

# RHINO LINE

RHINO TURN



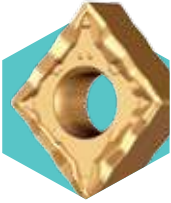
RHINO MILL

RHINO GROOVE



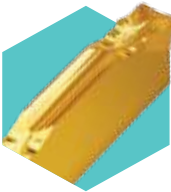
RHINO SOLID

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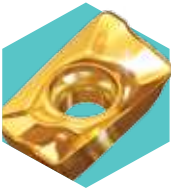
## **RHINO**TURN

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## **RHINO**GROOVE

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## **RHINO**SOLID

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**RHINO**TURN  
ECO TURNING LINE

# Recommendations for Chip Breakers

## RHINO-TURN Negative inserts

### For steel

Finishing	
Medium	

### For stainless steel

Finishing	
Medium	

### For super alloys

Finishing	
Medium	

### For cast iron

Medium	
Roughing	

### For aluminum

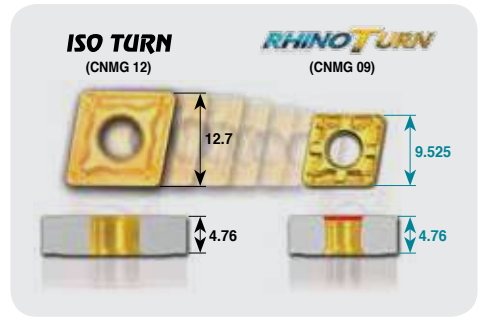
Medium	
Roughing	

### For Swiss turn (Ground type)

Finishing	
Finishing-Medium	
Roughing	

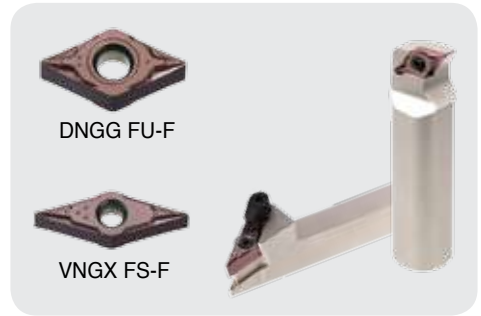
### Smaller and stronger inserts

- Suitable for mass production
- Very stable machining
- Replaceable for ISO negative inserts in medium to finish application



### Double-sided ground inserts suitable for swiss type automatic lathes

- External holders and sleeve holders with high pressure coolant
- Ground and sharp cutting edge inserts with TT4410 and TT4430 new grades



### Economical double-sided mini size inserts

- Optimum in low depth of cut less than 2mm
- Replaceable for ISO positive inserts
- Suitable for small boring diameter



### 70° corner angle multi purpose inserts

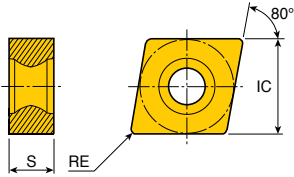
- Integrated shape of C and D-type
- External/Internal turning, facing and profiling
- Low cutting force & reliable performance in tool-life, chip control for automotive parts



# CNGG CNMA CNMG

Insert

Negative 80° rhombic inserts

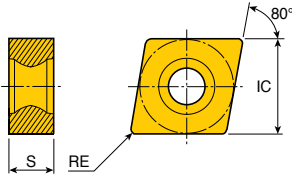


Size	Dimension (mm)		
	IC	S	RE
<b>09</b>	9.52	4.76	0.1-1.2








Insert	Designation	ap (mm)	Feed (mm/rev)	CVD coated														K10							
				Cermet		CVD coated										PVD coated									
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT15100	TT7100	TT5080	TT8020	TT9080	TT3010	TT3020	TT9020	
Medium	<b>CNGG 090401 ML</b>	0.1-1.0	0.03-0.10																	●					●
	<b>090402 ML</b>	0.2-1.2	0.05-0.15																	●					●
	<b>090404 ML</b>	0.5-1.5	0.05-0.20																	●					●
	<b>090408 ML</b>	0.5-1.5	0.08-0.25																	●					●
Roughing	<b>CNMA 090408</b>	1.0-3.0	0.15-0.60				●	●																	
	<b>090412</b>	1.0-3.0	0.15-0.70				●	●																	
Medium	<b>CNMG 090404</b>	0.5-3.0	0.10-0.45				●	●																	
	<b>090408</b>	0.5-3.0	0.10-0.50				●	●																	
	<b>090412</b>	0.5-3.0	0.10-0.55				●	●																	
Finishing	<b>CNMG 090404 EA</b>	0.20-1.5	0.05-0.30											●	●	●			●		●				
	<b>090408 EA</b>	0.30-1.5	0.07-0.40											●	●	●			●		●				
Medium	<b>CNMG 090408 EM</b>	0.5-3.0	0.13-0.40											●	●	●			●		●				
	<b>090412 EM</b>	0.7-3.0	0.15-0.40											●	●	●			●		●				
Finishing	<b>CNMG 090404 FG</b>	0.2-2.0	0.07-0.30								●	●						●							
	<b>090408 FG</b>	0.5-2.0	0.10-0.35								●	●						●							
	<b>090412 FG</b>	0.5-2.0	0.15-0.40								●	●						●							
Finishing	<b>CNMG 090404 FM</b>	0.25-2.0	0.07-0.30	●	●					●	●	●	●					●							
	<b>090408 FM</b>	0.3-2.0	0.10-0.35	●	●					●	●	●	●					●							
	<b>090412 FM</b>	0.35-2.0	0.15-0.40							●	●	●	●					●							
Finishing	<b>CNMG 090402 FS</b>	0.2-1.5	0.05-0.25	●	●					●	●														
	<b>090404 FS</b>	0.25-1.5	0.07-0.30	●	●					●	●														
	<b>090408 FS</b>	0.5-1.5	0.10-0.30	●	●					●	●														

● : Standard items

## Negative 80° rhombic inserts



Size	Dimension (mm)		
	IC	S	RE
<b>07</b>	7.0	3.18	0.4-0.8
<b>09</b>	9.52	4.76	0.4-1.2

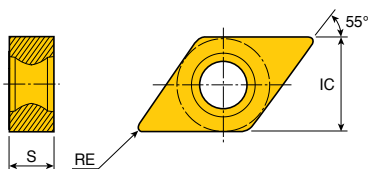
Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																				
				Cermet	CVD coated								PVD coated				K10							
				PV3010	CT3000	TT3005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9235	TT9255	TT15100		TT17100	TT15080	TT18020	TT19080	TT3010	TT3020	TT19020
 Finishing	<b>CNMG 090404 FT</b>	0.4-3.0	0.07-0.30						●	●	●	●			●									
	<b>090408 FT</b>	0.5-3.0	0.10-0.40						●	●	●	●			●									
	<b>090412 FT</b>	0.6-3.0	0.15-0.50						●	●	●	●			●									
 Medium	<b>CNMG 090404 MK</b>	0.7-3.0	0.17-0.40											●	●			●		●				
	<b>090408 MK</b>	1.0-3.0	0.20-0.50											●	●			●	●	●	●	●		
	<b>090412 MK</b>	1.2-3.0	0.23-0.50											●	●			●		●				
 Medium	<b>CNMG 090404 MM</b>	0.4-3.0	0.15-0.45						●	●	●	●	●	●	●					●				
	<b>090408 MM</b>	0.5-3.0	0.20-0.50						●	●	●	●	●	●	●					●				
	<b>090412 MM</b>	0.7-3.0	0.23-0.50						●	●	●	●	●	●	●					●				
 Medium	<b>CNMG 090404 MT</b>	0.8-3.0	0.10-0.35						●	●	●	●			●									
	<b>090408 MT</b>	1.0-3.0	0.15-0.45						●	●	●	●			●			●		●				
	<b>090412 MT</b>	1.2-3.0	0.20-0.55						●	●	●	●			●									
 Medium	<b>CNMG 090404 PC</b>	0.4-3.0	0.10-0.30						●	●	●	●			●					●				
	<b>090408 PC</b>	0.5-3.0	0.15-0.40						●	●	●	●			●					●				
	<b>090412 PC</b>	0.6-3.0	0.18-0.50						●	●	●	●			●					●				
 Finishing	<b>CNMG 090404 WA</b>	0.25-2.5	0.08-0.25				●	●	●	●	●	●			●									
	<b>090408 WA</b>	0.25-3.0	0.10-0.40				●	●	●	●	●	●			●									
	<b>090412 WA</b>	0.4-3.0	0.20-0.50				●	●	●	●	●	●			●									
 Finishing	<b>CNMX 070304 FGP</b>	0.3-2.0	0.05-0.25	●					●	●								●				●		
	<b>070308 FGP</b>	0.4-2.0	0.08-0.25	●					●	●								●				●		

● : Standard items

# DNGG DNGX DNMG

Insert

## Negative 55° rhombic inserts



Size	Dimension (mm)		
	IC	S	RE
<b>08</b>	7.0	3.18	0.1-0.4
<b>13</b>	11.11	5.56	0.1-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	Cermat													K10							
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9235	TT5100		TT7100	TT5080	TT3010	TT3020	TT9020	TT4410	TT4430
Finishing For Swiss	DNGG 130501M FU-F	0.2-2.5	0.03-0.12																			●	●	
	130502M FU-F	0.2-2.5	0.04-0.12																				●	●
	130504M FU-F	0.4-2.5	0.05-0.12																				●	●
Medium	DNGG 130501 ML	0.1-1.0	0.03-0.10															●					●	
	130502 ML	0.2-1.2	0.05-0.15															●					●	
	130504 ML	0.5-1.5	0.05-0.20															●					●	
	130508 ML	0.5-1.5	0.08-0.25															●					●	
Finishing For Swiss	DNGX 080301M SM-F	0.1-1.0	0.02-0.10																	●			●	
	080302M SM-F	0.2-1.2	0.02-0.12																	●			●	
	080304M SM-F	0.2-1.5	0.02-0.15																	●			●	
Medium	DNMG 130504	0.5-3.5	0.10-0.45			●	●																	
	130508	0.5-3.5	0.10-0.50			●	●											●	●					
	130512	0.5-3.5	0.10-0.55			●	●																	
Finishing	DNMG 130504 EA	0.20-1.5	0.05-0.30												●	●	●						●	
	130508 EA	0.30-1.5	0.07-0.40												●	●	●							
Medium	DNMG 130508 EM	0.5-3.0	0.13-0.40												●	●	●		●	●				
	130512 EM	0.7-3.0	0.15-0.40												●	●	●		●	●				
Finishing	DNMG 130504 FG	0.2-2.0	0.07-0.30									●	●					●						
	130508 FG	0.5-2.0	0.10-0.35									●	●					●						
	130512 FG	0.5-2.0	0.15-0.40									●	●					●						
Finishing	DNMG 130504 FM	0.25-2.0	0.07-0.30	●	●							●	●	●				●						
	130508 FM	0.3-2.0	0.10-0.35	●	●							●	●	●				●						
	130512 FM	0.35-2.0	0.15-0.40	●	●							●	●	●				●						

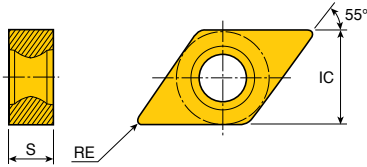
● : Standard items



# DNMG DNMX DNUX

Insert

## Negative 55° rhombic inserts



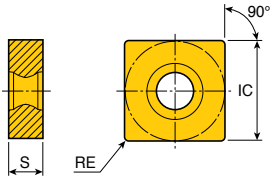
Size	Dimension (mm)		
	IC	S	RE
<b>08</b>	7.0	3.18	0.4-0.8
<b>13</b>	11.11	5.56	0.2-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	Material																					
				Cermet			CVD coated							PVD coated			K10								
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9235	TT9250		TT95100	TT7100	TT5080	TT8020	TT9080	TT3010	TT3020	TT9020
Finishing	<b>DNMG 130502 FS</b>	0.2-2.0	0.05-0.25	●	●						●	●													
	<b>130504 FS</b>	0.25-2.0	0.07-0.30	●	●						●	●													
	<b>130508 FS</b>	0.5-2.0	0.10-0.30	●	●						●	●													
Finishing	<b>DNMG 130504 FT</b>	0.25-3.0	0.07-0.30							●	●	●	●			●									
	<b>130508 FT</b>	0.3-3.0	0.10-0.40							●	●	●	●			●									
	<b>130512 FT</b>	0.35-3.0	0.15-0.50							●	●	●	●			●									
Medium	<b>DNMG 130504 MK</b>	0.7-4.0	0.17-0.40												●	●		●	●						
	<b>130508 MK</b>	1.0-4.0	0.20-0.45												●	●		●	●	●	●				
	<b>130512 MK</b>	1.2-4.0	0.23-0.50												●	●		●	●						
Medium	<b>DNMG 130504 MM</b>	0.4-4.0	0.15-0.45								●	●	●	●	●	●		●	●						
	<b>130508 MM</b>	0.5-4.0	0.20-0.50								●	●	●	●	●	●		●	●						
	<b>130512 MM</b>	0.7-4.0	0.23-0.50								●	●	●	●	●	●		●	●						
Medium	<b>DNMG 130504 MT</b>	0.8-4.0	0.10-0.35							●	●	●	●			●									
	<b>130508 MT</b>	1.0-4.0	0.15-0.45							●	●	●	●			●									
	<b>130512 MT</b>	1.2-4.0	0.20-0.55							●	●	●	●			●									
Medium	<b>DNMG 130504 PC</b>	0.4-3.5	0.10-0.30							●	●	●	●			●									
	<b>130508 PC</b>	0.5-3.5	0.15-0.40							●	●	●	●			●									
	<b>130512 PC</b>	0.6-3.5	0.18-0.50							●	●	●	●			●									
Finishing	<b>DNMG 130504 WA *</b>	0.25-2.5	0.08-0.25			●	●			●	●	●	●			●									
	<b>130508 WA *</b>	0.25-3.0	0.10-0.35			●	●			●	●	●	●			●									
	<b>130512 WA *</b>	0.4-3.5	0.15-0.45			●	●			●	●	●	●			●									
Finishing	<b>DNMX 080304 FGP</b>	0.3-2.0	0.05-0.25	●							●	●						●					●		
	<b>080308 FGP</b>	0.4-2.0	0.08-0.25	●							●	●						●					●		
Right hand Medium	<b>DNMX 130504 R11</b>	1.5-4.5	0.15-0.35								●	●			●	●					●				
	<b>130504 L11</b>	1.5-4.5	0.15-0.35								●	●			●	●					●				
	<b>130508 R11</b>	2.0-4.5	0.21-0.45							●	●	●	●			●	●				●				
	<b>130508 L11</b>	2.0-4.5	0.21-0.45							●	●	●	●			●	●				●				

















► \* Marked: Wiper inserts should be applied to □DJNR/L..., □DUNR/L..., □DZNR/L...

● : Standard items

## Negative square inserts



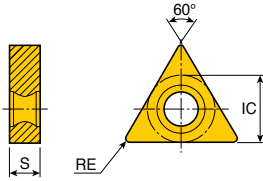
Size	Dimension (mm)		
	IC	S	RE
<b>09</b>	9.52	4.76	0.4-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																						
				Cermet		CVD coated								PVD coated												
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT15100	TT7100	TT5080	TT8020	TT9080	TT3010	TT3020	TT9020	K10	
  Medium	<b>SNMG 090408</b>	0.5-3.0	0.10-0.50				●	●																		
	<b>090412</b>	0.5-3.0	0.10-0.55				●	●																		
  Medium	<b>SNMG 090408 EM</b>	0.5-3.0	0.13-0.40																●							
	<b>090412 EM</b>	0.7-3.0	0.15-0.40																		●					
  Finishing	<b>SNMG 090408 FG</b>	0.5-2.0	0.10-0.35							●									●							
	<b>090412 FG</b>	0.5-2.0	0.15-0.40																●							
  Finishing	<b>SNMG 090412 FM</b>	0.35-2.0	0.15-0.40																●							
  Medium	<b>SNMG 090404 MK</b>	0.7-3.0	0.17-0.40												●	●										
  Medium	<b>SNMG 090404 MM</b>	0.4-3.0	0.15-0.45																●							
	<b>090412 MM</b>	0.7-3.0	0.23-0.50												●											
  Medium	<b>SNMG 090404 MT</b>	0.8-3.0	0.10-0.35										●													
	<b>090408 MT</b>	1.0-3.0	0.15-0.45								●															
  Medium	<b>SNMG 090408 PC</b>	0.5-3.0	0.15-0.40								●															
	<b>090412 PC</b>	0.6-3.0	0.18-0.50																●							















● : Standard items

# TNGG TNMG

## Negative triangular inserts

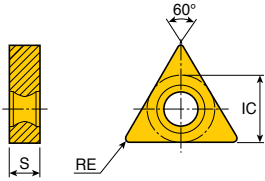


Size	Dimension (mm)		
	IC	S	RE
<b>13</b>	7.94	4.76	0.2-1.2













Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																						
				CVD coated																						
				PVD coated																						
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT15100	TT17100	TT15080	TT18020	TT19080	TT13010	TT13020	TT19020	K10	
  Left hand Medium	<b>TNGG 130402 L</b>	0.8-3.5	0.10-0.30	●																						
	<b>130402 R</b>	0.8-3.5	0.10-0.30	●																						
	<b>130404 L</b>	1.0-3.5	0.12-0.30	●																						
	<b>130404 R</b>	1.0-3.5	0.12-0.30	●																						
	<b>130408 L</b>	1.3-3.5	0.15-0.35	●																						
	<b>130408 R</b>	1.3-3.5	0.15-0.35	●																						
  Medium	<b>TNMG 130404</b>	0.5-3.5	0.10-0.45			●	●																			
	<b>130408</b>	0.5-3.5	0.10-0.50			●	●																			
	<b>130412</b>	0.5-3.5	0.10-0.55			●	●																			
  Finishing	<b>TNMG 130404 EA</b>	0.2-1.5	0.05-0.30										●	●	●		●	●								
	<b>130408 EA</b>	0.3-1.5	0.07-0.40										●	●	●		●	●								
  Medium	<b>TNMG 130408 EM</b>	0.5-3.0	0.13-0.40										●	●	●		●	●								
	<b>130412 EM</b>	0.7-3.0	0.15-0.40										●	●	●		●	●								
  Finishing	<b>TNMG 130404 FG</b>	0.25-1.5	0.07-0.30									●	●			●										
	<b>130408 FG</b>	0.3-1.5	0.10-0.35									●	●			●										
	<b>130412 FG</b>	0.35-1.5	0.15-0.40									●	●			●										
  Finishing	<b>TNMG 130404 FM</b>	0.25-1.5	0.07-0.30	●	●						●	●	●	●		●										
	<b>130408 FM</b>	0.3-1.5	0.10-0.35	●	●						●	●	●	●		●										
	<b>130412 FM</b>	0.35-1.5	0.15-0.40	●	●						●	●	●	●		●										
  Finishing	<b>TNMG 130402 FS</b>	0.2-1.0	0.05-0.25	●	●						●	●														
	<b>130404 FS</b>	0.25-1.0	0.07-0.30	●	●						●	●														
	<b>130408 FS</b>	0.5-1.0	0.10-0.30	●	●						●	●														

● : Standard items

## Negative triangular inserts



Size	Dimension (mm)		
	IC	S	RE
13	7.94	4.76	0.4-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	Cermet		CVD coated										PVD coated					K10						
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT5100	TT7100	TT5080	TT8020		TT9080	TT3010	TT3020	TT9020		
  Finishing	<b>TNMG 130404 FT</b>	0.25-2.5	0.07-0.30																								
	<b>130408 FT</b>	0.3-2.5	0.10-0.40																								
	<b>130412 FT</b>	0.35-2.5	0.15-0.50																								
  Medium	<b>TNMG 130404 MK</b>	0.7-3.0	0.17-0.40																								
	<b>130408 MK</b>	1.0-3.0	0.20-0.45																								
	<b>130412 MK</b>	1.2-3.0	0.23-0.50																								
  Medium	<b>TNMG 130404 MM</b>	0.4-3.0	0.15-0.45																								
	<b>130408 MM</b>	0.5-3.0	0.20-0.50																								
	<b>130412 MM</b>	0.7-3.0	0.23-0.50																								
  Medium	<b>TNMG 130404 MT</b>	0.8-3.0	0.10-0.35																								
	<b>130408 MT</b>	1.0-3.0	0.15-0.45																								
	<b>130412 MT</b>	1.2-3.0	0.20-0.55																								
  Medium	<b>TNMG 130404 PC</b>	0.4-3.0	0.10-0.30																								
	<b>130408 PC</b>	0.5-3.0	0.15-0.40																								
	<b>130412 PC</b>	0.6-3.0	0.18-0.50																								
  Finishing	<b>TNMG 130404 WA *</b>	0.25-2.5	0.08-0.25																								
	<b>130408 WA *</b>	0.25-3.0	0.10-0.35																								
	<b>130412 WA *</b>	0.40-3.5	0.15-0.45																								

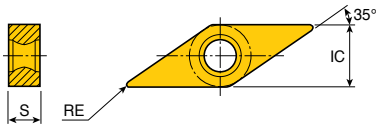
\* Marked: Wiper inserts should be applied to □TGNR/L..., □TFNR/L...

● : Standard items










# VNGX VNMX

Insert

## Negative 35° rhombic inserts

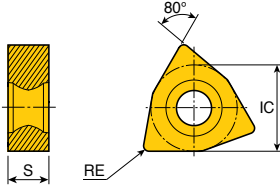


Size	Dimension (mm)		
	IC	S	RE
<b>13</b>	7.94	4.76	0.1-1.2

















Insert	Designation	ap (mm)	Feed (mm/rev)	Coating														K10										
				Cermat		CVD coated										PVD coated												
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT5100	TT7100	TT5080	TT8020	TT9080	TT3010	TT3020	TT9020	TT4410	TT4430		
 Finishing For Swiss	<b>VNGX 130401M FS-F</b>	0.2-1.0	0.03-0.12																									
	<b>130402M FS-F</b>	0.2-1.0	0.04-0.12																								● ●	
																												● ●
 Medium	<b>VNGX 130401 ML</b>	0.1-1.0	0.03-0.10																●									●
	<b>130402 ML</b>	0.2-1.2	0.05-0.15																●									
	<b>130404 ML</b>	0.5-1.5	0.05-0.20																●									
 Finishing	<b>VNMX 130404 FG</b>	0.5-2.0	0.08-0.20	●						● ●							●		●	●								
	<b>130408 FG</b>	0.5-2.0	0.10-0.23	●						● ●							●		●	●								
 Finishing	<b>VNMX 130404 FM</b>	0.25-1.5	0.07-0.30	●						● ● ● ●						●		●	●									
	<b>130408 FM</b>	0.3-1.5	0.10-0.35	●						● ● ● ●						●		●	●									
 Finishing	<b>VNMX 130402 FS</b>	0.2-1.0	0.05-0.20	● ●						● ●																		
	<b>130404 FS</b>	0.25-1.0	0.07-0.20	● ●						● ●																		
	<b>130408 FS</b>	0.5-1.0	0.10-0.23	● ●						● ●																		
 Finishing	<b>VNMX 130404 FX</b>	0.2-2.0	0.05-0.20	● ●						● ●									●									
	<b>130408 FX</b>	0.2-2.0	0.07-0.20	● ●						● ●									●									
 Medium	<b>VNMX 130404 MK</b>	0.7-3.0	0.17-0.35												● ●			●	●									
	<b>130408 MK</b>	1.0-3.0	0.20-0.40		●										● ●			●	●	● ●								
 Medium	<b>VNMX 130404 MT</b>	0.8-3.0	0.15-0.36								● ● ● ●					●		●	●									
	<b>130408 MT</b>	1.0-3.0	0.17-0.36					● ●			● ● ● ●					●		●	●									
	<b>130412 MT</b>	1.5-3.0	0.20-0.40					● ●			● ● ● ●					●		●	●									
 Medium	<b>VNMX 130404 PC</b>	0.4-3.0	0.15-0.36								● ● ● ●					●		●	●									
	<b>130408 PC</b>	0.5-3.0	0.17-0.36								● ● ● ●					●		●	●									
	<b>130412 PC</b>	1.0-3.0	0.20-0.40								● ● ● ●					●		●	●									

● : Standard items

## Negative 80° trigon inserts

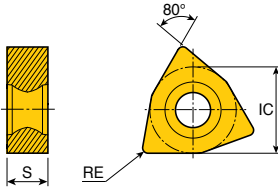


Size	Dimension (mm)		
	IC	S	RE
<b>04</b>	7	3.18	0.4-0.8
<b>06</b>	9.52	4.76	0.4-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	CVD coated																	K10				
				Cermet		CVD coated													PVD coated						
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9225	TT9235	TT15100	TT17100	TT15080	TT18020	TT19080	TT19010	TT19020	TT19020	
  Medium	<b>WNMX 060404 EM</b>	0.4-3.0	0.10-0.35												●	●	●		●		●				
	<b>060408 EM</b>	0.5-3.0	0.13-0.40												●	●	●		●		●				
	<b>060412 EM</b>	0.7-3.0	0.15-0.40												●	●	●		●		●				
  Finishing	<b>WNMX 060404 FG</b>	0.2-2.0	0.07-0.30							●	●						●		●						
  Finishing	<b>WNMX 040304 FGP</b>	0.3-2.0	0.05-0.25	●						●	●								●				●		
	<b>040308 FGP</b>	0.4-2.0	0.08-0.25	●						●	●								●				●		
  Finishing	<b>WNMX 060404 FM</b>	0.25-2.0	0.07-0.30	●						●	●	●					●								
	<b>060408 FM</b>	0.3-2.0	0.10-0.35	●						●	●	●					●								
	<b>060412 FM</b>	0.35-2.0	0.15-0.40							●	●	●					●								
  Finishing	<b>WNMX 060404 FS</b>	0.25-1.5	0.07-0.30	●	●					●	●	●													
	<b>060408 FS</b>	0.5-1.5	0.10-0.30	●						●	●	●													
  Medium	<b>WNMX 060404 MK</b>	0.7-3.0	0.17-0.40												●	●			●		●				
	<b>060408 MK</b>	1.0-3.0	0.20-0.45												●	●			●		●				
	<b>060412 MK</b>	1.2-3.0	0.23-0.50												●	●			●		●				
  Medium	<b>WNMX 060404 MM</b>	0.4-3.0	0.15-0.45												●	●	●		●		●				
	<b>060408 MM</b>	0.5-3.0	0.20-0.50							●	●				●	●	●		●		●				
	<b>060412 MM</b>	0.7-3.0	0.23-0.50							●	●				●	●	●		●		●				
  Medium	<b>WNMX 060404 MT</b>	0.8-3.0	0.10-0.35				●	●		●	●	●		●	●	●		●		●					
	<b>060408 MT</b>	1.0-3.0	0.15-0.45				●	●		●	●	●		●	●	●		●		●					
	<b>060412 MT</b>	1.2-3.0	0.20-0.55				●	●		●	●	●		●	●	●	●		●						

● : Standard items

### Negative 80° trigon inserts



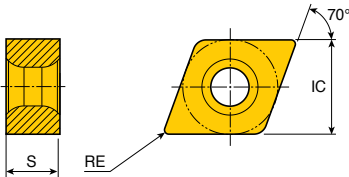
Size	Dimension (mm)		
	IC	S	RE
<b>06</b>	9.52	4.76	0.4-1.2

Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																					
				Cermet	CVD coated							PVD coated			K10										
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215		TT9225	TT9235	TT15100	TT17100	TT15080	TT18020	TT19080	TT13010	TT3020	TT19020
 Medium	<b>WNMX 060404 PC</b>	0.4-3.0	0.10-0.30							●	●	●													
	<b>060408 PC</b>	0.5-3.0	0.15-0.40							●	●	●										●			
	<b>060412 PC</b>	0.6-3.0	0.18-0.50							●	●	●										●			
 Finishing	<b>WNMX 060404 WA</b>	0.25-2.5	0.08-0.25				●	●		●	●	●				●									
	<b>060408 WA</b>	0.25-3.0	0.10-0.40				●	●		●	●	●				●									
	<b>060412 WA</b>	0.4-3.0	0.20-0.50				●	●		●	●	●				●									

● : Standard items

# XNMG

### Negative 70° rhombic inserts

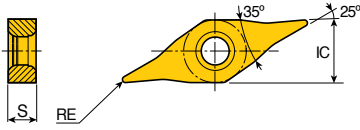


Size	Dimension (mm)		
	IC	S	RE
<b>09</b>	8.7	4.76	0.4
<b>11</b>	11.11	5.56	0.4-1.2



Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																					
				Cermet	CVD coated							PVD coated			K10										
				PV3010	CT3000	TT3005	TT7005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215		TT9225	TT9235	TT15100	TT17100	TT15080	TT18020	TT19080	TT13010	TT3020	TT19020
 Finishing	<b>XNMG 090404 FLP</b>	0.20-1.50	0.07-0.30							●	●	●													
 Finishing	<b>XNMG 110504 FGP</b>	0.25-2.00	0.07-0.30							●	●	●													
	<b>110508 FGP</b>	0.30-2.00	0.10-0.35							●	●	●													
	<b>110512 FGP</b>	0.35-2.00	0.15-0.40							●	●														
 Medium	<b>XNMG 110508 MLP</b>	0.50-3.50	0.10-0.40							●	●	●													
	<b>110512 MLP</b>	0.60-3.50	0.15-0.50							●	●	●													

● : Standard items

## Negative 25° rhombic inserts



Size	Dimension (mm)		
	IC	S	RE
13	7.94	4.76	0.4-0.8

Insert	Designation	ap (mm)	Feed (mm/rev)	Coating																				
				Cermert				CVD coated						PVD coated				K10						
				PV3010	CT3000	TT3005	TT7015	TT7025	TT8105B	TT8115B	TT8125B	TT8135B	TT9215	TT9235	TT15100	TT7100	TT5080		TT8020	TT9080	TT3010	TT3020	TT9020	
  Finishing	<b>YNMG 130404 FS</b>	0.3-1.0	0.08-0.20	•	•					•							•		•					
	<b>130408 FS</b>	0.5-1.5	0.08-0.25	•	•					•								•						

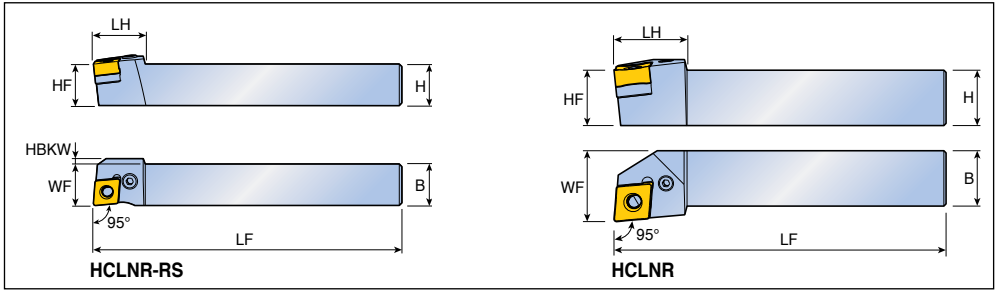
• : Standard items

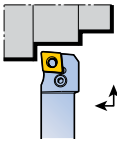

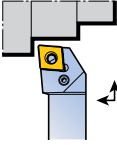



# HCLNR/L-RS HCLNR/L

Holder

## Hook lever type holders

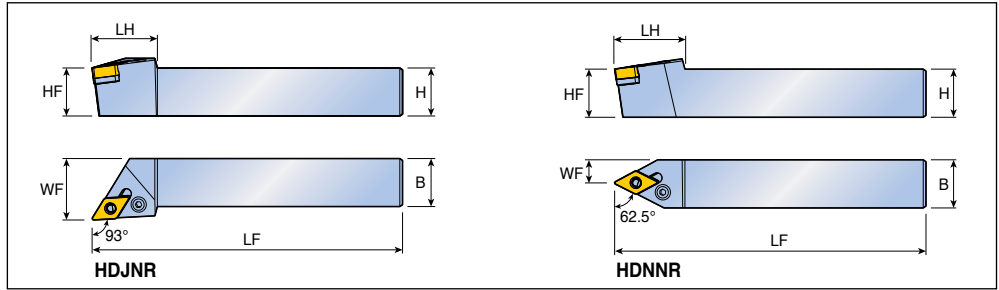


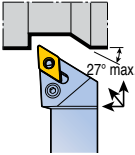
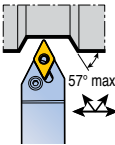
Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBKW	
 95°	<b>HCLNR/L 1212 K0904-RS</b>	12	12	16	125	18	12	2	CN... 0904...
	<b>1616 K0904-RS</b>	16	16	16	125	20	16	-	
 95°	<b>HCLNR/L 1616 H0904</b>	16	16	16	100	22	20	-	CN... 0904...
	<b>2020 H0904</b>	20	20	20	100	22	25	-	
	<b>2020 K0904</b>	20	20	20	125	22	25	-	
	<b>2525 M0904</b>	25	25	25	150	22	32	-	

## Spare parts






Designation	Lever	Screw	Snap ring	Shim	Shim pin	Wrench	
<b>...1212...0904</b>	LCL 09B-NX	LCS 3B	LSR 3B	-	-	L-W 2	
<b>...0904</b>	LCL 09-NX	LCS 3	-	LSC 32A	LSP 3A	L-W 2.5	

## Hook lever type holders

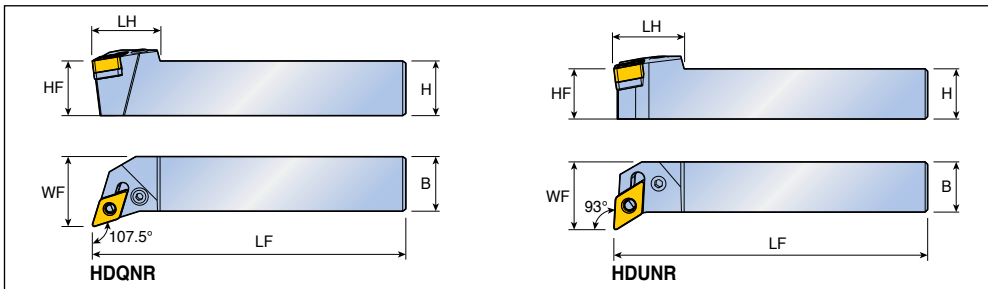


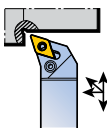

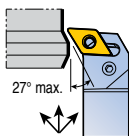
Approach angle	Designation	Dimension (mm)						Insert	
		H	HF	B	LF	LH	WF		
<b>93°</b> 	<b>HDJNR/L 2020 H1305</b>	20	20	20	100	34	25	DN... 1305...	
	<b>2020 K1305</b>	20	20	20	125	34	25	<b>RHINO TURN</b>	
	<b>2525 M1305</b>	25	25	25	150	34	32		
<b>62.5°</b> 	<b>HDNNR/L 2020 K1305</b>	20	20	20	125	36.5	10		
	<b>2525 M1305</b>	25	25	25	150	36.5	12		

## Spare parts






Designation	Lever	Screw	Shim	Shim pin	Wrench		
							
<b>...1305</b>	LCL 11-NX	LCS 4	LSD 3.52	LSP 4	L-W 3		

## Hook lever type holders

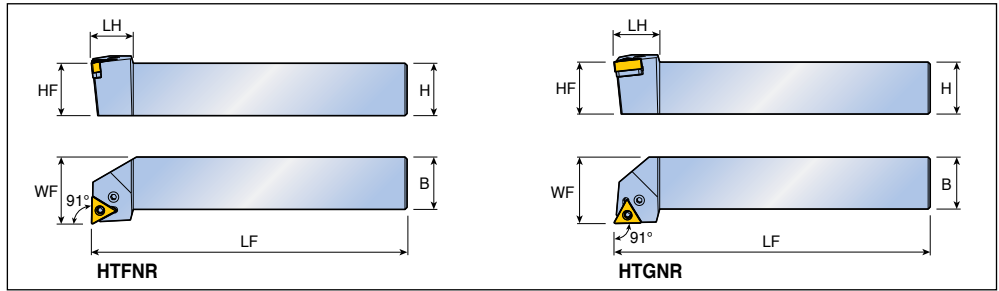


Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>107.5°</b> 	<b>HDQNR/L 2020 K1305</b>	20	20	20	125	31	25	DN... 1305... 
	<b>2525 M1305</b>	25	25	25	150	31	32	
<b>93°</b> 	<b>HDUNR/L 2020 K1305</b>	20	20	20	125	28	27	

## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench		
							
<b>...1305</b>	LCL 11-NX	LCS 4	LSD 3.52	LSP 4	L-W 3		

## Hook lever type holders

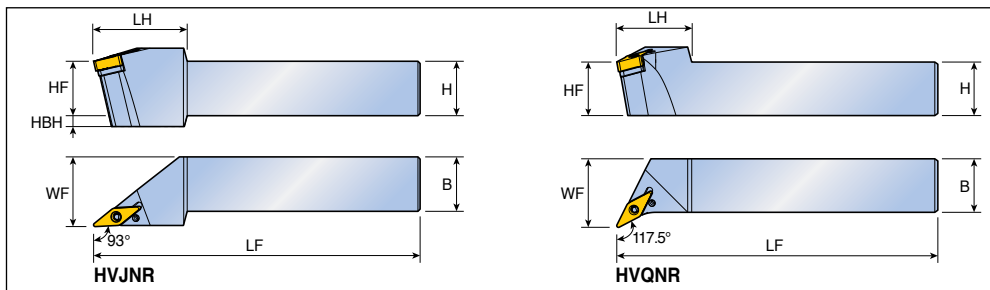


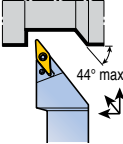
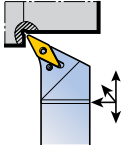
Approach angle	Designation	Dimension (mm)						Insert	
		H	HF	B	LF	LH	WF		
<b>91°</b> 	<b>HTFNR/L 2020 K1304</b>	20	20	20	125	20	25	TN... 1304... 	
	<b>2525 M1304</b>	25	25	25	150	20	32		
<b>91°</b> 	<b>HTGNR/L 1616 H1304</b>	16	16	16	100	22	20		
	<b>2020 H1304</b>	20	20	20	100	22	25		
	<b>2020 K1304</b>	20	20	20	125	22	25		
	<b>2525 M1304</b>	25	25	25	150	22	32		

## Spare parts






Designation	Lever	Screw	Shim	Shim pin	Wrench		
<b>...1304</b>	LCL 08-NX	LCS 3-NX	LST 2.51.8	LSP 3B	L-W 2.5		

### Hook lever type holders

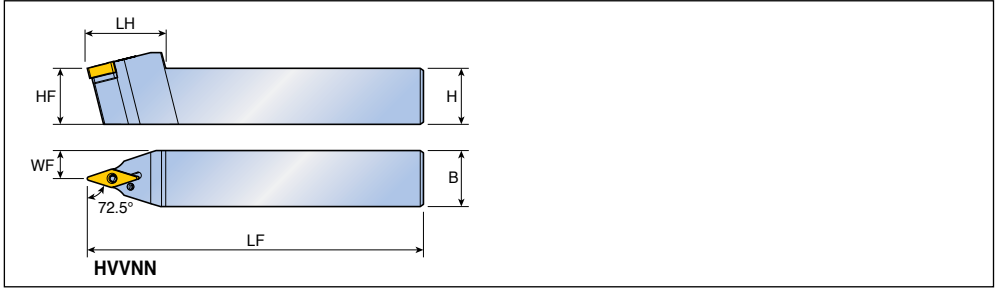


Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBH	
<b>93°</b> 	<b>HVJNR/L 1616 H1304</b>	16	16	16	100	30	20	5	VN...X 1304...
	<b>2020 K1304</b>	20	20	20	125	35	25	-	YNMG 1304...
	<b>2525 M1304</b>	25	25	25	150	43	32	-	<b>RHINO TURN</b>
<b>117.5°</b> 	<b>HVQNR/L 2020 K1304</b>	20	20	20	125	35	25	-	
	<b>2525 M1304</b>	25	25	25	150	35	32	-	

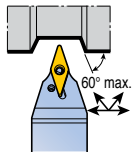
### Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench			
<b>...1304</b>	 LCL 08-NX	 LCS 4-DH	 LSV 2.51.8H	 LSP 3B	 L-W 2.5			

## Hook lever type holders



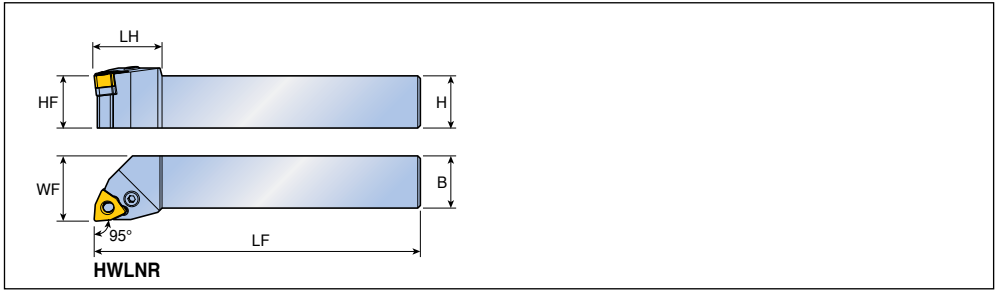
Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF		
<b>72.5°</b>	<b>HVVNN 2020 K1304</b>	20	20	20	125	35	10	VN...X 1304...	
	<b>2525 M1304</b>	25	25	25	150	35	12.5	YNMG 1304... <b>RHINOTURN</b>	



## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench			
...1304	LCL 08-NX	LCS 4-DH	LSV 2.51.8H	LSP 3B	L-W 2.5			

## Hook lever type holders

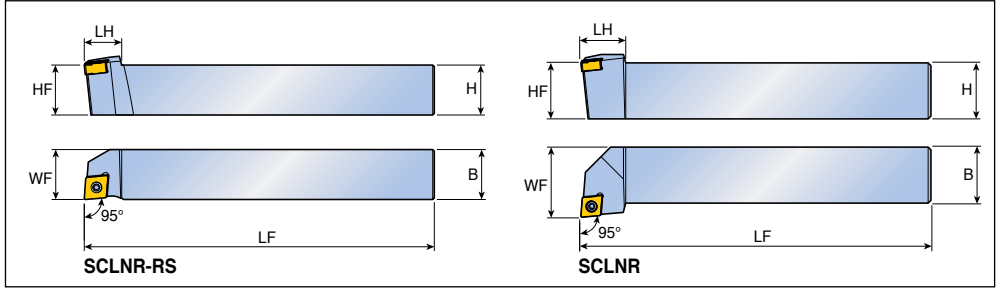


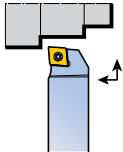

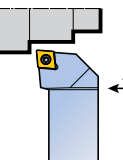
Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
95°	<b>HWLNRL/L 1616 H0604</b>	16	16	16	100	26	20	WN...X 0604...
	<b>2020 K0604</b>	20	20	20	125	26	25	<b>RHINO TURN</b>
	<b>2525 M0604</b>	25	25	25	150	26	32	

## Spare parts



Designation	Lever	Screw	Shim	Shim pin	Wrench			
...0604	LCL 09-NX	LCS 3	LSW 32A	LSP 3A	L-W 2.5			

## Screw type holders



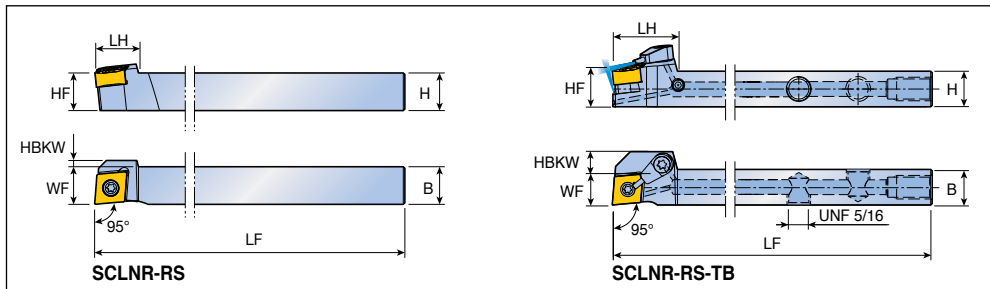
Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>95°</b> 	<b>SCLNR/L 1212 K0703-RS</b>	12	12	12	125	12	12	CNMX 0703... 
	<b>1616 K0703-RS</b>	16	16	16	125	12	16	
<b>95°</b> 	<b>SCLNR/L 1616 H0703</b>	16	16	16	100	12	20	
	<b>2020 K0703</b>	20	20	20	125	16	25	

