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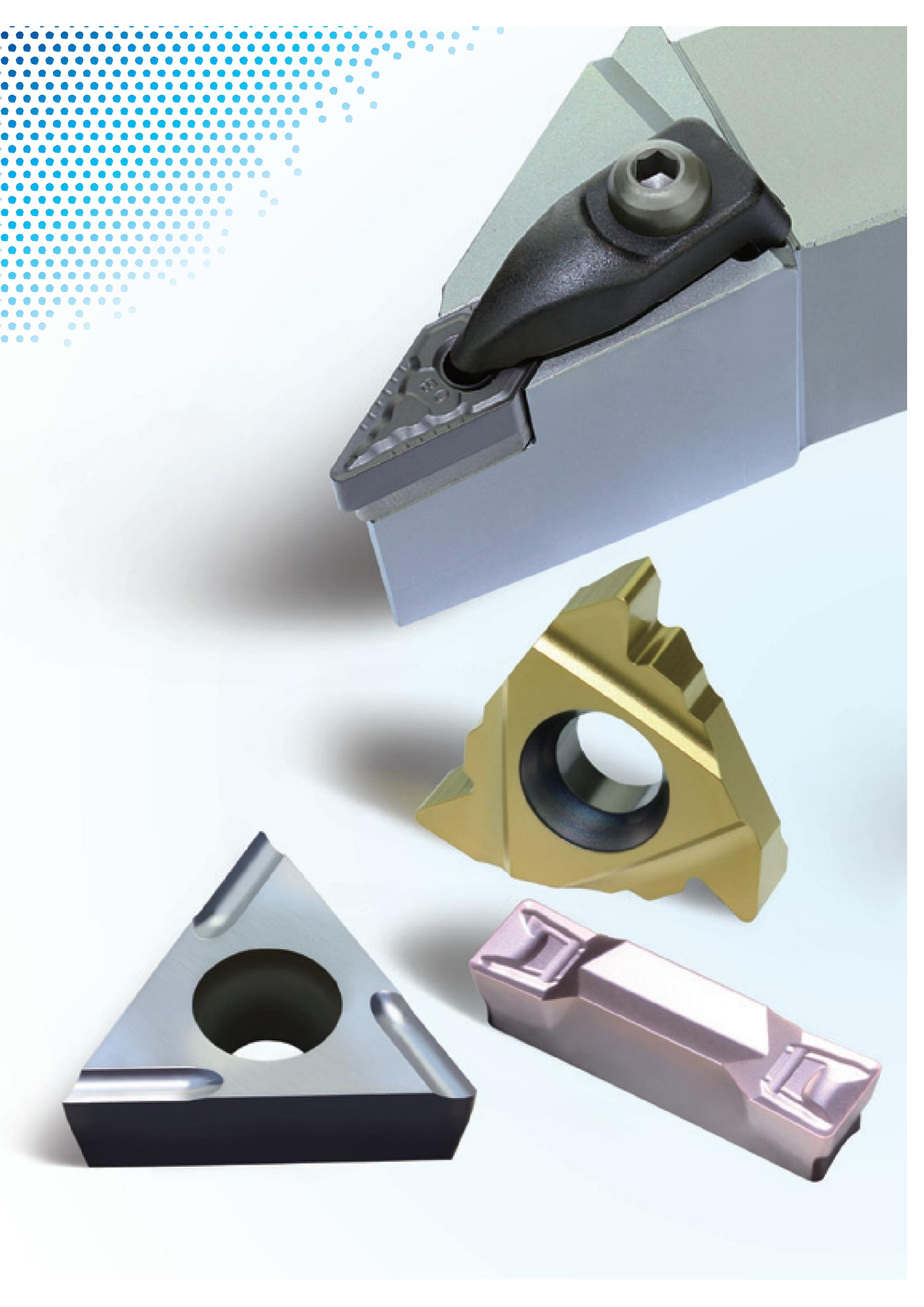
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General technical information	D1-D30
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## Turning Tools

*General turning tools  
Parting and grooving tools  
Threading tools*



# Turning



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# TURNING Guide to selecting turning tools

General turning

## Guide to selecting general turning tools

### Selection A

**For roughing**

12,16,19	15	12	16	18	18
Page A58	A65	A71	A76	A82	A88



**For heavy machining**

12,16,19	15	12	16	18	18
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Cutting edge length  
Page A58

**Step 1: I want to order inserts**  
•Shape, •Size, •Chipbreaker

**CN** (Negative inserts)

Insert shape	Type	Dimensions(mm)					Coated cemented carbide												
		L	I.C	S	d	r	PCBN	PCBN-L	PCBN-R	PCBN-DR	PCBN-DR-L	PCBN-DR-R	PCBN-DR-DR	PCBN-DR-DR-L	PCBN-DR-DR-R	PCBN-DR-DR-DR	PCBN-DR-DR-DR-L	PCBN-DR-DR-DR-R	
NM	CNMT120404-NM	12.0	12.7	4.76	5.16	0.4	*	*	*	*	*	*	*	*	*	*	*	*	*
	CNMT120408-NM	12.0	12.7	4.76	5.16	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*
	CNMT120412-NM	12.0	12.7	4.76	5.16	1.2	*	*	*	*	*	*	*	*	*	*	*	*	*

Dimensions(mm)

L	I.C	S	d	r
12.9	12.7	4.76	5.16	0.4

**Step 2: Details of inserts**  
•Shape, •Size, •Chipbreaker, •Grade, •Stock  
Applicable tool holders

**Applicable tool**

PCBN/L Kr:75°	PCBN/L Kr:85°
Page A172	A173



**Step 3: Selecting tool holder**  
•Tool holder type, Size, •Stock  
•Operation gener, •Applicable inserts

**Corresponding tool holders of insert CN**

Type	R	L	s	b	h	s	a	DR	DR-L	DR-R	DR-DR	DR-DR-L	DR-DR-R	DR-DR-DR	DR-DR-DR-L	DR-DR-DR-R	Wrench	Lever	Drive pin
PCBN/L	A	20	20	126	26	17	27												
	A	25	25	150	26	22	27	LEM-X-21	C-12AP	WH-3L	L-4	SP-4							

For roughing  
DR Double

Application	For finishing	For semi-finishing	For roughing	For heavy machining
Insert shape	DF	WGM	DR	DR
	DF	PM	DR	HPR
	WGF	DM	DR	
	EF	EM	DR	

3 to selecting turning tools

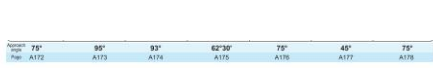
Guide to selecting general turning tools

Selection B

D-type clamping system



P-type clamping system



S-type clamping system



DCLNRL/L

Approach angle 95°  
Page A166

Step 1: I want to order tool holders  
• Approach angle, • Clamping system

Corresponding tool holders of insert CN  P-type clamping

**PCBNRL**  
R-nr 75°

Type	Stock					Basic dimensions (mm)					Screw	Shim	Wrench	Lever	Shim pin	
	R	L	D	h	x	L	I.C	S	d	r						
PCBNL10	A	40	25	30	128	25	17	27								
PCBNL12	A	40	25	35	150	28	22	27		LEM12-21	CSMP	WHSEL	L4		SP4	
PCBNL14	A	40	25	40	170	32	27	33								
PCBNL16	A	40	25	45	190	35	27	33								
PCBNL18	A	40	25	50	210	38	27	33		LEM18-25	CSMP	WHSEL	L5		SP5	

For finishing

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
DP	WGM	DR	MDR		
SF	PM	DR	MFR		
WGF	DM	ER			
EF	EM	ER			
NF	NM	SNR			
		LR			

Step 2: Details of tool holder  
• Tool holder type, Size, • Operation genre  
• Applicable inserts

CN  (Negative inserts)

Good working condition Normal working condition Bad working condition

Inserts shape	Type	Dimensions (mm)					Coated cemented carbide											
		L	I.C	S	d	r	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN	AlTiN
NM	CMND 02040-NM	12.9	12.7	4.76	5.16	0.4	○	○	○	○	○	○	○	○	○	○	○	○
	CMND 02040-NM	12.9	12.7	4.76	5.16	0.5	○	○	○	○	○	○	○	○	○	○	○	○
	CMND 02042-NM	12.9	12.7	4.76	5.16	1.2	○	○	○	○	○	○	○	○	○	○	○	○

Dimensions (mm)

L	I.C	S	d	r
12.9	12.7	4.76	5.16	0.4

Step 3: Details of insert  
• Shape, • Size, • Chipbreaker, • Grade, • Stock  
Applicable tool holders  
• Approach angle • Page

LR	CMND0000-LR	CMND0002-LR	CMND0004-LR	CMND0006-LR	CMND0008-LR	CMND0010-LR	CMND0012-LR	CMND0014-LR	CMND0016-LR	CMND0018-LR	CMND0020-LR	CMND0024-LR	CMND0028-LR	CMND0032-LR
	161	167	173	179	185	191	197	203	209	215	221	227	233	239

Applicable tool

PCBNRL/L Kr75°	PCBNRL/L Kr95°
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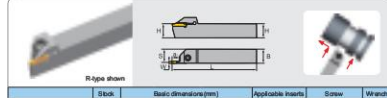
Step 4: Return to locate tool holder

## Guide to selecting parting and grooving tools

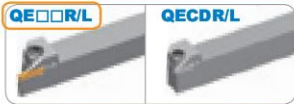
General turning

3 to selecting turning tools

External parting, grooving and turning tools

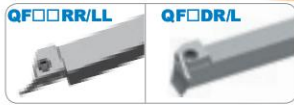


### Parting and grooving tools



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A273



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Code	Material	Shank diameter (mm)	Shank length (mm)	Insert width (mm)	Insert height (mm)	Insert thickness (mm)	Insert type	Applicable inserts	Screw	Wrench
1212M12	A	12x10	125	11.4	1.5	10	ZCND1000			
1616M12	A	16x16	125	11.4	1.5	7	ZCND1000			
1616M12	A	16x16	125	11.4	1.5	12	ZCND1000			
2020M12	A	20x20	125	11.4	1.5	7	ZCND1000			
2020M12	A	20x20	125	11.4	1.5	12	ZCND1000			
1212M14	A	12x10	125	11.2	2	10	ZCND1000			
1616M14	A	16x16	125	11.2	2	7	ZCND1000			
1616M14	A	16x16	125	11.2	2	12	ZCND1000			
2020M14	A	20x20	125	11.2	2	7	ZCND1000			
2020M14	A	20x20	125	11.2	2	12	ZCND1000			
1212M16	A	12x10	125	11.2	2	10	ZCND1000			
1616M16	A	16x16	125	11.2	2	7	ZCND1000			
1616M16	A	16x16	125	11.2	2	12	ZCND1000			
2020M16	A	20x20	125	11.2	2	7	ZCND1000			
2020M16	A	20x20	125	11.2	2	12	ZCND1000			
1212M18	A	12x10	125	11.2	2	10	ZCND1000			
1616M18	A	16x16	125	11.2	2	7	ZCND1000			
1616M18	A	16x16	125	11.2	2	12	ZCND1000			
2020M18	A	20x20	125	11.2	2	7	ZCND1000			
2020M18	A	20x20	125	11.2	2	12	ZCND1000			
1212M20	A	12x10	125	11.2	2	10	ZCND1000			
1616M20	A	16x16	125	11.2	2	7	ZCND1000			
1616M20	A	16x16	125	11.2	2	12	ZCND1000			
2020M20	A	20x20	125	11.2	2	7	ZCND1000			
2020M20	A	20x20	125	11.2	2	12	ZCND1000			
1212M22	A	12x10	125	11.2	2	10	ZCND1000			
1616M22	A	16x16	125	11.2	2	7	ZCND1000			
1616M22	A	16x16	125	11.2	2	12	ZCND1000			
2020M22	A	20x20	125	11.2	2	7	ZCND1000			
2020M22	A	20x20	125	11.2	2	12	ZCND1000			

Type	Basic dimensions (mm)			Grade				
	W <sub>1</sub> <sup>1)</sup>	R101	Chip Breaker	YBC101	YBC201	YBG205	YBG302	YD101
ZP4D1002-MG	1.5	0.2	12	○	★	○	○	○
ZP4D1004-MG	2.0	0.2	14	○	★	○	○	○
ZP4D1006-MG	2.5	0.2	17	○	★	○	○	○
ZP4D1008-MG	3.0	0.2	19	○	★	○	○	○
ZP4D1010-MG	4.0	0.2	22	○	★	○	○	○
ZP4D1012-MG	5.0	0.2	22	○	★	○	○	○
ZP4D1014-MG	6.0	0.4	22	○	★	○	○	○
ZP4D1016-MG	7.0	0.4	22	○	★	○	○	○
ZP4D1018-MG	8.0	0.2	22	○	★	○	○	○
ZP4D1020-MG	9.0	0.2	22	○	★	○	○	○
ZP4D1022-MG	10.0	0.4	22	○	★	○	○	○

1 Selection of tool holder type

2 Tool holder type, Size and applicable inserts

3 Insert type, Chip-breaker, Size and grade

### Parting and grooving inserts

**Little squirrel series**

Code	Material	Shank diameter (mm)	Shank length (mm)	Insert width (mm)	Insert height (mm)	Insert thickness (mm)	Insert type	Applicable inserts	Screw	Wrench
ZP□□-MG	A	1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0	125	11.2	2	10	ZCND1000			
ZP□□-MG	A	2.5, 3.0, 4.0, 5.0, 6.0	125	11.2	2	12	ZCND1000			
ZT□□-MG	A	2.5, 3.0, 4.0, 5.0, 6.0	125	11.2	2	10	ZCND1000			

Type	Basic dimensions (mm)			Grade			
	W <sub>1</sub> <sup>1)</sup>	R101	Chip Breaker	YBC201	YBC205	YBG202	YD101
ZP4D1002-MG	1.5	0.2	12	○	★	○	○
ZP4D1004-MG	2.0	0.2	14	○	★	○	○
ZP4D1006-MG	2.5	0.2	17	○	★	○	○
ZP4D1008-MG	3.0	0.2	19	○	★	○	○
ZP4D1010-MG	4.0	0.2	22	○	★	○	○
ZP4D1012-MG	5.0	0.2	22	○	★	○	○
ZP4D1014-MG	6.0	0.4	22	○	★	○	○
ZP4D1016-MG	7.0	0.4	22	○	★	○	○
ZP4D1018-MG	8.0	0.2	22	○	★	○	○
ZP4D1020-MG	9.0	0.2	22	○	★	○	○
ZP4D1022-MG	10.0	0.4	22	○	★	○	○

1 Selection of tool holder type

2 Insert type, Chip-breaker, Size and grade



Guide of selecting threading tools

Threading tools



1 Selection of tool holder type

2 Tool holder type, Size and applicable inserts

3 Insert type, Chip-breaker, Size and grade

External threading tools

Type	Shape	Basic dimensions(mm)					Applicable inserts	Inserts code	Shim	Shim size	Match
		A	B	L	L1	L2					
188B16	A	18	18	100	30						
202K16	A	20	20	105	30						
202M16	A	20	20	100	30	ZW60C003	NO MEXST	MT20-C00M	6M16C	VTUP	
332P16	A	32	32	170	30						
332M16	A	32	32	170	30	ZW60C003	NO MEXST	MT20-C00M	6M16C	VTUP	
332P18	A	32	32	170	40						
332M18	A	32	32	170	40	ZW60C003	NO MEXST	MT20-C00M	6M18C	VTUP	
332P18	A	32	32	170	30						
332M18	A	32	32	170	30	ZW60C003	NO MEXST	MT20-C00M	6M18C	VTUP	
332P22	A	32	32	170	30						
332M22	A	32	32	170	30	ZW60C003	NO MEXST	MT20-C00M	6M22C	VTUP	
404M22	L	40	40	200	50						

ISO 965-1:80 DIN 13  
GB/T 197-2003 Tolerance class: 6g/6H

Type	The left hand tool	Basic dimensions(mm)				Recommended coating grade	
		FWch	S	QC.C	ad	YG3003	YG3005
Z16R1.6S0	Z16L1.6S0	0.50	3.00	0.500	4.0	*	○
Z16R1.75S0	Z16L1.75S0	0.75	3.00	0.500	4.0	*	○
Z16R1.8S0	Z16L1.8S0	1.00	3.00	0.500	4.0	*	○
Z16R1.9S0	Z16L1.9S0	1.25	3.00	0.500	4.0	*	○
Z16R1.9S0	Z16L1.9S0	1.50	3.00	0.500	4.0	*	○
Z16R1.75S0	Z16L1.75S0	1.75	3.00	0.500	4.0	*	○
Z16R2.0S0	Z16L2.0S0	2.00	3.00	0.500	4.0	*	○
Z16R2.0S0	Z16L2.0S0	2.50	3.00	0.500	4.0	*	○
Z22R1.6S0	Z22L1.6S0	3.00	3.50	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	4.00	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	5.00	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	5.50	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	6.00	4.00	1.25	5.0	*	○

Threading inserts

Right hand type shown	ISO metric thread	General pitch thread
External thread	Internal thread	External thread
Pitch Number of pitch Pulse	0.5-6 A298	0.5-6 A299
		0.5-5 A300
		0.5-5 A301

ISO metric thread (with end)

ISO 965-1:80 DIN 13  
GB/T 197-2003 Tolerance class: 6g/6H

Type	The left hand tool	Basic dimensions(mm)				Recommended coating grade	
		FWch	S	QC.C	ad	YG3003	YG3005
Z16R1.6S0	Z16L1.6S0	0.50	3.00	0.500	4.0	*	○
Z16R1.75S0	Z16L1.75S0	0.75	3.00	0.500	4.0	*	○
Z16R1.8S0	Z16L1.8S0	1.00	3.00	0.500	4.0	*	○
Z16R1.9S0	Z16L1.9S0	1.25	3.00	0.500	4.0	*	○
Z16R1.9S0	Z16L1.9S0	1.50	3.00	0.500	4.0	*	○
Z16R1.75S0	Z16L1.75S0	1.75	3.00	0.500	4.0	*	○
Z16R2.0S0	Z16L2.0S0	2.00	3.00	0.500	4.0	*	○
Z16R2.0S0	Z16L2.0S0	2.50	3.00	0.500	4.0	*	○
Z22R1.6S0	Z22L1.6S0	3.00	3.50	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	4.00	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	4.50	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	5.00	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	5.50	4.00	1.25	5.0	*	○
Z22R1.6S0	Z22L1.6S0	6.00	4.00	1.25	5.0	*	○

category


breaker, size and grade









# TURNING Turning Inserts Overview

## Cemented carbide and cermet inserts

**For finishing**

						
<b>DNEG-NGF</b>	<b>VNEG-NGF</b>	<b>CNMG-DF</b>	<b>CNMG-SF</b>	<b>CNMG-EF</b>	<b>CNEG-NF</b>	<b>DNMG-DF</b>
15	16	09,12	09,12	09,12	12	11,15

							
<b>DNMG-SF</b>	<b>DNMG-EF</b>	<b>DNEG-NF</b>	<b>SNMG-DF</b>	<b>SNMG-EF</b>	<b>SNMG-SF</b>	<b>TNMG-DF</b>	<b>TNMG-SF</b>
11,15	11,15	15	09,12	09,12,15	09,12,15	16,22	11,16,22
A62	A62	A62	A67	A67	A67	A75	A75

							
<b>TNMG-EF</b>	<b>VNMG-DF</b>	<b>VNMG-EF</b>	<b>VNEG-NF</b>	<b>VNMG-SF</b>	<b>WNMG-DF</b>	<b>WNMG-SF</b>	<b>WNMG-EF</b>
11,16,22	16	16	16	16	06,08	06,08	06,08
A76	A81	A81	A81	A81	A83	A83	A84



**Wiper**

**For finishing**



<b>WNEG-NF</b>	<b>CNMG-WGF</b>	<b>DNMX-WGF</b>	<b>TNMX-WGF</b>	<b>WNMG-WGF</b>
08	12	11,15	16	06,08
A84	A54	A61	A75	A83









**For semi-finishing**



**For semi-finishing**



<b>CNMG-WGM</b>	<b>DNMX-WGM</b>	<b>TNMX-WGM</b>	<b>WNMG-WGM</b>	<b>CNMG-PM</b>
12	15	16	06,08	09,12,16,19
A55	A63	A76	A84	A55

							
<b>CNMG-DM</b>	<b>CNMG-EM</b>	<b>CNMG-NM</b>	<b>DNMG-PM</b>	<b>DNMG-DM</b>	<b>DNMG-EM</b>	<b>DNMG-NM</b>	<b>SNMG-PM</b>
09,12,16,19	12,16	12	11,15	11,15	11,15	15	09,12,15,19
A56	A56	A57	A63	A64	A64	A64	A68

							
<b>SNMG-DM</b>	<b>SNMG-EM</b>	<b>SNMG-NM</b>	<b>TNMG-PM</b>	<b>TNMG-DM</b>	<b>TNMG-EM</b>	<b>VNMG-PM</b>	<b>VNMG-DM</b>
09,12,15,19	12,15	12	11,16,22	11,16,22	16,22	16	16
A68	A69	A69	A76	A77	A77	A82	A82

<b>VNMG-EM</b>	<b>VNMG-NM</b>	<b>WVMG-PM</b>	<b>WVMG-DM</b>	<b>WVMG-EM</b>	<b>WVMG-NM</b>	
Cutting edge length	16	16	06,08	06,08	06,08	08
Page	A82	A82	A85	A85	A85	A86

**For**

<b>CNMG-SNR</b>	<b>DNMG-SNR</b>	<b>SNMG-SNR</b>	<b>TNMG-SNR</b>	<b>VNMG-SNR</b>	<b>WVMG-SNR</b>	
Cutting edge length	12,16,19	15	12	16	16	08
Page	A58	A65	A71	A78	A82	A86

<b>CNMM-LR</b>	<b>DNMM-LR</b>	<b>SNMM-LR</b>	<b>TNMM-LR</b>	<b>CNMG-DR</b>	<b>CNMM-DR</b>	<b>CNMG-ER</b>	<b>CNMM-ER</b>	
Cutting edge length	12,16,19,25	15	12,15,19,25	16,22	12,16,19	12,16,19,25	12,16,19	25
Page	A57	A65	A69	A77	A58	A58	A58	A58

<b>DNMG-DR</b>	<b>DNMM-DR</b>	<b>DNMG-ER</b>	<b>DNMM-ER</b>	<b>SNMG-DR</b>	<b>SNMM-DR</b>	<b>SNMG-ER</b>	<b>SNMM-ER</b>	
Cutting edge length	15	15	15	15	12,15,19	12,15,19,25	12,15,19	25
Page	A65	A65	A65	A65	A70	A70-A71	A71	A71

<b>TNMG-DR</b>	<b>TNMM-DR</b>	<b>TNMG-ER</b>	<b>WVMG-DR</b>	
Cutting edge length	16,22,27	16,22,27	16,22	06,08
Page	A78	A78	A78	A86

**For heavy machining**

<b>CNMM-HPR</b>	<b>SNMM-HPR</b>	<b>CNMM-HDR</b>	<b>DNMM-HDR</b>	<b>SNMM-HDR</b>	<b>TNMM-HDR</b>	
Cutting edge length	19,25	19,25	12,16,19	15	12,15,19,25	16,22,27
Page	A59	A72	A59	A66	A72	A79

**For profiling** **All round**

<b>175 32-22/27</b>	<b>175 32-24</b>	<b>175 32-25</b>	<b>175 32-28</b>	<b>KNIIX</b>	<b>CNMG</b>	
Page	A88	A88	A88	A88	A87	A60

<b>CNMM</b>	<b>DNMG</b>	<b>SNMG</b>	<b>SNMM</b>	<b>TNMG</b>	<b>TNMM</b>	<b>VNMG</b>	
Cutting edge length	12,19	15,19	09,12,15,19,25	09,12,19,25	11,16,22,27,33	16,22,27	16
Page	A60	A66	A73	A73-74	A79	A80	A82

# TURNING Turning Inserts Overview

General turning

Turning inserts overview

Negative inserts

**Without chipbreaker**



	CNMA	DNMA	SNMA	TNMA	WNMA
Cutting edge length	12, 16, 19	11, 15	09, 12, 15, 19	16, 22, 27	06, 08
Page	A59	A66	A74	A80	A86

**For extra**



	CCGT-USF	DCGT-USF	TCGT-USF	VCGT-USF	DPGT-USF	VPGT-USF
Cutting edge length	09	07, 11	11	08, 11	07, 11	08, 11
Page	A89	A93	A100	A105	A111	A114



	CCGT-SF	DCGT-SF	TCGT-SF	VCGT-SF	VBGT-SF	CPGT-SF	DPGT-SF	TBGH-L
Cutting edge length	06, 09	07, 11	06, 09, 11	11	11	06, 09	07, 11	06
Page	A89	A93	A100	A105	A108	A110	A111	A112



TPGT-SF TPGH-L

Page	A113	A113
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Positive inserts

**For finishing**



	VCGT-NGF	VBET-NGF	CCMT-HF	CCMT-EF	DCMT-HF	DCMT-EF	SCMT-HF
Cutting edge length	16	16	06, 09, 12	06, 09, 12	07, 11	07, 11	09
Page	A105	A108	A89	A90	A93	A94	A98



	SCMT-EF	TCMT-HF	TCMT-EF	VCGT-HF	VCGT-NF	VBMT-EF	VBMT-HF	VBET-NF
Cutting edge length	09	06, 09, 11, 16	09, 11, 16	11	16	11, 16	11	16
Page	A98	A101	A102	A105	A105	A108	A108	A108

**For semi-finishing**



	CCMT-HM	CCMT-EM	DCMT-HM	DCMT-EM	SCMT-HM	SCMT-EM	TCMT-HM
Cutting edge length	06, 09, 12	06, 09, 12	07, 11	07, 11	09, 12	09, 12	09, 11, 16
Page	A90	A90	A94	A94	A98	A98	A103



Positive inserts

<b>TCMT-EM</b>	<b>VBMT-EM</b>	<b>VBMT-HM</b>
Cutting edge length 09,11,16	11	16
Page A102	A109	A109

**For**

<b>VBMT-SNR</b>	<b>CCMT-HR</b>	<b>DCMT-HR</b>	<b>SCMT-HR</b>	<b>TCMT-HR</b>	<b>VBMT-HR</b>
Cutting edge length 16	06,09,12	11	09,12	09,11,16,22	16
Page A109	A91	A95	A99	A103	A109

**For Al machining**

<b>CCGX-LC</b>	<b>DCGX-LC</b>	<b>SCGX-LC</b>	<b>TCGX-LC</b>	<b>VCGX-LC</b>	<b>CCGX-LH</b>	<b>DCGX-LH</b>
Cutting edge length 06,09,12	07,11	09,12	09,11,16	11,16,22	06,09,12	07,11
Page A91	A95	A99	A103	A106	A91-92	A95

**All round**

<b>RCGX-LH</b>	<b>SCGX-LH</b>	<b>TCGX-LH</b>	<b>VCGX-LH</b>	<b>RCM(G)T</b>	<b>RCMX</b>	<b>SCMT</b>
Cutting edge length 08	09,12	09,11,16	11,16,22	08,10,12,16	08,10,12,16,20,25,32	09,12

**Without chipbreaker**

<b>TCMT</b>	<b>WCMX-53</b>	<b>CCMW</b>	<b>DCMW</b>	<b>SCMW</b>	<b>TCMW</b>	<b>SPMW</b>
Cutting edge length 22	04,06,08	06,09,12	07,11	06,09,12	11,16,22	09,12
Page A104	A107	A92	A95	A99	A104	A112

*New* **PCBN&PCD inserts**

Negative inserts

**PCBN inserts**

<b>CNGA</b>	<b>DNGA</b>	<b>SNGA</b>	<b>TNGA</b>	<b>VNGA</b>	<b>WNGA</b>
Cutting edge length 12	15	12	16	16	08
Page A118	A121	A126	A130	A133	A136

**PCBN inserts turning case**

<b>CNGN</b>	<b>DNGN</b>	<b>SNGN</b>	<b>TNGN</b>	<b>VNGN</b>	<b>WNGN</b>
Cutting edge length 12	15	12	16	16	08
Page A120	A125	A129	A132	A135	A138

# TURNING Turning Inserts Overview

General turning

Turning inserts overview

Positive inserts

**PCBN inserts**



	CCGW	DCGW	TCGW	VBGW	VCGW
Cutting edge width	06,09,12	07,11	09,11	16	16
Page	A139	A140	A141	A142	A143

**PCBN inserts**




	CCGW□□AF	DCGW□□AF	TCGW□□AF	VBGW□□AF	VCGW□□AF
Cutting edge length	06,09,12	07,11	09,11	16	16
Page	A144	A145	A146	A147	A148

**PCD 7° Front Angle Blade**



	CCMX□□AF	DCMX□□AF	TCMX□□AF	VBMX□□AF	VCMX□□AF
Cutting edge width	06,09,12	07,11	09,11	16	16
Page	A144	A145	A146	A147	A148

## Ceramic inserts



Cutting edge width	09,12	09,12
Page	A152	A152

## Parting and grooving inserts

**Little squirrel series** QC series shallow grooving inserts



	QC□□R/L	QC□□R/L□□□R	ZP□D-MG	ZP□S-MG
Cutting edge width	1.1~4.8	1.0~4.0	1.5,2.0,2.5,3,4,5,6	2.5,3,4,5,6
Page	A267-268	A268	A259	A259



	ZT□D-MG	ZT□D-MM	ZT□S-MG	ZT□D-EG	ZT□D-EG	ZIMF-NM	ZIMF-SM
Cutting edge width	2.5,3,4,5,6	1.5,2,3,4,5,6,8	5,6	1-2.4(tailor-made)	2.4-6.5(tailor-made)	3,4,5,6	3,4,5,6



	ZR□D-MG	ZR□D-NM	ZR□D-EG	ZIGQ-NM	ZIGQ-NF	ZR□D-LH	ZILD-LC
Cutting edge width	2.5,3,4,5,6	3,4,5,6	3,4,5,6	3,4,5,6	3,4,5,6	6,8	8
Page	A263	A263	A263	A264	A264	A265	A265

## Supplemental series



ZQMX-1E

Cutting edge width	3.125, 4.125, 5.125, 6.4, 7.05
Page	A269

General turning

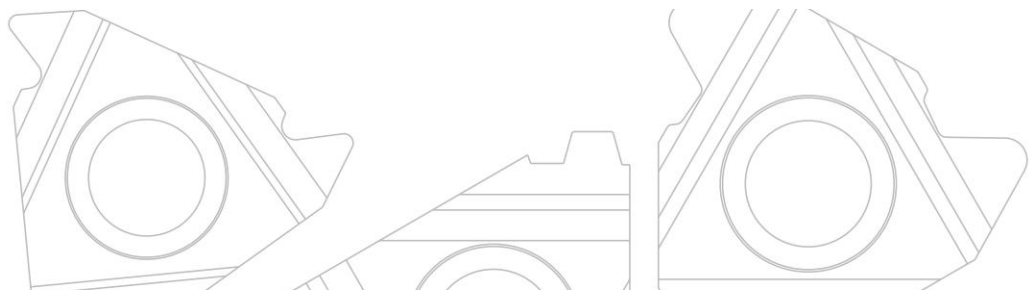
## Threading inserts

Right hand type shown	ISO metric thread		General pitch thread		Whitworth thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	0.5~6	0.5~6	0.5~5	0.5~5	8~19	8~19
Page	A298	A299	A300	A300	A301	A301

Right hand type shown	Unified thread		British Standard pipe thread		American standard pipe thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	8~24	8~24	11~28	11~28	8~27	8~27

Right hand type shown	ISO metric thread (Thin type)		General pitch thread (Thin type)		Whitworth thread (Thin type)	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	0.5~3.0	0.5~3.0	0.5~5.0(5~48)	0.5~5.0(5~48)	8~16	8~16
Page	A306	A306	A307	A307	A308	A308

