6H		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o	
4202CS-M4*0.7-6HX		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o	
4202C-M5*0.8-6H		3P	M5	0.8	6	4	70	16	25	3	A	4.2	o	
4202C-M5*0.8-6HX		3P	M5	0.8	6	4	70	16	25	3	A	4.2	o	
4202CS-M5*0.8-6H		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	o	
4202CS-M5*0.8-6HX		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	o	
4202C-M6*0.75-6H		3P	M6	0.75	6	5	80	19	30	3	A	5.25	o	
4202C-M6*0.75-6HX		3P	M6	0.75	6	5	80	19	30	3	A	5.25	o	
4202CS-M6*0.75-6H		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	o	
4202CS-M6*0.75-6HX		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	o	
4202C-M6*1-6H		3P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202CC-M6*1-6H	*	3P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202C-M6*1-6HX		3P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202CS-M6*1-6H		1.5P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202CCS-M6*1-6H	*	1.5P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202CS-M6*1-6HX		1.5P	M6	1	6	4.7	80	19	30	3	A	5	o	
4202C-M7*1-6H		3P	M7	1	7	5.7	80	19	30	3	A	6	o	
4202CS-M7*1-6H		1.5P	M7	1	7	5.7	80	19	30	3	A	6	o	
4202C-M8*1-6H		3P	M8	1	8	6.7	90	20	35	3	A	7	o	
4202CS-M8*1-6H		1.5P	M8	1	8	6.7	90	20	35	3	A	7	o	
4202C-M8*1.25-6H		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202CC-M8*1.25-6H	*	3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202C-M8*1.25-6HX		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202CS-M8*1.25-6H		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202CCS-M8*1.25-6H	*	1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202CS-M8*1.25-6HX		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o	
4202C-M10*1-6H		3P	M10	1	10	8.7	100	20	39	4	A	9	o	

● Ex stock ○ On demand

\* With internal cooling

## Application field

P	M	K	N	S	H
		✓			

✓ Very suitable

✓ Suitable

System code &gt; C144

Machining instructions &gt; C165

Cutting data &gt; C160

Nonstandard order &gt; C182



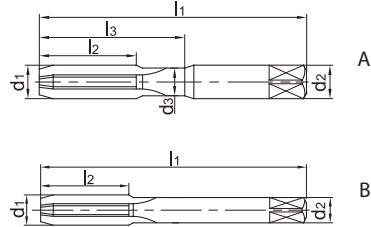
## Tap, straight flute

Cast iron

4202C



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4202CS-M10*1-6H		1.5P	M10	1	10	8.7	100	20	39	4	A	9	o		
4202C-M10*1.25-6H		3P	M10	1.25	10	8.4	100	24	39	4	A	8.75	o		
4202CS-M10*1.25-6H		1.5P	M10	1.25	10	8.4	100	24	39	4	A	8.75	o		
4202C-M10*1.5-6H		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202CC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202C-M10*1.5-6HX		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202CS-M10*1.5-6H		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202CCS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202CS-M10*1.5-6HX		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	o		
4202C-M12*1.25-6H		3P	M12	1.25	9		110	29		4	B	10.75	o		
4202CS-M12*1.25-6H		1.5P	M12	1.25	9		110	29		4	B	10.75	o		
4202C-M12*1.5-6H		3P	M12	1.5	9		110	29		4	B	10.5	o		
4202CS-M12*1.5-6H		1.5P	M12	1.5	9		110	29		4	B	10.5	o		
4202C-M12*1.75-6H		3P	M12	1.75	9		110	29		4	B	10.25	o		
4202CC-M12*1.75-6H	*	3P	M12	1.75	9		110	29		4	B	10.25	o		
4202C-M12*1.75-6HX		3P	M12	1.75	9		110	29		4	B	10.25	o		
4202CS-M12*1.75-6H		1.5P	M12	1.75	9		110	29		4	B	10.25	o		
4202CCS-M12*1.75-6H	*	1.5P	M12	1.75	9		110	29		4	B	10.25	o		
4202CS-M12*1.75-6HX		1.5P	M12	1.75	9		110	29		4	B	10.25	o		
4202C-M14*1.5-6H		3P	M14	1.5	11		110	30		4	B	12.5	o		
4202CS-M14*1.5-6H		1.5P	M14	1.5	11		110	30		4	B	12.5	o		
4202C-M14*2-6H		3P	M14	2	11		110	30		4	B	12	o		
4202CS-M14*2-6H		1.5P	M14	2	11		110	30		4	B	12	o		
4202C-M16*1.5-6H		3P	M16	1.5	12		110	32		4	B	14.5	o		
4202CS-M16*1.5-6H		1.5P	M16	1.5	12		110	32		4	B	14.5	o		
4202C-M16*2-6H		3P	M16	2	12		110	32		4	B	14	o		
4202CS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	o		
4202C-M16*2-6HX		3P	M16	2	12		110	32		4	B	14	o		
4202CS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	o		
4202CS-M16*2-6HX		1.5P	M16	2	12		110	32		4	B	14	o		

● Ex stock ○ On demand

\* With internal cooling

### Application field

P	M	K	N	S	H
		✓			

- ✓ Very suitable
- ✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



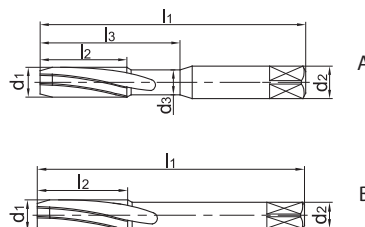
Tap, right-hand twist

Non-ferrous metals

4201A



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
		$\frac{d_1}{P}$	d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4201A-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●		
4201A-M3*0.5-6HX		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	○		
4201AS-M3*0.5-6H		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	●		
4201AS-M3*0.5-6HX		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	○		
4201A-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●		
4201A-M4*0.7-6HX		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	○		
4201AS-M4*0.7-6H		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	●		
4201AS-M4*0.7-6HX		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	○		
4201A-M5*0.8-6H		3P	M5	0.8	6	4	70	16	25	3	A	4.2	○		
4201A-M5*0.8-6HX		3P	M5	0.8	6	4	70	16	25	3	A	4.2	○		
4201AS-M5*0.8-6H		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	●		
4201AS-M5*0.8-6HX		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	○		
4201A-M6*0.75-6H		3P	M6	0.75	6	5	80	19	30	3	A	5.25	○		
4201A-M6*0.75-6HX		3P	M6	0.75	6	5	80	19	30	3	A	5.25	●		
4201AS-M6*0.75-6H		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	●		
4201AS-M6*0.75-6HX		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	○		
4201A-M6*1-6H		3P	M6	1	6	4.7	80	19	30	3	A	5	●		
4201AC-M6*1-6H	*	3P	M6	1	6	4.7	80	19	30	3	A	5	○		
4201A-M6*1-6HX		3P	M6	1	6	4.7	80	19	30	3	A	5	●		
4201AS-M6*1-6H		1.5P	M6	1	6	4.7	80	19	30	3	A	5	●		
4201ACS-M6*1-6H	*	1.5P	M6	1	6	4.7	80	19	30	3	A	5	●		
4201AS-M6*1-6HX		1.5P	M6	1	6	4.7	80	19	30	3	A	5	○		
4201A-M7*1-6H		3P	M7	1	7	5.7	80	19	30	3	A	6	○		
4201AS-M7*1-6H		1.5P	M7	1	7	5.7	80	19	30	3	A	6	○		
4201A-M8*1-6H		3P	M8	1	8	6.7	90	20	35	3	A	7	○		
4201AS-M8*1-6H		1.5P	M8	1	8	6.7	90	20	35	3	A	7	●		
4201A-M8*1.25-6H		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○		
4201AC-M8*1.25-6H	*	3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●		
4201A-M8*1.25-6HX		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○		
4201AS-M8*1.25-6H		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●		
4201ACS-M8*1.25-6H	*	1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	●		
4201AS-M8*1.25-6HX		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	○		
4201A-M10*1-6H		3P	M10	1	10	8.7	100	20	39	4	A	9	●		

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



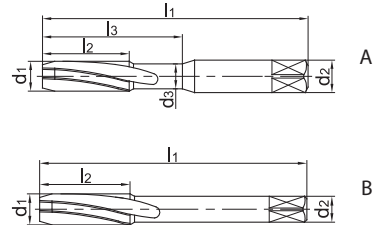
## Tap, right-hand twist

## Non-ferrous metals

### 4201A



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4201AS-M10*1-6H		1.5P	M10	1	10	8.7	100	20	39	4	A	9	●		
4201A-M10*1.25-6H		3P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4201AS-M10*1.25-6H		1.5P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4201A-M10*1.5-6H		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201AC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	●		
4201A-M10*1.5-6HX		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201AS-M10*1.5-6H		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	●		
4201ACS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201AS-M10*1.5-6HX		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4201A-M12*1.25-6H		3P	M12	1.25	9		110	29		4	B	10.75	○		
4201AS-M12*1.25-6H		1.5P	M12	1.25	9		110	29		4	B	10.75	○		
4201A-M12*1.5-6H		3P	M12	1.5	9		110	29		4	B	10.5	○		
4201AS-M12*1.5-6H		1.5P	M12	1.5	9		110	29		4	B	10.5	○		
4201A-M12*1.75-6H		3P	M12	1.75	9		110	29		4	B	10.25	○		
4201AC-M12*1.75-6H	*	3P	M12	1.75	9		110	29		4	B	10.25	○		
4201A-M12*1.75-6HX		3P	M12	1.75	9		110	29		4	B	10.25	○		
4201AS-M12*1.75-6H		1.5P	M12	1.75	9		110	29		4	B	10.25	●		
4201ACS-M12*1.75-6H	*	1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4201AS-M12*1.75-6HX		1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4201A-M14*1.5-6H		3P	M14	1.5	11		110	30		4	B	12.5	○		
4201AS-M14*1.5-6H		1.5P	M14	1.5	11		110	30		4	B	12.5	○		
4201A-M14*2-6H		3P	M14	2	11		110	30		4	B	12	○		
4201AS-M14*2-6H		1.5P	M14	2	11		110	30		4	B	12	○		
4201A-M16*1.5-6H		3P	M16	1.5	12		110	32		4	B	14.5	○		
4201AS-M16*1.5-6H		1.5P	M16	1.5	12		110	32		4	B	14.5	○		
4201A-M16*2-6H		3P	M16	2	12		110	32		4	B	14	○		
4201AS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4201A-M16*2-6HX		3P	M16	2	12		110	32		4	B	14	○		
4201AS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4201AS-M16*2-6HX		1.5P	M16	2	12		110	32		4	B	14	○		

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182

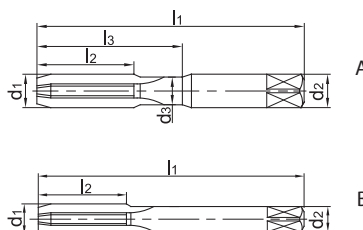
## Tap, straight flute

## Non-ferrous metals

### 4202A



- Type of shank DIN 10
- Coolant exit, axial concentric



Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
		$\frac{d_1}{P}$	d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4202A-M3*0.5-6H		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o		
4202A-M3*0.5-6HX		3P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o		
4202AS-M3*0.5-6H		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o		
4202AS-M3*0.5-6HX		1.5P	M3	0.5	3.5	2.3	56	11	18	3	A	2.5	o		
4202A-M4*0.7-6H		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o		
4202A-M4*0.7-6HX		3P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o		
4202AS-M4*0.7-6H		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o		
4202AS-M4*0.7-6HX		1.5P	M4	0.7	4.5	3.1	63	13	21	3	A	3.3	o		
4202A-M5*0.8-6H		3P	M5	0.8	6	4	70	16	25	3	A	4.2	o		
4202A-M5*0.8-6HX		3P	M5	0.8	6	4	70	16	25	3	A	4.2	o		
4202AS-M5*0.8-6H		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	o		
4202AS-M5*0.8-6HX		1.5P	M5	0.8	6	4	70	16	25	3	A	4.2	o		
4202A-M6*0.75-6H		3P	M6	0.75	6	5	80	19	30	3	A	5.25	o		
4202A-M6*0.75-6HX		3P	M6	0.75	6	5	80	19	30	3	A	5.25	o		
4202AS-M6*0.75-6H		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	o		
4202AS-M6*0.75-6HX		1.5P	M6	0.75	6	5	80	19	30	3	A	5.25	o		
4202A-M6*1-6H		3P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202AC-M6*1-6H	*	3P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202A-M6*1-6HX		3P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202AS-M6*1-6H		1.5P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202ACS-M6*1-6H	*	1.5P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202AS-M6*1-6HX		1.5P	M6	1	6	4.7	80	19	30	3	A	5	o		
4202A-M7*1-6H		3P	M7	1	7	5.7	80	19	30	3	A	6	o		
4202AS-M7*1-6H		1.5P	M7	1	7	5.7	80	19	30	3	A	6	o		
4202A-M8*1-6H		3P	M8	1	8	6.7	90	20	35	3	A	7	o		
4202AS-M8*1-6H		1.5P	M8	1	8	6.7	90	20	35	3	A	7	o		
4202A-M8*1.25-6H		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202AC-M8*1.25-6H	*	3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202A-M8*1.25-6HX		3P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202AS-M8*1.25-6H		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202ACS-M8*1.25-6H	*	1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202AS-M8*1.25-6HX		1.5P	M8	1.25	8	6.4	90	22	35	3	A	6.75	o		
4202A-M10*1-6H		3P	M10	1	10	8.7	100	20	39	4	A	9	o		

● Ex stock ○ On demand

\* With internal cooling

#### Application field

P	M	K	N	S	H
			✓		

✓ Very suitable

✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182



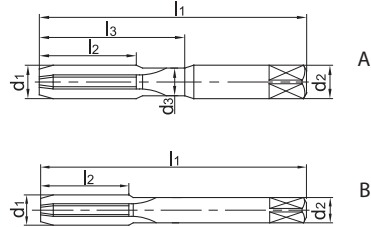
A

### Tap, straight flute Non-ferrous metals

**4202A**



- Type of shank DIN 10
- Coolant exit, axial concentric



Turning

B

Milling

C

Drilling

D

Technical Information

E

Index

Article	*	Dimensions [mm]									Teeth	Geometry	Coredrill		Grade
			d <sub>1</sub>	P	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d			YK40F		
4202AS-M10*1-6H		1.5P	M10	1	10	8.7	100	20	39	4	A	9	○		
4202A-M10*1.25-6H		3P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4202AS-M10*1.25-6H		1.5P	M10	1.25	10	8.4	100	24	39	4	A	8.75	○		
4202A-M10*1.5-6H		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202AC-M10*1.5-6H	*	3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202A-M10*1.5-6HX		3P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202AS-M10*1.5-6H		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202ACS-M10*1.5-6H	*	1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202AS-M10*1.5-6HX		1.5P	M10	1.5	10	8.1	100	24	39	4	A	8.5	○		
4202A-M12*1.25-6H		3P	M12	1.25	9		110	29		4	B	10.75	○		
4202AS-M12*1.25-6H		1.5P	M12	1.25	9		110	29		4	B	10.75	○		
4202A-M12*1.5-6H		3P	M12	1.5	9		110	29		4	B	10.5	○		
4202AS-M12*1.5-6H		1.5P	M12	1.5	9		110	29		4	B	10.5	○		
4202A-M12*1.75-6H		3P	M12	1.75	9		110	29		4	B	10.25	○		
4202AC-M12*1.75-6H	*	3P	M12	1.75	9		110	29		4	B	10.25	○		
4202A-M12*1.75-6HX		3P	M12	1.75	9		110	29		4	B	10.25	○		
4202AS-M12*1.75-6H		1.5P	M12	1.75	9		110	29		4	B	10.25	●		
4202ACS-M12*1.75-6H	*	1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4202AS-M12*1.75-6HX		1.5P	M12	1.75	9		110	29		4	B	10.25	○		
4202A-M14*1.5-6H		3P	M14	1.5	11		110	30		4	B	12.5	○		
4202AS-M14*1.5-6H		1.5P	M14	1.5	11		110	30		4	B	12.5	○		
4202A-M14*2-6H		3P	M14	2	11		110	30		4	B	12	○		
4202AS-M14*2-6H		1.5P	M14	2	11		110	30		4	B	12	○		
4202A-M16*1.5-6H		3P	M16	1.5	12		110	32		4	B	14.5	○		
4202AS-M16*1.5-6H		1.5P	M16	1.5	12		110	32		4	B	14.5	○		
4202A-M16*2-6H		3P	M16	2	12		110	32		4	B	14	○		
4202AS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4202A-M16*2-6HX		3P	M16	2	12		110	32		4	B	14	○		
4202AS-M16*2-6H		1.5P	M16	2	12		110	32		4	B	14	○		
4202AS-M16*2-6HX		1.5P	M16	2	12		110	32		4	B	14	○		