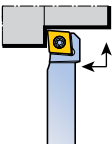

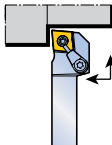

## Spare parts

Designation	Screw	Wrench					
	...0703...	 TS 25D060/HG-P	 T 7P				








## Screw type holders

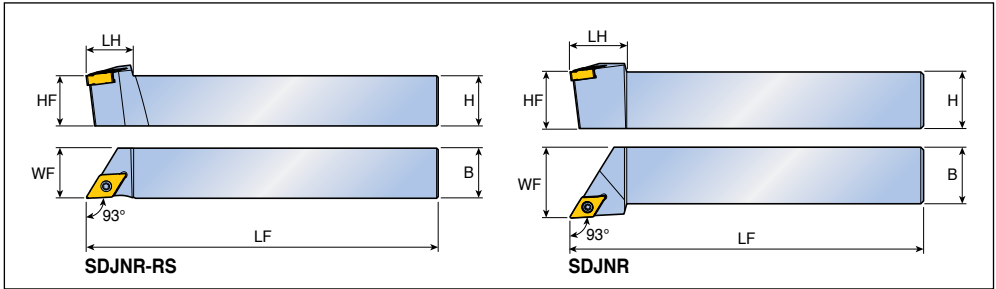


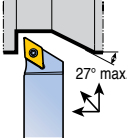

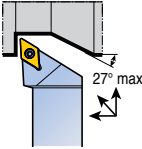
Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBKW	
 95°	<b>SCLNR 1212 K0904-RS</b>	12	12	12	125	14	12	2	CN... 0904 
	<b>1616 K0904-RS</b>	16	16	16	125	14	16	-	
	<b>2020 K0904-RS</b>	20	20	20	125	14	20	-	
 95° 	<b>SCLNR 1212 K0904-RS-TB</b>	12	12	12	125	22	12	6	
	<b>1616 K0904-RS-TB</b>	16	16	16	125	22	16	2	
	<b>2020 K0904-RS-TB</b>	20	20	20	125	22	20	-	

## Spare parts



Designation	Screw	Cooling unit	Plug	Wrench			
							
<b>SCLNR-RS</b>	TS 350831/HG	-	-	T 10	-		
<b>SCLNR-RS-TB</b>	TS 350831/HG	S-CU-TB	PLG 5/16 UNF	T 10	L-W 5/32		

## Screw type holders

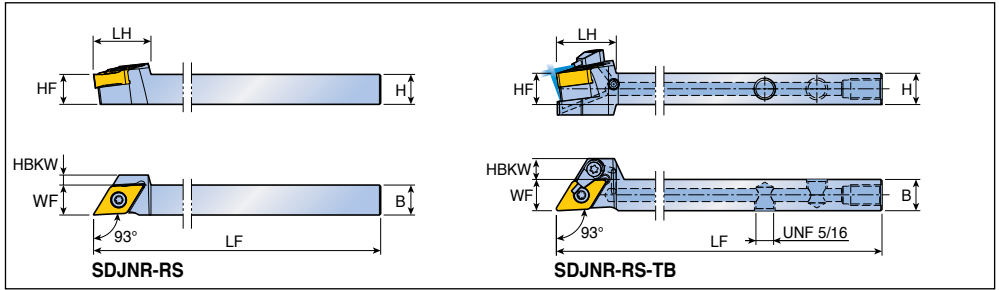


Approach angle	Designation	Dimension (mm)						Insert	
		H	HF	B	LF	LH	WF		
93° 	<b>SDJNR/L 1212 K0803-RS</b>	12	12	12	125	15	12	DN...X 0803... 	
	<b>1616 K0803-RS</b>	16	16	16	125	15	16		
93° 	<b>SDJNR/L 1616 H0803</b>	16	16	16	100	16	20		
	<b>2020 K0803</b>	20	20	20	125	20	25		

## Spare parts

Designation	Screw	Wrench					
	...0803...	 TS 25D060/HG-P	 T 7P				

## Screw type holders

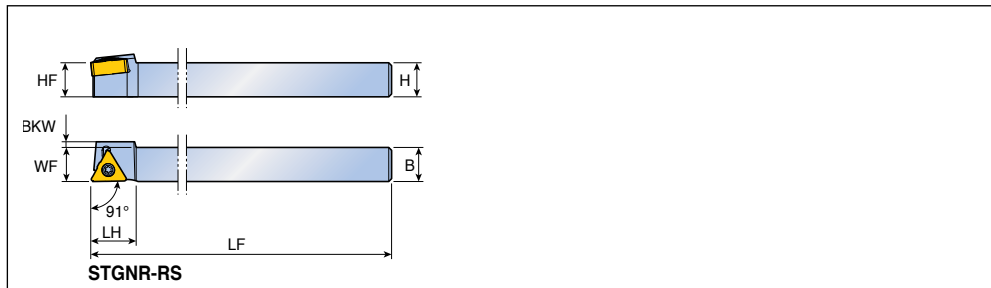


Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBKW	
<b>93°</b> 	<b>SDJNR 1212 K1305-RS</b>	12	12	12	125	23	12	4	DN... 1305... 
	<b>1616 K1305-RS</b>	16	16	16	125	23	16	-	
	<b>2020 K1305-RS</b>	20	20	20	125	23	20	-	
<b>93°</b>  	<b>SDJNR 1212 K1305-RS-TB</b>	12	12	12	125	23	12	8	
	<b>1616 K1305-RS-TB</b>	16	16	16	125	23	16	4	

## Spare parts



Designation	Screw	Cooling unit	Plug	Wrench				
<b>SDJNR-RS</b>	TS 40G110I	-	-	T 15	-			
<b>SDJNR-RS-TB</b>	TS 40G110I	S-CU-TB	PLG 5/16 UNF	T 15	L-W 5/32			

## Screw type holders

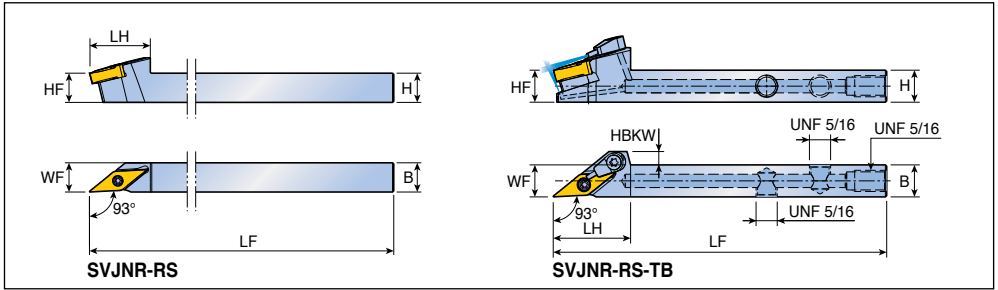


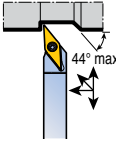
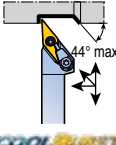
Approach angle	Designation	Dimension (mm)								Insert
		H	HF	B	LF	LH	WF	HBKW		
91°	<b>STGNR 1212 K1304-RS</b>	12	12	12	125	16	12	2	TN... 1304...	
	<b>1616 K1304-RS</b>	16	16	16	125	16	16	-	<b>RHINO LINE</b>	
	<b>2020 K1304-RS</b>	20	20	20	125	16	20	-		

## Spare parts






Designation	Screw	Wrench				
						
<b>STGNR-RS</b>	TS 30080I/HG	T 9				

## Screw type holders

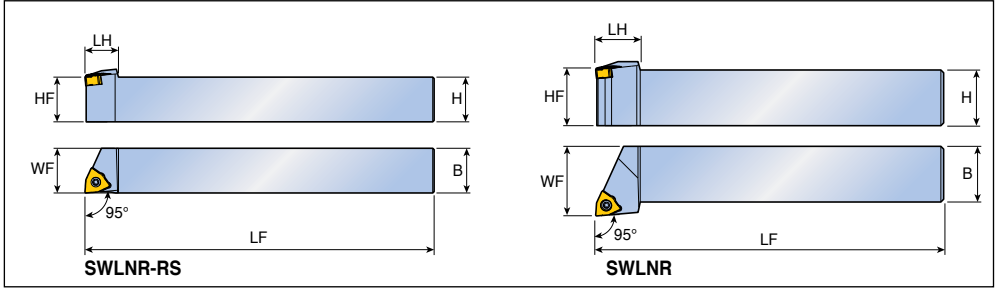


Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBKW	
<b>93°</b> 	<b>SVJNR 1212 K1304-RS</b>	12	12	12	125	25	12	-	VN...X 1304...
	<b>1616 K1304-RS</b>	16	16	16	125	25	16	-	YNMG 1304...
	<b>2020 K1304-RS</b>	20	20	20	125	25	20	-	<b>RHINO TURN</b>
<b>93°</b>  <b>COOLBURST</b>	<b>SVJNR 1212 K1305-RS-TB</b>	12	12	12	125	29	12	5	
	<b>1616 K1305-RS-TB</b>	16	16	16	125	29	16	1	

## Spare parts



Designation	Screw	Cooling unit	Plug	Wrench		
						
<b>SVJNR-RS</b>	TS 30080I/HG	-	-	T 9	-	
<b>SVJNR-RS-TB</b>	TS 30080I/HG	S-CU-TB	PLG 5/16 UNF	T 9	L-W 5/32	

## Screw type holders

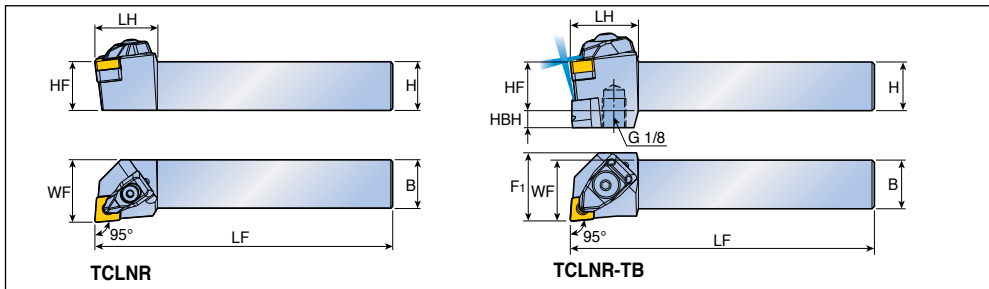


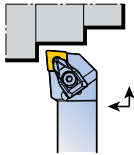

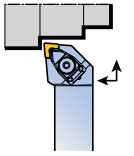

Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
95°	<b>SWLNR/L 1212 K0403-RS</b>	12	12	12	125	12	12	WNMX 0403... <i>RHINO LINE</i>
	<b>1616 K0403-RS</b>	16	16	16	125	12	16	
95°	<b>SWLNR/L 1616 H0403</b>	16	16	16	100	16	20	
	<b>2020 K0403</b>	20	20	20	125	16	25	

## Spare parts










Designation	Screw	Wrench					
	...0403...	 TS 25D060/HG-P	 T 7P				

## T-holders

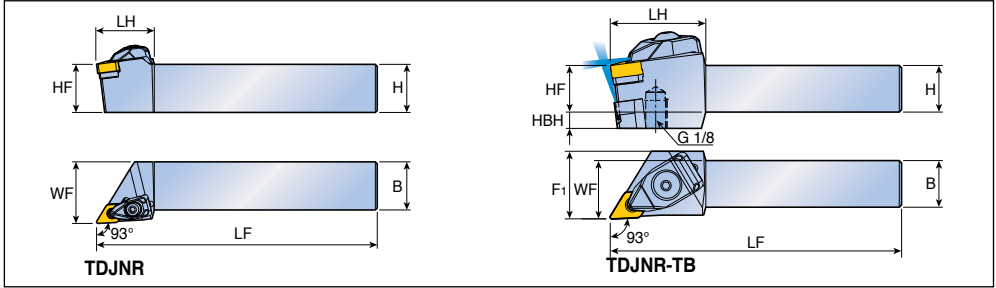


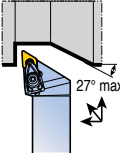
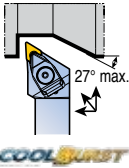
Approach angle	Designation	Dimension (mm)								Insert
		H	HF	B	LF	LH	WF	HBH	F <sub>1</sub>	
 95°	<b>TCLNR/L 2020 H0904</b>	20	20	20	100	25	25	-	-	CN... 0904... 
	<b>2020 K0904</b>	20	20	20	125	25	25	-	-	
	<b>2525 M0904</b>	25	25	25	150	25	32	-	-	
 95°	<b>TCLNR/L 2020 K0904-TB</b>	20	20	20	125	28	25	7	28	
	<b>2525 M0904-TB</b>	25	25	25	150	28	32	7	32	

## Spare parts










Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
									
<b>...0904</b>	DLM 3-NX	DLS 3	DSP 3	-	-	LSC 32A	SO 40085I	L-W 2.5	T 15
<b>...0904-TB</b>	DLM 3-NX-TB	BH M4x0.7x16-TB	DSP 3	O-RING ID4.47x1.78	O-RING ID6.07x1.78	LSC 32A	SO 40085I	L-W 3	T 15

## T-holders



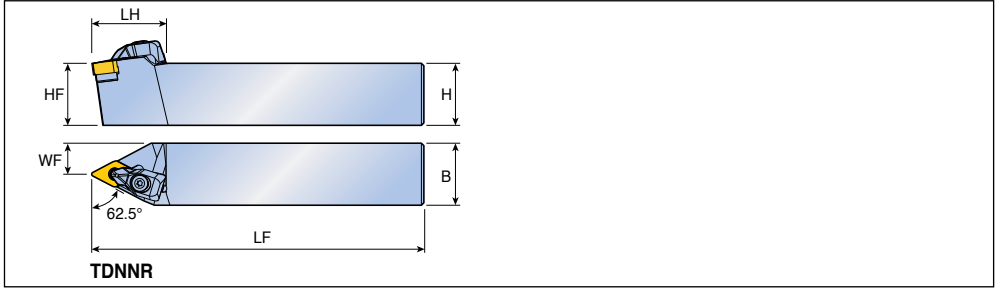
Approach angle	Designation	Dimension (mm)									Insert
		H	HF	B	LF	LH	WF	HBH	F <sub>1</sub>		
<b>93°</b> 	<b>TDJNR/L 2020 H1305</b>	20	20	20	100	33	25	-	-	DN... 1305...	
	<b>2020 K1305</b>	20	20	20	125	33	25	-	-	<b>RHINO TURN</b>	
	<b>2525 M1305</b>	25	25	25	150	36	32	-	-		
<b>93°</b> 	<b>TDJNR/L 2020 K1305-TB</b>	20	20	20	125	41	25	7	29		
	<b>2525 M1305-TB</b>	25	25	25	150	41	32	7	32		

## Spare parts

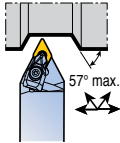
Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
<b>...1305</b>									
<b>...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	-	-	LSD 3.52	SO 50090I	L-W 3	T 20
<b>...2020-TB</b>	DLM 3.5-NX-TB	BH M5x0.8x 21-MO-TB	DSP 4	O-RING ID5.28x 1.78	O-RING ID7.59x 2.62	LSD 3.52	SO 50090I-MO	L-W 3	T 20
<b>...2525-TB</b>	DLM 3.5-NX-TB	BH M5x0.8x 21-MO-TB	DSP 4	O-RING ID5.28x 1.78	O-RING ID7.59x 2.62	LSD 3.52	SO 50090I	L-W 3	T 20



## T-holders



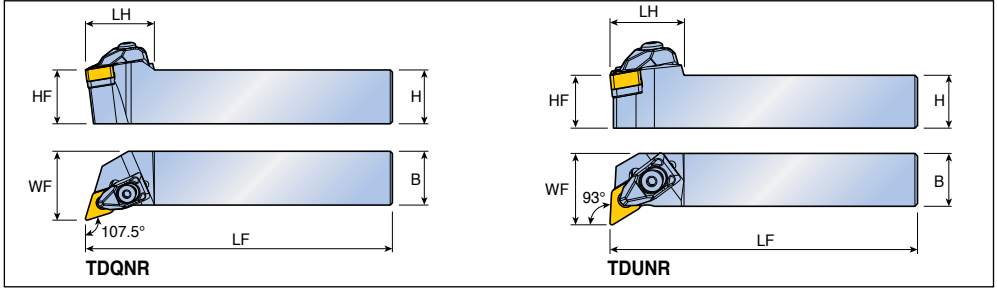
Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>62.5°</b>	<b>TDNNR/L 2020 K1305</b>	20	20	20	125	34	10	DN... 1305...
	<b>2525 M1305</b>	25	25	25	150	34	12.5	<b>RHINO TURN</b>

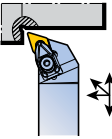

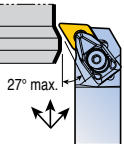


## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench	
<b>...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52	SO 500901	L-W 3	T 20

## T-holders

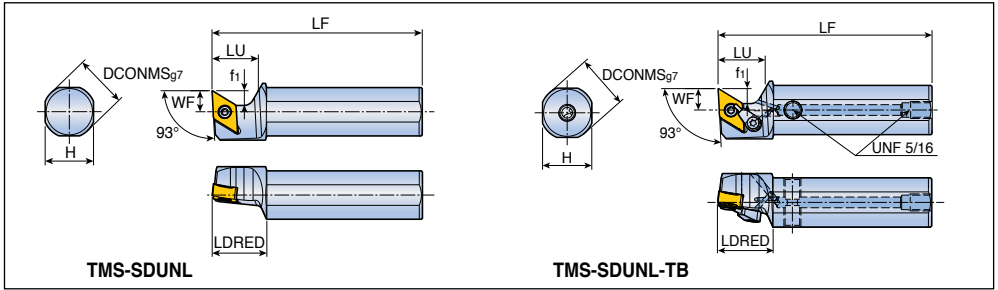


Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>107.5°</b> 	<b>TDQNR/L 2020 K1305</b>	20	20	20	125	32	25	DN... 1305... 
	<b>2525 M1305</b>	25	25	25	150	32	32	
<b>93°</b> 	<b>TDUNR/L 2020 K1305</b>	20	20	20	125	28	27	
	<b>2525 M1305</b>	25	25	25	150	28	32	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench		
<b>...1305</b>								
	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52	SO 50090I	L-W 3	T 20	

## Sleeve holders

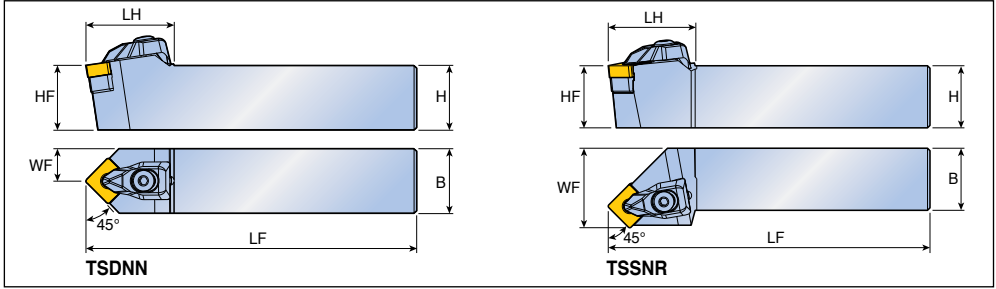


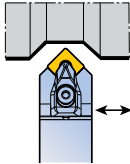

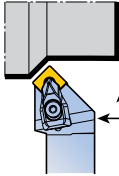
Approach angle	Designation	Dimension (mm)							Insert
		DCONMS	H	LF	f1	LU	LDRED	WF	
<p>93°</p>	<b>TMS- 16X SDUNL 1305</b>	16	15	85	7	22	26	10	DN...1305... 
	<b>19.05H SDUNL 1305</b>	19.05	17	100	7	22	26	10	
	<b>20H SDUNL 1305</b>	20	18	100	7	22	26	10	
	<b>22H SDUNL 1305</b>	22	20	100	7	22	26	10	
	<b>25H SDUNL 1305</b>	25	23	100	7	22	26	10	
<p>93°</p> <p>COOLBURST</p>	<b>TMS- 25H SDUNL 1305-TB</b>	25	23	100	7	22	26	10	

## Spare parts

Designation	Screw	Cooling unit	Plug	Wrench	
<b>TMS-SDUNL</b>	TS 40G110I	-	-	T 15	-
<b>TMS-SDUNL-TB</b>	TS 40G110I	S-CU-TB	PLG 5/16 UNF	T 15	L-W 5/32

## T-holders

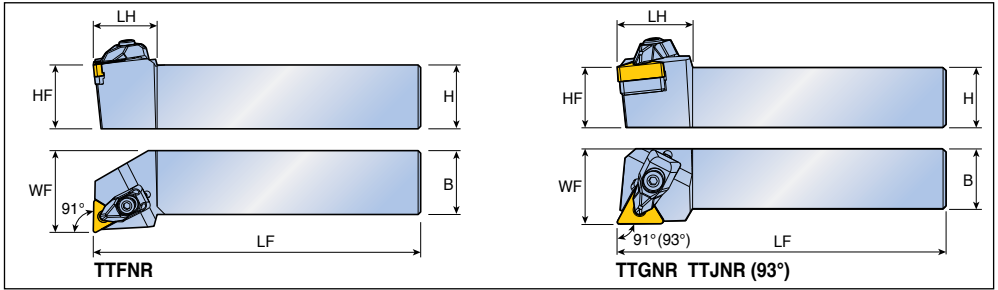


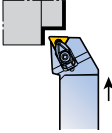

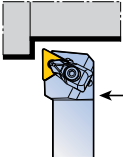
Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
45° 	<b>TSDNN 2020 K0904</b>	20	20	20	125	28	10	SN... 0904... 
	<b>2525 M0904</b>	25	25	25	150	28	12.5	
45° 	<b>TSSNR/L 2020 K0904</b>	20	20	20	125	23	25	
	<b>2525 M0904</b>	25	25	25	150	23	32	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench	
<b>...0904</b>	 DLM 3-NX	 DLS 3	 DSP 3	 LSS 32A	 SO 400851	 L-W 2.5	 T 15

## T-holders

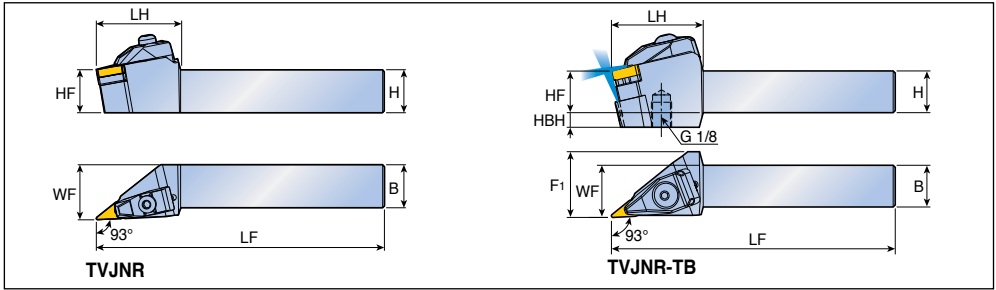


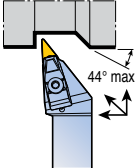

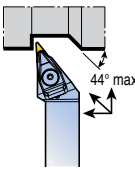

Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>91°</b> 	<b>TTFNR/L 2020 K1304</b>	20	20	20	125	25	25	TN... 1304... 
	<b>2525 M1304</b>	25	25	25	150	25	32	
<b>91°(93°)</b> 	<b>TTGNR/L 2020 H1304</b>	20	20	20	100	25	25	
	<b>2020 K1304</b>	20	20	20	125	25	25	
	<b>2525 M1304</b>	25	25	25	150	25	32	
	<b>TTJNR/L 2525 M1304</b>	25	25	25	150	25	32	

## Spare parts










Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench	
...1304	 DLM 2.5-NX	 DLS 3	 DSP 3	 LST 2.52	 SO 400851	 L-W 2.5	 T 15

## T-holders

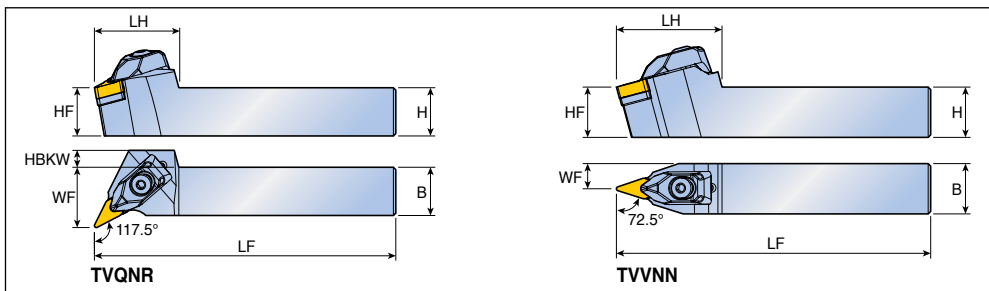


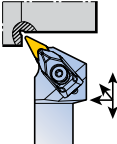

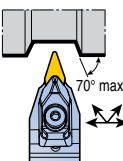
Approach angle	Designation	Dimension (mm)									Insert
		H	HF	B	LF	LH	WF	HBH	F1		
<b>93°</b> 	<b>TVJNR/L 2020 K1304</b>	20	20	20	125	42	25	-	-	VN...X 1304... YNMG 1304... 	
	<b>2525 M1304</b>	25	25	25	150	42	32	-	-		
<b>93°</b>  	<b>TVJNR/L 2020 K1304-TB</b>	20	20	20	125	44	25	7	31.5		
	<b>2525 M1304-TB</b>	25	25	25	150	44	32	7	32.0		

## Spare parts








Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
									
<b>...1304</b>	DLM 2.5V-NX	DLS 4	DSP 4	-	-	MSVI 2.522	SO 400851	L-W 3	T 15
<b>...1304-TB</b>	DLM 2.5V-NX-TB	BH M5X 0.8X21-MO-TB	DSP 4	O-RING ID5.28x 1.78	O-RING ID7.59x 2.62	MSVI 2.522	SO 400851	L-W 3	T 15

## T-holders

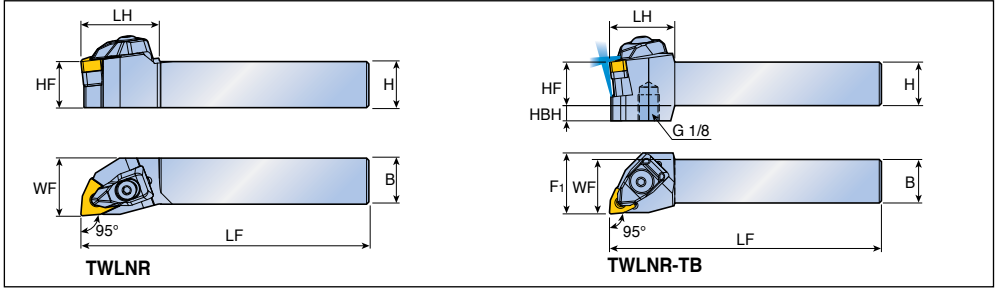


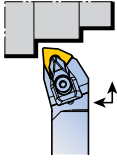
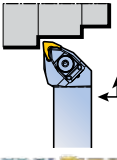
Approach angle	Designation	Dimension (mm)							Insert
		H	HF	B	LF	LH	WF	HBKW	
<b>117.5°</b> 	<b>TVQNR/L 2020 K1304</b>	20	20	20	125	35	25	7	VN...X 1304... YNMG 1304... 
	<b>2525 M1304</b>	25	25	25	150	35	32	-	
<b>72.5°</b> 	<b>TVVNN 2020 K1304</b>	20	20	20	125	42	10		
	<b>2525 M1304</b>	25	25	25	150	42	12.5		

## Spare parts










Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench	
							
<b>...1304</b>	DLM 2.5V-NX	DLS 4	DSP 4	MSVI 2.522	SO 40085I	L-W 3	T 15

## T-holders



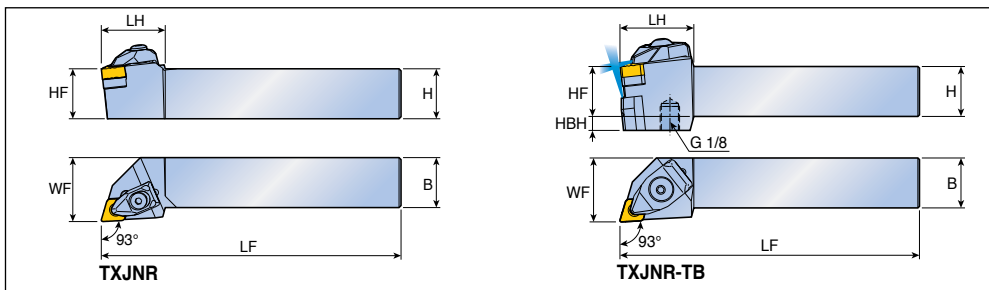
Approach angle	Designation	Dimension (mm)								Insert
		H	HF	B	LF	LH	WF	HBH	F <sub>1</sub>	
 <p>95°</p>	<b>TWLNR/L 2020 K0604</b>	20	20	20	125	26	25	-	-	WN...X 0604...
	<b>2525 M0604</b>	25	25	25	150	26	32	-	-	<b>RHINO TURN</b>
 <p>95°</p>	<b>TWLNR/L 2020 K0604-TB</b>	20	20	20	125	30	25	7	28	
	<b>2525 M0604-TB</b>	25	25	25	150	30	32	7	32	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
<b>...0604</b>									
<b>...0604-TB</b>	DLM 3-NX-TB	BH M4x0.7x16-TB	DSP 3	O-RING ID4.47x1.78	O-RING ID6.07x1.78	LSW 32A	SO 40085I	L-W 3	T 15



## T-holders

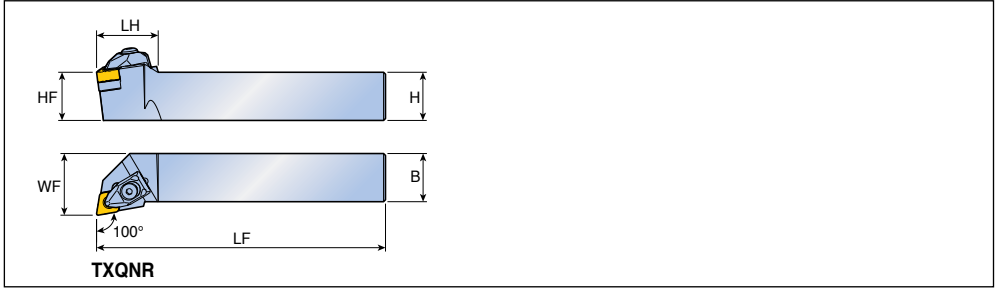


Approach angle	Designation	Dimension (mm)							Insert	
		H	HF	B	LF	LH	WF	HBH		
<p>93°</p>	<b>TXJNR/L 2020 K0904</b>	20	20	20	125	25	25	-	XNMG 0904...	
	<b>2525 M0904</b>	25	25	25	150	25	32	-		
	<b>2020 K1105</b>	20	20	20	125	32	25	-	XN... 1105...	
	<b>2525 M1105</b>	25	25	25	150	32	32	-		
<p>93°</p>	<b>TXJNR/L 2525 M0904-TB</b>	25	25	25	150	30	32	7	XNMG 0904...	
	<b>2525 M1105-TB</b>	25	25	25	150	37	32	7	XN... 1105...	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
<b>...0904</b>									
<b>...0904-TB</b>	DLM 2.5-NX	DLS 3	DSP 3	-	-	TSX 2.73	SO 400851	L-W 2.5	T 15
<b>...1105</b>	DLM 3.5-NX	DLS 4	DSP 4	-	-	TSX 3.53	SO 500901	L-W 3	T 20
<b>...0904-TB</b>	DLM 3-NX-TB	BH M4x 0.7x16-TB	DSP 3	O-RING ID4.47x 1.78	O-RING ID6.07x 1.78	TSX 2.73	SO 400851	L-W 3	T 15
<b>...1105-TB</b>	DLM 3.5-NX-TB	BH M4x 0.7x16-TB	DSP 4	O-RING ID5.28x 1.78	O-RING ID7.59x 2.62	TSX 3.53	SO 500901	L-W 3	T 20

## T-holders

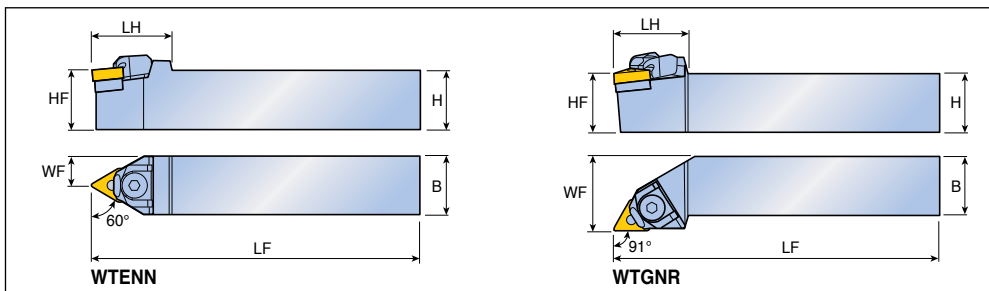


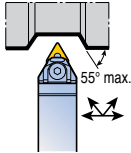

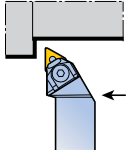
Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
 100°	<b>TXQNR/L 2020 K0904</b>	20	20	20	125	25	25	XNMG 0904... <i>RHINO TURN</i>
	<b>2525 M0904</b>	25	25	25	150	25	32	
	<b>2020 K1105</b>	20	20	20	125	30	25	XNMG 1105... <i>RHINO TURN</i>
	<b>2525 M1105</b>	25	25	25	150	32	32	

## Spare parts







Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Wrench	
<b>...0904</b>	DLM 2.5-NX	DLS 3	DSP 3	TSX 2.73	SO 40085I	L-W 2.5	T 15
<b>...1105</b>	DLM 3.5-NX	DLS 4	DSP 4	TSX 3.53	SO 50090I	L-W 3	T 20

## Wedge clamp type holders

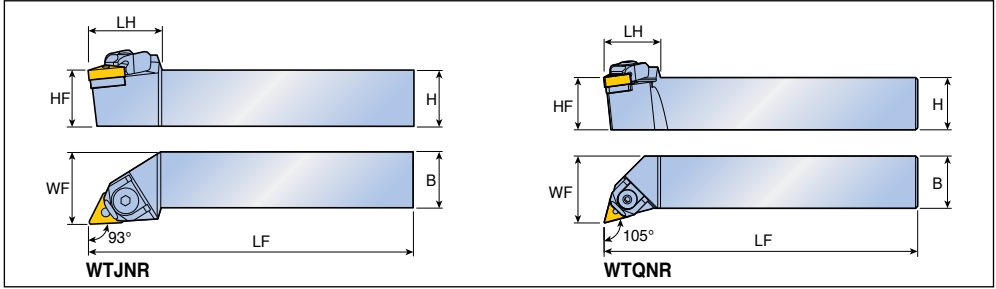


Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
<b>60°</b> 	<b>WTENN 2020 K1304</b>	20	20	20	125	28	10.0	TN... 1304... 
	<b>2525 M1304</b>	25	25	25	150	28	12.5	
<b>91°</b> 	<b>WTGNR/L 2020 K1304</b>	20	20	20	125	27	25	
	<b>2525 M1304</b>	25	25	25	150	27	32	

## Spare parts

Designation	Wedge clamp	Screw	Snap ring	Shim	Pin screw	Wrench	
<b>...1304</b>	WC 2.53 	WCS 2.5 	CSR 2 	WST 2.52 	WSS 2.52 	L-W 2.5 	

## Wedge clamp type holders



Approach angle	Designation	Dimension (mm)						Insert
		H	HF	B	LF	LH	WF	
93°	<b>WTJNR/L 2020 K1304</b>	20	20	20	125	27	25	TN... 1304... <i>RHINO TURN</i>
	<b>2525 M1304</b>	25	25	25	150	27	32	
105°	<b>WTQNR/L 2020 K1304</b>	20	20	20	125	27	25	
	<b>2525 M1304</b>	25	25	25	150	27	32	

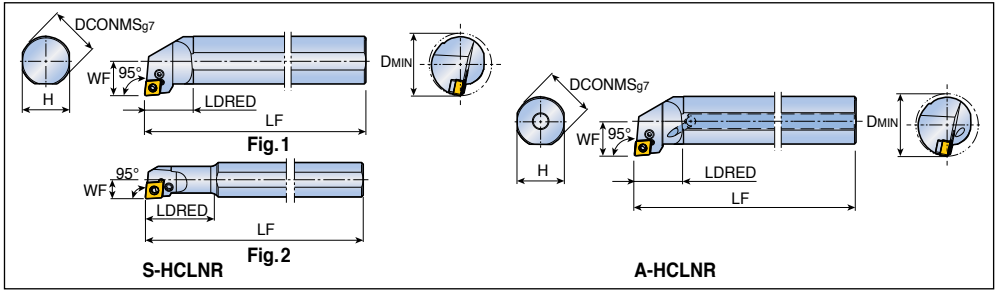
## Spare parts

Designation	Wedge clamp	Screw	Snap ring	Shim	Pin screw	Wrench	
<b>...1304</b>	WC 2.53	WCS 2.5	CSR 2	WST 2.52	WSS 2.52	L-W 2.5	

# S-HCLNR/L A-HCLNR/L

Boring bar

## Hook lever type boring bars

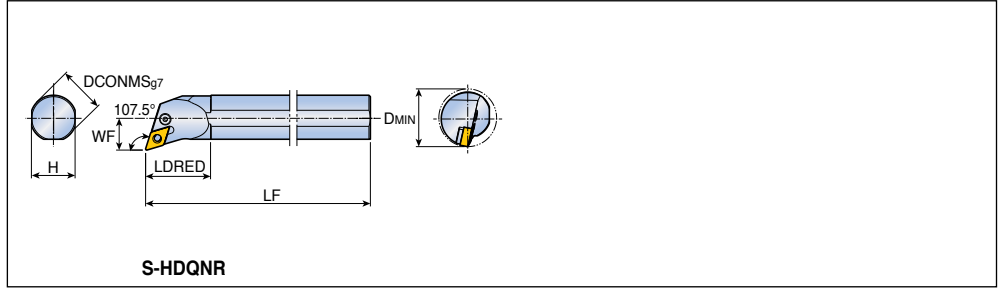


Approach angle	Designation	Dimension (mm)						Fig.	Insert
		DCONMS	H	LF	LDRED	WF	DMIN		
 95°	<b>S16Q HCLNR/L 0904</b>	16	15	180	25	11	20	1	CN... 0904... 
	<b>S20Q HCLNR/L 0904</b>	20	18	180	28	13	25	1	
	<b>S20Q HCLNR/L 0904-D20</b>	20	18	180	40	11	20	2	
	<b>S25R HCLNR/L 0904</b>	25	23	200	31	17	32	1	
	<b>S32S HCLNR/L 0904</b>	32	30	250	31	22	40	1	
	<b>S40T HCLNR/L 0904</b>	40	37	300	55	27	50	1	
 95°	<b>A16Q HCLNR/L 0904</b>	16	15	180	25	11	20		
	<b>A20Q HCLNR/L 0904</b>	20	18	180	28	13	25		
	<b>A25R HCLNR/L 0904</b>	25	23	200	31	17	32		
	<b>A32S HCLNR/L 0904</b>	32	30	250	31	22	40		

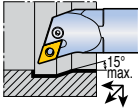
## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Snap ring	Wrench		
<b>S ...0904</b>	LCL 09B-NX	LCS 3B	-	-	LSR 3B	L-W 2		
<b>S ...0904...D</b>	LCL 09B-NX	LCS 3B	-	-	LSR 3B	L-W 2		
<b>S32S...0904</b>	LCL 09-NX	LCS 3	LSC 32	LSP 3A	-	L-W 2.5		
<b>S40T ...0904</b>	LCL 09-NX	LCS 3	LSC 32	LSP 3A	-	L-W 2.5		
<b>A ...0904</b>	LCL 09B-NX	LCS 3B	-	-	LSR 3B	L-W 2		
<b>A32S...0904</b>	LCL 09-NX	LCS 3	LSC 32	LSP 3A	-	L-W 2.5		

### Hook lever type boring bars



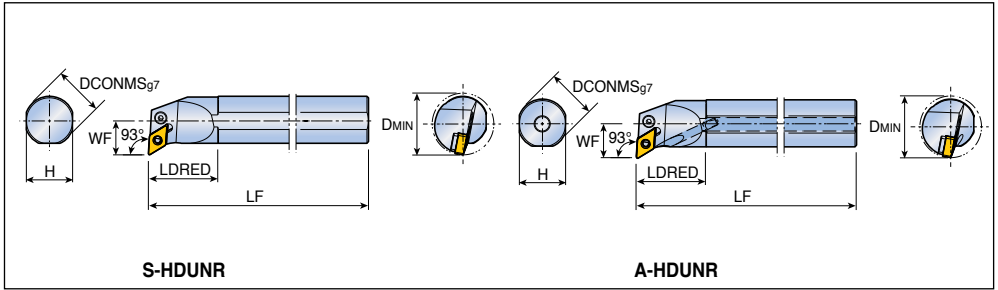
Approach angle	Designation	Dimension (mm)							Insert
		DCONMS	H	LF	LDRED	WF	DMIN		
<b>107.5°</b>	<b>S32S HDQNR/L1305</b>	32	30	250	45	22	40	DN... 1305... <i>RHINO LINE</i>	



### Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench		
<b>...1305</b>	LCL 11-NX	LSC 4S	LSD 3.52B	LSP 4	L-W 3		

## Hook lever type boring bars

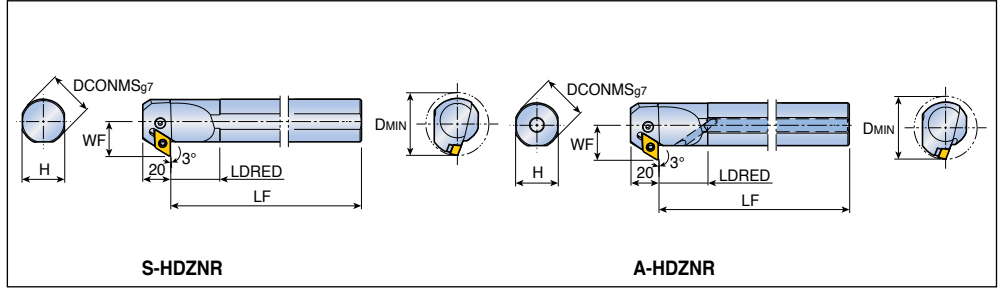


Approach angle	Designation	Dimension (mm)							Insert
		DCONMS	H	LF	LDRED	WF	DMIN		
<b>93°</b>	<b>S32S HDUNR/L1305</b>	32	30	250	45	22	40	DN... 1305... <i>RHINO TURN</i>	
	<b>S40T HDUNR/L1305</b>	40	37	300	55	27	50		
<b>93°</b>	<b>A32S HDUNR/L1305</b>	32	30	250	45	22	40		
	<b>A40T HDUNR/L1305</b>	40	37	300	55	27	50		

## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench			
...1305	LCL 11-NX	LCS 4S	LSD 3.52B	LSP 4	L-W 3			

## Hook lever type boring bars



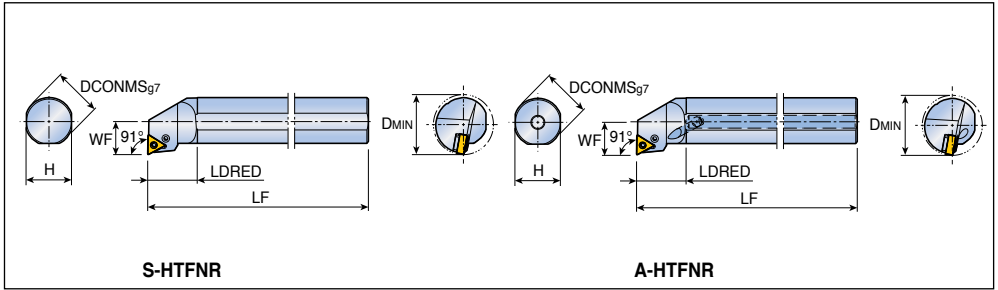
Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>93°</b>	<b>S32S HDZNR/L1305</b>	32	30	250	35	25	45	DN... 1305... <b>RHINO TURN</b>
	<b>S40T HDZNR/L1305</b>	40	37	300	40	29	50	
<b>93°</b>	<b>A32S HDZNR/L1305</b>	32	30	250	35	25	45	
	<b>A40T HDZNR/L1305</b>	40	37	300	40	29	50	

## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Wrench			
	<b>...1305</b>	LCL 11-NX	LCS 4S	LSD 3.52B	LSP 4	L-W 3		



## Hook lever type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
 91°	<b>S16Q HTFNR/L 1304</b>	16	15	180	25	11	20	TN... 1304... 
	<b>S20Q HTFNR/L 1304</b>	20	18	180	28	13	25	
	<b>S25R HTFNR/L 1304</b>	25	23	200	33	17	32	
	<b>S32S HTFNR/L 1304</b>	32	30	250	33	22	40	
 91°	<b>A16Q HTFNR/L 1304</b>	16	15	180	25	11	20	
	<b>A20Q HTFNR/L 1304</b>	20	18	180	28	13	25	
	<b>A25R HTFNR/L 1304</b>	25	23	200	33	17	32	
	<b>A32S HTFNR/L 1304</b>	32	30	250	33	22	40	

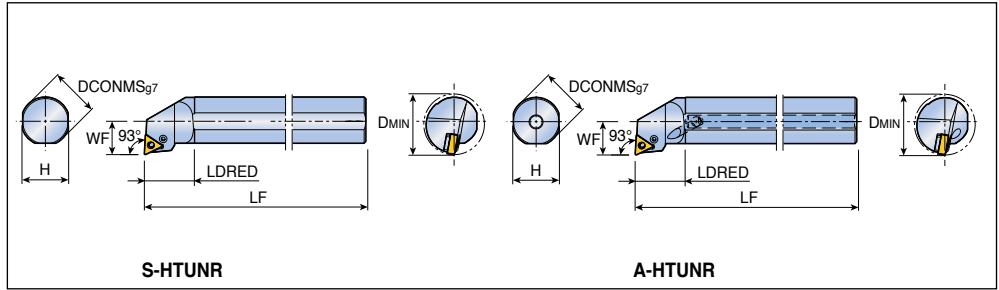
## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Snap ring	Wrench		
<b>...1304</b>								
<b>...1304</b>	LCL 08B-NX	LCS 3B	-	-	LSR 3B	L-W 2		
<b>...32S...1304</b>	LCL 08-NX	LCS 3-NX	LST 2.51.8B	LSP 3B	-	L-W 2.5		