Right hand type shown	Unified thread (Thin type)		British Standard pipe thread (Thin type)		American standard pipe thread (Thin type)	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	8~20	8~20	11~28	11~28	8~27	8~27



Turning inserts ove

### Tool holders for external turning

#### D-type clamping system

<b>DCLNR/L</b>	<b>DDJNR/L</b>	<b>DSBNR/L</b>	<b>DTGNR/L</b>	<b>DVVNN</b>	<b>DVJNR/L</b>	<b>DWLNR/L</b>
						
Approach angle <b>05°</b>	<b>02°</b>	<b>75°</b>	<b>01°</b>	<b>72°30'</b>	<b>02°</b>	<b>05°</b>

#### P-type clamping system


<b>PCBNR/L</b>	<b>PCLNR/L</b>	<b>PDJNR/L</b>	<b>PDPNN</b>	<b>PSBNR/L</b>	<b>PSDNN</b>	<b>PSKNR/L</b>
						
Approach angle <b>75°</b>	<b>95°</b>	<b>93°</b>	<b>62°30'</b>	<b>75°</b>	<b>45°</b>	<b>75°</b>
Page <b>A172</b>	<b>A173</b>	<b>A174</b>	<b>A175</b>	<b>A176</b>	<b>A177</b>	<b>A178</b>

<b>PSSNR/L</b>	<b>PTFNR/L</b>	<b>PTTNR/L</b>	<b>PTGNR/L</b>	<b>PWLNRL</b>
				
Approach angle <b>45°</b>	<b>90°</b>	<b>60°</b>	<b>90°</b>	<b>95°</b>
Page <b>A179</b>	<b>A180</b>	<b>A181</b>	<b>A182</b>	<b>A183</b>

#### S-type clamping system

<b>SCACR/L</b>	<b>SCLCR/L</b>	<b>SDACR/L</b>	<b>SDJCR/L</b>	<b>SDNCN</b>	<b>SVJBR/L</b>	<b>SVABR/L</b>
						
Approach angle <b>90°</b>	<b>95°</b>	<b>90°</b>	<b>93°</b>	<b>62°30'</b>	<b>93°</b>	<b>90°</b>
Page <b>A184</b>	<b>A185</b>	<b>A186</b>	<b>A187</b>	<b>A188</b>	<b>A189</b>	<b>A190</b>

<b>SVVBN</b>	<b>SVVCN</b>	<b>SVJCR/L</b>	<b>SSBCR/L</b>	<b>SSDCN</b>	<b>SSKCR/L</b>	<b>SSSCR/L</b>
						
Approach angle <b>72°30'</b>	<b>72°30'</b>	<b>93°</b>	<b>75°</b>	<b>45°</b>	<b>75°</b>	<b>45°</b>
Page <b>A191</b>	<b>A192</b>	<b>A193</b>	<b>A194</b>	<b>A195</b>	<b>A196</b>	<b>A197</b>

						
Approach angle <b>90°</b>	<b>90°</b>	<b>91°</b>	<b>60°</b>	<b>90°</b>		
Page <b>A198</b>	<b>A198</b>	<b>A199</b>	<b>A200</b>	<b>A201</b>	<b>A202</b>	<b>A203</b>



## C-type clamping system



Approach angle	93°	63°
Page	A204	A204

## Turning tool holders for ceramic inserts



Approach angle		
Page	A205	A205

## Turning tool holders for internal machining

### P-type clamping system



Approach angle	95°	62°30'	93°	75°	90°	95°
Page	A212	A213	A214	A215	A216	A217

### S-type clamping system



Approach angle	95°	107°30'	93°	95°	75°	90°	107°30'
Page	A218	A219	A220	A221	A222	A223	A224



Approach angle	93°	107°30'	93°	95°	107°30'	93°	93°
Page	A225	A226	A227	A228	A229	A230	A231



Approach angle	90°	95°
Page	A232	A233



Approach angle	95°	107°30'	93°	93°	107°30'	93°
Page	A235	A236	A237	A238	A239	A240

### Parting and grooving tools



Page	A278-A281	A282-A283	A284	A284	A288	A286	A286
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### Threading tools



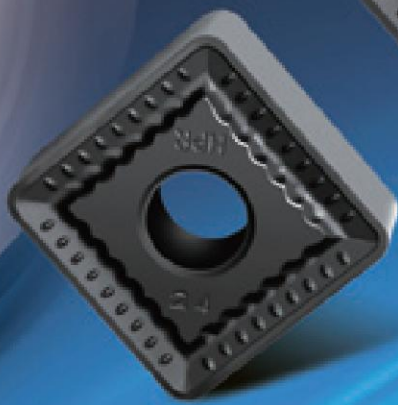
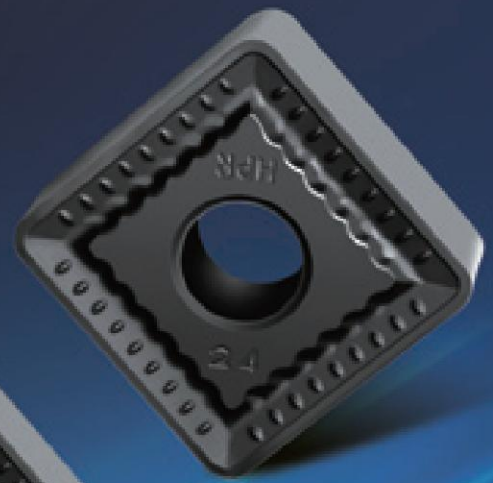
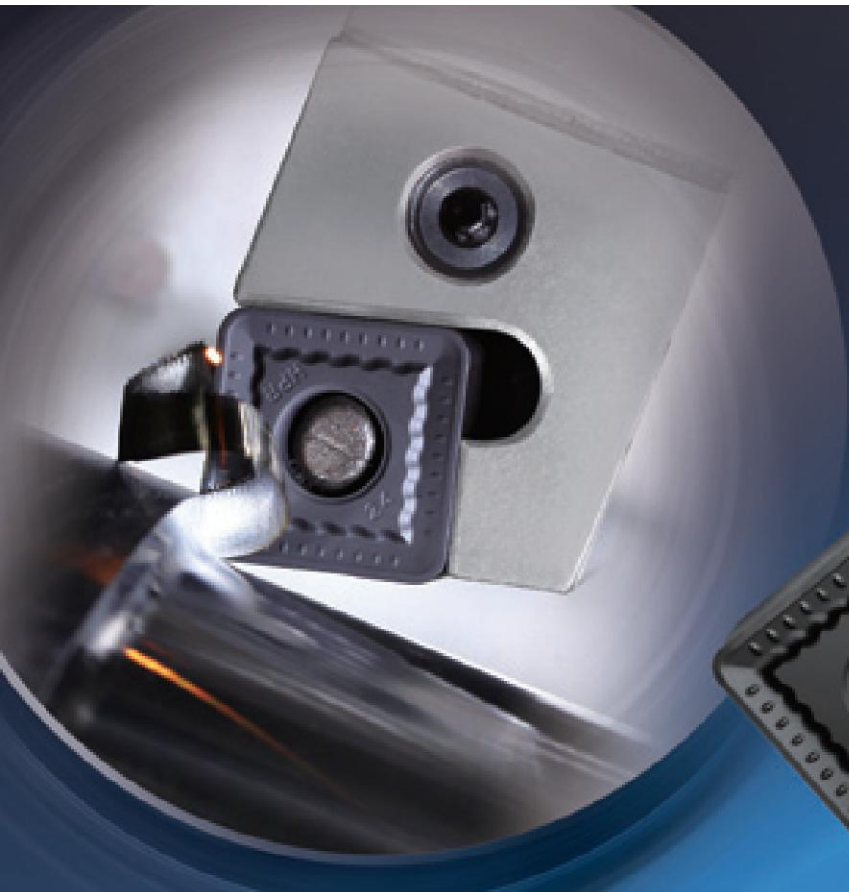
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**-WGM**

**Wiper**

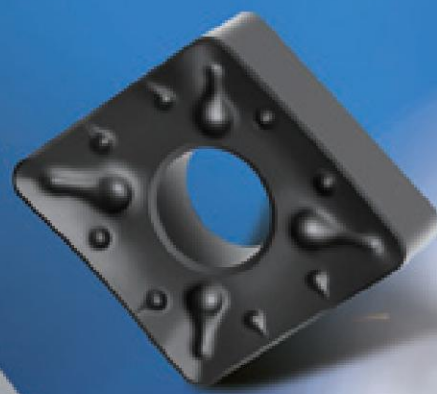
**-WGF**



**-HPR**

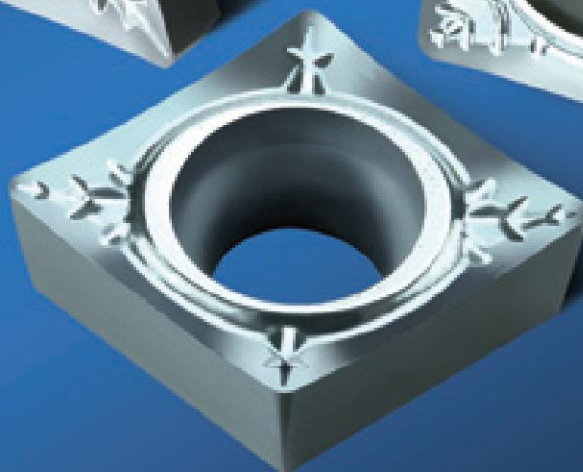
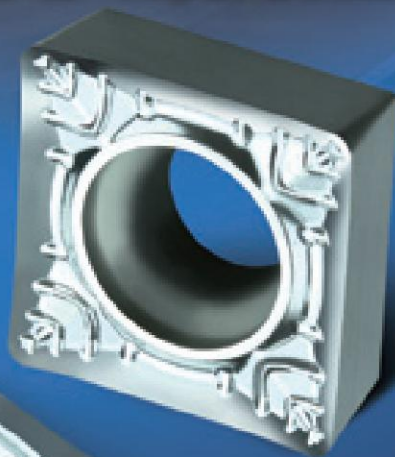
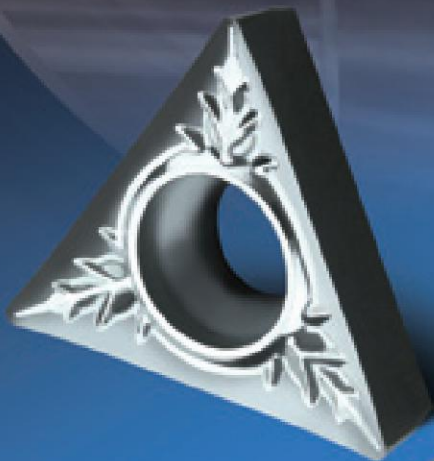
**New Generation of  
Roughing Chipbreaker**

**-LR**





**-LC** chipbreaker  
for Al machining





# **YBM215**

Outstanding wear resistance, extends the tool life  
achieves high efficient processing

**Grade for stainless  
steel machining**



# **YBM153**

Best choice for cutting stainless steel  
with high speed under good working condition



ISO	General turning								Threading		Parting and grooving	
	Code	Coating		Cermet	Coated cermet	Ceramic	Cemented carbide	PCBN	PCD	Coating		Cemented carbide
		CVD	PVD							PVD	CVD	
<b>P</b>	01											
	10	151		152	102	151	51C				31	5
Steel	20		YBC201							YBC201		
	30		YBC301								YBC301	YE
	40		YBC401								YBC401	YBC401
	01		YBC011									
	10		YBC101									
Stainless steel	01											
	10		YBM151									
	20		YBM251									
	30		YBM301									
	40		YBM401									
<b>K</b>	01											
	10		YBD101									
	20		YBD201									
	30		YBD301									
	40		YBD401									
Iron	01											
	10		YBD101									
	20		YBD201									
	30		YBD301									
	40		YBD401									
Non ferrous metal	01											
	10											
	20											
	30											
	40											
Heat resistant alloy & Ti alloy	01											
	10		YBS101									
	20		YBS201									
	30		YBS301									
	40		YBS401									
Super hard material	01											
	20											
	30											
	40											
	50											

General turning

Recommended overview for turning in

# TURNING Guide to selecting turning tools

## How to select general turning inserts

### How to select general turning inserts

#### Turning inserts list

- Turning inserts listed according to shape
- Sequence of listed inserts
  - ▶ Negative inserts (with hole – without hole)
  - ▶ Positive inserts (with hole – without hole)
- Sequence of listed chipbreaker

Through chipbreaker

● Selecting grade according to workpiece material and working condition

Prior to select grade for insert according to working condition that is suitable for workpiece material

😊 Good working condition: machine works well and stably. There are high requirements for dimensional precision of components and quality surface.

😐 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.

😞 Bad working condition: machine works with bad stability. There are high requirements for metal evacuation rate.

Main category of products

Positive or negative inserts

Shape and dimensions  
L: cutting edge length  
ØI.C: diameter of inscribed circle  
S: Thickness

Inserts shape	Type	Dimensions (mm)				Coated cemented carbide																						
		L	ØI.C	S	ad	YB2151	YB2152	YB2451	YB2452	YB2453	YB2454	YB2455	YB2456	YB2457	YB2458	YB2459	YB2460	YB2461	YB2462	YB2463	YB2464	YB2465	YB2466	YB2467	YB2468	YB2469	YB2470	
CNMG120404-AM		12.9	12.7	4.76	5.16	0.4																						

Grade

r: nose radius

Type

For semi-finishing	Type	L	ØI.C	S	ad	r	Grade
LR	CNMMH120408-LR	12.9	12.7	4.76	5.16	0.8	★
	CNMMH120412-LR	12.9	12.7	4.76	5.16	1.2	★
	CNMMH120416-LR	12.9	12.7	4.76	5.16	1.6	★
	CNMMH160608-LR	16.1	15.875	6.35	6.35	0.8	★
	CNMMH160612-LR	16.1	15.875	6.35	6.35	1.2	★
	CNMMH160616-LR	16.1	15.875	6.35	6.35	1.6	★
	CNMMH160624-LR	16.1	15.875	6.35	6.35	2.4	★
	CNMMH190612-LR	19.3	19.05	6.35	7.94	1.2	★
	CNMMH190616-LR	19.3	19.05	6.35	7.94	1.6	★
	CNMMH190624-LR	19.3	19.05	6.35	7.94	2.4	★
Light-load roughing	CNMM250924-LR	25.78	25.4	9.525	9.12	2.4	★

Size

Stock

Illustration of stock



- Reference page of tool holders
- Application of inserts
- Shape
- Insert chipbreaker
- Chipbreaker code

- Recommended cutting parameters
- Chipbreaker selection reference
- Grade selection reference
- Insert code key





# TURNING



## General turning inserts

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<b>Application instruction of general turning inserts</b>	•	A27-A49
<b>General turning inserts</b>	•	A50-A152
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PCBN&PCD inserts		A118-A149
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Ceramic inserts code key		A150-A151
Ceramic inserts	•	A152



# TURNING General Turning Inserts

## General turning inserts overview

### Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For finishing	<b>SF</b>	M			<b>Recommended chipbreaker for finishing of P-type materials</b> Double-sided chipbreaker with M-level tolerance has outstanding performance in finishing, achieving good surface quality.
	<b>DF</b>	M			<b>Recommended chipbreaker for finishing of P-type materials</b> Double-sided chipbreaker with M-level tolerance has sharp edges, which can effectively cut off stainless steel and avoid adhering and surface hardening, achieving high surface quality.
	<b>EF</b>	M			<b>Recommended chipbreaker for finishing of M-type materials</b> Double-sided chipbreaker with M-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.
	<b>NF</b>	E			<b>Recommended chipbreaker for finishing of S-type materials</b> Double-sided chipbreaker with E-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.
For S	<b>NGF</b>	E			<b>Recommended chipbreaker for finishing of S-materials</b> E-class double side chip breaker with excellent sharp edge. High positioning accuracy, light cutting force.-NGF is recommended chip breaker for S series material general finishing.
	<b>WGF</b>	M			<b>Recommended chipbreaker for finishing of S-materials</b> E-class double side chip breaker with excellent sharp edge. High positioning accuracy, light cutting force.-NGF is recommended chip breaker for S series material general finishing.
-finishing	<b>DM</b>	M			<b>Recommended chipbreaker for semi-finishing of P-type materials</b> Double-sided chipbreaker with M-level tolerance produces small cutting forces and has large chip breaking range, which ensures good performance for machining highly adhesive alloy steel.
	<b>PM</b>	M			<b>Recommended chipbreaker for semi-finishing of P-type materials</b> Double-sided chipbreaker with M-level tolerance has higher strength of cutting edge than chipbreaker DM. It is suitable for semi-finishing under unstable working conditions as well as machining cast iron with small cutting forces.

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	<b>NM</b>	M			<p><b>Recommended chipbreaker for semi-finishing of S-type materials</b></p> <p>Double-sided chipbreaker with M-class tolerance keeps high precision after inserts are turned, with good capability to prevent wear and hardening to achieve higher machining efficiency than chipbreaker NF.</p>
	<b>EM</b>	M			<p><b>Recommended chipbreaker for semi-finishing of M-type materials</b></p> <p>Double-sided chipbreaker with M-level tolerance can solve the processing problems such as chip breaking and adhering of stainless steel, achieving higher machining efficiency than chipbreaker EF.</p>
	<b>WGM</b>	M			<p><b>Wiper chipbreaker for semi-finishing</b></p> <p>Double-sided chipbreaker with M-level tolerance, semi-finishing chipbreaker with wiper designed, perfect combination of good wiper result and sturdy cutting edge structure, which perfectly meet the requirement of high efficiency and good surface quality.</p>
	<b>All round</b>	M			<p><b>From semi-finishing to roughing of P-type, M-type, K-type materials</b></p> <p>Double-sided chipbreaker with M-level tolerance has good cutting edge strength and wide application.</p>
Light-load roughing	<b>DR Double-side</b>	M			<p><b>Recommended chipbreaker for light roughing of P-type and K-type materials</b></p> <p>Double-sided chipbreaker with M-level tolerance is the first choice for light roughing, can achieve high evacuation rate and efficiency of cutting edge.</p>
	<b>LR Single-side</b>	M			<p><b>Recommended chipbreaker for light-load roughing of P-type materials</b></p> <p>Single-sided general chipbreaker with M-level tolerance, has wide chip breaking range and sharp cutting edge is designed with inclined angle, which enables it to cut lightly and easily and control the chipping flow direction. Chip-loaded-stages can reduce the contact area with chips, so that heat can easily be dissipated.</p>
For roughing	<b>ER Single/Double side</b>	M			<p><b>Recommended chipbreaker for roughing of M-type materials</b></p> <p>Single / double-sided chipbreaker with M-level tolerance has good capacity of impact-resistance. It is designed to achieve balance high cutting heat when roughing stainless steel.</p>

# TURNING General Turning Inserts

## General turning inserts overview

### Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For roughing	<b>DR Single-side</b>	<b>M</b>			<b>Recommended chipbreaker for roughing of P-type materials</b> Single-sided chipbreaker with M-level tolerance has high security of cutting edge, which can achieve high feed rate and low cutting forces at great cutting depth and high feed rate.
					<b>Recommended chipbreaker for S-material high efficiency roughing</b> M-level double-sided chipbreaker perfectly combines sharpness and strength of the cutting edge, with small cutting resistance and high edge strength can effectively reduce groove wear. SNR is recommended chipbreaker for high depth roughing of S- materials.
Heavy-load machining	<b>HDR Single-side</b>	<b>M</b>			<b>Recommended chipbreaker for heavy load machining of P materials</b> M level single-sided chip breaker with strengthen cutting edges, high safety and excellent plastic deformation resistance under high metal removal rate.
					<b>Recommended chipbreaker for heavy-load machining of P-type materials</b> Single-sided chipbreaker with M-level tolerance, strong cutting edge. Multi-stages chipbreaker ensures the flowing of chip and heat dissipation of insert. It is suitable for machining under unstable and relatively bad working condition, especially for external roughing of work piece with a rough oxidized surfaces.
Cast iron machining	<b>Without chipbreaker</b>	<b>M</b>			<b>For cast iron machining</b> Double-sided chipbreaker with M-level tolerance has high cutting edge strength. It can overcome inferior factors such as interruption and vibration, etc. when machining cast iron.
					<b>For machining of non-ferrous metal and high-hardness metal</b> G-level tolerance is the best choice for machining non-ferrous metals and high-hardness material by welding PCBN and PCD material to cemented carbide substrate.
Super hard inserts	<b>Without chipbreaker</b>	<b>G</b>			<b>For roughing of K-, H- high-temperature alloy roughing</b> Sialon Ceramics, V-positioning, solution for high-speed machining of cast iron, hardened steel and superalloy.
Ceramic inserts	<b>Without chipbreaker</b>	<b>G</b>			

General turning inserts overview

Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
extra finishing	<b>USF</b>	G			<p><b>Precision turning chipbreaker</b> With G-level tolerance, large rake angle, sharp cutting edge, for soft cutting action, this is the first choice for precision turning of small shaft parts.</p>
	<b>R/L</b>	G			<p>With G-level tolerance, sharp cutting edge and small nose radius, it can effectively reduce the vibration in machining and is suitable for boring and external turning.</p>
	<b>SF</b>	G			<p><b>First choice for finishing with high requirements on chipbreaker</b> With G-level tolerance, it is the first choice for precise finishing due to its excellent performance on chip breaking.</p>
	<b>HF</b>	M			<p><b>Chipbreaker for finishing with wide application</b> With M-level tolerance, it is suitable for internal and external finishing of various materials such as steel and cast iron.</p>
	<b>EF</b>				<p><b>Recommended chipbreaker for finishing of M-type materials</b></p>
For finishing	<b>IF</b>	M			<p>cutting abrasive materials such as stainless steel, soft steel, etc.</p>
	<b>NF</b>	E, G			<p><b>Recommended chipbreaker for finishing S-type materials</b> With E and G-level tolerance and sharp cutting edges, it is suitable for internal and external finishing of high-temperature alloy materials.</p>
	<b>NGF</b>	E, G			<p><b>Recommended chipbreaker for S-material general finishing</b> E, G grade accuracy, for inner hole finishing of S materials.</p>
For	<b>HM</b>	M			<p><b>Chipbreaker for semi-finishing with wide application</b> With M-level tolerance, it is suitable for internal and external semi-finishing of materials like steel, cast iron, etc.</p>
semi-finishing	<b>EM</b>	M			<p><b>Recommended chipbreaker for semi-finishing of M-Type materials</b> With M-level tolerance, it has higher hardness of cutting edge than EF and can achieve higher efficiency.</p>

# TURNING General Turning Inserts

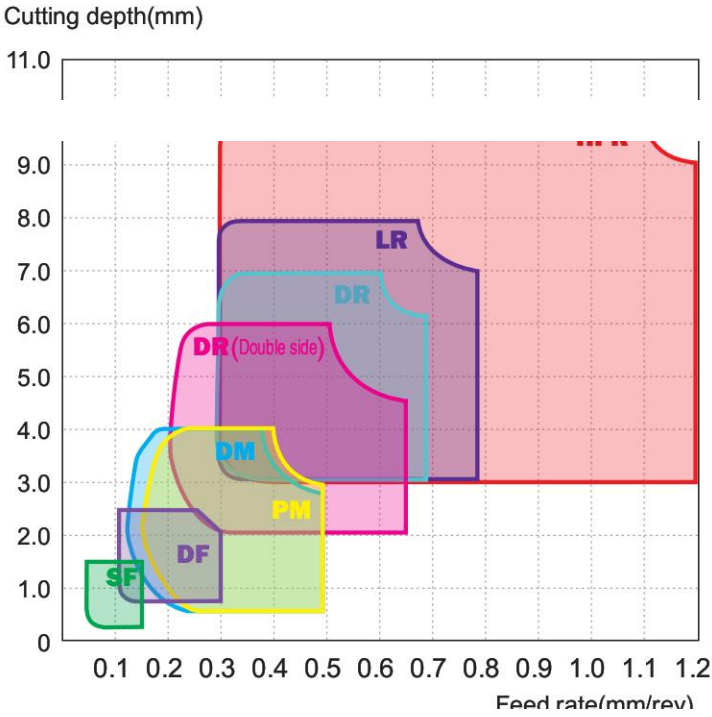
## General turning inserts overview

### Positive inserts with hole

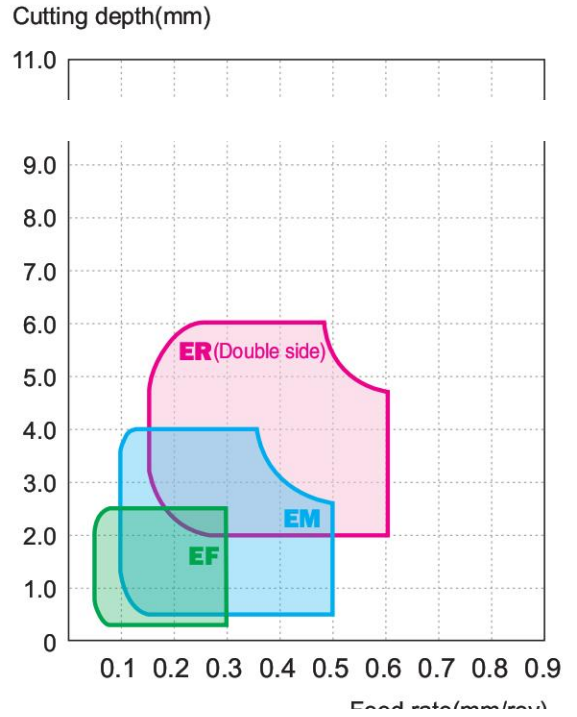
Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	<b>All round</b>	<b>M</b>			<b>Recommended chipbreaker for semi-finishing of M-type materials</b> With M-level tolerance, it is suitable for profile machining materials like steel, cast iron, etc.
	<b>chipbreaker</b>		<b>M G</b>		
For roughing	<b>HR</b>	<b>M</b>			
	<b>Special chipbreaker</b>				<b>Recommended chipbreaker for heavy machining of P-type materials</b> Single-sided with M-level tolerance, it has good cutting edge strength with high security. It is the first choice for profile roughing.
	<b>SNR</b>				<b>Recommended chipbreaker for S-material high-efficiency roughing</b>
For Al machining	<b>LC</b>	<b>G</b>			<b>Chipbreaker for machining of Al alloy</b> With G-level tolerance, large rake angle and clearance angle make the cutting edge sharper, ensuring easy and fast cutting while remaining effective chip breaking.
	<b>LH</b>				<b>Special chipbreaker for machining of Al alloy</b> With G-level tolerance, large rake angle and polishing treatment on surface, it can effectively prevent built-up edge and achieve high workpiece surface quality while maintaining long life.
Super	<b>Without chipbreaker</b>				<b>Special chipbreaker for non-ferrous metals and materials with high hardness</b> With G-level tolerance, it is the best choice for machining of non-
inserts					

### Chip breaking range reference for general turning inserts

#### Negative inserts

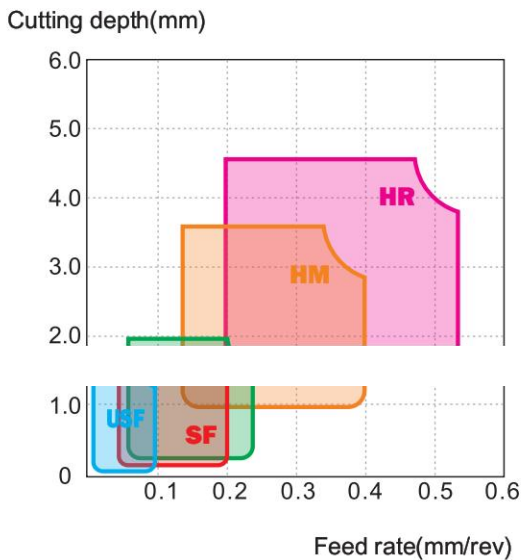


▶ Workpiece material: 45# steel

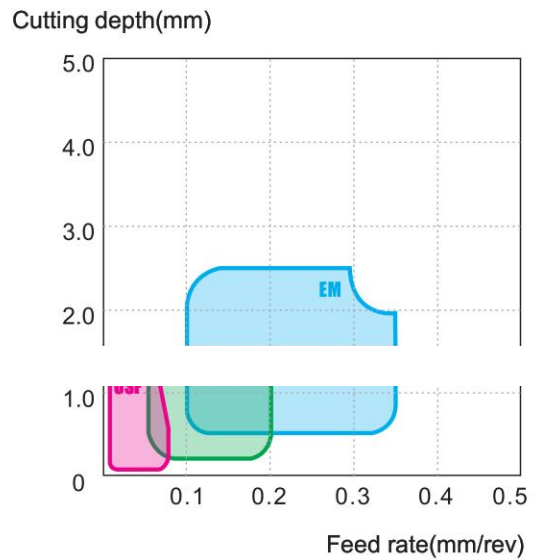


▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

#### Positive inserts



▶ Workpiece material: 45# steel



▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

# TURNING / General Turning Inserts

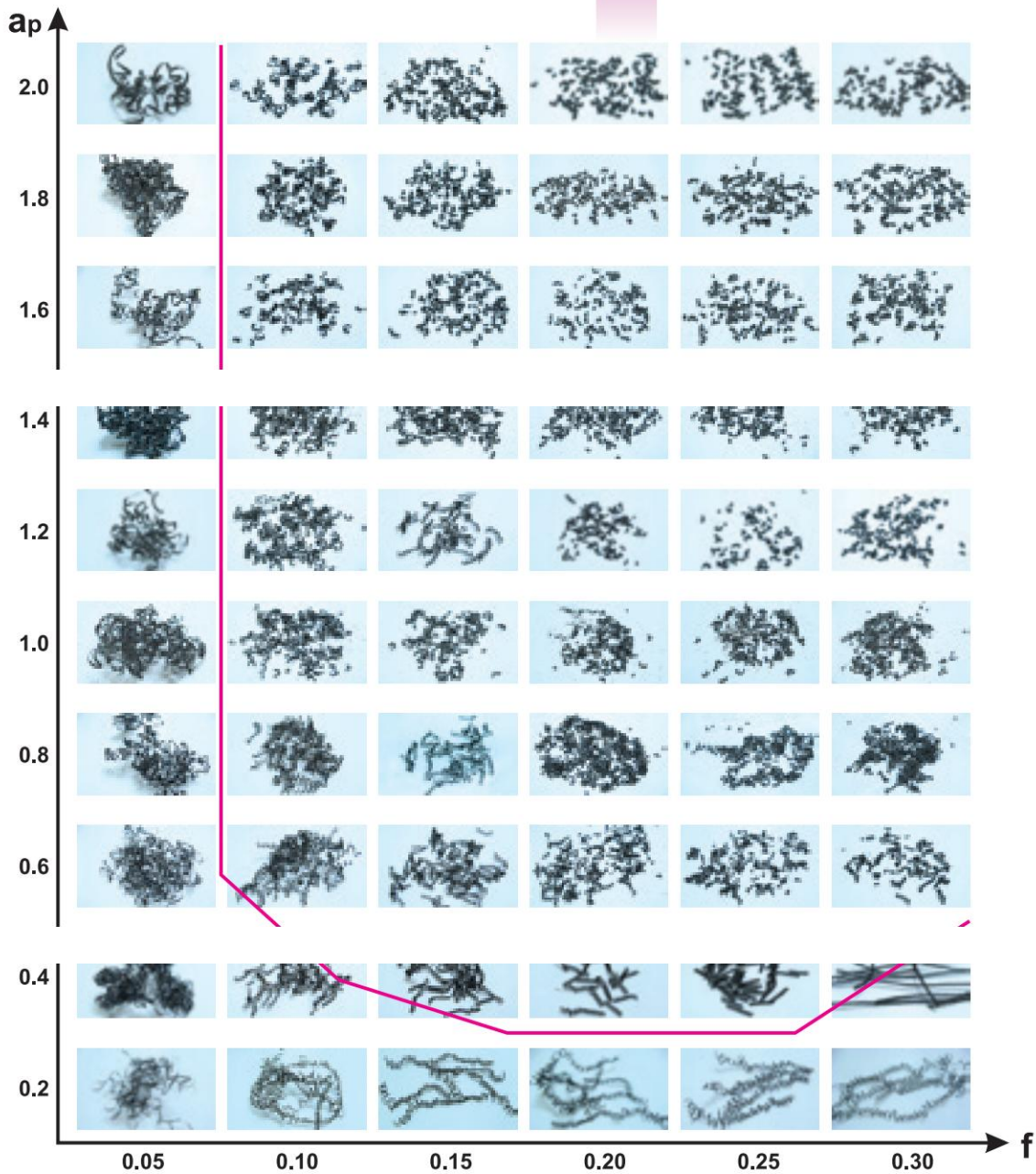
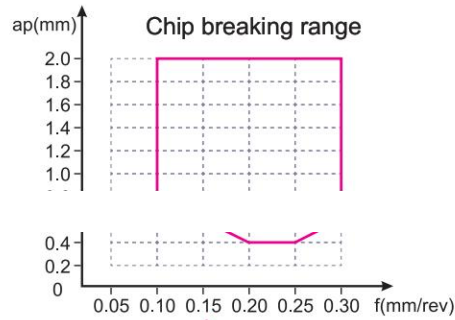
Application instruction for general turning tools

## Cutting test for chip breaking range of general turning inserts

### Case

Insert: CNMG120408-DF  
Toolholder: PCLNL2525M12

Cutting speed: 200m/min

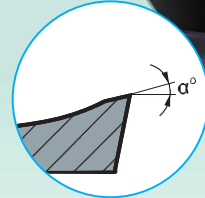




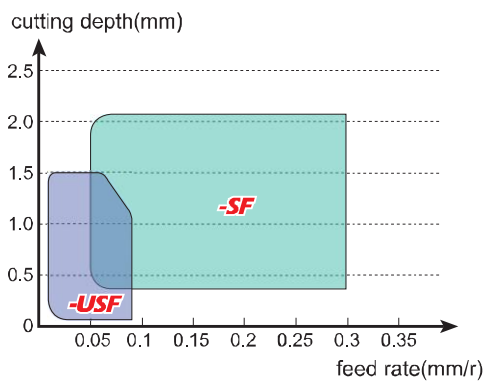
# -USF

## Precision turning chipbreaker

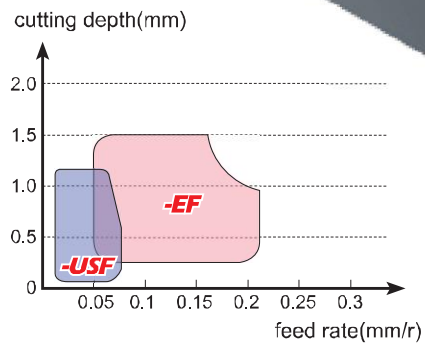
- Effective chip control due to the proper chipbreaker.
- Large rake angle makes cutting easier and faster.
- Nose radius precision controlled within 0.02mm for excellent machining precision.
- Special surface after-treatment for better surface quality.
- High strength screw clamping ensures good repeatability and accuracy .