● Ex stock ○ On demand

\* With internal cooling

Application field					
P	M	K	N	S	H
			✓		

- ✓ Very suitable
- ✓ Suitable

System code > C144

Machining instructions > C165

Cutting data > C160

Nonstandard order > C182

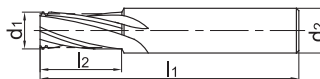
## Thread milling cutter, coated

Steel, cast iron, non-ferrous metals

4111



– Factory standard



Article	*	Dimensions [mm]						Teeth	Coredrill d	Grade	
		D	d <sub>1</sub>	P	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>			KTG4015	YK40F
4111-M3*0.5		M3	2.35	0.5	4	50	6	3	2.5	●	●
4111-M4*0.7		M4	3.15	0.7	4	50	8	3	3.3	●	○
4111-M5*0.8		M5	4	0.8	6	50	10	3	4.2	●	○
4111-M5*0.5		M5	4.3	0.5	6	50	10	3	4.5	●	○
4111-M6*1		M6	4.75	1	6	60	12	4	5	●	●
4111-M6*0.75		M6	5	0.75	6	60	12	4	5.25	○	○
4111-M8*1.25		M8	6.45	1.25	8	60	16	4	6.75	●	●
4111-M8*1		M8	6.65	1	8	60	16	4	7	●	○
4111-M10*1.5		M10	8.1	1.5	10	75	20	4	8.5	●	○
4111-M10*1		M10	8.55	1	10	75	20	4	9	●	○
4111-M12*1.75		M12	9.75	1.75	12	75	24	4	10.25	●	○
4111-M12*1.25		M12	10.25	1.25	12	75	24	4	10.75	●	○
4111-M14*2		M14	11.4	2	14	75	28	4	12	●	○
4111-M14*1.5		M14	11.9	1.5	14	75	28	4	12.5	●	○
4111-M14*1		M14	12.35	1	14	75	20	4	13	●	○
4111-M16*2		M16	13.3	2	16	90	32	6	14	●	○
4111-M18*2.5		M18	14.75	2.5	18	90	36	6	15.5	●	○
4111-M18*1		M18	16.15	1	18	90	20	6	17	●	○
4111-M20*2.5		M20	16.65	2.5	18	100	40	6	17.5	●	○
4111-M20*2		M20	17.1	2	18	100	40	6	18	●	○

● Ex stock ○ On demand

\* With internal cooling

## Application field

P	M	K	N	S	H
✓		✓	✓		

✓ Very suitable

✓ Suitable

System code &gt; C144

Machining instructions &gt; C165

Cutting data &gt; C160

Nonstandard order &gt; C182

## Guide for recommended cutting data – Solid carbide threading tools

### Solid carbide threading tools

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v <sub>c</sub> (m/min)							f-group	
					Thread former		Thread former			Thread former			
					4122A 4222A	4122M 4222M	4201C	4201A	4202C	4202A	1		KTG40115
					YK40F	YK40F	YK40F	YK40F	YK40F	YK40F	external		external
Coolant:													
external	external	external	external	external	external	external	external	external	external	external			
P	Unalloyed steel	ca. 0,15 % C	annealed	125	1		20					100	1
		ca. 0,45 % C	annealed	190	2		20					90	1
		ca. 0,45 % C	tempered	250	3		20					80	1
		ca. 0,75 % C	annealed	270	4		20					70	1
	Low-alloyed steel		annealed	180	6		20					90	1
			tempered	275	7		20					70	1
			tempered	300	8		20					60	1
			tempered	350	9		20					55	1
High-alloyed steel and high-alloyed tool steel		annealed	200	10		20					80	1	
		hardened and tempered	325	11		20					50	1	
M	Stainless steel	ferritic/martensitic		200	12		20						
		martensitic	tempered	240	13		20						
		austenitic	quench hardened	180	14		20						
		austenitic-ferritic		230	15		20						
K	Grey cast iron	perlite/ferritic		180	16		20		20		80	1	
		perlite (martensitic)		260	17		20		20		60	1	
	Cast iron with spheroidal graphite	ferritic		160	18		15		15		80	1	
		perlite		250	19		15		15		60	1	
	Malleable cast iron	ferritic		130	20		20		20		60	1	
perlite			230	21		20		20		80	1		
N	Aluminium wrought alloys	cannot be hardened		60	22						180	1	
		hardenable	hardened	100	23						150	1	
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24	30	30		30		30	150	1
		≤ 12 % Si, hardenable	hardened	90	25	25	25		25		25	150	1
		> 12 % Si, cannot be hardened		130	26							150	1
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27						150	1
CuZn, CuSnZn			90	28						150	1		
CuSn, Pb-free copper, electrolytic copper			100	29						150	1		
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
	cast	320	34										
Titanium alloys	pure titanium		R <sub>m</sub> 400	35									
	α and β alloys	hardened	R <sub>m</sub> 1050	36									
H	Hardened steel		hardened and tempered	55 HRC	37								
	Hard cast iron		hardened and tempered	60 HRC	38								
	Hardened cast iron		cast	400	39								
X	Non-metallic materials		hardened and tempered	55 HRC	40								
		Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
Graphite			45										
Wood			46										

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. With hole depths of 5xD adjust the cutting data accordingly to the application. f-group = feed rate recommendations on page C164. For examples of material for cutting tool groups view page D22.

A

Turning

B

Milling

C

Drilling

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Technical Information

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**Recommend feed rate**

**Solid carbide threading tools**

**4**

f-group	Feed rate [mm]																			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20
1	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10
2	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,09	0,10	0,10	0,10	0,11	0,11	0,11
3	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13	0,13
4	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16
5	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,18	0,19	0,19
6	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19	0,20
7	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22	0,23
8	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,26
9	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29	0,30
10	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34	0,35
11	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39	0,40
12	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45	0,46
13	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52	0,53
14	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59	0,61
15	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68	0,70

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases.

1. Select the appropriate product series.
2. Determine the immersion.
3. Select the used material and read the cutting speed.
4. Determine the feed rate group and have a look at the appropriate feed rate recommendations.
5. Select the diameter of tool and determine the immersion.

A

Turning

B

Milling

C

Drilling

D

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E

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## Solid carbide threading tools

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed $v_c$ [m/min]								
					Thread former		Thread tap			Thread milling			
					4122A 4222A	4122M 4222M	4201C	4201A	4202C	4202A	4111		
					YK40F	YK40F	YK40F	YK40F	YK40F	YK40F	KTG4015		
				Coolant									
				External	External	External	External	External	External	External	External	f-group	
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1		20					100	1
		approx. 0,45 % C	annealed	190	2		20					90	1
		approx. 0,45 % C	tempered	250	3		20					80	1
		approx. 0,75 % C	annealed	270	4		20					70	1
		approx. 0,75 % C	tempered	300	5		20					70	1
	Low-alloyed steel		annealed	180	6		20					90	1
			tempered	275	7		20					70	1
			tempered	300	8		20					60	1
			tempered	350	9		20					55	1
		High-alloyed steel and high-alloyed tool steel	annealed	200	10		20					80	1
	hardened and tempered	325	11		20					50	1		
M	Stainless steel	ferritic/martensitic	annealed	200	12		20						
		martensitic	tempered	240	13		20						
		austenitic	quench hardened	180	14		20						
		austenitic-ferritic		230	15		20						
K	Grey cast iron	perlitic/ferritic		180	16			20		20		80	1
		perlitic (martensitic)		260	17			20		20		60	1
	Cast iron with spheroidal graphite	ferritic		160	18			15		15		80	1
		perlitic		250	19			15		15		60	1
	Malleable cast iron	ferritic		130	20			20		20		60	1
		perlitic		230	21			20		20		80	1
N	Aluminium wrought alloys	cannot be hardened		60	22							180	1
		hardenable	hardened	100	23							150	1
	Cast aluminium alloys	$\leq 12\% \text{ Si}$ , cannot be hardened		75	24	30	30		30		30	150	1
		$\leq 12\% \text{ Si}$ , hardenable	hardened	90	25	25	25		25		25	150	1
		$> 12\% \text{ Si}$ , cannot be hardened		130	26							150	1
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27						150	1
		CuZn, CuSnZn			90	28						150	1
CuSn, Pb-free copper, electrolytic copper			100	29						150	1		
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
	Titanium alloys	pure titanium		R <sub>m</sub> 400	35								
		$\alpha$ and $\beta$ alloys	hardened		R <sub>m</sub> 1050	36							
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
	Wood		46										

Note: The given cutting values are guide values, which were determined under ideal conditions.

The values have to be adapted in individual cases.

With hole depths of 5xD adjust the cutting data accordingly to the application.

f-group = feed rate recommendations on page C164.

For examples of material for cutting tool groups view page D22.





## Recommended feed rate

### Solid carbide threading tools

Groupe f	Feed rate [mm]																			
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20
1	0,01	0,02	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10
2	0,01	0,02	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,09	0,10	0,10	0,10	0,11	0,11	0,11
3	0,01	0,02	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,09	0,10	0,10	0,11	0,11	0,12	0,12	0,12	0,13	0,13
4	0,02	0,03	0,04	0,06	0,06	0,07	0,08	0,09	0,09	0,10	0,11	0,11	0,12	0,12	0,13	0,13	0,14	0,14	0,15	0,15
5	0,02	0,03	0,05	0,06	0,07	0,09	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,14	0,15	0,15	0,16	0,16	0,17	0,17
6	0,02	0,04	0,06	0,07	0,09	0,10	0,11	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,17	0,18	0,18	0,19	0,19	0,20
7	0,02	0,04	0,06	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,20	0,21	0,22	0,22	0,23
8	0,03	0,05	0,07	0,10	0,11	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,26
9	0,03	0,06	0,08	0,11	0,13	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,29	0,30
10	0,04	0,07	0,10	0,13	0,15	0,17	0,19	0,20	0,21	0,23	0,24	0,26	0,27	0,29	0,30	0,31	0,32	0,33	0,34	0,35
11	0,04	0,07	0,11	0,15	0,17	0,20	0,21	0,23	0,24	0,26	0,28	0,30	0,32	0,33	0,35	0,36	0,37	0,38	0,39	0,40
12	0,05	0,09	0,13	0,17	0,20	0,23	0,25	0,26	0,28	0,30	0,32	0,35	0,36	0,38	0,40	0,41	0,42	0,44	0,45	0,46
13	0,05	0,10	0,15	0,20	0,23	0,26	0,28	0,30	0,32	0,35	0,37	0,40	0,42	0,44	0,46	0,47	0,49	0,50	0,52	0,53
14	0,06	0,11	0,17	0,23	0,26	0,30	0,33	0,35	0,37	0,40	0,43	0,46	0,48	0,50	0,53	0,54	0,56	0,58	0,59	0,61
15	0,07	0,13	0,20	0,26	0,30	0,35	0,37	0,40	0,43	0,46	0,49	0,53	0,55	0,58	0,61	0,62	0,64	0,66	0,68	0,70

Note: The given cutting values are guide values, which were determined under ideal conditions.  
The values have to be adapted in individual cases.

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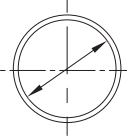
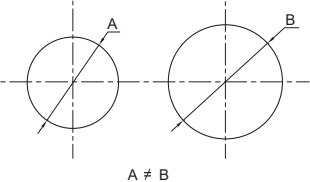
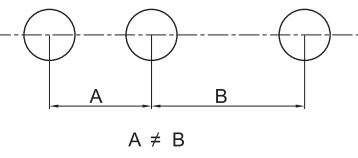
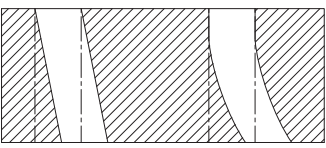
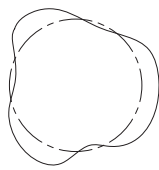
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### Trouble shooting – solid carbide drills

Error	Reason	Countermeasure
<b>Oversized holes</b> 	<ul style="list-style-type: none"> <li>– Insufficient clamping of workpiece and/or tool</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> </ul>	<ul style="list-style-type: none"> <li>– Use precision clamping</li> <li>– Reduce spindle play</li> <li>– Check and adjust clamped drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Asymmetric point angle</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> </ul>	<ul style="list-style-type: none"> <li>– Regrind drill</li> <li>– Check quality of regrinding</li> </ul>
<b>Irregular hole size</b> 	<ul style="list-style-type: none"> <li>– Asymmetric point angle</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> <li>– High wear</li> </ul>	<ul style="list-style-type: none"> <li>– Use precision clamping</li> <li>– Reduce spindle play</li> <li>– Check and adjust clamped drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Insufficient clamping of work piece and/or tool</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> <li>– High wear</li> </ul>	<ul style="list-style-type: none"> <li>– Use precision clamping</li> <li>– Reduce spindle play</li> <li>– Check and adjust clamped drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Feed rate too high</li> </ul>	<ul style="list-style-type: none"> <li>– Reduce feed rate</li> </ul>
	<ul style="list-style-type: none"> <li>– Insufficient coolant</li> </ul>	<ul style="list-style-type: none"> <li>– Increase amount of coolant or change coolant supply</li> </ul>
<b>Low position accuracy</b> 	<ul style="list-style-type: none"> <li>– Insufficient clamping and spindle positioning</li> <li>– Large radial run out of spindle</li> </ul>	<ul style="list-style-type: none"> <li>– Improve positioning of machine</li> <li>– Use precision clamping</li> <li>– Calibrate spindle</li> <li>– Check and adjust clamped drill</li> </ul>
	<ul style="list-style-type: none"> <li>– The feed direction is not vertical to the workpiece surface</li> </ul>	<ul style="list-style-type: none"> <li>– Adjust feed rate vertically to workpiece surface</li> </ul>
	<ul style="list-style-type: none"> <li>– Tool isn't aligned with centre of spindle (lathe machines)</li> </ul>	<ul style="list-style-type: none"> <li>– Centre the tool</li> </ul>
<b>Bad drill run out</b> 	<ul style="list-style-type: none"> <li>– High tool wear</li> </ul>	<ul style="list-style-type: none"> <li>– Regrind drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Poor drill accuracy</li> </ul>	<ul style="list-style-type: none"> <li>– Improve positioning of drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Asymmetric point angle</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> </ul>	<ul style="list-style-type: none"> <li>– Regrind drill</li> <li>– Check quality of regrinding</li> </ul>
	<ul style="list-style-type: none"> <li>– Insufficient tool stability</li> </ul>	<ul style="list-style-type: none"> <li>– Improve stability of tool</li> </ul>
<b>Inaccurate hole (roundness)</b> 	<ul style="list-style-type: none"> <li>– Asymmetric point angle</li> <li>– Large radial run out</li> <li>– Point relief is off centre</li> <li>– High wear</li> </ul>	<ul style="list-style-type: none"> <li>– Regrind drill</li> <li>– Check quality of regrinding</li> </ul>
	<ul style="list-style-type: none"> <li>– Insufficient clamping of work piece and/or tool</li> <li>– Large radial run out of spindle</li> </ul>	<ul style="list-style-type: none"> <li>– Use precision clamping</li> <li>– Calibrate spindle</li> <li>– Check and adjust clamped drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Clearance angle too large</li> </ul>	<ul style="list-style-type: none"> <li>– Regrind the drill</li> </ul>
	<ul style="list-style-type: none"> <li>– Insufficient tool stability</li> </ul>	<ul style="list-style-type: none"> <li>– Improve tool stability</li> </ul>

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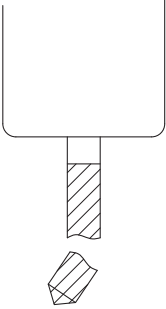


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**Trouble shooting – solid carbide drills**

Error	Reason	Countermeasure
Bad surface quality	– Bad drill regrinding	– Improve regrinding
	– Insufficient amount of coolant or coolant method	– Change coolant supply – Increase amount of coolant
	– Insufficient clamping – Large radial run out of spindle	– Use precision clamping – Calibrate spindle
	– Feed rate too high	– Reduce feed rate
	– High wear of cutting edge – High welding	– Regrind drill – Use a coated drill
	– Bad chip removal	– Chose a suitable drill (with an accordingly flute, helical angle etc.) – Adjust cutting speed (reduce feed rate, etc.)
Bad cylindricity 	– No symmetrical point angle – Large radial run out (drilling) – Centre insert is off centre – Large cutting edge wear – Feed rate too low	– Regrind drill – Check regrind – Increase feed rate
Breakage of drill 	– Insufficient clamping of tool and/or workpiece – Clearance angle too small – Feed rate too high – Excessive wear – Chip jamming – Drilling in uneven surfaces	– Improve stability of tool and clamping of workpiece – Use a drill with bigger clearance angle or regrind – Reduce feed rate – Regrind drill – Chose a suitable drill (considering flute geometry, helical angle, etc.) – Adjust cutting speed – Reduce feed rate – Increase rigidity of drill and clamping of machine and workpiece – Use drill with sharp centre insert – Pre-drill a centre hole – Create a straight surface (e.g. with solid carbide milling cutter) – Use a guide bush or bush plate
Chipping on the drill 	– Hard surface or blow holes – Feed rate too high – Insufficient coolant	– Check material and chose suitable grade – Change cutting conditions (cutting speed, feed rate or machining method) – Reduce feed rate – Improve/increase coolant supply
Chipping on the cutting edge 	– Poor clamping – Large radial run out – Cutting speed and feed rate too high – Clearance angle too large	– Use a more precise clamping device – Adjust the spindle – Reduce cutting speed and feed rate – Use a drill with smaller clearance angle or regrind

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### Trouble shooting – solid carbide drills