# S-HTUNR/L A-HTUNR/L

Boring bar

## Hook lever type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
93°	<b>S16Q HTUNR/L 1304</b>	16	15	180	25	11	20	TN... 1304... <b>RHINOTURN</b>
	<b>S20Q HTUNR/L 1304</b>	20	18	180	28	13	25	
	<b>S25R HTUNR/L 1304</b>	25	23	200	33	17	32	
	<b>S32S HTUNR/L 1304</b>	32	30	250	33	22	40	
93°	<b>A16Q HTUNR/L 1304</b>	16	15	180	25	11	20	
	<b>A20Q HTUNR/L 1304</b>	20	18	180	28	13	25	
	<b>A25R HTUNR/L 1304</b>	25	23	200	33	17	32	
	<b>A32S HTUNR/L 1304</b>	32	30	250	33	22	40	

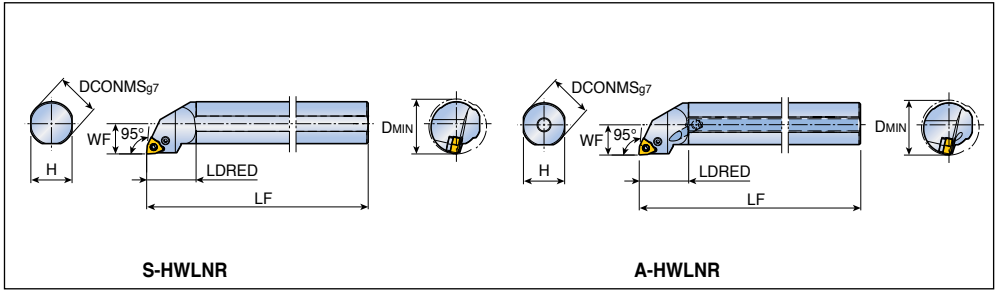
## Spare parts

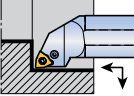

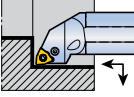
Designation	Lever	Screw	Shim	Shim pin	Snap ring	Wrench		
<b>...1304</b>	LCL 08B-NX	LCS 3B	-	-	LSR 3B	L-W 2		
<b>...32S...1304</b>	LCL 08-NX	LCS 3-NX	LST 2.51.8B	LSP 3B	-	L-W 2.5		

# S-HWLN/L A-HWLN/L







Boring bar

## Hook lever type boring bars

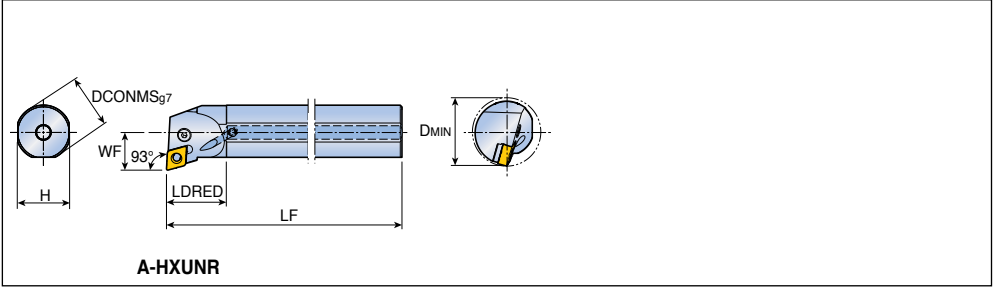


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95° 	<b>S16Q HWLN/L 0604</b>	16	15	180	30	11	20	WN...X 0604... 
	<b>S20Q HWLN/L 0604</b>	20	18	180	33	13	25	
	<b>S25R HWLN/L 0604</b>	25	23	200	36	17	32	
	<b>S32S HWLN/L 0604</b>	32	30	250	36	22	40	
95° 	<b>A16Q HWLN/L 0604</b>	16	15	180	30	11	20	
	<b>A20Q HWLN/L 0604</b>	20	18	180	33	13	25	
	<b>A25R HWLN/L 0604</b>	25	23	200	36	17	32	
	<b>A32S HWLN/L 0604</b>	32	30	250	36	22	40	

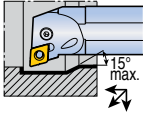
## Spare parts

Designation	Lever	Screw	Shim	Shim pin	Snap ring	Wrench		
<b>...0604</b>	 LCL 09B-NX	 LCS 3B	 -	 -	 LSR 3B	 L-W 2		
<b>...32S ...0604</b>	LCL 09-NX	LCS 3	LSW 32	LSP 3A	-	L-W 2.5		

## Hook lever type boring bars



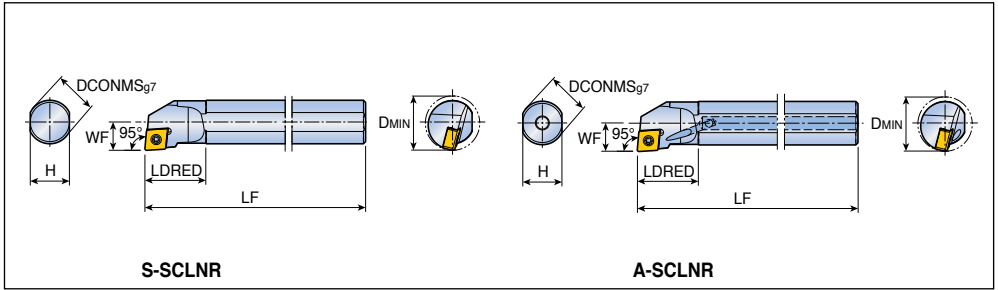
Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>93°</b>	<b>A32S HXUNR/L 1105</b>	32	30	250	35	22	40	XN... 1105... <i>RHINO X TURN</i>



### Spare parts



Designation	Lever	Lever screw	Shim	Shim pin	Wrench			
<b>...1105</b>	LCL 11-NX	LCS 4S	LSX 3.52B	LSP 4	L-W 3			

## Screw type boring bars

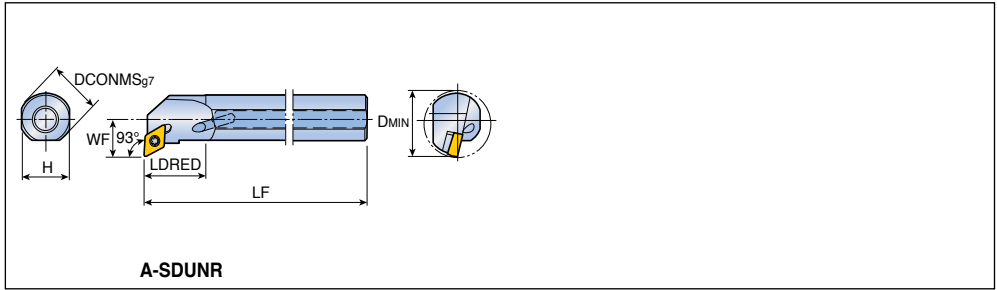


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95°	<b>S16Q SCLNR/L 0904</b>	16	15	180	25	11	20	CN... 0904...
	<b>S20Q SCLNR/L 0904</b>	20	18	180	28	13	25	<b>RHINO TURN</b>
	<b>S20Q SCLNR/L 0904-D20</b>	20	18	180	40	11	20	
95°	<b>A12M SCLNR/L 0703</b>	12	11	150	21.5	9	16	CNMX 0703...
	<b>A16Q SCLNR/L 0703</b>	16	15	180	24.5	11	20	<b>RHINO TURN</b>
	<b>A16Q SCLNR/L 0904</b>	16	15	180	25	11	20	CN... 0904...
	<b>A20Q SCLNR/L 0904</b>	20	18	180	28	13	25	<b>RHINO TURN</b>

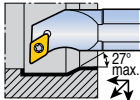
## Spare parts

Designation	Screw	Wrench				
	... <b>0703</b>	 TS 25D060/HG-P	 T 7P			
... <b>0904</b>	TS 35083/HG	T 10				

## Screw type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>93°</b>	<b>A12M SDUNR/L 0803</b>	12	11	150	21.5	9	16	DN...X 0803...
	<b>A16Q SDUNR/L 0803</b>	16	15	180	24.5	11	20	<b>RHINO</b> TURN



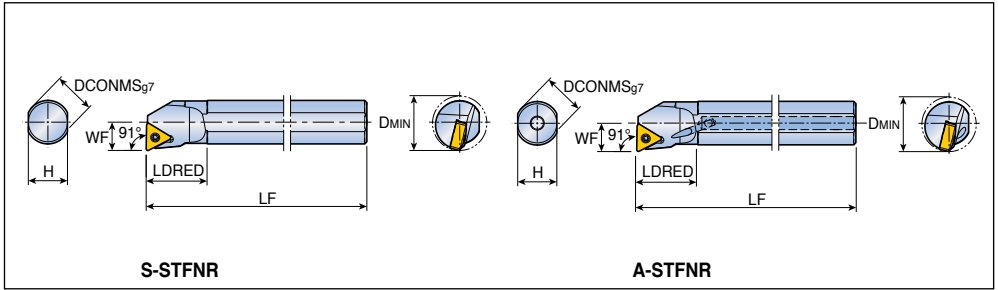
## Spare parts

Designation	Screw	Wrench					
<b>...0803</b>	TS 25D060/HG-P	T 7P					

# S-STFNR/L A-STFNR/L

Boring bar

## Screw type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
91°	<b>S16Q STFNR/L 1304</b>	16	15	180	25	11	20	TN... 1304... <i>RHINO TURN</i>
	<b>S20Q STFNR/L 1304</b>	20	18	180	28	13	25	
91°	<b>A16Q STFNR/L 1304</b>	16	15	180	25	11	20	
	<b>A20Q STFNR/L 1304</b>	20	18	180	28	13	25	

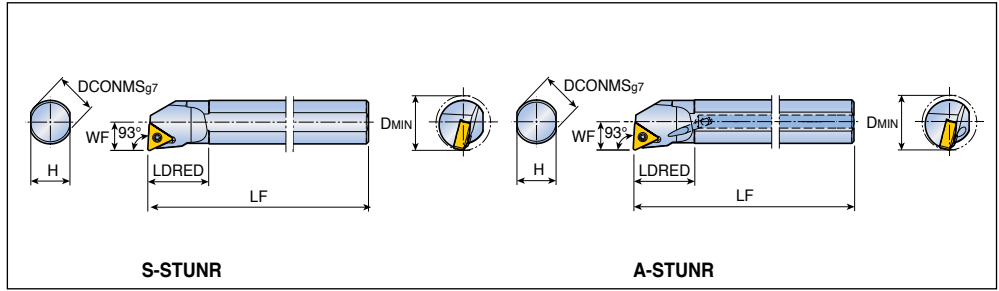
### Spare parts

Designation	Screw	Wrench					
	...1304	TS 30080I/HG	T 9				

# S-STUNR/L A-STUNR/L

Boring bar

## Screw type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
93°	<b>S16Q STUNR/L 1304</b>	16	15	180	25	11	20	TN... 1304... <b>RHINO TURN</b>
	<b>S20Q STUNR/L 1304</b>	20	18	180	28	13	25	
93°	<b>A16Q STUNR/L 1304</b>	16	15	180	25	11	20	
	<b>A20Q STUNR/L 1304</b>	20	18	180	28	13	25	

## Spare parts

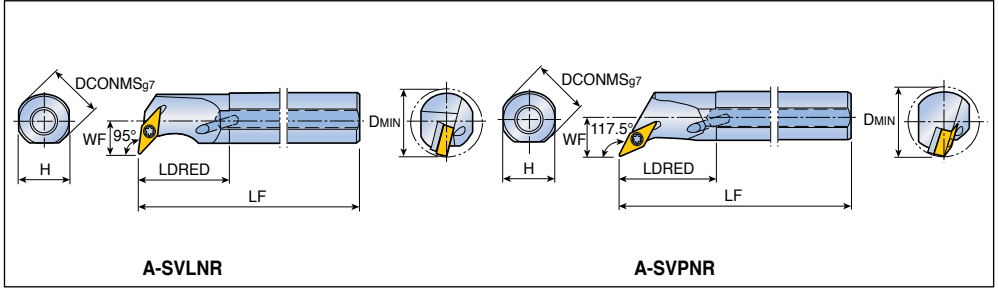
Designation	Screw	Wrench					
	...1304	TS 30080I/HG	T 9				



# A-SVLNR/L A-SVPCR/L

Boring bar

## Screw type boring bars

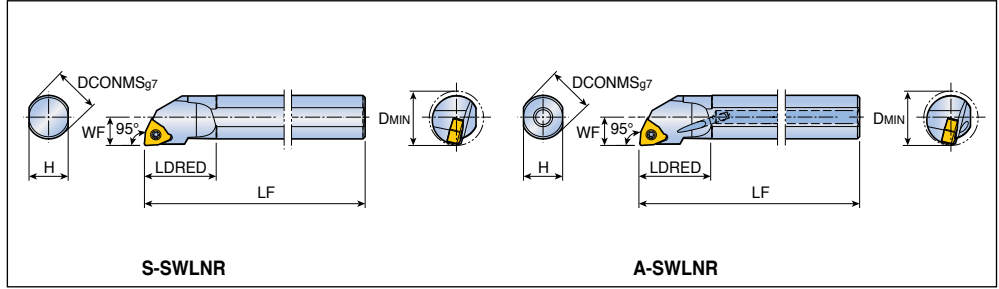


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>95°</b>	<b>A25T SVLNR/L 1304</b>	25	23	300	40	16	31	VN...X 1304... YNMG 1304... <b>RHINO TURN</b>
	<b>A32T SVLNR/L 1304</b>	32	30	300	45	20	38	
<b>117.5°</b>	<b>A25T SVPNR/L 1304</b>	25	23	300	45	19	33	
	<b>A32T SVPNR/L 1304</b>	32	30	300	47	26	44	

## Spare parts



Designation	Screw	Shim	Shim screw	Wrench				
<b>A..1304</b>	TS 30120I/HG	SSVN 2.523	TS 5030062S	T 9	L-W 3.5			

## Screw type boring bars

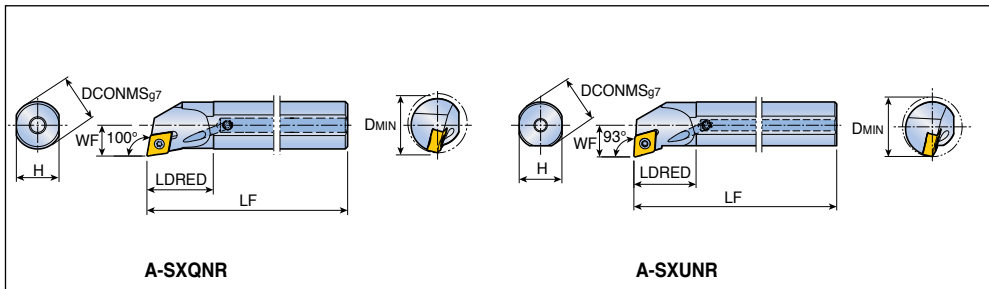


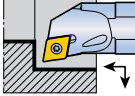
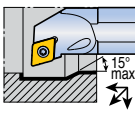
Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95°	<b>S16Q SWLNR/L 0604</b>	16	15	180	30	11	20	WN...X 0604...
	<b>S20Q SWLNR/L 0604</b>	20	18	180	33	13	25	<b>RHINO TURN</b>
95°	<b>A12M SWLNR/L 0403</b>	12	11	150	21.5	9	16	WNNMX 0403...
	<b>A16Q SWLNR/L 0403</b>	16	15	180	24.5	11	20	<b>RHINO TURN</b>
	<b>A16Q SWLNR/L 0604</b>	16	15	180	30	11	20	WNNMX 0604..
	<b>A20Q SWLNR/L 0604</b>	20	18	180	33	13	25	<b>RHINO TURN</b>

## Spare parts



Designation	Screw	Wrench				
	...0604	 TS 350831/HG	 T 10			
...0403	TS 25D060/HG-P	T 7P				

### Screw type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>100°</b> 	<b>A16Q SXQNR/L 0904</b>	16	15	180	24.5	11	20	XNMG 0904...
	<b>A20Q SXQNR/L 0904</b>	20	18	180	28	13	25	<i>RHINO X TURN</i> XNMG 0904...
	<b>A20Q SXQNR/L 1105</b>	20	18	180	28	13	25	XNMG 1105... <i>RHINO X TURN</i>
<b>93°</b> 	<b>A25R SXUNR/L 1105</b>	25	23	200	33.4	17	32	

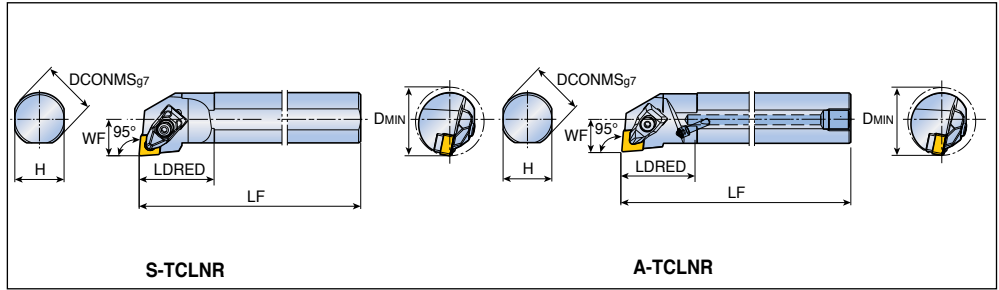
### Spare parts

Designation	Screw	Wrench					
							
<b>...0904</b>	TS 30080I/HG	T 9					
<b>...1105</b>	TS 40G110I	T 15					

# S-TCLNR/L A-TCLNR/L

Boring bar

## T-holder type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95°	<b>S25R TCLNR/L 0904</b>	25	23	200	35	17	32	CN... 0904... <b>RHINO TURN</b>
	<b>S32S TCLNR/L 0904</b>	32	30	250	35	22	40	
	<b>S40T TCLNR/L 0904</b>	40	37	300	45	27	50	
95°	<b>A25R TCLNR/L 0904</b>	25	23	200	35	17	32	
	<b>A32S TCLNR/L 0904</b>	32	30	250	35	22	40	

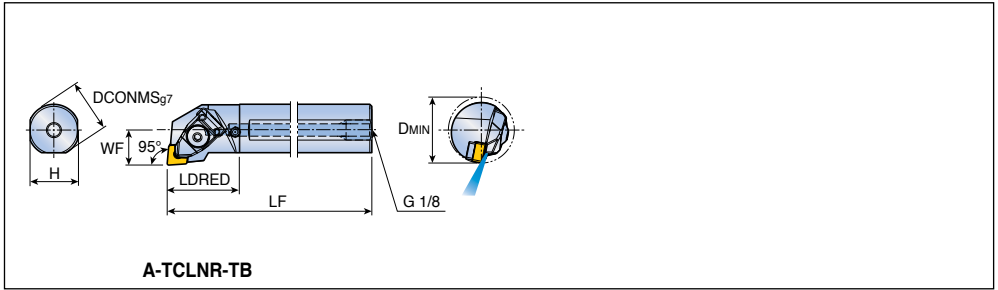
## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>S25R ...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSC 32	SO 40073I	-	L-W 2.5	T 15
<b>S32S,S40T...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSC 32	SO 40085I	-	L-W 2.5	T 15
<b>A25R...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSC 32	SO 40073I	NZ 62	L-W 2.5	T 15
<b>A32S...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSC 32	SO 40085I	NZ 62	L-W 2.5	T 15

# A-TCLNR/L-TB

Boring bar

T-holder type boring bars with high pressure coolant

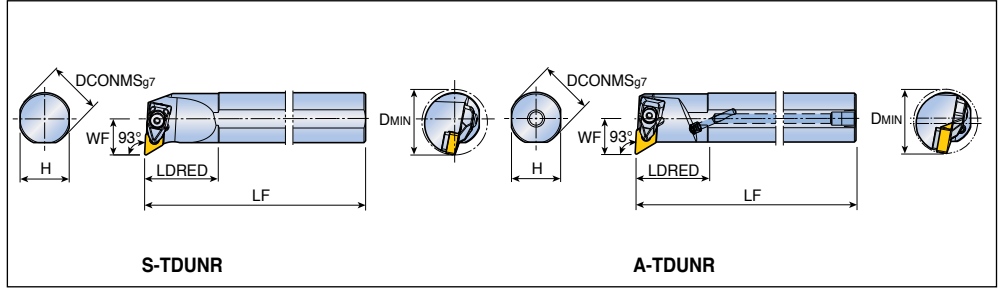


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95°	A25R TCLNR/L 0904-TB	25	23	200	33.4	17	32	CN... 0904... <i>RHINO TURN</i>
	A32S TCLNR/L 0904-TB	32	30	250	33.4	22	40	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Upper O-ring	Lower O-ring	Shim	Shim screw	Wrench	
A-TCLNR/L-TB	DLM 3-NX-TB	BH M4x0.7x 16-TB	DSP 3	O-RING ID4.47x 1.78	O-RING ID6.07x 1.78	LSC 32	SO 40073I	L-W 3	T 15

## T-holder type boring bars

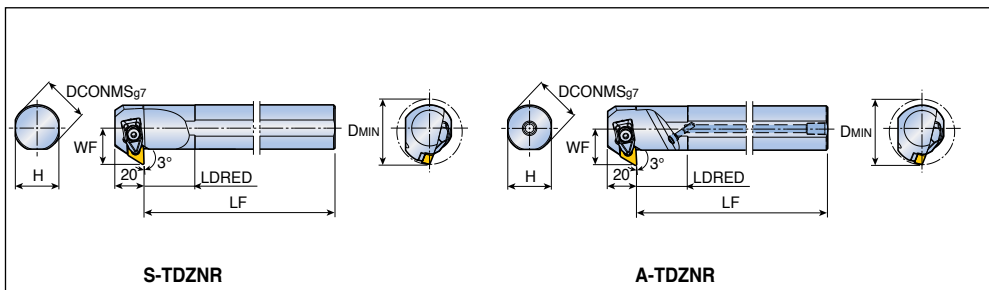


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
93°	<b>S32S TDUNR/L 1305</b>	32	30	250	45	22	40	DN... 1305... <b>RHINO TURN</b>
	<b>S40T TDUNR/L 1305</b>	40	37	300	55	27	50	
93°	<b>A32S TDUNR/L 1305</b>	32	30	250	45	22	40	
	<b>A40T TDUNR/L 1305</b>	40	37	300	55	27	50	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>S ...1305</b>							L-W 3	T 20
<b>A32S...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52B	TS 50A105I	-	L-W 3	T 20
<b>A40T...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52B	TS 50A105I	NZ 104	L-W 3	T 20

### T-holder type boring bars

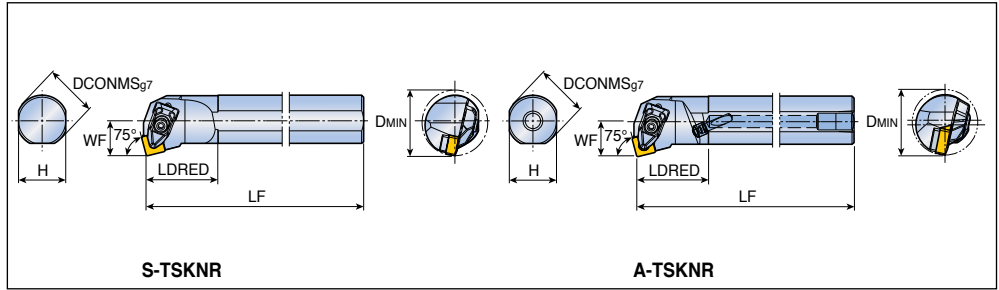



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
93°	<b>S32S TDZNR/L 1305</b>	32	30	250	35	25	45	DN... 1305... <i>RHINO TURN</i>
	<b>S40T TDZNR/L 1305</b>	40	37	300	40	29	50	
93°	<b>A32S TDZNR/L 1305</b>	32	30	250	35	25	45	
	<b>A40T TDZNR/L 1305</b>	40	37	300	40	29	50	

### Spare parts







Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>S ...1305</b>								
<b>A32S...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52B	TS 50A105I	-	L-W 3	T 20
<b>A32S...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52B	TS 50A105I	NZ 62	L-W 3	T 20
<b>A40T...1305</b>	DLM 3.5-NX	DLS 4	DSP 4	LSD 3.52B	TS 50A105I	NZ 104	L-W 3	T 20

## T-holder type boring bars



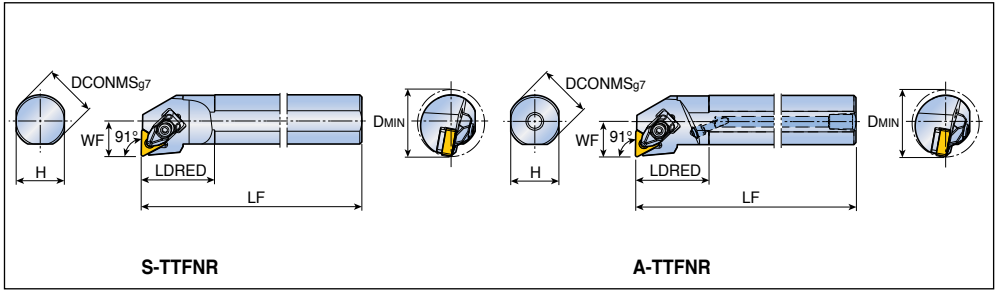
Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
75°	<b>S25R TSKNR/L 0904</b>	25	23	200	35	17	32	SN... 0904... 
	<b>S32S TSKNR/L 0904</b>	32	30	250	35	22	40	
75°	<b>A25R TSKNR/L 0904</b>	25	23	200	35	17	32	
	<b>A32S TSKNR/L 0904</b>	32	30	250	35	22	40	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
								
<b>S25R...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSS 32	SO 400731	-	L-W 2.5	T 15
<b>S32S...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSS 32	SO 400851	-	L-W 2.5	T 15
<b>A25R...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSS 32	SO 400731	NZ 62	L-W 2.5	T 15
<b>A32S...0904</b>	DLM 3-NX	DLS 3	DSP 3	LSS 32	SO 400851	NZ 62	L-W 2.5	T 15



## T-holder type boring bars

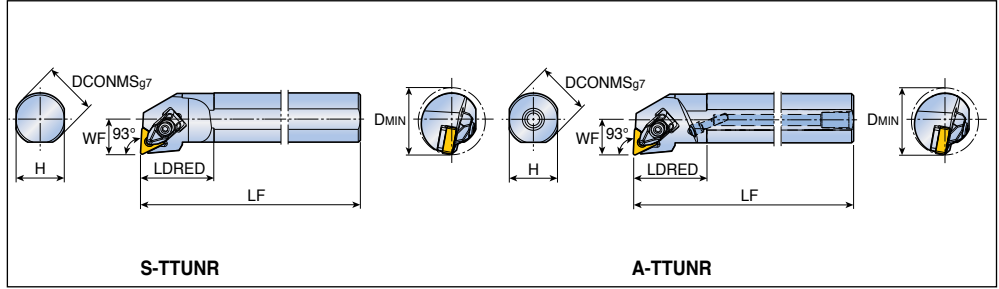



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
91°	<b>S25R TTFNR/L 1304</b>	25	23	200	35	17	32	TN... 1304... <i>RHINO TURN</i>
	<b>S32S TTFNR/L 1304</b>	32	30	250	35	22	40	
91°	<b>A25R TTFNR/L 1304</b>	25	23	200	35	17	32	
	<b>A32S TTFNR/L 1304</b>	32	30	250	35	22	40	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>S25R...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40073I	-	L-W 2.5	T 15
<b>S32S...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40085I	-	L-W 2.5	T 15
<b>A25R...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40073I	NZ 62	L-W 2.5	T 15
<b>A32S...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40085I	NZ 62	L-W 2.5	T 15

## T-holder type boring bars

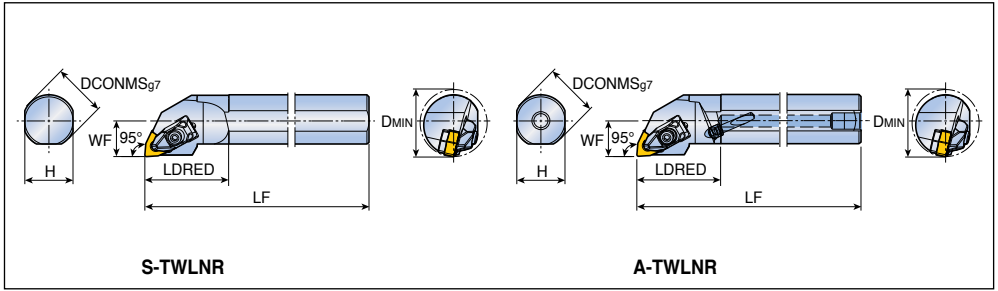


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
93°	<b>S25R TTUNR/L 1304</b>	25	23	200	35	17	32	TN... 1304... 
	<b>S32S TTUNR/L 1304</b>	32	30	250	35	22	40	
93°	<b>A25R TTUNR/L 1304</b>	25	23	200	35	17	32	
	<b>A32S TTUNR/L 1304</b>	32	30	250	35	22	40	

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
								
<b>S25R...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40073I	-	L-W 2.5	T 15
<b>S32S...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40085I	-	L-W 2.5	T 15
<b>A25R...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40073I	NZ 62	L-W 2.5	T 15
<b>A32S...1304</b>	DLM 2.5-NX	DLS 3	DSP 3	LST 2.52B	SO 40085I	NZ 62	L-W 2.5	T 15

## T-holder type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
95°	<b>S25R TWLNR/L 0604</b>	25	23	200	40	17	32	WN...X 0604... <b>RHINO TURN</b>
	<b>S32S TWLNR/L 0604</b>	32	30	250	45	22	40	
95°	<b>A25R TWLNR/L 0604</b>	25	23	200	40	17	32	
	<b>A32S TWLNR/L 0604</b>	32	30	250	45	22	40	

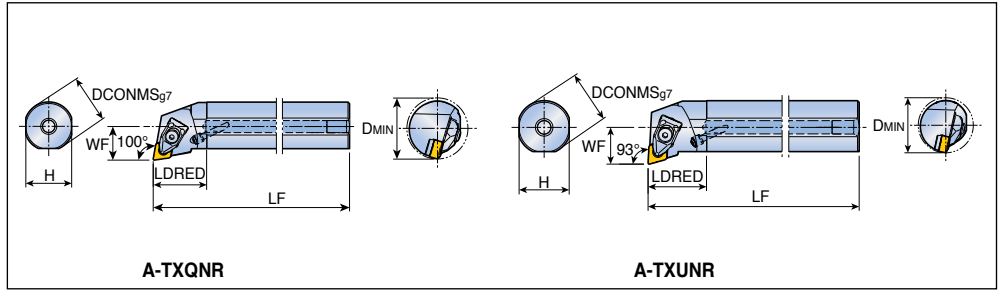
## Spare parts


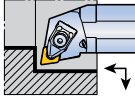
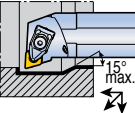
Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>S25R...0604</b>	DLM 3-NX	DLS 3	DSP 3	LSW 32	SO 40073I	-	L-W 2.5	T 15
<b>S32S...0604</b>	DLM 3-NX	DLS 3	DSP 3	LSW 32	SO 40085I	-	L-W 2.5	T 15
<b>A25R...0604</b>	DLM 3-NX	DLS 3	DSP 3	LSW 32	SO 40073I	NZ 62	L-W 2.5	T 15
<b>A32S...0604</b>	DLM 3-NX	DLS 3	DSP 3	LSW 32	SO 40085I	NZ 62	L-W 2.5	T 15

# A-TXQNR/L A-TXUNR/L

Boring bar

## T-holder type boring bars

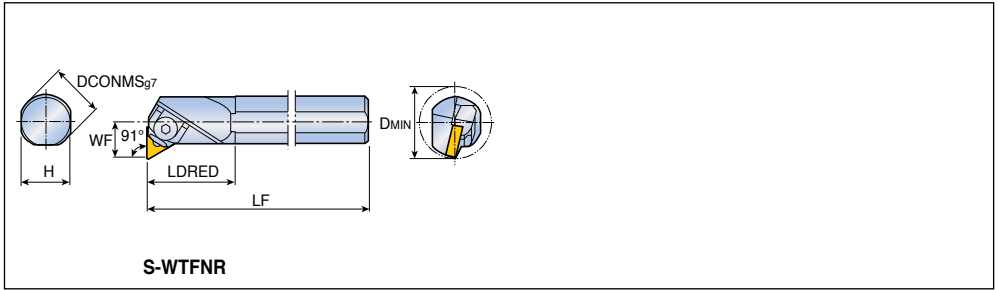


Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
<b>100°</b>	<b>A25R TXQNR/L 1105</b>	25	23	200	33.4	17	32	XNMG 1105... 
	<b>A32S TXQNR/L 1105</b>	32	30	250	35	22	40	
								
<b>93°</b>	<b>A32S TXUNR/L 1105</b>	32	30	250	35	22	40	
								

## Spare parts

Designation	Clamp	Clamp screw	Spring	Shim	Shim screw	Nozzle	Wrench	
<b>A25R...1105</b>								
<b>A25R...1105</b>	DLM 3.5-NX	DLS 4	DSP 4	-	-	NZ 62	L-W 3	-
<b>A32S...1105</b>	DLM 3.5-NX	DLS 4	DSP 4	LSX 3.52B	TS 50A105I	NZ 62	L-W 3	T 20

## Wedge clamp type boring bars



Approach angle	Designation	Dimension (mm)						Insert
		DCONMS	H	LF	LDRED	WF	DMIN	
91°	<b>S25R WTFNR/L 1304</b>	25	23	200	40	17	32	TN... 1304...
	<b>S32S WTFNR/L 1304</b>	32	30	250	45	22	40	<b>RHINO TURN</b>

## Spare parts

Designation	Wedge clamp	Screw	Snap ring	Shim	Pin screw	Wrench	
<b>S25R...1304</b>							
<b>S25R...1304</b>	WC 2.53	WCS 2.5	CSR 2	-	WSS 2.52-1	L-W 2.5	
<b>S32S...1304</b>	WC 2.53	WCS 2.5	CSR 2	WST 2.52	WSS 2.52	L-W 2.5	

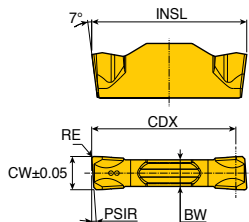




**RHINO GROOVE**

# RDC

## Double-ended inserts for shallow grooving and parting with “C” type chip breaker



Right hand shown

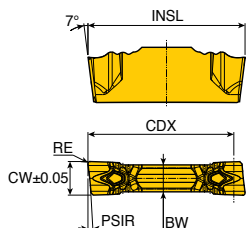
Size	Dimension (mm)					
	CW	RE	BW	INSL	PSIR	CDX
<b>2 (.R)</b>	2	0.2	1.7	14	0-6	13
<b>2 RS</b>	2	0.02	1.7	13.6	15	13
<b>3 (.R)</b>	3	0.2	2.4	14	0-15	13
<b>4</b>	4	0.3	3	14	-	13
<b>5</b>	5	0.3	4	17.5	-	17

Insert	Designation	Insert seat size	Feed (mm/rev)	Coated			Uncoated
				TT9080	TT7220	TT8020	K10
	<b>RDC 2</b>	2	0.05-0.18	●	●	●	●
	<b>2-6R</b>	2	0.04-0.14	●	●	●	
	<b>2-15R</b>	2	0.04-0.14	●	●	●	
	<b>2-15RS</b>	2	0.04-0.13	●			
	<b>3</b>	3	0.07-0.25	●	●	●	●
	<b>3-6R</b>	3	0.06-0.18	●	●	●	
	<b>3-15R</b>	3	0.06-0.18			●	
	<b>4</b>	4	0.08-0.30	●	●	●	●
	<b>5</b>	5	0.09-0.35	●	●	●	●

●: Standard items

# RDJ

## Double-ended inserts for shallow grooving and parting with “J” type chip breaker



Right hand shown

Size	Dimension (mm)					
	CW	RE	BW	INSL	PSIR	CDX
<b>2 (.R)</b>	2	0.2	1.7	14	0-15	13
<b>2 RS</b>	2	0.02	1.7	13.6	15	13
<b>3 (.R)</b>	3	0.2	2.4	14	0-15	13
<b>3 RS</b>	3	0.02	2.4	13.6	6-15	13
<b>4</b>	4	0.3	3	14	-	13
<b>5</b>	5	0.3	4	17.5	-	17

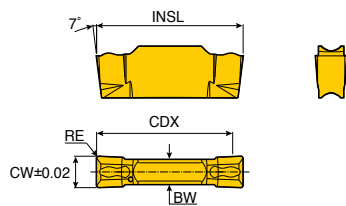
Insert	Designation	Insert seat size	Feed (mm/rev)	Coated			Uncoated
				TT9080	TT7220	TT8020	K10
	<b>RDJ 2</b>	2	0.05-0.18	●	●	●	●
	<b>2-6R</b>	2	0.03-0.08	●		●	
	<b>2-15R</b>	2	0.03-0.08	●		●	
	<b>2-15RS</b>	2	0.03-0.07	●	●	●	
	<b>3</b>	3	0.07-0.25	●	●	●	●
	<b>3-6R</b>	3	0.03-0.12	●	●	●	
	<b>3-6RS</b>	3	0.03-0.10			●	
	<b>3-15R</b>	3	0.03-0.12	●		●	
	<b>3-15RS</b>	3	0.03-0.10	●	●	●	
	<b>4</b>	4	0.08-0.30	●	●	●	●
<b>5</b>	5	0.09-0.35	●	●	●	●	

●: Standard items



# RDT

## Double-ended precision inserts for shallow grooving and turning with T-type chip breaker



Size	Dimension (mm)				
	CW	RE	BW	INSL	CDX
<b>2</b>	2.00	0.10-1.00	1.7	14.0	13
<b>3</b>	3.00	0.20-1.50	2.4	14.0	13
<b>4</b>	4.00	0.40-2.00	3.0	14.0	13

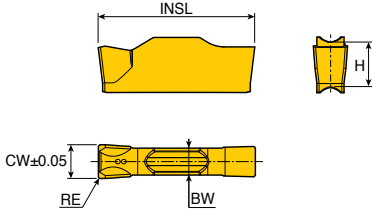
Insert	Designation	Insert seat size	Turning		Grooving	Coated	
			ap (mm)	Feed (mm/rev)	Feed (mm/rev)	CT3000	TT9080
	<b>RDT 2.00E-0.10</b>	2	0.2-1.4	0.12-0.18	0.03-0.13	●	●
	<b>2.00E-0.20</b>	2	0.3-1.4	0.12-0.18	0.03-0.13		●
	<b>2.00E-1.00*</b>	2	0.0-1.0	0.10-0.25	0.05-0.15		●
	<b>3.00E-0.20</b>	3	0.3-2.0	0.12-0.20	0.07-0.13	●	●
	<b>3.00E-0.40</b>	3	0.5-2.0	0.15-0.22	0.07-0.15		●
	<b>3.00E-1.50*</b>	3	0.0-1.5	0.15-0.28	0.08-0.18		●
	<b>4.00E-0.40</b>	4	0.5-2.4	0.18-0.30	0.09-0.18	●	●
	<b>4.00E-0.80</b>	4	1.0-2.4	0.18-0.30	0.09-0.18		●
	<b>4.00E-2.00*</b>	4	0.0-2.0	0.18-0.35	0.10-0.20		●

\*: Full radius insert


●: Standard items

# RSC

## Single-ended inserts for deep grooving and parting with "C" type chip breaker



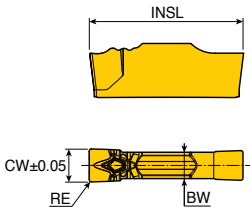
Size	Dimension (mm)				
	CW	RE	BW	INSL	H
<b>2</b>	2.0	0.20	1.6	14.0	4.0
<b>3</b>	3.0	0.20	2.4	14.0	4.0
<b>4</b>	4.0	0.30	3.0	14.0	4.0
<b>5</b>	5.0	0.30	4.0	17.5	5.1

Insert	Designation	Insert seat size	Feed (mm/rev)	Coated		
				TT9080	TT7220	TT8020
	<b>RSC 2</b>	2	0.05-0.18	●	●	●
	<b>3</b>	3	0.07-0.25	●	●	●
	<b>4</b>	4	0.08-0.30	●	●	●
	<b>5</b>	5	0.09-0.35	●	●	●


●: Standard items

# RSJ

## Single-ended inserts for deep grooving and parting with "J" type chip breaker



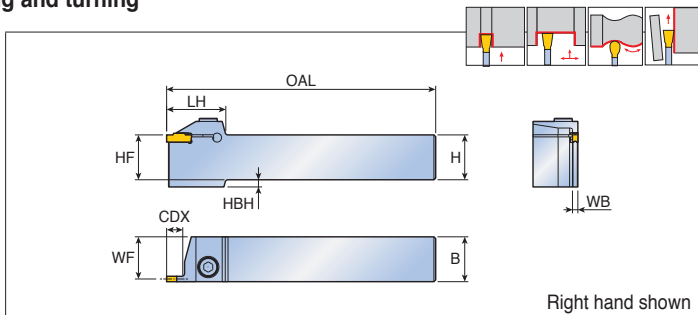
Size	Dimension (mm)				
	CW	RE	BW	INSL	H
<b>2</b>	2.0	0.20	1.6	14.0	4.0
<b>3</b>	3.0	0.20	2.4	14.0	4.0
<b>4</b>	4.0	0.30	3.0	14.0	4.0
<b>5</b>	5.0	0.30	4.0	17.5	5.1

Insert	Designation	Insert seat size	Feed (mm/rev)	Coated		
				TT9080	TT7220	TT8020
	<b>RSJ 2</b>	2	0.04-0.12	●	●	●
	<b>3</b>	3	0.04-0.16	●	●	●
	<b>4</b>	4	0.05-0.18	●	●	●
	<b>5</b>	5	0.05-0.20	●	●	●

●: Standard items



# RGER/L

## Holders for external grooving and turning



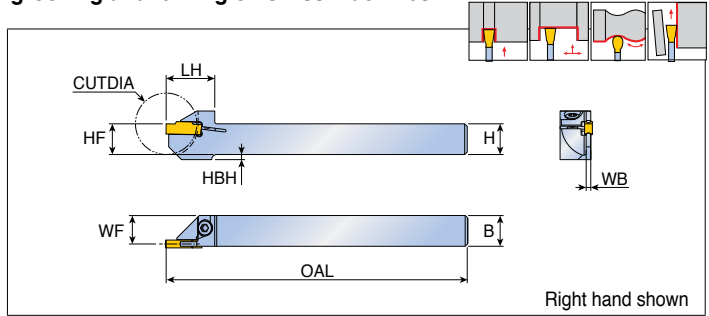
Designation	Insert seat size	Dimensions (mm)								Torque (N.m)	Insert
		H(HF)	B	OAL	WF	LH	WB	HBH	CDX		
<b>RGER/L 1616-2T09</b>	2	16	16	110	15.1	33	1.8	4	9	8	RDC/J RSC/J RDT
<b>1616-2T16</b>	2	16	16	110	15.1	35	1.8	4	16	8	
<b>2020-2T09</b>	2	20	20	125	19.1	33	1.8	-	9	8	
<b>2020-2T16</b>	2	20	20	125	19.1	35	1.8	-	16	8	
<b>2525-2T09</b>	2	25	25	150	24.1	33	1.8	-	9	8	
<b>2525-2T16</b>	2	25	25	150	24.1	35	1.8	-	16	8	
<b>1616-3T09</b>	3	16	16	110	14.8	33	2.4	4	9	8	
<b>1616-3T16</b>	3	16	16	110	14.8	35	2.4	4	16	8	
<b>2020-3T09</b>	3	20	20	125	18.8	33	2.4	-	9	8	
<b>2020-3T16</b>	3	20	20	125	18.8	35	2.4	-	16	8	
<b>2525-3T09</b>	3	25	25	150	23.8	33	2.4	-	9	8	
<b>2525-3T16</b>	3	25	25	150	23.8	35	2.4	-	16	8	
<b>1616-4T10</b>	4	16	16	110	14.5	32	3	4	10	8	
<b>2020-4T10</b>	4	20	20	125	18.5	32	3	-	10	8	
<b>2020-4T16</b>	4	20	20	125	18.5	35	3	-	16	8	
<b>2525-4T10</b>	4	25	25	150	23.5	32	3	-	10	8	
<b>2525-4T16</b>	4	25	25	150	23.5	35	3	-	16	8	
<b>2020-5T12</b>	5	20	20	125	18.1	35	3.9	-	12	8	
<b>2020-5T20</b>	5	20	20	125	18.1	37	3.9	-	20	8	
<b>2525-5T12</b>	5	25	25	150	23.1	35	3.9	-	12	8	
<b>2525-5T20</b>	5	25	25	150	23.1	37	3.9	-	20	8	

## Spare parts

Designation	Screw	Wrench		
				
<b>RGER/L 16/20</b>	SH M6x1x20	L-W 5		
<b>RGER/L 25</b>	SH M6x1x25	L-W 5		



# RGER/L-SH

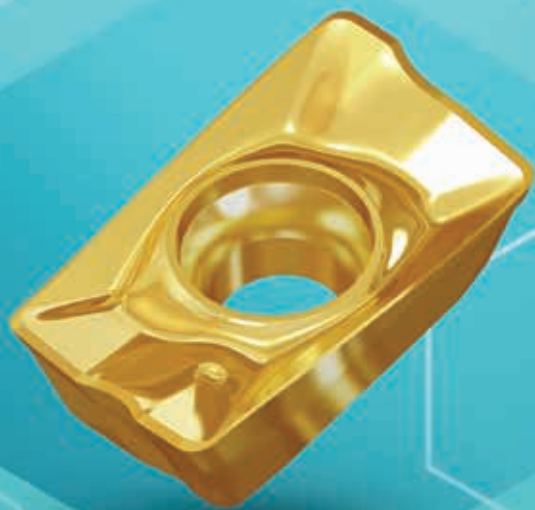
Holders for external shallow grooving and turning on swiss machines



Designation	Insert seat size	Dimensions (mm)								Torque (N.m)	Insert
		H(HF)	B	OAL	WF	LH	WB	HBH	CUTDIA		
<b>RGER/L 10-20-2SH</b>	2	10	10	125	9.1	19	1.8	2	20	2.0	RDC/J
<b>12-24-2SH</b>	2	12	12	125	11.1	19	1.8	2	24	2.0	RSC/J
<b>16-24-2SH</b>	2	16	16	125	15.1	24	1.8	-	24	2.0	RDT
<b>12-24-3SH</b>	3	12	12	125	10.8	19	2.4	2	24	2.0	
<b>14-24-3SH</b>	3	14	14	125	12.8	19	2.4	-	24	2.0	
<b>16-24-3SH</b>	3	16	16	125	14.8	19	2.4	-	24	2.0	

## Spare parts

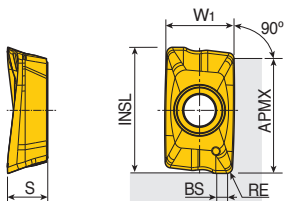
Designation	Screw	Wrench		
				
<b>RGER/L-SH</b>	TS 40A115I	T 15		





**RHINO MILL**

# APKT 1604

## Inserts



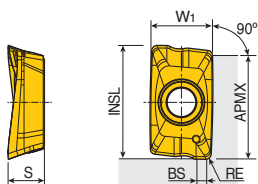
Size	Dimension (mm)					
	INSL	W <sub>1</sub>	S	APMX	BS	RE
<b>1604-REM</b>	17.3	9.5	5.26	15	1.5	0.8
<b>1604-RRE</b>	17.3	9.6	5.56	15	1.5	0.8

Insert	Designation	Recommended machining conditions		Coated					
		ap (mm)	Feed (mm/tooth)	TT9080	TT9030	TT8080	TT8020	TT6080	TT7080
	<b>APKT 1604-REM</b>	3.0 - 14.5	0.18 - 0.10	●		●	●	●	●
	<b>APKT 1604-RRE *</b>	3.0 - 14.5	0.20 - 0.12	●		●	●	●	●


- ▶ -REM: RHINO medium geometry ● : Standard items
- ▶ -RRE: RHINO reinforced medium geometry
- \*: Reinforced design, higher thickness and helix angle for smooth machining and higher productivity.