### Application range of USF chipbreaker



Workpiece material: 42CrMo



Workpiece material: 1Cr18Ni9Ti

# -LC

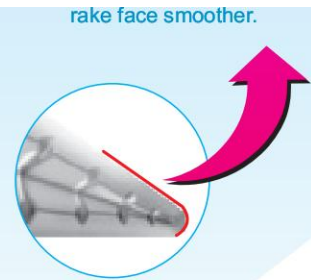
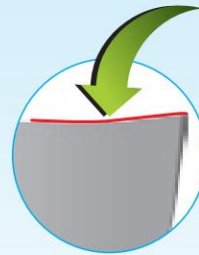
## chipbreaker for aluminum

- LC inserts are designed with a special chipbreaker. Large rake angle and clearance angle make the cutting edge sharper, ensuring easier cutting while remaining effective chip breaking.
- Achieved the mirror rake face after special treatment. Reduced the friction resistance, and stick free. Accordingly, make the chip removal fluently and improve the surface quality and tool life.

Optimized inclined angel

Smooth connection of insert

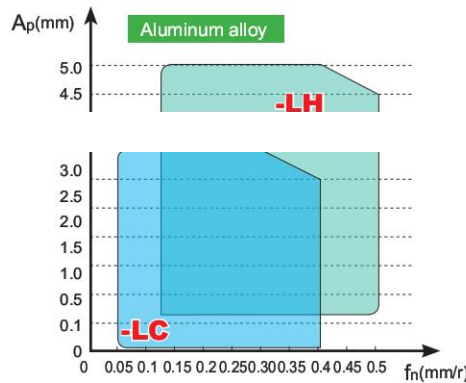
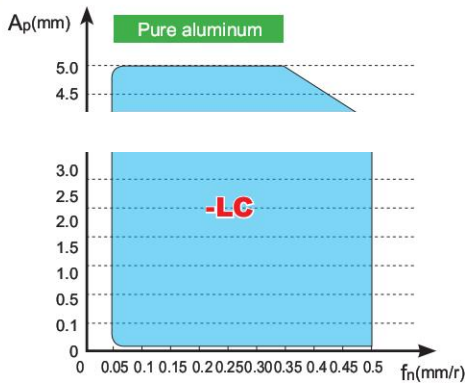
Position Accuracy, at the same time, it can effectively avoid the vibration during the machining process.



rake face smoother.

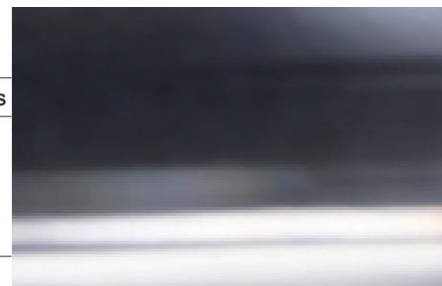
### -LC and -LH chipbreaker characteristics and machining range

- LC chipbreaker can be used in machining of pure Al, while -LH chipbreaker can not.
- LC chipbreaker expand the chip breaking range of Al alloy machining.



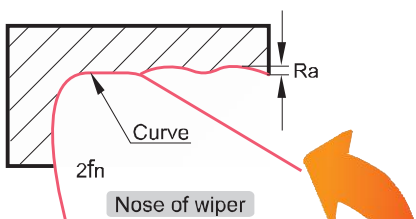
### Workpiece material: Pure aluminum

Cutting parameters	V=350m/min    Ap=0.2mm    F=0.2mm/r	
Chips		
	<b>-LC chipbreaker</b>	similar products from overseas manufacturers
	<ul style="list-style-type: none"> <li>-LH chipbreaker is more suitable for machining aluminum alloy in condition of large cutting depth and high feed rate.</li> <li>-LC chipbreaker is more suitable for machining aluminum alloy in condition of small cutting depth and low feed rate.</li> <li>-LC chipbreaker can be used in machining pure aluminum.</li> </ul>	



# -WGF/WGM

## chipbreaker series Turning inserts with wiper



### High efficiency

Roughness remains the same when feed rate is doubled.



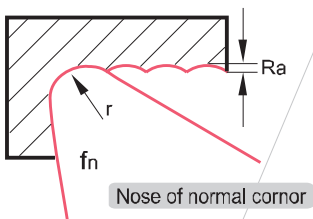
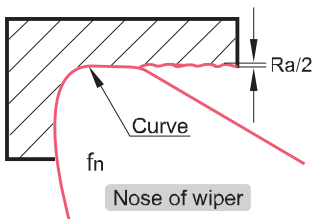
Wiper is assembled by three curves to form a circular arc edge. The nose of wiper provides less profile height on the surface that is formed by the cutting edge, resulting in a smooth turning surface.

Inserts with wiper has high efficiency when used for finish and semi-finish turning. The surface quality remains the same even at double feed rate.

Wiper technique = high machining efficiency + high surface quality

### High quality

Roughness value is reduced to half when feed rate remains the same.



When used for finishing, it can improve roughness of workpiece surface and achieve turning instead of grinding.

When used for semi-finishing, efficiency could be improved by doubling the feed rate, the roughness of workpiece surface remaining the same.

### Guide to use

#### ● Select reasonable approach angle of the tools

Minor angle being close to 0 degree is the reason that inserts with wiper can reduce roughness of the surface, which is determined by the shape of insert and approach angle of the tool holder. Therefore, acceptable roughness of surface is the result of reasonable approach (minor) angle. The finishing function of wiper would be reduced or invalid if unreasonable approach (minor) angle is chosen. For example, the approach angle should be 95° for CNMG / WNMG inserts, while 93° is the best for DNMX.TNMX inserts.

#### ● Be careful with DNMX / TNMX inserts

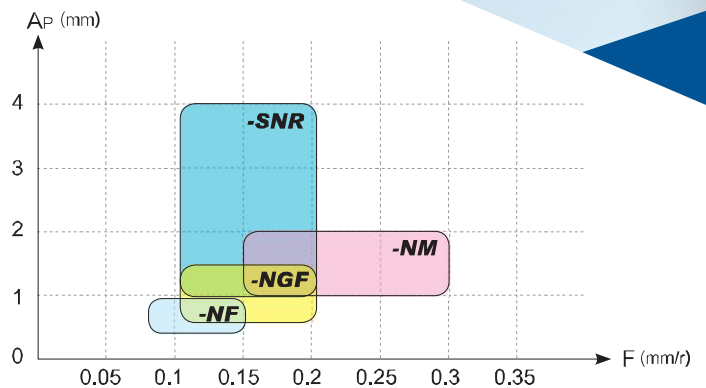
DNMX / TNMX inserts with wiper don't have wide application. It cannot achieve a wiper result when minor angle is not 0 degree, like chamfer and profile surface, and will even cause over-cutting or no-cutting on workpiece, affecting the shape and size precision of workpiece. Please contact technical service regarding these problems.

# S- Ni-based Superalloy Machining Difficulties Overcome

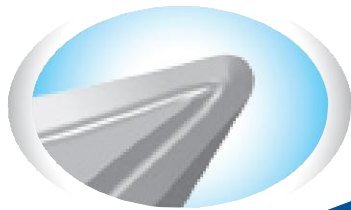
## Features of Ni-based superalloy machining

- High cutting resistance (containing a large amount of alloying elements, severe hardening, great plastic deformation ;
- High cutting temperature;
- Severe wear of inserts.

Chipbreaker for machining of Ni-based superalloy should have tough and sharp insert nose, smooth rake face and proper inclination angle.




**-NM** for semi-finishing      **-SNR** for high efficiency roughing  
**-NF** for finishing          **-NGF** for general finishing



## **-SNR** Chipbreaker for roughing with large depth of cut

- Positive rake angle design, sharp cutting edge, low cutting resistance, effectively reducing groove wear;
- Cutting edge with variable rake angles increase cutting edge strength at large depths of cut. Edge strength increases as the depth of cut increases;
- Large slot width combined with unique edge rib design not only provides excellent chip breaking performance but also can effectively improve edge strength.



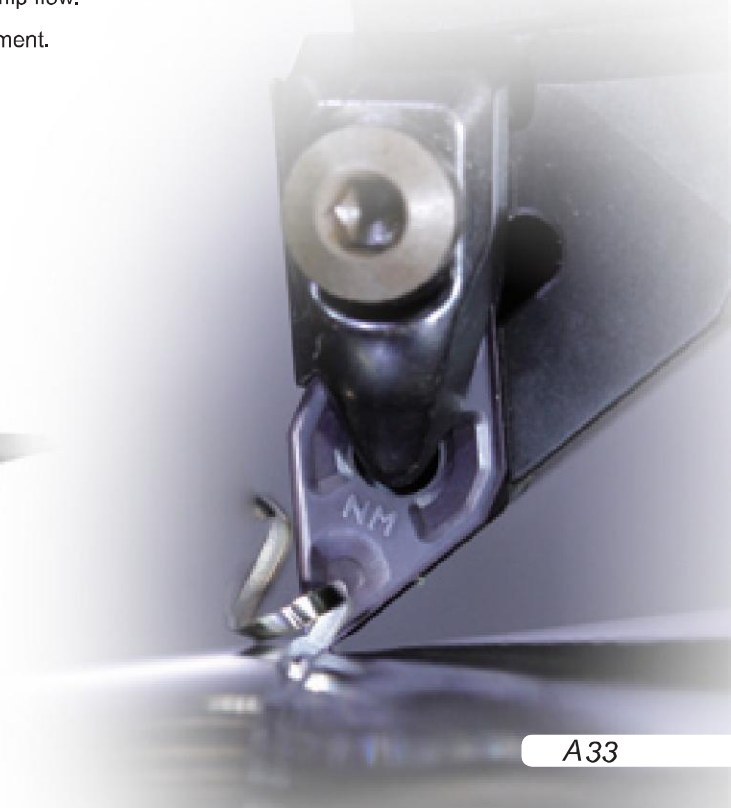
## **-NGF** Chipbreaker for General Finishing

- Proper inclination angle design, sharp cutting edge, small cutting resistance;
- E-level tolerance of insert, high clamping accuracy, proper chipbreaker width, good chip breaking performance, excellent surface quality;
- Special edge treatment, high wear resistance.



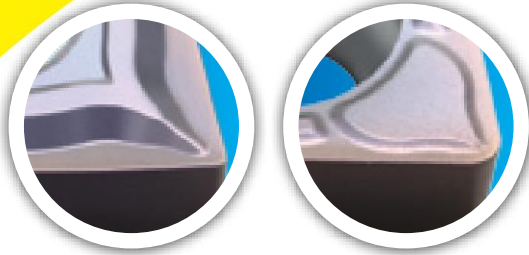
## **-NFINM** Chipbreaker for General Finishing

- -NF chipbreaker has sharp cutting edge, while -NM chipbreaker high cutting edge strength.
- Smooth surface of chipbreaker ensures unobstructed chip flow.
- High wear resistance of cutting edge after special treatment.



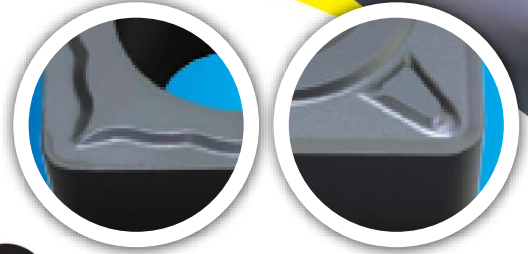
# -EF -EM -ER

Specially designed for machining intensively adhesive and high-plasticity materials such as stainless steel, etc



**-EF**

Rake angle and inclined angle are specially designed for intensively adhesive stainless steel and high-plasticity materials which are hard to be machined. Sharp cutting edge enables it to cut lightly and easily and achieve good surface quality by well controlling chip breaking. It is especially suitable for finishing these kinds of materials.

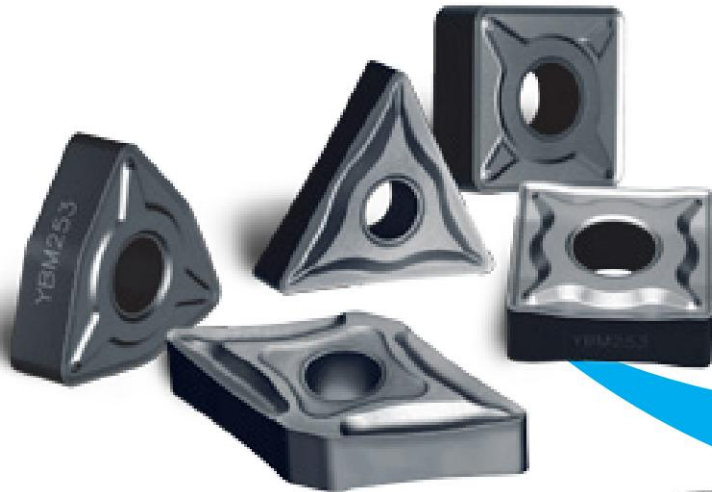


**-EM**

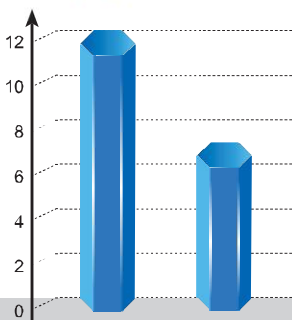
Inserts meet the requirements of machining intensively adhesive materials. Impact resistance of cutting edge is improved in addition to sharpness, which makes it suitable for semi-finishing and intermittent machining of adhesive materials such as austenitic stainless steel, etc.

**-ER**

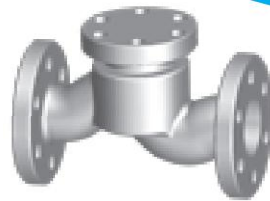
Specially designed double rake angle with wide land achieves balance between edge security and sharpness, and effectively reduces cutting resistance and wear on groove.



Number of machined parts / Cutting edge



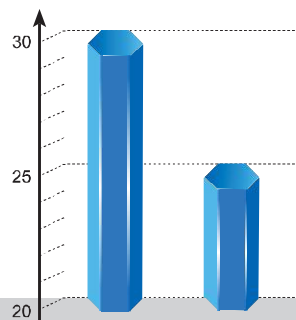
CNMG120408-EM / YBG202 A company



Machining external of valve

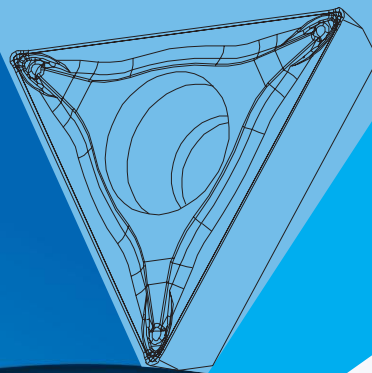
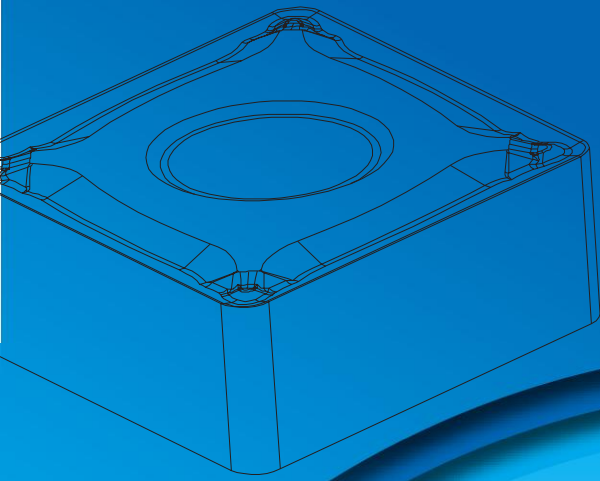
Machining end surface of valve (intermittent machining)  
Workpiece diameter:135mm  
Rotating speed:350rpm  
Feed rate:0.25mm/r  
Cutting depth:1.5mm

Number of machined parts / Cutting edge



CNMG120408-EF / YBG202 A company

Machining external of valve  
Workpiece diameter:89mm  
Rotating speed:635rpm  
Feed rate:0.15mm/r  
Cutting depth:1.0mm



## **-SF** Chipbreaker for finishing

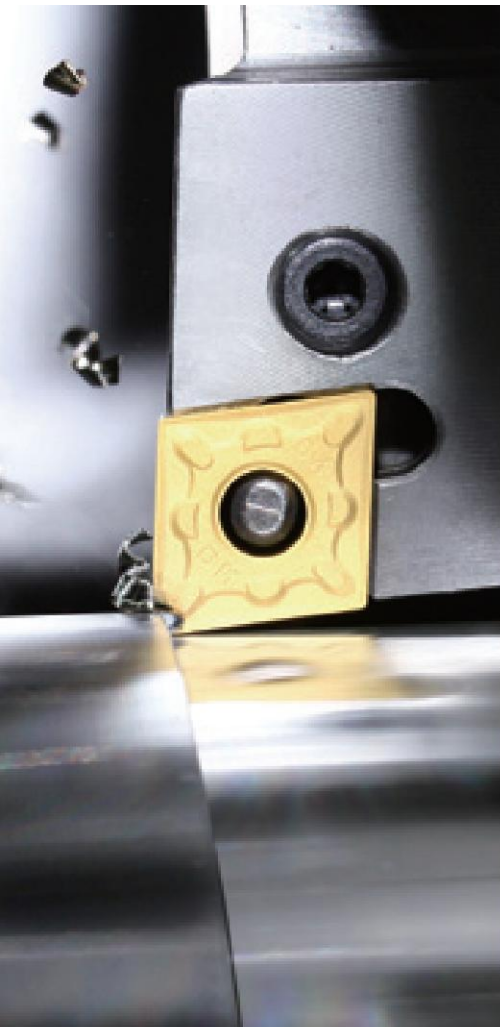
Unique nose design and sharp cutting edge lead to small cutting resistance and effectively reduce vibration of the tool holder.

With high re-positioning precision, the insert is compatible with specially developed cemented carbide tool holders, which can increase the capability of vibration resistance and improve machining quality.

Special treatment on insert's surface can reduce the possibility of chips adhering to the rake face of insert. Good performance of chip breaking and chip flowing ensures improved surface quality of workpiece.

By adopting excellent grade, it is suitable for extra finishing of various materials.





### YBC151

The combination of substrate with excellent wear resistance and coating composed of MT-TiCN, thick layer of Al<sub>2</sub>O<sub>3</sub> and TiN makes it suitable for finishing steel.

### YBC251

The substrate with good toughness and high security of cutting edge, in optimal combination with coating composed of MT-TiCN, thick layer of Al<sub>2</sub>O<sub>3</sub> and TiN makes it suitable for steel semi-finishing.

### YBC351

The best combination of substrate with high wear resistance and coating composed of MT-Ti (CN), thick Al<sub>2</sub>O<sub>3</sub> layer and TiN makes it suitable for finishing and semi-finishing of cast iron materials.

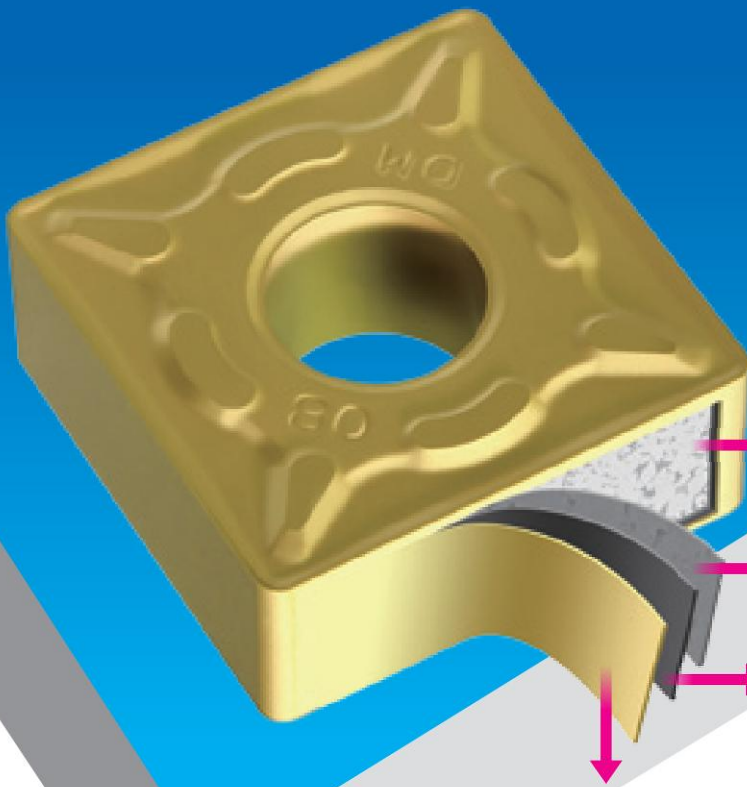
### YBM151

Substrate with special structure, in combination with coating composed of TiCN, thin Al<sub>2</sub>O<sub>3</sub> layer and TiN, with excellent resistance against diffusive wear and plastic deformation makes it suitable for finishing, semi-finishing and roughing of stainless steel.

### YBM251

Combination of substrate with good toughness and strength and coating composed of TiCN, thin Al<sub>2</sub>O<sub>3</sub> layer and TiN makes it suitable for semi-finishing and roughing of stainless steel.

# Coated Cemented Carbide **CVD**



## YBC251 Coating

Thanks to the technology of gradient sintering, impact resistance of cutting edge and wear resistance are improved which lead to improved capability of cutting edge against damage.

Carbide with special crystal structure improves the Red Hardness of substrate and strengthens heat resistance of insert.

TiCN layer acts against abrasion, which leads to the best wear resistance of the flank.

Special structure of Al<sub>2</sub>O<sub>3</sub> deposit layer acts as a thermal barrier and strengthens the capability of substrate against plastic deformation under dry and high-speed cutting conditions.

Golden surface of TiN can reduce friction and enable easy distinction of the variety of wear.

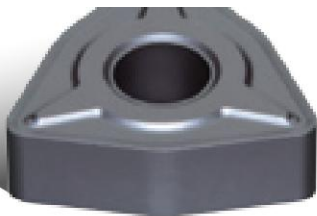


# BLACK DIAMOND INSERTS

**Innovation of machining techniques for stainless steel turning**



## YBM153



Best choice for roughing of stainless steel with high-speed under good working condition

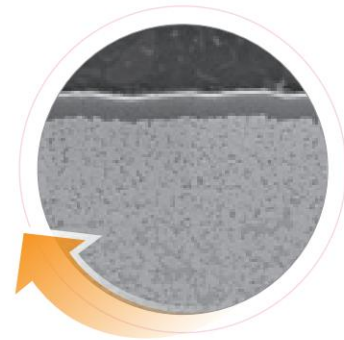


### Coating

- ✓ CVD coating with advanced ultra-fine grain coating technology, greatly improves wear
- ✓ Thanks to special treatment on transition layer, multi-layer coating are combined firmly.
- ✓ The exceptionally smooth coating surface and good low friction ability can reduce the occurrence of built-up edges.

### Substrate

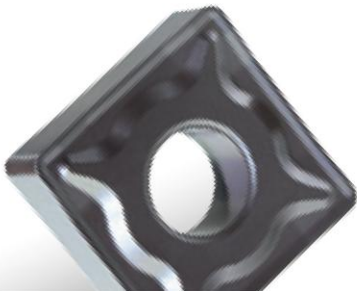
- ✓ Added with resist high temperature rare element, inserts shows a good capability against plastic deformation and good capability of Red Hardness.
- ✓ Unique manufacturing technology improves high temperature toughness and wear resistance of substrate.



**Application fields** YBM153 is suitable for finishing and semi-finishing of stainless steel with high cutting efficiency under stable working condition. Such as medium-size fluid valve components in petrochemical industry,

systems, ship mechanical parts, aviation hydraulic parts, adapting pieces in IT and semiconductor industry, medium and long-axis in food processing machinery, construction machinery and general machinery.

## YBM253



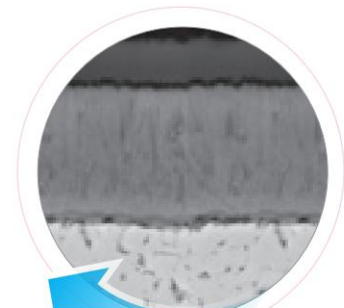
Ideal grade for turning of stainless steel with high cutting depth and high feed rate under bad working condition

### Coating

- ✓ Ultra-fine grain coating technology provides better wear resistance and toughness;
- ✓ Improved remain internal stress design ensures good toughness and anti-cracking performance;
- ✓ Polishing treatment on coating surface makes it suitable for cutting adhesive materials.

### Substrate

- ✓ With gradient carbide substrate insert has better



**Application fields** YBM253 grade is suitable for roughing of heavy stainless steel parts with high cutting depth and high feed rate under the condition with great impact.



# BLACK DIAMOND INSERTS

**Achieving both higher cutting speed and longer tool life**

Second generation of



Coated Cemented

Carbide CVD

## YBC152

Thick TiCN and thick Al<sub>2</sub>O<sub>3</sub> coatings improve the impact toughness and abrasion resistance, which makes it suitable for finishing and semi-finishing of steel at high speed. Cutting speed can increase by more than 25%, while the tool life can increase by more than 30% at the same cutting speed.

## YBC252

Comprising of thick TiCN and thick Al<sub>2</sub>O<sub>3</sub> coatings, the grade has high capability against plastic deformation and good hardness of cutting edge. It is preferred grade for machining of steel from finishing to roughing. Under the same cutting conditions, the cutting speed can be

30% longer under the same cutting speed.

## YBC352

Thickness TiCN and Al<sub>2</sub>O<sub>3</sub> coating, with strongest toughness and plastic deformation resistance, the ideal grade for high efficient steel rough machining under the bad condition.

### Test comparison of inserts abrasion

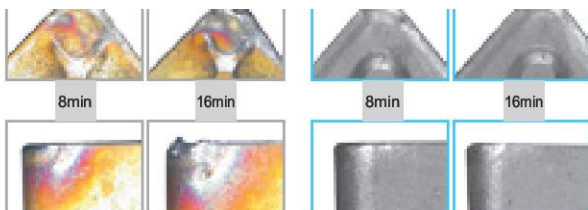
Workpiece material : 45# steel

Inserts: CNMG120408-DM

Cutting parameters: Vc=400m/min ap=1mm fn=0.2mm/r

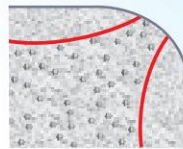
Grade from other company

YBC152



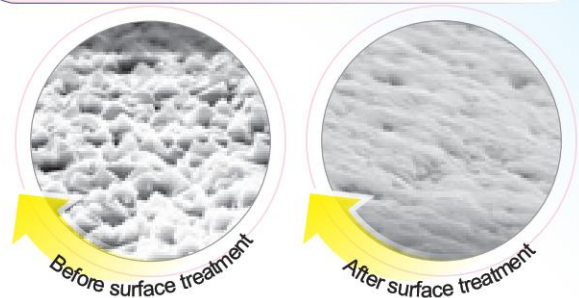
Perfect unification of toughness and anti-plastic deformation.

Specially designed cutting edge with "skeleton" realizes perfect unification of toughness and anti-plastic deformation.



Roughness of insert surface is improved after special treatment on surface, which effectively reduces cutting forces, prevents

improves operation stability of inserts.



The perfect combination of fibrous TiCN and fine grain Al<sub>2</sub>O<sub>3</sub> obviously improves abrasion resistance and anti-breakage of inserts.



TiCN  
Cemented carbide substrate

## YBD052

CVD coated grade, which is characterized by super fine grain and smooth surface, is the combination of hard substrate and coating (extra thick  $\text{Al}_2\text{O}_3$  + thick TiCN ). The grade is optimized for best wear resistance when machining gray cast iron at high speed under dry condition.

## YBD102

CVD coated grade, which is the combination of hard substrate and coating (thick  $\text{Al}_2\text{O}_3$  + thick TiCN ), shows excellent wear resistance and impact resistance when machining nodular cast iron at high speed.

## YBD152

CVD coated grade, which is the combination of hard substrate and coating (medium thick  $\text{Al}_2\text{O}_3$  + thick TiCN ), has good flaking resistance. It is suitable for turning of cast iron at high speed, and light intermittent cutting can be supported even at moderate speed. It is also suitable for milling of cast iron.

## YBD252

CVD coated grade, which is the combination of hard substrate and coating (medium thick  $\text{Al}_2\text{O}_3$  + thick TiCN ), achieves the balance between wear resistance and toughness. It is suitable for wet milling of cast iron, which requires toughness (such as nodular cast iron) at moderate or low speed. It is also suitable for intermittent turning.

# BLACK DIAMOND

## INSERTS YBD

First choice for high-efficiency and high-speed machining of cast iron

- The combination of thick coating and substrate with good hardness and impact resistance gives the inserts excellent impact resistance and stability under high temperature, and improves wear resistance of inserts. Inserts also satisfy the requirements of high speed and high feed rate when machining cast iron.
- The appearance of shining full black is easily identified.