Error	Reason	Countermeasure
Excessive wear  	– Overdue regrinding	– Regrind in time
	– Drill tip not in centre position	– Adjust drill with centre of spindle
	– Cutting speed too high	– Reduce cutting speed
	– Cutting angle not suitable	– Chose right cutting angle
	– Material not suitable	– Chose suitable material
	– Insufficient cooling	– Use suitable cooling
Wear and chipping on point relief	– Feed rate too high	– Reduce feed rate
	– Cutting angle not suitable	– Chose right cutting angle
	– Material not suitable	– Chose suitable material
	– Clearance angle too small	– Regrind drill
Breakage on margin	– Guide bush too large	– Change guide bush
Built up edge on margin	– High wear and heat	– Regrind drill
	– Insufficient cooling	– Change cooling method
	– Wrong coolant	– Change coolant
	– Workpiece material is too soft	– Use drill with smaller clearance angle
High vibrations	– Clearance angle too large	– Regrind drill
	– Drill stability too low	– Improve stability
Swarf clogs the drill	– Long chips – Chip removal not fluent	– Optimise cutting data – Change drill or adjust machine
One-side wear	– Drill tip not centred	– Adjust drill with centre of spindle
	– Poor clamping	– Improve drill clamping – Check concentricity

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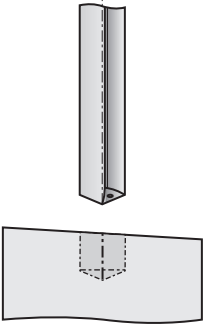
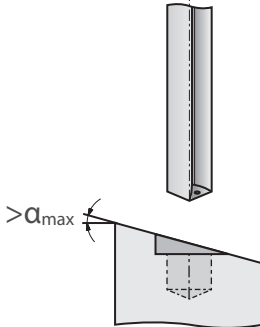
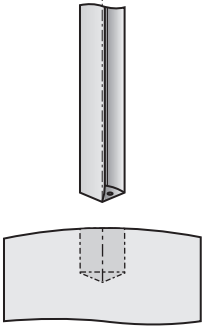
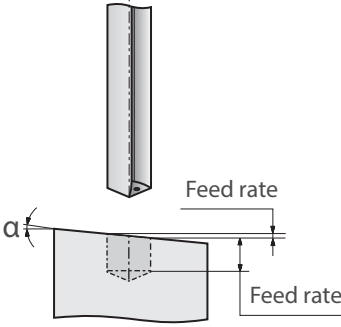
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**Trouble shooting – PC series**

Machining	Recommendation								
<p>Sloped surface</p> 	<p>– Inclined surfaces should be pre-machined (chamfering).</p> 								
<p>Inclined surface</p> 	<p>– Reduce feed rate accordingly.</p>  <table border="1" data-bbox="995 987 1430 1111"> <thead> <tr> <th>Inclination angle</th> <th>Max. feed rate</th> </tr> </thead> <tbody> <tr> <td>1°</td> <td>80%</td> </tr> <tr> <td>2°</td> <td>50%</td> </tr> <tr> <td>3°</td> <td>30%</td> </tr> </tbody> </table>	Inclination angle	Max. feed rate	1°	80%	2°	50%	3°	30%
Inclination angle	Max. feed rate								
1°	80%								
2°	50%								
3°	30%								

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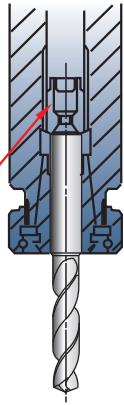
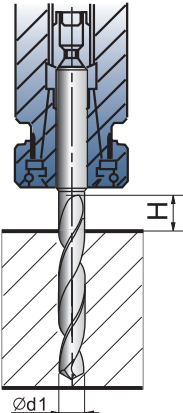
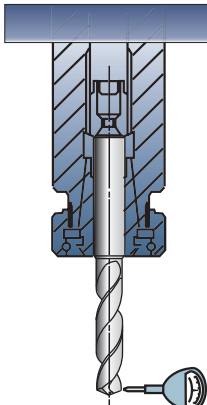
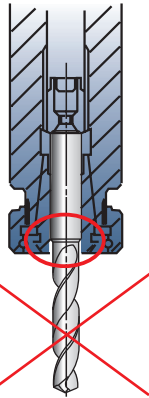
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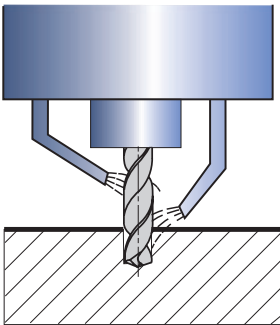
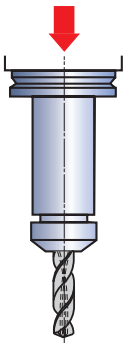
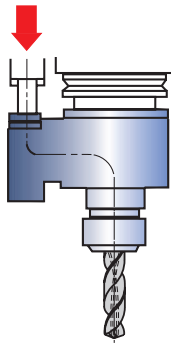
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## Solid carbide drills

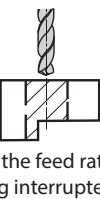
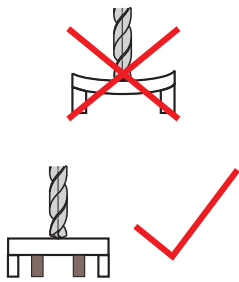
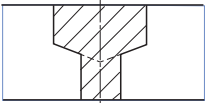
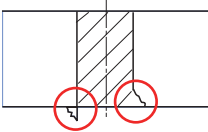
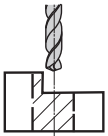
### Operation notes

Correct drill clamping	Max. drilling length	Radial run-out	Wrong drill clamping
 <p>Adjusting screw</p> <p>Use precision collets</p>	 <p><math>H = 1,5 \times d1</math></p>	 <p>Radial run-out &lt;math&gt;&lt; 0.02 \text{ mm}&lt;/math&gt;</p>	 <p>Don't clamp on the drill flutes.</p>

External coolant method	Internal coolant method	
		
<p>The coolant liquid should shoot to the end and the centre of the drill as shown in the figure.</p>	<p>Coolant pressure is about 0.5–1 mpa (coolant pressure is 2–3 mpa when the diameter is less than 5 mm), coolant volume: 1.5–4 L/min</p>	

#### Handling of coolants:

1. Small chip particles and dust can cause jamming in the oil hole. A fine mesh filter should be used.
2. Dirt and dust particles will adhere to the oil hole and lead to unsmooth coolant flow. Regularly change the coolant. Please ensure proper coolant supply.

Interrupted cutting	Thin work pieces	Stepped holes	Burrs and work piece chippings on exit
 <p>Reduce the feed rate when drilling interrupted cut.</p>	 <p>If bending occurs, add a supporter.</p>	 <ul style="list-style-type: none"> <li>– First drill the larger hole, then the smaller hole.</li> <li>– We can offer multiple step and chamfer drills on request.</li> </ul>	 <ul style="list-style-type: none"> <li>– Reduce the feed rate approx. by half when the drill exits.</li> <li>– Use a drill with a different point angle.</li> </ul>
 <p>Machine a countersink with an end mill prior to drilling.</p>			

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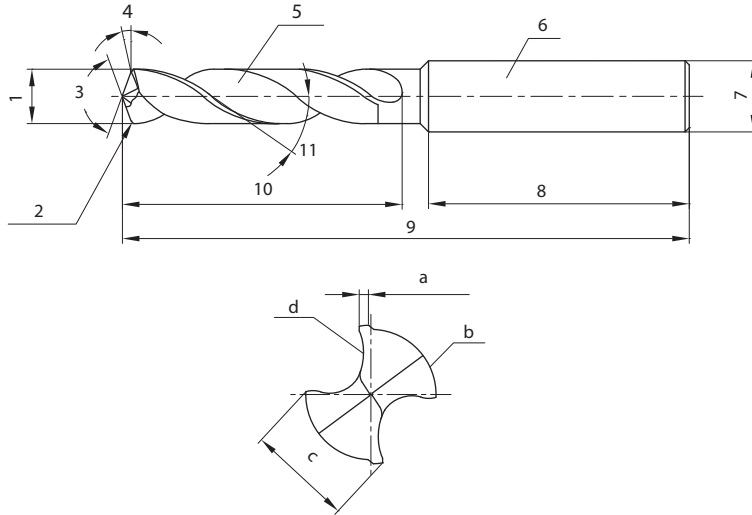
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Solid carbide drills

Terminology



- 1. Drilling diameter
- 2. Chamfer
- 3. Point angle
- 4. Clearance angle
- 5. Chip pocket
- 6. Shank
- 7. Shank diameter
- 8. Shank length
- 9. Overall length
- 10. Flute length
- 11. Helical angle

- a. Margin width
- b. Body clearance
- c. Land width
- d. Primary cutting edge

Cutting edge type

Shape	(Conical)	(Dual flats)	(Centring tip)
Shape			
Features	<ul style="list-style-type: none"> <li>- The flank face is conical and the clearance angle increases toward the centre of drill.</li> <li>- Wide applications, commonly used both for soft and hard materials.</li> </ul>	<ul style="list-style-type: none"> <li>- The flank face is dual flats, to facilitate cutting and initial entering.</li> <li>- Often used for small diameter drills.</li> </ul>	<ul style="list-style-type: none"> <li>- This shape has two-stage point angles for perfect centring capabilities and reduces burrs.</li> <li>- It is the first choice for drilling thin plate.</li> </ul>

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## Solid carbide drills

### Drill specification and cutting parameters

Chip pocket	The chip pocket ensures that the chips are removed out of the hole during processing.
Helical angle	The helical angle describes the pitch of the flute. It's specified according to the to be machined material. hardened materials    small ← helical angle → large    tough materials
Cutting edge length or spiral length	The cutting edge length needs to be specified according to the drilling depth, guide bushing length and the whole regrinding length. The larger the helical angle, the lower the stability. Since it greatly influences the tool life, it should be as small as possible. The recommended min. spiral length is the drilling depth plus 1.5 times of the hole diameter.
Point angle	Generally the point angle is 140°, for special applications it should be set differently. tough materials, easy to machine    small ← point angle → large    hardened materials and high-performance drilling
Core diameter	The core diameter is an important factor and influences the stability and the chip flow. low axial cutting force low stability for easy to machine materials    small ← core diameter → large    high axial cutting force high stability for hardened materials or cross holes
Chamfer width	The chamfer width influences the guidance and friction of the drill during machining. low friction and bad drill guidance    small ← chamfer width → large    high friction and good drill guidance
Back taper	The drill diameter is slightly reduced from cutting edge to shank to reduce friction during machining.
Body clearance	The area behind the chamfer width. The body clearance is necessary to reduce friction during machining.

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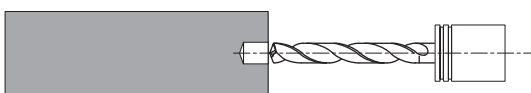
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### Deep hole drilling

#### 1 Preparation of the pilot hole with 1534SP03C\*



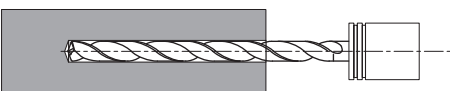
- Point angle of pilot drill must be bigger than SL drill.
- Diameter of pilot drill must be 0.01–0.04 mm bigger than SL drill.
- The pilot hole should be 1–3×D.

#### 2 Entering the pilot hole with SL drill



- Entering the pilot hole with low cutting speed. (VC: 20–30 m/min)
- Stop 1–3 mm before end of pilot hole. (Vf = 0)
- Increase cutting speed up to recommended parameter and then start drilling at feed rate.

#### 3 Manufacturing the deep hole



- Drilling with suitable cutting speed and feed rate.
- In case of cross holes feed rate should be reduced to 0.05 mm/rev..

#### 4 Pulling out the drill



- After reaching the required depth reduce the cutting speed (VC: 20–30 m/min) and pull out the drill at high feed rate. (Vf: 2000 mm/min)

D

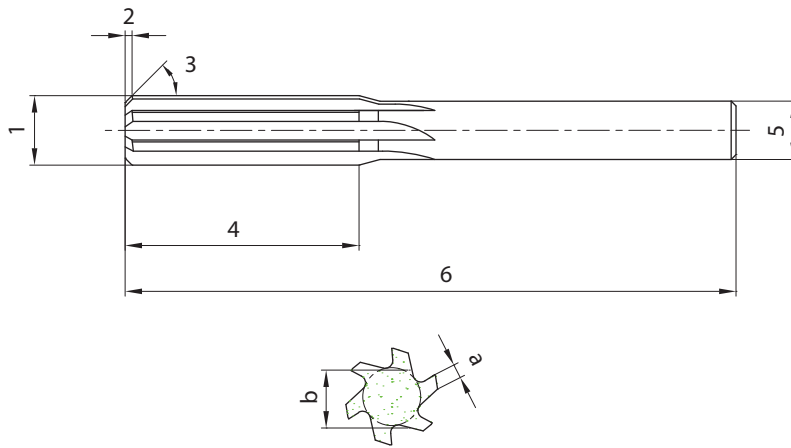
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### Solid carbide reamers

#### Terminology



- 1.Nominal diameter
- 2.Chamfer length
- 3.Entry angle
- 4.Cutting edge length
- 5.Shank diameter
- 6.Total length

- a.Cutting edge thickness
- b.Core diameter

Reaming is semi-finishing and finishing of a previously formed hole within a narrow tolerance for higher surface quality, perfect roundness, cylindricity, etc.. To achieve a precisely reamed hole, the right choice of reamer and reamer diameter is important. In addition to that, the bore tolerance, the material and the machining conditions need to be taken into account. Furthermore the bore quality is strongly influenced by the radial run-out of the cutting tool.

<p>Diameter tolerance/Allowance</p>	<p>Cylindricity</p>	<p>Straightness</p>
<p>Roundness</p>	<p>Vertical deviation</p>	<p>Off centre</p>

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## Trouble shooting – solid carbide reamers

Problem	Solution
<b>Oversized hole</b>	<ul style="list-style-type: none"> <li>– Reduce the diameter of the reamer.</li> <li>– Check concentricity of the reamer and hole.</li> <li>– Check the radial run-out of the reamer.</li> <li>– Check the shank of the reamer for scratches.</li> <li>– Select a suitable coolant.</li> <li>– Adjust the cutting parameters.</li> </ul>
<b>Hole too small</b>	<ul style="list-style-type: none"> <li>– Increase the diameter of the reamer.</li> <li>– Reduce the cutting speed.</li> <li>– Reduce allowance.</li> <li>– Regrind or replace the reamer.</li> <li>– Ensure sufficient cooling.</li> </ul>
<b>Poor hole roundness and straightness</b>	<ul style="list-style-type: none"> <li>– Guarantee concentricity of the reamer chamfer.</li> <li>– Reduce overhang.</li> <li>– Check radial run-out after the reamer is clamped.</li> <li>– Adjust concentricity of the reamer and hole.</li> <li>– Check and ensure drill geometry.</li> </ul>
<b>Poor surface quality</b>	<ul style="list-style-type: none"> <li>– Reduce the cutting speed.</li> <li>– Ensure correct reaming allowance.</li> <li>– Check the cutting chamfer length of the reamer for wear and built-up edge.</li> <li>– Ensure stability of the machine, tool holder and reamer.</li> <li>– Chose the reamer according to the application.</li> <li>– Check the hole allowance.</li> </ul>
<b>Poor bore quality</b>	<ul style="list-style-type: none"> <li>– Pull out the reamer in cutting direction.</li> <li>– Reduce the cutting speed.</li> <li>– Use reamers with more teeth.</li> <li>– Check for concentricity and radial run-out.</li> <li>– Improve coolant supply.</li> <li>– Chose the optimal coolant lubrication.</li> </ul>
<b>Reamer breakage and thermal damage</b>	<ul style="list-style-type: none"> <li>– The guide chamfer is insufficient. Check the drill and drilling axis.</li> <li>– Adjust machining allowance.</li> <li>– Ensure sufficient coolant supply.</li> <li>– Adjust the cutting speed and feed rate.</li> <li>– Improve the stability of the machine, the tool holder and the cutting tool.</li> <li>– Change or regrind the cutting tool if the cutter wear is too high.</li> </ul>
<b>Damage on reamer shank</b>	<ul style="list-style-type: none"> <li>– Check clamping sleeve and tool holder for damage.</li> </ul>
<b>Short tool life</b>	<ul style="list-style-type: none"> <li>– Check coolant supply.</li> <li>– Change from straight fluted to helical fluted reamers.</li> <li>– Check all factors affecting machining precision.</li> </ul>
<b>Scratched hole surface</b>	<ul style="list-style-type: none"> <li>– Check the cutting edge for built-up edges and if necessary correct the cutting data.</li> <li>– Improve clamping of the workpiece.</li> </ul>
<b>Trumpet-shaped entry hole</b>	<ul style="list-style-type: none"> <li>– Improve clamping of the workpiece.</li> <li>– Check radial run-out of the clamped reamer.</li> <li>– The centre of the reamer may not be aligned with the centre of the hole. Adjust concentricity.</li> </ul>

A

Turning

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Milling

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## Solid carbide thread formers

### What is thread forming?

The material fibres aren't severed but compressed at the base of the thread. This is why no material is lost unlike when thread cutting.