# AXMT 0903

## Inserts



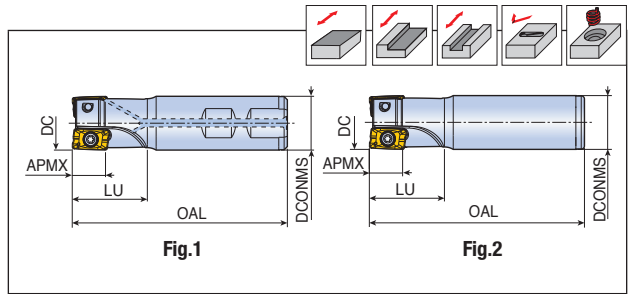
Size	Dimension (mm)					
	INSL	W <sub>1</sub>	S	APMX	BS	RE
<b>09</b>	10.7	6.3	3.6	8.8	0.8	0.4

Insert	Designation	Recommended machining conditions		Coated					
		ap (mm)	Feed (mm/tooth)	TT9080	TT9030	TT8080	TT8020	TT6080	TT7080
	<b>AXMT 0903-REM</b>	2.0 - 8.0	0.18 - 0.10	●					

- ▶ -REM: RHINO medium geometry ● : Standard items
- ▶ AXMT 09 inserts are mounted on existing APKT 09 cutters.
- 2S TFM90...-09 2S TE90...-09 2S TE90...M...-09

# TE90AP-16

## End mills



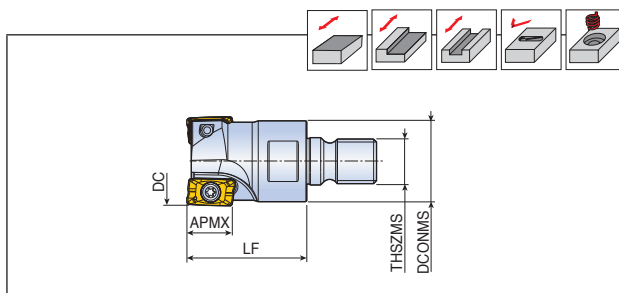
Designation		Dimension (mm)					Coolant Hole	Fig.		Insert
		DC	DCONMS	OAL	LU	APMX				
<b>TE90AP 120-W20-16-L90</b>	1	20	20	90	32	15	x	1	0.19	APKT 1604...
<b>120-W20-16-L90-C</b>	1	20	20	90	32	15	○	1	0.18	
<b>225-24-16-L100</b>	2	25	24	100	40	15	x	2	0.30	
<b>225-W25-16-L100</b>	2	25	25	100	39	15	x	1	0.32	
<b>225-W25-16-L100-C</b>	2	25	25	100	39	15	○	1	0.30	
<b>225-25-16-L210</b>	2	25	25	210	40	15	x	2	0.75	
<b>226-25-16-L200</b>	2	26	25	200	40	15	x	2	0.72	
<b>226-25-16-L250</b>	2	26	25	250	40	15	x	2	0.90	
<b>232-32-16-L250</b>	2	32	32	250	65	15	x	2	1.46	
<b>332-W32-16-L110</b>	3	32	32	110	40	15	x	1	0.59	
<b>332-W32-16-L110-C</b>	3	32	32	110	40	15	○	1	0.58	
<b>332-W32-16-L200</b>	3	32	32	200	65	15	x	1	1.12	
<b>332-32-16-L200</b>	3	32	32	200	65	15	x	2	1.13	
<b>233-32-16-L200</b>	2	33	32	200	40	15	x	2	1.18	
<b>233-32-16-L250</b>	2	33	32	250	40	15	x	2	1.50	
<b>233-32-16-L300</b>	2	33	32	300	40	15	x	2	1.81	
<b>333-32-16-L250</b>	3	33	32	250	55	15	x	2	1.46	
<b>240-32-16-L250</b>	2	40	32	250	54	15	x	2	1.61	
<b>340-32-16-L200</b>	3	40	32	200	54	15	x	2	1.27	
<b>440-W32-16-L115</b>	4	40	32	115	32	15	x	1	0.69	
<b>440-W32-16-L115-C</b>	4	40	32	115	32	15	○	1	0.68	
<b>440-32-16-L200</b>	4	40	32	200	54	15	x	2	1.26	
<b>442-W32-16</b>	4	42	32	115	32	15	x	1	0.74	

## Spare parts

Designation	Screw	Wrench			
<b>TE90AP-16 (-Ø25)</b>	TS 40080I	TD15			
<b>TE90AP-16 (Ø26-Ø42)</b>	TS 40093I	TD15			

# TE90AP-M-16

## Modular heads



Designation		Dimension (mm)						Insert
		DC	DCONMS	LF	THSZMS	APMX		
<b>TE90AP 120-M10-16</b>	1	20	18	44.6	10	15	0.09	APKT 1604...
<b>225-M12-16</b>	2	25	21	43	12	15	0.12	
<b>232-M16-16</b>	2	32	29	43	16	15	0.24	
<b>332-M16-16</b>	3	32	29	43	16	15	0.21	
<b>340-M16-16</b>	3	40	29	43	16	15	0.27	
<b>440-M16-16</b>	4	40	29	43	16	15	0.27	

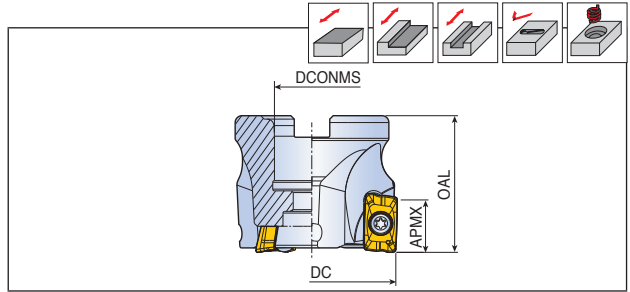
## Spare parts

Designation	Screw	Wrench			
<b>TE90AP-16 (-Ø25)</b>	TS 40080I	TD15			
<b>TE90AP-16 (Ø32-Ø40)</b>	TS 40093I	TD15			



# TFM90AP-16

## Face mills



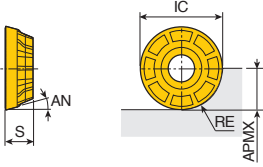
Designation		Dimension (mm)				Arbor style	Kg	Arbor style	Insert
		DC	DCONMS	OAL	APMX				
<b>TFM90AP 340-16R-16</b>	3	40	16	40	15	A	0.2	SH M8x1.25x30	APKT 1604...
<b>440-16R-16</b>	4	40	16	40	15	A	0.2	SH M8x1.25x30	
<b>350-22R-16</b>	3	50	22	40	15	A	0.3	SH M10x1.5x30	
<b>450-22R-16</b>	4	50	22	40	15	A	0.3	SH M10x1.5x30	
<b>550-22R-16</b>	5	50	22	40	15	A	0.3	SH M10x1.5x30	
<b>550-27R-16</b>	5	50	27	50	15	A	0.4	SH M12x1.75x35	
<b>463-22R-16</b>	4	63	22	40	15	A	0.4	SH M10x1.5x30	
<b>663-22R-16</b>	6	63	22	40	15	A	0.5	SH M10x1.5x30	
<b>663-27R-16</b>	6	63	27	50	15	A	0.7	SH M12x1.75x35	
<b>480-27R-16</b>	4	80	27	50	15	A	1.0	SH M12x1.75x35	
<b>580-27R-16</b>	5	80	27	50	15	A	0.9	SH M12x1.75x35	
<b>680-27R-16</b>	6	80	27	50	15	A	1.0	SH M12x1.75x35	
<b>780-27R-16</b>	7	80	27	50	15	A	1.0	SH M12x1.75x35	
<b>6100-32R-16</b>	6	100	32	50	15	B	1.6	-	
<b>8100-32R-16</b>	8	100	32	50	15	B	1.6	-	
<b>7125-40R-16</b>	7	125	40	63	15	B	2.7	-	
<b>8125-40R-16</b>	8	125	40	63	15	B	2.7	-	
<b>9125-40R-16</b>	9	125	40	63	15	B	2.7	-	
<b>8160-40R-16</b>	8	160	40	63	15	C	4.1	-	

## Spare parts

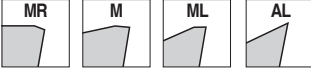
Designation	Screw	Wrench			
<b>TFM90AP-16</b> (Ø40, Ø50, Ø63)	TS 40093I	T-T15			
<b>TFM90AP-16</b> (Ø80-)	TS 40120I	T-T15			

# RXM(H)X

## Inserts



Size	Dimension (mm)					
	RE	IC	S	APMX	AN	
<b>10</b>	5.0	10	3.18	5.0	15°	
<b>12</b>	6.0	12	3.97	6.0	15°	
<b>16</b>	8.0	16	4.76	8.0	15°	
<b>20</b>	10.0	20	6.35	10.0	11°	

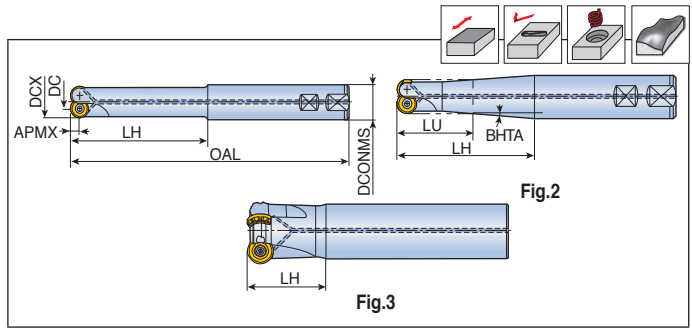


Insert	Designation	Recommended machining conditions		Coated							Uncoated		
		ap (mm)	Feed (mm/tooth)	TT9080	TT9030	TT8080	TT8020	TT8525B	TT7080	TT7515	TT6080	K10	
	<b>RXMX 1003-M</b>	1.5-4.0	0.30-0.10	•					•				
	<b>12T3-M</b>	1.8-5.0	0.50-0.10	•	•	•	•		•				
	<b>1604-M</b>	2.0-6.5	0.50-0.10	•			•						
	<b>2006-M</b>	3.0-8.0	0.50-0.10	•			•						
	<b>RXMX 1003-ML</b>	1.5-4.0	0.30-0.05	•									
	<b>12T3-ML</b>	1.5-5.0	0.45-0.05	•	•		•						
	<b>1604-ML</b>	2.0-6.5	0.45-0.10	•			•						
	<b>RXMX 1003-MR</b>	1.5-4.0	0.30-0.05	•	•								
	<b>12T3-MR</b>	1.5-5.0	0.35-0.05	•	•								
	<b>1604-MR</b>	2.0-6.5	0.40-0.10	•	•								
	<b>2006-MR</b>	3.0-8.0	0.40-0.10	•	•		•						
		<b>RXHX 1003-AL</b>	1.5-4.0	0.80-0.10									•
<b>12T3-AL</b>		1.5-5.0	0.80-0.10									•	

• : Standard items

# TERX

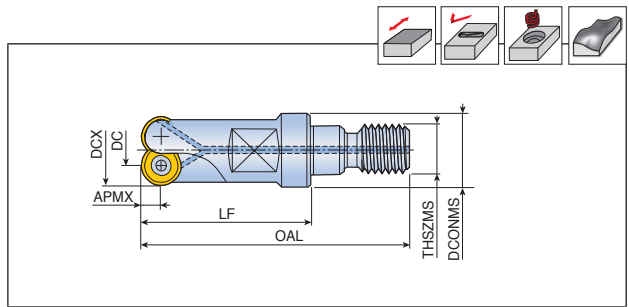
## End mills



Designation	✱	Dimension (mm)								Coolant hole	Fig.	Insert
		DCX	DC	DCONMS	OAL	LH	LU	BHTA	APMX			
<b>TERX 220-W20-10</b>	2	20	10	20	160	60	-	-	5.0	●	1	RXM(H)X 1003...
<b>220-25-10-L</b>	2	20	10	25	250	80	60	4.0	5.0	●	2	
<b>221-20-10-L160</b>	2	21	11	20	160	30	-	-	5.0	●	3	
<b>221-20-10-L200</b>	2	21	11	20	200	30	-	-	5.0	●	3	
<b>225-W25-10</b>	2	25	15	25	160	60	-	-	5.0	●	1	
<b>226-25-10-L200</b>	2	26	16	25	200	30	-	-	5.0	●	3	
<b>226-25-10-L300</b>	2	26	16	25	300	30	-	-	5.0	●	3	
<b>325-W25-10</b>	3	25	15	25	160	60	-	-	5.0	●	1	
<b>432-W32-10</b>	4	32	22	32	160	60	-	-	5.0	●	1	
<b>TERX 225-W25-12</b>	2	25	13	25	160	60	-	-	6.0	●	1	RXM(H)X 12T3...
<b>226-25-12-L250</b>	2	26	14	25	250	40	-	-	6.0	●	3	
<b>232-32-12-L</b>	2	32	20	32	250	50	-	-	6.0	●	3	
<b>332-W32-12</b>	3	32	20	32	160	64	-	-	6.0	●	1	
<b>233-32-12-L200</b>	2	33	21	32	200	40	-	-	6.0	●	3	
<b>233-32-12-L250</b>	2	33	21	32	250	40	-	-	6.0	●	3	
<b>233-32-12-L300</b>	2	33	21	32	300	40	-	-	6.0	●	3	
<b>340-32-12-L250</b>	3	40	28	32	250	40	-	-	6.0	●	3	
<b>440-W32-12</b>	4	40	28	32	160	50	-	-	6.0	●	1	
<b>TERX 240-W32-16</b>	2	40	24	32	160	50	-	-	8.0	●	1	RXMX 1604...
<b>340-32-16-L250</b>	3	40	24	32	250	50	-	-	8.0	●	3	

# TERX-M

## Modular heads



Designation		Dimension (mm)							Coolant hole	Insert
		DCX	DC	DCONMS	LF	OAL	THSZMS	APMX		
<b>TERX 220-M10-10</b>	2	20	10	18	30	50	M10	5.0	●	RXM(H)X 1003...
<b>225-M12-10</b>	2	25	15	21	35	57	M12	5.0	●	
<b>325-M12-10</b>	3	25	15	21	35	57	M12	5.0	●	
<b>430-M16-10</b>	4	30	20	29	43	68	M16	5.0	●	
<b>432-M16-10</b>	4	32	22	29	43	68	M16	5.0	●	
<b>542-M16-10</b>	5	42	32	29	43	68	M16	5.0	●	
<b>TERX 224-M12-12</b>	2	24	12	21	35	57	M12	6.0	●	RXM(H)X 12T3...
<b>332-M16-12</b>	3	32	20	29	43	68	M16	6.0	●	
<b>335-M16-12</b>	3	35	23	29	43	68	M16	6.0	●	

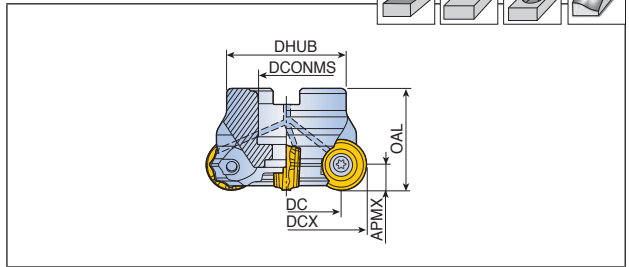
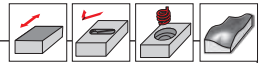
► Matched with T-FLEXTEC holder



## Spare parts

Designation	Screw	Wrench			
<b>TERD-05</b>	TS 20038I	TD 6			
<b>TERD-07</b>	SO 25050I	TD 7			
<b>TERX-10</b>	TS 35070I/HG	TD 15			
<b>TERX-12</b>	TS 35085I/HG	TD 15			
<b>TERX-16</b>	TS 45A100I/HG	TD 20			
<b>TERX-20</b>	TS 50115I/HG	TD 20			

# TFMRX-10/12

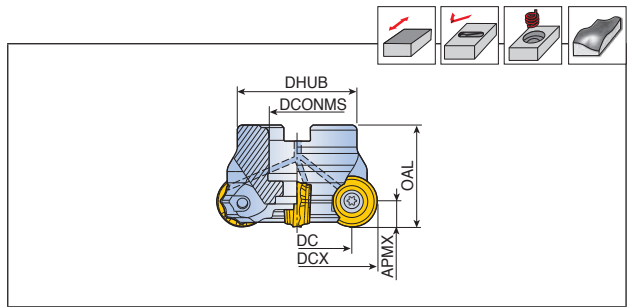
## Face mills



Designation		Dimension (mm)						Coolant hole	Arbor style		Mounting bolt	Insert
		DCX	DC	DCONMS	DHUB	OAL	APMX					
<b>TFMRX 650-22R-10</b>	6	50	40	22	40	40	5.0	●	A	0.3	SH M10x30	RXM(H)X 1003...
<b>TFMRX 450-22R-12</b>	4	50	38	22	40	40	6.0	●	A	0.2	LH M10x25	RXM(H)X 12T3...
<b>550-22R-12</b>	5	50	38	22	40	40	6.0	●	A	0.2	LH M10x25	
<b>552-22R-12</b>	5	52	40	22	40	40	6.0	●	A	0.3	SH M10x30	
<b>563-22R-12</b>	5	63	51	22	47	40	6.0	●	A	0.4	LH M10x25	
<b>663-22R-12</b>	6	63	51	22	47	40	6.0	●	A	0.4	LH M10x25	
<b>666-27R-12</b>	6	66	54	27	58	50	6.0	●	A	0.6	SH M12x35	
<b>680-27R-12</b>	6	80	68	27	58	50	6.0	●	A	0.8	SH M12x35	
<b>7100-32R-12</b>	7	100	88	32	66	50	6.0	x	B	1.2	-	

# TFMRX-16/20

## Face mills



Designation		Dimension (mm)						Coolant hole	Arbor style		Mounting bolt	Insert
		DCX	DC	DCONMS	DHUB	OAL	APMX					
<b>TFMRX 452-22R-16</b>	4	52	36	22	40	40	8.0	●	A	0.2	SH M10x30	RXMX 1604...
<b>463-22R-16</b>	4	63	47	22	47	40	8.0	●	A	0.4	LH M10x25	
<b>566-27R-16</b>	5	66	50	27	58	50	8.0	●	A	0.5	SH M12x35	
<b>580-27R-16</b>	5	80	64	27	58	50	8.0	●	A	0.8	SH M12x35	
<b>6100-32R-16</b>	6	100	84	32	66	50	8.0	x	B	1.1	-	
<b>7125-40R-16</b>	7	125	109	40	85	63	8.0	x	B	2.4	-	
<b>8160-40R-16</b>	8	160	144	40	110	63	8.0	x	C	3.6	-	
<b>TFMRX 463-22R-20</b>	4	63	43	22	47	40	10.0	●	A	0.3	LH M10x25	RXMX 2006...
<b>580-27R-20</b>	5	80	60	27	58	50	10.0	●	A	0.8	LH M12x30	
<b>6100-32R-20</b>	6	100	80	32	85	50	10.0	x	B	1.0	-	
<b>7125-40R-20</b>	7	125	105	40	85	63	10.0	x	B	2.5	-	
<b>8160-40R-20</b>	8	160	140	40	110	63	10.0	x	C	3.7	-	

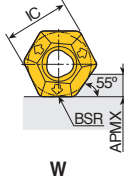
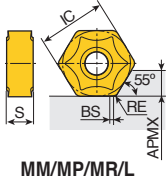
► Mounting bolt with coolant through hole is available on request (ordering example: SH M10x1.5x30-C)

## Spare parts

Designation	Screw	Wrench			
<b>TFMRX-10</b>	TS 35070I/HG	T-T15			
<b>TFMRX-12</b>	TS 35085I/HG	T-T15			
<b>TFMRX-16</b>	TS 45A100I/HG	T-T20			
<b>TFMRX-20</b>	TS 50115I	T-T20			

# HNC(M)X 05

## Inserts



Size	Dimension (mm)					
	IC	S	APMX	BS	RE	BSR
<b>05</b>	12.7	5.0-6.0	5.0	0 - 0.6	1.0	-
<b>05-W</b>	12.7	5.56	5.0	-	-	250

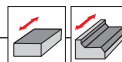
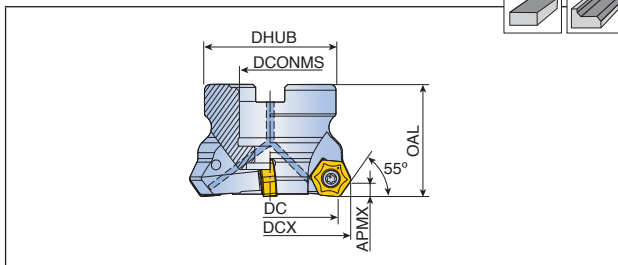


Insert	Designation	Recommended machining conditions		Ceramic							Coated				Uncoated	
		ap (mm)	Feed (mm/tooth)	AS10	TT9080	TT9030	TT8080	TT8525B	TT7080	TT7515	TT6080	TT2510	K10			
	<b>HNCX 050410-L</b>	1.5-4.0	0.20-0.05		●		●				●					
	<b>HNCX 050410R-MP</b>	1.5-4.0	0.20-0.05		●				●		●					
	<b>HNCX 050410-MM</b>	1.5-4.0	0.20-0.05		●	●				●	●					
	<b>HNCX 050410-MM</b>	1.5-4.0	0.20-0.07		●	●	●			●	●	●				
	<b>HNCX 050610-MR</b>	1.5-4.0	0.25-0.13	●												
	<b>HNCX 05R-W</b>	0.1-1.0	0.15-0.05		●	●					●					

● : Standard items

# TFM55AHNS-05

## Face mills



Designation		Dimension (mm)							Coolant hole	Arbor style	Kg	Mounting bolt	Insert
		DC	DCX	DCONMS	DHUB	OAL	APMX						
<b>TFM55AHNS 450-22R-05B</b>	4	50	58.2	22	45	40	5.0	●	A	0.4	SH M10x30	HNC(M)X 05...	
<b>650-22R-05</b>	6	50	58.2	22	45	40	5.0	●	A	0.4	SH M10x30		
<b>563-22R-05B</b>	5	63	71.2	22	47	40	5.0	●	A	0.6	SH M10x30		
<b>863-22R-05</b>	8	63	71.2	22	47	40	5.0	●	A	0.5	SH M10x30		
<b>680-27R-05B</b>	6	80	88.2	27	70	50	5.0	●	A	1.3	SH M12x35		
<b>880-27R-05</b>	8	80	88.2	27	70	50	5.0	●	A	1.2	SH M12x35		
<b>1080-27R-05</b>	10	80	88.2	27	70	50	5.0	●	A	1.2	SH M12x35		
<b>7100-32R-05B</b>	7	100	108.2	32	85	50	5.0	●	A	2.0	SH M16x35		
<b>10100-32R-05</b>	10	100	108.2	32	85	50	5.0	●	A	2.0	SH M16x35		
<b>12100-32R-05</b>	12	100	108.2	32	85	50	5.0	●	A	2.0	SH M16x35		
<b>10125-40R-05B</b>	10	125	133.2	40	85	63	5.0	●	A	3.2	SH M20x40		
<b>12125-40R-05</b>	12	125	133.2	40	85	63	5.0	●	A	3.4	SH M20x40		
<b>16125-40R-05</b>	16	125	133.2	40	85	63	5.0	●	A	3.2	SH M20x40		
<b>12160 -40R-05B</b>	12	160	168.2	40	110	63	5.0	x	C	4.7	-		
<b>TFM55AHNS 680-25.4R-05B</b>	6	80	88.2	25.4	70	50	5.0	●	A	1.3	SH M12x35		
<b>7100-31.75R-05B</b>	7	100	108.2	31.75	80	50	5.0	x	B	2.0	-		
<b>10125-38.1R-05B</b>	10	125	133.2	38.1	80	63	5.0	x	B	3.2	-		

► Mounting bolt with coolant through hole is available on request (ordering example: SH M10x1.5x30-C)

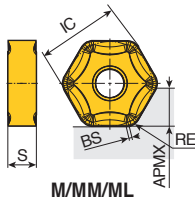
## Spare parts

Designation	Screw	Wrench			
<b>TFM55AHNS</b>	TS 40B100I	T-T15			

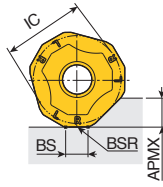


# HNHX 10

## Inserts



M/MM/ML



W

Size	Dimension (mm)					
	IC	S	APMX	BS	RE	BSR
<b>HNHX10</b>	19.05	6.35	6.1	1.0	1.0	-
<b>HNHX10-W</b>	19.05	6.35	6.1	4.85	-	250

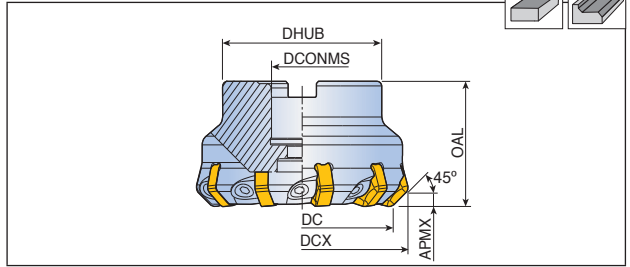


Insert	Designation	Recommended machining conditions		Ceramic						Coated						Uncoated			
		ap (mm)	Feed (mm/tooth)	AS10	TT9080	TT8080	TT8525B	TT7080	TT7515	TT6080									K10
	<b>HNHX 1006 ANT-N-M</b>	1.5-5.0	0.20-0.10		●	●	●	●	●	●									
	<b>HNHX 1006 ANT-N-MM</b>	1.5-5.0	0.25-0.125		●														
	<b>HNHX 1006 ANT-N-ML</b>	1.5-5.0	0.20-0.10																
	<b>HNHX 1006 ANT-N-W</b>	0.1-1.0	0.20-0.10		●														
	<b>HNHX 1006 ANT-N-CE</b>	1.5-5.0	0.25-0.125	●															

●: Standard items

# TFM45HN-10

Face mills



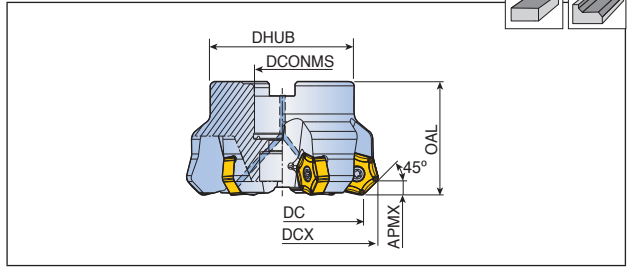
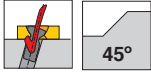
Designation		Dimension (mm)						Arbor style	Kg	Mounting bolt	Insert
		DC	DCX	DCONMS	DHUB	OAL	APMX				
<b>TFM45HN 1080-27R-10</b>	10	80	94	27	70	55	6.1	A	1.9	SH M12x35	HNHX 1006...
<b>14100-32R-10</b>	14	100	114	32	85	63	6.1	A	3.3	SH M16x35	
<b>18125-40R-10</b>	18	125	139	40	85	63	6.1	B	3.9	-	
<b>22160-40R-10</b>	22	160	174	40	110	63	6.1	C	5.6	-	
<b>28200-60R-10</b>	28	200	214	60	130	63	6.1	C	7.9	-	
<b>36250-60R-10</b>	36	250	264	60	160	63	6.1	C	13.1	-	

## Spare parts

Designation	Wedge	Wedge screw	Wrench		
<b>TFM45HN</b>	WFZ 8H	WS 8	T-W 4		

# TFM45HNS-10

## Face mills



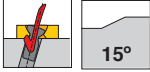
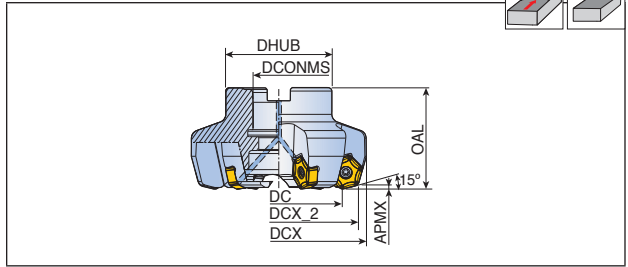
Designation		Dimension (mm)						Coolant hole	Arbor style	Kg	Mounting bolt	Insert
		DC	DCX	DCONMS	DHUB	OAL	APMX					
<b>TFM45HNS 563-22R-10</b>	5	63	77	22	47	50	6.1	●	A	0.8	SH M10x25	HNHX 1006...
<b>663-22R-10F</b>	6	63	77	22	47	50	6.1	●	A	0.9	SH M10x25	
<b>680-27R-10</b>	6	80	94	27	70	55	6.1	●	A	1.6	SH M12x35	
<b>780-27R-10F</b>	7	80	94	27	70	55	6.1	●	A	1.6	SH M12x35	
<b>7100-32R-10</b>	7	100	114	32	85	63	6.1	●	A	2.7	SH M16x35	
<b>9100-32R-10F</b>	9	100	114	32	85	63	6.1	●	A	2.8	SH M16x35	
<b>8125-40R-10</b>	8	125	139	40	85	63	6.1	x	B	3.4	-	
<b>10125-40R-10</b>	10	125	139	40	85	63	6.1	x	B	3.4	-	
<b>12125-40R-10F</b>	12	125	139	40	85	63	6.1	x	B	3.4	-	
<b>10160-40R-10</b>	10	160	174	40	110	63	6.1	x	C	4.8	-	
<b>12160-40R-10</b>	12	160	174	40	110	63	6.1	x	C	4.8	-	
<b>14160-40R-10F</b>	14	160	174	40	110	63	6.1	x	C	4.9	-	
<b>12200-60R-10</b>	12	200	214	60	130	63	6.1	x	C	6.9	-	
<b>16200-60R-10F</b>	16	200	214	60	130	63	6.1	x	C	7.0	-	
<b>16250-60R-10</b>	16	250	264	60	160	63	6.1	x	C	11.8	-	
<b>TFM45HNS 680-25.4R-10</b>	6	80	94	25.4	70	55	6.1	●	A	1.6	SH M12x35	
<b>7100-31.75R-10</b>	7	100	114	31.75	80	63	6.1	x	B	2.7	-	
<b>9100-31.75R-10F</b>	9	100	114	31.75	80	63	6.1	x	B	2.8	-	
<b>8125-38.1R-10</b>	8	125	139	38.1	80	63	6.1	x	B	3.4	-	
<b>10125-38.1R-10</b>	10	125	139	38.1	80	63	6.1	x	B	3.4	-	
<b>10160-50.8R-10</b>	10	160	174	50.8	100	63	6.1	x	B	4.8	-	
<b>12160-50.8R-10</b>	12	160	174	50.8	100	63	6.1	x	B	4.8	-	
<b>12200-47.625R-10</b>	12	200	214	47.625	130	63	6.1	x	C	6.9	-	
<b>16250-47.625R-10</b>	16	250	264	47.625	160	63	6.1	x	C	11.8	-	

## Spare parts

Designation	Screw	Wrench			
	<b>TFM45HNS</b>	TS 50C130I/HG	T-T20		

# TFM15HNS-10

## Face mills



Designation	♻️	Dimension (mm)							Coolant hole	Arbor style	⚖️ Kg	Mounting bolt	Insert
		DCX 2	DC	DCX	DCONMS	DHUB	OAL	APMX					
<b>TFM15HNS 580-27R-10</b>	5	80	61.8	85.2	27	58	55	2.0	●	A	1.3	SH M12x35	HNHX 1006
<b>6100-32R-10</b>	6	100	81.7	105.2	32	66	63	2.0	x	B	1.9	-	ANTN-M
<b>8125-40R-10</b>	8	125	106.7	130.2	40	85	63	2.0	x	B	2.9	-	

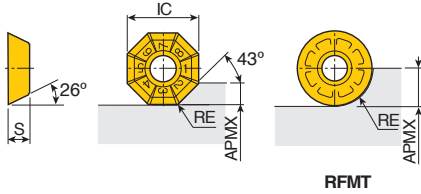
► Mounting bolt with coolant through hole is available on request (ordering example: SH M10x1.5x30-C)

## Spare parts

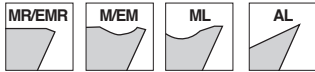
Designation	Screw	Wrench			
	<b>TFM15HNS</b>	TS 50C130/HG	T-T20		

# OFCW(T) 05/OFMT 05/RFMT 14

## Inserts



Size	Dimension (mm)			
	IC	S	APMX	RE
<b>OF... 05</b>	12.7	3.76-3.86	3.5	0.5-0.8
<b>RFMT 14</b>	14.0	4.53	7.0	7.0

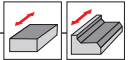
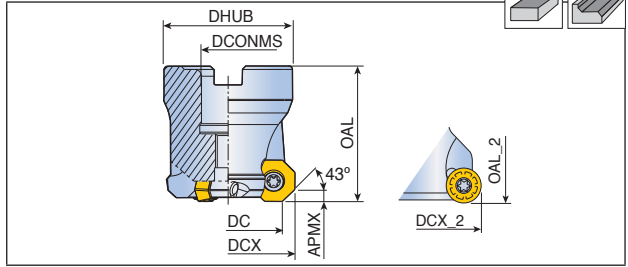


Insert	Designation	Recommended machining conditions		Cermet	Coated							Uncoated		
		ap (mm)	Feed (mm/tooth)		CT7000	TT9080	TT9030	TT8080	TT8020	TT8525B	TT7080	TT7515	TT6080	K10
	<b>OFCW 05T3 TN-MR</b>	1.0-3.0	0.08-0.04		●									
	<b>05T3 TN-EMR</b>	1.0-3.0	0.15-0.08		●	●		●		●		●		
	<b>OFCT 05T3 TN-M</b>	1.0-3.0	0.15-0.08							●		●		
	<b>05T3 TN-EM</b>	1.0-3.0	0.10-0.05		●	●		●		●		●		
	<b>OFCT 05T3 TN-AL</b>	1.0-3.0	0.50-0.10										●	
	<b>OFMT 05T3 TN-ML</b>	1.0-3.0	0.12-0.06		●	●	●	●	●	●		●	●	
	<b>RFMT 1404-ML</b>	2.0-6.0	0.27-0.14		●			●				●		

● : Standard items

# TFM430FS-05

## Face mills



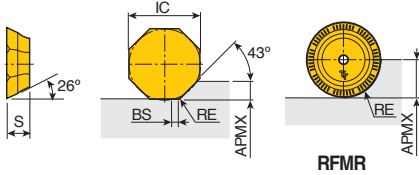
Designation		Dimension (mm)								Arbor style	kg	Mounting bolt	Insert
		DC	DCX	DCX_2	DCONMS	DHUB	OAL	OAL_2	APMX				
<b>TFM430FS 332-16R-05</b>	3	32	39.6	40.8	16	30	40	40.6	3.5	E	0.3	KTB32B	OFCW
<b>440-16R-05</b>	4	40	47.5	48.7	16	38	40	40.6	3.5	A	0.4	SH M8x30	05T3...,
<b>550-22R-05</b>	5	50	57.9	59.0	22	45	40	40.6	3.5	A	0.6	SH M10x30	OFCT
<b>663-22R-05</b>	6	63	71.0	72.0	22	47	40	40.6	3.5	A	1.0	SH M10x30	05T3...,
<b>780-27R-05</b>	7	80	88.0	89.0	27	70	50	50.6	3.5	A	1.3	SH M12x35	OFMT
<b>8100-32R-05</b>	8	100	108.0	109.0	32	85	50	50.6	3.5	A	2.6	LH M16x35	05T3...,
<b>9125-40R-05</b>	9	125	133.0	134.0	40	85	63	63.6	3.5	B	3.0	-	RFMT
<b>TFM430FS 780-25.4R-05</b>	7	80	88.0	89.0	25.4	70	50	50.6	3.5	A	1.3	SH M12x35	1404...
<b>9125-38.1R-05</b>	9	125	133.0	134.0	38.1	80	63	63.6	3.5	B	3.0	-	

## Spare parts

Designation	Screw	Wrench			
	<b>TFM430FS</b>	TS 400931	T-T15		

# OFCN 07/OFMR 07/OFMR 07/RFMR 19

## Inserts



Size	Dimension (mm)				
	IC	S	APMX	BS	RE
<b>OF... 07</b>	17.94	5.0-5.1	5.0	1.3-2.2	0.8
<b>RFMR 19</b>	19.00	5.3	9.5	-	9.5

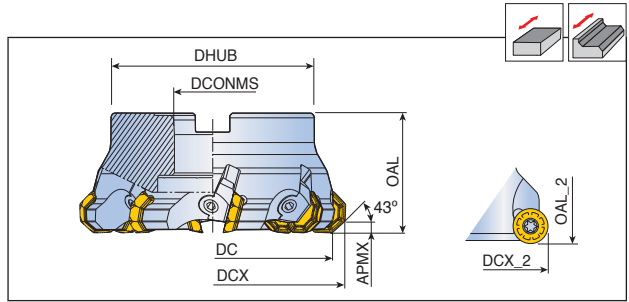


Insert	Designation	Recommended machining conditions		Coated							Uncoated		
		ap (mm)	Feed (mm/tooth)	CT7000	TT9080	TT9030	TT8080	TT8020	TT8525B	TT7080	TT7515	TT6080	K10
	<b>OFCN 0704 TN-MR</b>	1.5-4.0	0.20-0.08	●						●	●		
	<b>OFCN 0704 TN-EMR</b>	1.5-4.0	0.15-0.08		●		●	●	●		●		
	<b>OFMR 0704 AER-M</b>	1.5-4.0	0.19-0.10		●	●	●	●	●		●		
	<b>OFMR 0704 TN-AL</b>	1.5-4.0	0.15-0.08									●	
	<b>OFCR 0704 TN-ML</b>	1.5-4.0	0.15-0.05				●		●		●		
	<b>OFCR 0704 TN-EML</b>	1.5-4.0	0.15-0.08		●	●	●	●	●		●		
	<b>RFMR 1904-M</b>	2.5-8.0	0.14-0.07		●	●	●		●				

● : Standard items

# TFM43ZOFW-07

## Face mills



Designation		Dimension (mm)									Arbor style	Kg	Mounting bolt	Insert
		DC	DCX	DCX_2	DCONMS	DHUB	OAL	OAL_2	APMX					
<b>TFM43ZOFW 463-22R-07</b>	4	63	75.1	76.1	22	47	40	40.7	5.0	A	0.5	LH M10x25	OFCN	
<b>580-27R-07</b>	5	80	92.0	93.1	27	70	50	50.7	5.0	A	1.2	SH M12x35	0704..., OFCR	
<b>6100-32R-07</b>	6	100	112.0	113.1	32	85	50	50.7	5.0	B	1.8	-	0704..., OFMR	
<b>8100-32R-07</b>	8	100	112.0	113.1	32	85	50	50.7	5.0	B	1.8	-	0704..., RFMR	
<b>8125-40R-07</b>	8	125	137.0	138.1	40	85	63	63.7	5.0	B	3.0	-	1904...	
<b>10125-40R-07</b>	10	125	137.0	138.1	40	85	63	63.7	5.0	B	3.0	-		
<b>10160-40R-07</b>	10	160	172.0	173.1	40	100	63	63.7	5.0	C	4.7	-		
<b>12160-40R-07</b>	12	160	172.0	173.1	40	110	63	63.7	5.0	C	4.7	-		
<b>12200-60R-07</b>	12	200	212.0	213.1	60	130	63	63.7	5.0	C	7.0	-		
<b>14200-60R-07</b>	14	200	212.0	213.1	60	130	63	63.7	5.0	C	7.0	-		
<b>TFM43ZOFW 6100-31.75R-07</b>	6	100	112.0	113.1	31.75	80	50	50.7	5.0	B	1.8	-		
<b>8125-38.1R-07</b>	8	125	137.0	138.1	38.1	80	63	63.7	5.0	B	3.0	-		
<b>10160-50.8R-07</b>	10	160	172.0	173.1	50.8	100	63	63.7	5.0	B	4.7	-		

## Spare parts

Designation	Wedge	Wedge screw	Wrench		
<b>TFM43ZOFW</b>	WFO-8Z	WS 8, *WS 8S, WS 8M	T-W 4		