### Significant results

- Working efficiency has been improved. Both the coating and the substrate are suitable for machining cast iron at high speed and high feed rate. Cutting speed can be increased by **30% to 40%**.
- Cost is reduced as tool life is increased by **40%-50%**.
- High machining stability.



Layer of fine grain with compact surface

Coated Cemented Carbide CVD

## Recommended combination of grade and chipbreaker

### For machining of P-type materials

Grade	Type
YBC151	•DF
YBC152	•DF
YBC251	•DM
YBC252	•PM
YBC251	•DR
YBC252	(Double-side)
YBC351	•DR
YBC351	•HPR
YBC352	•HPR

### For machining of M-type materials

Grade	Type
YBM151	•EF •EM •ER
YBM153	•EF •EM
YBM251	•EM •ER
YBM253	•EM •ER

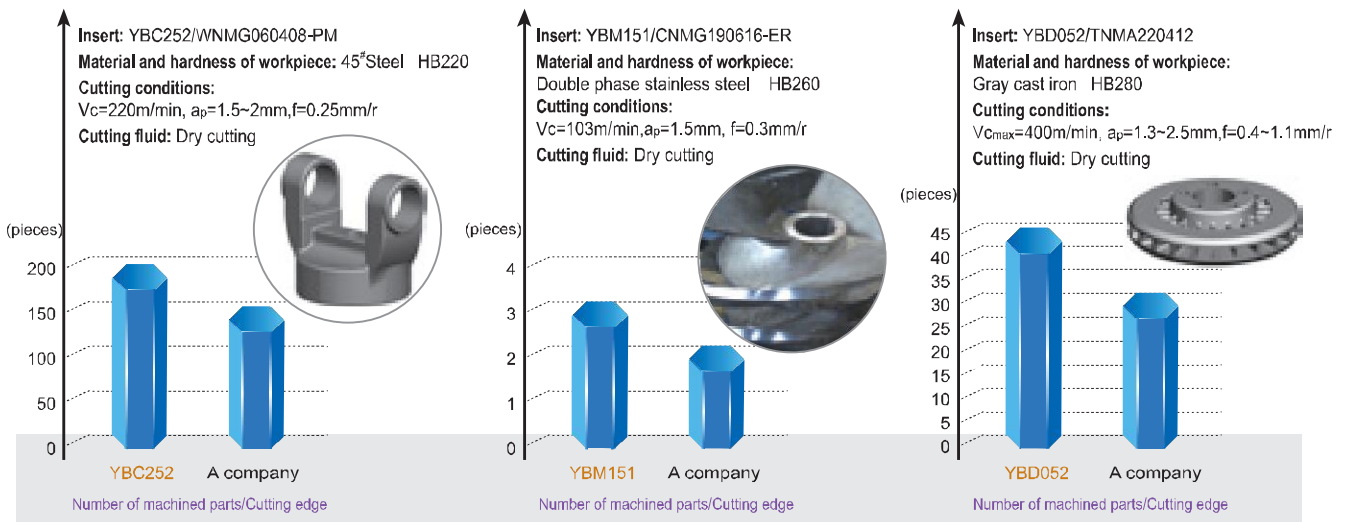
### For machining of K-type materials

Grade	Type
YBD052	Without chipbreaker •PM
YBD102	Without chipbreaker •PM
YBD152	Without chipbreaker
YBD252	Without chipbreaker

## Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed(m/min)
P Steel	For finishing	YBC151	180-460
		YBC152	220-500
	For semi-finishing	YBC251	160-440
		YBC252	180-480
	For roughing	YBC351	130-380
	YBC352		
M Stainless steel	For finishing	YBM151	110-280
	For semi-finishing	YBM153	
	For roughing	YBM251	
		YBM253	
K Cast iron	For finishing	YBD052	200-500
		YBD102	200-480
	For semi-finishing	YBD151	180-450
		YBD152	190-450
For roughing	YBD252	150-380	

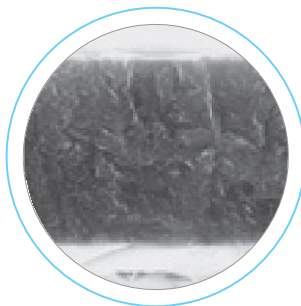
## Case



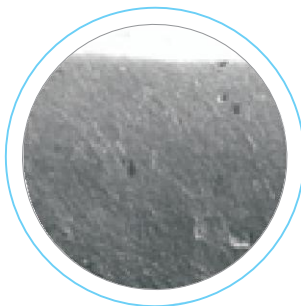
# Coated Cemented Carbide **PVD** makes it easy to machine materials which are hard to be machined

## New nano coating grade

- Special coating techniques make inserts smooth, which leads to low friction and unobstructed chip flow.
- Unique coating with nano structure closely integrates with substrate, ensuring higher hardness and toughness.
- Excellent thermal stability and chemical stability can effectively protect cutting edge.



nc-TiAlN coating(YBG202)



TiAlN base multi-elements coating (YBG105)

High-performance nanostructure coating guarantees good toughness and hardness of inserts. Special coating technology guarantees smooth surface and excellent wear resistance. Outstanding thermal stability and chemical stability effectively protect cutting edge.

### ▶ **YBG102**

The combination of nc-TiAlN coating and fine grain substrate makes it suitable for turning of various materials and finishing and semi-finishing of high-temperature alloys.

### ▶ **YBG202**

nc-TiAlN coating and ultra-fine grain substrate makes it suitable for finishing and semi-finishing of various materials and turning of super alloy.

### ▶ **YBG302**

The combination of nc-TiAlN coating and tough cemented carbide substrate, which integrates security and wear resistance, makes it suitable for parting and grooving of various materials.

### ▶ **YBG105**

**Finishing and semi-finishing for materials difficult to cut PVD coated grade**

PVD coated grade, new TiAlN based multilayer coating, has higher wear resistance and Anti-thermal-oxidation ability. It is suitable for finishing and semi-finishing turning of various materials difficult to cut, such as high temperature alloy, heat resistant alloy, etc.

### ▶ **YBG205**

**PVD coating grade for finishing of stainless steel**

**Suitable for relatively small workpieces which require high surface smoothness.**

Superfine TiAlN nano coating added with wear-resistant and heat-resistant rare elements has high hardness and excellent heat-resistance, providing effective protection for the cutting edge. Special coating technology ensures stronger combination of coating and substrate. It is suitable for extra finishing of stainless steel.

### ▶ **YBG212**

Nc-TiAlN coating combined with super tough substrate which made of super fine grain. It's suitable for finishing and roughing materials which are hard to be machined.

### ▶ **YBS103** *New*

**Turning grade for Ni-based S material**

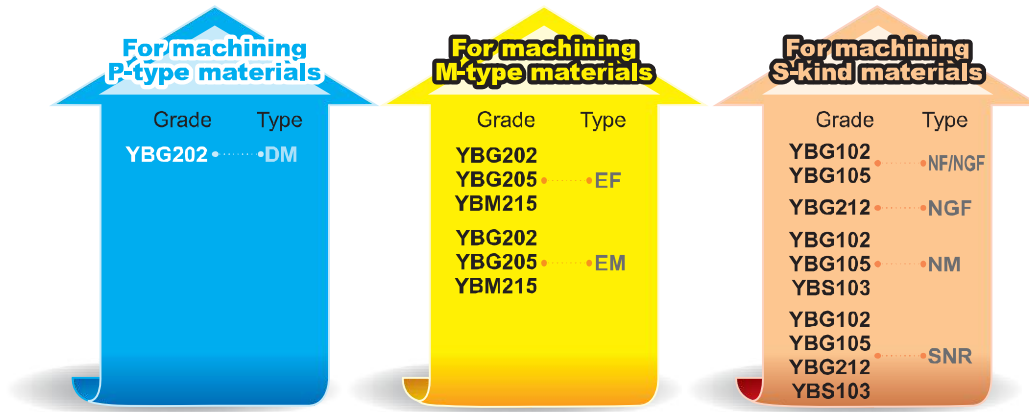
Fine wear resistance, and good capability against built-up edge and heat resistance. Suitable for turning of Ni-based materials.

### ▶ **YBM215** *New*

**PVD coating of multiple layer nanometer**

Improved capability of grade's wear resistance and anti-high temperature increases the strength between grade and substrate and the tool stability. This grade is very suitable for turning for stainless steel.

## Recommended combination of grade and chipbreaker



## Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed(m/min)
<b>P</b> Steel	For finishing	YBG102	180-460
	For semi-finishing	YBG202 YBG205	150-380
<b>M</b> Stainless steel	For finishing ~ for semi-finishing	YBG202 YBG205 YBM215	170-300
<b>S</b> Heat resistant Alloy Ti alloy	For finishing ~ for semi-finishing	YBG102	30-60
		YBG105	40-70
		YBG212	30-50
	For roughing	YBS103	40-90
		YBG102	20-40
		YBG105	30-40
		YBG212	20-40
		YBS103	20-50

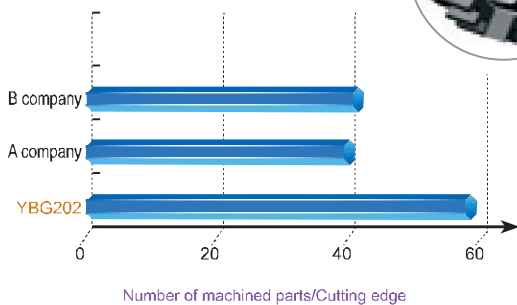
## Case

Insert : YBG202/TNMG120404-EF

Hardness and material of workpiece : 0Cr18Ni9 HB240

Cutting conditions :  $V_c=200\text{m/min}$ ,  $a_p=1\text{mm}$ ,  
 $f=0.15\text{mm/r}$

Cutting fluid : Dry cutting

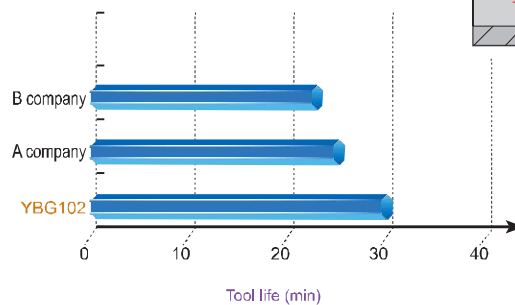
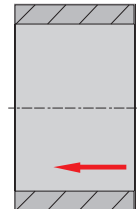


Insert : YBG102/DNEG150404-NF

Hardness and material of workpiece : High temperature alloy Inconel 718 HRC≥39

Cutting conditions :  $V_c=80\text{m/min}$ ,  $a_p=0.3\text{mm}$ ,  
 $f=0.15\text{mm/r}$

Cutting fluid : Dry cutting



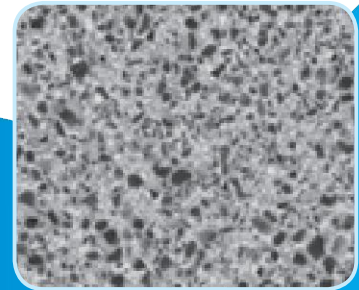
# Cermet & Coated Cermet

The chemical stability between Ti(CN) base cermet inserts and workpieces is relatively high, which reduces the friction and temperature of the cutting edge during cutting, preventing mutual diffusion of atoms of the workpiece material and the inserts, and improving resistance to bonding abrasion. Therefore, Ti(CN) base cermet shows good capability of Red Hardness and resistance to crater wear. It is an optimal material for high-speed finishing and semi-finishing of steel. High temperature strength of cermet is higher than that of WC-Co, and toughness better than that of Al<sub>2</sub>O<sub>3</sub> and Si<sub>3</sub>N<sub>4</sub> ceramic. This fulfils the application blank of WC-base cemented carbide and Al<sub>2</sub>O<sub>3</sub> and Si<sub>3</sub>N<sub>4</sub> ceramic from finishing to semi-finishing at high speed.

## Product features

**Scientifically designed structure ensures good material performance and long tool life. Refined production management assures the stability of product quality.**

- Symmetrical fine grain organization, together with the control of symmetrical organization and toric phase structure, improves the strength and hardness of cermet.
- Intensified bonding phase and well-designed grain boundary improve the high temperature capacity, heat conductivity and thermal vibration resistance.
- Coating of Physical Vapor Deposition (PVD) is applied to cermet substrate with high toughness, so that the grade has high hardness and toughness with wide-range application.



Substrate of cermet grade of YNG151 (homogenized ultra-fine structure)



PVD coating organization structure of cermet

## Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed(m/min)
P Steel	For finishing	YNG151	260-550
		YNG151C	260-580
M Stainless steel		YNG151	170-330
		YNG151C	160-350
K Cast iron		YNG151	250-400
		YNG151C	270-420

## Case

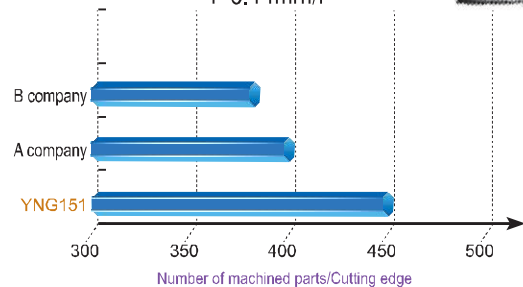
Insert: YNG151/CNMG120404-SF

Hardness and material of workpiece:  
20CrMnTi HB180-223

Cutting parameters:  $V_c=220\text{m/min}$

$a_p=0.5\sim 1.0\text{mm}$

$f=0.14\text{mm/r}$



**Outstanding chip breaking Good surface quality**

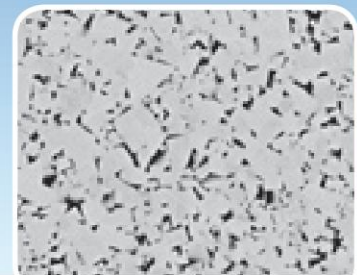




Substrate of YD101: the combination of cemented carbide phase WC of fine grain and bonding phase Co

# Cemented Carbide Grade

**Uncoated cemented carbide grade is widely used for machining of non-ferrous metal, high temperature alloy, etc. It is economical and can be universally applied.**



Substrate of YD201: the combination of cemented carbide phase WC of middle grain and bonding phase Co

## Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed(m/min)
<b>K</b> Cast iron	For semi-finishing For roughing	YD201	60-130
<b>N</b> Non-ferrous metal	For finishing For semi-finishing	YD101	110-1750
<b>S</b> High temperature alloy	For finishing	YD101	20-50

## Case

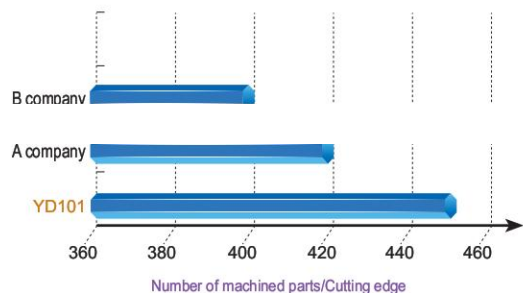
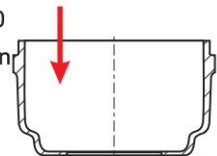
Insert: YD101/CCGX09T304-LH

Workpiece material: ZL105 HB70

Cutting parameters:  $V_c=400\text{m/min}$

$a_p=1\text{mm}$

$f=0.3\text{mm/r}$



**Workpiece has high surface quality and high dimensional precision.**



# PCBN

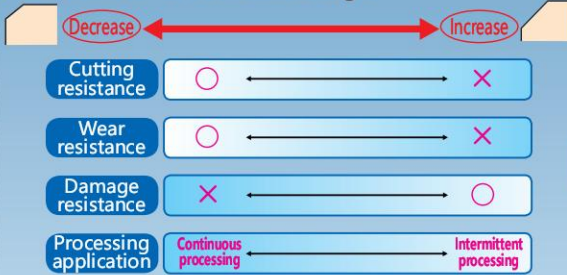
PCBN tool material has high hardness, high thermal stability and high chemical inertness, There will be no chemical reaction with iron materials under the high temperature, the cutting temperature can reach 1200-1300°C, Suitable for cutting hardened steel, cast iron, powder metallurgy and high temperature alloys.



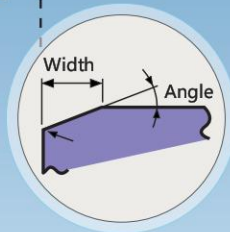
- High hardness and high heat resistance to achieve tool long life and high-speed

- Effectively inhibit crater wear and realize stable processing;
- Improve the stress of the matrix and reduce the micro chipping and spalling of the cutting edge.

## Chamfer width and angle



## The shape of chamfering



## Cutting edge specifications of PCBN inserts

(The form below is just for typical example, the actual application shall be adjusted according to the corresponding situation.)

	Low cutting force	Universal type	Highly damage resistance
High hardness material processing	15° 0.08 R=0.015	25° 0.12 R=0.02	35° 0.17 R=0.02
Cast iron processing	10° 0.05 R=0	15° 0.12 R=0	25° 0.12 R=0.02

Workpiece material: carburizing steel 20CrMnTi, HRC58-62

Insert model: VNGA160404AS01225-2  
Grade: BH0121

Cutting parameters: Vc=130m/min; f=0.1mm/r; ap=0.15mm  
Processing method: turning the side of the inner groove  
Cooling method: dry cutting  
Processing requirements: surface finish Ra < 0.8μm



- 21% increase in processing life
- 42% savings in insert cost



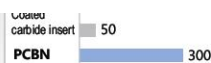
## Case

### Machining cylinder liner

Workpiece material: gray cast iron HT250. HB220



Insert grade: BK1011  
Cutting parameters: Vc=600m/min; f=0.2mm/r; ap=0.15mm  
Processing method: turning outer circle  
Cooling method: wet cutting  
Processing requirements: surface finish Ra < 1.6μm and no dimension deviation.



- Machining life increased by 5 times
- Processing efficiency increased by 1 times

### Machining of high-temperature alloy bars

Workpiece material: nickel-based alloy Inconel 718, 43-48HRC  
Insert model: VBGW160404AT01225-2

Cutting parameters: Vc=150m/min; f=0.15mm/r; ap=0.25mm  
Processing method: turning outer circle  
Cooling method: dry cutting  
Processing requirements: flank wear ≤ 0.2mm



- Machining life increased by 6 times
- Processing efficiency increased by 5 times



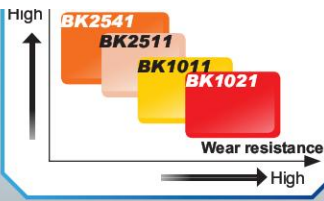
# Coated PCBN insert

By using a combination of strong PCBN substrate and heat-resistant ceramic coating, developed a new super-hard series product—Coated PCBN inserts, dedicated used for cutting all kinds of hardened steel. The tool life of coated PCBN inserts have been greatly improved, being compared with previous uncoated PCBN inserts.

## Cast iron processing category:

### Finishing

▶ **BK1011** Extremely high wear resistance and edge retention; Suitable for continuous to intermittent high speed finishing, and capable of achieving



▶ **BK1021** Excellent wear resistance and good impact resistance; Suitable for continuous to intermittent heavy-duty roughing, good versatility.

**Typical applications:** brake discs, brake drums, cylinder liners, compressor parts.  
**Semi-finishing / Roughing**

▶ **BK2511** Great wear resistance and outstanding chemical stability; Suitable for continuous to interrupted high speed roughing.

▶ **BK2541** Very high wear resistance and excellent fracture toughness; Suitable for continuous to interrupted finishing, good versatility.

**Typical application industries:** brake discs, brake drums, cylinder liners, compressor parts, rolls, slurry pumps.

## Powder metallurgy and high temperature alloy processing category:

### Finishing

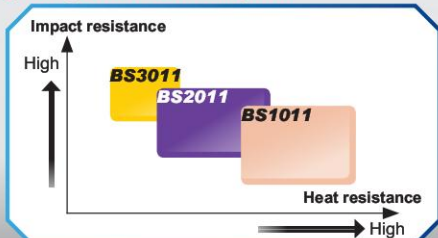
▶ **BS1011** Excellent wear resistance and chemical stability; Suitable for machining powder metallurgical parts in continuous to lightly interrupted operation; Suitable for machining powder metallurgical parts with more than 10% alloying elements.

▶ **BS2011** Excellent heat resistance and chemical stability;

machining of powder metallurgical parts; Suitable for processing powder metallurgical parts with an alloying element content of up to 10%.

▶ **BS3011** Very high hardness and wear resistance. Suitable for continuous to interrupted machining of powder metallurgy and high temperature alloy parts.

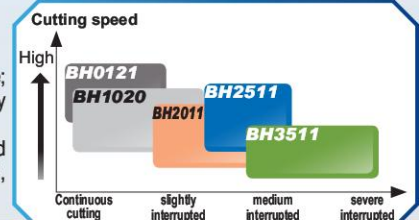
**Typical application industries:** automotive parts, high temperature resistant parts.



## Hardened steel processing:

### Finishing

▶ **BH0121** Excellent heat and wear resistance; Suitable for continuous to lightly interrupted high-speed finishing; Suitable for machining carburized hardened steel such as 20CrMnTi, 20CrMn, 18Cr2Ni4WA, etc.



Suitable for continuous to moderate intermittent finishing; Suitable for machining carburized hardened steels such as 20CrMnTi, 20CrMn, 18Cr2Ni4WA, etc.

**Typical application industries:** Gears, bearings.

▶ **BH1020** Effective balance of wear resistance and chemical resistance; Suitable for continuous to lightly intermittent finishing of all types of hardened steels, with good versatility.

▶ **BH2011** Excellent wear resistance and impact strength; Suitable for continuous to moderate intermittent finishing; Suitable for machining hardened bearing and die steels such as GCr15, 100Cr6, 18Cr2Ni4WA, etc.

▶ **BH3511** Excellent chipping resistance and very high fracture toughness; Suitable for roughing and finishing all types of hardened steels in moderate to heavy interrupted work conditions.

**Typical application industries:** gears, bearings, molds.

## Recommended cutting data

Grade	Workpiece material	Cutting speed(m/min)	Feed amount(mm/r)	Depth of cut(mm)
BK1021	Gray cast iron	400-1500	0.02-0.5	0.1-0.3
	Hard cast iron	80-160	0.05-0.5	0.05-0.1
BK2511	Gray cast iron	300-600	0.1-0.5	1-3
BK2541	Hard cast iron	50-150	0.1-0.5	1-3
BH0121	Hardened steel	150-250	0.05-0.5	0.05-0.1
BH1020		140-220	0.05-0.5	0.05-0.1
BH2011		100-170	0.05-0.5	0.05-0.1
BH2511		120-180	0.05-0.5	0.05-0.1
BH3511		80-150	0.05-0.4	0.05-0.2
BS1011	Powder metallurgy and high temperature alloys	70-180	0.05-0.25	0.03-0.2
BS2011		100-200	0.05-0.25	0.03-0.2
BS3011		50-160	0.05-0.25	0.03-0.25

# PCD tools

PCD tool material has high hardness, excellent wear resistance, low friction coefficient, Excellent thermal conductivity, suitable for non-ferrous metals and its alloys (e.g. Cu, Al, Mg, etc.) Nonmetallic materials and composite materials (such as: MMC, ceramics, reinforced plastics, etc.) machining

# N

## ▶ DN0121

Super-fine grain particle size  
great sharpness and edges durability

**Application range:** suitable for mirror effect occasion

## ▶ DN0511

Fine grain particle size  
Excellent toughness and relatively good wear-resistance

**Application range:**  
strong universality, particular suitable for low-medium silumin materials in milling.

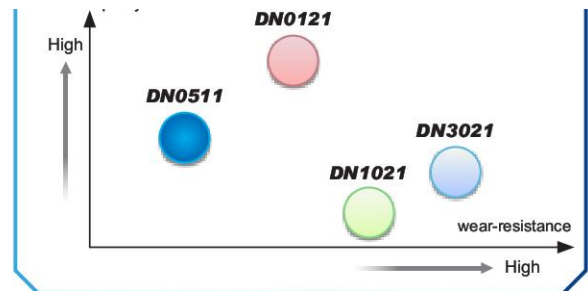
## ▶ DN1021

**Application range:**  
strong universality, particular suitable for low-medium silumin materials in turning.

## ▶ DN3021

mixed combined with fine particle and coarse particle  
Excellent wear-resistance

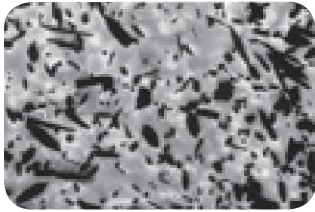
**Application range:**  
suitable for MMC, high silumin, high-strength silumin and bimetallic materials



## Recommended cutting data

Grade	Workpiece materials	Machining method	Cutting speed (m/min)
DN0121	Silumin (Si≤12%)	Turning	500~1000
	fibre reinforced composite materials	Milling	300~1500
DN0511	Silumin (Si≤12%)	Turning /Milling	200~1000
	Metal base compound	Turning	900~3500
DN1021	Silumin (Si≤12%)	Milling	600~2400
	Cemented carbide	Turning /Milling	1500~1800
DN1021	Silumin (Si≤12%)	Turning	20~40
	Coppeer and magnesium alloyssilumin	Turning	400~1200
DN3021	Silumin (Si≤12%)	Milling	250~1400
	Metal base compound	Turning /Milling	400~1260
	Unsintered ceramic materials	Turning	300~700
	Sintered Ceramic	Milling	500~1000
	Bimetallic materials	Milling	500~1000
DN3021	Silumin (Si≤12%)	Turning	100~200
	Sintered Ceramic	Turning	20~50
	Bimetallic materials	Milling	200~300

# Ceramic Grade



## CN3100

$\Delta$ -sialon/ $\beta$ -sialon matrix, the latest developed Siloxane sialon.

Applications: With excellent wear resistance, fracture toughness and thermal shock resistance, for use in general machining to finishing in high temperature alloy parts. It has better resistance of breakage at the depth of cut, compared with SiC/Al<sub>2</sub>O<sub>3</sub> whisker ceramic material.

### Physical properties

Grade	Density(g/cm <sup>3</sup> )	HardnessHv(GPa)	Flexural strength(MPa)	Fracture toughness (MPa m <sup>1/2</sup> )
<b>CN3100</b>	3.34	1720	≥900	7.5

### Recommended cutting data

Grade	Workpiece material	Operation	Cutting speed (m/min)	Feed rate(mm/r)	Depth of cut (mm)
<b>CN3100</b>	Nickel high temperature alloy	For roughing	150-260	0.1-0.3	<5

### Case

Workpiece material: GH4169  
 Insert specification: RPGN090700T01020-V  
 Cutting data: Vc=200 m/min, ap=1 mm,  
 f=0.1 (mm/r)

Workpiece shape and process: Figure 1, four working procedures, two blades and four cutting edges in the figure finish the milling of turbine disk section, and the wear resistance is excellent.

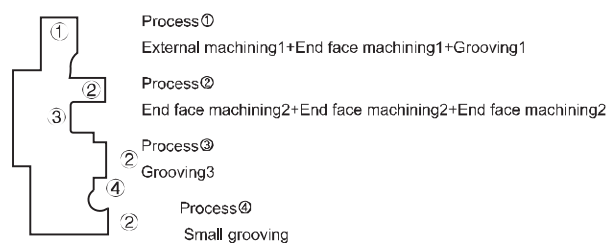


Figure 1

Application instruction for general turning toolsirning inserts overview

Table of correctional coefficient between material hardness and cutting speed

Workpiece material	Theoretical Hardness	Correctional coefficient between hardness of materials and cutting speed								
		Hardness difference (Measured value – Theoretical value)								
		Hardness decrease								Hardness increase
		-60	-40	-20	0	+20	+40	+60	+80	+100
<b>P</b>	HB180	1.42	1.24	1.11	1.0	0.91	0.84	0.77	0.72	0.67
<b>K</b>	Grey cast iron HB220	1.21	1.13	1.06	1.0	0.95	0.90	0.86	0.82	0.79
	Nodular cast iron HB250	1.33	1.21	1.09	1.0	0.91	0.84	0.75	0.70	0.65
<b>N</b>	HB75			1.05	1.0	0.95				
<b>S</b>	HB350			1.12	1.0	0.89				
	Rockwell hardness HRC		-6	-3	0	+3	+6	+9		
<b>H</b>	HRC60		1.10	1.02	1.0	0.96	0.93	0.90		

Actual Cutting Speed = Recommended Cutting Speed × Correctional Coefficient of Cutting Speed

● Please find recommended cutting parameters on insert packing box.

Example: If the material you are going to machine is normal alloy steel, whose theoretical hardness is HB180, and the selected insert is CNMG120404-DF/YBC151, then the recommended cutting speed is V=150m/min. If the hardness measured value of the material is HB220, then the hardness difference value is 220-180= +40. Correctional coefficient found in the table is 0.84. Therefore, the actual applicable cutting speed is Vc=250×0.84=210m/min.

Correctional coefficient table between tool life and cutting speed

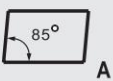





Insert materials	Correctional coefficient between tool life and cutting speed					
	10 minutes	15 minutes (Standard life)	30 minutes	45 minutes	60 minutes	90 minutes
<b>YBC151</b>	1.12	1.00	0.82	0.73	0.67	0.60
<b>YBC251</b>	1.11	1.00	0.84	0.76	0.71	0.64
<b>YBC351</b>	1.11	1.00	0.84	0.76	0.70	0.63
<b>YBC152</b>	1.25	1.00	0.68	0.54	0.46	0.37
<b>YBC252</b>	1.55	1.00	0.47	0.30	0.22	0.14
<b>YBM151</b>	1.28	1.00	0.66	0.52	0.43	0.34
<b>YBM153</b>	1.32	1.00	0.64	0.48	0.37	0.31
<b>YBM215</b>	1.22	1.00	0.85	0.77	0.72	0.67
<b>YBM251</b>	1.19	1.00	0.75	0.63	0.56	0.47
<b>YBM253</b>	1.22	1.00	0.73	0.61	0.54	0.45
<b>YBG202</b>	1.10	1.00	0.85	0.77	0.72	0.66
<b>YBG205</b>	1.15	1.00	0.82	0.74	0.69	0.64
<b>YBD052</b>	1.22	1.00	0.80	0.65	0.60	0.55
<b>YBD152</b>	1.11	1.00	0.70	0.60	0.50	0.40
<b>YBG105</b>	1.28	1.00	0.79	0.72	0.63	0.58
<b>YBG212</b>	1.25	1.00	0.75	0.70	0.60	0.50
<b>YBS103</b>	1.35	1.00	0.85	0.78	0.68	0.62




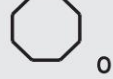







Actual cutting speed = Recommended cutting speed × Correctional coefficient of cutting speed

Example: If the material you are going to machine is normal alloy steel, and the selected insert is CNMG120404-DF/YBC151, then the recommended cutting speed is V=250m/min (standard life is 15 minutes). If you expect the tool life to reach 60 minutes, the correctional coefficient found in the table is 0.67. then the applicable cutting speed is Vc=250×0.67=167.5m/min.