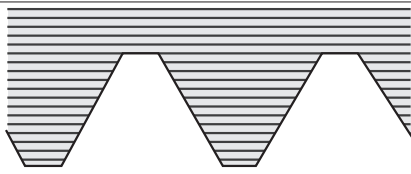
Advantages of thread forming:

- The thread is formed much more precisely.
- The thread is more resilient.
- The threads have a very smooth surface.
- Higher rotation speeds and feed rates possible than in thread cutting.
- Longer tool life increases the productivity.

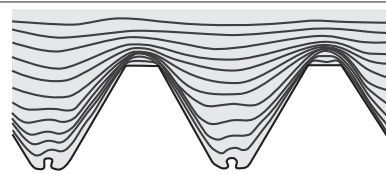
Disadvantages of thread forming:

- Higher requirements on the hole tolerance.
- Can't be used as hand tool.
- Greater heat build-up than in thread drilling.
- Limited material choice.
- Often the use of a release agent is necessary.

Thread formers should be used in materials with good cold formability. Next to steel, stainless steel and aluminium alloys, these include light metals and light metal alloys with a yield strength of 1200 N/mm<sup>2</sup>. Basically, all long-chipping materials are suitable.



Fibre orientation after thread cutting



Fibre orientation after thread forming

A

Turning

B

Milling

C

Drilling

D

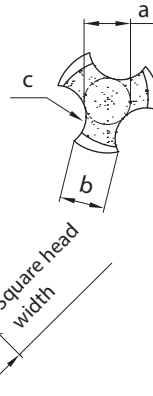
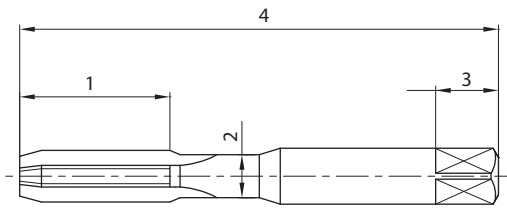
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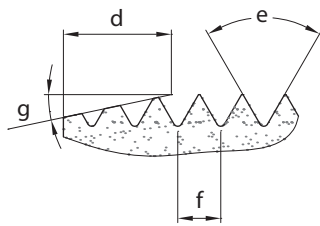
## Solid carbide taps

### Terminology



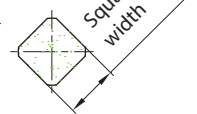
- 1.Thread length
- 2.Neck diameter
- 3.Square head length
- 4.Total length

- a.Core diameter
- b.Cutting edge thickness
- c.Chip pocket





Chamfer and thread profile

- d.Chamfer length
- e.Thread profile angle
- f.Pitch
- g.Chamfer angle



### Chip space and application

Chip space type	Features	Application
 Helical flute tap	<ul style="list-style-type: none"> <li>- Helical flute</li> <li>- No chips inside the hole</li> <li>- Good entering performance</li> <li>- Simple centring</li> </ul>	<ul style="list-style-type: none"> <li>- For long-chipping materials</li> <li>- Suitable for blind holes</li> <li>- Usage in holes with groove</li> </ul>
 Straight flute tap	<ul style="list-style-type: none"> <li>- Straight flute</li> <li>- Stable cutting edge</li> <li>- Easy regrinding</li> </ul>	<ul style="list-style-type: none"> <li>- For hard machining</li> <li>- For short-chipping materials</li> <li>- For through holes and blind holes</li> <li>- For wear material</li> </ul>

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Milling

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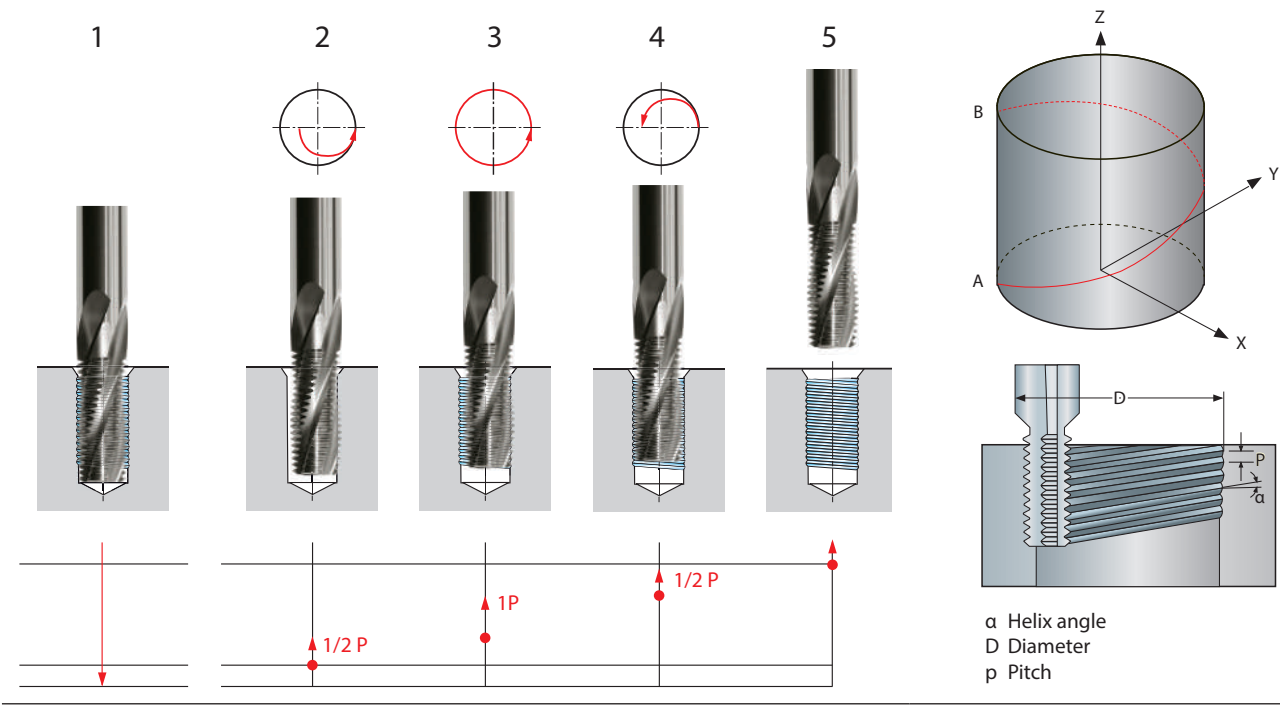
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### Solid carbide thread milling cutters

#### Solid carbide thread milling cutters with cylindrical shank – example



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Turning

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Milling

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Drilling

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## Nonstandard – solid carbide drills

A

Turning

<p>Name/Company:</p> <p>Address:</p> <p>Tel.:</p> <p>Fax:</p> <p>E-Mail:</p>	 <p><b>Wanheimer Str. 57</b> 40472 Düsseldorf, Deutschland</p> <p>Fax: +49-(0)211-989240-111 E-Mail: <a href="mailto:technik@zccct-europe.com">technik@zccct-europe.com</a></p>
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Scan for PDF

B

Milling

Material	Twist drill series
Material <input type="text"/>	SU <input type="checkbox"/> SH <input type="checkbox"/> SL <input type="checkbox"/>
Tensile strength (N/mm <sup>2</sup> ) <input type="text"/>	SUK <input type="checkbox"/> SLK <input type="checkbox"/>
Hardness <input type="text"/>	ST <input type="checkbox"/> SC <input type="checkbox"/> PA <input type="checkbox"/>

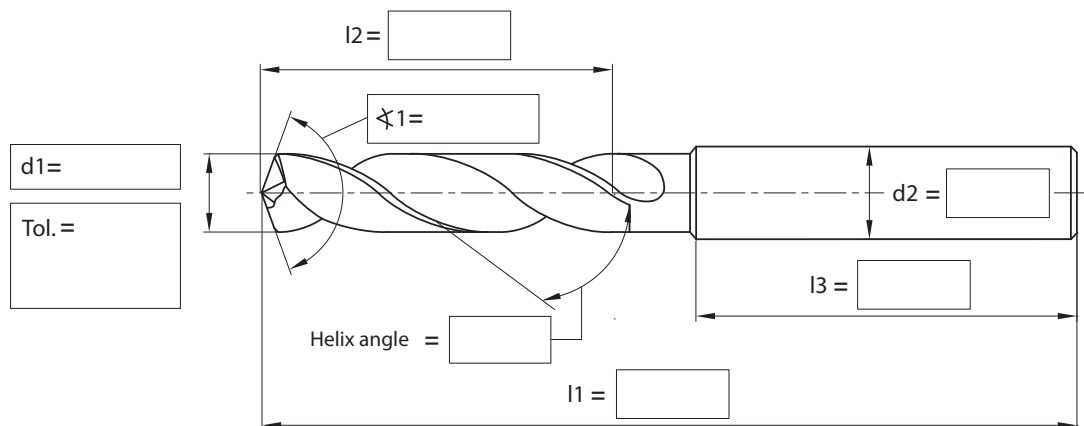
C

Drilling

Cooling	Tool holder type	Coating
<p>External <input type="checkbox"/></p> <p>Internal <input type="checkbox"/></p>	<p>DIN6535</p> <p>Form HA <input type="checkbox"/> Form HB <input type="checkbox"/> Form HE <input type="checkbox"/></p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

D

Technical Information



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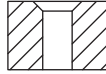
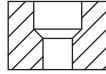
Remarks:	
Order quantity:	Expected delivery date:
Date:	Confirmation:








## Nonstandard – solid carbide step drills

Name/Company:	 <b>ZCC-CT</b>	 <small>Scan for PDF</small>
Address:		
Tel.:		
Fax:		
E-Mail:		
	Wanheimer Str. 57 40472 Düsseldorf, Deutschland	
	Fax: +49-(0)211-989240-111 E-Mail: <a href="mailto:technik@zccct-europe.com">technik@zccct-europe.com</a>	

Material	
Material	
ensile strength (N/mm <sup>2</sup> )	
Hardness	

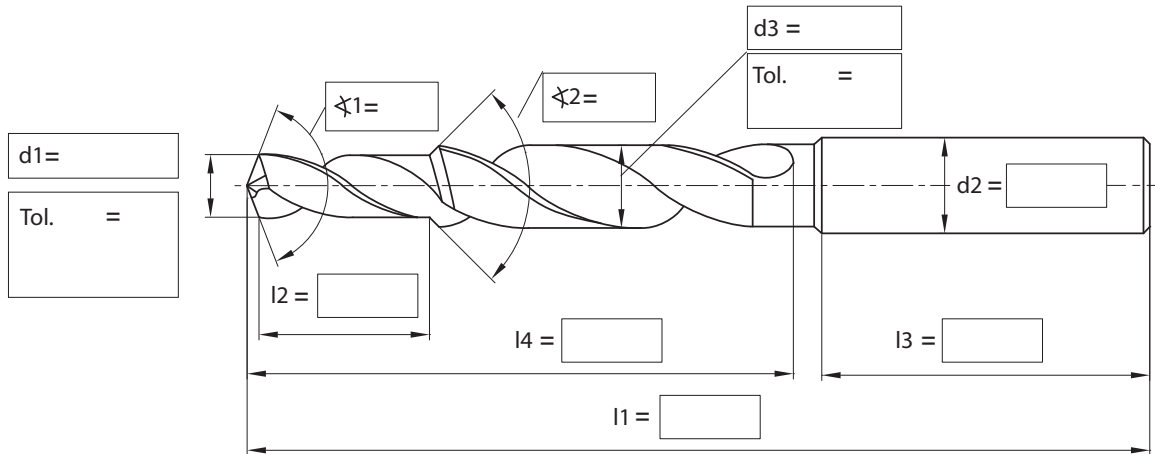
Machining information	
 Chamfering <input type="checkbox"/>	 Stepped hole <input type="checkbox"/>

Cooling	
	External <input type="checkbox"/>
	Internal <input type="checkbox"/>

Tool holder type		
DIN6535		
 Form HA <input type="checkbox"/>	 Form HB <input type="checkbox"/>	 Form HE <input type="checkbox"/>

Twist drill series	
SU <input type="checkbox"/>	ST <input type="checkbox"/>
SUK <input type="checkbox"/>	
PC <input type="checkbox"/>	

Coating	
Yes <input type="checkbox"/>	
No <input type="checkbox"/>	





Remarks:	
Order quantity:	Expected delivery date:
Date:	Confirmation:

## Nonstandard – solid carbide three-lips drills




**A**

Turning

<p>Name/Company:</p> <p>Address:</p> <p>Tel.:</p> <p>Fax:</p> <p>E-Mail:</p>	 <div style="text-align: right;">   <small>Scan for PDF</small> </div> <p><b>Wanheimer Str. 57</b>  <b>40472 Düsseldorf, Deutschland</b></p> <p>Fax: +49-(0)211-989240-111  E-Mail: <a href="mailto:technik@zccct-europe.com">technik@zccct-europe.com</a></p>
------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



**B**

Milling

Material		Tool holder type		
Material		DIN6535		
ensile strength (N/mm <sup>2</sup> )				
Hardness		Form HA	Form HB	Form HE
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

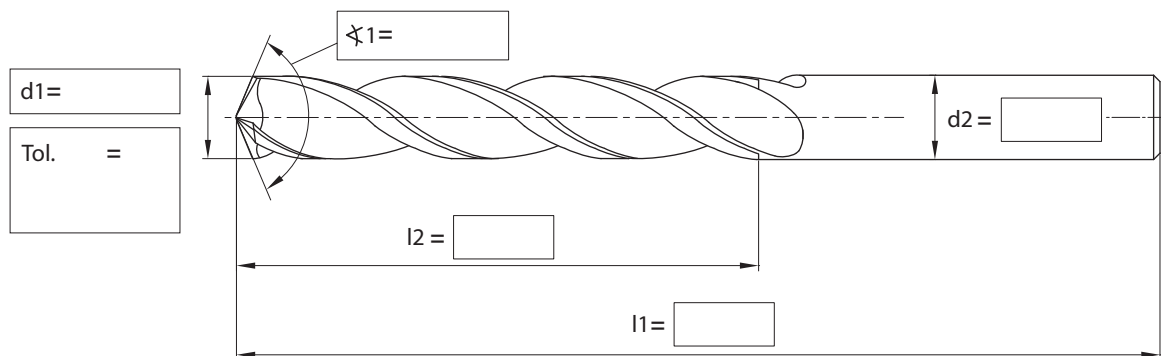
**C**

Drilling

Cooling		Coating	
	External <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Internal <input type="checkbox"/>		

**D**

Technical Information







**E**




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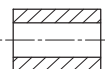
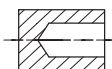
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Date:	Confirmation:

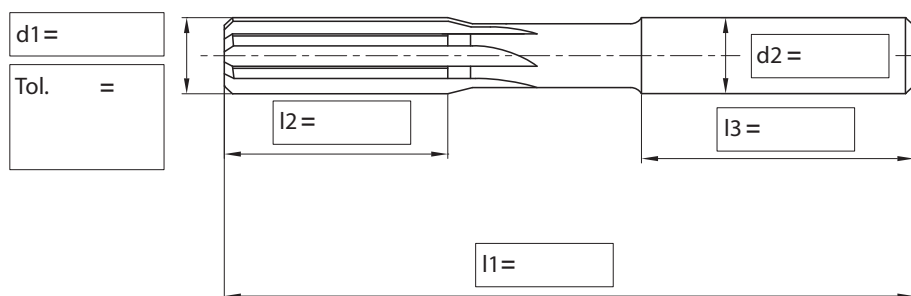
**Nonstandard – solid carbide reamers**

<b>Name/Company:</b>  <b>Address:</b>  <b>Tel.:</b>  <b>Fax:</b>  <b>E-Mail:</b>	  <b>Wanheimer Str. 57</b> <b>40472 Düsseldorf, Deutschland</b>  <b>Fax: +49-(0)211-989240-111</b> <b>E-Mail: technik@zccct-europe.com</b>	 <small>Scan for PDF</small>
----------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Material		Coating	Cooling	
Material		Yes <input type="checkbox"/>	 External <input type="checkbox"/>	
Tensile strength (N/mm <sup>2</sup> )		No <input type="checkbox"/>	 Internal <input type="checkbox"/>	
Hardness				

Helix angle		
	Right <input type="checkbox"/>	
	Straight <input type="checkbox"/>	
	Left <input type="checkbox"/>	

Machining information	
 Through hole <input type="checkbox"/>	 Blind hole <input type="checkbox"/>



Remarks:	
Order quantity:	Desired delivery date:
Date:	Signature:

**A**  
Turning  
  
**B**  
Milling  
  
**C**  
Drilling  
  
**D**  
Technical Information  
  
**E**  
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## Nonstandard – solid carbide taps and thread formers



A

Turning

<b>Name/Company:</b>  <b>Address:</b>  <b>Tel.:</b>  <b>Fax:</b>  <b>E-Mail:</b>	  <b>Wanheimer Str. 57</b> <b>40472 Düsseldorf, Deutschland</b>  <b>Fax: +49-(0)211-989240-111</b> <b>E-Mail: technik@zccct-europe.com</b>	 <small>Scan for PDF</small>
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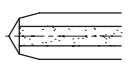


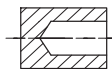
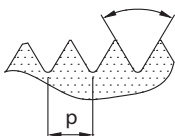
B