► \*WS8S: For TFM43ZOFW-463...only

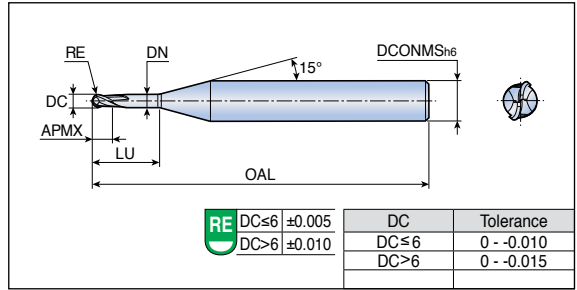




**RHINOSOLID**

# HSB 2

## 2 flute long neck ball



2

**H-A**

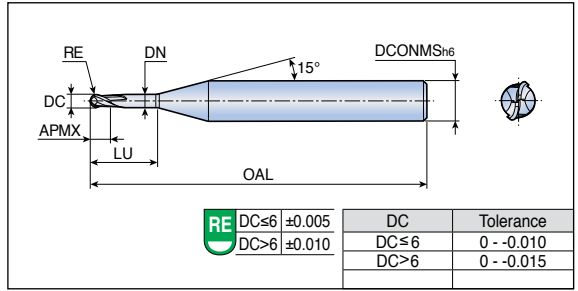
P	M	K	N	S	H
○	○	○	○	○	●

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSB 2003 003 010</b>	0.3	0.15	45	0.3	1.0	0.27	4.0	●
<b>2003 003 020</b>	0.3	0.15	45	0.3	2.0	0.27	4.0	●
<b>2003 003 030</b>	0.3	0.15	45	0.3	3.0	0.27	4.0	●
<b>2004 004 010</b>	0.4	0.2	45	0.4	1.0	0.36	4.0	●
<b>2004 004 015</b>	0.4	0.2	45	0.4	1.5	0.36	4.0	●
<b>2004 004 020</b>	0.4	0.2	45	0.4	2.0	0.36	4.0	●
<b>2004 004 025</b>	0.4	0.2	45	0.4	2.5	0.36	4.0	●
<b>2004 004 030</b>	0.4	0.2	45	0.4	3.0	0.36	4.0	●
<b>2004 004 040</b>	0.4	0.2	45	0.4	4.0	0.36	4.0	●
<b>2005 005 010</b>	0.5	0.25	45	0.5	1.0	0.45	4.0	●
<b>2005 005 015</b>	0.5	0.25	45	0.5	1.5	0.45	4.0	●
<b>2005 005 020</b>	0.5	0.25	45	0.5	2.0	0.45	4.0	●
<b>2005 005 025</b>	0.5	0.25	45	0.5	2.5	0.45	4.0	●
<b>2005 005 030</b>	0.5	0.25	45	0.5	3.0	0.45	4.0	●
<b>2005 005 040</b>	0.5	0.25	45	0.5	4.0	0.45	4.0	●
<b>2005 005 050</b>	0.5	0.25	45	0.5	5.0	0.45	4.0	●
<b>2005 005 060</b>	0.5	0.25	45	0.5	6.0	0.45	4.0	●
<b>2005 005 080</b>	0.5	0.25	45	0.5	8.0	0.45	4.0	●
<b>2006 006 020</b>	0.6	0.3	45	0.6	2.0	0.55	4.0	●
<b>2006 006 030</b>	0.6	0.3	45	0.6	3.0	0.55	4.0	●
<b>2006 006 040</b>	0.6	0.3	45	0.6	4.0	0.55	4.0	●
<b>2006 006 050</b>	0.6	0.3	45	0.6	5.0	0.55	4.0	●
<b>2006 006 060</b>	0.6	0.3	45	0.6	6.0	0.55	4.0	●
<b>2006 006 080</b>	0.6	0.3	45	0.6	8.0	0.55	4.0	●
<b>2006 006 100</b>	0.6	0.3	45	0.6	10.0	0.55	4.0	●
<b>2008 008 020</b>	0.8	0.4	45	0.8	2.0	0.75	4.0	●
<b>2008 008 030</b>	0.8	0.4	45	0.8	3.0	0.75	4.0	●
<b>2008 008 040</b>	0.8	0.4	45	0.8	4.0	0.75	4.0	●
<b>2008 008 050</b>	0.8	0.4	45	0.8	5.0	0.75	4.0	●
<b>2008 008 060</b>	0.8	0.4	45	0.8	6.0	0.75	4.0	●
<b>2008 008 080</b>	0.8	0.4	45	0.8	8.0	0.75	4.0	●
<b>2008 008 100</b>	0.8	0.4	45	0.8	10.0	0.75	4.0	●
<b>2008 008 120</b>	0.8	0.4	45	0.8	12.0	0.75	4.0	●

●: Standard items

# HSB 2

## 2 flute long neck ball



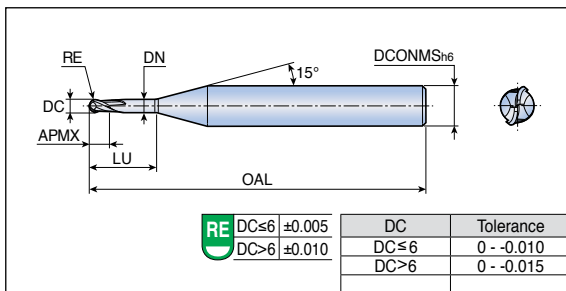
2	H-A 30°	P	M	K	N	S	H
		○		○			

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSB 2010 010 030</b>	1.0	0.5	50	1.0	3	0.97	4.0	●
<b>2010 010 040</b>	1.0	0.5	50	1.0	4	0.97	4.0	●
<b>2010 010 050</b>	1.0	0.5	50	1.0	5	0.97	4.0	●
<b>2010 010 060</b>	1.0	0.5	50	1.0	6	0.97	4.0	●
<b>2010 010 070</b>	1.0	0.5	50	1.0	7	0.97	4.0	●
<b>2010 010 080</b>	1.0	0.5	50	1.0	8	0.95	4.0	●
<b>2010 010 090</b>	1.0	0.5	50	1.0	9	0.95	4.0	●
<b>2010 010 100</b>	1.0	0.5	50	1.0	10	0.95	4.0	●
<b>2010 010 120</b>	1.0	0.5	50	1.0	12	0.93	4.0	●
<b>2010 010 140</b>	1.0	0.5	50	1.0	14	0.93	4.0	●
<b>2010 010 160</b>	1.0	0.5	50	1.0	16	0.93	4.0	●
<b>2010 010 180</b>	1.0	0.5	55	1.0	18	0.93	4.0	●
<b>2010 010 200</b>	1.0	0.5	55	1.0	20	0.93	4.0	●
<b>2012 012 040</b>	1.2	0.6	50	1.2	4	1.15	4.0	●
<b>2012 012 060</b>	1.2	0.6	50	1.2	6	1.15	4.0	●
<b>2012 012 080</b>	1.2	0.6	50	1.2	8	1.15	4.0	●
<b>2012 012 100</b>	1.2	0.6	50	1.2	10	1.15	4.0	●
<b>2012 012 120</b>	1.2	0.6	50	1.2	12	1.13	4.0	●
<b>2015 015 040</b>	1.5	0.75	50	1.5	4	1.45	4.0	●
<b>2015 015 060</b>	1.5	0.75	50	1.5	6	1.45	4.0	●
<b>2015 015 080</b>	1.5	0.75	50	1.5	8	1.45	4.0	●
<b>2015 015 100</b>	1.5	0.75	50	1.5	10	1.45	4.0	●
<b>2015 015 120</b>	1.5	0.75	50	1.5	12	1.43	4.0	●
<b>2015 015 140</b>	1.5	0.75	50	1.5	14	1.43	4.0	●
<b>2015 015 160</b>	1.5	0.75	50	1.5	16	1.41	4.0	●
<b>2015 015 180</b>	1.5	0.75	55	1.5	18	1.41	4.0	●
<b>2015 015 200</b>	1.5	0.75	55	1.5	20	1.39	4.0	●
<b>2020 030 060</b>	2.0	1.0	50	3.0	6	1.95	4.0	●
<b>2020 030 080</b>	2.0	1.0	50	3.0	8	1.95	4.0	●
<b>2020 030 100</b>	2.0	1.0	50	3.0	10	1.95	4.0	●
<b>2020 030 120</b>	2.0	1.0	50	3.0	12	1.93	4.0	●
<b>2020 030 140</b>	2.0	1.0	50	3.0	14	1.93	4.0	●
<b>2020 030 160</b>	2.0	1.0	50	3.0	16	1.93	4.0	●
<b>2020 030 180</b>	2.0	1.0	55	3.0	18	1.93	4.0	●
<b>2020 030 200</b>	2.0	1.0	55	3.0	20	1.93	4.0	●

●: Standard items

# HSB 2

## 2 flute long neck ball



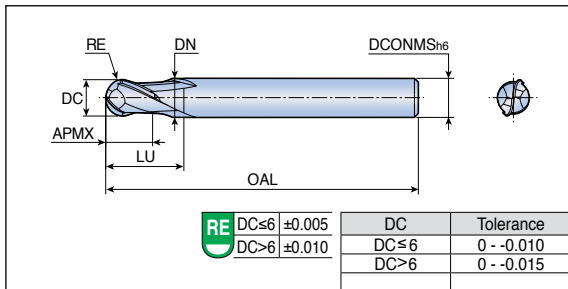
2	H-A 30°	P	M	K	N	S	H
		○	○	○			●

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
HSB 2020 030 250	2.0	1.0	60	3.0	25	1.93	4.0	●
2020 030 300	2.0	1.0	70	3.0	30	1.93	4.0	●
2025 035 080	2.5	1.25	55	3.5	8	2.45	4.0	●
2025 035 100	2.5	1.25	55	3.5	10	2.45	4.0	●
2025 035 120	2.5	1.25	55	3.5	12	2.43	4.0	●
2025 035 160	2.5	1.25	55	3.5	16	2.41	4.0	●
2025 035 200	2.5	1.25	55	3.5	20	2.41	4.0	●
2030 040 080	3.0	1.5	55	4.0	8	2.85	6.0	●
2030 040 100	3.0	1.5	55	4.0	10	2.85	6.0	●
2030 040 120	3.0	1.5	55	4.0	12	2.85	6.0	●
2030 040 140	3.0	1.5	55	4.0	14	2.85	6.0	●
2030 040 160	3.0	1.5	55	4.0	16	2.85	6.0	●
2030 040 180	3.0	1.5	60	4.0	18	2.85	6.0	●
2030 040 200	3.0	1.5	60	4.0	20	2.85	6.0	●
2030 040 250	3.0	1.5	60	4.0	25	2.85	6.0	●
2030 040 300	3.0	1.5	75	4.0	30	2.85	6.0	●
2030 040 350	3.0	1.5	75	4.0	35	2.85	6.0	●
2030 040 400	3.0	1.5	80	4.0	40	2.85	6.0	●
2040 050 100	4.0	2.0	55	5.0	10	3.9	6.0	●
2040 050 120	4.0	2.0	55	5.0	12	3.9	6.0	●
2040 050 160	4.0	2.0	55	5.0	16	3.9	6.0	●
2040 050 200	4.0	2.0	60	5.0	20	3.9	6.0	●
2040 050 250	4.0	2.0	60	5.0	25	3.9	6.0	●
2040 050 300	4.0	2.0	75	5.0	30	3.9	6.0	●
2040 050 350	4.0	2.0	75	5.0	35	3.9	6.0	●
2040 050 400	4.0	2.0	80	5.0	40	3.9	6.0	●
2050 060 120	5.0	2.5	70	6.0	12	4.9	6.0	●
2050 060 300	5.0	2.5	70	6.0	30	4.9	6.0	●

●: Standard items

# HSB 2

## 2 flute long neck ball



<b>RE</b>	DC ≤ 6	±0.005	DC	Tolerance
	DC > 6	±0.010		
				DC > 6

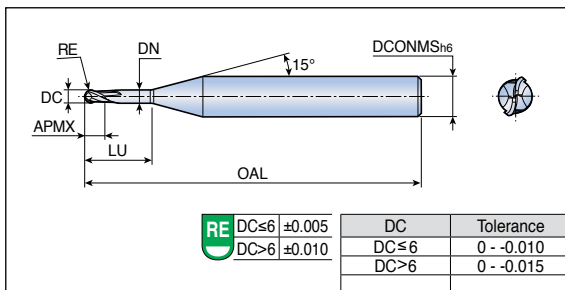
P	M	K	N	S	H
○		○			●

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSB 2060 080 150</b>	6.0	3	60	8	15	5.9	6.0	●
<b>2060 080 200</b>	6.0	3	60	8	20	5.9	6.0	●
<b>2060 080 300</b>	6.0	3	80	8	30	5.9	6.0	●
<b>2060 080 350</b>	6.0	3	80	8	35	5.9	6.0	●
<b>2080 100 150</b>	8.0	4	80	10	15	7.9	8.0	●
<b>2080 100 200</b>	8.0	4	80	10	20	7.9	8.0	●
<b>2080 100 300</b>	8.0	4	100	10	30	7.9	8.0	●
<b>2100 120 200</b>	10.0	5	80	12	20	9.9	10.0	●
<b>2100 120 250</b>	10.0	5	80	12	25	9.9	10.0	●
<b>2100 120 350</b>	10.0	5	100	12	35	9.9	10.0	●
<b>2120 140 250</b>	12.0	6	80	14	25	11.9	12.0	●
<b>2120 140 400</b>	12.0	6	110	14	40	11.9	12.0	●

●: Standard items

# HSB 2...S6

2 flute long neck ball (Shank 6mm)



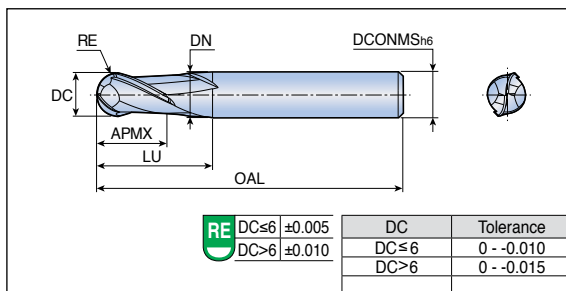
2	H-A 30°	P	M	K	N	S	H
		○	○				●

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSB 2006 006 020 S6</b>	0.6	0.3	45	0.6	2	0.55	6.0	●
<b>2006 006 040 S6</b>	0.6	0.3	45	0.6	4	0.55	6.0	●
<b>2006 006 060 S6</b>	0.6	0.3	45	0.6	6	0.55	6.0	●
<b>2008 008 020 S6</b>	0.8	0.4	45	0.8	2	0.75	6.0	●
<b>2008 008 040 S6</b>	0.8	0.4	45	0.8	4	0.75	6.0	●
<b>2008 008 060 S6</b>	0.8	0.4	45	0.8	6	0.75	6.0	●
<b>2008 008 080 S6</b>	0.8	0.4	45	0.8	8	0.75	6.0	●
<b>2010 010 030 S6</b>	1.0	0.5	50	1.0	3	0.95	6.0	●
<b>2010 010 040 S6</b>	1.0	0.5	50	1.0	4	0.95	6.0	●
<b>2010 010 060 S6</b>	1.0	0.5	50	1.0	6	0.95	6.0	●
<b>2010 010 080 S6</b>	1.0	0.5	50	1.0	8	0.95	6.0	●
<b>2010 010 100 S6</b>	1.0	0.5	50	1.0	10	0.95	6.0	●
<b>2015 015 040 S6</b>	1.5	0.75	50	1.5	4	1.45	6.0	●
<b>2015 015 060 S6</b>	1.5	0.75	50	1.5	6	1.45	6.0	●
<b>2015 015 080 S6</b>	1.5	0.75	50	1.5	8	1.45	6.0	●
<b>2015 015 100 S6</b>	1.5	0.75	50	1.5	10	1.45	6.0	●
<b>2015 015 120 S6</b>	1.5	0.75	50	1.5	12	1.45	6.0	●
<b>2020 030 060 S6</b>	2.0	1.0	50	3.0	6	1.95	6.0	●
<b>2020 030 080 S6</b>	2.0	1.0	50	3.0	8	1.95	6.0	●
<b>2020 030 100 S6</b>	2.0	1.0	50	3.0	10	1.95	6.0	●
<b>2020 030 120 S6</b>	2.0	1.0	50	3.0	12	1.95	6.0	●
<b>2020 030 160 S6</b>	2.0	1.0	50	3.0	16	1.95	6.0	●

●: Standard items

# HSB 2...S

2 flute short ball



2

H·A  
30°

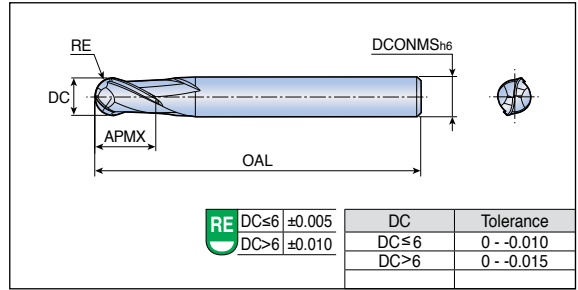
P	M	K	N	S	H

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	TT5505
<b>HSB 2010S 015 025</b>	1.0	0.5	38	1.5	2.5	0.95	6.0	●
<b>2015S 025 045</b>	1.5	0.75	38	2.5	4.5	1.45	6.0	●
<b>2020S 030 065</b>	2.0	1.0	38	3.0	6.5	1.95	6.0	●
<b>2030S 045 080</b>	3.0	1.5	38	4.5	8.0	2.9	6.0	●
<b>2040S 060 100</b>	4.0	2.0	54	6.0	10.0	3.9	6.0	●
<b>2050S 075 150</b>	5.0	2.5	54	7.5	15.0	4.9	6.0	●
<b>2060S 090 170</b>	6.0	3.0	54	9.0	17.0	5.9	6.0	●
<b>2080S 120 200</b>	8.0	4.0	58	12.0	20.0	7.9	8.0	●
<b>2100S 150 250</b>	10.0	5.0	66	15.0	25.0	9.9	10.0	●
<b>2120S 180 300</b>	12.0	6.0	73	18.0	30.0	11.9	12.0	●

●: Standard items

# HSB 2...M

2 flute medium ball



2	H-A 30°	P	M	K	N	S	H
○	○	○	○	○	○	○	●

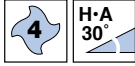
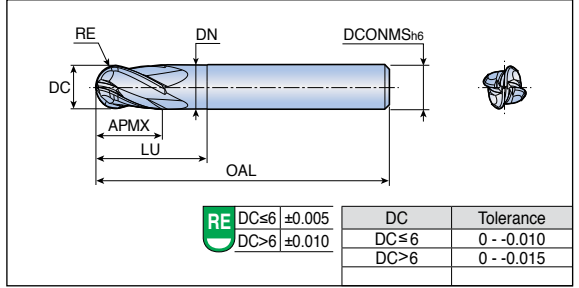
Designation	Dimension (mm)					Grade
	DC	RE	OAL	APMX	DCONMS	
<b>HSB 2003M 006</b>	0.3	0.15	45	0.6	4.0	●
<b>2004M 008</b>	0.4	0.2	45	0.8	4.0	●
<b>2005M 010</b>	0.5	0.25	45	1.0	4.0	●
<b>2006M 012</b>	0.6	0.3	45	1.2	4.0	●
<b>2007M 014</b>	0.7	0.35	45	1.4	4.0	●
<b>2008M 016</b>	0.8	0.4	45	1.6	4.0	●
<b>2009M 018</b>	0.9	0.45	45	1.8	4.0	●
<b>2010M 025</b>	1.0	0.5	50	2.5	6.0	●
<b>2015M 040</b>	1.5	0.75	50	4.0	6.0	●
<b>2020M 050</b>	2.0	1.0	50	5.0	6.0	●
<b>2025M 070</b>	2.5	1.25	60	7.0	6.0	●
<b>2030M 080</b>	3.0	1.5	60	8.0	6.0	●
<b>2035M 080</b>	3.5	1.75	70	8.0	6.0	●
<b>2040M 080</b>	4.0	2.0	70	8.0	6.0	●
<b>2045M 100</b>	4.5	2.25	80	10.0	6.0	●
<b>2050M 100</b>	5.0	2.5	80	10.0	6.0	●
<b>2060M 120</b>	6.0	3.0	80	12.0	6.0	●
<b>2080M 140</b>	8.0	4.0	90	14.0	8.0	●
<b>2100M 180</b>	10.0	5.0	100	18.0	10.0	●
<b>2120M 220</b>	12.0	6.0	110	22.0	12.0	●

●: Standard items



# HSB 4...M

## 4 flute medium ball



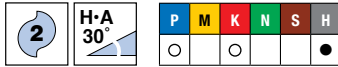
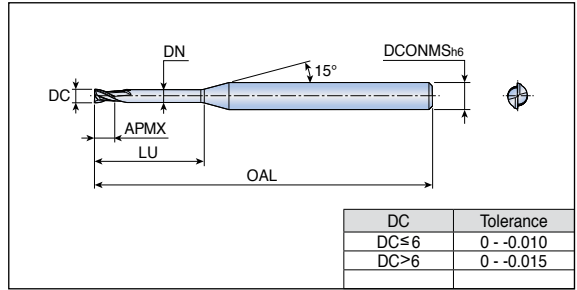
P	M	K	N	S	H
○	○	○	○	○	●

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSB 4040M 060 100</b>	4.0	2.0	70	6.0	10	3.9	6.0	●
<b>4050M 075 150</b>	5.0	2.5	80	7.5	15	4.9	6.0	●
<b>4060M 090 170</b>	6.0	3.0	80	9.0	17	5.9	6.0	●
<b>4080M 120 200</b>	8.0	4.0	90	12.0	20	7.9	8.0	●
<b>4100M 150 250</b>	10.0	5.0	100	15.0	25	9.9	10.0	●
<b>4120M 180 300</b>	12.0	6.0	110	18.0	30	11.9	12.0	●

●: Standard items

# HSF 2

## 2 flute long neck flat

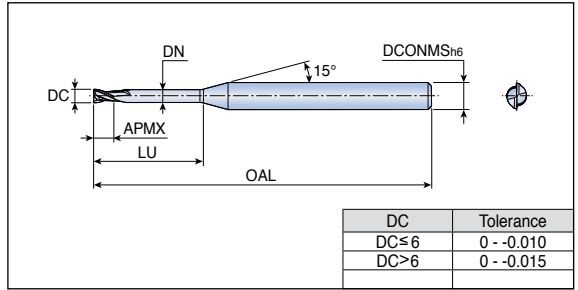


Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5505
		DC	OAL	APMX	LU	DN	DCONMS	
<b>HSF 2003 004 010</b>	0.006-0.010	0.3	45	0.4	1.0	0.27	4.0	●
<b>2003 004 015</b>	0.006-0.010	0.3	45	0.4	1.5	0.27	4.0	●
<b>2003 004 020</b>	0.006-0.010	0.3	45	0.4	2.0	0.27	4.0	●
<b>2003 004 025</b>	0.006-0.010	0.3	45	0.4	2.5	0.27	4.0	●
<b>2003 004 030</b>	0.006-0.010	0.3	45	0.4	3.0	0.27	4.0	●
<b>2003 004 040</b>	0.005-0.008	0.3	45	0.4	4.0	0.27	4.0	●
<b>2003 004 050</b>	0.005-0.008	0.3	45	0.4	5.0	0.27	4.0	●
<b>2004 006 010</b>	0.006-0.010	0.4	45	0.6	1.0	0.37	4.0	●
<b>2004 006 015</b>	0.006-0.010	0.4	45	0.6	1.5	0.37	4.0	●
<b>2004 006 020</b>	0.006-0.010	0.4	45	0.6	2.0	0.37	4.0	●
<b>2004 006 025</b>	0.006-0.010	0.4	45	0.6	2.5	0.37	4.0	●
<b>2004 006 030</b>	0.006-0.010	0.4	45	0.6	3.0	0.37	4.0	●
<b>2004 006 040</b>	0.006-0.010	0.4	45	0.6	4.0	0.37	4.0	●
<b>2004 006 050</b>	0.005-0.008	0.4	45	0.6	5.0	0.37	4.0	●
<b>2004 006 060</b>	0.005-0.008	0.4	45	0.6	6.0	0.37	4.0	●
<b>2005 007 010</b>	0.006-0.010	0.5	45	0.7	1.0	0.45	4.0	●
<b>2005 007 015</b>	0.006-0.010	0.5	45	0.7	1.5	0.45	4.0	●
<b>2005 007 020</b>	0.006-0.010	0.5	45	0.7	2.0	0.45	4.0	●
<b>2005 007 025</b>	0.006-0.009	0.5	45	0.7	2.5	0.45	4.0	●
<b>2005 007 030</b>	0.006-0.009	0.5	45	0.7	3.0	0.45	4.0	●
<b>2005 007 040</b>	0.006-0.008	0.5	45	0.7	4.0	0.45	4.0	●
<b>2005 007 050</b>	0.006-0.008	0.5	45	0.7	5.0	0.45	4.0	●
<b>2005 007 060</b>	0.005-0.007	0.5	45	0.7	6.0	0.45	4.0	●
<b>2005 007 080</b>	0.005-0.007	0.5	45	0.7	8.0	0.45	4.0	●
<b>2006 009 020</b>	0.008-0.013	0.6	45	0.9	2.0	0.55	4.0	●
<b>2006 009 030</b>	0.008-0.013	0.6	45	0.9	3.0	0.55	4.0	●
<b>2006 009 040</b>	0.008-0.013	0.6	45	0.9	4.0	0.55	4.0	●
<b>2006 009 050</b>	0.008-0.013	0.6	45	0.9	5.0	0.55	4.0	●
<b>2006 009 060</b>	0.008-0.013	0.6	45	0.9	6.0	0.55	4.0	●
<b>2006 009 080</b>	0.006-0.010	0.6	45	0.9	8.0	0.55	4.0	●
<b>2006 009 100</b>	0.006-0.010	0.6	45	0.9	10.0	0.55	4.0	●
<b>2007 012 020</b>	0.008-0.013	0.7	45	1.2	2.0	0.65	4.0	●
<b>2007 012 040</b>	0.008-0.013	0.7	45	1.2	4.0	0.65	4.0	●
<b>2007 012 060</b>	0.008-0.013	0.7	45	1.2	6.0	0.65	4.0	●
<b>2007 012 080</b>	0.008-0.013	0.7	45	1.2	8.0	0.65	4.0	●
<b>2007 012 100</b>	0.006-0.010	0.7	45	1.2	10.0	0.65	4.0	●

●: Standard items

# HSF 2

## 2 flute long neck flat

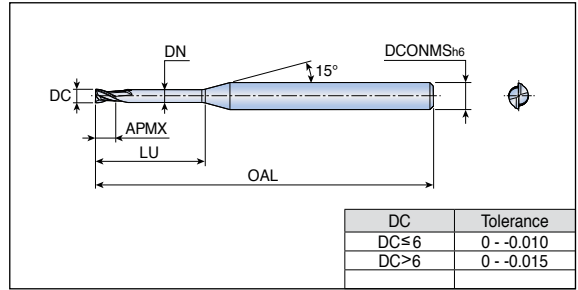


Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5505
		DC	OAL	APMX	LU	DN	DCONMS	
<b>HSF 2007 012 120</b>	0.006-0.010	0.7	45	1.2	12.0	0.65	4.0	●
<b>2008 012 020</b>	0.007-0.015	0.8	45	1.2	2.0	0.75	4.0	●
<b>2008 012 030</b>	0.007-0.015	0.8	45	1.2	3.0	0.75	4.0	●
<b>2008 012 040</b>	0.007-0.015	0.8	45	1.2	4.0	0.75	4.0	●
<b>2008 012 050</b>	0.007-0.015	0.8	45	1.2	5.0	0.75	4.0	●
<b>2008 012 060</b>	0.007-0.015	0.8	45	1.2	6.0	0.75	4.0	●
<b>2008 012 080</b>	0.007-0.013	0.8	45	1.2	8.0	0.73	4.0	●
<b>2008 012 100</b>	0.007-0.012	0.8	45	1.2	10.0	0.73	4.0	●
<b>2008 012 120</b>	0.007-0.012	0.8	45	1.2	12.0	0.73	4.0	●
<b>2010 015 030</b>	0.009-0.020	1.0	50	1.5	3.0	0.97	4.0	●
<b>2010 015 040</b>	0.009-0.020	1.0	50	1.5	4.0	0.97	4.0	●
<b>2010 015 050</b>	0.009-0.018	1.0	50	1.5	5.0	0.97	4.0	●
<b>2010 015 060</b>	0.009-0.018	1.0	50	1.5	6.0	0.97	4.0	●
<b>2010 015 070</b>	0.009-0.018	1.0	50	1.5	7.0	0.97	4.0	●
<b>2010 015 080</b>	0.009-0.018	1.0	50	1.5	8.0	0.95	4.0	●
<b>2010 015 100</b>	0.009-0.016	1.0	50	1.5	10.0	0.95	4.0	●
<b>2010 015 120</b>	0.008-0.014	1.0	50	1.5	12.0	0.93	4.0	●
<b>2010 015 140</b>	0.008-0.014	1.0	50	1.5	14.0	0.93	4.0	●
<b>2010 015 160</b>	0.008-0.014	1.0	50	1.5	16.0	0.91	4.0	●
<b>2010 015 180</b>	0.008-0.012	1.0	55	1.5	18.0	0.91	4.0	●
<b>2010 015 200</b>	0.008-0.012	1.0	55	1.5	20.0	0.85	4.0	●
<b>2012 018 040</b>	0.010-0.020	1.2	50	1.8	4.0	1.17	4.0	●
<b>2012 018 060</b>	0.010-0.020	1.2	50	1.8	6.0	1.17	4.0	●
<b>2012 018 080</b>	0.010-0.020	1.2	50	1.8	8.0	1.15	4.0	●
<b>2012 018 100</b>	0.010-0.019	1.2	50	1.8	10.0	1.15	4.0	●
<b>2012 018 120</b>	0.010-0.018	1.2	50	1.8	12.0	1.15	4.0	●
<b>2012 018 160</b>	0.010-0.018	1.2	50	1.8	16.0	1.13	4.0	●
<b>2015 023 040</b>	0.015-0.025	1.5	50	2.3	4.0	1.47	4.0	●
<b>2015 023 060</b>	0.015-0.025	1.5	50	2.3	6.0	1.47	4.0	●
<b>2015 023 080</b>	0.015-0.025	1.5	50	2.3	8.0	1.45	4.0	●
<b>2015 023 100</b>	0.015-0.025	1.5	50	2.3	10.0	1.45	4.0	●
<b>2015 023 120</b>	0.013-0.025	1.5	50	2.3	12.0	1.43	4.0	●
<b>2015 023 140</b>	0.013-0.025	1.5	50	2.3	14.0	1.43	4.0	●
<b>2015 023 160</b>	0.011-0.015	1.5	50	2.3	16.0	1.41	4.0	●
<b>2015 023 180</b>	0.011-0.015	1.5	55	2.3	18.0	1.41	4.0	●
<b>2015 023 200</b>	0.011-0.015	1.5	55	2.3	20.0	1.41	4.0	●

●: Standard items

# HSF 2

## 2 flute long neck flat

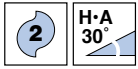
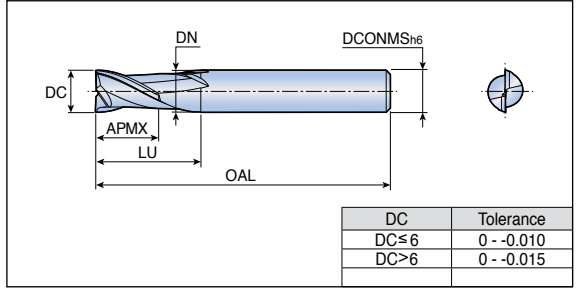


Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	OAL	APMX	LU	DN	DCONMS	
<b>HSF 2020 030 040</b>	0.018-0.040	2.0	50	3.0	4	1.95	4.0	●
<b>2020 030 060</b>	0.018-0.040	2.0	50	3.0	6	1.95	4.0	●
<b>2020 030 080</b>	0.018-0.040	2.0	50	3.0	8	1.95	4.0	●
<b>2020 030 100</b>	0.018-0.040	2.0	50	3.0	10	1.95	4.0	●
<b>2020 030 120</b>	0.016-0.025	2.0	50	3.0	12	1.93	4.0	●
<b>2020 030 140</b>	0.016-0.025	2.0	50	3.0	14	1.93	4.0	●
<b>2020 030 160</b>	0.015-0.022	2.0	50	3.0	16	1.91	4.0	●
<b>2020 030 180</b>	0.015-0.022	2.0	55	3.0	18	1.91	4.0	●
<b>2020 030 200</b>	0.013-0.019	2.0	55	3.0	20	1.91	4.0	●
<b>2020 030 250</b>	0.013-0.019	2.0	60	3.0	25	1.91	4.0	●
<b>2020 030 300</b>	0.010-0.015	2.0	70	3.0	30	1.91	4.0	●
<b>2025 040 080</b>	0.019-0.045	2.5	50	4.0	8	2.4	4.0	●
<b>2025 040 100</b>	0.019-0.045	2.5	50	4.0	10	2.4	4.0	●
<b>2025 040 120</b>	0.017-0.040	2.5	50	4.0	12	2.4	4.0	●
<b>2025 040 160</b>	0.015-0.030	2.5	50	4.0	16	2.4	4.0	●
<b>2025 040 200</b>	0.013-0.020	2.5	55	4.0	20	2.4	4.0	●
<b>2030 045 080</b>	0.021-0.060	3.0	55	4.5	8	2.85	6.0	●
<b>2030 045 100</b>	0.021-0.060	3.0	55	4.5	10	2.85	6.0	●
<b>2030 045 120</b>	0.018-0.050	3.0	55	4.5	12	2.85	6.0	●
<b>2030 045 140</b>	0.018-0.045	3.0	55	4.5	14	2.85	6.0	●
<b>2030 045 160</b>	0.018-0.045	3.0	55	4.5	16	2.85	6.0	●
<b>2030 045 180</b>	0.015-0.040	3.0	60	4.5	18	2.85	6.0	●
<b>2030 045 200</b>	0.015-0.040	3.0	60	4.5	20	2.85	6.0	●
<b>2030 045 250</b>	0.015-0.040	3.0	60	4.5	25	2.85	6.0	●
<b>2030 045 300</b>	0.015-0.038	3.0	70	4.5	30	2.85	6.0	●
<b>2030 045 350</b>	0.015-0.038	3.0	75	4.5	35	2.85	6.0	●
<b>2030 045 400</b>	0.015-0.030	3.0	80	4.5	40	2.85	6.0	●
<b>2040 060 100</b>	0.030-0.075	4.0	55	6.0	10	3.9	6.0	●
<b>2040 060 120</b>	0.030-0.075	4.0	55	6.0	12	3.9	6.0	●
<b>2040 060 160</b>	0.030-0.075	4.0	55	6.0	16	3.9	6.0	●
<b>2040 060 200</b>	0.030-0.070	4.0	60	6.0	20	3.9	6.0	●
<b>2040 060 250</b>	0.030-0.070	4.0	60	6.0	25	3.9	6.0	●
<b>2040 060 300</b>	0.030-0.070	4.0	70	6.0	30	3.9	6.0	●
<b>2040 060 350</b>	0.030-0.068	4.0	75	6.0	35	3.9	6.0	●
<b>2040 060 400</b>	0.030-0.068	4.0	80	6.0	40	3.9	6.0	●

●: Standard items

# HSF 2

## 2 flute long neck flat



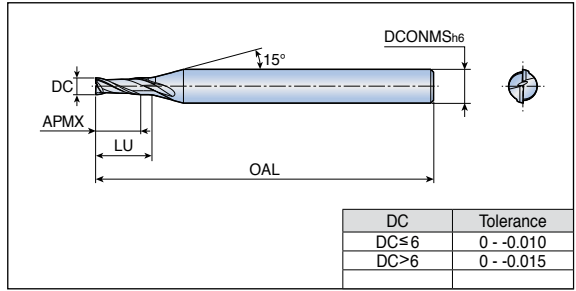
P	M	K	N	S	H
○			○		●

Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5505
		DC	OAL	APMX	LU	DN	DCONMS	
<b>HSF 2050 080 150</b>	0.056-0.090	5.0	60	8	15	4.8	6.0	●
<b>2050 080 300</b>	0.056-0.090	5.0	90	8	30	4.8	6.0	●
<b>2060 090 150</b>	0.067-0.100	6.0	60	9	15	5.9	6.0	●
<b>2060 090 200</b>	0.067-0.100	6.0	80	9	20	5.9	6.0	●
<b>2060 090 300</b>	0.067-0.100	6.0	90	9	30	5.9	6.0	●
<b>2080 120 200</b>	0.090-0.120	8.0	65	12	20	7.9	8.0	●
<b>2080 120 300</b>	0.090-0.120	8.0	80	12	30	7.9	8.0	●
<b>2080 120 400</b>	0.090-0.120	8.0	100	12	40	7.9	8.0	●
<b>2100 150 250</b>	0.117-0.130	10.0	70	15	25	9.9	10.0	●
<b>2100 150 350</b>	0.117-0.130	10.0	85	15	35	9.9	10.0	●
<b>2100 150 450</b>	0.117-0.130	10.0	100	15	45	9.9	10.0	●
<b>2120 180 300</b>	0.126-0.168	12.0	80	18	30	11.9	12.0	●
<b>2120 180 400</b>	0.126-0.168	12.0	100	18	40	11.9	12.0	●
<b>2120 180 500</b>	0.126-0.168	12.0	120	18	50	11.9	12.0	●

●: Standard items

# HSF 2...M

2 flute medium flat

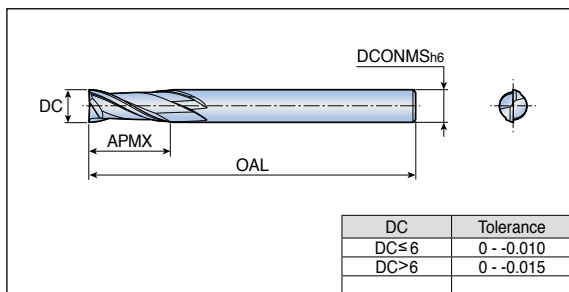


Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	OAL	APMX	LU	DCONMS	TT5505
<b>HSF 2003M 003</b>	0.006-0.010	0.3	45	0.3	0.6	4.0	●
<b>2003M 006</b>	0.006-0.010	0.3	45	0.6	0.9	4.0	●
<b>2004M 004</b>	0.006-0.010	0.4	45	0.4	0.7	4.0	●
<b>2004M 008</b>	0.006-0.010	0.4	45	0.8	1.1	4.0	●
<b>2005M 005</b>	0.006-0.010	0.5	45	0.5	0.8	4.0	●
<b>2005M 010</b>	0.006-0.010	0.5	45	1.0	1.3	4.0	●
<b>2006M 006</b>	0.008-0.013	0.6	45	0.6	0.9	4.0	●
<b>2006M 012</b>	0.008-0.013	0.6	45	1.2	1.5	4.0	●
<b>2008M 008</b>	0.007-0.015	0.8	45	0.8	1.2	4.0	●
<b>2008M 016</b>	0.007-0.015	0.8	45	1.6	2	4.0	●
<b>2010M 025</b>	0.009-0.020	1.0	50	2.5	4	6.0	●
<b>2012M 030</b>	0.010-0.020	1.2	50	3.0	5	6.0	●
<b>2015M 040</b>	0.015-0.025	1.5	50	4.0	6	6.0	●
<b>2020M 060</b>	0.018-0.040	2.0	50	6.0	8	6.0	●
<b>2025M 070</b>	0.019-0.045	2.5	50	7.0	9	6.0	●
<b>2030M 080</b>	0.021-0.060	3.0	60	8.0	10	6.0	●
<b>2040M 100</b>	0.030-0.075	4.0	60	10.0	13	6.0	●
<b>2050M 130</b>	0.056-0.090	5.0	60	13.0	16	6.0	●

●: Standard items

# HSF 2...M

2 flute medium flat



H·A  
30°

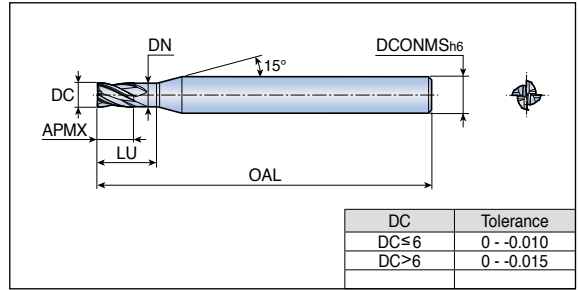
P	M	K	N	S	H
○		○			●

Designation	Feed (mm/tooth)	Dimension (mm)				Grade TT5505
		DC	OAL	APMX	DCONMS	
<b>HSF 2060M 150</b>	0.067-0.100	6.0	60	15.0	6.0	●
<b>2080M 200</b>	0.090-0.120	8.0	65	20.0	8.0	●
<b>2100M 250</b>	0.117-0.130	10.0	70	25.0	10.0	●
<b>2120M 300</b>	0.126-0.168	12.0	80	30.0	12.0	●

●: Standard items

# HSF 4

## 4 flute long neck flat



P	M	K	N	S	H
○		○			●

Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5505
		DC	OAL	APMX	LU	DN	DCONMS	
<b>HSF 4010 015 030</b>	0.009-0.020	1.0	50	1.5	3	0.97	4.0	●
<b>4010 015 040</b>	0.009-0.020	1.0	50	1.5	4	0.97	4.0	●
<b>4010 015 060</b>	0.009-0.018	1.0	50	1.5	6	0.97	4.0	●
<b>4010 015 080</b>	0.009-0.018	1.0	50	1.5	8	0.97	4.0	●
<b>4010 015 100</b>	0.009-0.016	1.0	50	1.5	10	0.97	4.0	●
<b>4015 025 040</b>	0.015-0.025	1.5	50	2.5	4	1.45	4.0	●
<b>4015 025 060</b>	0.015-0.025	1.5	50	2.5	6	1.45	4.0	●
<b>4015 025 080</b>	0.015-0.025	1.5	50	2.5	8	1.45	4.0	●
<b>4015 025 100</b>	0.015-0.025	1.5	50	2.5	10	1.45	4.0	●
<b>4015 025 120</b>	0.013-0.025	1.5	50	2.5	12	1.45	4.0	●
<b>4015 025 160</b>	0.011-0.015	1.5	50	2.5	16	1.45	4.0	●
<b>4020 030 060</b>	0.018-0.040	2.0	50	3.0	6	1.95	4.0	●
<b>4020 030 080</b>	0.018-0.040	2.0	50	3.0	8	1.95	4.0	●
<b>4020 030 100</b>	0.018-0.040	2.0	50	3.0	10	1.95	4.0	●
<b>4020 030 120</b>	0.016-0.025	2.0	50	3.0	12	1.95	4.0	●
<b>4020 030 160</b>	0.015-0.022	2.0	50	3.0	16	1.95	4.0	●
<b>4020 030 200</b>	0.013-0.019	2.0	50	3.0	20	1.95	4.0	●
<b>4030 045 080</b>	0.021-0.060	3.0	55	4.5	8	2.85	6.0	●
<b>4030 045 100</b>	0.021-0.060	3.0	55	4.5	10	2.85	6.0	●
<b>4030 045 120</b>	0.018-0.050	3.0	55	4.5	12	2.85	6.0	●
<b>4030 045 160</b>	0.018-0.045	3.0	55	4.5	16	2.85	6.0	●
<b>4030 045 200</b>	0.015-0.040	3.0	60	4.5	20	2.85	6.0	●
<b>4040 060 100</b>	0.030-0.075	4.0	55	6.0	10	3.90	6.0	●
<b>4040 060 120</b>	0.030-0.075	4.0	55	6.0	12	3.90	6.0	●
<b>4040 060 160</b>	0.030-0.075	4.0	55	6.0	16	3.90	6.0	●
<b>4040 060 200</b>	0.030-0.070	4.0	60	6.0	20	3.90	6.0	●
<b>4040 060 250</b>	0.030-0.070	4.0	60	6.0	25	3.90	6.0	●
<b>4050 080 150</b>	0.056-0.090	5.0	60	8.0	15	4.80	6.0	●
<b>4050 080 300</b>	0.056-0.090	5.0	90	8.0	30	4.80	6.0	●

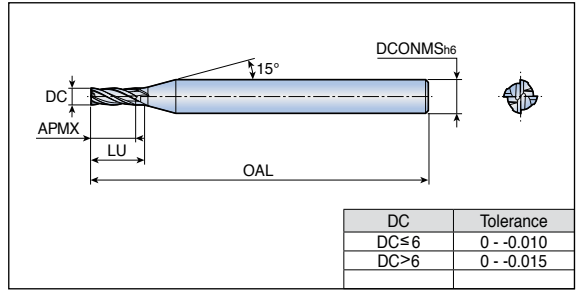
●: Standard items





# HSF 4...M

4 flute medium flat

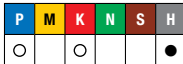
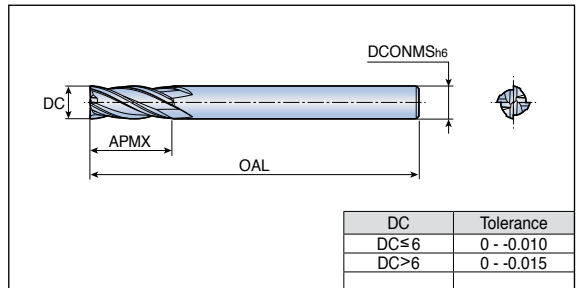


Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	OAL	APMX	LU	DCONMS	
<b>HSF 4010M 025</b>	0.009-0.020	1.0	50	2.5	3	6.0	●
<b>4012M 030</b>	0.010-0.020	1.2	50	3.0	4	6.0	●
<b>4015M 040</b>	0.015-0.025	1.5	50	4.0	5	6.0	●
<b>4020M 060</b>	0.018-0.040	2.0	50	6.0	7	6.0	●
<b>4025M 070</b>	0.019-0.045	2.5	50	7.0	8.5	6.0	●
<b>4030M 080</b>	0.021-0.060	3.0	60	8.0	9.5	6.0	●
<b>4035M 090</b>	0.026-0.068	3.5	60	9.0	11	6.0	●
<b>4040M 100</b>	0.030-0.075	4.0	60	10.0	12	6.0	●
<b>4050M 130</b>	0.056-0.090	5.0	60	13.0	15.5	6.0	●
<b>4070M 180</b>	0.079-0.110	7.0	65	18.0	22	8.0	●
<b>4090M 220</b>	0.104-0.125	9.0	70	22.0	25	10.0	●
<b>4110M 280</b>	0.122-0.149	11.0	80	28.0	33	12.0	●

●: Standard items

# HSF 4...M

4 flute medium flat



Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	
<b>HSF 4060M 150</b>	0.067-0.100	6.0	60	15.0	6.0	●
<b>4080M 200</b>	0.090-0.120	8.0	65	20.0	8.0	●
<b>4100M 250</b>	0.117-0.130	10.0	70	25.0	10.0	●
<b>4120M 300</b>	0.126-0.168	12.0	80	30.0	12.0	●