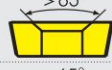

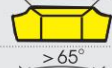

# TURNING General Turning Inserts


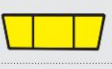





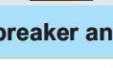
## General turning inserts code key

Insert shape/Code		
 A	 B	 C
 D	 E	 H

 K	 L	 M
 O	 P	 R
 S	 T	 T
 V	 W	Others Z

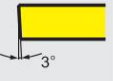
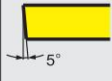
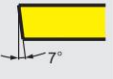
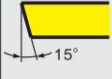
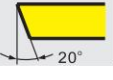
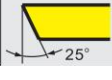
**Insert shape**


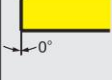

Metric							
Code	With/Without hole	With/Without chipbreaker	Section plane of insert	Code	With/Without hole	With/Without chipbreaker	Section plane of insert
B	With	Without		N	Without	Without	
H	With	Single-side		R	Without	Single-side	

J	With	Double-side		A	With	Without	
W	With	Without		M	With	Single-side	
T	With	Single-side		G	With	Double-side	
Q	With	Without		X	---	---	Special
U	With	Double-side					

**Chipbreaker and clamping system**



Clearance angle of main cutting edge			
Code	Clearance angle	Code	Clearance angle
A	 3°	B	 5°
C	 7°	D	 15°
E	 20°	F	 25°

G	 30°	N	 0°
P	 11°	O	Other clearance angles

Tolerance										
Code	Nose height m Tolerance(mm)	Inscribed circle ØI.C Tolerance(mm)	Thickness S Tolerance(mm)	(Reference) Details of M-level tolerance (Identified by shape)						
				● Nose height tolerance(mm)						
				Inscribed circle	Regular triangle	Square	Diamond with 80°	Diamond with 55°	Diamond with 35°	Round
A	±0.005	±0.025	±0.025	6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
F	±0.005	±0.013	±0.025	9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
C	±0.013	±0.025	±0.025	12.7	±0.13	±0.13	±0.13	±0.15	---	---
H	±0.013	±0.013	±0.025	15.875	±0.15	±0.15	±0.15	±0.18	---	---
E	±0.025	±0.025	±0.025	19.05	±0.15	±0.15	±0.15	±0.18	---	---

J	±0.005	±0.05-±0.13	±0.025	6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---
K	±0.013	±0.05-±0.13	±0.025	9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
L	±0.025	±0.05-±0.13	±0.025	12.7	±0.08	±0.08	±0.08	±0.08	---	±0.08
M	±0.08-±0.18	±0.05-±0.13	±0.13	15.875	±0.10	±0.10	±0.10	±0.10	---	±0.10
N	±0.08-±0.18	±0.05-±0.13	±0.025	19.05	±0.10	±0.10	±0.10	±0.10	---	±0.10
U	±0.13-±0.38	±0.08-±0.25	±0.13	25.4	---	±0.13	---	---	---	±0.13

General turning

General turning inserts code key

## General turning inserts code key

Diameter of IC	Insert shape							
	C	D	R	S	T	V	W	K
3.97					06			
5.0			05					
5.56					09			
6.0			06					
6.35	06	07			11	11		

Thickness is defined as the height from the bottom of insert to the highest part of cutting edge

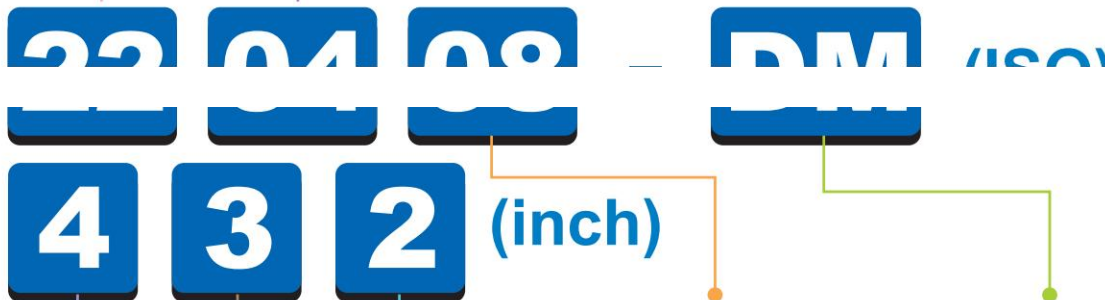
Code	Insert thickness(mm)
00	0.79
T0	0.99
01	1.59
T1	1.98
02	2.38

9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0		19	16					
19.05	19		19	19	33			
20.0			20					
25.0	25	25	25					
25.4			25	25				
31.75			31					
32			32					

T3	3.97
04	4.76
T4	4.96
05	5.96
T5	5.95
06	6.35
T6	6.75
07	7.94
09	9.52
T9	9.72
11	11.11
12	12.70

Length of cutting edge

Insert thickness



Inscribed circle	
Code	Diameter of IC(mm)
2	6.35
3	9.525
4	12.7

Thickness	
Code	Thickness (mm)
2	3.18
3	4.76

Nose radius	
Code	Nose radius (mm)
0	0.2
1	0.4
2	0.8

Nose radius code	
Code	Nose radius (mm)
00	No radius
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0

Chipbreaker code		
DF	DM	DR
HF	HM	HR
EF	EM	ER

6	19.05
8	25.4

5	7.94
6	9.52

4	1.6
5	2.0
6	2.4

32	3.2
X	Others
Diameter of insert (Metric) Round insert	

PM	WGF	SNR


# TURNING / General Turning Inserts

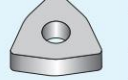
Metric and inch comparison table of general turning inserts

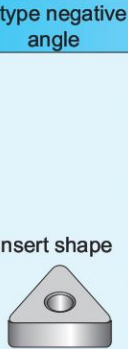
## Metric and inch comparison table of negative inserts

C-type negative angle	(ISO)	(Inch)	Chipbreaker
	090304	321	-DF -WGF -SF
	090308	322	
	120404	431	
	120408	432	

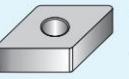
W-type negative angle	(ISO)	(Inch)	Chipbreaker
	06T304	3(2.5)1	-DF
	06T308	3(2.5)2	-WGF
	06T312	3(2.5)3	-SF
	060404	331	-EF
	060412	333	-PM

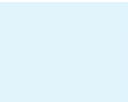
Insert shape	(ISO)	(Inch)	Chipbreaker
	120416	434	-NF
	160608	542	-WGM
	160612	543	-PM
	160616	544	-DM
	190608	642	-EM
	190612	643	-NM
	190616	644	-DR
	190624	646	-ER
	250724	856	-LR
	250732	858	-HDR
	250924	866	-HPR
	250932	868	-SNR

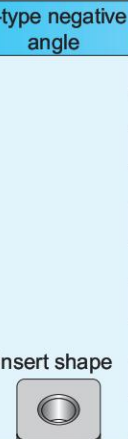
Insert shape	(ISO)	(Inch)	Chipbreaker
	060412	333	-PM
	080404	431	-DM
	080408	432	-EM
	080412	433	-NM
	080416	434	-DR

T-type negative angle	(ISO)	(Inch)	Chipbreaker
	110304	221	-DF
	110308	222	-WGF
	160404	331	-SF
	160408	332	-EF
	160412	333	-WGM
	220404	431	-PM
	220408	432	-DM
	220412	433	-EM
	220416	434	-DR

D-type negative angle	(ISO)	(Inch)	Chipbreaker
	110404	331	-EF

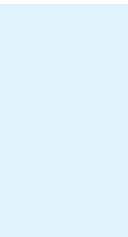
Insert shape	(ISO)	(Inch)	Chipbreaker
	110412	333	-WGF
	150404	431	-SF
	150408	432	-NF
	150412	433	-WGM
	150604	441	-PM
	150608	442	-DM
	150612	443	-EM
	150616	444	-NM
	190608	542	-DR
	190612	543	-ER
	190616	544	-LR

Insert shape	(ISO)	(Inch)	Chipbreaker
	270608	542	-LR
	270612	543	-HDR
	270616	544	-SNR

S-type negative angle	(ISO)	(Inch)	Chipbreaker
	090304	321	-DF -SF -EF -PM -DM -EM -NM -DR
	090308	322	
	090312	323	
	120404	431	
	120408	432	
	120412	433	
	120416	434	
	150608	542	
	150612	543	
	150616	544	
	150624	856	

V-type negative angle	(ISO)	(Inch)	Chipbreaker
	160404	331	-DF -EF
	160408	332	-SF -NF
	160412	333	-PM -DM

R-type negative angle	(ISO)	(Inch)	Chipbreaker
	120400	43	
	120404	431	
	120408	432	
	120412	433	

Insert shape	(ISO)	(Inch)	Chipbreaker
	190424	636	-LR
	190612	643	-HDR
	190616	644	-HPR
	250724	856	-SNR
	250732	858	
	250924	866	
	250932	868	
	250936	870	

General turning

Metric and inch comparison of general turning inserts



### Metric and inch comparison table of positive insert

C-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape	060202	2(1.5)0	-USF
	060204	2(1.5)1	-SF
	060208	2(1.5)2	-HF
	09T302	3(2.5)0	-EF

Insert shape	09T308	3(2.5)2	-EM
	120404	431	-HR
	120408	432	-LH
	120412	433	-LC

T-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape	06T102	1.2(1.2)0	
	06T104	1.2(1.2)1	
	06T108	1.2(1.2)2	
	090202	1.8(1.5)0	
	090204	1.8(1.5)1	
	090208	1.8(1.5)2	
	110202	2(1.5)0	
	110204	2(1.5)1	
	110208	2(1.5)2	

Insert shape	110302	220	-SF
	110304	221	-HF
	110308	222	-EF
	16T302	3(2.5)0	-HM
	16T304	3(2.5)1	-EM
	16T308	3(2.5)2	-HR
	16T312	3(2.5)3	-LH
	160400	330	-LC
	220408	432	
	220412	433	
	220416	434	
	270408	532	
	270412	533	
	330612	643	
	330616	644	

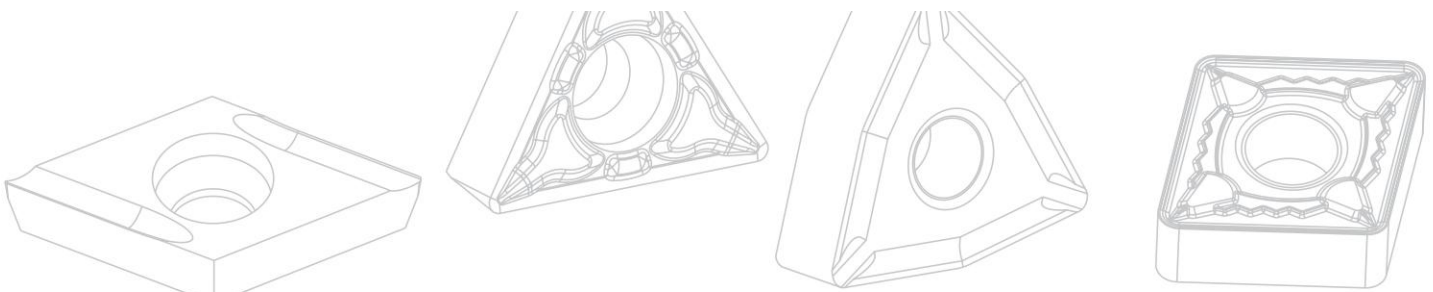
D-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape	070202	2(1.5)0	-USF
	070204	2(1.5)1	-SF
	070208	2(1.5)2	-HF
	11T302	3(2.5)0	-EF

Insert shape	11T308	3(2.5)2	-EM
	11T312	3(2.5)3	-LH
			-LC

S-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape	060204	2(1.5)1	
	09T302	3(2.5)0	
	09T304	3(2.5)1	
	09T308	3(2.5)2	
	120404	431	
	120408	432	
	120412	433	
	150404	531	
	150408	532	
	150412	533	

Insert shape	190408	632	
	190412	633	
	190416	634	

V-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape	110202	2(1.5)0	
	110204	2(1.5)1	
	110208	2(1.5)2	
	110302	220	
	110304	221	
	110308	222	
	160402	330	
	160404	331	
	160408	332	
	160412	333	
	160416	334	
	160420	335	





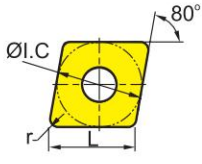


# TURNING / General Turning Inserts



## Cemented carbide and cermet inserts

### CN (Negative inserts)

😊 Good working condition   🙄 Normal working condition   😞 Bad working condition



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊
K Cast iron	😊	😊	😊	😊	😊
N Non-ferrous metal	😊	😊	😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions (mm)					Grade availability															Ce	Co	cer	carbide															
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215					YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201				
DM  For semi-finishing	CNMG090304-DM	9.7	9.525	3.18	3.81	0.4	○	●	○																															
	CNMG090308-DM	9.7	9.525	3.18	3.81	0.8			○	○																														
	CNMG120404-DM	12.9	12.7	4.76	5.16	0.4	★	●	★	○					●			○																						
	CNMG120408-DM	12.9	12.7	4.76	5.16	0.8	●	★	●	★	●				●			●	○																					
	CNMG120412-DM	12.9	12.7	4.76	5.16	1.2	★	●	★	●					○																									
	CNMG120416-DM	12.9	12.7	4.76	5.16	1.6			●	○	●																													
	CNMG160608-DM	16.1	15.875	6.35	6.35	0.8	★	●	★	○																														
	CNMG160612-DM	16.1	15.875	6.35	6.35	1.2	○	●	★	○																														
	CNMG160616-DM	16.1	15.875	6.35	6.35	1.6	★	●	○	●																														
	CNMG190608-DM	19.3	19.05	6.35	7.94	0.8	○	●	○																															
	CNMG190616-DM	19.3	19.05	6.35	7.94	1.6		●	★	○																														
EM  For semi-finishing	CNMG120404-EM	12.9	12.7	4.76	5.16	0.4									●	★																								
	CNMG120408-EM	12.9	12.7	4.76	5.16	0.8									●	★																								
	CNMG120412-EM	12.9	12.7	4.76	5.16	1.2									●	★																								
	CNMG160608-EM	16.1	15.875	6.35	6.35	0.8									○	○	★																							
	CNMG160612-EM	16.1	15.875	6.35	6.35	1.2									○	○	★																							
	CNMG160616-EM	16.1	15.875	6.35	6.35	1.6									○	○	★																							

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

DCLNR/L  
Kr:95°



Page A166

PCBNR/L  
Kr:75°



A172

PCLNR/L  
Kr:95°



A173

PCLNR/L  
Kr:95°



A212













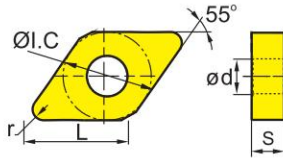






## Cemented carbide and cermet inserts

### DN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel						😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊			😊								😊							😊

Inserts shape	Type	Dimensions (mm)					Grade selection																	Cermet									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
Light-load roughing	DNMM150608-LR	15.5	12.7	6.35	5.16	0.8				★																							
	DNMM150612-LR	15.5	12.7	6.35	5.16	1.2				★																							
	DNMM150616-LR	15.5	12.7	6.35	5.16	1.6				★																							
For light roughing	DNMG150408-DR	15.5	12.7	4.76	5.16	0.8				○																							
	DNMG150412-DR	15.5	12.7	4.76	5.16	1.2				○																							
	DNMG150416-DR	15.5	12.7	4.76	5.16	1.6				○	○																						
	DNMG150608-DR	15.5	12.7	6.35	5.16	0.8	★	○	○	○																●	●						
	DNMG150612-DR	15.5	12.7	6.35	5.16	1.2	○	●	★	○																○	●						
	DNMG150616-DR	15.5	12.7	6.35	5.16	1.6				○																	○						
For roughing	DNMM150608-DR	15.5	12.7	6.35	5.16	0.8	○	○																									
	DNMM150616-DR	15.5	12.7	6.35	5.16	1.6				○																							
For roughing	DNMG150608-ER	15.5	12.7	6.35	5.16	0.8																											
	DNMG150612-ER	15.5	12.7	6.35	5.16	1.2																											
For roughing	DNMM150608-ER	15.5	12.7	6.35	5.16	0.8																											
	DNMM150612-ER	15.5	12.7	6.35	5.16	1.2																											
	DNMG150608-SNR	15.5	12.7	6.35	5.16	0.8						○	●		○											●							
	DNMG150612-SNR	15.5	12.7	6.35	5.16	1.2						○	●		○											●							

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

### Applicable tool



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Insert code key   Grade selection reference   Chipbreaker selection reference   Recommended cutting parameters

General turning  
Cemented carbide and cermet inserts

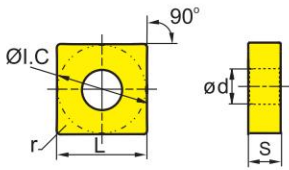




# TURNING General Turning Inserts

## Cemented carbide and cermet inserts

### SN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy			😊	😊															😊							

Inserts shape	Type	Dimensions (mm)					Grade compatibility																										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
<b>PM</b>  For semi-finishing	SNMG090304-PM	9.525	9.525	3.18	3.81	0.4	○	●	○																								
	SNMG090308-PM	9.525	9.525	3.18	3.81	0.8	○	●	○	○																○							
	SNMG090312-PM	9.525	9.525	3.18	3.81	1.2	○		○																								
	SNMG120404-PM	12.7	12.7	4.76	5.16	0.4	○	●	○	○																	○						
	SNMG120408-PM	12.7	12.7	4.76	5.16	0.8	●	●	○	●																	★	★	★				
	SNMG120412-PM	12.7	12.7	4.76	5.16	1.2	●	●	○	○																	★	★	★				
	SNMG120416-PM	12.7	12.7	4.76	5.16	1.6			●	○	○																	○					
	SNMG150608-PM	15.875	15.875	6.35	6.35	0.8				○																							
	SNMG150612-PM	15.875	15.875	6.35	6.35	1.2	●	●	○																			○	●				
	SNMG190616-PM	19.05	19.05	6.35	7.94	1.6			●	○																							

<b>DM</b>  For semi-finishing	SNMG090308-DM	9.525	9.525	3.18	3.81	0.8	○	●	○	○																							
	SNMG120404-DM	12.7	12.7	4.76	5.16	0.4	★	●	○																								
	SNMG120408-DM	12.7	12.7	4.76	5.16	0.8			○																	○							
	SNMG120412-DM	12.7	12.7	4.76	5.16	1.2	★	●	★																								
	SNMG120416-DM	12.7	12.7	4.76	5.16	1.6			●	○	○																						
	SNMG150608-DM	15.875	15.875	6.35	6.35	0.8	○	●	○																		●						
	SNMG150612-DM	15.875	15.875	6.35	6.35	1.2	●	●	★	●																							
	SNMG150616-DM	15.875	15.875	6.35	6.35	1.6				○																							
	SNMG190612-DM	19.05	19.05	6.35	7.94	1.2	○	●	○	○																	○						
	SNMG190616-DM	19.05	19.05	6.35	7.94	1.6				○																							

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

DSBNR/L  
Kr:75°



Page A168

PSBNR/L  
Kr:75°



A176

PSDNN  
Kr:45°



A177

PSKNR/L  
Kr:75°



A178

PSSNR/L  
Kr:45°



A179

PSKNR/L  
Kr:75°



A215

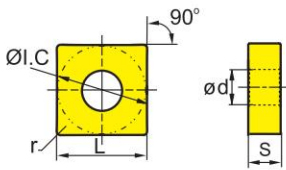




# TURNING General Turning Inserts

## Cemented carbide and cermet inserts



### SN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy			😊	😊																						

General turning  
Cemented carbide and cermet inserts

Inserts shape	Type	Dimensions (mm)					Grade																Ce	Co	cer	carbide										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251					YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
 For light roughing	SNMG120408-DR	12.7	12.7	4.76	5.16	0.8	○	●	★	○																										
	SNMG120412-DR	12.7	12.7	4.76	5.16	1.2			●	○	●																									
	SNMG120416-DR	12.7	12.7	4.76	5.16	1.6	○	○	○																											
	SNMG150608-DR	15.875	15.875	6.35	6.35	0.8				○																										
	SNMG150612-DR	15.875	15.875	6.35	6.35	1.2			●	★	●																									
	SNMG150616-DR	15.875	15.875	6.35	6.35	1.6			●	★																										
	SNMG150624-DR	15.875	15.875	6.35	6.35	2.4				○																										
	SNMG190612-DR	19.05	19.05	6.35	7.94	1.2			●	○	○																									
	SNMG190616-DR	19.05	19.05	6.35	7.94	1.6			●	★	●																									
	SNMG190624-DR	19.05	19.05	6.35	7.94	2.4			●	○	○																									
 For roughing	SNMM120412-DR	12.7	12.7	4.76	5.16	1.2					○																									
	SNMM120416-DR	12.7	12.7	4.76	5.16	1.6					○																									
	SNMM150608-DR	15.875	15.875	6.35	6.35	0.8					○																									
	SNMM150612-DR	15.875	15.875	6.35	6.35	1.2					○																									
	SNMM150616-DR	15.875	15.875	6.35	6.35	1.6			●		○																									
	SNMM190608-DR	19.05	19.05	6.35	7.94	0.8					○																									

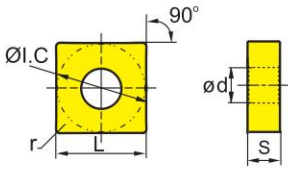
★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order



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## Cemented carbide and cermet inserts

### SN (Negative inserts)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																									😊	😊
<b>S</b> Heat resistant alloy, Ti alloy																									😊	😊

Inserts shape	Type	Dimensions (mm)					Grade selection reference																Cermet		Carbide									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201		
 For roughing	<b>SNMM190612-DR</b>	19.05	19.05	6.35	7.94	1.2			●	○	○																							
	<b>SNMM190616-DR</b>	19.05	19.05	6.35	7.94	1.6		○	●	★	●																							
	<b>SNMM190624-DR</b>	19.05	19.05	6.35	7.94	2.4		★	●	○	●																							
	<b>SNMM250724-DR</b>	25.4	25.4	7.94	9.12	2.4			●		○																							
	<b>SNMM250924-DR</b>	25.4	25.4	9.525	9.12	2.4			●	★	●																							
 For roughing	<b>SNMG120408-ER</b>	12.7	12.7	4.76	5.16	0.8																												
	<b>SNMG120412-ER</b>	12.7	12.7	4.76	5.16	1.2																												
	<b>SNMG150608-ER</b>	15.875	15.875	6.35	6.35	0.8																												
	<b>SNMG150612-ER</b>	15.875	15.875	6.35	6.35	1.2																												
	<b>SNMG190612-ER</b>	19.05	19.05	6.35	7.94	1.2																												
 For roughing	<b>SNMM250724-ER</b>	25.4	25.4	7.94	9.12	2.4				●																								
	<b>SNMM250732-ER</b>	25.4	25.4	7.94	9.12	3.2				●																								
	<b>SNMM250924-ER</b>	25.4	25.4	9.525	9.12	2.4				●																								
	<b>SNMM250932-ER</b>	25.4	25.4	9.525	9.12	3.2				●																								
 For roughing	<b>SNMG120408-SNR</b>	12.7	12.7	4.76	5.16	0.8																												

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

General turning

Cemented carbide and cermet inserts

**DSBNR/L**

Kr:75°



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**PSBNR/L**

Kr:75°



A176

**PSDNN**

Kr:45°



A177

**PSKNR/L**

Kr:75°



A178

**PSSNR/L**

Kr:45°



A179

**PSKNR/L**

Kr:75°



A215

Insert code key

Grade selection reference

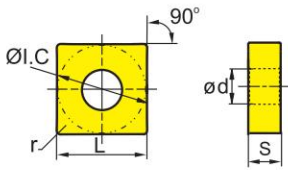
Chipbreaker selection reference

Recommended cutting parameters

# TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### SN (Negative inserts)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy				😊	😊														😊							

Inserts shape	Type	Dimensions (mm)						Grade																								
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>HDR</b>  For heavy machining	SNMM120408-HDR	12.7	12.7	4.76	5.16	0.8			○	○	○																					
	SNMM120412-HDR	12.7	12.7	4.76	5.16	1.2			○	○	○																					
	SNMM120416-HDR	12.7	12.7	4.76	5.16	1.6					○	○																				
	SNMM150608-HDR	15.875	15.875	6.35	6.35	0.8			○	○	○																					
	SNMM150612-HDR	15.875	15.875	6.35	6.35	1.2			●	○	○																					
	SNMM150616-HDR	15.875	15.875	6.35	6.35	1.6			○	○	○																					
	SNMM150624-HDR	15.875	15.875	6.35	6.35	2.4					○	○																				
	SNMM190608-HDR	19.05	19.05	6.35	7.94	0.8					○	○																				
	SNMM190612-HDR	19.05	19.05	6.35	7.94	1.2			○	○	○																					
SNMM190616-HDR	19.05	19.05	6.35	7.94	1.6			○	○	○	○																					
<b>HPR</b>  For heavy machining	SNMM250724-HDR	25.4	25.4	7.94	9.12	2.4																										
	SNMM250924-HDR	25.4	25.4	9.525	9.12	2.4																										
	SNMM190616-HPR	19.5	19.05	6.35	7.94	1.6			★	○																						
	SNMM250924-HPR	25.4	25.4	9.525	9.12	2.4			★	○																						

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

DSBNR/L  
Kr:75°



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PSBNR/L  
Kr:75°



A176

PSDNN  
Kr:45°



A177

PSKNR/L  
Kr:75°



A178

PSSNR/L  
Kr:45°



A179

PSKNR/L  
Kr:75°



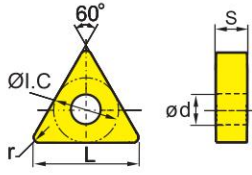
A215





## Cemented carbide and cermet inserts

### TN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																							😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊				😊										😊			😊

Inserts shape	Type	Dimensions (mm)					Cemented carbide / Cermet																										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201		
<b>DF</b>  For finishing	TNMG160404-DF	16.5	9.525	4.76	3.81	0.4	★	●	★																								
	TNMG160408-DF	16.5	9.525	4.76	3.81	0.8	★	○	★																								
	TNMG160412-DF	16.5	9.525	4.76	3.81	1.2	○	○	○																								
	TNMG220408-DF	22	12.7	4.76	5.16	0.8	★	○	○																								
	TNMG220412-DF	22	12.7	4.76	5.16	1.2	○																										
<b>WGF</b>  For finishing Wiper	TNMX160404-WGF	16.5	9.525	4.76	3.81	0.4	★																										
	TNMX160408-WGF	16.5	9.525	4.76	3.81	0.8	★																										
<b>SF</b>  For finishing	TNMG110304-SF	11	6.35	3.18	2.26	0.4																					○	★					
	TNMG160408-SF	16.5	9.525	4.76	3.81	0.8																						○	★				
	TNMG220408-SF	22	12.7	4.76	5.16	0.8																							○	★			
	TNMG220412-SF	22	12.7	4.76	5.16	1.2																							○	★			

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

General turning

Cemented carbide and cermet inserts

**DTGNR/L**  
Kr:91°



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**PTFNR/L**  
Kr:90°



A180

**PTTNR/L**  
Kr:60°



A181

**PTGNR/L**  
Kr:90°



A182

**PTFNR/L**  
Kr:90°



A216

Insert code key

Grade selection reference

Chipbreaker selection reference

Recommended cutting parameters







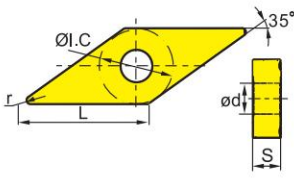






Cemented carbide and cermet inserts

VN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy	😊	😊																								

General turning

Inserts shape	Type	Dimensions (mm)					Cemented carbide and cermet																									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>DF</b> 	VNMG160404-DF	16.6	9.525	4.76	3.81	0.4	★	●	★																							
	VNMG160408-DF	16.6	9.525	4.76	3.81	0.8	★	○	○																							
For finishing																																
<b>EF</b> 	VNMG160404-EF	16.6	9.525	4.76	3.81	0.4									○	★																
	VNMG160408-EF	16.6	9.525	4.76	3.81	0.8									○	★																
	VNMG160412-EF	16.6	9.525	4.76	3.81	1.2									○	★																
For finishing																																
<b>NF</b> 	VNEG160404-NF	16.6	9.525	4.76	3.81	0.4																									○	
	VNEG160408-NF	16.6	9.525	4.76	3.81	0.8																									○	
For finishing																																
<b>NGF</b> 	VNEG160408-NGF	16.6	9.525	4.76	3.81	0.8																										
	VNEG160412-NGF	16.6	9.525	4.76	3.81	1.2																										
For finishing																																
<b>SF</b> 	VNMG160404-SF	16.6	9.525	4.76	3.81	0.4																								○	★	
	VNMG160408-SF	16.6	9.525	4.76	3.81	0.8																								○		
For finishing																																

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

Cemented carbide and cermet i

DVNN  
Kr:72°30'



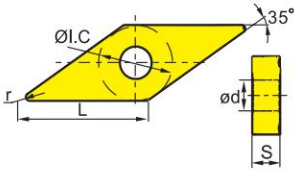
DVJNR/L  
Kr:93°



# A TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### VN (Negative inserts)



😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊											😊							

General turning  
Cemented carbide and cermet inserts

Inserts shape	Type	Dimensions (mm)					Grade cemented carbide																Ce	Co	cer	carbide										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251					YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>PM</b>  For semi-finishing	VNMG160404-PM	16.6	9.525	4.76	3.81	0.4	★	●	○	○																										
	VNMG160408-PM	16.6	9.525	4.76	3.81	0.8	★	●	○																											
	VNMG160412-PM	16.6	9.525	4.76	3.81	1.2			○	○																										
<b>DM</b>  For semi-finishing	VNMG160408-DM	16.6	9.525	4.76	3.81	0.8	★	●	★	○						○																				
	VNMG160412-DM	16.6	9.525	4.76	3.81	1.2		○	○	○						○																				
<b>EM</b> 	VNMG160404-EM	16.6	9.525	4.76	3.81	0.4																														
	VNMG160408-EM	16.6	9.525	4.76	3.81	0.8																														
<b>NM</b>  For semi-finishing	VNMG160412-NM	16.6	9.525	4.76	3.81	1.2																														○
<b>SNR</b>  For roughing	VNMG160408-SNR	16.6	9.525	4.76	3.81	0.8																														
	VNMG160412-SNR	16.6	9.525	4.76	3.81	1.2																														
All round 	VNMG160404	16.6	9.525	4.76	3.81	0.4	○	○																												
	VNMG160408	16.6	9.525	4.76	3.81	0.8	●	●																												

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

#### Applicable tool

**DVVNN**  
Kr:72°30'



**DVJNR/L**  
Kr:93°







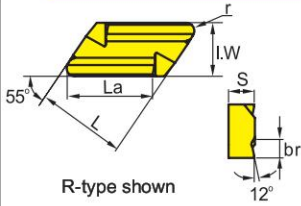






## Cemented carbide and cermet inserts

### KN (Negative inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel						😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																									😊	😊
<b>S</b> Heat resistant alloy, Ti alloy						😊	😊				😊							😊							😊	😊

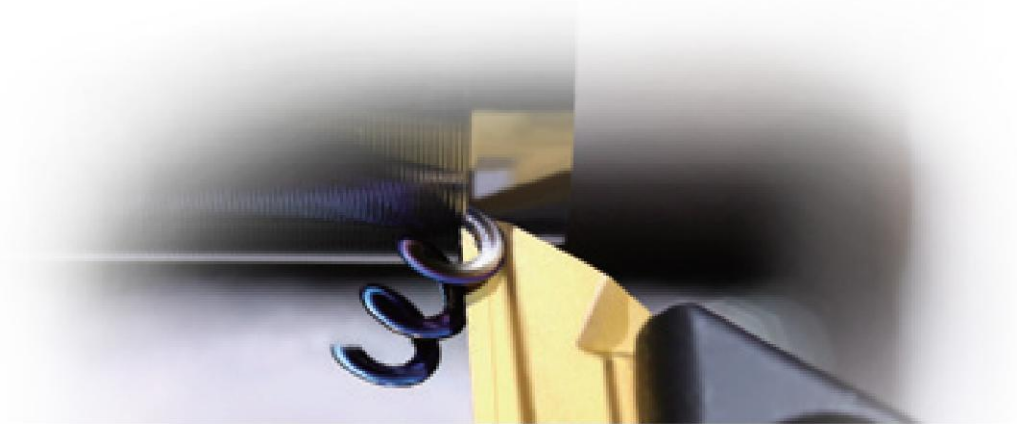
Inserts shape	Type	Dimensions (mm)							Cemented carbide																								
		La	L	I.W	S	brn	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
Profile turning	<b>KNUX160405L11</b>	16	16.15	9.525	4.76	2.2	0.5	○	●	★	○																						
	<b>KNUX160410L11</b>	16	16.15	9.525	4.76	2.2	1.0		●																								
	<b>KNUX160405L12</b>	16	16.15	9.525	4.76	2.2	0.5	○	●																								
	<b>KNUX160410L12</b>	16	16.15	9.525	4.76	2.2	1.0	○	○	●																							
	<b>KNUX160415L12</b>	16	16.15	9.525	4.76	2.2	1.5			○																							
	<b>KNUX160405R11</b>	16	16.15	9.525	4.76	2.2	0.5	●	●	○	●																						
	<b>KNUX160410R11</b>	16	16.15	9.525	4.76	2.2	1.0	○	●																								
	<b>KNUX160405R12</b>	16	16.15	9.525	4.76	2.2	0.5	●	●																								
	<b>KNUX160410R12</b>	16	16.15	9.525	4.76	2.2	1.0	○	○	●	○																						
	<b>KNUX160415R12</b>	16	16.15	9.525	4.76	2.2	1.5			○																							