Milling

Material		Coating	Cooling
Material		Yes <input type="checkbox"/>	 External <input type="checkbox"/>
Tensile strength (N/mm <sup>2</sup> )		No <input type="checkbox"/>	 Internal <input type="checkbox"/>
Hardness			

C

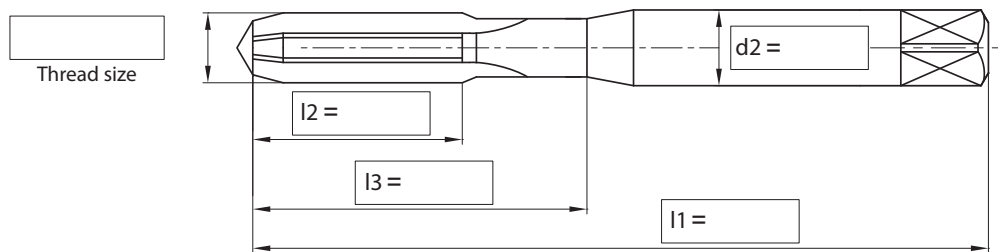
Drilling

Helix angle	Machining information	Thread profile
 Straight <input type="checkbox"/>  Right <input type="checkbox"/>	 Through hole <input type="checkbox"/>  Blind hole <input type="checkbox"/>	Thread angle = 60°  Pitch p = <input type="text"/>

D

Technical Information

Tool type	
Tap	<input type="checkbox"/>
Thread former	<input type="checkbox"/>



E

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Remarks:	
Order quantity:	Desired delivery date:
Date:	Signature:

## Technical Information

Comparison table materials	D2-D8
Comparison table hardness and tensile strength	D9-D10
Conversion table chip breaker – turning	D11-D12
Conversion table chip breaker – milling/turning	D13-D21
Example of materials for machining groups	D22
Form test protocol	D23
Torque for screw	D24



**A**

Turning

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## Comparison table materials

ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>P</b>	<b>Alloy steel</b>											
	15	1015	1.0401	C15	080M15	-	1350	CC12	C15C16	F.111	-	-
	20	1020	1.0402	C22	050A20	2C	1450	CC20	C20C21	F.112	-	20
	35	1035	1.0501	C35	060A35	-	1550	CC35	C35	F.113	-	35
	45	1045	1.0503	C45	080M40	-	1650	CC45	C45	F.114	-	45
	55	1055	1.0535	C55	070M55	-	1655	-	C55	-	-	55
	60	1060	1.0601	C60	080A62	43D	-	CC55	C60	-	-	60
	Y15	1213	1.7015	9SMn28	230M07	-	1912	S250	CF9SMn28	11SMn28	SUM22	15Ch
	-	12L13	1.0718	9SMnPb28	-	-	1914	S250Pb	CF9MnPb28	11SMnPb28	SUM22L	-
	-	-	1.0722	10SPb20	-	-	-	10PbF2	CF10Pb20	10SPb20	-	-
	-	1140	1.0726	35S20	212M36	8M	1957	35MF4	-	F210G	-	-
	Y13	1215	1.0736	9SMn36	240M07	1B	-	S300	CF9SMn36	12SMn35	-	-
	-	12L14	1.0737	9SMnPb36	-	-	1926	S300Pb	CF9SMnPb36	12SMnP35	-	-
	55Si2Mn	9255	1.0904	55Si9	250A53	45	2085	55S7	55Si8	56Si7	-	-
	-	9262	1.0961	60SiCr7	-	-	-	60SC7	60SiCr8	60SiCr8	-	-
	15	1015	1.1141	Ck15	080M15	32C	1370	XC12	C16	C15K	S15C	15
	40Mn	1039	1.1157	40Mn4	150M36	15	-	35M5	-	-	-	40G
	25	1025	1.1158	Ck25	-	-	-	-	-	-	S25C	25
	35Mn2	1335	1.1167	36Mn5	-	-	2120	40Mn5	-	36Mn5	SMn438(H)	35G2,35GL
	30Mn	1330	1.1170	28Mn6	150M28	14A	-	20M5	C28Mn	-	SCMn1	30G
	35Mn	1035	1.1183	Cf35	060A35	-	1572	XS38TS	C36	-	S35C	-
	Ck45	1045	1.1191	45	080M46	-	1672	XC42	C45	C45K	S45C	-
	55	1055	1.1203	Ck55	070M55	-	-	XC45	C50	C55K	S55C	55
	50	1050	1.1213	Cf53	060A52	-	1674	XC48TS	C53	-	S50C	-
	60Mn	1060	1.1221	Ck60	080A62	43D	1678	XC60	C60	-	S58C	60,60G
	-	1095	1.1274	Ck101	060A96	-	1870	-	-	-	SUP4	-
	-	-	1.3401	X120Mn12	Z120M12	-	-	X120M12	XG120Mn12	X120Mn12	SCMnH/1	110G13L
	Gr15;45Gr	52100	1.3505	100Cr6	534A99	31	2258	100C6	100Cr6	F.131	SUJ2	SchCh 15
	-	ASTM A204Gr.A	1.5415	15Mo3	1501-240	-	2912	15D3	16Mo3KW	16Mo3	-	-
	-	4520	1.5426	16Mo5	1503-245-420	-	-	-	16Mo5	16Mo5	-	-
-	ASTM A350LF5	1.5622	14Ni6	-	-	-	16N6	14Ni6	15Ni6	-	-	
-	ASTM A353	1.5662	X8Ni9	1501-509;510	-	-	-	X10Ni9	XBNI09	-	-	

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Turning

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**Comparison table materials**

ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>P</b>	<b>Alloy steel</b>											
	-	2515	1.5680	12Ni19	-	-	-	Z18N5	-	-	-	-
	-	3135	1.5710	36NiCr6	640A35	111A	-	35NC6	-	-	SNC236	-
	-	3415	1.5732	14NiCr10	-	-	-	14NC11	16NiCr11	15NiCr11	SNC415(H)	-
	-	3415 3310	1.5752	14NiCr14	655M13 655A12	36A	-	12NC15	-	-	SNC815(H)	-
	-	9840	1.6511	36CrNiMo4	816M40	110	-	40NCD3	38CrNiMo4(KB)	35CrNiMo4	-	40 ChN2MA
	-	8620	1.6523	21NiCrMo2	850M20	362	2503	20NCD2	20NiCrMo2	20NiCrMo2	SNCCM220(H)	-
	-	8740	1.6546	40NiCrMo2	311-Type7	-	-	-	40NiCrMo2(KB)	40NiCrMo2	SNC240	38ChGNM
	40CrNiMoA	4340	1.6582	34CrNiMo6	817M40	24	2541	35NCD6	35CrNiMo6(KB)	-	-	38Ch2N2MA
	-	-	1.6587	17CrNiMo6	820A16	-	-	18NCD6	-	14CrNiMo13	-	-
	15Cr	5015	1.7015	15Cr3	523M15	-	-	12C3	-	-	SCr415(H)	15Ch
	35Cr	5132	1.7033	34Cr4	530A32	18B	-	32C4	34Cr4(KB)	35Cr4	SCr430(H)	35Ch
	40Cr	5140	1.7035	41Cr4	530M40	18	-	42C4	41Cr4	42Cr4	SCr440(H)	40Ch
	40Cr	5140	1.7045	42Cr4	-	-	2245	-	-	42Cr4	SCr440	40Ch
	18CrMn	5115	1.7131	16MnCr15	(527M20)	-	2511	16MC5	16MnCr15	16MnCr15	-	18ChG
	20CrMn	5155	1.7176	55Cr3	527A60	48	-	55C3	-	-	SUP9(A)	50ChGA
	30CrMn	4130	1.7218	25CrMo4	1717CDS110	-	2225	25CD4	25CrMo4(KB)	55Cr3	SCM420; SCM430	30ChM
	35CrMo	4137;4135	1.7220	34CrMo4	708A37	19B	2234	35CD4	35CrMo4	34CrMo4	SCM432; SCRMM3	AS38ChGM
	40CrMoA	4140;4142	1.7223	41CrMo4	708M40	19A	2244	42CD4TS	41CrMo4	41CrMo4	SCM440	40 ChFA
	42CrMo 42CrMnMo	4140	1.7225	42CrMo4	708M40	19A	2244	42CD4	42CrMo4	42CrMo4	SCM440(H)	-
	-	-	1.7262	15CrMo5	-	-	2216	12CD4	-	12CrMo4	SCM415(H)	-
	-	ASTM A182 F11;F12	1.7335	13CrMo44	1501- 620Gr.27	-	-	15CD3.5; 15CD4.5	14CrMo44	14CrMo45	-	12ChM, 15ChM
	-	-	1.7361	32CrMo12	722M24	40B	2240	30CD12	32CrMo12	F.124.A	-	-
-	ASTM A182 F.22	1.7380	10CrMo910	1501- 622Gr.31;45	-	2218	12CD9;10	12CrMo9,10	TU.H	-	-	
-	-	1.7715	14MoV63	1503-660-440	-	-	-	-	13MoCrV6	-	-	
50CrVA	6150	1.8159	50CrV4	735A50	47	2230	50CV4	50CrV4	51CrV4	SUP10	50ChGFA	
-	-	1.8509	41CrAlMo7	905M39	41B	2940	40CAD6,12	41CrAlMo7	41CrAlMo7	-	38ChMJuA	
-	-	1.8523	39CrMoV139	897M39	40C	-	-	36CrMoV12	-	-	-	

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ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>P</b>	<b>Alloy steel</b>											
	T10	W.110	1.1545	C105W1	-	-	1880	Y1105	C98KU C100KU	F.515 F.516	-	U10A
	T12A	W.112	1.1663	C125W	-	-	-	Y2120	C120KU	(C120)	SK2	U13
	CrV;9SiCr	L3	1.2067	100Cr6	BL3	-	-	Y100C6	-	100Cr6	-	-
	Cr12	D3	1.2080	X210Cr12	BD3	-	-	Z200Cr12	X210Cr13KU X250Cr12KU	X210Cr12	SKD1	Ch12
	4Cr5MoVSi	H13	1.2344	X40CrMoV5 1	BH13	-	2242	Z40CDV5	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	SKD61	4Ch5MF1S
	Cr6WV	A2	1.2363	X100CrMoV5 1	BA2	-	2260	Z100CDV5	X100CrMoV51KU	X100CrMoV5	SKD12	-
	CrWMo	-	1.2419	105WCr6	-	-	2140	105WC13	10WCr6 107WCr5KU	105WCr5	SKS31 SKS2 SKS3	ChWG
	Cr12W	-	1.2436	X210CrW12	-	-	2312	-	X215CrW12 1KU	X210CrW12	SKD2	-
	5CrNiMo	S1	1.2542	45WCrV7	BS1	-	2710	-	45WCrV8KU	45WCrS8	-	-
	3Cr2W8V	H21	1.2581	X30WCrV9 3 X30WCrV93KU	BH21	-	-	Z30WCV9	X28W09KU X30WCrV9 3KU	X30WCrV9	SKD5	3Ch2W8F
	Cr12MoV	-	1.2601	X165CrMoV 12	-	-	2310	-	X165CrMoW12KU	X160CrMoV12	SKD11	-
	5CrNiMo	L6	1.2713	55NiCrMoV6	-	-	-	55NCDV7	-	F.250.S	SKT4	5ChNM
	V	W210	1.2833	100V1	BW2	-	-	Y1105V	-	-	SKS43	-
	W6Mo5Cr4V2Co5	-	1.3243	S6-5-2-5	-	-	2723	Z85WDKCV	HS6-5-2-5	HS6-5-2-5	SKH55	R6M5K5
	W18Cr4VCo5	T4	1.3255	S18-1-2-5	BT4	-	-	Z80WKC 10-05-04-01	X78WCo1805KU	HS18-1-1-5	SKH3	-
	W6Mo5Cr4V2	M2	1.3343	S6-5-2	BM2	-	2722	Z85WDCV 06-05-04-02	X82WMo0605KU	HS6-5-2	SKH9	R6M5
	-	M7	1.3348	S2-9-2	-	-Z-	2782	Z100WCWV 09-02-04-02	HS2-9-2	HS2-9-2	-	-
	W18Cr4V	T1	1.3355	S18-0-1	BT1	-	-	Z80WCV 18-04-01	X75W18KU	HS18-0-1	SKH2	-
	W6Mo5Cr4V3	M3	-	S6-5-3	-	-	-	-	-	-	SKH52	-
-	M42	-	-	BM42	-	-	-	-	-	SKH59	-	

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ISO	Country and standard						Main application
	China	USA	Germany	Japan	Daido Steel Co., Ltd (Japan)	Russia	
	GB	AISI/SAE	DIN	JIS	DAIDO	GOST	
P	<b>Plastic die steel</b>						
	-	P20 mod.		-	PX5N		For mass production of large mirror dies. Automobile tail light, front fender of car, video camera, household electrical appliances etc
	-	-		-	NAK55		High precision mirror die. Video camera, music disc, Cosmetic Containers, transparent covers, transparent films etc
	-	-		-	NAK80		High precision mirror die. Video camera, music disc, Cosmetic Containers, transparent covers, transparent films etc
	3Cr13	420 mod.		SUS420J2 mod.	S-STAR		For ultra-mirror corrosion resistant precise dies. Accessories of camera, CD, lens, watch case.
	<b>Cold-working die steel</b>						
	-	02	-	SKS93	YK30		Stamping die, gauge calipers, paper cutter, auxiliary tools
	9CrWMn	01 mod.	-	SKS3 mod.	GOA		Blanking die, gauge calipers, drawing die, taps, Perforated punch.
	Cr12MoV	D2	X165CrMoV12	SKD11	DC11		Blanking die, cold forming die, cold drawing die, forming roller, punch
	-	D2 mod.	-	SKD11 mod.	DC53		Blanking die, cold forming die, cold drawing die, forming roll, punch
	<b>Hot-working die steel</b>						
	4Cr5MoSiV1	H13	X40CrMoV51	SKD61	DHA1		Aluminum-compression die, connecting parts of compression die, hot stamping die, hot extrusion die, thermal shear cutting blade
	-	-	-	-	DH21		Long life Aluminum compression die
	-	-	-	-	DH31-S		Compression die
	-	-	-	-	DH2F		Compression die, plastic die

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ISO	Country and standard											
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	GB	AISI/ SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>M</b>	<b>Stainless steel</b>											
	0Cr13; 1Cr12	403	1.4000	X6Cr13	403S17	-	2301	Z6C13	X6Cr13	F.3110	SUS403	08Ch13
	-	-	1.4001	X7Cr14	-	-	-	-	-	F.8401	-	-
	1Cr13	410	1.4006	X10Cr13	410S21	56A	2302	Z10C14	X12Cr13	F.3401	SUS410	12Ch13
	1Cr17	430	1.4016	X6Cr17	430S15	60	220	Z8C17	X8Cr17	F.3113	SUS430	12Ch17
	2Cr13	410	1.4021	X20Cr13	562	56B; 56C	-	Z20C13	X20C13	F.3401	SUS410	20Ch13
	-	-	1.4027	G-X20Cr14	420C29	56B	-	Z20C13M	-	-	SCS2	20Ch13L
	4Cr13	-	1.4034	X46Cr13	420S45	56D	2304	Z40CM Z38C13M	X40Cr14	F.3405	SUS420J2	40Ch13
	1Cr17Ni2	431	1.4057	X20CrNi172	431S29	57	2321	Z15CNi6.02	X16CNi16	F.3427	SUS431	20Ch17N2
	Y1Cr17	430F	1.4104	X12CrMoS17	-	-	2383	Z10CF17	X10CrS17	F.3117	SUS430F	-
	1Cr17Mo	434	1.4113	X6CrMo171	434S17	-	2325	Z8CD17.01	X8CrMo17	-	SUS434	-
	-	-	1.4313	X5CrNi134	425C11	-	-	Z4CND13.4M	-	-	SCS5	-
	-	-	1.4408	G-X6CrNiMo1810	316C16	-	-	-	-	F.8414	SCS14	07Ch18N10G2S2M2L
	4Cr9Si2	HW3	1.4718	X45CrSi93	401S45	52	-	Z45CS9	X45CrSi8	F.322	SUH1	40Ch9S2
	0Cr13Al	405	1.4724	X10CrAl13	403S17	-	-	Z10C13	X10CrAl12	F.311	SUS405	10Ch13SJu
	Cr17	430	1.4742	X10CrAl18	430S15	60	-	Z10CAS18	X8Cr17	F.3113	SUS430	15Ch18SJu
	8Cr20Si2Ni	HNV6	1.4757	X80CrNiSi20	443S65	59	-	Z80CSN20.02	X80CrSiNi20	F.320V	SUH4	-
	2Cr25N	446	1.4762	X10CrAl24	-	-	2322	Z10CAS24	X16Cr26	-	SUH446	-
	<b>Austenitic stainless steel</b>											
	0Cr18Ni9	304	1.4301	X5CrNi1810	304S15	58E	2332	Z6CN18.09	X5CrNi1810	F.3551; F.3541; F.3504	SUS304	08Ch18N10
	1Cr18Ni9MoZr	303	1.4305	X10CrNiS189	303S21	58M	2346	Z10CNF18.09	X10CrNiS18.09	F.3508	SUS303	-
	0Cr19Ni10	304L	1.4306	X2CrNi1911	304S12	-	2352	Z2CN18.10	X2CrNi18.11	F.3503	SCS19	03Ch18N11
	-	-	1.4308	G-X6CrNi189	304C15	-	-	Z6CN18.10M	-	-	SCS13	07Ch18N9L
	Cr17Ni7	301	1.4310	X12CrNi177	-	-	2331	Z12CN17.07	X12CrNi1707	F.3517	SUS301	-
	-	304LN	1.4311	X2CrNi1810	304S62	-	2371	Z2CN18.10	-	-	SUS304LN	-
	0Cr19Ni9	304	1.4350	X5CrNi189	304S31	58E	-	Z6CN18.09	X5CrNi1810	-	SUS304	-
	0Cr17Ni11Mo2	316	1.4401	X5CrNiMo1712	316S16	Z6CND17.11	2347	1.4401	X5CrNiMo1712	F.3543	SUS316	-
	00Cr17Ni13Mo2	316LN	1.4429	X2CrNiMo17133	-	-	2375	Z2CND17.13	-	-	SUS316LN	-
0Cr27Ni12Mo3	316L	1.4435	X2CrNiMo18143	316S12	-	2353	Z2CDN17.13	X2CrNiMo1713	-	SCS16,	03Ch17N14M2	
00Cr19Ni13Mo3	317L	1.4438	X2CrNiMo17133	317S12	-	2367	Z2CND19.15	X2CrNiMo18.16	-	SUS317L	-	
-	329L	1.4460	X8CrNiMo275	-	-	2324	-	-	-	SUS329L; SCH11; SCS11	-	
1Cr18Ni9Ti	321	1.4541	X6CrNiTi1810	2337	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553	SUS321	12Ch18N10T	
1Cr18Ni11Nb	347	1.4550	X6CrNiNb1810	347S17	58F	2338	Z6CNNb18.1	X6CrNiTi1811	F.3552	SUS347	08Ch18N12B	
Cr18Ni12Mo2Ti	316Ti	1.4571	X6CrNiMoTi17122	320S17	58J	2350	Z6NDT17.12	X6CrNiMoTi17	F.3535	-	10Ch17N13M2T	