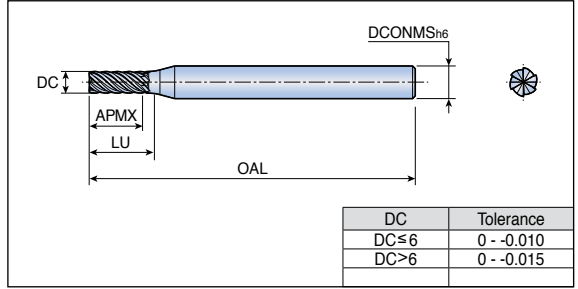
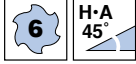
●: Standard items

# HSF 6...M

6 flute medium flat



• Finishing



Designation	Feed (mm/tooth)	Dimension (mm)					Grade TT5505
		DC	OAL	APMX	LU	DCONMS	
<b>HSF 6030M 080</b>	0.010-0.030	3.0	50	8	10	6.0	●
<b>6040M 100</b>	0.010-0.050	4.0	60	10	12	6.0	●
<b>6050M 150</b>	0.020-0.050	5.0	60	15	17	6.0	●
<b>6060M 150</b>	0.038-0.050	6.0	60	15	-	6.0	●
<b>6080M 200</b>	0.045-0.060	8.0	65	20	-	8.0	●
<b>6100M 220</b>	0.045-0.060	10.0	70	22	-	10.0	●
<b>6120M 260</b>	0.053-0.070	12.0	80	26	-	12.0	●

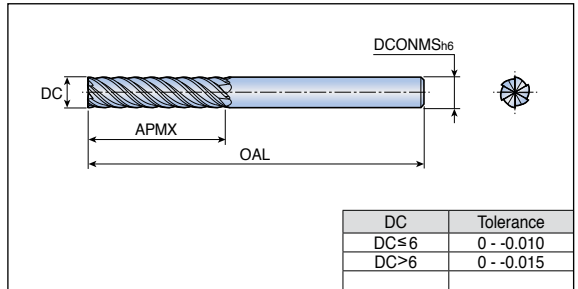
●: Standard items

# HSF 6...XLT

6 flute extra long flat



• Finishing

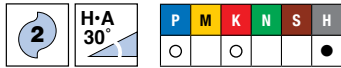
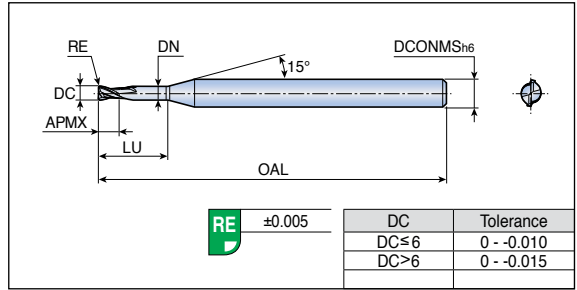


Designation	Feed (mm/tooth)	Dimension (mm)				Grade TT5505
		DC	OAL	APMX	DCONMS	
<b>HSF 6050XLT 250</b>	0.03-0.05	5.0	80	25	6.0	●
<b>6060XLT 250</b>	0.03-0.05	6.0	80	25	6.0	●
<b>6080XLT 350</b>	0.04-0.06	8.0	90	35	8.0	●
<b>6100XLT 450</b>	0.04-0.06	10.0	100	45	10.0	●
<b>6120XLT 550</b>	0.05-0.07	12.0	110	55	12.0	●

●: Standard items

# HSR 2

## 2 flute long neck corner radius

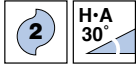
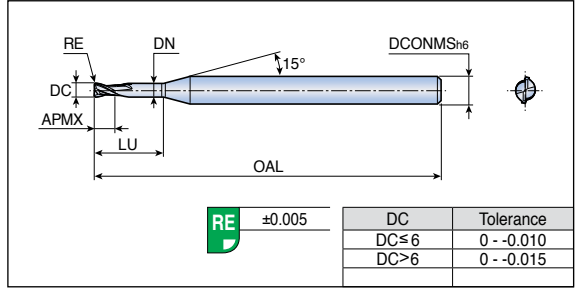


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2003 005 010</b>	0.006-0.010	0.3	0.05	45	0.4	1.0	0.27	4.0	●
<b>2003 005 020</b>	0.006-0.010	0.3	0.05	45	0.4	2.0	0.27	4.0	●
<b>2003 005 030</b>	0.006-0.010	0.3	0.05	45	0.4	3.0	0.27	4.0	●
<b>2004 005 010</b>	0.006-0.010	0.4	0.05	45	0.6	1.0	0.37	4.0	●
<b>2004 005 015</b>	0.006-0.010	0.4	0.05	45	0.6	1.5	0.37	4.0	●
<b>2004 005 025</b>	0.006-0.010	0.4	0.05	45	0.6	2.5	0.37	4.0	●
<b>2004 005 030</b>	0.006-0.010	0.4	0.05	45	0.6	3.0	0.37	4.0	●
<b>2004 005 040</b>	0.006-0.010	0.4	0.05	45	0.6	4.0	0.37	4.0	●
<b>2005 005 010</b>	0.006-0.010	0.5	0.05	45	0.7	1.0	0.45	4.0	●
<b>2005 005 015</b>	0.006-0.010	0.5	0.05	45	0.7	1.5	0.45	4.0	●
<b>2005 005 025</b>	0.006-0.009	0.5	0.05	45	0.7	2.5	0.45	4.0	●
<b>2005 005 030</b>	0.006-0.009	0.5	0.05	45	0.7	3.0	0.45	4.0	●
<b>2005 005 040</b>	0.006-0.008	0.5	0.05	45	0.7	4.0	0.45	4.0	●
<b>2006 005 020</b>	0.008-0.013	0.6	0.05	45	0.9	2.0	0.55	4.0	●
<b>2006 005 040</b>	0.008-0.013	0.6	0.05	45	0.9	4.0	0.55	4.0	●
<b>2006 005 060</b>	0.008-0.013	0.6	0.05	45	0.9	6.0	0.55	4.0	●
<b>2006 010 020</b>	0.008-0.013	0.6	0.10	45	0.9	2.0	0.55	4.0	●
<b>2006 010 040</b>	0.008-0.013	0.6	0.10	45	0.9	4.0	0.55	4.0	●
<b>2006 010 060</b>	0.008-0.013	0.6	0.10	45	0.9	6.0	0.55	4.0	●
<b>2006 020 020</b>	0.008-0.013	0.6	0.20	45	0.9	2.0	0.55	4.0	●
<b>2006 020 040</b>	0.008-0.013	0.6	0.20	45	0.9	4.0	0.55	4.0	●
<b>2006 020 060</b>	0.008-0.013	0.6	0.20	45	0.9	6.0	0.55	4.0	●
<b>2008 005 020</b>	0.007-0.015	0.8	0.05	45	1.2	2.0	0.75	4.0	●
<b>2008 005 040</b>	0.007-0.015	0.8	0.05	45	1.2	4.0	0.75	4.0	●
<b>2008 005 060</b>	0.007-0.015	0.8	0.05	45	1.2	6.0	0.75	4.0	●
<b>2008 005 080</b>	0.007-0.013	0.8	0.05	45	1.2	8.0	0.73	4.0	●
<b>2008 010 020</b>	0.007-0.015	0.8	0.10	45	1.2	2.0	0.75	4.0	●
<b>2008 010 040</b>	0.007-0.015	0.8	0.10	45	1.2	4.0	0.75	4.0	●
<b>2008 010 060</b>	0.007-0.015	0.8	0.10	45	1.2	6.0	0.75	4.0	●
<b>2008 010 080</b>	0.007-0.013	0.8	0.10	45	1.2	8.0	0.73	4.0	●
<b>2008 020 020</b>	0.007-0.015	0.8	0.20	45	1.2	2.0	0.75	4.0	●
<b>2008 020 040</b>	0.007-0.015	0.8	0.20	45	1.2	4.0	0.75	4.0	●
<b>2008 020 060</b>	0.007-0.015	0.8	0.20	45	1.2	6.0	0.75	4.0	●
<b>2008 020 080</b>	0.007-0.013	0.8	0.20	45	1.2	8.0	0.73	4.0	●

●: Standard items

# HSR 2

## 2 flute long neck corner radius

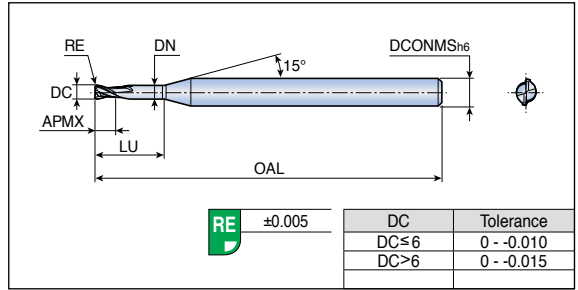


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2010 005 030</b>	0.009-0.020	1.0	0.05	50	2.0	3	0.97	4.0	●
<b>2010 005 040</b>	0.009-0.020	1.0	0.05	50	2.0	4	0.97	4.0	●
<b>2010 005 060</b>	0.009-0.018	1.0	0.05	50	2.0	6	0.97	4.0	●
<b>2010 005 080</b>	0.009-0.018	1.0	0.05	50	2.0	8	0.95	4.0	●
<b>2010 005 100</b>	0.009-0.016	1.0	0.05	50	2.0	10	0.95	4.0	●
<b>2010 010 030</b>	0.009-0.020	1.0	0.10	50	2.0	3	0.97	4.0	●
<b>2010 010 040</b>	0.009-0.020	1.0	0.10	50	2.0	4	0.97	4.0	●
<b>2010 010 060</b>	0.009-0.018	1.0	0.10	50	2.0	6	0.97	4.0	●
<b>2010 010 080</b>	0.009-0.018	1.0	0.10	50	2.0	8	0.95	4.0	●
<b>2010 010 100</b>	0.009-0.016	1.0	0.10	50	2.0	10	0.95	4.0	●
<b>2010 020 030</b>	0.009-0.020	1.0	0.20	50	2.0	3	0.97	4.0	●
<b>2010 020 040</b>	0.009-0.020	1.0	0.20	50	2.0	4	0.97	4.0	●
<b>2010 020 060</b>	0.009-0.018	1.0	0.20	50	2.0	6	0.97	4.0	●
<b>2010 020 080</b>	0.009-0.018	1.0	0.20	50	2.0	8	0.95	4.0	●
<b>2010 020 100</b>	0.009-0.016	1.0	0.20	50	2.0	10	0.95	4.0	●
<b>2010 030 030</b>	0.009-0.020	1.0	0.30	50	2.0	3	0.97	4.0	●
<b>2010 030 040</b>	0.009-0.020	1.0	0.30	50	2.0	4	0.97	4.0	●
<b>2010 030 060</b>	0.009-0.018	1.0	0.30	50	2.0	6	0.97	4.0	●
<b>2010 030 080</b>	0.009-0.018	1.0	0.30	50	2.0	8	0.95	4.0	●
<b>2010 030 100</b>	0.009-0.016	1.0	0.30	50	2.0	10	0.95	4.0	●
<b>2012 010 040</b>	0.010-0.020	1.2	0.10	50	2.2	4	1.17	4.0	●
<b>2012 010 060</b>	0.010-0.020	1.2	0.10	50	2.2	6	1.17	4.0	●
<b>2012 010 080</b>	0.010-0.020	1.2	0.10	50	2.2	8	1.15	4.0	●
<b>2012 010 100</b>	0.010-0.019	1.2	0.10	50	2.2	10	1.15	4.0	●
<b>2012 020 040</b>	0.010-0.020	1.2	0.20	50	2.2	4	1.17	4.0	●
<b>2012 020 060</b>	0.010-0.020	1.2	0.20	50	2.2	6	1.17	4.0	●
<b>2012 020 080</b>	0.010-0.020	1.2	0.20	50	2.2	8	1.15	4.0	●
<b>2012 020 100</b>	0.010-0.019	1.2	0.20	50	2.2	10	1.15	4.0	●
<b>2012 030 040</b>	0.010-0.020	1.2	0.30	50	2.2	4	1.17	4.0	●
<b>2012 030 060</b>	0.010-0.020	1.2	0.30	50	2.2	6	1.17	4.0	●
<b>2012 030 080</b>	0.010-0.020	1.2	0.30	50	2.2	8	1.15	4.0	●
<b>2012 030 100</b>	0.010-0.019	1.2	0.30	50	2.2	10	1.15	4.0	●

●: Standard items

# HSR 2

## 2 flute long neck corner radius

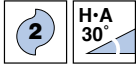
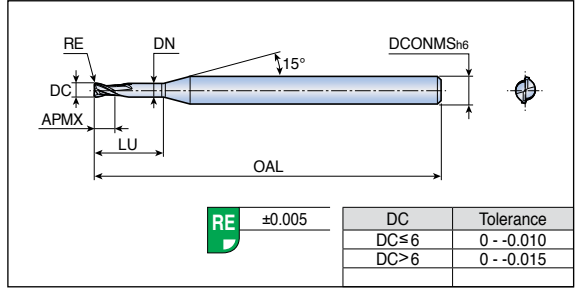


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2015 005 060</b>	0.015-0.025	1.5	0.05	50	2.5	6	1.47	4.0	●
<b>2015 005 080</b>	0.015-0.025	1.5	0.05	50	2.5	8	1.45	4.0	●
<b>2015 005 100</b>	0.015-0.025	1.5	0.05	50	2.5	10	1.45	4.0	●
<b>2015 005 120</b>	0.013-0.025	1.5	0.05	50	2.5	12	1.43	4.0	●
<b>2015 010 040</b>	0.015-0.025	1.5	0.10	50	2.5	4	1.47	4.0	●
<b>2015 010 060</b>	0.015-0.025	1.5	0.10	50	2.5	6	1.47	4.0	●
<b>2015 010 080</b>	0.015-0.025	1.5	0.10	50	2.5	8	1.45	4.0	●
<b>2015 010 100</b>	0.015-0.025	1.5	0.10	50	2.5	10	1.45	4.0	●
<b>2015 010 120</b>	0.013-0.025	1.5	0.10	50	2.5	12	1.43	4.0	●
<b>2015 020 040</b>	0.015-0.025	1.5	0.20	50	2.5	4	1.47	4.0	●
<b>2015 020 060</b>	0.015-0.025	1.5	0.20	50	2.5	6	1.47	4.0	●
<b>2015 020 080</b>	0.015-0.025	1.5	0.20	50	2.5	8	1.45	4.0	●
<b>2015 020 100</b>	0.015-0.025	1.5	0.20	50	2.5	10	1.45	4.0	●
<b>2015 020 120</b>	0.013-0.025	1.5	0.20	50	2.5	12	1.43	4.0	●
<b>2015 030 040</b>	0.015-0.025	1.5	0.30	50	2.5	4	1.47	4.0	●
<b>2015 030 060</b>	0.015-0.025	1.5	0.30	50	2.5	6	1.47	4.0	●
<b>2015 030 080</b>	0.015-0.025	1.5	0.30	50	2.5	8	1.45	4.0	●
<b>2015 030 100</b>	0.015-0.025	1.5	0.30	50	2.5	10	1.45	4.0	●
<b>2015 030 120</b>	0.013-0.025	1.5	0.30	50	2.5	12	1.43	4.0	●
<b>2015 050 040</b>	0.015-0.025	1.5	0.50	50	2.5	4	1.47	4.0	●
<b>2015 050 060</b>	0.015-0.025	1.5	0.50	50	2.5	6	1.47	4.0	●
<b>2015 050 080</b>	0.015-0.025	1.5	0.50	50	2.5	8	1.45	4.0	●
<b>2015 050 100</b>	0.015-0.025	1.5	0.50	50	2.5	10	1.45	4.0	●
<b>2015 050 120</b>	0.013-0.025	1.5	0.50	50	2.5	12	1.43	4.0	●
<b>2020 010 060</b>	0.018-0.040	2.0	0.10	50	3.0	6	1.95	4.0	●
<b>2020 010 080</b>	0.018-0.040	2.0	0.10	50	3.0	8	1.95	4.0	●
<b>2020 010 100</b>	0.018-0.040	2.0	0.10	50	3.0	10	1.95	4.0	●
<b>2020 010 120</b>	0.016-0.025	2.0	0.10	50	3.0	12	1.93	4.0	●
<b>2020 010 160</b>	0.015-0.022	2.0	0.10	50	3.0	16	1.91	4.0	●
<b>2020 010 200</b>	0.013-0.019	2.0	0.10	50	3.0	20	1.91	4.0	●

●: Standard items

# HSR 2

## 2 flute long neck corner radius

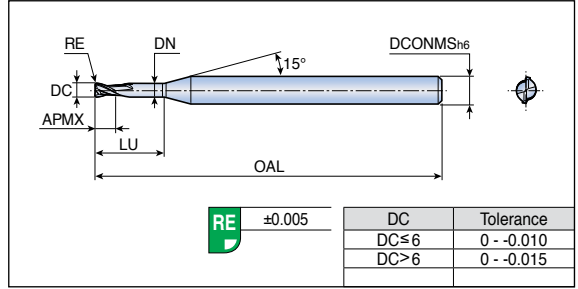


Designation	Feed (mm/tooth)	Dimension (mm)								Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	TT5505	
<b>HSR 2020 020 060</b>	0.018-0.040	2.0	0.2	50	3.0	6	1.95	4.0	●	
<b>2020 020 080</b>	0.018-0.040	2.0	0.2	50	3.0	8	1.95	4.0	●	
<b>2020 020 100</b>	0.018-0.040	2.0	0.2	50	3.0	10	1.95	4.0	●	
<b>2020 020 120</b>	0.016-0.025	2.0	0.2	50	3.0	12	1.93	4.0	●	
<b>2020 020 160</b>	0.015-0.022	2.0	0.2	50	3.0	16	1.91	4.0	●	
<b>2020 020 200</b>	0.013-0.019	2.0	0.2	50	3.0	20	1.91	4.0	●	
<b>2020 030 060</b>	0.018-0.040	2.0	0.3	50	3.0	6	1.95	4.0	●	
<b>2020 030 080</b>	0.018-0.040	2.0	0.3	50	3.0	8	1.95	4.0	●	
<b>2020 030 100</b>	0.018-0.040	2.0	0.3	50	3.0	10	1.95	4.0	●	
<b>2020 030 120</b>	0.016-0.025	2.0	0.3	50	3.0	12	1.93	4.0	●	
<b>2020 030 160</b>	0.015-0.022	2.0	0.3	50	3.0	16	1.91	4.0	●	
<b>2020 030 200</b>	0.013-0.019	2.0	0.3	50	3.0	20	1.91	4.0	●	
<b>2020 050 060</b>	0.018-0.040	2.0	0.5	50	3.0	6	1.95	4.0	●	
<b>2020 050 080</b>	0.018-0.040	2.0	0.5	50	3.0	8	1.95	4.0	●	
<b>2020 050 100</b>	0.018-0.040	2.0	0.5	50	3.0	10	1.95	4.0	●	
<b>2020 050 120</b>	0.016-0.025	2.0	0.5	50	3.0	12	1.93	4.0	●	
<b>2020 050 160</b>	0.015-0.022	2.0	0.5	50	3.0	16	1.91	4.0	●	
<b>2020 050 200</b>	0.013-0.019	2.0	0.5	50	3.0	20	1.91	4.0	●	
<b>2025 020 080</b>	0.019-0.045	2.5	0.2	55	3.5	8	2.4	4.0	●	
<b>2025 020 100</b>	0.019-0.045	2.5	0.2	55	3.5	10	2.4	4.0	●	
<b>2025 020 120</b>	0.017-0.040	2.5	0.2	55	3.5	12	2.4	4.0	●	
<b>2025 020 160</b>	0.015-0.030	2.5	0.2	55	3.5	16	2.4	4.0	●	
<b>2025 030 080</b>	0.019-0.045	2.5	0.3	55	3.5	8	2.4	4.0	●	
<b>2025 030 100</b>	0.019-0.045	2.5	0.3	55	3.5	10	2.4	4.0	●	
<b>2025 030 120</b>	0.017-0.040	2.5	0.3	55	3.5	12	2.4	4.0	●	
<b>2025 030 160</b>	0.015-0.030	2.5	0.3	55	3.5	16	2.4	4.0	●	
<b>2025 050 080</b>	0.019-0.045	2.5	0.5	55	3.5	8	2.4	4.0	●	
<b>2025 050 100</b>	0.019-0.045	2.5	0.5	55	3.5	10	2.4	4.0	●	
<b>2025 050 120</b>	0.017-0.040	2.5	0.5	55	3.5	12	2.4	4.0	●	
<b>2025 050 160</b>	0.015-0.030	2.5	0.5	55	3.5	16	2.4	4.0	●	

●: Standard items

# HSR 2

## 2 flute long neck corner radius



2

H-A  
30°

P	M	K	N	S	H

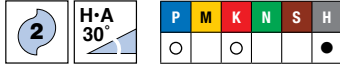
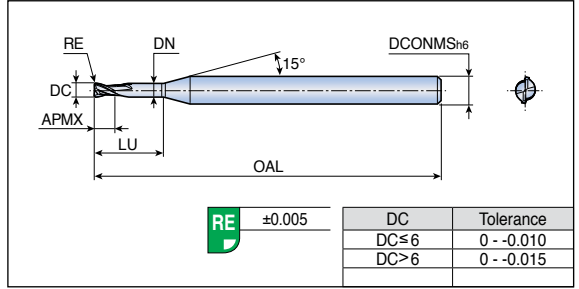
Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2030 010 080</b>	0.021-0.060	3.0	0.1	55	4.5	8	2.85	6.0	●
<b>2030 010 100</b>	0.021-0.060	3.0	0.1	55	4.5	10	2.85	6.0	●
<b>2030 010 120</b>	0.018-0.050	3.0	0.1	55	4.5	12	2.85	6.0	●
<b>2030 010 160</b>	0.018-0.045	3.0	0.1	55	4.5	16	2.85	6.0	●
<b>2030 010 200</b>	0.015-0.040	3.0	0.1	60	4.5	20	2.85	6.0	●
<b>2030 010 250</b>	0.015-0.040	3.0	0.1	60	4.5	25	2.85	6.0	●
<b>2030 020 080</b>	0.021-0.060	3.0	0.2	55	4.5	8	2.85	6.0	●
<b>2030 020 100</b>	0.021-0.060	3.0	0.2	55	4.5	10	2.85	6.0	●
<b>2030 020 120</b>	0.018-0.050	3.0	0.2	55	4.5	12	2.85	6.0	●
<b>2030 020 160</b>	0.018-0.045	3.0	0.2	55	4.5	16	2.85	6.0	●
<b>2030 020 200</b>	0.015-0.040	3.0	0.2	60	4.5	20	2.85	6.0	●
<b>2030 020 250</b>	0.015-0.040	3.0	0.2	60	4.5	25	2.85	6.0	●
<b>2030 030 080</b>	0.021-0.060	3.0	0.3	55	4.5	8	2.85	6.0	●
<b>2030 030 100</b>	0.021-0.060	3.0	0.3	55	4.5	10	2.85	6.0	●
<b>2030 030 120</b>	0.018-0.050	3.0	0.3	55	4.5	12	2.85	6.0	●
<b>2030 030 160</b>	0.018-0.045	3.0	0.3	55	4.5	16	2.85	6.0	●
<b>2030 030 200</b>	0.015-0.040	3.0	0.3	60	4.5	20	2.85	6.0	●
<b>2030 030 250</b>	0.015-0.040	3.0	0.3	60	4.5	25	2.85	6.0	●
<b>2030 050 080</b>	0.021-0.060	3.0	0.5	55	4.5	8	2.85	6.0	●
<b>2030 050 100</b>	0.021-0.060	3.0	0.5	55	4.5	10	2.85	6.0	●
<b>2030 050 120</b>	0.018-0.050	3.0	0.5	55	4.5	12	2.85	6.0	●
<b>2030 050 160</b>	0.018-0.045	3.0	0.5	55	4.5	16	2.85	6.0	●
<b>2030 050 200</b>	0.015-0.040	3.0	0.5	60	4.5	20	2.85	6.0	●
<b>2030 050 250</b>	0.015-0.040	3.0	0.5	60	4.5	25	2.85	6.0	●
<b>2030 100 080</b>	0.021-0.060	3.0	1.0	55	4.5	8	2.85	6.0	●
<b>2030 100 100</b>	0.021-0.060	3.0	1.0	55	4.5	10	2.85	6.0	●
<b>2030 100 120</b>	0.018-0.050	3.0	1.0	55	4.5	12	2.85	6.0	●
<b>2030 100 160</b>	0.018-0.045	3.0	1.0	55	4.5	16	2.85	6.0	●
<b>2030 100 200</b>	0.015-0.040	3.0	1.0	60	4.5	20	2.85	6.0	●

●: Standard items



# HSR 2

## 2 flute long neck corner radius

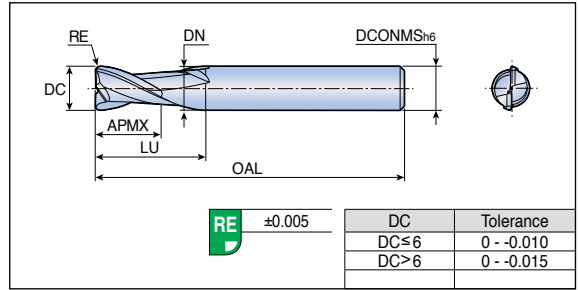


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2040 010 100</b>	0.030-0.075	4.0	0.1	55	6.0	10	3.9	6.0	●
<b>2040 010 120</b>	0.030-0.075	4.0	0.1	55	6.0	12	3.9	6.0	●
<b>2040 010 160</b>	0.030-0.075	4.0	0.1	55	6.0	16	3.9	6.0	●
<b>2040 010 200</b>	0.030-0.070	4.0	0.1	60	6.0	20	3.9	6.0	●
<b>2040 010 250</b>	0.030-0.070	4.0	0.1	60	6.0	25	3.9	6.0	●
<b>2040 010 300</b>	0.030-0.070	4.0	0.1	70	6.0	30	3.9	6.0	●
<b>2040 020 100</b>	0.030-0.075	4.0	0.2	55	6.0	10	3.9	6.0	●
<b>2040 020 120</b>	0.030-0.075	4.0	0.2	55	6.0	12	3.9	6.0	●
<b>2040 020 160</b>	0.030-0.075	4.0	0.2	55	6.0	16	3.9	6.0	●
<b>2040 020 200</b>	0.030-0.070	4.0	0.2	60	6.0	20	3.9	6.0	●
<b>2040 020 250</b>	0.030-0.070	4.0	0.2	60	6.0	25	3.9	6.0	●
<b>2040 020 300</b>	0.030-0.070	4.0	0.2	70	6.0	30	3.9	6.0	●
<b>2040 030 100</b>	0.030-0.075	4.0	0.3	55	6.0	10	3.9	6.0	●
<b>2040 030 120</b>	0.030-0.075	4.0	0.3	55	6.0	12	3.9	6.0	●
<b>2040 030 160</b>	0.030-0.075	4.0	0.3	55	6.0	16	3.9	6.0	●
<b>2040 030 200</b>	0.030-0.070	4.0	0.3	60	6.0	20	3.9	6.0	●
<b>2040 030 250</b>	0.030-0.070	4.0	0.3	60	6.0	25	3.9	6.0	●
<b>2040 030 300</b>	0.030-0.070	4.0	0.3	70	6.0	30	3.9	6.0	●
<b>2040 050 100</b>	0.030-0.075	4.0	0.5	55	6.0	10	3.9	6.0	●
<b>2040 050 120</b>	0.030-0.075	4.0	0.5	55	6.0	12	3.9	6.0	●
<b>2040 050 160</b>	0.030-0.075	4.0	0.5	55	6.0	16	3.9	6.0	●
<b>2040 050 200</b>	0.030-0.070	4.0	0.5	60	6.0	20	3.9	6.0	●
<b>2040 050 250</b>	0.030-0.070	4.0	0.5	60	6.0	25	3.9	6.0	●
<b>2040 050 300</b>	0.030-0.070	4.0	0.5	70	6.0	30	3.9	6.0	●
<b>2040 100 100</b>	0.030-0.075	4.0	1.0	55	6.0	10	3.9	6.0	●
<b>2040 100 120</b>	0.030-0.075	4.0	1.0	55	6.0	12	3.9	6.0	●
<b>2040 100 160</b>	0.030-0.075	4.0	1.0	55	6.0	16	3.9	6.0	●
<b>2040 100 200</b>	0.030-0.070	4.0	1.0	60	6.0	20	3.9	6.0	●
<b>2040 100 250</b>	0.030-0.070	4.0	1.0	60	6.0	25	3.9	6.0	●

●: Standard items

# HSR 2

## 2 flute long neck corner radius



2

H-A  
30°

P

M

K

N

S

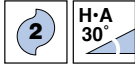
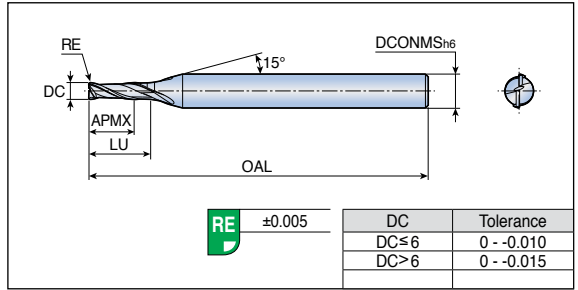
H

Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 2060 020 150</b>	0.067-0.100	6.0	0.2	60	9	15	5.9	6.0	●
<b>2060 030 150</b>	0.067-0.100	6.0	0.3	60	9	15	5.9	6.0	●
<b>2060 030 200</b>	0.067-0.100	6.0	0.3	60	9	20	5.9	6.0	●
<b>2060 050 150</b>	0.067-0.100	6.0	0.5	60	9	15	5.9	6.0	●
<b>2060 050 200</b>	0.067-0.100	6.0	0.5	60	9	20	5.9	6.0	●
<b>2060 100 150</b>	0.067-0.100	6.0	1.0	60	9	15	5.9	6.0	●
<b>2060 100 200</b>	0.067-0.100	6.0	1.0	60	9	20	5.9	6.0	●
<b>2060 150 150</b>	0.067-0.100	6.0	1.5	60	9	15	5.9	6.0	●
<b>2060 200 150</b>	0.067-0.100	6.0	2.0	60	9	15	5.9	6.0	●
<b>2080 020 200</b>	0.090-0.120	8.0	0.2	65	12	20	7.9	8.0	●
<b>2080 030 200</b>	0.090-0.120	8.0	0.3	65	12	20	7.9	8.0	●
<b>2080 050 200</b>	0.090-0.120	8.0	0.5	65	12	20	7.9	8.0	●
<b>2080 100 200</b>	0.090-0.120	8.0	1.0	65	12	20	7.9	8.0	●
<b>2080 150 200</b>	0.090-0.120	8.0	1.5	65	12	20	7.9	8.0	●
<b>2100 020 250</b>	0.117-0.130	10.0	0.2	75	15	25	9.9	10.0	●
<b>2100 030 250</b>	0.117-0.130	10.0	0.3	75	15	25	9.9	10.0	●
<b>2100 050 250</b>	0.117-0.130	10.0	0.5	75	15	25	9.9	10.0	●
<b>2100 100 250</b>	0.117-0.130	10.0	1.0	75	15	25	9.9	10.0	●
<b>2100 150 250</b>	0.117-0.130	10.0	1.5	75	15	25	9.9	10.0	●
<b>2100 200 250</b>	0.117-0.130	10.0	2.0	75	15	25	9.9	10.0	●
<b>2120 030 280</b>	0.126-0.168	12.0	0.3	85	18	28	11.9	12.0	●
<b>2120 050 280</b>	0.126-0.168	12.0	0.5	85	18	28	11.9	12.0	●
<b>2120 100 280</b>	0.126-0.168	12.0	1.0	85	18	28	11.9	12.0	●
<b>2120 150 280</b>	0.126-0.168	12.0	1.5	85	18	28	11.9	12.0	●
<b>2120 200 280</b>	0.126-0.168	12.0	2.0	85	18	28	11.9	12.0	●

●: Standard items

# HSR 2...M

2 flute medium corner radius

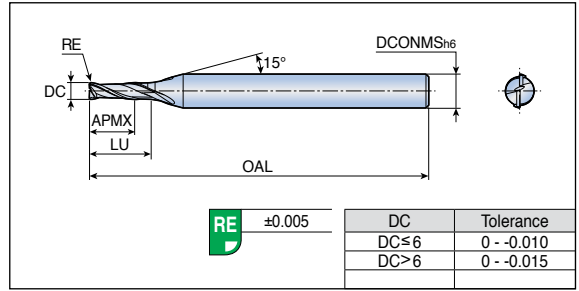


Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	RE	OAL	APMX	LU	DCONMS	
<b>HSR 2003M 002</b>	0.006-0.010	0.3	0.02	45	0.6	0.9	4.0	●
<b>2003M 005</b>	0.006-0.010	0.3	0.05	45	0.6	0.9	4.0	●
<b>2004M 005</b>	0.006-0.010	0.4	0.05	45	0.8	1.1	4.0	●
<b>2004M 010</b>	0.006-0.010	0.4	0.10	45	0.8	1.1	4.0	●
<b>2005M 005</b>	0.006-0.010	0.5	0.05	45	1.0	1.3	4.0	●
<b>2005M 010</b>	0.006-0.010	0.5	0.10	45	1.0	1.3	4.0	●
<b>2006M 005</b>	0.008-0.013	0.6	0.05	45	1.2	1.5	4.0	●
<b>2006M 010</b>	0.008-0.013	0.6	0.10	45	1.2	1.5	4.0	●
<b>2006M 020</b>	0.008-0.013	0.6	0.20	45	1.2	1.5	4.0	●
<b>2008M 005</b>	0.007-0.015	0.8	0.05	45	1.6	2	4.0	●
<b>2008M 010</b>	0.007-0.015	0.8	0.10	45	1.6	2	4.0	●
<b>2008M 020</b>	0.007-0.015	0.8	0.20	45	1.6	2	4.0	●
<b>2010M 005</b>	0.009-0.020	1.0	0.05	50	2.0	3.5	6.0	●
<b>2010M 010</b>	0.009-0.020	1.0	0.10	50	2.0	3.5	6.0	●
<b>2010M 020</b>	0.009-0.020	1.0	0.20	50	2.0	3.5	6.0	●
<b>2010M 030</b>	0.009-0.020	1.0	0.30	50	2.0	3.5	6.0	●
<b>2012M 005</b>	0.010-0.020	1.2	0.05	50	2.5	4	6.0	●
<b>2012M 010</b>	0.010-0.020	1.2	0.10	50	2.5	4	6.0	●
<b>2012M 020</b>	0.010-0.020	1.2	0.20	50	2.5	4	6.0	●
<b>2012M 030</b>	0.010-0.020	1.2	0.30	50	2.5	4	6.0	●
<b>2015M 005</b>	0.015-0.025	1.5	0.05	50	3.0	5	6.0	●
<b>2015M 010</b>	0.015-0.025	1.5	0.10	50	3.0	5	6.0	●
<b>2015M 020</b>	0.015-0.025	1.5	0.20	50	3.0	5	6.0	●
<b>2015M 030</b>	0.015-0.025	1.5	0.30	50	3.0	5	6.0	●
<b>2020M 010</b>	0.018-0.040	2.0	0.10	50	5.0	7	6.0	●
<b>2020M 020</b>	0.018-0.040	2.0	0.20	50	5.0	7	6.0	●
<b>2020M 030</b>	0.018-0.040	2.0	0.30	50	5.0	7	6.0	●
<b>2020M 050</b>	0.018-0.040	2.0	0.50	50	5.0	7	6.0	●
<b>2025M 010</b>	0.019-0.045	2.5	0.10	60	7.0	9	6.0	●
<b>2025M 020</b>	0.019-0.045	2.5	0.20	60	7.0	9	6.0	●
<b>2025M 030</b>	0.019-0.045	2.5	0.30	60	7.0	9	6.0	●
<b>2025M 050</b>	0.019-0.045	2.5	0.50	60	7.0	9	6.0	●

●: Standard items

# HSR 2...M

2 flute medium corner radius



**2** H-A 30°

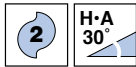
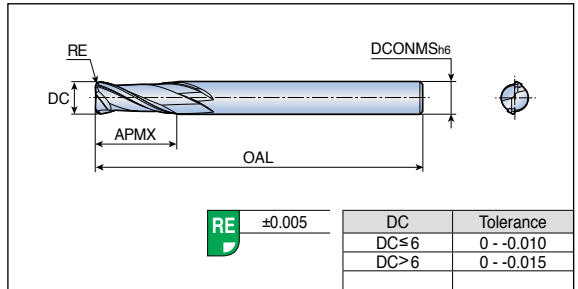
P	M	K	N	S	H
○		○			●

Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	RE	OAL	APMX	LU	DCONMS	
<b>HSR 2030M 010</b>	0.021-0.06	3.0	0.1	60	8.0	10	6.0	●
<b>2030M 020</b>	0.021-0.06	3.0	0.2	60	8.0	10	6.0	●
<b>2030M 030</b>	0.021-0.06	3.0	0.3	60	8.0	10	6.0	●
<b>2030M 050</b>	0.021-0.06	3.0	0.5	60	8.0	10	6.0	●
<b>2040M 010</b>	0.03-0.075	4.0	0.1	70	10.0	13	6.0	●
<b>2040M 020</b>	0.03-0.075	4.0	0.2	70	10.0	13	6.0	●
<b>2040M 030</b>	0.03-0.075	4.0	0.3	70	10.0	13	6.0	●
<b>2040M 050</b>	0.03-0.075	4.0	0.5	70	10.0	13	6.0	●

●: Standard items

# HSR 2...M

2 flute medium corner radius



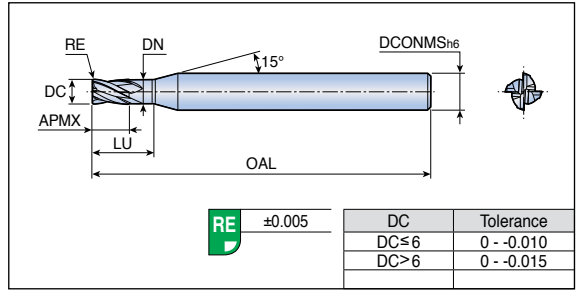
P	M	K	N	S	H
○		○			●

Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	
<b>HSR 2060M 020</b>	0.067-0.100	6.0	0.2	90	15.0	6.0	●
<b>2060M 030</b>	0.067-0.100	6.0	0.3	90	15.0	6.0	●
<b>2060M 050</b>	0.067-0.100	6.0	0.5	90	15.0	6.0	●
<b>2060M 100</b>	0.067-0.100	6.0	1.0	90	15.0	6.0	●
<b>2080M 010</b>	0.090-0.120	8.0	0.1	100	20.0	8.0	●
<b>2080M 020</b>	0.090-0.120	8.0	0.2	100	20.0	8.0	●
<b>2080M 030</b>	0.090-0.120	8.0	0.3	100	20.0	8.0	●
<b>2080M 050</b>	0.090-0.120	8.0	0.5	100	20.0	8.0	●
<b>2080M 100</b>	0.090-0.120	8.0	1.0	100	20.0	8.0	●
<b>2080M 200</b>	0.090-0.120	8.0	2.0	100	20.0	8.0	●
<b>2100M 020</b>	0.117-0.130	10.0	0.2	100	25.0	10.0	●
<b>2100M 030</b>	0.117-0.130	10.0	0.3	100	25.0	10.0	●
<b>2100M 050</b>	0.117-0.130	10.0	0.5	100	25.0	10.0	●
<b>2100M 100</b>	0.117-0.130	10.0	1.0	100	25.0	10.0	●
<b>2100M 200</b>	0.117-0.130	10.0	2.0	100	25.0	10.0	●
<b>2120M 020</b>	0.126-0.168	12.0	0.2	110	30.0	12.0	●
<b>2120M 030</b>	0.126-0.168	12.0	0.3	110	30.0	12.0	●
<b>2120M 050</b>	0.126-0.168	12.0	0.5	110	30.0	12.0	●
<b>2120M 100</b>	0.126-0.168	12.0	1.0	110	30.0	12.0	●
<b>2120M 200</b>	0.126-0.168	12.0	2.0	110	30.0	12.0	●

● : Standard items

# HSR 4

## 4 flute long neck corner radius

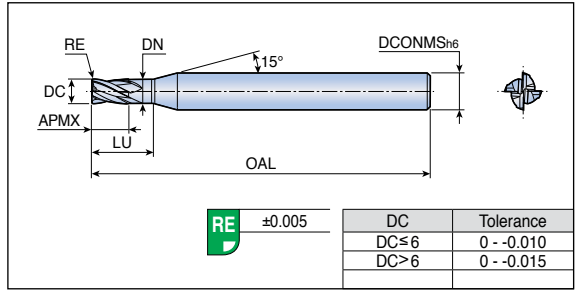


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 4010 010 030</b>	0.009-0.020	1.0	0.1	50	2.0	3	0.97	4.0	●
<b>4010 010 040</b>	0.009-0.020	1.0	0.1	50	2.0	4	0.97	4.0	●
<b>4010 010 060</b>	0.009-0.018	1.0	0.1	50	2.0	6	0.97	4.0	●
<b>4010 020 030</b>	0.009-0.020	1.0	0.2	50	2.0	3	0.97	4.0	●
<b>4010 020 040</b>	0.009-0.020	1.0	0.2	50	2.0	4	0.97	4.0	●
<b>4010 020 060</b>	0.009-0.018	1.0	0.2	50	2.0	6	0.97	4.0	●
<b>4010 030 030</b>	0.009-0.020	1.0	0.3	50	2.0	3	0.97	4.0	●
<b>4010 030 040</b>	0.009-0.020	1.0	0.3	50	2.0	4	0.97	4.0	●
<b>4010 030 060</b>	0.009-0.018	1.0	0.3	50	2.0	6	0.97	4.0	●
<b>4015 010 040</b>	0.015-0.025	1.5	0.1	50	2.5	4	1.45	4.0	●
<b>4015 010 060</b>	0.015-0.025	1.5	0.1	50	2.5	6	1.45	4.0	●
<b>4015 020 040</b>	0.015-0.025	1.5	0.2	50	2.5	4	1.45	4.0	●
<b>4015 020 060</b>	0.015-0.025	1.5	0.2	50	2.5	6	1.45	4.0	●
<b>4015 030 040</b>	0.015-0.025	1.5	0.3	50	2.5	4	1.45	4.0	●
<b>4015 030 060</b>	0.015-0.025	1.5	0.3	50	2.5	6	1.45	4.0	●
<b>4020 010 060</b>	0.018-0.040	2.0	0.1	50	3.0	6	1.95	4.0	●
<b>4020 010 080</b>	0.018-0.040	2.0	0.1	50	3.0	8	1.95	4.0	●
<b>4020 010 100</b>	0.018-0.040	2.0	0.1	50	3.0	10	1.95	4.0	●
<b>4020 010 120</b>	0.016-0.025	2.0	0.1	50	3.0	12	1.95	4.0	●
<b>4020 010 160</b>	0.015-0.022	2.0	0.1	50	3.0	16	1.95	4.0	●
<b>4020 020 060</b>	0.018-0.040	2.0	0.2	50	3.0	6	1.95	4.0	●
<b>4020 020 080</b>	0.018-0.040	2.0	0.2	50	3.0	8	1.95	4.0	●
<b>4020 020 100</b>	0.018-0.040	2.0	0.2	50	3.0	10	1.95	4.0	●
<b>4020 020 120</b>	0.016-0.025	2.0	0.2	50	3.0	12	1.95	4.0	●
<b>4020 020 160</b>	0.015-0.022	2.0	0.2	50	3.0	16	1.95	4.0	●
<b>4020 030 060</b>	0.018-0.040	2.0	0.3	50	3.0	6	1.95	4.0	●
<b>4020 030 080</b>	0.018-0.040	2.0	0.3	50	3.0	8	1.95	4.0	●
<b>4020 030 100</b>	0.018-0.040	2.0	0.3	50	3.0	10	1.95	4.0	●
<b>4020 030 120</b>	0.016-0.025	2.0	0.3	50	3.0	12	1.95	4.0	●
<b>4020 030 160</b>	0.015-0.022	2.0	0.3	50	3.0	16	1.95	4.0	●
<b>4020 050 060</b>	0.018-0.040	2.0	0.5	50	3.0	6	1.95	4.0	●
<b>4020 050 080</b>	0.018-0.040	2.0	0.5	50	3.0	8	1.95	4.0	●
<b>4020 050 100</b>	0.018-0.040	2.0	0.5	50	3.0	10	1.95	4.0	●
<b>4020 050 120</b>	0.016-0.025	2.0	0.5	50	3.0	12	1.95	4.0	●
<b>4020 050 160</b>	0.015-0.022	2.0	0.5	50	3.0	16	1.95	4.0	●