Chipbreaker code: 11 → Declining chipbreaker   12 → Straight chipbreaker

General turning

5

Cemented carbide and cermet inserts



**CKJNR/L**  
Kr:93°



**CKNNR/L**  
Kr:63°



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A204

Insert code key

Grade selection reference

Chipbreaker selection reference

Recommended cutting parameters

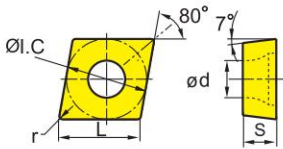


# General Turning Inserts

# TURNING A

## Cemented carbide and cermet inserts

### CC (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel						😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions (mm)					Grade selection																				Ce	Co	cer	carbide							
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102					YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
<b>USF</b>  For extra finishing	CCGT09T301R-USF	9.7	9.525	3.97	4.4	0.1																															
	CCGT09T302R-USF	9.7	9.525	3.97	4.4	0.2									○	○																					
	CCGT09T304R-USF	9.7	9.525	3.97	4.4	0.4									○	○																					
<b>USF</b>  For extra finishing	CCGT09T301L-USF	9.7	9.525	3.97	4.4	0.1									○	○																					
	CCGT09T302L-USF	9.7	9.525	3.97	4.4	0.2									●	○																					
	CCGT09T304L-USF	9.7	9.525	3.97	4.4	0.4									○	○																					
<b>SF</b> 	CCGT060202-SF	6.4	6.35	2.38	2.8	0.2																														○	○
	CCGT060204-SF	6.4	6.35	2.38	2.8	0.4																													○	○	
	CCGT09T304-SF	9.7	9.525	3.97	4.4	0.4																													○	★	

<b>HF</b>  For finishing	CCMT060202-HF	6.4	6.35	2.38	2.8	0.2	★	●	★																										○	○
	CCMT060204-HF	6.4	6.35	2.38	2.8	0.4	★	●	○	○																									●	○
	CCMT060208-HF	6.4	6.35	2.38	2.8	0.8	★	●	○									○																	●	○
	CCMT09T302-HF	9.7	9.525	3.97	4.4	0.2																													●	○
	CCMT09T304-HF	9.7	9.525	3.97	4.4	0.4	★	●	★	○																									●	○
	CCMT09T308-HF	9.7	9.525	3.97	4.4	0.8	★	●	○	○									○																●	○
	CCMT120404-HF	12.9	12.7	4.76	5.56	0.4	●	○	●	○																									○	
	CCMT120408-HF	12.9	12.7	4.76	5.56	0.8																													○	

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

SCACR/L

Kr:90°



Page A184

SCLCR/L

Kr:95°



A185

SCLCR/L

Kr:95°



A218

SCFCR/L

Kr:90°



A232

SCLCR/L

Kr:95°



A233

Insert code key

Grade selection reference

Chipbreaker selection reference

Recommended cutting parameters

General turning

S

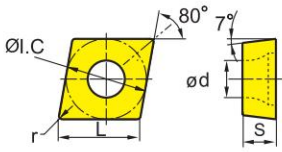
Cemented carbide and cermet i

# TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### CC □ □ (Positive inserts)

😊 Good working condition   😐 Normal working condition   😞 Bad working condition



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊😊😊				
M Stainless steel		😊😊😊😊😊😊😊😊😊😊😊😊			
K Cast iron			😊😊😊😊😊😊😊😊😊😊😊😊		
N Non-ferrous metal				😊😊😊😊😊😊😊😊😊😊😊😊	
S Heat resistant alloy, Ti alloy					😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions (mm)						Grade selection																Cermet	Carbide									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253			YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>EF</b>  For finishing	CCMT060202-EF	6.4	6.35	2.38	2.8	0.2							○	●	★					★	○													
	CCMT060204-EF	6.4	6.35	2.38	2.8	0.4							○	●	★					★	○													
	CCMT09T302-EF	9.7	9.525	3.97	4.4	0.2							○	●	★					★	○													
	CCMT09T304-EF	9.7	9.525	3.97	4.4	0.4							○	●	★					★	★													
	CCMT09T308-EF	9.7	9.525	3.97	4.4	0.8							○	●	★					○	★													
	CCMT120404-EF	12.9	12.7	4.76	5.56	0.4							○	●	★					★	○													
	CCMT120408-EF	12.9	12.7	4.76	5.56	0.8							○	●	★					○	○													
<b>HM</b> 	CCMT060204-HM	6.4	6.35	2.38	2.8	0.4	★	●	★	○				●							●				●	●							●	
	CCMT060208-HM	6.4	6.35	2.38	2.8	0.8	★	●	○	○				●							○				○	●								
	CCMT09T304-HM	9.7	9.525	3.97	4.4	0.4	●	★	●	★	●				●							●				●	●							
For semi-finishing	CCMT120404-HM	12.9	12.7	4.76	5.56	0.4	★	●	○	○											○				○	○								
	CCMT120408-HM	12.9	12.7	4.76	5.56	0.8	★	●	★	●				○							●				●	●								
	CCMT120412-HM	12.9	12.7	4.76	5.56	1.2	○	○																	○									
<b>EM</b>  For semi-finishing	CCMT060204-EM	6.4	6.35	2.38	2.8	0.4								●	★					○	★													
	CCMT060208-EM	6.4	6.35	2.38	2.8	0.8								●	★					○	★													
	CCMT09T304-EM	9.7	9.525	3.97	4.4	0.4								●	★					★	★													
	CCMT09T308-EM	9.7	9.525	3.97	4.4	0.8								●	★					★	★													
	CCMT120404-EM	12.9	12.7	4.76	5.56	0.4								●	★					○	★													
	CCMT120408-EM	12.9	12.7	4.76	5.56	0.8								●	★					○	★													
	CCMT120412-EM	12.9	12.7	4.76	5.56	1.2								●	★					○	★													

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

**SCACR/L**  
Kr:90°



**SCLCR/L**  
Kr:95°



**SCLCR/L**  
Kr:95°



**SCFCR/L**  
Kr:90°



**SCLCR/L**  
Kr:95°

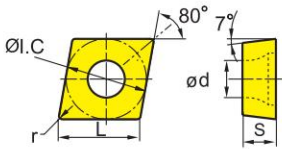




# TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### CC (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																			😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																									😊	😊
<b>S</b> Heat resistant alloy, Ti alloy			😊	😊							😊								😊					😊	😊	😊

Inserts shape	Type	Dimensions (mm)						Grade																Ce	Co	cer	carbide								
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253					YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101
<b>LH</b>  For Al machining	<b>CCGX09T304-LH</b>	9.7	9.525	3.97	4.4	0.4																											★	●	
	<b>CCGX09T308-LH</b>	9.7	9.525	3.97	4.4	0.8																											★		
	<b>CCGX120402-LH</b>	12.9	12.7	4.76	5.56	0.2																												○	
	<b>CCGX120404-LH</b>	12.9	12.7	4.76	5.56	0.4																												★	
	<b>CCGX120408-LH</b>	12.9	12.7	4.76	5.56	0.8																												★	
	<b>CCGX120412-LH</b>	12.9	12.7	4.76	5.56	1.2																												○	
Without chipbreaker 	<b>CCMW060204</b>	6.4	6.35	2.38	2.8	0.4																											●		
	<b>CCMW09T304</b>	9.7	9.525	3.97	4.4	0.4																											●	●	
	<b>CCMW09T308</b>	9.7	9.525	3.97	4.4	0.8	○																										○		
	<b>CCMW120404</b>	12.9	12.7	4.76	5.56	0.4																												●	

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

**SCACR/L**  
Kr:90°



Page A184

**SCLCR/L**  
Kr:95°



A185

**SCLCR/L**  
Kr:95°



A218

**SCFCR/L**  
Kr:90°



A232

**SCLCR/L**  
Kr:95°

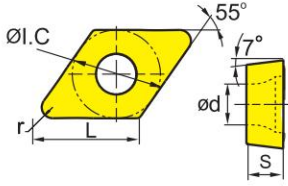


A233



## Cemented carbide and cermet inserts

### DC (Positive inserts)



😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel						😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

General turning

Inserts shape	Type	Dimensions (mm)					Grade selection reference																	Ce	Co	cer	carbide											
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253					YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201		
For extra finishing	DCGT0702005R-USF	7.8	6.35	2.38	2.8	0.05																																
	DCGT070201R-USF	7.8	6.35	2.38	2.8	0.1																																
	DCGT070202R-USF	7.8	6.35	2.38	2.8	0.2																																
	DCGT11T301R-USF	11.6	9.525	3.97	4.4	0.1																																
	DCGT11T302R-USF	11.6	9.525	3.97	4.4	0.2																																
For extra finishing	DCGT0702005L-USF	7.8	6.35	2.38	2.8	0.05																																
	DCGT070201L-USF	7.8	6.35	2.38	2.8	0.1																																
	DCGT070202L-USF	7.8	6.35	2.38	2.8	0.2																																
	DCGT11T301L-USF	11.6	9.525	3.97	4.4	0.1																																
	DCGT11T302L-USF	11.6	9.525	3.97	4.4	0.2																																

For extra finishing	DCGT070204-SF	7.8	6.35	2.38	2.8	0.4																																
	DCGT070208-SF	7.8	6.35	2.38	2.8	0.8																																
	DCGT11T302-SF	11.6	9.525	3.97	4.4	0.2																																
	DCGT11T304-SF	11.6	9.525	3.97	4.4	0.4																																
	DCGT11T308-SF	11.6	9.525	3.97	4.4	0.8																																
For finishing	DCMT070202-HF	7.8	6.35	2.38	2.8	0.2	★	●	○																													
	DCMT070204-HF	7.8	6.35	2.38	2.8	0.4	★	●	★	○																												
	DCMT070208-HF	7.8	6.35	2.38	2.8	0.8	○	○	○																													
	DCMT11T302-HF	11.6	9.525	3.97	4.4	0.2	★	●	○																													
	DCMT11T304-HF	11.6	9.525	3.97	4.4	0.4	★	●	★	○																												

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

SDACR/L

Kr:90°



Page A186

SDJCR/L

Kr:93°



A187

SDNCH

Kr:62°30'



A188

SDQCR/L

Kr:107°30'



A219

SDUCR/L

Kr:93°



A220

SDZCR/L

Kr:95°



A221

Insert code key

Grade selection reference

Chipbreaker selection reference

Recommended cutting parameters

Cemented carbide and cermet inserts

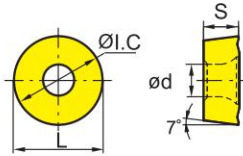




# TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### RC□□ (Positive inserts)



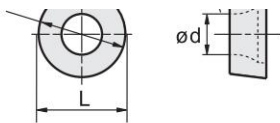
😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Coated cemented carbide																		Cermet	Cemented carbide								
	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103			YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions (mm)				Coated cemented carbide																		Cermet	Cemented carbide										
		L	ØI.C	S	ød	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103			YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201		
	<b>RCGT1204MO</b>	12	12	4.76	4.4					○																									
	<b>RCMT0803MO</b>	8.0	8.0	3.18	3.36					○																									
	<b>RCMT10T3MO</b>	10	10	3.97	4.4					○																									
	<b>RCMT1204MO</b>	12	12	4.76	4.4	○			●	★																									
	<b>RCMT1606MO</b>	16	16	6.35	5.5	○			●		●																								

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

😊 Good working condition    😐 Normal working condition    😞 Bad working condition



Workpiece material	Coated cemented carbide																		Cermet	Cemented carbide														
	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103			YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201						
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions (mm)				Coated cemented carbide																		Cermet	Cemented carbide											
		L	ØI.C	S	ød	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103			YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201			
<b>LH</b>	<b>RCGX0803MO-LH</b>	8.0	8.0	3.18	3.36																															

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

### SRDCN



### SRGCR/L

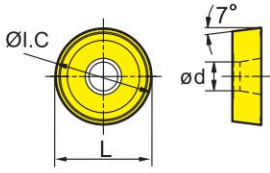


# General Turning Inserts

# TURNING

## Cemented carbide and cermet inserts

### RC□□ (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊

General turning

Inserts shape	Type	Dimensions (mm)				Grade selection reference															Cermet	Cermet carbide												
		L	ØI.C	S	ød	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215			YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
	RCMX0803MO	8.0	8.0	3.18	3.36		●	○																										
	RCMX1003MO	10	10	3.18	3.6	●	●	●																									○	
	RCMX1204MO	12	12	4.76	4.4	○	●																										○	●
	RCMX1606MO	16	16	6.35	5.5	●	●		○																								○	
	RCMX2006MO	20	20	6.35	6.5	○	★	●	○	○																		★					○	●
	RCMX2507MO	25	25	7.94	7.2		★	●	○	○																						○		
	RCMX3209MO	32	32	9.52	9.5	○	○	●	○	○																								

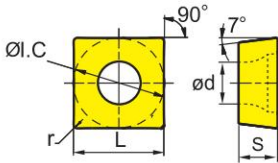
★Recommended grade (always stock available)   ●Available grade (always stock available)   ○Make-to-order

Cemented carbide and cermet i

Insert code key   Grade selection reference   Chipbreaker selection reference   Recommended cutting parameters



### SC□□ (Positive inserts)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																					😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy				😊	😊				😊													😊				

Inserts shape	Type	Dimensions (mm)						Grade selection reference																	Cer	Cer	Carbide									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103				YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
For Al machining	<b>SCGX09T304-LC</b>	9.525	9.525	3.97	4.4	0.4																														★
	<b>SCGX09T308-LC</b>	9.525	9.525	3.97	4.4	0.8																														★
	<b>SCGX120408-LC</b>	12.7	12.7	4.76	5.5	0.8																														★
For Al machining	<b>SCGX09T302-LH</b>	9.525	9.525	3.97	4.4	0.2																													○	
	<b>SCGX09T304-LH</b>	9.525	9.525	3.97	4.4	0.4																													○	
	<b>SCGX09T308-LH</b>	9.525	9.525	3.97	4.4	0.8																													★	
	<b>SCGX120404-LH</b>	12.7	12.7	4.76	5.56	0.4																													○	
	<b>SCGX120408-LH</b>	12.7	12.7	4.76	5.56	0.8																														★
	<b>SCMT09T304-HR</b>	9.525	9.525	3.97	4.4	0.4	★	●																												
For roughing	<b>SCMT09T312-HR</b>	9.525	9.525	3.97	4.4	1.2	★																													
	<b>SCMT120404-HR</b>	12.7	12.7	4.76	5.56	0.4	○	●	○																											
	<b>SCMT120408-HR</b>	12.7	12.7	4.76	5.56	0.8	★	●	○	●											○	●	●													
	<b>SCMT120412-HR</b>	12.7	12.7	4.76	5.56	1.2	○	○		●												○	○													
All round	<b>SCMT09T304</b>	9.525	9.525	3.97	4.4	0.4	○	●																												
	<b>SCMT120404</b>	12.7	12.7	4.76	5.56	0.4			○	○																										
	<b>SCMT120408</b>	12.7	12.7	4.76	5.56	0.8	○	●																												
Without chipbreaker	<b>SCMW060204</b>	6.35	6.35	2.38	2.8	0.4																													○	
	<b>SCMW09T304</b>	9.525	9.525	3.97	4.4	0.4																													○	
	<b>SCMW09T308</b>	9.525	9.525	3.97	4.4	0.8																													○	
	<b>SCMW120408</b>	12.7	12.7	4.76	5.56	0.8	●																													

### Applicable tool



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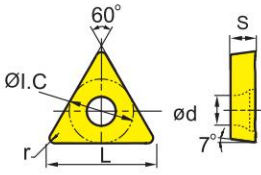
Insert code key      Grade selection reference      Chipbreaker selection reference      Recommended cutting parameters

# TURNING General Turning Inserts

## Cemented carbide and cermet inserts

### TC □ □ (Positive inserts)

😊 Good working condition    😐 Normal working condition    😞 Bad working condition



Workpiece material	Grade																										
	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201	
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										😊	😊
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊		😊									😊							😊	😊

Inserts shape	Type	Dimensions (mm)					Grade																				Ce Co	carbide cer											
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102			YBD152	YBD252	YNG151	YNG151C	YD101	YD201					
<b>USF</b>  For extra finishing	TCGT110301R-USF	11	6.35	3.18	2.8	0.1																																	
	TCGT110302R-USF	11	6.35	3.18	2.8	0.2												●	○																				
<b>USF</b>  For extra finishing	TCGT110301L-USF	11	6.35	3.18	2.8	0.1																																	
	TCGT110302L-USF	11	6.35	3.18	2.8	0.2													●	○																			
<b>SF</b> 	TCGT090202-SF	9.6	5.56	2.38	2.5	0.2																																	
	TCGT090204-SF	9.6	5.56	2.38	2.5	0.4																																	
<b>SF</b>  For extra finishing	TCGT110302-SF	11	6.35	3.18	2.8	0.2																																	
	TCGT110304-SF	11	6.35	3.18	2.8	0.4																																	
	TCGT110308-SF	11	6.35	3.18	2.8	0.8																																	

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

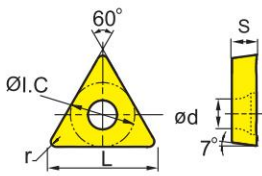


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## Cemented carbide and cermet inserts

### TC□□ (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																				😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy				😊	😊				😊											😊						

Inserts shape	Type	Dimensions (mm)					Grade selection																Ce Co cer carbide										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251		YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>HF</b>  For finishing	TCMT090202-HF	9.6	5.56	2.38	2.5	0.2	★	●																									
	TCMT090204-HF	9.6	5.56	2.38	2.5	0.4	★	●																									
	TCMT090208-HF	9.6	5.56	2.38	2.5	0.8			○																								
	TCMT110202-HF	11	6.35	2.38	2.8	0.2			●																								
	TCMT110204-HF	11	6.35	2.38	2.8	0.4	●	★	●	★																							
	TCMT110208-HF	11	6.35	2.38	2.8	0.8	○	●	○																								
	TCMT16T302-HF	16.5	9.525	3.97	4.4	0.2	○																										
	TCMT16T304-HF	16.5	9.525	3.97	4.4	0.4	●	●																									
	TCMT16T308-HF	16.5	9.525	3.97	4.4	0.8	○	●																									

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

General turning

Cemented carbide and cermet i

STACR/L  
Kr:90°



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STFCR/L  
Kr:90°



A198

STGCR/L  
Kr:91°



A199

STECR/L  
Kr:60°



A200

STFCR/L  
Kr:90°



A223

Insert code key

Grade selection reference

Chipbreaker selection reference

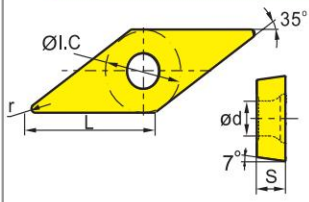
Recommended cutting parameters







### VC (Positive inserts)



😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																										
<b>N</b> Non-ferrous metal																										
<b>S</b> Heat resistant alloy, Ti alloy							😊	😊																		

Inserts shape	Type	Dimensions (mm)						Grade cemented carbide																					Ce	Co	cer	carbide										
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252					YNG151	YNG151C	YD101	YD201						
 For extra finishing	VCGT080201R-USF	8	4.76	2.38	2.3	0.1																																				
	VCGT080202R-USF	8	4.76	2.38	2.3	0.2									○	○																										
	VCGT110301R-USF	11	6.35	3.18	2.8	0.1									●	○																										
	VCGT110302R-USF	11	6.35	3.18	2.8	0.2									●	○																										
 For extra finishing	VCGT080201L-USF	8	4.76	2.38	2.3	0.1									○	○																										
	VCGT080202L-USF	8	4.76	2.38	2.3	0.2									○	○																										
	VCGT110301L-USF	11	6.35	3.18	2.8	0.1									○	○																										
	VCGT110302L-USF	11	6.35	3.18	2.8	0.2									●	○																										
	VCGT110302-SF	11	6.35	3.18	2.8	0.2																				○	★															
	VCGT110304-SF	11	6.35	3.18	2.8	0.4																				○	★															
For extra finishing																																										
 For finishing	VCGT110304-HF	11	6.35	3.18	2.8	0.4																																				
 For finishing	VCGT160408-NF	16.5	9.525	4.76	4.4	0.8																																				
 For finishing	VCGT160408-NGF	16.5	9.525	4.76	4.4	0.8																																				

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

**Applicable tool**



SVQCR/L  
Kr:107°30'

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SVUCR/L  
Kr:93°

A225



SVVCN  
Kr:72°30'

A192



SVJCR/L  
Kr:93°

A193

Insert code key   Grade selection reference   Chipbreaker selection reference   Recommended cutting parameters

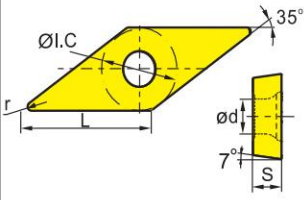
General turning

Cemented carbide and cermet i

# TURNING / General Turning Inserts

## Cemented carbide and cermet inserts

### VC □ □ (Positive inserts)



😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

Workpiece material	Grade																																				
	P	M	K	N	S	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201						
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	
<b>M</b> Stainless steel										😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	
<b>K</b> Cast iron																																					
<b>N</b> Non-ferrous metal																																					
<b>S</b> Heat resistant alloy, Ti alloy										😊	😊																										

General turning

Cemented carbide and cermet inserts

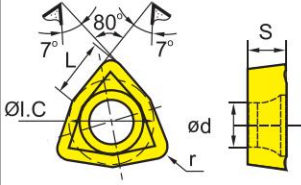
Inserts shape	Type	Dimensions (mm)					Grade																	Ce Co cer carbide														
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253		YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201					
<b>LC</b>  For Al machining	VCGX110301-LC	11	6.35	3.18	2.8	0.1																															★	
	VCGX110302-LC	11	6.35	3.18	2.8	0.2																															★	
	VCGX110304-LC	11	6.35	3.18	2.8	0.4																																★
	VCGX110308-LC	11	6.35	3.18	2.8	0.8																																★
	VCGX160404-LC	16.6	9.525	4.76	4.4	0.4																															★	
	VCGX160408-LC	16.6	9.525	4.76	4.4	0.8																															★	
	VCGX160412-LC	16.6	9.525	4.76	4.4	1.2																															★	
	VCGX220530-LC	22	12.7	5.56	5.5	3.0																															★	
<b>LH</b>  For Al machining	VCGX110202-LH	11	6.35	2.38	2.8	0.2																														○		
	VCGX110204-LH	11	6.35	2.38	2.8	0.4																															★	
<b>LH</b>  For Al machining	VCGX110302-LH	11	6.35	3.18	2.8	0.2																														★ ●		
	VCGX110304-LH	11	6.35	3.18	2.8	0.4																															★ ●	
	VCGX110308-LH	11	6.35	3.18	2.8	0.8																															○	
	VCGX160402-LH	16.6	9.525	4.76	4.4	0.2																															★	
	VCGX160404-LH	16.6	9.525	4.76	4.4	0.4																															★ ○	
	VCGX160408-LH	16.6	9.525	4.76	4.4	0.8																															★ ○	
	VCGX160412-LH	16.6	9.525	4.76	4.4	1.2																															★ ●	
	VCGX220530-LH	22	12.7	5.56	5.5	3.0																															★ ●	

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order



## Cemented carbide and cermet inserts

### WC (Positive inserts)



😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron																									
<b>N</b> Non-ferrous metal																									
<b>S</b> Heat resistant alloy, Ti alloy				😊	😊				😊																

Inserts shape	Type	Dimensions (mm)					Grade selection reference																	Ce	Co	cer	carbide								
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201				
	<b>WCMX040208R-53</b>	4.3	6.35	2.38	3.1	0.8			●																										
	<b>WCMX06T308R-53</b>	6.5	9.525	3.97	3.7	0.8	●		○																										
	<b>WCMX080412R-53</b>	8.7	12.7	4.76	4.3	1.2										○	○	○									○								

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order







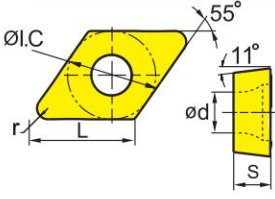




# General Turning Inserts TURNING A




## Cemented carbide and cermet inserts

### DP (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
<b>P</b> Steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
<b>M</b> Stainless steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
<b>K</b> Cast iron	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
<b>N</b> Non-ferrous metal	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
<b>S</b> Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions (mm)					Cemented carbide / Cermet																									
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
 For extra finishing	DPGT0702005R-USF	7.8	6.35	2.38	2.8	0.05									○	○																
	DPGT070201R-USF	7.8	6.35	2.38	2.8	0.1									○	○																
	DPGT11T301R-USF	11.6	9.525	3.97	4.4	0.1									●	○																
 For extra finishing	DPGT0702005L-USF	7.8	6.35	2.38	2.8	0.05									○	○																
	DPGT070201L-USF	7.8	6.35	2.38	2.8	0.1									○	○																
	DPGT11T301L-USF	11.6	9.525	3.97	4.4	0.1									○	○																
<b>SF</b>	DPGT070202-SF	7.8	6.35	2.38	2.8	0.2									○														○	○		
	DPGT070204-SF	7.8	6.35	2.38	2.8	0.4									○														○	○		
 For extra finishing	DPGT11T304-SF	11.6	9.525	3.97	4.4	0.4									○														○			
	DPGT11T308-SF	11.6	9.525	3.97	4.4	0.8									○																	

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

**SDQPR/L**  
Kr:107°30'



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**SDUPR/L**  
Kr:93°



A230

Insert code key

Grade selection reference

Chipbreaker selection reference

Recommended cutting parameters

General turning

S

Cemented carbide and cermet i









***PCBN&PCD*** Insert

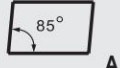
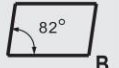
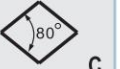


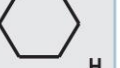
# TURNING General Turning Inserts




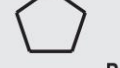




## PCBN&PCD inserts code key

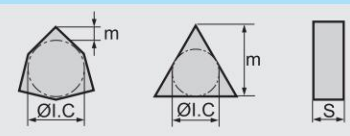
General turning

F


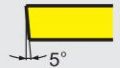

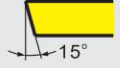


1&PCD inserts code key


Insert shape		
 85° A	 82° B	 80° C
 55° D	 75° E	 H





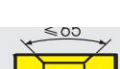
 55° K	 L	 86° M
 P	 S	 T
 35° V	 80° W	Others Z

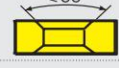
Tolerance class							
							
Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)	Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)
A	+0.005	+0.025	+0.025	J	+0.005	+0.05-+0.13	+0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	L	±0.025	±0.05-±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08-±0.18	±0.05-±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08-±0.18	±0.05-±0.13	±0.025
G	±0.025	±0.025	±0.13	U	±0.13-±0.38	±0.08-±0.25	±0.13

# C N G A 12

Clearance angle of main cutting edge			
Code	Clearance angle	Code	Clearance angle
A	 3°	B	 5°
C	 7°	D	 15°
E	 20°	F	 25°

P	 11°	O	Other clearance angle
---	---	---	-----------------------

Chipbreaker and clamping system		
Code	With/Without hole	Section plane of insert
N	Without	
B	With	 > 65°
C	With	 > 65°
A	With	
W	With	 ≤ 65°

Q	With	 ≤ 00
X	---	Special

Length of cutting edge							
Diameter of IC (mm)	Insert shape						
	C	D	R	S	T	V	W
3.97					06		
5.0			05				
5.56					09		
6.0			06				
6.35	06	07			11	11	
8.0			08				
9.525	09	11	09	09	16	16	06
10.0			10				
12.0			12				
12.7	12	15	12	12	22	22	08
15.875	16		15	15	27		

20.0			20				
25.0	25	25	25				
25.4			25	25			
31.75			31				
32			32				



Insert thickness			
<p>Thickness is defined as height from bottom of insert to the highest part of cutting edge.</p>			
Code	Insert thickness(mm)	Code	Insert thickness(mm)
02	2.38	06	6.35

Nose radius code	
Code	Nose radius(mm)
00	No radius
02	0.2
04	0.4
08	0.8

Type of cutting edge		
Code	Type of cutting edge	Picture
E	Honing	

03	3.18	07	7.94
T3	3.97	09	9.52
04	4.76	T9	9.72
T4	4.96	11	11.11
05	5.56	12	12.70
T5	5.95		

16	1.6
20	2.0
24	2.4
32	3.2
X	Others
Diameter of insert (Metric)	
Round insert	

S	Chamfering + honing	
F	Sharp edges	

# 04 04 A T 010 20 - 2 S

Insert Structure		
Code	Type of cutting edge	Diagram
A	Single-sided insert	
B	Intact insert	
C	penetration insert	
D	Double-sided insert	

Chamfer width	
Code	Dimensions (mm)
000	--
008	0.08
012	0.12
017	0.17
022	0.22

Chamfer angle	
Code	Angle (°)
00	--
10	10
15	15
20	20
25	25

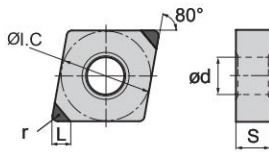
Cutting edge number	
Code	number
/	number1
2	number2
3	number3
4	number4
6	number6

The length of cutting edge			
	Standard	Elongate	Overlength
Code	Omission	S	SS
Length	Standard	+1mm	+2mm

# TURNING / General Turning Inserts

## PCBN&PCD inserts

### CN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	K Cast iron	S Heat resistant alloy, Ti alloy	H Super hard material	N Non ferrous metal
K Cast iron	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H Super hard material	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N Non ferrous metal	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy			
				Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Single-sided insert		CNGA120404AE-2	AE	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		CNGA120408AE-2		12.7	4.76	5.156	0.8	2.4	○	○								○	○	○
		CNGA120412AE-2		12.7	4.76	5.156	1.2	2.3	○	○								○	○	○
		CNGA120404AS01225-2	S01225	12.7	4.76	5.156	0.4	2.5	○	○			○	○	○	○	○	○	○	○
		CNGA120408AS01225-2		12.7	4.76	5.156	0.8	2.4	○	○			○	○	○	○	○	○	○	○
		CNGA120412AS01225-2		12.7	4.76	5.156	1.2	2.3	○	○			○	○	○	○	○	○	○	○
		CNGA120404AS00815-2	S00815	12.7	4.76	5.156	0.4	2.5					○	○	○					
		CNGA120408AS00815-2		12.7	4.76	5.156	0.8	2.4					○	○	○					
		CNGA120412AS00815-2		12.7	4.76	5.156	1.2	2.3					○	○	○					
		CNGA 120404AS01735-2		12.7	4.76	5.156	0.4	2.5								○	○	○		
CNGA120408AS01735-2	S01735	12.7	4.76	5.156	0.8	2.4								○	○	○				
		CNGA120404AT01215-2	T01215	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		CNGA120408AT01215-2		12.7	4.76	5.156	0.8	2.4	○	○							○	○	○	
		CNGA120412AT01215-2		12.7	4.76	5.156	1.2	2.3	○	○							○	○	○	
Double-sided insert		CNGA120404DE-4	DE	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		CNGA120408DE-4		12.7	4.76	5.156	0.8	2.4	○	○							○	○	○	
		CNGA120412DE-4		12.7	4.76	5.156	1.2	2.3	○	○							○	○	○	
		CNGA120404DT01215-4	T01215	12.7	4.76	5.156	0.4	2.5	★	★							★	★	★	
		CNGA120408DT01215-4		12.7	4.76	5.156	0.8	2.4	★	★							★	★	★	
		CNGA120412DT01215-4		12.7	4.76	5.156	1.2	2.3	★	★							★	★	★	