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ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>M</b>	Austenitic stainless steel											
	-	-	1.4581	G-X5CrNiMoNb1810	318C7	-	-	Z4CNDNb1812M	XG8CrNiMo18	-	SCS22	-
	Cr17Ni12Mo3Nb	318	1.4583	X10CrNiMoNb1812	-	-	-	Z6CNDNb1713B	X6CrNiMoTiNb17	-	-	-
	1Cr23Ni13	309	1.4828	X15CrNiSi2012	309S24	-	-	Z15CNS20.1	-	-	SUH309	20Ch20N14S2
	0Cr25Ni20	310S	1.4845	X12CrNi2521	310S24	-	2361	Z12CN2520	X6CrNi2520	F.331	SUH310	20Ch23N18
	Cr15Ni36W3Ti	330	1.4864	X12NiCrSi3616	-	-	-	Z12CNS35.1	-	-	SUH330	-
	-	-	1.4865	G-X40NiCrSi3818	330C11	-	-	-	XG50NiCr3919	-	SCH15	-
	5Cr2Mn9Ni4N	EV8	1.4871	X53CrMnNiN219	349S54; 321S12	-	58B	-	Z52CMN21.0	X53CrMnNiN219	-	SUH35
1Cr18Ni9Ti	321	1.4878	X12CrNiTi189	321S320	58C	-	Z6CNT18.12	X6CrNiTi1811	F.3523	SU321	09Ch18N10T	

ISO	Country and standard									
	China	USA	Germany	Great Britain	Sweden	France	Italy	Spain	Japan	Russia
<b>K</b>	Nodular cast iron									
	QT400-18	60-40-18	GGG40	400/17	0717-02	FGS370-17	GS370-17	FGE38-17	FCD400	VC 42-12
	QT450-10	65-45-12	--	420/12	--	FGS400-12	GS400-12	FGE42-12	FCD450	-
	QT500-7	70-50-05	GGG50	500/7	0727-02	FGS500-7	GS500-7	FGE50-7	FCD500	VC 50-2
	QT600-3	80-60-03	GGG60	600/7	0732-03	FGS600-2	GS600-2	FGE60-2	FCD600	VC 60-2
	QT700-2	100-70-03	GGG70	700/2	0737-01	FGS700-2	GS700-2	FGE70-2	FCD700	VC 70-2
	QT800-2	120-90-02	GGG80	800/2	0864-03	FGS800-2	GS800-2	FGE80-2	FCD800	VC 80-2
	QT900-2	--	--	900/2	--	--	--	--	--	-
	Nodular cast iron									
	--	NO.60	GG40	--	0140	FGL400	--	--	--	Sc 40
	HT350	NO.50	GG35	350	0135	FGL350	G35	FG35	FC350	Sc 35
	HT300	NO.45	GG30	300	0130	FGL300	G30	FG30	FC300	Sc 30
	HT250	NO.35	GG25	250	0125	FGL250	G25	FG25	FC250	Sc 25
	HT200	NO.30	GG20	200	0120	FGL200	G20	FG20	FC200	Sc 20
	HT150	NO.20	GG15	150	0115	FGL150	G15	FG15	FC150	Sc 15
HT100	--	--	100	0110	--	G10	--	FC100	-	

ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
<b>H</b>	Hardened materials											
	-	440A	1.4108	X100CrMo03	-	-	2258 08	-	-	-	C4BS	-
	-	610	1.4111	X100CrMoV15	-	-	2534 05	-	-	-	AC4A	-
	-	0-2	-	X65CrMo14	-	-	2541 06	-	-	-	AC4A	-

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	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
N	Aluminium-based alloys											
	-	SC64D	3.2373	G-AISI9MGWA			4251	A-57G			C4BS	-
	-	DG-AISI12		G-ALMG5	LM5		4252	A-SU12			AC4A	
	-	356.1			LM25		4244				A5052	
	-	A413.0		GD-AISI12			4247				A6061	
	-	A380.1		GD-AISI8Cu3	LM24		4250				A7075	
	-	A413.1		G-AISI12(Cu)	LM20		4260				ADC12	
	-	A413.2		G-AISI12	LM6		4261					
-	A360.2		G-AISI10Mg(Cu)	LM9		4253						

ISO	Country and standard											
	China	USA	Germany		Great Britain		Sweden	France	Italy	Spain	Japan	Russia
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS	GOST
S	Nickel based alloys											
	-	5391	LW2 4670	S-NiCr13A16MoNb	mar-46	-	-	NC12AD	-	-		
	-	AMS 5397	LW2 4674	NiCo15Cr10MoAlTi	-	-	-	-	-	-		
	-	5660	LW2.4662	NiFe35Cr14MoTi	-	-	-	ZSNCDT42	-	-		
	-	5383	LW2.4668	NiCr19Fe19NbMo	HR8	-	-	NC19eNB	-	-		
	-	-	2.4631	NiCr20TiAk	Hr401.601	-	-	NC20TA	-	-		-
	-	AMS 5399	2.4973	NiCr19Co11MoTi	-	-	-	NC19KDT	-	-		-
	-	AMS 5544	LW2.4668	NiCr19Fe19NbMo	-	-	-	NC20K14	-	-		
	-	5390A	2.4603	-	-	-	-	NC22FeD	-	-		-
	-	5666	2.4856	NiCr22Mo9Nb	-	-	-	NC22FeDNB	-	-		-
	-	-	2.4630	NiCr20Ti	HR5.2034	-	-	NC20T	-	-		-
	-	4676	2.4375	NiCu30AL3Ti	3072-76	-	-	-	-	-		-
	Cobalt based alloys											
	-	5537C AMS		CoCr20W15Ni	-	-	-	KC20WN	-	-		
	-	5772	LW2.4964	CoCr20W14Ni				KC22WN				
	Titanium alloys											
	-	UNS R54520	3.7115.1	TiAl5Sn2.5	TA14/17	-	-	T-A5E	-	-		
	-							UNS R56400				
-	-	3.7165.1	TiAl6V4	TA10-13/ TA28		-	UNS R56401	T-A6V	-	-		
-			TiAl5V5Mo5Cr3									
-	-	3.7185	TiAl4Mo4Sn4Si0.5	-	-	-	-	-	-			

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## Comparison table hardness and tensile strength

Hardness				Tensile strength N/mm <sup>2</sup>	Hardness				Tensile strength N/mm <sup>2</sup>
Rockwell Hardness		Vickers Hardness	Brinell Hardness		Rockwell Hardness		Vickers Hardness	Brinell Hardness	
HRC	HRA	HV	HB		HRC	HRA	HV	HB	
70.0	86.6	1037	—	—	51.0	76.3	525	501	1780
69.5	86.3	1017	—	—	50.5	76.1	517	494	1750
69.0	86.1	997	—	—	50.0	75.8	509	488	1720
68.5	85.8	978	—	—	49.5	75.5	501	481	1690
68.0	85.5	959	—	—	49.0	75.3	493	474	1660
67.5	85.2	941	—	—	48.5	75.0	485	468	1630
67.0	85.0	923	—	—	48.0	74.7	478	461	1605
66.5	84.7	906	—	—	47.5	74.5	470	455	1575
66.0	84.4	889	—	—	47.0	74.2	463	449	1550
65.5	84.1	872	—	—	46.5	73.9	456	442	1525
65.0	83.9	856	—	—	46.0	73.7	449	436	1500
64.5	83.6	840	—	—	45.5	73.4	443	430	1475
64.0	83.3	825	—	—	45.0	73.2	436	424	1450
63.5	83.1	810	—	—	44.5	72.9	429	418	1430
63.0	82.8	795	—	—	44.0	72.6	423	413	1405
62.5	82.5	780	—	—	43.5	72.4	417	407	1385
62.0	82.2	766	—	—	43.0	72.1	411	401	1360
61.5	82.0	752	—	—	42.5	71.8	405	396	1340
61.0	81.7	739	—	—	42.0	71.6	399	391	1320
60.5	81.4	726	—	—	41.5	71.3	393	385	1300
60.0	81.2	713	—	2555	41.0	71.1	388	380	1280
59.5	80.9	700	—	2500	40.0	70.8	382	375	1260
59.0	80.6	688	—	2450	40.0	70.5	377	370	1245
58.5	80.3	676	—	2395	39.5	70.3	372	365	1225
58.0	80.1	664	—	2345	39.0	70.0	367	360	1210
57.5	79.8	653	—	2295	38.5	—	362	355	1190
57.0	79.5	642	—	2250	38.0	—	357	350	1175
56.5	79.3	631	—	2205	37.5	—	352	345	1160
56.0	79.0	620	—	2160	37.0	—	347	341	1140
55.5	78.7	609	—	2115	36.5	—	342	336	1125
55.0	78.5	599	—	2075	36.0	—	338	332	1110
54.5	78.2	589	—	2035	35.5	—	333	327	1095
54.0	77.9	579	—	1995	35.0	—	329	323	1080
53.5	77.7	570	—	1955	34.5	—	324	318	1065
53.0	77.4	561	—	1920	34.0	—	320	314	1050
52.5	77.1	551	—	1885	33.5	—	316	310	1035
52.0	76.9	543	—	1850	33.0	—	312	306	1020
51.5	76.6	534	—	1815	32.5	—	308	302	1010

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## Comparison table hardness and tensile strength

Hardness					Tensile strength N/mm <sup>2</sup>	Hardness					Tensile strength N/mm <sup>2</sup>
Rockwell Hardness		Vickers Hardness	Brinell Hardness			Rockwell Hardness		Vickers Hardness	Brinell Hardness		
HRC	HRA	HV	HB			HRC	HRA	HV	HB		
32.0	—	304	298		995	24.0	—	249	245		820
31.5	—	300	294		980	23.5	—	246	242		810
31.0	—	296	291		970	23.0	—	243	240		800
30.5	—	292	287		960	22.5	—	240	237		790
30.0	—	289	283		950	22.0	—	237	234		785
29.5	—	285	280		935	21.5	—	234	232		775
29.0	—	281	276		920	21.0	—	231	229		765
28.5	—	278	273		910	20.5	—	229	227		760
28.0	—	274	269		900	20.0	—	226	225		750
27.5	—	271	266		890	19.5	—	223	222		745
27.0	—	268	263		880	19.0	—	221	220		735
26.5	—	264	260		870	18.5	—	218	218		730
26.0	—	261	257		860	18.0	—	216	216		725
25.5	—	258	254		850	17.5	—	214	214		715
25.0	—	255	251		835	17.0	—	211	211		710
24.5	—	252	248		830						

Note: The conversion values for steel in the table are commonly applicable for the steels with carbon from low to high.

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Conversion table chip breakers – turning

ISO	Anwendung	ZCC-CT		Sandvik		Seco		Kennametal		ISCAR		Walter		Mitsubishi		Sumitomo		Tungaloy		Kyocera		Korloy		Ingersoll Tague Tec					
		Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos				
P	Wiper-finishing	WG		WF WL	WF WK	W-MF2	W-F1	FW MW	FW MW	WF		NF	PF	SW	FW	NLU-W	NLU-W	ASW		WP		VW LW		WS					
	Finishing	DFEF	SF HF	PF QF	PF UF 23	FF1 MF1	FF1 F1	FF FN	11 UF LF	SF		NF3 NS6	PF4 PF5	FH FS	FJ FV	NLU NFP	NLU NFA NLF	TF TS 17	PF 01	DP GP	VF	VG VF	VL	FG FC	VF	FA SA FG			
	Semi-finishing	DM EM	HM	PM QM	PM UM	MF2	F2	FN	MF		NF TF	14 16	17 19	SH SA	SW SV	NSX	NSU NSC	TSTMA S	PS	HQ CQ	CJ	VQ VC	VB	WT ML	WT				
	Medium machining to light roughing	DM PM	HR	PM QM	PR UR	M3 MF3	F2	MN	MF		GN PP	17 19		MV MZ	MA	NMU NSF	NMU NUX	TM DM	PM	GS CS	HS PS	HO XQ	GK G	VM	PC MC	MT MG	PMR		
	Wiper-medium			WR WM	WM	W-M3	W-R4	W-R7	MW RW	MW	WG		NM	PM	MW		NGU-W			WQ									
	Roughing	DR		PR QR 31		M5 MR5	MR7	RP UN	RN		TNM GN	19		GH MAT	MT	NMU NMX				PT GT	HT	G	St-form	HR	RT				
	Single side roughing	HDR	31 HPR	HR QR		R8 RR9	-56	-57	RH RM	RP		NR6 NR8		HA HZ	HH HV	NMP NHG	NHP	NHU NHW		HX			GH VH	VT	HT HD	HY HZ	RX RH	CMX	
	Wiper-finishing	WG		WF WL	WMX	W-MF2		FW MW	FW MW	WF			PF	SW	FW	NLU-W													
	Finishing	EF DF	EF HF	MF	MF UF	FF F2	MF1	F1	FF FP	11 UF LF	NF VL	PF SM	NF4	PF4 PF5	FJ FV	NSU NLU	NSU NLU	SS	SS	GU				VF	FG				
	Semi-finishing	EF EM	EF EM	MF MM	UM	MF3	MF3	F2	FP	MF	PP TF	14 16	17 19	SH MS	MV	NEX NUP	NSU	SS SM	PS	MS			CK DP	GP VF	XP				
Medium machining to light roughing	EM DM	EM HM	MM	MM UM	R6 S6	F2	F2	MP	HP	PP TF	17 19		MS ES	MH	NGU	NMU	SA S	PM	MS			HO XQ	GK G	H5	VP3	EM SU	MT	PMR	WT
Wiper-medium			WR WM	WM	W-M3			MW RW	MW	WG		PM	PM	MW		NGU -W													
Roughing	ER DR	HR	MR QR	PR	R7 R8			MP-P		HTW NR	19	NR4	GH HZ		NMU NMX	NHG						VM		ET	CMX				
Single side roughing	ER DR	HDR	HR QR	LR	-56			RP		NM																			



### Conversion table chip breakers – turning

ISO	Application	ZCC-CT		Sandvik		Seco		Kennametal		ISCAR		Walter		Mitsubishi		Sumitomo		Tungaloy		Kyocera		Korloy		Ingersoll Tague Tec	
		Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos
<b>K</b>	Wiper-Finishing	WG		WF-WM	WF	W-MF2	W-F1	FW-MW	FW-MW	WF							NLU-W	NLU-W							
	Finishing	DF	HF	KF	KF	F1	F1	FF-FN	11 UF-LF	NF-SM	14 19	P55				NSU	NSU			C		VM			
	Semi-finishing	PM	HM	KF-KM	KF-KM	M3	F2	FN	MF	GN	14 19	NM5	P55	GH		NUX-NGU	NSU			C Stand. form		B25	HMP		
<b>Cast Iron</b>	Medium machining to light roughing	DR	HM-HR	KM-QM	KM	M3	F2	UN	HP	GN-NR		NM6	PM5		NUZ-NGU-NMU	NMU			GC-ZS		VK-GR	CZ5	MT-MG	MT-PMR-WT	
	Wiper medium					W-M3 W-R4 W-R7		MW	MW	WG		NM	PM		NGU-W										
	Roughing	DR *NMA	HR	KR-QR	KR-UR	M5				NR		NR6		GH		NMU			ZS		MA		RT	CMX	
<b>N</b>	Finishing		LC		AL				LF	NF		PM2													
	Semi-finishing		LC		AL		AL	GP		NF-PP	AS									AH	AH	HA	AK		FL-SA
	Medium machining to light roughing		LH		AL		AL	GG-FS-MS	HP	NMS													AR		
<b>S</b>	Finishing	NF-EF	NF	NGP	MF	MF1		FS	GT-HP	SF-PF	PF-SM	PF4	FJ		NSU							VP1			
	Semi-finishing	NF-NM-EM	NF	23	MM	MF1-M1		FS-MS	GT-MF	SF-PF	PF-SM	PF5	MJ		NEX-NUP	NSU-NSK						VP2	AK		
	Medium machining to light roughing	NM-EM		MF	MM-LUM	M1		MS	MT-LF	PP-TF		P55	MS		NMU	NSK						VP3	HMP	SU	
<b>Heat-resistant alloys</b>						MP3-MR4		RP		TF-HTW-NR			GJ									VM			
	Roughing	ER		SR																					