●: Standard items

# HSR 4

## 4 flute long neck corner radius

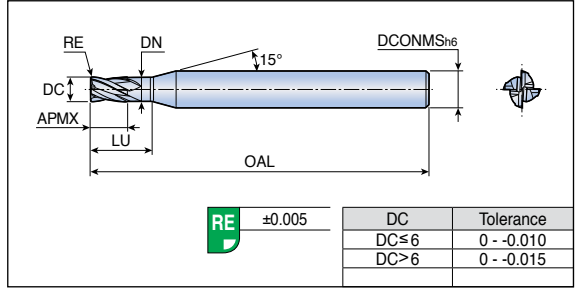


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 4030 010 080</b>	0.021-0.060	3.0	0.1	55	4	8	2.85	6.0	●
<b>4030 010 100</b>	0.021-0.060	3.0	0.1	55	4	10	2.85	6.0	●
<b>4030 010 120</b>	0.018-0.050	3.0	0.1	55	4	12	2.85	6.0	●
<b>4030 010 160</b>	0.018-0.045	3.0	0.1	55	4	16	2.85	6.0	●
<b>4030 010 200</b>	0.015-0.040	3.0	0.1	60	4	20	2.85	6.0	●
<b>4030 010 250</b>	0.015-0.040	3.0	0.1	60	4	25	2.85	6.0	●
<b>4030 020 080</b>	0.021-0.060	3.0	0.2	55	4	8	2.85	6.0	●
<b>4030 020 100</b>	0.021-0.060	3.0	0.2	55	4	10	2.85	6.0	●
<b>4030 020 120</b>	0.018-0.050	3.0	0.2	55	4	12	2.85	6.0	●
<b>4030 020 160</b>	0.018-0.045	3.0	0.2	55	4	16	2.85	6.0	●
<b>4030 020 200</b>	0.015-0.040	3.0	0.2	60	4	20	2.85	6.0	●
<b>4030 020 250</b>	0.015-0.040	3.0	0.2	60	4	25	2.85	6.0	●
<b>4030 030 080</b>	0.021-0.060	3.0	0.3	55	4	8	2.85	6.0	●
<b>4030 030 100</b>	0.021-0.060	3.0	0.3	55	4	10	2.85	6.0	●
<b>4030 030 120</b>	0.018-0.050	3.0	0.3	55	4	12	2.85	6.0	●
<b>4030 030 160</b>	0.018-0.045	3.0	0.3	55	4	16	2.85	6.0	●
<b>4030 030 200</b>	0.015-0.040	3.0	0.3	60	4	20	2.85	6.0	●
<b>4030 030 250</b>	0.015-0.040	3.0	0.3	60	4	25	2.85	6.0	●
<b>4030 050 080</b>	0.021-0.060	3.0	0.5	55	4	8	2.85	6.0	●
<b>4030 050 100</b>	0.021-0.060	3.0	0.5	55	4	10	2.85	6.0	●
<b>4030 050 120</b>	0.018-0.050	3.0	0.5	55	4	12	2.85	6.0	●
<b>4030 050 160</b>	0.018-0.045	3.0	0.5	55	4	16	2.85	6.0	●
<b>4030 050 200</b>	0.015-0.040	3.0	0.5	60	4	20	2.85	6.0	●
<b>4030 050 250</b>	0.015-0.040	3.0	0.5	60	4	25	2.85	6.0	●
<b>4030 100 080</b>	0.021-0.060	3.0	1.0	55	4	8	2.85	6.0	●
<b>4030 100 100</b>	0.021-0.060	3.0	1.0	55	4	10	2.85	6.0	●
<b>4030 100 120</b>	0.018-0.050	3.0	1.0	55	4	12	2.85	6.0	●
<b>4030 100 160</b>	0.018-0.045	3.0	1.0	55	4	16	2.85	6.0	●
<b>4030 100 200</b>	0.015-0.040	3.0	1.0	60	4	20	2.85	6.0	●

●: Standard items

# HSR 4

## 4 flute long neck corner radius



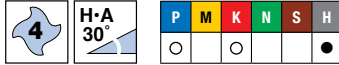
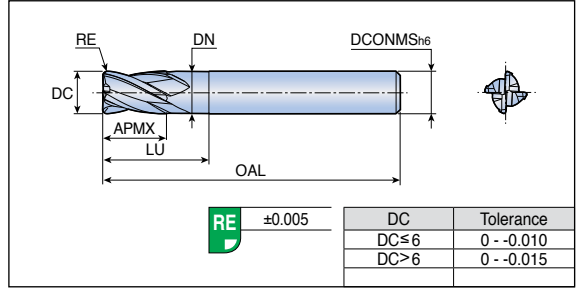
Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 4040 010 100</b>	0.030-0.075	4.0	0.1	55	6	10	3.9	6.0	●
<b>4040 010 120</b>	0.030-0.075	4.0	0.1	55	6	12	3.9	6.0	●
<b>4040 010 160</b>	0.030-0.075	4.0	0.1	55	6	16	3.9	6.0	●
<b>4040 010 200</b>	0.030-0.070	4.0	0.1	60	6	20	3.9	6.0	●
<b>4040 010 250</b>	0.030-0.070	4.0	0.1	60	6	25	3.9	6.0	●
<b>4040 010 300</b>	0.030-0.070	4.0	0.1	70	6	30	3.9	6.0	●
<b>4040 020 100</b>	0.030-0.075	4.0	0.2	55	6	10	3.9	6.0	●
<b>4040 020 120</b>	0.030-0.075	4.0	0.2	55	6	12	3.9	6.0	●
<b>4040 020 160</b>	0.030-0.075	4.0	0.2	55	6	16	3.9	6.0	●
<b>4040 020 200</b>	0.030-0.070	4.0	0.2	60	6	20	3.9	6.0	●
<b>4040 020 250</b>	0.030-0.070	4.0	0.2	60	6	25	3.9	6.0	●
<b>4040 020 300</b>	0.030-0.070	4.0	0.2	70	6	30	3.9	6.0	●
<b>4040 030 100</b>	0.030-0.075	4.0	0.3	55	6	10	3.9	6.0	●
<b>4040 030 120</b>	0.030-0.075	4.0	0.3	55	6	12	3.9	6.0	●
<b>4040 030 160</b>	0.030-0.075	4.0	0.3	55	6	16	3.9	6.0	●
<b>4040 030 200</b>	0.030-0.070	4.0	0.3	60	6	20	3.9	6.0	●
<b>4040 030 250</b>	0.030-0.070	4.0	0.3	60	6	25	3.9	6.0	●
<b>4040 030 300</b>	0.030-0.070	4.0	0.3	70	6	30	3.9	6.0	●
<b>4040 050 100</b>	0.030-0.075	4.0	0.5	55	6	10	3.9	6.0	●
<b>4040 050 120</b>	0.030-0.075	4.0	0.5	55	6	12	3.9	6.0	●
<b>4040 050 160</b>	0.030-0.075	4.0	0.5	55	6	16	3.9	6.0	●
<b>4040 050 200</b>	0.030-0.070	4.0	0.5	60	6	20	3.9	6.0	●
<b>4040 050 250</b>	0.030-0.070	4.0	0.5	60	6	25	3.9	6.0	●
<b>4040 050 300</b>	0.030-0.070	4.0	0.5	70	6	30	3.9	6.0	●
<b>4040 100 100</b>	0.030-0.075	4.0	1.0	55	6	10	3.9	6.0	●
<b>4040 100 120</b>	0.030-0.075	4.0	1.0	55	6	12	3.9	6.0	●
<b>4040 100 160</b>	0.030-0.075	4.0	1.0	55	6	16	3.9	6.0	●
<b>4040 100 200</b>	0.030-0.070	4.0	1.0	60	6	20	3.9	6.0	●
<b>4040 100 250</b>	0.030-0.070	4.0	1.0	60	6	25	3.9	6.0	●

●: Standard items



# HSR 4

## 4 flute long neck corner radius

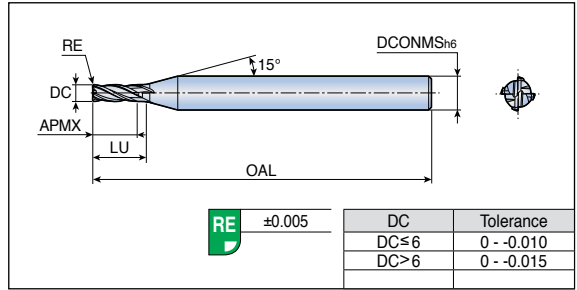


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
HSR 4060 020 150	0.067-0.100	6.0	0.2	60	9	15	5.9	6.0	●
4060 030 150	0.067-0.100	6.0	0.3	60	9	15	5.9	6.0	●
4060 050 150	0.067-0.100	6.0	0.5	60	9	15	5.9	6.0	●
4060 100 150	0.067-0.100	6.0	1.0	60	9	15	5.9	6.0	●
4060 150 150	0.067-0.100	6.0	1.5	60	9	15	5.9	6.0	●
4060 200 150	0.067-0.100	6.0	2.0	60	9	15	5.9	6.0	●
4080 020 200	0.090-0.120	8.0	0.2	70	12	20	7.9	8.0	●
4080 030 200	0.090-0.120	8.0	0.3	70	12	20	7.9	8.0	●
4080 050 200	0.090-0.120	8.0	0.5	70	12	20	7.9	8.0	●
4080 100 200	0.090-0.120	8.0	1.0	70	12	20	7.9	8.0	●
4080 150 200	0.090-0.120	8.0	1.5	70	12	20	7.9	8.0	●
4080 200 200	0.090-0.120	8.0	2.0	70	12	20	7.9	8.0	●
4100 020 250	0.117-0.130	10.0	0.2	75	15	25	9.9	10.0	●
4100 030 250	0.117-0.130	10.0	0.3	75	15	25	9.9	10.0	●
4100 050 250	0.117-0.130	10.0	0.5	75	15	25	9.9	10.0	●
4100 100 250	0.117-0.130	10.0	1.0	75	15	25	9.9	10.0	●
4100 150 250	0.117-0.130	10.0	1.5	75	15	25	9.9	10.0	●
4100 200 250	0.117-0.130	10.0	2.0	75	15	25	9.9	10.0	●
4120 030 300	0.126-0.168	12.0	0.3	85	18	30	11.9	12.0	●
4120 050 300	0.126-0.168	12.0	0.5	85	18	30	11.9	12.0	●
4120 100 300	0.126-0.168	12.0	1.0	85	18	30	11.9	12.0	●
4120 150 300	0.126-0.168	12.0	1.5	85	18	30	11.9	12.0	●
4120 200 300	0.126-0.168	12.0	2.0	85	18	30	11.9	12.0	●

●: Standard items

# HSR 4...M

## 4 flute medium corner radius



H-A  
30°

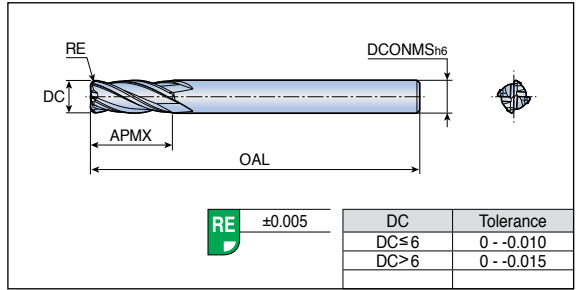
P	M	K	N	S	H
○	○	○	○	○	●

Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5505
		DC	RE	OAL	APMX	LU	DCONMS	
<b>HSR 4010M 005</b>	0.009-0.020	1.0	0.05	50	2.0	2.5	6.0	●
<b>4010M 010</b>	0.009-0.020	1.0	0.1	50	2.0	2.5	6.0	●
<b>4010M 020</b>	0.009-0.020	1.0	0.2	50	2.0	2.5	6.0	●
<b>4010M 030</b>	0.009-0.020	1.0	0.3	50	2.0	2.5	6.0	●
<b>4012M 005</b>	0.010-0.020	1.2	0.05	50	2.5	3	6.0	●
<b>4012M 010</b>	0.010-0.020	1.2	0.1	50	2.5	3	6.0	●
<b>4012M 020</b>	0.010-0.020	1.2	0.2	50	2.5	3	6.0	●
<b>4012M 030</b>	0.010-0.020	1.2	0.3	50	2.5	3	6.0	●
<b>4015M 005</b>	0.015-0.025	1.5	0.05	50	3.0	3.5	6.0	●
<b>4015M 010</b>	0.015-0.025	1.5	0.1	50	3.0	3.5	6.0	●
<b>4015M 020</b>	0.015-0.025	1.5	0.2	50	3.0	3.5	6.0	●
<b>4015M 030</b>	0.015-0.025	1.5	0.3	50	3.0	3.5	6.0	●
<b>4020M 010</b>	0.018-0.040	2.0	0.1	50	5.0	6	6.0	●
<b>4020M 020</b>	0.018-0.040	2.0	0.2	50	5.0	6	6.0	●
<b>4020M 030</b>	0.018-0.040	2.0	0.3	50	5.0	6	6.0	●
<b>4020M 050</b>	0.018-0.040	2.0	0.5	50	5.0	6	6.0	●
<b>4025M 010</b>	0.019-0.045	2.5	0.1	60	7.0	8	6.0	●
<b>4025M 020</b>	0.019-0.045	2.5	0.2	60	7.0	8	6.0	●
<b>4025M 030</b>	0.019-0.045	2.5	0.3	60	7.0	8	6.0	●
<b>4025M 050</b>	0.019-0.045	2.5	0.5	60	7.0	8	6.0	●
<b>4030M 010</b>	0.021-0.060	3.0	0.1	60	8.0	9.5	6.0	●
<b>4030M 020</b>	0.021-0.060	3.0	0.2	60	8.0	9.5	6.0	●
<b>4030M 030</b>	0.021-0.060	3.0	0.3	60	8.0	9.5	6.0	●
<b>4030M 050</b>	0.021-0.060	3.0	0.5	60	8.0	9.5	6.0	●
<b>4040M 010</b>	0.030-0.075	4.0	0.1	70	10.0	12	6.0	●
<b>4040M 020</b>	0.030-0.075	4.0	0.2	70	10.0	12	6.0	●
<b>4040M 030</b>	0.030-0.075	4.0	0.3	70	10.0	12	6.0	●
<b>4040M 050</b>	0.030-0.075	4.0	0.5	70	10.0	12	6.0	●
<b>4040M 100</b>	0.030-0.075	4.0	1.0	70	10.0	12	6.0	●

●: Standard items

# HSR 4...M

4 flute medium corner radius



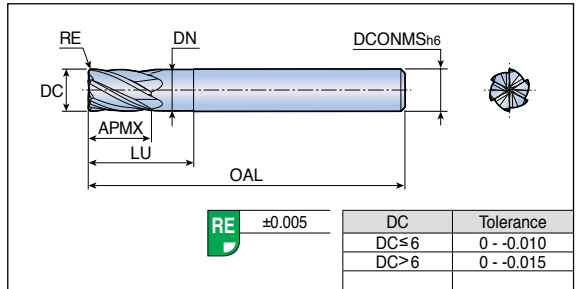
P	M	K	N	S	H
○			○		●

Designation	Feed (mm/tooth)	Dimension (mm)					Grade TT5505
		DC	RE	OAL	APMX	DCONMS	
<b>HSR 4060M 020</b>	0.067-0.100	6.0	0.2	90	15	6.0	●
<b>4060M 030</b>	0.067-0.100	6.0	0.3	90	15	6.0	●
<b>4060M 050</b>	0.067-0.100	6.0	0.5	90	15	6.0	●
<b>4060M 100</b>	0.067-0.100	6.0	1.0	90	15	6.0	●
<b>4060M 150</b>	0.067-0.100	6.0	1.5	90	15	6.0	●
<b>4060M 200</b>	0.067-0.100	6.0	2.0	90	15	6.0	●
<b>4080M 020</b>	0.090-0.120	8.0	0.2	100	20	8.0	●
<b>4080M 030</b>	0.090-0.120	8.0	0.3	100	20	8.0	●
<b>4080M 050</b>	0.090-0.120	8.0	0.5	100	20	8.0	●
<b>4080M 100</b>	0.090-0.120	8.0	1.0	100	20	8.0	●
<b>4080M 150</b>	0.090-0.120	8.0	1.5	100	20	8.0	●
<b>4080M 200</b>	0.090-0.120	8.0	2.0	100	20	8.0	●
<b>4100M 020</b>	0.117-0.130	10.0	0.2	100	25	10.0	●
<b>4100M 030</b>	0.117-0.130	10.0	0.3	100	25	10.0	●
<b>4100M 050</b>	0.117-0.130	10.0	0.5	100	25	10.0	●
<b>4100M 100</b>	0.117-0.130	10.0	1.0	100	25	10.0	●
<b>4100M 150</b>	0.117-0.130	10.0	1.5	100	25	10.0	●
<b>4100M 200</b>	0.117-0.130	10.0	2.0	100	25	10.0	●
<b>4120M 030</b>	0.126-0.168	12.0	0.3	110	30	12.0	●
<b>4120M 050</b>	0.126-0.168	12.0	0.5	110	30	12.0	●
<b>4120M 100</b>	0.126-0.168	12.0	1.0	110	30	12.0	●
<b>4120M 150</b>	0.126-0.168	12.0	1.5	110	30	12.0	●
<b>4120M 200</b>	0.126-0.168	12.0	2.0	110	30	12.0	●

●: Standard items

# HSR 6

## 6 flute long neck corner radius



• Finishing

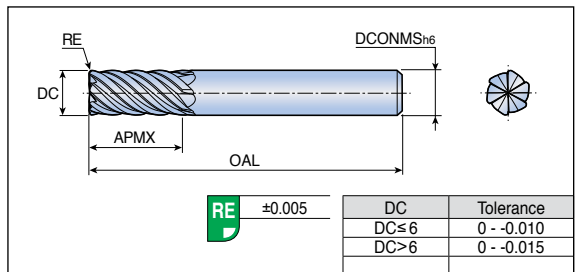


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>HSR 6060 050 150</b>	0.038-0.050	6.0	0.5	60	9	15	5.8	6.0	●
<b>6060 100 150</b>	0.038-0.050	6.0	1.0	60	9	15	5.8	6.0	●
<b>6080 050 200</b>	0.045-0.060	8.0	0.5	70	12	20	7.8	8.0	●
<b>6080 100 200</b>	0.045-0.060	8.0	1.0	70	12	20	7.8	8.0	●
<b>6100 050 250</b>	0.045-0.060	10.0	0.5	75	15	25	9.8	10.0	●
<b>6100 100 250</b>	0.045-0.060	10.0	1.0	75	15	25	9.8	10.0	●
<b>6120 050 300</b>	0.053-0.070	12.0	0.5	85	18	30	11.6	12.0	●
<b>6120 100 300</b>	0.053-0.070	12.0	1.0	85	18	30	11.6	12.0	●

●: Standard items

# HSR 6...M

## 6 flute medium corner radius



• Finishing

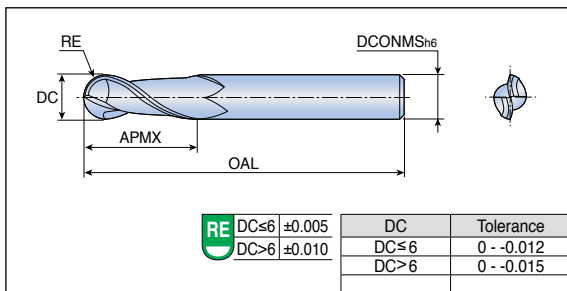


Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	
<b>HSR 6060M 050</b>	0.038-0.050	6.0	0.5	60	15	6.0	●
<b>6060M 100</b>	0.038-0.050	6.0	1.0	60	15	6.0	●
<b>6080M 050</b>	0.045-0.060	8.0	0.5	65	20	8.0	●
<b>6080M 100</b>	0.045-0.060	8.0	1.0	65	20	8.0	●
<b>6100M 050</b>	0.045-0.060	10.0	0.5	70	22	10.0	●
<b>6100M 100</b>	0.045-0.060	10.0	1.0	70	22	10.0	●
<b>6100M 150</b>	0.045-0.060	10.0	1.5	70	22	10.0	●
<b>6120M 050</b>	0.053-0.070	12.0	0.5	80	26	12.0	●
<b>6120M 100</b>	0.053-0.070	12.0	1.0	80	26	12.0	●
<b>6120M 150</b>	0.053-0.070	12.0	1.5	80	26	12.0	●

●: Standard items

# SBE 2...S

2 flute short ball



2	H·A 30°	P	M	K	N	S	H
		●	○	●	○	○	○

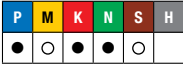
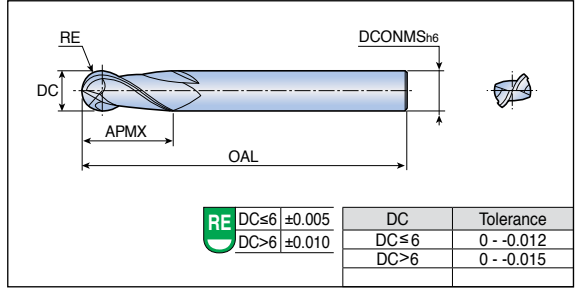
Designation	Dimension (mm)					Grade
	DC	RE	OAL	APMX	DCONMS	TT5515
<b>SBE 2020S</b>	2	1.0	50	3	6	●
<b>2030S</b>	3	1.5	50	4	6	●
<b>2040S</b>	4	2.0	54	5	6	●
<b>2050S</b>	5	2.5	54	6	6	●
<b>2060S</b>	6	3.0	54	7	6	●
<b>2080S</b>	8	4.0	58	9	8	●
<b>2100S</b>	10	5.0	66	11	10	●
<b>2120S</b>	12	6.0	73	12	12	●
<b>2160S</b>	16	8.0	82	16	16	●
<b>2200S</b>	20	10.0	92	20	20	●

► Weldon shank is available on request (Ordering example: SBEW 2...S)

●: Standard items

# SBE 2

## 2 flute medium ball



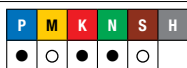
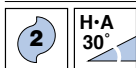
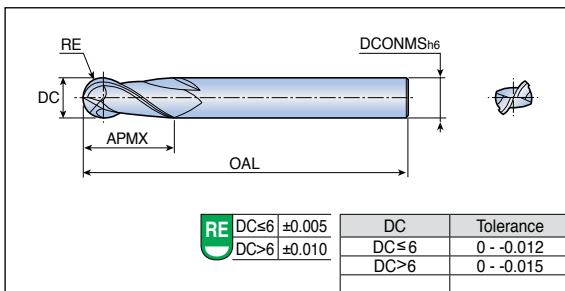
Designation	Dimension (mm)					Grade UF10N
	DC	RE	OAL	APMX	DCONMS	
<b>SBE 2010</b>	1.0	0.5	50	1.5	4	●
<b>2010-6</b>	1.0	0.5	50	1.5	6	●
<b>2015</b>	1.5	0.75	50	2.3	4	●
<b>2020</b>	2.0	1.0	50	3.0	4	●
<b>2020-6</b>	2.0	1.0	50	3.0	6	●
<b>2025</b>	2.5	1.25	50	3.8	4	●
<b>2025-6</b>	2.5	1.25	50	3.8	6	●
<b>2030</b>	3.0	1.5	70	8.0	6	●
<b>2040</b>	4.0	2.0	70	8.0	6	●
<b>2050</b>	5.0	2.5	80	12.0	6	●
<b>2060</b>	6.0	3.0	80	12.0	6	●
<b>2070</b>	7.0	3.5	90	15.0	8	●
<b>2080</b>	8.0	4.0	90	15.0	8	●
<b>2090</b>	9.0	4.5	100	20.0	10	●
<b>2100</b>	10.0	5.0	100	20.0	10	●
<b>2120</b>	12.0	6.0	110	25.0	12	●
<b>2140</b>	14.0	7.0	120	30.0	12	●
<b>2160</b>	16.0	8.0	125	35.0	16	●
<b>2180</b>	18.0	9.0	150	40.0	20	●
<b>2200</b>	20.0	10.0	150	40.0	20	●

► Weldon shank is available on request (Ordering example: SBEW 2...)

●: Standard items

# SBE 2...T

## 2 flute medium ball



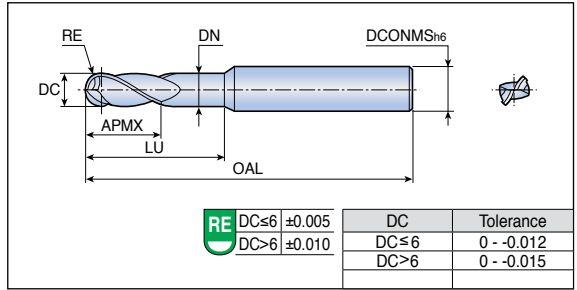
Designation	Dimension (mm)					Grade
	DC	RE	OAL	APMX	DCONMS	TT5515
<b>SBE 2010T</b>	1.0	0.5	50	1.5	4	●
<b>2010T-6</b>	1.0	0.5	50	1.5	6	●
<b>2012T</b>	1.2	0.6	50	1.8	4	●
<b>2015T</b>	1.5	0.75	50	2.3	4	●
<b>2015T-5X70</b>	1.5	0.75	70	5.0	6	●
<b>2015T-6</b>	1.5	0.75	50	2.3	6	●
<b>2016T</b>	1.6	0.8	50	2.4	4	●
<b>2020T</b>	2.0	1.0	50	3.0	4	●
<b>2020T-6</b>	2.0	1.0	50	3.0	6	●
<b>2020T-7X70</b>	2.0	1.0	70	7.0	6	●
<b>2025T</b>	2.5	1.25	50	3.8	4	●
<b>2025T-6</b>	2.5	1.25	50	3.8	6	●
<b>2030T</b>	3.0	1.5	70	8.0	6	●
<b>2030T-10X70</b>	3.0	1.5	70	10.0	6	●
<b>2035T</b>	3.5	1.75	70	8.0	6	●
<b>2040T</b>	4.0	2.0	70	8.0	6	●
<b>2040T-12X70</b>	4.0	2.0	70	12.0	6	●
<b>2045T</b>	4.5	2.25	80	8.0	6	●
<b>2050T</b>	5.0	2.5	80	12.0	6	●
<b>2050T-15X80</b>	5.0	2.5	80	15.0	6	●
<b>2060T</b>	6.0	3.0	80	12.0	6	●
<b>2060T-15X80</b>	6.0	3.0	80	15.0	6	●
<b>2065T</b>	6.5	3.25	90	12.0	8	●
<b>2070T</b>	7.0	3.5	90	15.0	8	●
<b>2080T</b>	8.0	4.0	90	15.0	8	●
<b>2080T-20X90</b>	8.0	4.0	90	20.0	8	●
<b>2090T</b>	9.0	4.5	100	20.0	10	●
<b>2100T</b>	10.0	5.0	100	20.0	10	●
<b>2100T-25X100</b>	10.0	5.0	100	25.0	10	●
<b>2110T</b>	11.0	5.5	110	25.0	12	●
<b>2120T</b>	12.0	6.0	110	25.0	12	●
<b>2120T-30X100</b>	12.0	6.0	100	30.0	12	●
<b>2140T</b>	14.0	7.0	120	30.0	12	●
<b>2150T</b>	15.0	7.5	125	35.0	16	●
<b>2160T</b>	16.0	8.0	125	35.0	16	●
<b>2180T</b>	18.0	9.0	150	40.0	20	●
<b>2200T</b>	20.0	10.0	150	40.0	20	●

► Weldon shank is available on request (Ordering example: SBEW 2...T)

●: Standard items

# SBE 2...L

2 flute long ball



2	<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 5px;">H·A</div> <div style="border: 1px solid black; padding: 2px;">30°</div> </div>	P	M	K	N	S	H
		●	○	●	●	○	

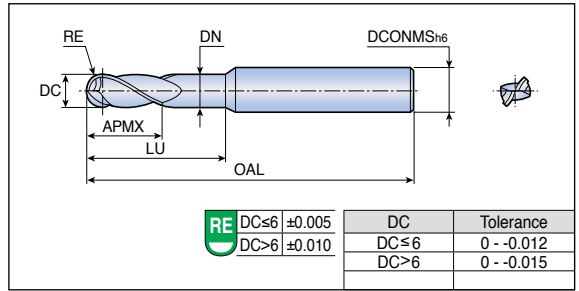
Designation	Dimension (mm)							Grades	
	DC	RE	OAL	APMX	LU	DN	DCONMS	UF10N	
<b>SBE 2030L</b>	3	1.5	100	4	35	2.85	6	●	
<b>2040L</b>	4	2.0	100	6	35	3.85	6	●	
<b>2060L</b>	6	3.0	115	8	45	5.8	8	●	
<b>2060L-6D</b>	6	3.0	115	8	45	5.8	6	●	
<b>2070L</b>	7	3.5	125	10	45	6.8	10	●	
<b>2080L</b>	8	4.0	125	12	55	7.8	10	●	
<b>2090L</b>	9	4.5	140	15	65	8.8	10	●	
<b>2100L</b>	10	5.0	140	15	65	9.8	10	●	
<b>2120L</b>	12	6.0	150	18	75	11.8	12	●	
<b>2160L</b>	16	8.0	155	30	75	15.6	16	●	

●: Standard items



# SBE 2...LT

2 flute long ball



2

**H·A**  
30°

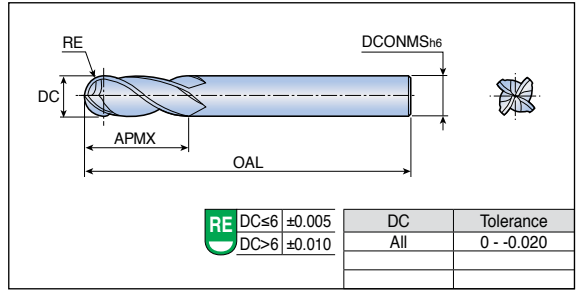
P	M	K	N	S	H
●	○	●	●	○	

Designation	Dimension (mm)							Grades
	DC	RE	OAL	APMX	LU	DN	DCONMS	TT5515
<b>SBE 2020LT</b>	2	1.0	100	4	20	1.85	6	●
<b>2030LT</b>	3	1.5	100	4	35	2.85	6	●
<b>2040LT</b>	4	2.0	100	6	35	3.85	6	●
<b>2050LT</b>	5	2.5	115	7	40	4.8	8	●
<b>2060LT</b>	6	3.0	115	8	45	5.8	8	●
<b>2060LT-6D</b>	6	3.0	115	8	45	5.8	6	●
<b>2060LT-6D WU</b>	6	3.0	115	8	-	-	6	●
<b>2070LT</b>	7	3.5	125	10	45	6.8	10	●
<b>2080LT</b>	8	4.0	125	12	55	7.8	10	●
<b>2080LT-8D</b>	8	4.0	125	12	55	7.8	8	●
<b>2080LT-8D WU</b>	8	4.0	125	12	-	-	8	●
<b>2090LT</b>	9	4.5	140	15	65	8.8	10	●
<b>2100LT</b>	10	5.0	140	15	65	9.8	10	●
<b>2100LT-WU</b>	10	5.0	140	15	-	-	10	●
<b>2120LT</b>	12	6.0	150	18	75	11.8	12	●
<b>2140LT</b>	14	7.0	155	23	75	13.6	16	●
<b>2160LT</b>	16	8.0	155	30	75	15.6	16	●
<b>2160LT-WU</b>	16	8.0	155	30	-	-	16	●

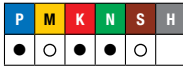
► WU: Without under cut ●: Standard items

# SBE 4

## 4 flute medium ball



H-A  
30°

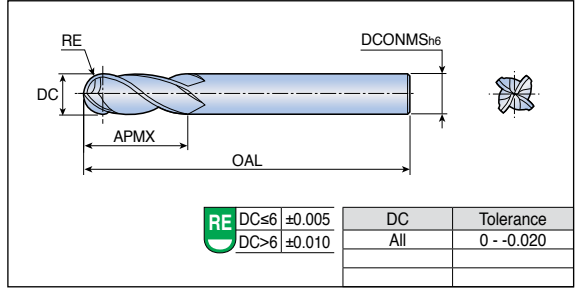


Designation	Dimension (mm)					Grade
	DC	RE	OAL	APMX	DCONMS	UF10N
<b>SBE 4060</b>	6	3	80	12	6	●
<b>4100</b>	10	5	100	20	10	●
<b>4120</b>	12	6	110	25	12	●
<b>4160</b>	16	8	125	35	16	●
<b>4200</b>	20	10	150	40	20	●

► Weldon shank is available on request (Ordering example: SBEW 4...) ●: Standard items

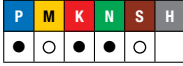
# SBE 4...T

## 4 flute medium ball



RE	DC≤6	±0.005
	DC>6	±0.010

DC	Tolerance
All	0 - -0.020

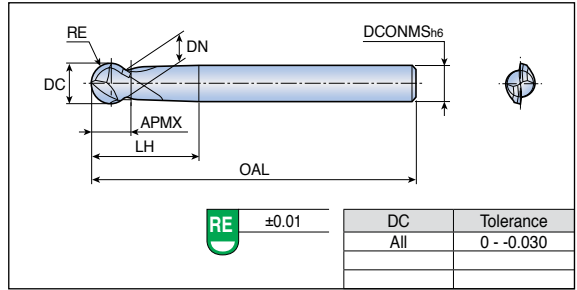


Designation	Dimension (mm)					Grade
	DC	RE	OAL	APMX	DCONMS	TT5515
<b>SBE 4010T-6</b>	1.0	0.5	50	2.5	6	●
<b>4015T</b>	1.5	0.75	50	4.0	4	●
<b>4020T</b>	2.0	1.0	50	5.0	6	●
<b>4030T</b>	3.0	1.5	57	8.0	6	●
<b>4040T</b>	4.0	2.0	70	8.0	6	●
<b>4050T</b>	5.0	2.5	80	12.0	6	●
<b>4060T</b>	6.0	3.0	80	12.0	6	●
<b>4070T</b>	7.0	3.5	90	15.0	8	●
<b>4080T</b>	8.0	4.0	90	15.0	8	●
<b>4090T</b>	9.0	4.5	100	20.0	10	●
<b>4100T</b>	10.0	5.0	100	20.0	10	●
<b>4120T</b>	12.0	6.0	110	25.0	12	●
<b>4160T</b>	16.0	8.0	125	35.0	16	●
<b>4180T</b>	18.0	9.0	150	40.0	20	●
<b>4200T</b>	20.0	10.0	150	40.0	20	●

► Weldon shank is available on request (Ordering example: SBEW 4...T) ●: Standard items

# BES 2...T

## 2 flute spherical ball



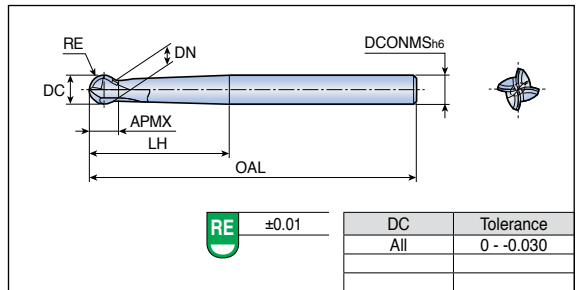
2	H·A 30°	P	M	K	N	S	H
		●	○	○	○	○	○

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LH	DN	DCONMS	
<b>BES 2030T</b>	3	1.5	80	3.3	28.5	2.52	6	●
<b>2040T</b>	4	2.0	80	4.1	28.5	3.35	6	●
<b>2050T</b>	5	2.5	80	5.4	38.0	4.19	6	●
<b>2060T</b>	6	3.0	100	6.1	28.0	5.03	6	●
<b>2080T</b>	8	4.0	100	8.2	33.0	6.71	8	●
<b>2100T</b>	10	5.0	100	9.7	40.0	8.39	10	●
<b>2120T</b>	12	6.0	110	12.3	49.0	10.06	12	●
<b>2160T</b>	16	8.0	155	15.4	58.0	13.42	16	●

●: Standard items

# BES 4...T

## 4 flute spherical ball



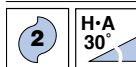
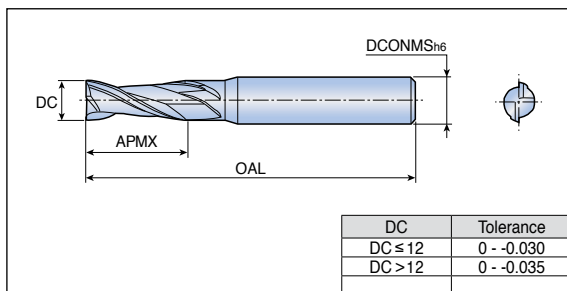
4	H·A 30°	P	M	K	N	S	H
		●	○	○	○	○	○

Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LH	DN	DCONMS	
<b>BES 4030T</b>	3	1.5	80	3.3	28.5	2.52	6	●
<b>4040T</b>	4	2.0	80	4.1	28.5	3.35	6	●
<b>4050T</b>	5	2.5	80	5.4	38.0	4.19	6	●
<b>4060T</b>	6	3.0	100	6.1	28.0	5.03	6	●
<b>4080T</b>	8	4.0	100	8.2	33.0	6.71	8	●
<b>4100T</b>	10	5.0	100	9.7	40.0	8.39	10	●
<b>4120T</b>	12	6.0	110	12.3	49.0	10.06	12	●

●: Standard items

# TSE 2...M

## 2 flute medium flat



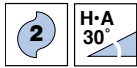
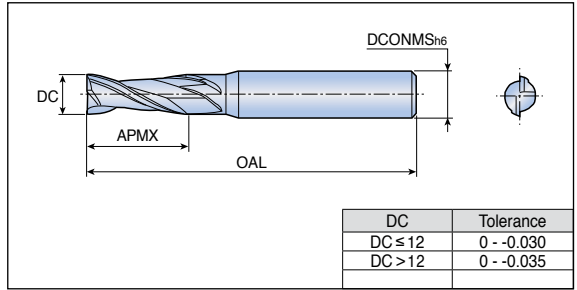
Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>TSE 2010M-4</b>	0.008-0.030	1.0	40	3	4	●	●
<b>2010M</b>	0.008-0.030	1.0	42	3	6	●	●
<b>2012M</b>	0.008-0.030	1.2	42	3	6	●	●
<b>2015M-4</b>	0.008-0.030	1.5	40	4	4	●	●
<b>2015M</b>	0.008-0.030	1.5	42	4	6	●	●
<b>2020M-4</b>	0.010-0.030	2.0	40	6	4	●	●
<b>2020M</b>	0.010-0.030	2.0	42	6	6	●	●
<b>2025M-4</b>	0.010-0.030	2.5	40	8	4	●	●
<b>2025M</b>	0.010-0.030	2.5	42	8	6	●	●
<b>2030M</b>	0.010-0.030	3.0	57	10	6	●	●
<b>2035M-4</b>	0.010-0.030	3.5	50	12	4	●	●
<b>2035M</b>	0.010-0.030	3.5	47	10	6	●	●
<b>2040M-4</b>	0.010-0.050	4.0	50	12	4	●	●
<b>2040M</b>	0.010-0.050	4.0	57	12	6	●	●
<b>2045M</b>	0.010-0.050	4.5	57	14	6	●	●
<b>2050M-5</b>	0.015-0.060	5.0	50	14	5	●	●
<b>2050M</b>	0.015-0.060	5.0	57	14	6	●	●
<b>2055M</b>	0.015-0.060	5.5	57	16	6	●	●
<b>2060M</b>	0.020-0.060	6.0	57	16	6	●	●
<b>2065M-7</b>	0.020-0.060	6.5	60	20	7	●	●
<b>2065M</b>	0.020-0.060	6.5	60	20	8	●	●
<b>2070M</b>	0.030-0.070	7.0	60	20	8	●	●
<b>2075M</b>	0.030-0.070	7.5	63	20	8	●	●
<b>2080M</b>	0.030-0.100	8.0	63	20	8	●	●
<b>2085M</b>	0.030-0.100	8.5	72	22	10	●	●
<b>2090M</b>	0.030-0.100	9.0	68	25	10	●	●
<b>2095M</b>	0.030-0.100	9.5	72	24	10	●	●
<b>2100M(25X68)</b>	0.030-0.120	10.0	68	25	10	●	●
<b>2100M</b>	0.030-0.120	10.0	72	22	10	●	●
<b>2105M</b>	0.030-0.120	10.5	76	26	12	●	●
<b>2110M</b>	0.030-0.120	11.0	76	30	12	●	●
<b>2115M</b>	0.030-0.120	11.5	83	30	12	●	●
<b>2120M(30X76)</b>	0.030-0.120	12.0	76	30	12	●	●
<b>2120M</b>	0.030-0.120	12.0	83	25	12	●	●
<b>2130M</b>	0.030-0.132	13.0	85	35	14	●	●

► Weldon shank is available on request (Ordering example: TSEW 2...M)

●: Standard items

# TSE 2...M

2 flute medium flat



P	M	K	N	S	H
●	○	●	○	○	○

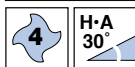
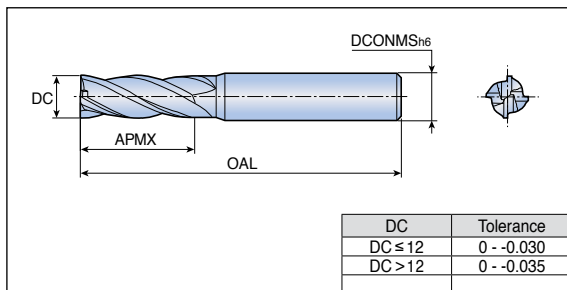
Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>TSE 2140M-14</b>	0.030-0.132	14.0	83	25	14	●	●
<b>2140M</b>	0.030-0.132	14.0	85	35	16		●
<b>2150M</b>	0.040-0.140	15.0	92	32	16	●	●
<b>2160M</b>	0.040-0.140	16.0	92	32	16	●	●
<b>2180M-18</b>	0.040-0.140	18.0	92	32	18	●	●
<b>2180M(45X110)</b>	0.040-0.140	18.0	110	45	20	●	
<b>2200M</b>	0.040-0.140	20.0	104	38	20	●	●
<b>2250M</b>	0.050-0.146	25.0	120	50	25	●	●

► Weldon shank is available on request (Ordering example: TSEW 2...M)

●: Standard items

# TSE 4...M

## 4 flute medium flat



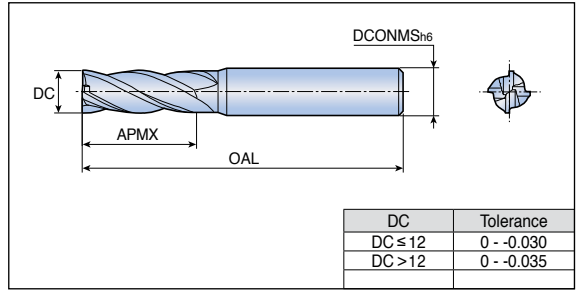
Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>TSE 4010M</b>	0.005-0.010	1.0	42	2.5	6	●	●
<b>4015M</b>	0.005-0.012	1.5	42	4	6	●	●
<b>4020M</b>	0.008-0.017	2.0	42	6	6	●	●
<b>4025M-4</b>	0.008-0.017	2.5	40	8	4	●	●
<b>4025M</b>	0.008-0.017	2.5	42	8	6	●	●
<b>4030M</b>	0.009-0.020	3.0	57	10	6	●	●
<b>4035M-4</b>	0.010-0.028	3.5	50	12	4	●	
<b>4035M</b>	0.010-0.028	3.5	47	10	6	●	●
<b>4040M-4</b>	0.010-0.042	4.0	50	12	4	●	●
<b>4040M</b>	0.010-0.042	4.0	57	12	6	●	●
<b>4045M</b>	0.010-0.042	4.5	57	12	6	●	
<b>4050M</b>	0.020-0.059	5.0	57	14	6	●	●
<b>4055M</b>	0.020-0.059	5.5	57	14	6	●	●
<b>4060M</b>	0.020-0.075	6.0	57	16	6	●	●
<b>4065M</b>	0.020-0.075	6.5	60	20	8	●	●
<b>4070M</b>	0.020-0.075	7.0	60	20	8	●	●
<b>4075M</b>	0.020-0.075	7.5	60	20	8	●	●
<b>4080M</b>	0.030-0.100	8.0	63	20	8	●	●
<b>4085M</b>	0.030-0.100	8.5	68	25	10	●	●
<b>4090M</b>	0.030-0.100	9.0	68	25	10	●	●
<b>4095M</b>	0.030-0.100	9.5	68	25	10	●	●
<b>4100M(25X68)</b>	0.030-0.120	10.0	68	25	10	●	●
<b>4100M</b>	0.030-0.120	10.0	72	22	10	●	●
<b>4105M</b>	0.030-0.120	10.5	76	30	12	●	●
<b>4110M</b>	0.030-0.120	11.0	76	30	12	●	●
<b>4115M</b>	0.030-0.120	11.5	76	30	12	●	●
<b>4120M(30X76)</b>	0.030-0.136	12.0	76	30	12	●	●
<b>4120M</b>	0.030-0.136	12.0	83	25	12	●	●
<b>4130M</b>	0.030-0.136	13.0	85	35	14	●	●
<b>4140M-14</b>	0.030-0.136	14.0	83	25	14	●	●
<b>4140M</b>	0.030-0.136	14.0	85	35	16		●
<b>4140M(35X85)</b>	0.030-0.136	14.0	85	35	16	●	
<b>4150M</b>	0.040-0.140	15.0	92	32	16	●	●
<b>4160M(40X90)</b>	0.040-0.146	16.0	90	40	16	●	●
<b>4160M</b>	0.040-0.146	16.0	92	32	16	●	●

► Weldon shank is available on request (Ordering example: TSEW 4...M)