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

### Applicable tool

DCLNR/L  
Kr:95°



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PCLNR/L  
Kr:95°



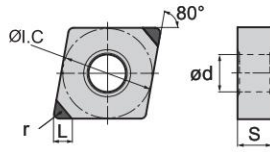
A173

PCLNR/L  
Kr:95°



A212

CN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Double-sided insert		CNGA120404DS01225-4	S01225	12.7	4.76	5.156	0.4	2.5	○	○											
		CNGA120408DS01225-4		12.7	4.76	5.156	0.8	2.4	○	○											
		CNGA120412DS01225-4		12.7	4.76	5.156	1.2	2.3	○	○											
		CNGA120404DS00815-4	S00815	12.7	4.76	5.156	0.4	2.5					★	★	○						
		CNGA120408DS00815-4		12.7	4.76	5.156	0.8	2.4					★	★	○						
		CNGA120412DS00815-4		12.7	4.76	5.156	1.2	2.3					★	★	○						
		CNGA120404DS01225-4	S01225	12.7	4.76	5.156	0.4	2.5					★	★	★	★	★	○	○	○	
		CNGA120408DS01225-4		12.7	4.76	5.156	0.8	2.4					★	★	★	★	★	○	○	○	
		CNGA120412DS01225-4		12.7	4.76	5.156	1.2	2.3					★	★	★	★	★	○	○	○	
		CNGA120404DS01735-4	S01735	12.7	4.76	5.156	0.4	2.5									○	★	○		
		CNGA120408DS01735-4		12.7	4.76	5.156	0.8	2.4									○	★	○		
Penetration insert		CNGA120404CE-2	CE	12.7	4.76	5.156	0.4	2.5		○											
		CNGA120408CE-2		12.7	4.76	5.156	0.8	2.4		○											
		CNGA120412CE-2		12.7	4.76	5.156	1.2	2.3		○											
		CNGA120404CT01215-2	T01215	12.7	4.76	5.156	0.4	2.5		★											
		CNGA120408CT01215-2		12.7	4.76	5.156	0.8	2.4		★											
		CNGA120412CT01215-2		12.7	4.76	5.156	1.2	2.3		★											
		CNGA120404CS01225-2	S01225	12.7	4.76	5.156	0.4	2.5		○											
		CNGA120408CS01225-2		12.7	4.76	5.156	0.8	2.4		○											
		CNGA120412CS01225-2		12.7	4.76	5.156	1.2	2.3		○											

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

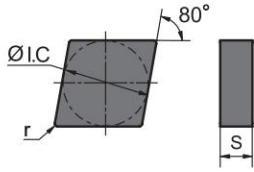
Applicable tool



# TURNING / General Turning Inserts

## PCBN&PCD inserts

### CN (Negative angle)



😊 Good working condition    😐 Normal working condition    ☹️ Bad working condition

Workpiece material	K Cast iron	S Heat resistant alloy, Ti alloy	H Super hard material	N Non ferrous metal
K Cast iron	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H Super hard material	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N Non ferrous metal	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

General turning

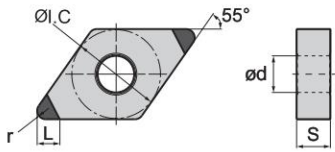
PCBN&PCD inserts

Type	Shape of insert	Model	Specification	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Intact insert		CNGN120404BE	BE	12.7	4.76	0.4			○										
		CNGN120408BE		12.7	4.76	0.8			○										
		CNGN120412BE		12.7	4.76	1.2			○										
		CNGN120404BT01215	T01215	12.7	4.76	0.4			★										
		CNGN120408BT01215		12.7	4.76	0.8			★										
		CNGN120412BT01215		12.7	4.76	1.2			★										
		CNGN120404BS01225	S01225	12.7	4.76	0.4			○										
		CNGN120408BS01225		12.7	4.76	0.8			○										
		CNGN120412BS01225		12.7	4.76	1.2			○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

**DN** (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy			
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Sing		DNGA150404AE-2	AE	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		DNGA150408AE-2		12.7	4.76	5.156	0.8	2.1	○	○								○	○	○
		DNGA150412AE-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		DNGA150604AE-2		12.7	6.35	5.156	0.4	2.5	○	○								○	○	○
		DNGA150608AE-2		12.7	6.35	5.156	0.8	2.1	○	○								○	○	○
		DNGA150612AE-2		12.7	6.35	5.156	1.2	2.0	○	○								○	○	○
		DNGA150404AT01215-2	T01215	12.7	4.76	5.156	0.4	2.5	○	○								○	○	○
		DNGA150408AT01215-2		12.7	4.76	5.156	0.8	2.1	○	○								○	○	○
		DNGA150412AT01215-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		DNGA150604AT01215-2		12.7	6.35	5.156	0.4	2.5	○	○								○	○	○
DNGA150608AT01215-2	12.7	6.35	5.156	0.8	2.1	○	○								○	○	○			
Ridged insert		DNGA150404AS01225-2	S01225	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		DNGA150408AS01225-2		12.7	4.76	5.156	0.8	2.1	○	○								○	○	○
		DNGA150412AS01225-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		DNGA150604AS01225-2		12.7	6.35	5.156	0.4	2.5	○	○								○	○	○
		DNGA150608AS01225-2		12.7	6.35	5.156	0.8	2.1	○	○								○	○	○
		DNGA150612AS01225-2		12.7	6.35	5.156	1.2	2.0	○	○								○	○	○
		DNGA150404AS00815-2	S00815	12.7	4.76	5.156	0.4	2.5												
		DNGA150408AS00815-2		12.7	4.76	5.156	0.8	2.1												
		DNGA150412AS00815-2		12.7	4.76	5.156	1.2	2.0												
		DNGA150604AS00815-2		12.7	6.35	5.156	0.4	2.5												
		DNGA150608AS00815-2		12.7	6.35	5.156	0.8	2.1												
		DNGA150612AS00815-2		12.7	6.35	5.156	1.2	2.0												

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

Applicable tool

DDJNR/L  
Kr:93°



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PDJNR/L  
Kr:93°



A174

PDPNN  
Kr:62°30'



A175

PDPNR/L  
Kr:62°30'



A213

PDUNR/L  
Kr:93°

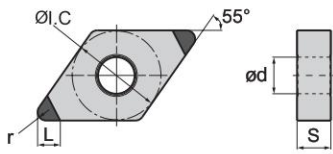


A214

# TURNING General Turning Inserts

## PCBN&PCD inserts

### DN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Single-sided insert		DNGA150404AS01735-2	S01735	12.7	4.76	5.156	0.4	2.5													
		DNGA150408AS01735-2		12.7	4.76	5.156	0.8	2.1							○	○	○				
		DNGA150412AS01735-2		12.7	4.76	5.156	1.2	2.0							○	○	○				
		DNGA150604AS01735-2		12.7	6.35	5.156	0.4	2.5							○	○	○				
		DNGA150608AS01735-2		12.7	6.35	5.156	0.8	2.1							○	○	○				
		DNGA150612AS01735-2		12.7	6.35	5.156	1.2	2.0							○	○	○				
Double-sided insert		DNGA150404DE-4	DE	12.7	4.76	5.156	0.4	2.5	○	○								○	○	○	
		DNGA150408DE-4		12.7	4.76	5.156	0.8	2.1	○	○								○	○	○	
		DNGA150412DE-4		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○	
		DNGA150604DE-4		12.7	6.35	5.156	0.4	2.5	○	○								○	○	○	
		DNGA150608DE-4		12.7	6.35	5.156	0.8	2.1	○	○								○	○	○	
Double-sided insert		DNGA150404DT01215-4	T01215	12.7	4.76	5.156	0.4	2.5	★	★								★	★	★	
		DNGA150408DT01215-4		12.7	4.76	5.156	0.8	2.1	★	★								★	★	★	
		DNGA150412DT01215-4		12.7	4.76	5.156	1.2	2.0	★	★								★	★	★	
		DNGA150604DT01215-4		12.7	6.35	5.156	0.4	2.5	★	★								★	★	★	
		DNGA150608DT01215-4		12.7	6.35	5.156	0.8	2.1	★	★								★	★	★	
		DNGA150612DT01215-4		12.7	6.35	5.156	1.2	2.0	★	★								★	★	★	

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

DDJNR/L  
Kr:93°



Page A167

PDJNR/L  
Kr:93°



A174

PDPNN  
Kr:62°30'



A175

PDPNR/L  
Kr:62°30'



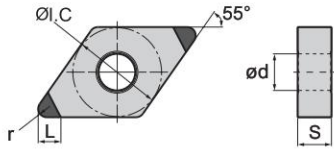
A213

PDUNR/L  
Kr:93°



A214

**DN** (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Double-side		DNGA150404DS01225-4	S01225	12.7	4.76	5.156	0.4	2.5	○	○			★	★	★	★	★	○	○	○	
		DNGA150408DS01225-4		12.7	4.76	5.156	0.8	2.1	○	○					★	★	★	★	○	○	○
		DNGA150412DS01225-4		12.7	4.76	5.156	1.2	2.0	○	○					★	★	★	★	○	○	○
		DNGA150602DS01225-4		12.7	6.35	5.156	0.2	2.7							★	★	★	★			
		DNGA150604DS01225-4		12.7	6.35	5.156	0.4	2.5	○	○					★	★	★	★	○	○	○
		DNGA150608DS01225-4		12.7	6.35	5.156	0.8	2.1	○	○					★	★	★	★	○	○	○
		DNGA150612DS01225-4		12.7	6.35	5.156	1.2	2.0	○	○					★	★	★	★	○	○	○
		DNGA150404DS00815-4		12.7	4.76	5.156	0.4	2.5							★	★	○				
		DNGA150408DS00815-4		12.7	4.76	5.156	0.8	2.1							★	★	○				
		DNGA150412DS00815-4		12.7	4.76	5.156	1.2	2.0							★	★	○				
Insert		DNGA150602DS00815-4	S00815	12.7	6.35	5.156	0.2	2.7					★	★	○						
		DNGA150608DS00815-4		12.7	6.35	5.156	0.8	2.1						★	★	○					
		DNGA150612DS00815-4		12.7	6.35	5.156	1.2	2.0						★	★	○					
		DNGA150404DS01735-4		12.7	4.76	5.156	0.4	2.5								○	★	○			
		DNGA150408DS01735-4		12.7	4.76	5.156	0.8	2.1								○	★	○			
		DNGA150412DS01735-4		12.7	4.76	5.156	1.2	2.0								○	★	○			
		DNGA150602DS01735-4		12.7	6.35	5.156	0.2	2.7								○	★	○			
		DNGA150604DS01735-4		12.7	6.35	5.156	0.4	2.5								○	★	○			
		DNGA150608DS01735-4		12.7	6.35	5.156	0.8	2.1								○	★	○			
		DNGA150612DS01735-4		12.7	6.35	5.156	1.2	2.0								○	★	○			

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

Applicable tool

DDJNR/L  
Kr:93°



PDJNR/L  
Kr:93°



PDPNN  
Kr:62°30'



PDPNR/L  
Kr:62°30'



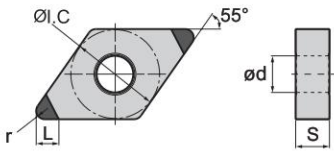
PDUNR/L  
Kr:93°



# TURNING / General Turning Inserts

## PCBN&PCD inserts

### DN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Penetration insr		DNGA150404CE-2	CE	12.7	4.76	5.156	0.4	2.5			○										
		DNGA150408CE-2		12.7	4.76	5.156	0.8	2.1			○										
		DNGA150412CE-2		12.7	4.76	5.156	1.2	2.0			○										
		DNGA150604CE-2		12.7	6.35	5.156	0.4	2.5			○										
		DNGA150608CE-2		12.7	6.35	5.156	0.8	2.1			○										
		DNGA150612CE-2		12.7	6.35	5.156	1.2	2.0			○										
		DNGA150404CT01215-2	T01215	12.7	4.76	5.156	0.4	2.5			★										
		DNGA150408CT01215-2		12.7	4.76	5.156	0.8	2.1			★										
		DNGA150412CT01215-2		12.7	4.76	5.156	1.2	2.0			★										
		DNGA150604CT01215-2		12.7	6.35	5.156	0.4	2.5			★										
		DNGA150608CT01215-2		12.7	6.35	5.156	0.8	2.1			★										
		DNGA150404CS01225-2	S01225	12.7	4.76	5.156	0.4	2.5			○										
		DNGA150408CS01225-2		12.7	4.76	5.156	0.8	2.1			○										
		DNGA150412CS01225-2		12.7	4.76	5.156	1.2	2.0			○										
		DNGA150604CS01225-2		12.7	6.35	5.156	0.4	2.5			○										
		DNGA150608CS01225-2		12.7	6.35	5.156	0.8	2.1			○										
		DNGA150612CS01225-2		12.7	6.35	5.156	1.2	2.0			○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

DDJNR/L  
Kr:93°



Page A167

PDJNR/L  
Kr:93°



A174

PDPNN  
Kr:62°30'



A175

PDPNR/L  
Kr:62°30'



A213

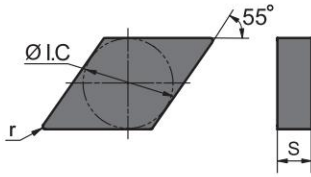
PDUNR/L  
Kr:93°



A214



**DN** (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy				
				Ø I.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Intact insert		DNGN150404BE	BE	12.7	4.76	0.4			○										
		DNGN150408BE		12.7	4.76	0.8			○										
		DNGN150412BE		12.7	4.76	1.2			○										
		DNGN150604BE		12.7	6.35	0.4			○										
		DNGN150608BE		12.7	6.35	0.8			○										
		DNGN150612BE		12.7	6.35	1.2			○										
		DNGN150404BT01215	T01215	12.7	4.76	0.4			★										
		DNGN150408BT01215		12.7	4.76	0.8			★										
		DNGN150412BT01215		12.7	4.76	1.2			★										
		DNGN150604BT01215		12.7	6.35	0.4			★										
		DNGN150608BT01215		12.7	6.35	0.8			★										
		DNGN150404BS01225	S01225	12.7	4.76	0.4			○										
		DNGN150408BS01225		12.7	4.76	0.8			○										
		DNGN150412BS01225		12.7	4.76	1.2			○										
		DNGN150604BS01225		12.7	6.35	0.4			○										
		DNGN150608BS01225		12.7	6.35	0.8			○										
		DNGN150612BS01225		12.7	6.35	1.2			○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

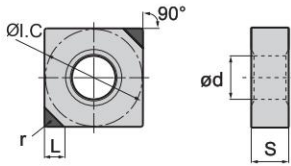
When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

# TURNING General Turning Inserts

## PCBN&PCD inserts

### SN (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy			
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Sing		SNGA120404AE-2	AE	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		SNGA120408AE-2		12.7	4.76	5.156	0.8	2.2	○	○								○	○	○
		SNGA120412AE-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		SNGA120404AE-4		12.7	4.76	5.156	0.4	2.5										○	○	○
		SNGA120408AE-4		12.7	4.76	5.156	0.8	2.2										○	○	○
		SNGA120412AE-4		12.7	4.76	5.156	1.2	2.0										○	○	○
		SNGA120404AT01215-2	T01215	12.7	4.76	5.156	0.4	2.5	○	○								○	○	○
		SNGA120408AT01215-2		12.7	4.76	5.156	0.8	2.2	○	○								○	○	○
		SNGA120412AT01215-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		SNGA120404AT01215-4		12.7	4.76	5.156	0.4	2.5										○	○	○
Ridged Insert		SNGA120404AS01225-2	S01225	12.7	4.76	5.156	0.4	2.5	○	○							○	○	○	
		SNGA120408AS01225-2		12.7	4.76	5.156	0.8	2.2	○	○								○	○	○
		SNGA120412AS01225-2		12.7	4.76	5.156	1.2	2.0	○	○								○	○	○
		SNGA120404AS01225-4		12.7	4.76	5.156	0.4	2.5					○	○	○	○	○	○	○	○
		SNGA120408AS01225-4		12.7	4.76	5.156	0.8	2.2					○	○	○	○	○	○	○	○
		SNGA120412AS01225-4		12.7	4.76	5.156	1.2	2.0					○	○	○	○	○	○	○	○
		SNGA120404AS00815-4	S00815	12.7	4.76	5.156	0.4	2.5					○	○	○					
		SNGA120408AS00815-4		12.7	4.76	5.156	0.8	2.2					○	○	○					
		SNGA120412AS00815-4		12.7	4.76	5.156	1.2	2.0					○	○	○					
		SNGA120404AS01735-4	S01735	12.7	4.76	5.156	0.4	2.5								○	○	○		
		SNGA120408AS01735-4		12.7	4.76	5.156	0.8	2.2								○	○	○		
		SNGA120412AS01735-4		12.7	4.76	5.156	1.2	2.0								○	○	○		

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

### Applicable tool

DSBNR/L  
Kr:75°



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PSBNR/L  
Kr:75°



A176

PSDNN  
Kr:45°



A177

PSKNR/L  
Kr:75°



A178

PSSNR/L  
Kr:45°



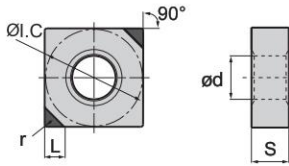
A179

PSKNR/L  
Kr:75°



A215

**SN** (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy					
				Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011		
Double-sided in-		SNGA120404DE-4	DE	12.7	4.76	5.156	0.4	2.5	○	○												
		SNGA120408DE-4		12.7	4.76	5.156	0.8	2.2	○	○												
		SNGA120412DE-4		12.7	4.76	5.156	1.2	2.0	○	○												
		SNGA120404DT01215-4	T01215	12.7	4.76	5.156	0.4	2.5	★	★												
		SNGA120408DT01215-4		12.7	4.76	5.156	0.8	2.2	★	★												
		SNGA120412DT01215-4		12.7	4.76	5.156	1.2	2.0	★	★												
		SNGA120404DS01225-4	S01225	12.7	4.76	5.156	0.4	2.5	○	○												
		SNGA120408DS01225-4		12.7	4.76	5.156	0.8	2.2	○	○												
		SNGA120412DS01225-4		12.7	4.76	5.156	1.2	2.0	○	○												
		SNGA120404DS01225-8		12.7	4.76	5.156	0.4	2.5														
SNGA120408DS01225-8		12.7	4.76	5.156	0.8	2.2																
SNGA120404DS00815-8	S00815	12.7	4.76	5.156	0.4	2.5																
SNGA120408DS00815-8		12.7	4.76	5.156	0.8	2.2																
SNGA120412DS00815-8		12.7	4.76	5.156	1.2	2.0																
SNGA120404DS01735-8	S01735	12.7	4.76	5.156	0.4	2.5																
SNGA120408DS01735-8		12.7	4.76	5.156	0.8	2.2																
SNGA120412DS01735-8		12.7	4.76	5.156	1.2	2.0																

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

Applicable tool



Page A168



A176



A177



A178



A179

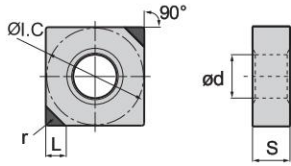


A215

# TURNING General Turning Inserts

## PCBN&PCD inserts

**SN** (Negative angle)



😊 Good working condition   😐 Normal working condition   ☹ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Penetration insr		SNGA120404CE-2	CE	12.7	4.76	5.156	0.4	2.5			○										
		SNGA120408CE-2		12.7	4.76	5.156	0.8	2.2			○										
		SNGA120412CE-2		12.7	4.76	5.156	1.2	2.0			○										
		SNGA120404CE-4		12.7	4.76	5.156	0.4	2.5			○										
		SNGA120408CE-4		12.7	4.76	5.156	0.8	2.2			○										
		SNGA120412CE-4		12.7	4.76	5.156	1.2	2.0			○										
		SNGA120404CT01215-4	T01215	12.7	4.76	5.156	0.4	2.5			★										
		SNGA120408CT01215-4		12.7	4.76	5.156	0.8	2.2			★										
		SNGA120412CT01215-4		12.7	4.76	5.156	1.2	2.0			★										
		SNGA120404CT01215-2		12.7	4.76	5.156	0.4	2.5			★										
		SNGA120408CT01215-2		12.7	4.76	5.156	0.8	2.2			★										
		SNGA120404CS01225-4	S01225	12.7	4.76	5.156	0.4	2.5			○										
		SNGA120408CS01225-4		12.7	4.76	5.156	0.8	2.2			○										
		SNGA120412CS01225-4		12.7	4.76	5.156	1.2	2.0			○										
		SNGA120404CS01225-2		12.7	4.76	5.156	0.4	2.5			○										
		SNGA120408CS01225-2		12.7	4.76	5.156	0.8	2.2			○										
		SNGA120412CS01225-2		12.7	4.76	5.156	1.2	2.0			○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

### Applicable tool

**DSBNR/L**  
Kr:75°



Page A168

**PSBNR/L**  
Kr:75°



A176

**PSDNN**  
Kr:45°



A177

**PSKNR/L**  
Kr:75°



A178

**PSSNR/L**  
Kr:45°



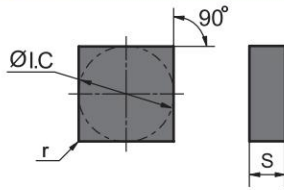
A179

**PSKNR/L**  
Kr:75°



A215

**SN** (Negative angle)



😊 Good working condition    😐 Normal working condition    ☹️ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Intact insert		SNGN120404BE	BE	12.7	4.76	0.4			○										
		SNGN120408BE		12.7	4.76	0.8			○										
		SNGN120412BE		12.7	4.76	1.2			○										
		SNGN120404BT01215	T01215	12.7	4.76	0.4			★										
		SNGN120408BT01215		12.7	4.76	0.8			★										
		SNGN120412BT01215		12.7	4.76	1.2			★										
		SNGN120404BS01225	S01225	12.7	4.76	0.4			○										
		SNGN120408BS01225		12.7	4.76	0.8			○										
		SNGN120412BS01225		12.7	4.76	1.2			○										

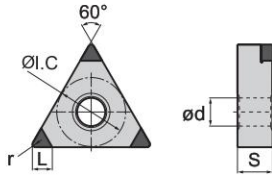
According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

# TURNING General Turning Inserts

## PCBN&PCD inserts

### TN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

General turning

PCBN&PCD inserts

Type	Shape of insert	Model	Specification	Dimension(mm)					Cast iron				Hardened steel				Alloy Superalloy			
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Single-sided insert		TNGA160404AE-3	AE	9.525	4.76	3.81	0.4	2.5	○	○							○	○	○	
		TNGA160408AE-3		9.525	4.76	3.81	0.8	2.2	○	○								○	○	○
		TNGA160412AE-3		9.525	4.76	3.81	1.2	2.0	○	○								○	○	○
		TNGA160404AT01215-3		9.525	4.76	3.81	0.4	2.5	○	○								○	○	○
		TNGA160408AT01215-3	T01215	9.525	4.76	3.81	0.8	2.2	○	○								○	○	○
		TNGA160412AT01215-3		9.525	4.76	3.81	1.2	2.0	○	○								○	○	○
		TNGA160404AS01225-3		S01225	9.525	4.76	3.81	0.4	2.5	○	○			○	○	○	○	○	○	○
		TNGA160408AS01225-3	9.525		4.76	3.81	0.8	2.2	○	○			○	○	○	○	○	○	○	○
		TNGA160412AS01225-3	9.525		4.76	3.81	1.2	2.0	○	○			○	○	○	○	○	○	○	○
		TNGA160404AS00815-3	S00815	9.525	4.76	3.81	0.4	2.5					○	○	○					
TNGA160408AS00815-3	9.525	4.76		3.81	0.8	2.2					○	○	○							
Double-sided insert		TNGA160404AS01735-3	S01735	9.525	4.76	3.81	0.4	2.5					○	○	○					
		TNGA160408AS01735-3		9.525	4.76	3.81	0.8	2.2					○	○	○					
		TNGA160412AS01735-3		9.525	4.76	3.81	1.2	2.0					○	○	○					
		TNGA160404DE-6	DE	9.525	4.76	3.81	0.4	2.5	○	○							○	○	○	
		TNGA160408DE-6		9.525	4.76	3.81	0.8	2.2	○	○							○	○	○	
		TNGA160412DE-6		9.525	4.76	3.81	1.2	2.0	○	○							○	○	○	
TNGA160404DT01215-6	T01215	9.525	4.76	3.81	0.4	2.5	★	★							★	★	★			
TNGA160408DT01215-6		9.525	4.76	3.81	0.8	2.2	★	★							★	★	★			
TNGA160412DT01215-6		9.525	4.76	3.81	1.2	2.0	★	★							★	★	★			

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

DTGNR/L  
Kr:90°



Page A169

PTFNR/L  
Kr:90°



A180

PTTNR/L  
Kr:60°



A181

PTGNR/L  
Kr:90°



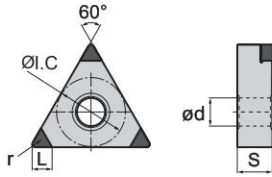
A182

PTFNR/L  
Kr:90°



A216

**TN** (Negative angle)



😊 Good working condition    😐 Normal working condition    ☹ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- -cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy			
				Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Double-sided insert		TNGA160404DS01225-6	S01225	9.525	4.76	3.81	0.4	2.5	○	○			★	★	★	★	★	○	○	○
		TNGA160408DS01225-6		9.525	4.76	3.81	0.8	2.2	○	○			★	★	★	★	★	○	○	○
		TNGA160412DS01225-6		9.525	4.76	3.81	1.2	2.0	○	○			★	★	★	★	★	○	○	○
		TNGA160404DS00815-6	S00815	9.525	4.76	3.81	0.4	2.5						★	★	○				
		TNGA160408DS00815-6		9.525	4.76	3.81	0.8	2.2						★	★	○				
		TNGA160412DS00815-6		9.525	4.76	3.81	1.2	2.0						★	★	○				
		TNGA160404DS01735-6	S01735	9.525	4.76	3.81	0.4	2.5								○	★	○		
		TNGA160408DS01735-6		9.525	4.76	3.81	0.8	2.2							○	★	○			
		TNGA160412DS01735-6		9.525	4.76	3.81	1.2	2.0							○	★	○			
		TNGA160404CE-3	CF	9.525	4.76	3.81	0.4	2.5			○									
		TNGA160408CF-3		9.525	4.76	3.81	0.8	2.2			○									
Penetration insert		TNGA160404CT01215-3	T01215	9.525	4.76	3.81	0.4	2.5			★									
		TNGA160408CT01215-3		9.525	4.76	3.81	0.8	2.2			★									
		TNGA160412CT01215-3		9.525	4.76	3.81	1.2	2.0			★									
		TNGA160404CS01225-3	S01225	9.525	4.76	3.81	0.4	2.5			○									
		TNGA160408CS01225-3		9.525	4.76	3.81	0.8	2.2			○									
		TNGA160412CS01225-3		9.525	4.76	3.81	1.2	2.0			○									

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

Applicable tool

DTGNR/L  
Kr:90°



Page A169

PTFNR/L  
Kr:90°



A180

PTTNR/L  
Kr:60°



A181

PTGNR/L  
Kr:90°



A182

PTFNR/L  
Kr:90°

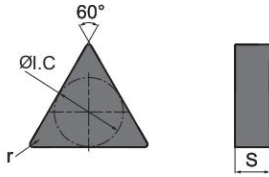


A216

# TURNING / General Turning Inserts

## PCBN&PCD inserts

### TN□□ (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- -cation	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy				
				Ø1.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Intact insert		TNGN160404BE	BE	9.525	4.76	0.4			○										
		TNGN160408BE		9.525	4.76	0.8			○										
		TNGN160412BE		9.525	4.76	1.2			○										
		TNGN160404BT01215	T01215	9.525	4.76	0.4			★										
		TNGN160408BT01215		9.525	4.76	0.8			★										
		TNGN160412BT01215		9.525	4.76	1.2			★										
		TNGN160404BS01225	S01225	9.525	4.76	0.4			○										
		TNGN160408BS01225		9.525	4.76	0.8			○										
		TNGN160412BS01225		9.525	4.76	1.2			○										

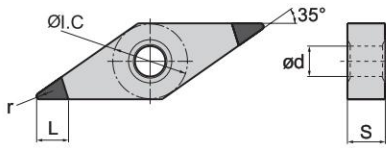
According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order



**VN** (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Single-sided insert		VNGA160404AE-2	AE	9.525	4.76	3.81	0.4	2.8										○	○	○	
		VNGA160408AE-2		9.525	4.76	3.81	0.8	2.5											○	○	○
		VNGA160412AE-2		9.525	4.76	3.81	1.2	2.0											○	○	○
		VNGA160404AT01215-2		9.525	4.76	3.81	0.4	2.8											○	○	○
		VNGA160408AT01215-2	T01215	9.525	4.76	3.81	0.8	2.5											○	○	○
		VNGA160412AT01215-2		9.525	4.76	3.81	1.2	2.0											○	○	○
		VNGA160404AS01225-2		S01225	9.525	4.76	3.81	0.4	2.8				○	○	○	○	○	○	○	○	○
		VNGA160408AS01225-2	9.525		4.76	3.81	0.8	2.5				○	○	○	○	○	○	○	○	○	○
		VNGA160412AS01225-2	9.525		4.76	3.81	1.2	2.0				○	○	○	○	○	○	○	○	○	○
		VNGA160404AS00815-2	S00815	9.525	4.76	3.81	0.4	2.8				○	○	○							
		VNGA160408AS00815-2		9.525	4.76	3.81	0.8	2.5				○	○	○							
Double-sided insert		VNGA160404AS01735-2	S01735	9.525	4.76	3.81	0.4	2.8				○	○	○							
		VNGA160408AS01735-2		9.525	4.76	3.81	0.8	2.5					○	○	○						
		VNGA160412AS01735-2		9.525	4.76	3.81	1.2	2.0					○	○	○						
		VNGA160404DE-4	DE	9.525	4.76	3.81	0.4	2.8										○	○	○	
		VNGA160408DE-4		9.525	4.76	3.81	0.8	2.5										○	○	○	
		VNGA160412DE-4		9.525	4.76	3.81	1.2	2.0										○	○	○	
		VNGA160404DT01215-4	T01215	9.525	4.76	3.81	0.4	2.8										★	★	★	
VNGA160408DT01215-4	9.525	4.76		3.81	0.8	2.5										★	★	★			
VNGA160412DT01215-4	9.525	4.76		3.81	1.2	2.0										★	★	★			

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)   ○ Make-to-order

Applicable tool

DVNN  
Kr:72°30'