Conversion table grades – turning

Coated cemented carbide CVD

ISO	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tungaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec	Widia		
<b>P</b>	<b>Steel</b>	P01-05	GC4205 GC4305	KCP05 KC9105	AC805P	UE6005 UE6105	T9005 T9105	CA5505	WPP01 WPP05	IC8150 IC9150 IC428	TP0500 TP0501				
		P10-15	GC4315 GC4215	KCP10 KC9110	AC810P AC700G	UC6110 MY5015	T9015 T9115	CA510 CA5515 CA510	WPP10 WPP10S	IC8150 IC8250 IC9150 IC9250 IC9015	TP1500 TP1501	NC3010	TT8115 TT8125	WP15CT	
		P20-25	GC4325 GC4225 GC4025	KCP25 KC9125	AC820P AC8020P AC900G AC2000	UE6020 MC6025	T9025 T9125	CA5525 CA525 CR9025	WPP20 WPP20S	IC8150 IC8250 IC9250 IC9025	TP2501 TP2500 TP200	NC3220 NC3120	TT8125 TT3500	WP25CT	
		P30-35	GC4335 GC4235 GC4035	KCP30 KC8050	AC830P AC3000	UE6035 UE6400	T903 T9135	CA530 CA5535 CA535	WPP30 WPP30S	IC8250 IC8350 IC9350	TP3500	NC3030 NC5330 NC500H	TT5100 TT8135	WP35CT	
		M10	GC2015 GC1515	KCM15	AC610M	MC7015	T9115			IC8250 IC9250 IC6015			TT9215	WM15CT	
		M20	GC2015 GC2025	KCM25 KC9225	AC610M AC630M	US7020 MC7015 MC7025	T6020 T6120 T9125	CA6515	WAM20	IC8250 IC9350 IC6025 IC6025	TM 2000 TP200 TP2500	NC9025	TT5100 TT9225	WM25CT	
		M30	GC2025 GC2035	KCM25 KCM35 KC9225	AC630M AC6030M AC830P AC3000	US735 US7025	T6030 T6130	CA6525	WAM30	IC8350 IC9350 IC9025	TP3500 TM4000		TT5100 TT7100 TT9235	WM35CT	
		M40	GC2035	KCM35 KC9240 KC9245	AC630M AC6030M AC830P AC3000	US735	T6030 T6130	CA6525		IC6025 IC9350	TP40				
		K01-05	GC3005 GC3205	KCK05	AC405K AC410K	UC5005 UC5105	T5105	CA4505		IC5005 IC9007		NC6205	TT1300 TT7005	WK05CT	
		K10-15	GC3215	KCK15 KC9315	AC410K AC415K AC420K AC700G	MC5015 UC5115 MY5015	T5105 T5115	CA4010 CA4515 CA4115	WAK10 WAK10S	IC9015 IC9007 IC8150 IC5010 IC428 IC4028 IC9150	TK1001 TK1000	NC6210	TT1300 TT7310 T7015	WK20CT	
K20-25	GC3225	KCK20 KC9320	AC420K AC900G	MC5015 UC5115 UE6110 MY5015	T5125 T9125	CA4125	WAK20 WKK20S	IC5010 IC428 IC4028 C9150	TK2000 TK2001	NC5330		WK20CT			
<b>K</b>	<b>Cast iron</b>														

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### Conversion table grades – turning

#### Coated cemented carbide PVD

ISO	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tungaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec	Widia
P01-05		GC1105					PR1005						
P10-15	YBG101 YBG102 YBG105	GC1515 GC1115 GC1025	KC5010 KC5510 KC7215 KC7315	AC510U	VP10MF VP15TF	AH710	PR930 PR1005 PR930 PR1115	WSM10 WXN10	IC520N IC507 IC570 IC807 IC907 IC908				
P20-25	YB9320 YBG205 YBG202	GC1515 GC1125 GC1025	KC5025 KC5525 KU25T	AC520U	VP20RT VP20MF	AH725 AH120	PR930 PR1025 PR1225	WSM20 WMP20S WSM21	IC228 IC250 IC308 IC828 IC350 IC354 IC507 IC807 IC808 IC907 IC908 IC928 IC1008 IC1028 IC3028	CP200 CP250 TP2000 TS2500		TT8020 TT9020	
P30-35	YBG302	GC1125 GC2035	KC7335	AC530U		SH730 J740 GH130 AH740	PR660	WSM30	IC228 IC250 IC328 IC330 IC354 IC528 IC1008 IC1028 IC3028	CP500			
M10	YBG101 YBG102 YBG105	GC1105 GC1115 GC1025 GC1125 GC1515	KCU10 KC5010 KC5510 KC6005 KC6015	EH10Z AC510U AC530U	VP10MF	AH710	PR915 PR1005	WSM10	IC330 IC354 IC507 IC520 IC570 IC807 IC1028 IC3028	CP500 TS2000	PC8110	TT5080	WS10PT
M20	YB9320 YBG205 YBG202	GC1025 GC1125	KC501 KCU25	AC520U AC530U	VP10RT VP15TF VP20RT VP20MF	AH120 AH725 SH730 AH710 AH630 GH330 J740	PR1025 PR1125 PR1225	WSM10 WMP20S WSM20 WSM21	IC228 IC250 IC354 IC808 IC908 IC1008 IC1028 IC3028	TS2000 TS2500 CP200 CP250		TT8020 TT9020 TT9080	WS25PT
M30	YBG302	GC2035	KC5025 KCU25		VP10RT VP15TF VP20RT VP20MF MP7035	AH12 AH725 SH730 AH710 AH630 GH330 J740	PR1025 PR1125	WSM20 WSM21 WSM30	IC228 IC250 IC328 IC330 IC1008 IC1028 IC3028	CP500 TS2500	PC5300 PC9030		
S05		S05F			MP9005	AH905			IC507 IC907				
S10	YBG102 YBG105 YBG202 YBG205	GC1105 GC1115	KC5010 KCU10 KC5510 KC510	AC510U EH510Z	MP9015 VP10RT	AH905 SH730 AH110 AH120		WSM10	IC507 IC807 IC808 IC907	CP200 CP250 TS2000 TS2500	PC8110	TT5080	WS10PT
S20	YB9320 YBG205 YBG202	GC1025 GC1125 GC1515	KC5010 KCU10 KC5025 KCU25 KC5525	AC520U EH520Z	MP9015 VP20RT MT9015	AH120 AH725	PR1125	WSM20 WSM21 WSM30	IC507 IC807 IC907	CP250 TS2500 CP500	PC5300	TT5080 TT8020 TT9080	WS25PT
S30	YBG302			AC520U	VP15TF	AH725	PR1125	WSM30	IC3028 IC808 IC830		PC5400	TT8020	
N10	YBG101 YBG102 YBG105	GC1515	KC5410					WXN10	IC520				

Conversion table grades – turning

Cermet

ISO	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tunggaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec	Widia	
<b>P</b>	Steel	P01-05	CT5005	T110A T1000A	AP25N VP25N	NS520 AT520 GT520 GT720	TN30 TN6010 PV30 PV7010		IC20N IC520N		CN1000 CC105	CT3000 PV3010		
		P10-15	CT5015 CT530	KT315 KT125	T1200A T2000Z T1500A T1500Z	NX2525 AP25N VP25N	NS520 NS730 GT730 NS9530 GT9530	TN60 TN6010 PV60 PV6010		CM TP1020 TP1030 CMP	CN1000 CT10 CN2000 CC115	CT3000 PV3010	TT115	
		P20-25	GC1525	KT325 KT1120 KT5020	T1200A T2000Z T1500A T1500Z	NX2525 NX3035 AP25N VP25N MP3025	NS530 NS730 GT730 NS9530 GT9530	TN60 TN6020 PV60 PV7020 PV7025		IC20N IC30N IC75T IC520N IC530N	CM TP1020 TP1030 CMP	CN20 CN2000 CC115		TT115
P30-35			T3000Z	MP3025 VP45N		PV7025 PV90		IC75T						
<b>M</b>	Stainless steel	M10	GC1525	T110A T1000A T1500Z T2000Z	NX2525 AP25N VP25N	NS520 AT530 GT530 GT720	TN60 TN6020 PV60 PV7020			CM TP1020 TP1030 CMP		CT3000 PV3010	TT115	
		M20	CT5015 CT530	HT2	T110A T1000A T1500Z T2000Z	NX2525 AP25N VP25N	NS530 GT730 NS730	TN90 TN6020 PV90 PV7020 PV7025				CT3000 PV3010	TT115	
		M30			T3000Z									
		M40												
<b>K</b>	Cast iron	K01-05		T110A T1000A T2000Z T1500Z	NX2525 AP25N	NS520 GT730 NS730	TN30 TN6010 PV30 PV7005 PV7010				CN1000	CT3000 PV3010		
		K10-15	CT5015	KT325 KT125	T1200A T1500A T2000Z T1500Z	NX2525 AP25N	NS520 GT730 NS730	TN60 TN6020 PV60 PV7020 PV7025				CN1000	CT3000 PV3010	
		K20-25	CT5015		T3000Z	NX2525 AP25N								

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### Conversion table grades – turning

#### Uncoated carbide

ISO	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tungaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec	Widia
N Non-ferrous metals	N01	H10 H13A	KF1	H1		KS05F				883 890			
	N10	H10 H13A	K313 KF1 THM-F	H1	HT110	KS15F	KW10	WK01 WK10	IC20	890 KX HX	H01	K10	THM
	N20	H10 H13A	K313 KF1 THM-F			KS15F	KW15		IC20	KX HX			

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Conversion table grades – milling

CVD milling grades

Material / Class	ZCC-CT	Sandvik	Kenametal	Sumitomo	Mitsubishi	Toshiba Tunggaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec
<b>P</b>	P05	K20W GC4220		F7010								
	P10	K20W GC3040 GC4220 GC4230		ACP100	F7010				IC4100 IC5100	MP1500	NC5330 NCM325	IN6505 IN6520
	P20	GC3040 GC4230		CS3000	FH7020	T3130		WKP25 WKP255	IC4050 IC4100 IC5100 IC5400	MP1500 MP2500 MS2500 T25M	NC5330 NCM325	IN6505 IN6520 IN7035
	P30	GC2040 GC4240		CS3000	F7030	T3130		WKP35 WKP355 WTP35	IC4050 IC5400	MK3000 T25M T350M	NCM325	IN7035 IN6530
	P40	GC2040 GC4240								T350M		IN6530
	M10	GC4230			F7010					MP1500	NCM325 NC5330	IN6520
	M20	GC4230			F7020	T3130			IC4050	MP1500 MP2500 MS2500 T25M	NCM325 NCM335	IN7035 IN6520 IN6505
	M30	GC2040 GC4240			F7030	T3130		WTP35		MP2500 MS2500 T25M T350M	NCM335	IN6530 IN7035 IN6505
	M40	GC2040 GC4240								T350M		IN6530
	<b>K</b>	K05				F7010 MC5020				DT7150 IC4100		
K10		K20W		ACK200	F7010 MC5020	T1115		WAK15	DT7150 IC4100 IC4010	MP1500 MK1500	NC5330	IN6520
K20		K20W		ACK200		T1115		WKP25 WKP255	DT7150 IC4100	MP1500 MP2500 MS2500 T25M MK1500	NC5330	IN6530 IN6515 IN6520
K30								WKP35 WKP355	IC4050	MK3000 MP2500 MS2500		IN6530 IN6515

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### Conversion table grades – milling

#### CVD milling grades

Material / Class	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tungaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec
<b>S</b> Heat-resistant alloys	S05									MK3000		
	S10											
	S20									MP2500 MS2500 T25M		IN7035 IN6520
	S30		GC2040					WTP35		MM4500 T350M		
<b>N</b> Non-ferrous metals	N05											
	N10											
	N20									MP2500 25M		
<b>H</b> Hardened materials	H05											
	H10		K20W									
	H20		K20W GC3040									

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Conversion table grades – milling

PVD milling grades

Material / Class	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tunggaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec
<b>P</b> Steel	P05			ACZ120	VP05HT	GH130			IC903			
	P10	GC1010 GC1025 GC1020	KC522M KC525M KC610M KC643M KC715M	ACZ10M ACZ20W	VP10H	AH120 GH130	PR730 PRI225 PRI525	WHX15 WHH15 WXM15	IC903 IC950 IC1008	F15M		IN2004 IN2006
	P20	GC1020 GC1025 GC1010 GC2030	KC522M KC525M KC643M KC715M KC725M	ACP200 ACZ330 ACX70 ACW30 AC350 ACZ50M	VP15TF VP20M VP20RT	AH725 AH120 AH130 AH330 AH725 AH730 GH330	PR630 PR830 PR730 PRI225 PRI230 PRI525	WXM15	IC810 IC380 IC830 IC900 IC908 IC910 IC950 IC1008	F25M MP3000	PC3500 PC3600	IN2006 IN1030 IN2004 IN2005 IN2015 IN2030 IN2505 IN2540
	P30	GC1030 GC2030	KC530M KC725M KC735M	ACP200 ACP300 ACZ50M ACZ330 ACZ350 ACX70 ACW30 AC350	VP30RT	AH740 AH130 AH140	PR660 PR860 PR730 PRI225 PRI230	WXM35	IC300 IC328 IC830 IC900 IC928 IC350 IC808 IC908	F30M MP3000	PC3500 PC3600 PC5300 PC3545 PC9570T	IN1030 IN2005 IN2015 IN2030 IN2035 IN2040 IN2505 IN2530 IN4035
P40	GC1030	KC735M	ACP300 ACZ350		AH140 AH750		WXP45 WSP45 WSP46	IC300 IC328 IC928	F40M	PC5300 PC3545	IN2035 IN2040	
<b>M</b> Stainless steel	M10	GC1020	KC522M KC610M KC643M KC715M	ACZ20W ACZ350 EH20Z	AH330 GH110 GH130	PR730 PRI225 PR660 PRI525		PR730 PR660 PRI225 PRI525	F15M	PC8110		IN2505
	M20	GC1020 GC1025 GC1030 GC203	KC522M KC525M KC610M KC715M KC725M	ACP200 ACZ50M ACZ20M ACZ350 EH20Z AC350	VP15TF VP20RT	AH725 AH730 GH110	PR730 PRI1025 PR660 PRI225 PRI525	WXM15	F25M MP3000	PC5300 PC8110 PC9530		IN2005 IN2015 IN2505
	M30	GC1040 GC203	KC525M KC530M KC725M KC735M	ACP300 ACZ50M ACX80 AC350	VP30RT	AH740 AH120 AH130 GH330 GH340			F30M MP3000	PC9530 PC3545 PC9570T		IN1030 IN2015 IN2030 IN2035 IN2530 IN4035
	M40	GC1040	KC530M KC735M	ACP300 ACX80		AH140 AH750 GH330 GH340		W5M35 W5M36 WXM35	F40M	PC3545		IN1030 IN2030 IN2035 IN2530 IN4035
<b>K</b> Cast iron	K05	GC1010	KC510M	ACZ10M ACZ120 ACZ310	AH330		PR905 PRI210 PRI510		MH1000		PC8110	IN2510
	K10	GC1010	KC510M KC520M KC620M KC643M	EH20Z ACZ310	AH120 AH330 AH725	PR905 PRI210 PRI510	WXM15 WHH15 WXM15	IC810 IC950 IC1008	F15M MK2000	PC6510		IN2004 IN2010 IN2510
	K20	GC1020	KC520M KC620M KC725M	ACK300 EH20Z ACX80 ACW30	VP15TF	GH130		WKK25	IC328 IC830 IC950 IC350 IC808 IC908 IC1008	F25M MK2000 MK3000	PC6510 PC3500	IN1030 IN2004 IN2010 IN2015 IN2030 IN2505
K30	GC1020	KC620M KC725M	ACK300 ACZ50M					IC328 IC830 IC900 IC908 IC350 IC808 IC908	F30M F40M MP3000	PC5300 PC9570T	IN2005 IN2015 IN2030 IN2505	

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### Conversion table grades – milling