●: Standard items

# TSE 4...M

4 flute medium flat



4

H•A

30°

P	M	K	N	S	H
●	○	●	○	○	○

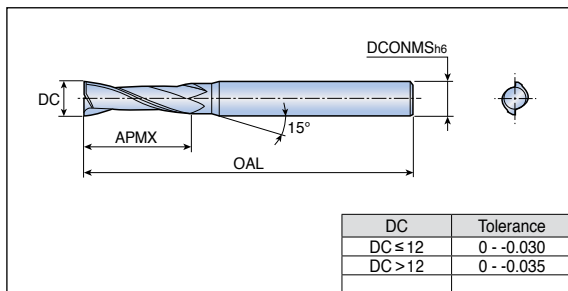
Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>TSE 4170M(45X110)</b>	0.050-0.146	17.0	110	45	20	●	
<b>4180M-18</b>	0.050-0.146	18.0	92	32	18	●	●
<b>4180M(45X110)</b>	0.050-0.146	18.0	110	45	20	●	●
<b>4200M</b>	0.050-0.146	20.0	104	38	20	●	●
<b>4200M(45X110)</b>	0.050-0.146	20.0	110	45	20	●	●
<b>4250M</b>	0.050-0.146	25.0	140	65	25	●	●

► Weldon shank is available on request (Ordering example: TSEW 4...M) ●: Standard items



# HES 2...LT

2 flute long flat



DC	Tolerance
DC ≤ 12	0 - -0.030
DC > 12	0 - -0.035

2

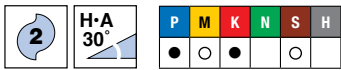
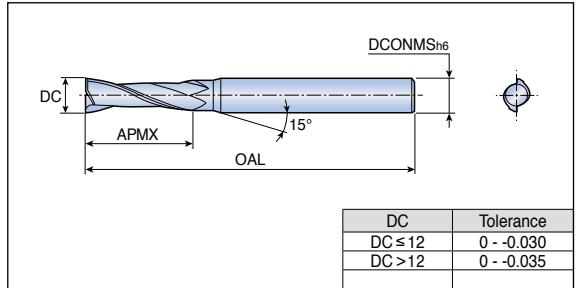
**H·A**  
30°

Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	
<b>HES 2030LT(10x70)</b>	0.010-0.040	3	70	10	6	●
<b>2040LT(12x70)</b>	0.020-0.050	4	70	12	6	●
<b>2050LT(15x80)</b>	0.020-0.060	5	80	15	6	●
<b>2060LT(15x80)</b>	0.030-0.076	6	80	15	6	●
<b>2080LT(20x90)</b>	0.030-0.097	8	90	20	8	●
<b>2100LT(25x100)</b>	0.030-0.107	10	100	25	10	●
<b>2120LT(30x110)</b>	0.040-0.108	12	110	30	12	●
<b>2140LT</b>	0.040-0.120	14	125	35	16	●
<b>2160LT</b>	0.040-0.130	16	125	40	16	●
<b>2180LT</b>	0.050-0.130	18	150	45	20	●
<b>2200LT</b>	0.050-0.130	20	150	45	20	●

●: Standard items

# HES 2...XLT

2 flute extra long flat



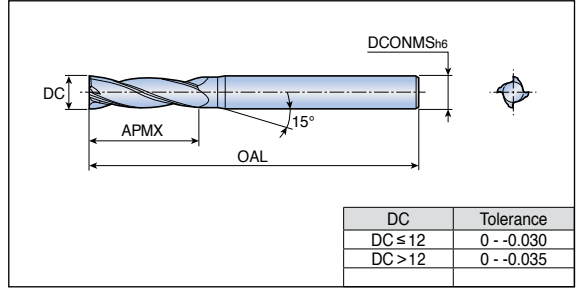
Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 2030XLT(20x70)</b>	0.010-0.040	3	70	20	6	●	
<b>2040XLT(20x70)</b>	0.020-0.050	4	70	20	6	●	●
<b>2050XLT(25x80)</b>	0.020-0.060	5	80	25	6	●	●
<b>2060XLT(25x80)</b>	0.030-0.076	6	80	25	6	●	●
<b>2080XLT(35x90)</b>	0.030-0.097	8	90	35	8	●	●
<b>2100XLT(45x100)</b>	0.030-0.107	10	100	45	10	●	●
<b>2120XLT(55x110)</b>	0.040-0.108	12	110	55	12	●	●
<b>2140XLT</b>	0.040-0.120	14	125	60	16	●	●
<b>2160XLT</b>	0.040-0.130	16	125	70	16	●	●
<b>2180XLT</b>	0.050-0.130	18	150	75	20	●	●
<b>2200XLT</b>	0.050-0.130	20	150	75	20	●	●

●: Standard items



# HES 4...XLT

## 4 flute extra long flat

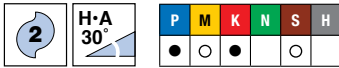
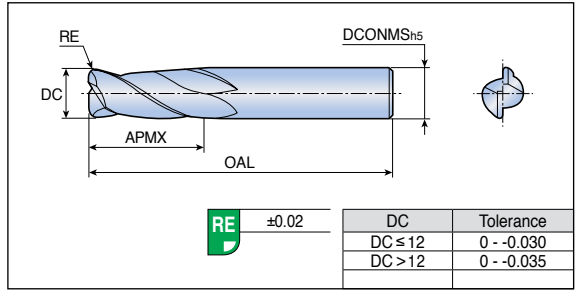


Designation	Feed (mm/tooth)	Dimension (mm)				Grades	
		DC	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 4030XLT(20x70)</b>	0.01-0.04	3	70	20	6	●	●
<b>4040XLT(20x70)</b>	0.02-0.05	4	70	20	6	●	●
<b>4050XLT(25x80)</b>	0.02-0.06	5	80	25	6	●	●
<b>4060XLT(25x80)</b>	0.03-0.07	6	80	25	6	●	●
<b>4080XLT(35x90)</b>	0.03-0.09	8	90	35	8	●	●
<b>4100XLT(45x100)</b>	0.03-0.10	10	100	45	10	●	●
<b>4120XLT(55x110)</b>	0.04-0.11	12	110	55	12	●	●
<b>4140XLT</b>	0.04-0.12	14	125	60	16	●	●
<b>4160XLT</b>	0.05-0.13	16	125	70	16	●	●
<b>4180XLT</b>	0.05-0.13	18	150	75	20	●	●
<b>4200XLT</b>	0.05-0.13	20	150	75	20	●	●

●: Standard items

# HES 2...T-R

2 flute medium corner radius

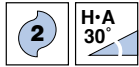
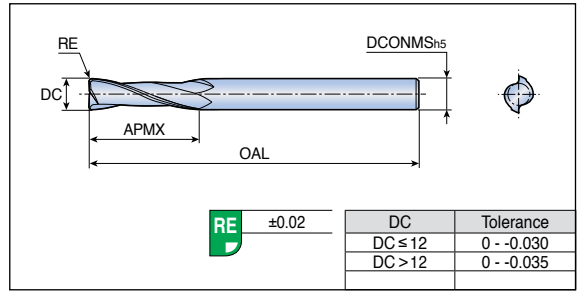


Designation	Feed (mm/tooth)	Dimension (mm)					Grades	
		DC	RE	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 2030T-R0.5</b>	0.010-0.030	3	0.5	47	10	6	●	●
<b>2040T-R0.5</b>	0.010-0.050	4	0.5	47	12	6	●	●
<b>2050T-R0.5</b>	0.020-0.060	5	0.5	52	15	6	●	●
<b>2060T-R0.5</b>	0.020-0.060	6	0.5	52	15	6	●	●
<b>2060T-R1.0</b>	0.020-0.060	6	1.0	52	15	6	●	●
<b>2080T-R0.5</b>	0.030-0.100	8	0.5	60	20	8	●	●
<b>2080T-R1.0</b>	0.030-0.100	8	1.0	60	20	8	●	●
<b>2080T-R1.5</b>	0.030-0.100	8	1.5	60	20	8	●	●
<b>2080T-R2.0</b>	0.030-0.100	8	2.0	60	20	8	●	●
<b>2100T-R0.5</b>	0.030-0.120	10	0.5	68	25	10	●	●
<b>2100T-R1.0</b>	0.030-0.120	10	1.0	68	25	10	●	●
<b>2100T-R1.5</b>	0.030-0.120	10	1.5	68	25	10	●	●
<b>2100T-R2.0</b>	0.030-0.120	10	2.0	68	25	10	●	●
<b>2100T-R2.5</b>	0.030-0.120	10	2.5	68	25	10	●	●
<b>2100T-R3.0</b>	0.030-0.120	10	3.0	68	25	10	●	●
<b>2120T-R0.5</b>	0.030-0.120	12	0.5	76	30	12	●	●
<b>2120T-R1.0</b>	0.030-0.120	12	1.0	76	30	12	●	●
<b>2120T-R1.5</b>	0.030-0.120	12	1.5	76	30	12	●	●
<b>2120T-R2.0</b>	0.030-0.120	12	2.0	76	30	12	●	●
<b>2120T-R2.5</b>	0.030-0.120	12	2.5	76	30	12	●	●
<b>2120T-R3.0</b>	0.030-0.120	12	3.0	76	30	12	●	●
<b>2160T-R0.5</b>	0.040-0.142	16	0.5	90	40	16	●	●
<b>2160T-R1.0</b>	0.040-0.142	16	1.0	90	40	16	●	●
<b>2160T-R1.5</b>	0.040-0.142	16	1.5	90	40	16	●	●
<b>2160T-R2.0</b>	0.040-0.142	16	2.0	90	40	16	●	●
<b>2160T-R3.0</b>	0.040-0.142	16	3.0	90	40	16	●	●
<b>2200T-R0.5</b>	0.040-0.142	20	0.5	110	45	20	●	●
<b>2200T-R1.0</b>	0.040-0.142	20	1.0	110	45	20	●	●
<b>2200T-R1.5</b>	0.040-0.142	20	1.5	110	45	20	●	●
<b>2200T-R2.0</b>	0.040-0.142	20	2.0	110	45	20	●	●
<b>2200T-R3.0</b>	0.040-0.142	20	3.0	110	45	20	●	●

●: Standard items

# HES 2...LT-R

## 2 flute long corner radius



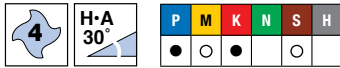
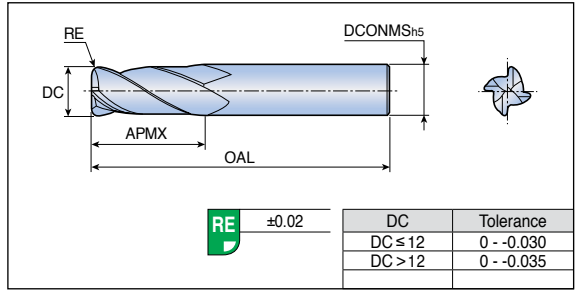
**RE** ±0.02

Designation	Feed (mm/tooth)	Dimension (mm)					Grades	
		DC	RE	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 2030LT-R0.5</b>	0.010-0.040	3	0.5	70	10	6	●	●
<b>2040LT-R0.5</b>	0.020-0.050	4	0.5	70	12	6	●	●
<b>2050LT-R0.5</b>	0.020-0.060	5	0.5	80	15	6	●	●
<b>2060LT-R0.5</b>	0.030-0.076	6	0.5	80	15	6	●	●
<b>2060LT-R1.0</b>	0.030-0.076	6	1.0	80	15	6	●	●
<b>2080LT-R0.5</b>	0.030-0.097	8	0.5	90	20	8	●	●
<b>2080LT-R1.0</b>	0.030-0.097	8	1.0	90	20	8	●	●
<b>2100LT-R0.5</b>	0.030-0.107	10	0.5	100	25	10	●	●
<b>2100LT-R1.0</b>	0.030-0.107	10	1.0	100	25	10	●	●
<b>2120LT-R0.5</b>	0.040-0.108	12	0.5	110	30	12	●	●
<b>2120LT-R1.0</b>	0.040-0.108	12	1.0	110	30	12	●	●

●: Standard items

# HES 4...T-R

4 flute medium corner radius

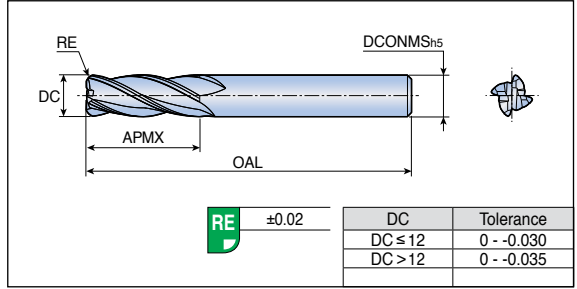


Designation	Feed (mm/tooth)	Dimension (mm)					Grades	
		DC	RE	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 4030T-R0.3</b>	0.01-0.04	3	0.3	47	10	6	●	●
<b>4040T-R0.3</b>	0.02-0.05	4	0.3	47	12	6	●	●
<b>4050T-R0.3</b>	0.02-0.06	5	0.3	52	15	6	●	●
<b>4060T-R0.5</b>	0.03-0.07	6	0.5	52	15	6	●	●
<b>4060T-R1.0</b>	0.03-0.07	6	1.0	52	15	6	●	●
<b>4080T-R0.5</b>	0.03-0.09	8	0.5	60	20	8	●	●
<b>4080T-R1.0</b>	0.03-0.09	8	1.0	60	20	8	●	●
<b>4080T-R1.5</b>	0.03-0.09	8	1.5	60	20	8	●	●
<b>4080T-R2.0</b>	0.03-0.09	8	2.0	60	20	8	●	●
<b>4100T-R0.5</b>	0.03-0.10	10	0.5	68	25	10	●	●
<b>4100T-R1.0</b>	0.03-0.10	10	1.0	68	25	10	●	●
<b>4100T-R1.5</b>	0.03-0.10	10	1.5	68	25	10	●	●
<b>4100T-R2.0</b>	0.03-0.10	10	2.0	68	25	10	●	●
<b>4100T-R2.5</b>	0.03-0.10	10	2.5	68	25	10	●	●
<b>4100T-R3.0</b>	0.03-0.10	10	3.0	68	25	10	●	●
<b>4120T-R0.5</b>	0.04-0.11	12	0.5	76	30	12	●	●
<b>4120T-R1.0</b>	0.04-0.11	12	1.0	76	30	12	●	●
<b>4120T-R1.5</b>	0.04-0.11	12	1.5	76	30	12	●	●
<b>4120T-R2.0</b>	0.04-0.11	12	2.0	76	30	12	●	●
<b>4120T-R2.5</b>	0.04-0.11	12	2.5	76	30	12	●	●
<b>4120T-R3.0</b>	0.04-0.11	12	3.0	76	30	12	●	●
<b>4160T-R0.5</b>	0.05-0.13	16	0.5	90	40	16	●	●
<b>4160T-R1.0</b>	0.05-0.13	16	1.0	90	40	16	●	●
<b>4160T-R1.5</b>	0.05-0.13	16	1.5	90	40	16	●	●
<b>4160T-R2.0</b>	0.05-0.13	16	2.0	90	40	16	●	●
<b>4160T-R3.0</b>	0.05-0.13	16	3.0	90	40	16	●	●
<b>4200T-R0.5</b>	0.05-0.13	20	0.5	110	45	20	●	●
<b>4200T-R1.0</b>	0.05-0.13	20	1.0	110	45	20	●	●
<b>4200T-R1.5</b>	0.05-0.13	20	1.5	110	45	20	●	●
<b>4200T-R2.0</b>	0.05-0.13	20	2.0	110	45	20	●	●
<b>4200T-R3.0</b>	0.05-0.13	20	3.0	110	45	20	●	●

●: Standard items

# HES 4...LT-R

4 flute long corner radius



**H-A**  
30°

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>
●	○	●	○	○	○

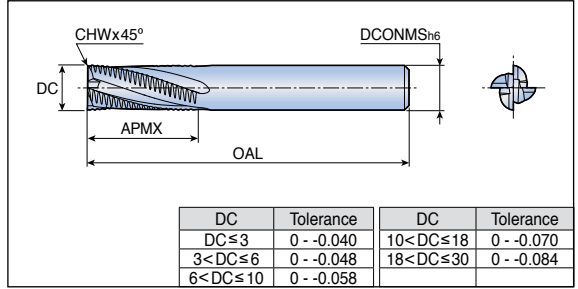
Designation	Feed (mm/tooth)	Dimension (mm)					Grades	
		DC	RE	OAL	APMX	DCONMS	TT5515	TT5525
<b>HES 4030LT-R0.5</b>	0.02-0.05	3	0.5	70	10	6	●	●
<b>4040LT-R0.5</b>	0.02-0.05	4	0.5	70	12	6	●	●
<b>4040LT-R1.0</b>	0.02-0.05	4	1.0	70	12	6	●	●
<b>4060LT-R0.5</b>	0.03-0.07	6	0.5	80	15	6	●	●
<b>4060LT-R1.0</b>	0.03-0.07	6	1.0	80	15	6	●	●
<b>4080LT-R0.5</b>	0.03-0.09	8	0.5	90	20	8	●	●
<b>4080LT-R1.0</b>	0.03-0.09	8	1.0	90	20	8	●	●
<b>4100LT-R0.5</b>	0.03-0.10	10	0.5	100	25	10	●	●
<b>4100LT-R1.0</b>	0.03-0.10	10	1.0	100	25	10	●	●
<b>4120LT-R0.5</b>	0.04-0.11	12	0.5	110	30	12	●	●
<b>4120LT-R1.0</b>	0.04-0.11	12	1.0	110	30	12	●	●

●: Standard items



# REL ...L

## 3-4 flute rough long corner chamfer



Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	NOF	CHW	OAL	APMX	DCONMS	
<b>REL 3060L</b>	0.03-0.06	6	3	0.38	57	16	6	●
<b>3080L</b>	0.03-0.08	8	3	0.38	63	16	8	●
<b>4100L</b>	0.03-0.09	10	4	0.61	72	22	10	●
<b>4120L</b>	0.04-0.10	12	4	0.61	83	26	12	●
<b>4140L-14</b>	0.05-0.11	14	4	0.61	83	26	14	●
<b>4160L</b>	0.05-0.11	16	4	0.61	92	32	16	●
<b>4200L</b>	0.05-0.11	20	4	0.61	104	38	20	●

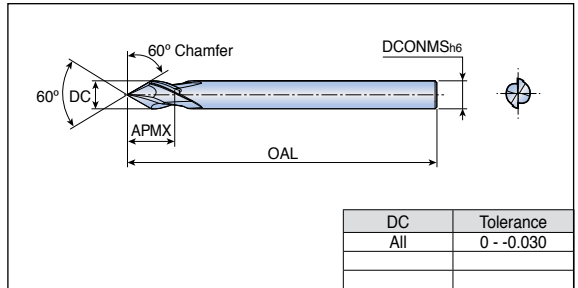
▶ Weldon shank is available on request (Ordering example: RELW ...L)

●: Standard items

▶ NOF: Number of flutes

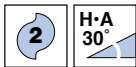
# CEM 2...-C60

## 2 flute, 60° chamfering



● Multi-function

- Chamfer boring, chamfer milling, side milling



Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	
<b>CEM 2040-C60</b>	0.02-0.04	4	70	7.5	6	●
<b>2060-C60</b>	0.02-0.04	6	80	11.2	6	●
<b>2080-C60</b>	0.03-0.06	8	90	14.9	8	●
<b>2100-C60</b>	0.03-0.08	10	100	18.7	10	●
<b>2120-C60</b>	0.04-0.09	12	110	22.4	12	●
<b>2160-C60</b>	0.05-0.10	16	125	29.9	16	●
<b>2200-C60</b>	0.05-0.10	20	150	37.3	20	●

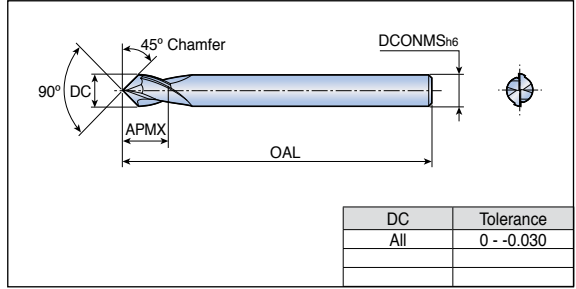
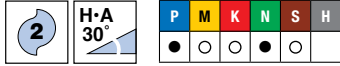
●: Standard items

# CEM 2

## 2 flute, 45° chamfering



- Multi-function
  - Chamfer boring, chamfer milling, side milling,
  - \*centering, V-slot milling



Designation	Feed (mm/tooth)	Dimension (mm)				Grade	
		DC	OAL	APMX	DCONMS	UF10	TT5525
<b>CEM 2040</b>	0.02-0.05	4	70	6	6	●	●
<b>2060</b>	0.02-0.05	6	80	9	6	●	●
<b>2080</b>	0.03-0.07	8	90	12	8	●	●
<b>2100</b>	0.03-0.10	10	100	15	10	●	●
<b>2120</b>	0.04-0.10	12	110	18	12	●	●
<b>2160</b>	0.05-0.10	16	125	24	16	●	●
<b>2200</b>	0.05-0.10	20	150	30	20	●	●

▶ \*Centering of 45° is only applicable on cast iron & non-ferrous material

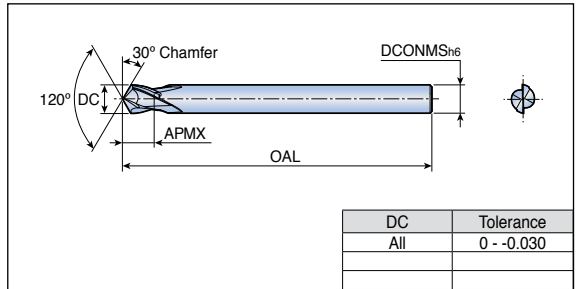
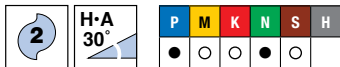
●: Standard items

# CEM 2...-C120

## 2 flute, 30° chamfering



- Multi-function
  - Chamfer boring, chamfer milling, side milling,
  - centering, V-slot milling, drilling



Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	UF10
<b>CEM 2040-C1204</b>	0.02-0.05	4	70	5.2	6	●
<b>2060-C120</b>	0.02-0.05	6	80	7.7	6	●
<b>2080-C120</b>	0.03-0.07	8	90	10.3	8	●
<b>2100-C120</b>	0.03-0.10	10	100	12.9	10	●
<b>2120-C120</b>	0.04-0.10	12	110	15.5	12	●
<b>2160-C120</b>	0.05-0.10	16	125	20.6	16	●
<b>2200-C120</b>	0.05-0.10	20	150	25.8	20	●

●: Standard items

# ECEM 2

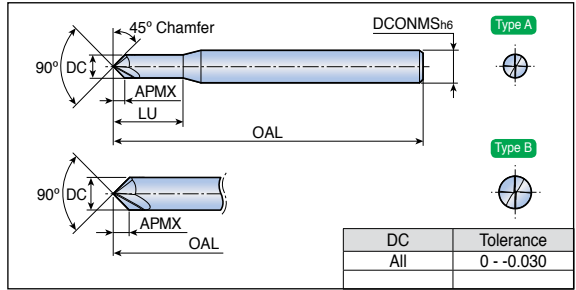
## 2 flute, 45° chamfering - Economical type



- Multi-function  
-Chamfer boring, chamfer milling, centering,  
V-slot milling



P	M	K	N	S	H
●	○	○	●	○	



Designation	Feed (mm/tooth)	Dimension (mm)					Type	Grade UF10
		DC	OAL	APMX	LU	DCONMS		
<b>ECEM 2020</b>	0.01-0.03	2	57	1.0	6	6	A	●
<b>2030</b>	0.01-0.04	3	57	1.5	9	6	A	●
<b>2040</b>	0.02-0.05	4	57	2.0	12	6	A	●
<b>2060</b>	0.02-0.05	6	57	2.9	-	6	B	●
<b>2080</b>	0.03-0.07	8	63	3.8	-	8	B	●
<b>2100</b>	0.03-0.10	10	72	4.9	-	10	B	●
<b>2120</b>	0.04-0.10	12	83	5.9	-	12	B	●
<b>2160</b>	0.05-0.10	16	92	7.9	-	16	B	●

●: Standard items

# ECEM 4

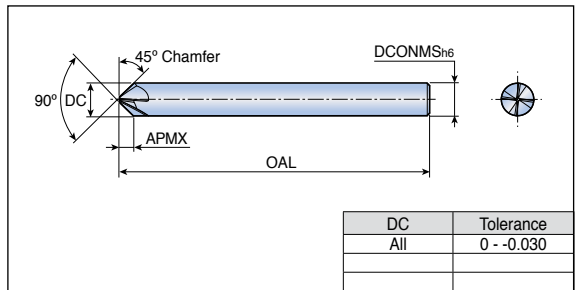
## 4 flute, 45° chamfering - Economical type



- Chamfer milling



P	M	K	N	S	H
●	○	○	●	○	

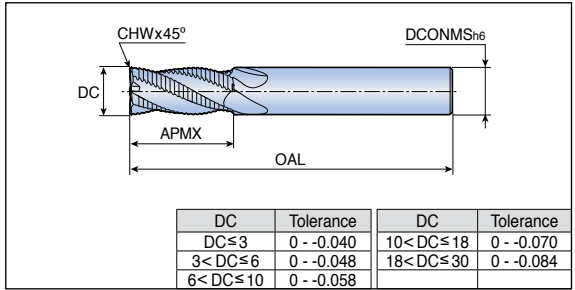


Designation	Feed (mm/tooth)	Dimension (mm)				Grade UF10
		DC	OAL	APMX	DCONMS	
<b>ECEM 4060</b>	0.02-0.04	6	57	2.5	6	●
<b>4080</b>	0.02-0.05	8	63	3.4	8	●
<b>4100</b>	0.03-0.08	10	72	4.4	10	●
<b>4120</b>	0.03-0.08	12	83	5.1	12	●

●: Standard items

# REH ...S

## 4-6 flute rough short corner chamfer



H-A  
45°

P	M	K	N	S	H
●	●	●	○		

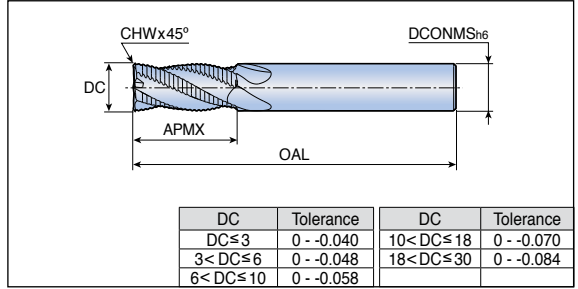
Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	NOF	CHW	OAL	APMX	DCONMS	
<b>REH 4060S</b>	0.04-0.12	6	4	0.25	54	7	6	●
<b>4080S</b>	0.05-0.16	8	4	0.30	58	9	8	●
<b>4100S</b>	0.06-0.18	10	4	0.36	66	14	10	●
<b>4120S</b>	0.06-0.20	12	4	0.36	73	16	12	●
<b>5160S</b>	0.08-0.22	16	5	0.36	82	22	16	●
<b>6200S</b>	0.08-0.22	20	6	0.36	92	26	20	●

▶ Weldon shank is available on request (Ordering example: REHW ....S)  
 ▶ NOF: Number of flutes

●: Standard items

# REH ...M

## 3-6 flute rough medium corner chamfer

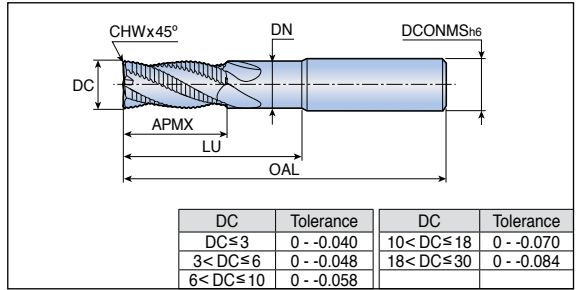


Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	NOF	CHW	OAL	APMX	DCONMS	
REH 3040M	0.02-0.05	4	3	0.15	57	11	6	●
4050M	0.02-0.05	5	4	0.20	57	13	6	●
4060M	0.04-0.12	6	4	0.25	57	16	6	●
4070M	0.05-0.16	7	4	0.28	63	16	8	●
4080M	0.05-0.16	8	4	0.30	63	16	8	●
4090M	0.06-0.18	9	4	0.33	72	19	10	●
4100M	0.06-0.18	10	4	0.36	72	22	10	●
4120M	0.06-0.20	12	4	0.36	83	26	12	●
5140M-14	0.08-0.22	14	5	0.36	83	26	14	●
5160M	0.08-0.22	16	5	0.36	92	32	16	●
6200M	0.08-0.22	20	6	0.36	104	38	20	●
6250M	0.08-0.22	25	6	0.36	121	45	25	●

► Weldon shank is available on request (Ordering example: REHW ....M) ●: Standard items  
 ► NOF: Number of flutes

# REH ...L

## 4-6 flute rough long neck corner chamfer

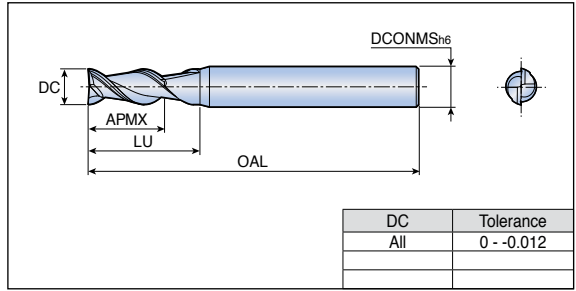


Designation	Feed (mm/tooth)	Dimension (mm)								Grade TT5525
		DC	NOF	CHW	OAL	APMX	LU	DN	DCONMS	
<b>REH 4060L</b>	0.04-0.12	6	4	0.25	57	16	20	5.5	6	●
<b>4080L</b>	0.05-0.16	8	4	0.30	63	16	26	7.5	8	●
<b>4100L</b>	0.06-0.18	10	4	0.36	72	22	31	9.5	10	●
<b>4120L</b>	0.06-0.20	12	4	0.36	83	26	37	11.5	12	●
<b>5160L</b>	0.08-0.22	16	5	0.36	100	32	51	15.5	16	●
<b>6200L</b>	0.08-0.22	20	6	0.36	110	38	59	19.2	20	●

► Weldon shank is available on request (Ordering example: REHW ....L) ●: Standard items  
 ► NOF: Number of flutes

# AES 2

2 flute medium flat



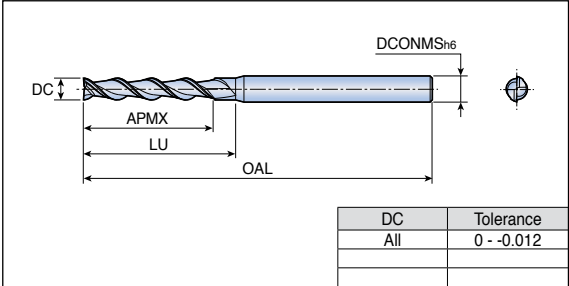
P	M	K	N	S	H
			●		

Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	OAL	APMX	LU	DCONMS	UF10
<b>AES 2010</b>	0.02-0.04	1.0	40	3	5	4	●
<b>2010-6</b>	0.02-0.04	1.0	47	3	5	6	●
<b>2015-6</b>	0.02-0.04	1.5	47	3	5	6	●
<b>2020</b>	0.02-0.04	2.0	40	6	8	4	●
<b>2020-6</b>	0.02-0.04	2.0	47	6	8	6	●
<b>2025</b>	0.02-0.05	2.5	40	8	10	4	●
<b>2025-6</b>	0.02-0.05	2.5	47	8	10	6	●
<b>2030</b>	0.02-0.05	3.0	47	10	13	6	●
<b>2035</b>	0.02-0.05	3.5	47	10	13	6	●
<b>2040</b>	0.02-0.05	4.0	47	12	15	6	●
<b>2050</b>	0.02-0.06	5.0	52	15	20	6	●
<b>2060</b>	0.03-0.07	6.0	52	15	-	6	●
<b>2070</b>	0.03-0.09	7.0	60	20	26	8	●
<b>2080</b>	0.03-0.09	8.0	60	20	-	8	●
<b>2090</b>	0.03-0.10	9.0	68	25	31	10	●
<b>2100</b>	0.03-0.10	10.0	68	25	31	10	●
<b>2110</b>	0.03-0.12	11.0	76	30	37	12	●
<b>2120</b>	0.03-0.12	12.0	76	30	-	12	●
<b>2130</b>	0.03-0.12	13.0	85	35	40	14	●
<b>2140</b>	0.05-0.14	14.0	85	35	40	14	●
<b>2150</b>	0.05-0.14	15.0	90	40	50	16	●
<b>2160</b>	0.05-0.14	16.0	90	40	-	16	●
<b>2170</b>	0.05-0.15	17.0	110	45	55	18	●
<b>2180</b>	0.05-0.15	18.0	110	45	55	18	●
<b>2190</b>	0.05-0.15	19.0	110	45	55	20	●
<b>2200</b>	0.05-0.15	20.0	110	45	-	20	●

●: Standard items

# AES 2...XL

## 2 flute extra long flat



H·A  
45°

P	M	K	N	S	H
			●		

Designation	Feed (mm/tooth)	Dimension (mm)					Grade UF10
		DC	OAL	APMX	LU	DCONMS	
<b>AES 2020XL</b>	0.02-0.04	2	60	12	15	4	●
<b>2030XL</b>	0.02-0.04	3	70	20	23	6	●
<b>2040XL</b>	0.02-0.04	4	70	25	28	6	●
<b>2050XL</b>	0.02-0.06	5	80	30	35	6	●
<b>2060XL</b>	0.03-0.07	6	80	30	-	6	●
<b>2080XL</b>	0.03-0.09	8	90	40	-	8	●
<b>2100XL</b>	0.03-0.10	10	100	50	-	10	●
<b>2120XL</b>	0.03-0.12	12	110	55	-	12	●
<b>2160XL</b>	0.05-0.14	16	125	70	-	16	●
<b>2200XL</b>	0.05-0.15	20	150	75	-	20	●

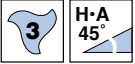
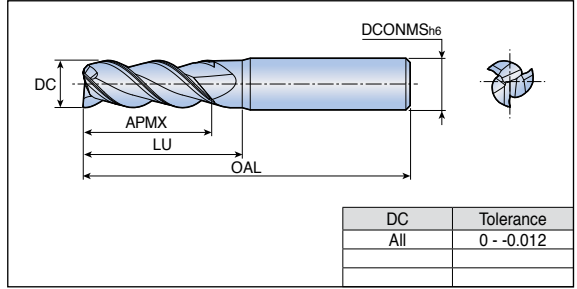
●: Standard items





# AES 3...ML

## 3 flute long flat

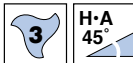
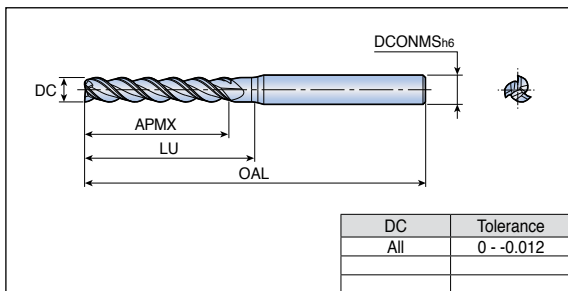


Designation	Feed (mm/tooth)	Dimension (mm)					Grade UF10
		DC	OAL	APMX	LU	DCONMS	
<b>AES 3030ML</b>	0.02-0.05	3	60	15	18	6	●
<b>3040ML</b>	0.02-0.05	4	60	20	25	6	●
<b>3050ML</b>	0.02-0.06	5	65	25	30	6	●
<b>3060ML</b>	0.03-0.07	6	65	25	-	6	●
<b>3070ML</b>	0.03-0.09	7	75	30	35	8	●
<b>3080ML</b>	0.03-0.09	8	75	30	-	8	●
<b>3090ML</b>	0.03-0.10	9	80	35	40	10	●
<b>3100ML</b>	0.03-0.10	10	80	35	-	10	●
<b>3120ML</b>	0.03-0.12	12	95	40	-	12	●
<b>3140ML</b>	0.05-0.14	14	110	55	62	16	●
<b>3160ML</b>	0.05-0.14	16	110	55	-	16	●
<b>3180ML</b>	0.05-0.15	18	125	60	70	20	●
<b>3200ML</b>	0.05-0.15	20	125	60	-	20	●

●: Standard items

# AES 3...XL

3 flute extra long flat



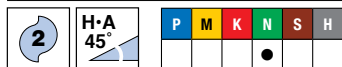
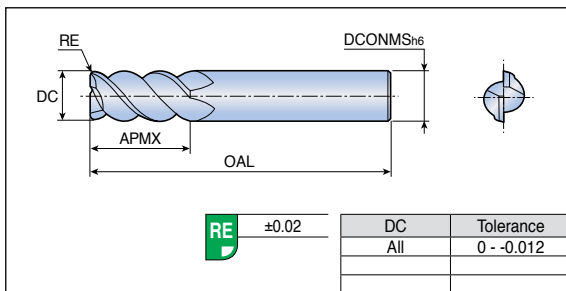
DC	Tolerance
All	0 - -0.012

Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	OAL	APMX	LU	DCONMS	
<b>AES 3060XL</b>	0.03-0.07	6	80	30	-	6	●
<b>3080XL</b>	0.03-0.09	8	90	40	-	8	●
<b>3100XL</b>	0.03-0.10	10	100	50	-	10	●
<b>3120XL</b>	0.03-0.12	12	110	55	-	12	●
<b>3160XL</b>	0.05-0.14	16	125	70	-	16	●
<b>3180XL</b>	0.05-0.15	18	150	75	85	20	●
<b>3180XL(80x150)</b>	0.05-0.15	18	150	80	90	20	●
<b>3200XL</b>	0.05-0.15	20	150	75	-	20	●
<b>3200XL(80x150)</b>	0.05-0.15	20	150	80	-	20	●

●: Standard items

# AES 2...R

## 2 flute medium corner radius

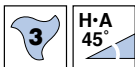
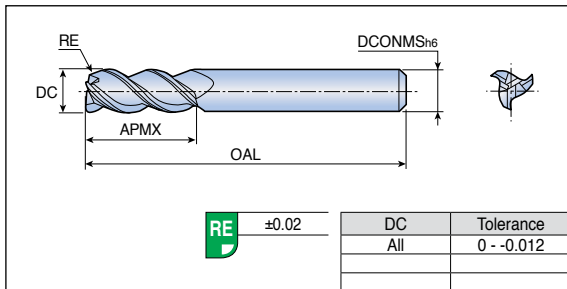


Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	UF10
<b>AES 2060-R0.5</b>	0.03-0.07	6	0.5	52	15	6	●
<b>2060-R1.0</b>	0.03-0.07	6	1.0	52	15	6	●
<b>2060-R2.0</b>	0.03-0.07	6	2.0	52	15	6	●
<b>2080-R0.5</b>	0.03-0.09	8	0.5	60	20	8	●
<b>2080-R1.0</b>	0.03-0.09	8	1.0	60	20	8	●
<b>2080-R2.0</b>	0.03-0.09	8	2.0	60	20	8	●
<b>2080-R3.0</b>	0.03-0.09	8	3.0	60	20	8	●
<b>2100-R1.0</b>	0.03-0.10	10	1.0	68	25	10	●
<b>2100-R1.5</b>	0.03-0.10	10	1.5	68	25	10	●
<b>2100-R2.0</b>	0.03-0.10	10	2.0	68	25	10	●
<b>2100-R3.0</b>	0.03-0.10	10	3.0	68	25	10	●
<b>2100-R4.0</b>	0.03-0.10	10	4.0	68	25	10	●
<b>2120-R1.0</b>	0.03-0.12	12	1.0	76	30	12	●
<b>2120-R2.0</b>	0.03-0.12	12	2.0	76	30	12	●
<b>2120-R3.0</b>	0.03-0.12	12	3.0	76	30	12	●
<b>2120-R4.0</b>	0.03-0.12	12	4.0	76	30	12	●
<b>2140-R1.0</b>	0.05-0.14	14	1.0	85	35	14	●
<b>2140-R2.0</b>	0.05-0.14	14	2.0	85	35	14	●
<b>2140-R3.0</b>	0.05-0.14	14	3.0	85	35	14	●
<b>2140-R4.0</b>	0.05-0.14	14	4.0	85	35	14	●
<b>2140-R5.0</b>	0.05-0.14	14	5.0	85	35	14	●
<b>2160-R1.0</b>	0.05-0.14	16	1.0	90	40	16	●
<b>2160-R2.0</b>	0.05-0.14	16	2.0	90	40	16	●
<b>2160-R3.0</b>	0.05-0.14	16	3.0	90	40	16	●
<b>2160-R4.0</b>	0.05-0.14	16	4.0	90	40	16	●
<b>2160-R5.0</b>	0.05-0.14	16	5.0	90	40	16	●

●: Standard items

# AES 3...R

3 flute medium corner radius

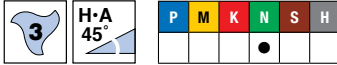
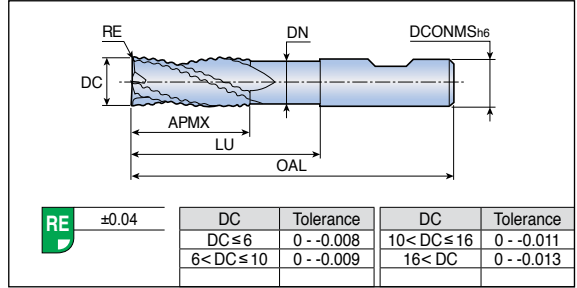


Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	UF10
<b>AES 3060-R0.5</b>	0.03-0.07	6	0.5	52	15	6	●
<b>3060-R1.0</b>	0.03-0.07	6	1.0	52	15	6	●
<b>3060-R2.0</b>	0.03-0.07	6	2.0	52	15	6	●
<b>3080-R0.5</b>	0.03-0.09	8	0.5	60	20	8	●
<b>3080-R1.0</b>	0.03-0.09	8	1.0	60	20	8	●
<b>3080-R2.0</b>	0.03-0.09	8	2.0	60	20	8	●
<b>3100-R1.0</b>	0.03-0.10	10	1.0	68	25	10	●
<b>3100-R1.5</b>	0.03-0.10	10	1.5	68	25	10	●
<b>3100-R2.0</b>	0.03-0.10	10	2.0	68	25	10	●
<b>3100-R3.0</b>	0.03-0.10	10	3.0	68	25	10	●
<b>3100-R4.0</b>	0.03-0.10	10	4.0	68	25	10	●
<b>3120-R1.0</b>	0.03-0.12	12	1.0	76	30	12	●
<b>3120-R2.0</b>	0.03-0.12	12	2.0	76	30	12	●
<b>3120-R3.0</b>	0.03-0.12	12	3.0	76	30	12	●
<b>3120-R4.0</b>	0.03-0.12	12	4.0	76	30	12	●
<b>3160-R1.0</b>	0.05-0.14	16	1.0	90	40	16	●
<b>3160-R2.0</b>	0.05-0.14	16	2.0	90	40	16	●
<b>3160-R3.0</b>	0.05-0.14	16	3.0	90	40	16	●

●: Standard items

# REMA 3/ 3...C

3 flute rough corner radius

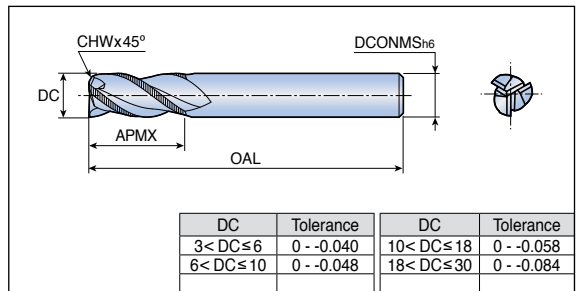


Designation		Feed (mm/tooth)	Dimension (mm)							Grade UF10
Cylindrical shank	Welded shank		DC	RE	OAL	APMX	LU	DN	DCONMS	
<b>REMA 3060C</b>	<b>REMA 3060</b>	0.03-0.07	6	0.2	57	9	21	5.5	6	●
<b>3080C</b>	<b>3080</b>	0.03-0.11	8	0.2	63	12	27	7.2	8	●
<b>3100C</b>	<b>3100</b>	0.05-0.14	10	0.2	72	12	31	9.0	10	●
<b>3120C</b>	<b>3120</b>	0.07-0.16	12	0.2	83	12	37	11.0	12	●
<b>3160C</b>	<b>3160</b>	0.07-0.18	16	0.2	92	14	43	15.0	16	●
<b>3200C</b>	<b>3200</b>	0.07-0.20	20	0.2	104	17	53	18.8	20	●

●: Standard items

# REA 3...L

3 flute rough corner chamfer



Designation		Feed (mm/tooth)	Dimension (mm)					Grade UF10
			DC	CHW	OAL	APMX	DCONMS	
<b>REA 3060L</b>		0.03-0.07	6	0.61	57	16	6	●
<b>3080L</b>		0.03-0.15	8	0.61	63	16	8	●
<b>3100L</b>		0.05-0.20	10	0.61	72	22	10	●
<b>3120L</b>		0.07-0.22	12	0.66	83	26	12	●
<b>3140L-14</b>		0.07-0.22	14	0.99	83	26	14	●
<b>3160L</b>		0.07-0.25	16	0.99	92	32	16	●
<b>3200L</b>		0.07-0.25	20	0.99	104	38	20	●

●: Standard items



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