#### PVD milling grades

Material / Class	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tunggaloy	Kyocera	Walter	Iscar	SECO	Korloy	Ingersoll Tague Tec
<b>S</b> Heat-resistant alloys	S05									MH1000 F15M	PC8110	
	S10	YBG102 YBG202 YBG205		KC525M KC643M	ACZ20W	VP15TF	PR905 PR1210 PR1510		IC808	NH1000 F15M F25M	PC5300	
	S20		S30T GC1025 GC1030 GC2030	KC525M KC643M	ACZ20W		PR905 PR1210 PR1510		IC908 IC380 IC900 IC903 IC908 IC928 IC830 IC808	F25M F30M	PC5300 PC3545	IN2005 IN2505
	S30		GC2030	KC725M KC735M	ACZ50M			WSM35 WSM36 WSP45 WSP46 WXM35 WXP45	IC328 IC928 IC830	F40M	PC3545	IN1030 IN2030 IN2035 IN2530 IN4035
<b>N</b> Non-ferrous metals	N05									MH1000 F15M		
	N10	YBG202		KC510M				WXN15		MH1000 F15M		
	N20		GC1025 GC1030	KC620M KC522M KC651M	EH20Z					F25M F30M F40M MP3000		
<b>H</b> Hadeded materiels	H05				VP05HT				IC903	MH1000 F15M	PC210F	IN2004 IN2006
	H10	YBG102		KC643M	VP10MF			WXH15 WHH15	IC900 IC808	MK2000 F30M MP3000	PC210F	IN2004 IN2005 IN2006
	H20	YBG202	GC1010 GC1025 GC1030		VP15TF				IC810 IC908	F30M F40M MK2000 MP3000		



## Conversion table grades – milling

## Uncoated milling grades

ISO	ZCC-CT	Sandvik	Kennametal	Sumitomo	Mitsubishi	Toshiba Tungaloy	Walter	Kyocera	Iscar	SECO	Korloy	Ingersoll Tague Tec
N	Non-ferrous metals	N01	K115M K110M				WK10		IC20N		H01	IN04S
		N10		K313	EH520	HT10	WKM	GW25	IC08	H15	G10	IN10K IN05S
		N20		KMF	EH520	TF15	KMG40		IC28	H25		IN15K

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### Examples of materials for machining groups

Material No.	Material	Machining group	Material No.	Material	Machining group	Material No.	Material	Machining group
1.0722	10SPb20	1	1.1203	Ck55	4 / 5	1.4429	X2CrNiMoN 17-13-3	14
1.0715	9SMn28	1	1.1221	Ck60	4 / 5	1.4311	X2CrNiN 18 10	14
1.0736	9SMn36	1	1.5710	36NiCr9	5 / 9	1.4301	X5CrNi 18-10	14
1.0718	9SMnPb28	1	1.5120	38MnSi 7	5 / 9	1.4401	X5CrNiMo 17-12-2	14
1.0737	9SMnPb36	1	1.1545	C 105 W5	4 / 5	0.6010	GG10	16
1.0401	C15	1	1.1663	C 125 W	4 / 5	0.6015	GG15	16
1.0402	C22	1	1.0535	C95	4 / 5	0.6020	GG20	16
1.1141	Ck15	1	1.0601	C100	4 / 5	0.6025	GG25	16 / 17
1.1170	28Mn6	2	1.1274	Ck101	4 / 5	0.6030	GG30	17
1.0726	35S20	2 / 3	1.1203	Ck55	4 / 5	0.6035	GG35	17
1.1167	36Mn5	2 / 3	1.1221	Ck60	4 / 5	0.6040	GG40	17
1.1157	40Mn4	2 / 3	1.5710	36NiCr10	5 / 9	1.4829	X12NiCrSi 22-12	17
1.0501	C35	2 / 3	1.5120	38MnSi 8	5 / 9	1.4828	X15CrNiSi20-12	17
1.0503	C45	2 / 3	1.5680	12Ni19	10 / 11	0.7033	GGG35.3	18
1.1191	Ck45	2 / 3	1.3255	S 18-1-2-5	10 / 11	0.7040	GGG40	18
1.1183	Cf35	2 / 3	1.3348	S 2-9-2	10 / 11	0.7043	GGG40.3	18
1.1213	Cf53	2 / 3	1.3343	S 6-5-2	10 / 11	0.8135	GTS-35	18
1.1545	C 105 W1	4 / 5	1.3243	S 6-5-2-5	10 / 11	0.7050	GGG50	19
1.1663	C 125 W	4 / 5	1.2363	X 100 CrMoV 5-1	10 / 11	0.7060	GGG60	19
1.0535	C55	4 / 5	1.2601	X165CrMoV12	10 / 11	0.7070	GGG70	19
1.0601	C60	4 / 5	1.2080	X210 Cr 12	10 / 11	0.7660	GGGNiCr 20-2	19
1.1274	Ck101	4 / 5	1.2581	X30WCrV 9-3	10 / 11	0.7652	GGGNiMn 13-7	19
1.1203	Ck55	4 / 5	1.2344	X40CrMoV 5-1	10 / 11	0.8155	GTS-55	21
1.1221	Ck60	4 / 5	1.4718	X45CrSi9-3	10 / 11	0.8165	GTS-65	21
1.5710	36NiCr6	5 / 9	1.3355	S 18-0-1	10 / 11	0.8170	GTS-70	21
1.5120	38MnSi 4	5 / 9	1.4027	G-X20Cr14	12 / 13	0.8145	GTS-45	21
1.1545	C 105 W2	4 / 5	1.4006	X12 Cr 13	12 / 13	3.0205	Al99	22
1.1663	C 125 W	4 / 5	1.4104	X12CrMoS 17	12 / 13	3.3315	AlMg 1	22
1.0535	C65	4 / 5	1.4057	X19CrNi 17-2	12 / 13	3.1325	AlCuMg 1	23
1.0601	C70	4 / 5	1.4034	X46Cr 13	12 / 13	3.2315	AlMgSi 1	23
1.1274	Ck101	4 / 5	1.4871	X53 CrMnNiN 21-9	12 / 13	3.2581	G-AlSi12	24
1.1203	Ck55	4 / 5	1.4113	X6CrMo 17	12 / 13	3.2163	G-AlSi9Cu3	24
1.1221	Ck60	4 / 5	1.4000	X6CR 13	12 / 13	3.2381	G-AlSi10Mg	25
1.5710	36NiCr7	5 / 9	1.4001	X7Cr14	12 / 13	2.0375	CuZn36Pb 3	27
1.5120	38MnSi 5	5 / 9	1.4016	X6Cr17	12 / 13	2.1096	G-CuSn5ZnPb	27
1.1545	C 105 W3	4 / 5	1.4581	G-X5CrNiMoNb 18	14	2.0590	G-CuZn40Fe	27
1.1663	C 125 W	4 / 5	1.4308	G-X6CrNi 18-9	14	2.0240	CuZn15	28
1.0535	C75	4 / 5	1.4408	G-X6CrNiMo 18-10	14	2.0060	E-Cu 57	29
1.0601	C80	4 / 5	1.4583	X6CrNiMoNb 18-12	14	1.4865	G-X40NiCrSi 38-18	30
1.1274	Ck101	4 / 5	1.4571	X6CrNiMoTi 17-12-2	14	1.4864	X12NiCrSi 36-16	30
1.1203	Ck55	4 / 5	1.4550	X6CrNiNb 18-10	14	2.4631	NiCr20TiAl	32
1.1221	Ck60	4 / 5	1.4541	X14CrNiTi 18-10	14	2.4856	NiCr22Mo9Nb	32
1.5710	36NiCr8	5 / 9	1.4845	X12CrNi 25-21	14	2.4375	NiCu30Al	33
1.5120	38MnSi 6	5 / 9	1.4310	X10CrNi 18-8	14	2.4955	NiFe25Cr20NbTi	33
1.1545	C 105 W4	4 / 5	1.4305	X10CrNiS 18-10	14	2.4764	CoCr20W15Ni	34
1.1663	C 125 W	4 / 5	1.4878	X12CrNiTi 18-9	14	1.3401	G-X120Mn12	34
1.0535	C85	4 / 5	1.4317	X2CrNi 18-8	14	3.7165	TiAl6V4	36
1.0601	C90	4 / 5	1.4436	X3CrNiMo 17-13-3	14			
1.1274	Ck101	4 / 5	1.4440	X2CrNiMo 18-16	14			

**Test protocol**

<b>Date:</b>		<b>ZCC Cutting Tools Europe GmbH</b>	
<b>General</b>	End User	Distributor	
Company			
Contact person			
<b>Machine</b>			
Type			
Producer			
Power [kW]			
Tooling system			
<b>Work piece</b>			
Material			
Hardness/Tensile strength [N/mm <sup>2</sup> ]			
Heat treatment/Surface			
Interrupt cutting			
<b>Cutting tools</b>			
Producer (holder)			
Toolholder (name)			
Teeth Z			
Producer/Supplier			
Insert type/Tool number			
Grade			
Solid carbide tools number			
Cooling			
<b>Cutting Data</b>			
RPM n [U/min]			
Cutting speed Vc [m/min]			
Feed rate f [mm/rpm]			
Feed rate Vf [mm/min]			
Depth of cut a <sub>p</sub> [mm]			
Width of cut a <sub>e</sub> [mm]			
Machining length [mm]			
Cutting time T [min]			
<b>Results</b>			
Machined pieces/Edges			
Surface quality			
Flankwear VB			
Criteria			
Notch wear			
Crater wear			
Plastic deformation			
Built-up edge			
Insert breakage			
Cutting edge breakage			

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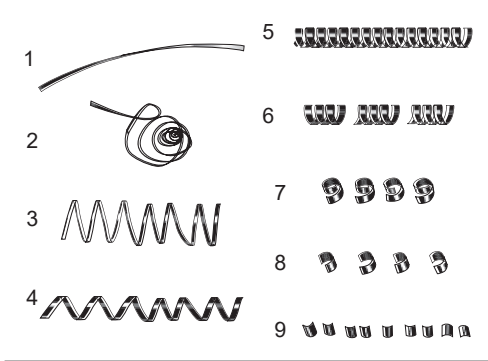
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**Conclusion:**

**Fax:** +49-(0)211-989240-111  
**E-mail:** technik@zccct-europe.com

**Signature:**

### Torque for screw

Thread	M1,6	M1,8	M2	M2,2	M2,5	M3	M3,5	M4	M4,5	M5	M6	M7	M8	M10	M12
Torque [Nm]	0,2	0,3	0,4	0,7	0,8	1,5	2,3	3,4	5,0	6,7	11,4	19,2	27,0	55,8	85

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1534SU03	C32
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1536ST05C	C98
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1538SU08C	C53
1557SU03	C72
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1588SL12C	C77
1588SL15C	C81
1588SL20C	C84
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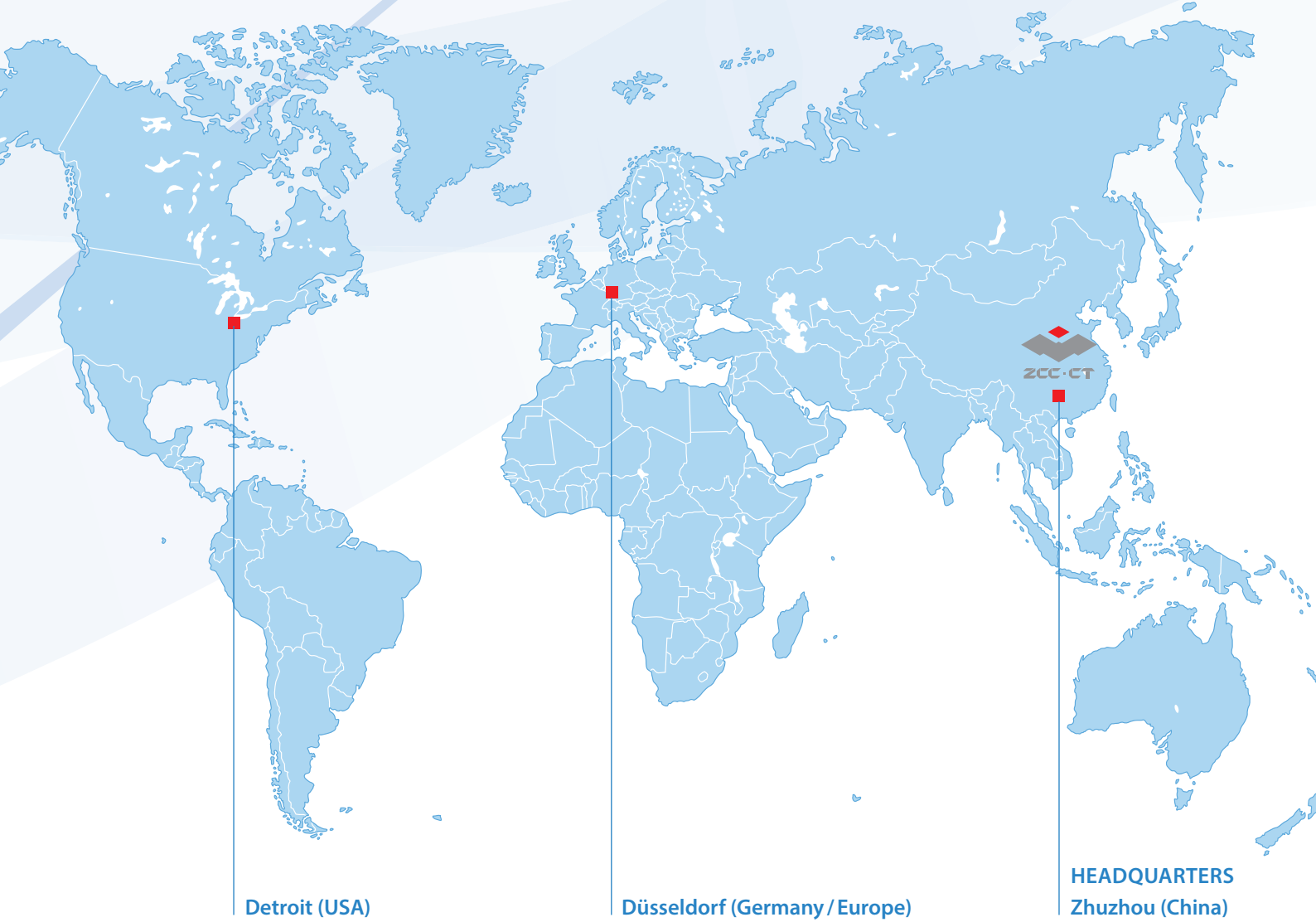
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Detroit (USA)

Düsseldorf (Germany/Europe)

HEADQUARTERS  
Zhuzhou (China)



## The Company

**Z**huzhou Cemented Carbide Cutting Tools Co., Ltd. (ZCC-CT) is located in Zhuzhou, Hunan in the People's Republic of China is the largest Chinese manufacturer of carbide tools. ZCC-CT belongs to the Zhuzhou Cemented Carbide Group (ZCC), which manufactures carbide products and carbide powders. Both companies are part of the Minmetals Corporation, which Trades in mining metals and minerals.

*Since its founding in 1953, ZCC Cutting Tools has become one of the world's leading carbide manufacturers and has more than 2,000 employees, thanks to its highly qualified staff and use of the latest technologies. As a Minmetals Corporation company, ZCC-CT can completely cover the entire value-added chain of modern carbide tool production from the extraction of raw materials to the coated final product and all the steps in between.*

*Based on the latest European production technologies, it is possible for us to offer products with a consistent high quality at all times. The extensive product range includes carbide indexable inserts, indexable inserts made from cermet, CBN, PKD and ceramic, solid carbide tools as well as turning tool holders and suitable tool systems. The products are produced in accordance with the current international standards, such as ISO, DIN, ANSI, JIS and BSI. In addition, ZCC Cutting Tools offer customer-specific solutions and special carbide products in accordance with specifications.*

*Research and development are a very high priority at ZCC-CT. In this area ZCC-CT use the world's most modern equipment and advanced machinery from Germany and Switzerland, for which the investments are higher than average. With highly trained engineers and a qualified international team, ZCC Cutting Tools researches the necessary foundations and is constantly developing new and improved products based on them. The company continuously strives to improve quality in order to meet customers' growing demands for new and innovative products and to be able to individually enhance customer benefits.*

*Both production and administration in China are subject to the ISO 9001:2008 standard. Environmental management is subject to the ISO 14001:2004 standard.*

## **Since 2003, ZCC Cutting Tools has had a branch office in Europe.**

*The European head office and central warehouse are located in Düsseldorf, Germany. All European countries as well as Russia and Turkey are serviced from there. The company's quality management system is certified in the area of sales and logistics of tools for metal processing in accordance with DIN EN ISO 9001:2008.*

*In order to meet our own high requirements for above-average customer service and in parallel with the growth of the company as a whole, the number of employees at ZCC Cutting Tools is growing in sales and internal sales, in technical support and application technology, research and development as well as in the areas of logistic, marketing, IT, human resources and accounting.*

*Our sales representatives and our sales partners in Europe together serve customers on site. ZCC-CT application engineers are furthermore available with all their expertise and experience by phone, email or personally in your production environment.*

*The internal sales team handles enquiries throughout Europe with native speakers and ensures together with the employees in logistics that all orders are delivered to you and all our customers as fast as possible.*

***All of us at ZCC Cutting Tools Europe are here for you and will support you as your competent partner in all questions of machining production. That is our definition of added value through partnership.***



Europe head office

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