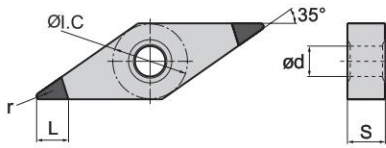
DVJNR/L  
Kr:93°



# TURNING General Turning Inserts

## PCBN&PCD inserts

### VN (Negative angle)



😊 Good working condition   😐 Normal working condition   ☹ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Double-sided insert		VNGA160404DS01225-4	S01225	9.525	4.76	3.81	0.4	2.8					★	★	★	★	★	○	○	○	
		VNGA160408DS01225-4		9.525	4.76	3.81	0.8	2.5							★	★	★	★	○	○	○
		VNGA160412DS01225-4		9.525	4.76	3.81	1.2	2.0								★	★	★	★	○	○
		VNGA160404DS00815-4	S00815	9.525	4.76	3.81	0.4	2.8							★	★	○				
		VNGA160408DS00815-4		9.525	4.76	3.81	0.8	2.5							★	★	○				
		VNGA160412DS00815-4		9.525	4.76	3.81	1.2	2.0								★	★	○			
		VNGA160404DS01735-4	S01735	9.525	4.76	3.81	0.4	2.8									○	★	○		
		VNGA160408DS01735-4		9.525	4.76	3.81	0.8	2.5									○	★	○		
		VNGA160412DS01735-4		9.525	4.76	3.81	1.2	2.0									○	★	○		
Penetration insert		VNGA160402CE-2		9.525	4.76	3.81	0.2	3.3			○										
		VNGN160404CF-2		9.525	4.76	3.81	0.4	2.8			○										
		VNGN160412CE-2	T01215	9.525	4.76	3.81	1.2	2.0			○										
		VNGA160402CT01215-2		9.525	4.76	3.81	0.2	3.3			★										
		VNGN160404CT01215-2		9.525	4.76	3.81	0.4	2.8			★										
		VNGN160408CT01215-2		9.525	4.76	3.81	0.8	2.5			★										
		VNGN160412CT01215-2		9.525	4.76	3.81	1.2	2.0			★										
		VNGA160402CS01225-2	S01225	9.525	4.76	3.81	0.2	3.3			○										
		VNGN160404CS01225-2		9.525	4.76	3.81	0.4	2.8			○										
		VNGN160408CS01225-2		9.525	4.76	3.81	0.8	2.5													
VNGN160412CS01225-2	9.525	4.76		3.81	1.2	2.0					○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

### Applicable tool

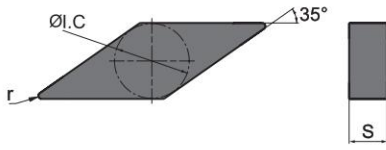
DVNN  
Kr:72°30'



DVJNR/L  
Kr:93°



**VN** (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy					
				Ø1.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011		
Intact insert		VNGN160402BE	BE	9.525	4.76	0.4			○											
		VNGN160404BE		9.525	4.76	0.4			○											
		VNGN160408BE		9.525	4.76	0.8														
		VNGN160412BE		9.525	4.76	1.2			○											
		VNGN160402BT01215	T01215	9.525	4.76	0.4			★											
		VNGN160404BT01215		9.525	4.76	0.4			★											
		VNGN160408BT01215		9.525	4.76	0.8			★											
		VNGN160412BT01215		9.525	4.76	1.2			★											
		VNGN160402BS01225	S01225	9.525	4.76	0.4			○											
		VNGN160404BS01225		9.525	4.76	0.4			○											
		VNGN160408BS01225		9.525	4.76	0.8														
		VNGN160412BS01225		9.525	4.76	1.2														

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

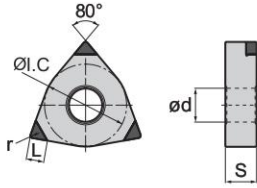
When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

# TURNING General Turning Inserts

## PCBN&PCD inserts

### WN (Negative angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- -cation	Dimension(mm)					Cast iron				Hardened steel				alloy Superalloy					
				Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011		
Single-sided insert		WNGA080404AE-3	AE	12.7	4.76	5.16	0.4	2.5										○	○	○		
		WNGA080408AE-3		12.7	4.76	5.16	0.8	2.4											○	○	○	
		WNGA080412AE-3		12.7	4.76	5.16	1.2	2.3												○	○	○
		WNGA080404AT01215-3		12.7	4.76	5.16	0.4	2.5												○	○	○
		WNGA080408AT01215-3	T01215	12.7	4.76	5.16	0.8	2.4												○	○	○
		WNGA080412AT01215-3		12.7	4.76	5.16	1.2	2.3												○	○	○
		WNGA080404AS01225-3		S01225	12.7	4.76	5.16	0.4	2.5					○	○	○	○	○	○	○	○	○
		WNGA080408AS01225-3	12.7		4.76	5.16	0.8	2.4					○	○	○	○	○	○	○	○	○	
		WNGA080412AS01225-3	12.7		4.76	5.16	1.2	2.3					○	○	○	○	○	○	○	○	○	○
		WNGA080404AS00815-3	S00815		12.7	4.76	5.16	0.4	2.5					○	○	○						
		WNGA080408AS00815-3		12.7	4.76	5.16	0.8	2.4					○	○	○							
WNGA080412AS00815-3	12.7	4.76		5.16	1.2	2.3					○	○	○									
Double-sided insert		WNGA080404AS01735-3	S01735	12.7	4.76	5.16	0.4	2.5														
		WNGA080408AS01735-3		12.7	4.76	5.16	0.8	2.4														
		WNGA080412AS01735-3		12.7	4.76	5.16	1.2	2.3														
		WNGA080404DE-6	DE	12.7	4.76	5.16	0.4	2.5	○	○												
		WNGA080408DE-6		12.7	4.76	5.16	0.8	2.4	○	○												
		WNGA080412DE-6		12.7	4.76	5.16	1.2	2.3	○	○												
WNGA080404DT01215-6	T01215	12.7	4.76	5.16	0.4	2.5	★	★														
WNGA080408DT01215-6		12.7	4.76	5.16	0.8	2.4	★	★														
WNGA080412DT01215-6		12.7	4.76	5.16	1.2	2.3	★	★														

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

### Applicable tool

DWLN/L  
Kr:95°



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PWLN/L  
Kr:95°



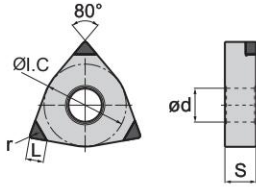
A183

PWLN/L  
Kr:95°



A217

**WN** (Negative angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Type	Shape of insert	Model	Specifi- cation	Dimension(mm)					Cast iron				Hardened steel				Alloy Superalloy					
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011		
Double-sided insert		WNGA080404DS01225-6	S01225	12.7	4.76	5.16	0.4	2.5	○	○												
		WNGA080408DS01225-6		12.7	4.76	5.16	0.8	2.4	○	○												
		WNGA080412DS01225-6		12.7	4.76	5.16	1.2	2.3	○	○												
		WNGA080404DS00815-6	S00815	12.7	4.76	3.81	0.4	2.5				★	★	○								
		WNGA080408DS00815-6		12.7	4.76	3.81	0.8	2.2				★	★	○								
		WNGA080412DS00815-6		12.7	4.76	3.81	1.2	2.0				★	★	○								
		WNGA080404DS01225-6	S01225	12.7	4.76	3.81	0.4	2.5								★	★	★	★	★		
		WNGA080408DS01225-6		12.7	4.76	3.81	0.8	2.2								★	★	★	★	★		
		WNGA080412DS01225-6		12.7	4.76	3.81	1.2	2.0								★	★	★	★	★		
		WNGA080404DS01735-6	S01735	12.7	4.76	3.81	0.4	2.5									○	★	○			
WNGA080408DS01735-6	12.7	4.76		3.81	0.8	2.2									○	★	○					
Penetration insert		WNGA080404CE-3	CE	12.7	4.76	5.16	0.4	2.5		○												
		WNGN080408CE-3		12.7	4.76	5.16	0.8	2.4		○												
		WNGN080412CE-3		12.7	4.76	5.16	1.2	2.3		○												
		WNGA080404CT01215-3	T01215	12.7	4.76	5.16	0.4	2.5		★												
		WNGN080408CT01215-3		12.7	4.76	5.16	0.8	2.4		★												
		WNGN080412CT01215-3		12.7	4.76	5.16	1.2	2.3		★												
		WNGA080404CS01225-3	S01225	12.7	4.76	5.16	0.4	2.5		○												
		WNGN080408CS01225-3		12.7	4.76	5.16	0.8	2.4		○												
		WNGN080412CS01225-3		12.7	4.76	5.16	1.2	2.3		○												

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

Applicable tool

DWLN/L  
Kr:95°



Page A171

PWLN/L  
Kr:95°



A183

PWLN/L  
Kr:95°

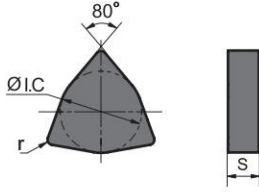


A217

# TURNING / General Turning Inserts

## PCBN&PCD inserts

**WN**   (Negative angle)




😊 Good working condition    😐 Normal working condition    ☹️ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

General turning

F

PCD inserts

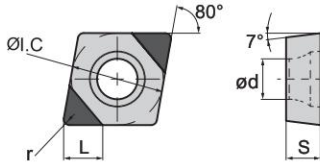
Type	Shape of insert	Model	Specifi- cation	Dimension(mm)			Cast iron				Hardened steel				alloy Superalloy				
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011	
Intact insert		WNGN080404BE	BE	12.7	4.76	0.4			○										
		WNGN080408BE		12.7	4.76	0.8			○										
		WNGN080412BE		12.7	4.76	1.2			○										
		WNGN080404BT01215	T01215	12.7	4.76	0.4			★										
		WNGN080408BT01215		12.7	4.76	0.8			★										
		WNGN080412BT01215		12.7	4.76	1.2			★										
		WNGN080404BS01225	S01225	12.7	4.76	0.4			○										
		WNGN080408BS01225		12.7	4.76	0.8			○										
		WNGN080412BS01225		12.7	4.76	1.2			○										

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)    ○ Make-to-order

**CC** (Positive angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Insert shape	Specification	Dimension (mm)					Cast iron				Hardened steel				Superalloy			
		Ø1.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	CCGW060202AE-2	6.35	2.38	2.8	0.2	2.5	○	○								○	○	○
	CCGW060204AE-2	6.35	2.38	2.8	0.4	2.5	○	○								○	○	○
	CCGW060208AE-2	6.35	2.38	2.8	0.8	2.4	○	○								○	○	○
	CCGW060202AS01225-2	6.35	2.38	2.8	0.2	2.5					○	○	○	○		○	○	○
	CCGW060204AS01225-2	6.35	2.38	2.8	0.4	2.5					○	○	○	○		○	○	○
	CCGW060208AS01225-2	6.35	2.38	2.8	0.8	2.4					○	○	○	○		○	○	○
	CCGW060202AT01225-2	6.35	2.38	2.8	0.2	2.5	○	○								○	○	○
	CCGW060204AT01225-2	6.35	2.38	2.8	0.4	2.5	○	○								○	○	○
	CCGW060208AT01225-2	6.35	2.38	2.8	0.8	2.4	○	○								○	○	○
	CCGW09T302AE-2	9.525	3.97	4.4	0.2	2.5	○	○								○	○	○
CCGW09T304AE-2	9.525	3.97	4.4	0.4	2.5	○	○								○	○	○	
	CCGW09T302AS01225-2	9.525	3.97	4.4	0.2	2.5					○	○	○	○		○	○	○
	CCGW09T304AS01225-2	9.525	3.97	4.4	0.4	2.5					○	○	○	○		○	○	○
	CCGW09T308AS01225-2	9.525	3.97	4.4	0.8	2.4					○	○	○	○		○	○	○
	CCGW09T302AT01225-2	9.525	3.97	4.4	0.2	2.5	○	○								○	○	○
	CCGW09T304AT01225-2	9.525	3.97	4.4	0.4	2.5	○	○								○	○	○
	CCGW09T308AT01225-2	9.525	3.97	4.4	0.8	2.4	○	○								○	○	○
	CCGW120402AE-2	12.7	4.76	5.5	0.2	2.5	○	○								○	○	○
	CCGW120404AE-2	12.7	4.76	5.5	0.4	2.5	○	○								○	○	○
	CCGW120408AE-2	12.7	4.76	5.5	0.8	2.4	○	○								○	○	○
	CCGW120402AS01225-2	12.7	4.76	5.5	0.2	2.5					○	○	○	○		○	○	○
CCGW120404AS01225-2	12.7	4.76	5.5	0.4	2.5					○	○	○	○		○	○	○	
CCGW120408AS01225-2	12.7	4.76	5.5	0.8	2.4					○	○	○	○		○	○	○	
CCGW120402AT01225-2	12.7	4.76	5.5	0.2	2.5	○	○								○	○	○	
CCGW120404AT01225-2	12.7	4.76	5.5	0.4	2.5	○	○								○	○	○	
CCGW120408AT01225-2	12.7	4.76	5.5	0.8	2.4	○	○								○	○	○	

For standard tool nose arcs can be provided.

depth below 0.01mm.

★ Recommended grade (always stock available) ○ Make-to-order

Applicable tool

SCACR/L  
Kr:90°



A184

SCLCR/L  
Kr:95°



A185

SCLCR/L  
Kr:95°



A218

SCFCR/L  
Kr:90°



A232

SCLCR/L  
Kr:95°



A233

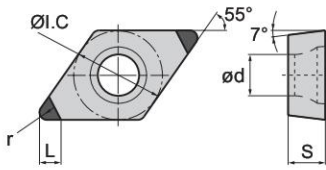
General turning

PCBN&PCD inserts

# TURNING General Turning Inserts


## PCBN&PCD inserts

### DC (Positive angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Insert shape	Specification	Dimension (mm)					Cast iron				Hardened steel				Alloy Superalloy			
		ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	DCGW070202AE-2	6.35	2.38	2.8	0.2	2.7	○	○								○	○	○
	DCGW070204AE-2	6.35	2.38	2.8	0.4	2.5	○	○								○	○	○
	DCGW070208AE-2	6.35	2.38	2.8	0.8	2.1	○	○								○	○	○
	DCGW070202AS01225-2	6.35	2.38	2.8	0.2	2.7					○	○	○	○		○	○	○
	DCGW070204AS01225-2	6.35	2.38	2.8	0.4	2.5					○	○	○	○		○	○	○
	DCGW070208AS01225-2	6.35	2.38	2.8	0.8	2.1					○	○	○	○		○	○	○
	DCGW070202AT01225-2	6.35	2.38	2.8	0.2	2.7	○	○								○	○	○
	DCGW070204AT01225-2	6.35	2.38	2.8	0.4	2.5	○	○								○	○	○
	DCGW070208AT01225-2	6.35	2.38	2.8	0.8	2.1	○	○								○	○	○
	DCGW11T302AE-2	9.525	3.97	4.4	0.2	2.7	○	○								○	○	○
	DCGW11T308AE-2	9.525	3.97	4.4	0.8	2.1	○	○								○	○	○
	DCGW11T302AS01225-2	9.525	3.97	4.4	0.2	2.7					○	○	○	○		○	○	○
	DCGW11T304AS01225-2	9.525	3.97	4.4	0.4	2.5					○	○	○	○		○	○	○
	DCGW11T308AS01225-2	9.525	3.97	4.4	0.8	2.1					○	○	○	○		○	○	○
DCGW11T302AT01225-2	9.525	3.97	4.4	0.2	2.7	○	○								○	○	○	
DCGW11T304AT01225-2	9.525	3.97	4.4	0.4	2.5	○	○								○	○	○	
DCGW11T308AT01225-2	9.525	3.97	4.4	0.8	2.1	○	○								○	○	○	

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available) ○ Make-to-order

### Applicable tool

**SDACR/L**  
Kr:90°



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**SDJCR/L**  
Kr:93°



A187

**SDNCN**  
Kr:62°30'



A188

**SDQCR/L**  
Kr:107°30'



A219

**SDUCR/L**  
Kr:93°



A220

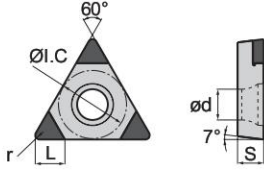
**SDZCR/L**  
Kr:95°



A221



**TC** (Positive angle)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Insert shape	Specification	Dimension(mm)					Cast iron				Hardened steel				Alloy Superalloy			
		ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	TCGW090202AE-3	5.56	2.38	2.5	0.2	2.5	○	○								○	○	○
	TCGW090204AE-3	5.56	2.38	2.5	0.4	2.5	○	○								○	○	○
	TCGW090208AE-3	5.56	2.38	2.5	0.8	2.2	○	○								○	○	○
	TCGW090202AS01225-3	5.56	2.38	2.5	0.2	2.5					○	○	○	○		○	○	○
	TCGW090204AS01225-3	5.56	2.38	2.5	0.4	2.5					○	○	○	○		○	○	○
	TCGW090208AS01225-3	5.56	2.38	2.5	0.8	2.2					○	○	○	○		○	○	○
	TCGW090202AT01225-3	5.56	2.38	2.5	0.2	2.5	○	○								○	○	○
	TCGW090204AT01225-3	5.56	2.38	2.5	0.4	2.5	○	○								○	○	○
	TCGW090208AT01225-3	5.56	2.38	2.5	0.8	2.2	○	○								○	○	○
	TCGW110202AE-3	6.35	2.38	2.8	0.2	2.5	○	○								○	○	○
	TCGW110208AE-3	6.35	2.38	2.8	0.8	2.2	○	○							○	○	○	
	TCGW110202AS01225-3	6.35	2.38	2.8	0.2	2.5					○	○	○	○		○	○	○
	TCGW110204AS01225-3	6.35	2.38	2.8	0.4	2.5					○	○	○	○		○	○	○
	TCGW110208AS01225-3	6.35	2.38	2.8	0.8	2.2					○	○	○	○		○	○	○
	TCGW110202AT01225-3	6.35	2.38	2.8	0.2	2.5	○	○							○	○	○	
	TCGW110204AT01225-3	6.35	2.38	2.8	0.4	2.5	○	○							○	○	○	
	TCGW110208AT01225-3	6.35	2.38	2.8	0.8	2.2	○	○							○	○	○	

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

When using PCBN blades, please try to keep the cutting depth below 0.5mm.

★ Recommended grade (always stock available)   ○ Make-to-order

Applicable tool

STACR/L  
Kr:90°



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STFCR/L  
Kr:90°



A198

STGCR/L  
Kr:91°



A199

STECR/L  
Kr:60°



A200

STFCR/L  
Kr:90°

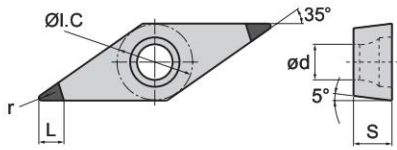


A223

# TURNING General Turning Inserts

## PCBN&PCD inserts

### VB (Positive angle)



😊 Good working condition    😐 Normal working condition    ☹ Bad working condition

Workpiece material	K	S	H	N
<b>K</b> Cast iron	😊😊😊😊			
<b>S</b> Heat resistant alloy, Ti alloy		😊😊😊		
<b>H</b> Super hard material			😊😊😊😊	
<b>N</b> Non ferrous metal				😊😊😊😊

Insert shape	Specification	Dimension(mm)					Cast iron				Hardened steel				Inconel Superalloy			
		ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	<b>VBGW160402AE-2</b>	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	<b>VBGW160404AE-2</b>	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	<b>VBGW160408AE-2</b>	9.525	4.76	4.4	0.8	2.5	○	○								○	○	○
	<b>VBGW160402AS01225-2</b>	9.525	4.76	4.4	0.2	3.3					○	○	○	○		○	○	○
	<b>VBGW160404AS01225-2</b>	9.525	4.76	4.4	0.4	2.8					○	○	○	○		○	○	○
	<b>VBGW160408AS01225-2</b>	9.525	4.76	4.4	0.8	2.5					○	○	○	○		○	○	○
	<b>VBGW160402AT01225-2</b>	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	<b>VBGW160404AT01225-2</b>	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	<b>VBGW160408AT01225-2</b>	9.525	4.76	4.4	0.8	2.5	○	○								○	○	○

According to processing requirements, the size and number of

When using PCBN blades, please try to keep the cutting

### Applicable tool

**SVJBR/L**  
Kr:93°



Page A189

**SVABR/L**  
Kr:90°



A190

**SVVBN**  
Kr:72°30'



A191

**SVQBR/L**  
Kr:107°30'



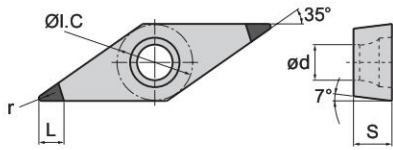
A226

**SVUBR/L**  
Kr:93°



A227

**VC** (Positive angle)



😊 Good working condition    😐 Normal working condition    ☹️ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
K	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
S	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
H	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊
N	😊😊😊😊	😊😊😊😊	😊😊😊😊	😊😊😊😊

Insert shape	Specification	Dimension(mm)					Cast iron					Hardened steel			alloy Superalloy			
		ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	VCGW160402AE-2	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	VCGW160404AE-2	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	VCGW160408AE-2	9.525	4.76	4.4	0.8	2.5	○	○								○	○	○
	VCGW160402AS01225-2	9.525	4.76	4.4	0.2	3.3					○	○	○	○		○	○	○
	VCGW160404AS01225-2	9.525	4.76	4.4	0.4	2.8					○	○	○	○		○	○	○
	VCGW160408AS01225-2	9.525	4.76	4.4	0.8	2.5					○	○	○	○		○	○	○
	VCGW160402AT01225-2	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	VCGW160404AT01225-2	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	VCGW160408AT01225-2	9.525	4.76	4.4	0.8	2.5	○	○								○	○	○

According to processing requirements, the size and number of

When using PCBN blades, please try to keep the cutting

Applicable tool

**SWCN**  
Kr:72°30'



**SVJCR/L**  
Kr:93°



**SVOCR/L**  
Kr:107°30'



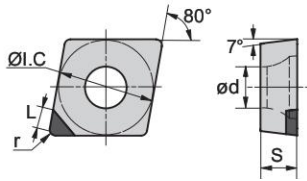
**SVUCR/L**  
Kr:93°



# TURNING General Turning Inserts

## PCBN&PCD inserts

### CC□□ (Positive angle)



😊 Good working condition   🟡 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
<b>K</b>				
<b>S</b>				
<b>H</b>				
<b>N</b>				

Type	Shape	Specification	Dimension(mm)					Grade			
			ØI.C	S	ød	r	L	DN0121	DN0511	DN1021	DN3021
0° rake angle		CCGW060202AF	6.35	2.38	2.8	0.2	2.6	○	○	○	○
		CCGW060204AF	6.35	2.38	2.8	0.4	2.5	★	★	★	★
		CCGW060208AF	6.35	2.38	2.8	0.8	2.4	○	○	○	○
		CCGW09T302AF	9.525	3.97	4.4	0.2	2.6	○	○	○	○
		CCGW09T304AF	9.525	3.97	4.4	0.4	2.5	○	○	○	○
		CCGW09T308AF	9.525	3.97	4.4	0.8	2.4	★	★	★	★
		CCGW120402AF	12.7	4.76	5.5	0.2	2.6	○	○	○	○
		CCGW120404AF	12.7	4.76	5.5	0.4	2.5	○	○	○	○
		CCGW120408AF	12.7	4.76	5.5	0.8	2.4	★	★	★	★
7° rake angle		CCMX060202AF	6.35	2.38	2.8	0.2	2.6	○	○	○	○
		CCMX060208AF	6.35	2.38	2.8	0.8	2.4	○	○	○	○
		CCMX09T302AF	9.525	3.97	4.4	0.2	2.6	○	○	○	○
		CCMX09T304AF	9.525	3.97	4.4	0.4	2.5	○	○	○	○
		CCMX09T308AF	9.525	3.97	4.4	0.8	2.4	○	○	○	○
		CCMX120402AF	12.7	4.76	5.5	0.2	2.6	○	○	○	○
		CCMX120404AF	12.7	4.76	5.5	0.4	2.5	○	○	○	○
		CCMX120408AF	12.7	4.76	5.5	0.8	2.4	○	○	○	○

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

SCACR/L  
Kr:90°



Page A184

SCLCR/L  
Kr:95°



A185

SCLCR/L  
Kr:95°



A218

SCFCR/L  
Kr:90°



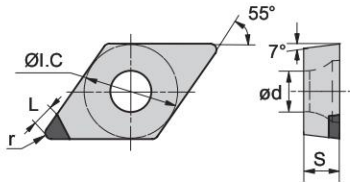
A232

SCLCR/L  
Kr:95°



A233

**DC** (Positive angle)



😊 Good working condition    😐 Normal working condition    😞 Bad working condition

Workpiece material	<b>K</b> Cast iron				
	<b>S</b> Heat resistant alloy, Ti alloy				
	<b>H</b> Super hard material				
	<b>N</b> Non ferrous metal	😊	😊	😊	😊

Type	Shape	Specification	Dimension(mm)					Grade			
			ØI.C	S	ød	r	L	DN0121	DN0511	DN1021	DN3021
0° rake angle		DCGW070202AF	6.35	2.38	2.8	0.2	2.7	○	○	○	○
		DCGW070204AF	6.35	2.38	2.8	0.4	2.5	○	○	○	○
		DCGW070208AF	6.35	2.38	2.8	0.8	2.1	★	★	★	★
		DCGW11T302AF	9.525	3.97	4.4	0.2	2.7	○	○	○	○
		DCGW11T304AF	9.525	3.97	4.4	0.4	2.5	○	○	○	○
		DCGW11T308AF	9.525	3.97	4.4	0.8	2.1	★	★	★	★
7° rake an		DCMX070202AF	6.35	2.38	2.8	0.2	2.7	○	○	○	○
		DCMX070204AF	6.35	2.38	2.8	0.4	2.5	○	○	○	○
		DCMX070208AF	6.35	2.38	2.8	0.8	2.1	○	○	○	○
		DCMX11T302AF	9.525	3.97	4.4	0.2	2.7	○	○	○	○
		DCMX11T308AF	9.525	3.97	4.4	0.8	2.1	○	○	○	○

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

★ Recommended grade (always stock available)    ○ Make-to-order

Applicable tool

**SDACR/L**  
Kr:90°



Page A186

**SDJCR/L**  
Kr:93°



A187

**SDNCN**  
Kr:62°30'



A188

**SDQCR/L**  
Kr:107°30'



A219

**SDUCR/L**  
Kr:93°



A220

**SDZCR/L**  
Kr:95°

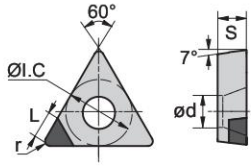


A221

# TURNING / General Turning Inserts

PCBN&PCD inserts

## TC□□ (Positive inserts)



😊 Good working condition   😐 Normal working condition   😞 Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
<b>K</b>				
<b>S</b>				
<b>H</b>				
<b>N</b>	😊	😊	😊	😊

Type	Shape	Specification	Dimension(mm)					Grade			
			ØI.C	S	ød	r	L	DN0121	DN0511	DN1021	DN3021
0° rake angle		TCGW090202AF	5.56	2.38	2.5	0.2	2.5	○	○	○	○
		TCGW090204AF	5.56	2.38	2.5	0.4	2.5	○	○	○	○
		TCGW090208AF	5.56	2.38	2.5	0.8	2.2	★	★	★	★
		TCGW110202AF	6.35	2.38	2.8	0.2	2.5	○	○	○	○
		TCGW110204AF	6.35	2.38	2.8	0.4	2.5	○	○	○	○
		TCGW110208AF	6.35	2.38	2.8	0.8	2.2	★	★	★	★
7° rake an		TCMX090202AF	5.56	2.38	2.5	0.2	2.5	○	○	○	○
		TCMX090204AF	5.56	2.38	2.5	0.4	2.5	○	○	○	○
		TCMX090208AF	5.56	2.38	2.5	0.8	2.2	○	○	○	○
		TCMX110202AF	6.35	2.38	2.8	0.2	2.5	○	○	○	○
		TCMX110208AF	6.35	2.38	2.8	0.8	2.2	○	○	○	○

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

STACR/L  
Kr:90°



Page A198

STFCR/L  
Kr:90°



A198

STGCR/L  
Kr:91°



A199

STECR/L  
Kr:60°



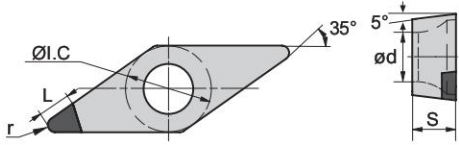
A200

STFCR/L  
Kr:90°



A223

**VB** (Positive inserts)



😊 Good working condition    😐 Normal working condition    ☹️ Bad working condition

Workpiece material	Cast iron	Heat resistant alloy, Ti alloy	Super hard material	Non ferrous metal
<b>K</b>				
<b>S</b>				
<b>H</b>				
<b>N</b>	😊	😊	😊	😊

Type	Shape	Specification	Dimension(mm)					Grade			
			ØI.C	S	ød	r	L	DN0121	DN0511	DN1021	DN3021
0° rake angle		<b>VBGW160402AF</b>	9.525	4.76	4.4	0.2	3.3	○	○	○	○
		<b>VBGW160404AF</b>	9.525	4.76	4.4	0.4	2.8	○	○	○	○
		<b>VBGW160408AF</b>	9.525	4.76	4.4	0.8	2.5	★	★	★	★
5° rake angle		<b>VBMX160402AF</b>	9.525	4.76	4.4	0.2	3.3	○	○	○	○
		<b>VBMX160404AF</b>	9.525	4.76	4.4	0.4	2.8	○	○	○	○
		<b>VBMX160408AF</b>	9.525	4.76	4.4	0.8	2.5	○	○	○	○

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

★ Recommended grade (always stock available)    ○ Make-to-order

Applicable tool

**SVJBR/L**  
Kr:93°



Page A189

**SVABR/L**  
Kr:90°



A190

**SVVBN**  
Kr:72°30'



A191

**SVQBR/L**  
Kr:107°30'



A226

**SVUBR/L**  
Kr:93°

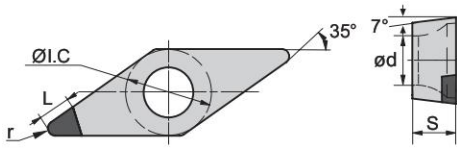


A227

# TURNING / General Turning Inserts

## PCBN&PCD inserts

### VC□□ (Positive inserts)



😊 Good working condition   😐 Normal working condition   ☹ Bad working condition

Workpiece material	Good working condition	Normal working condition	Bad working condition
<b>K</b> Cast iron			
<b>S</b> Heat resistant alloy, Ti alloy			
<b>H</b> Super hard material			
<b>N</b> Non ferrous metal	😊	😊	😊

Type	Shape	Specification	Dimension(mm)					Grade			
			ØI.C	S	ød	r	L	DN0121	DN0511	DN1021	DN3021
0° rake angle		VCGW160402AF	9.525	4.76	4.4	0.2	3.3	○	○	○	○
		VCGW160404AF	9.525	4.76	4.4	0.4	2.8	○	○	○	○
		VCGW160408AF	9.525	4.76	4.4	0.8	2.5	○	○	○	○
7° rake angle		VCMX160402AF	9.525	4.76	4.4	0.2	3.3	○	○	○	○
		VCMX160404AF	9.525	4.76	4.4	0.4	2.8	○	○	○	○
		VCMX160408AF	9.525	4.76	4.4	0.8	2.5	○	○	○	○

According to processing requirements, the size and number of non-standard tool nose arcs can be provided.

★ Recommended grade (always stock available)   ○ Make-to-order

### Applicable tool

**SWCN**  
Kr:72°30'



**SVJCR/L**  
Kr:93°



**SVOCR/L**  
Kr:107°30'



**SVUCR/L**  
Kr:93°





**Abnormal failure and solutions for cast iron machining**

	Abnormal failure	Solution
	Breakage occurs on chamfer of rake	
	Edge chattering appears when finishing grey cast iron	
<b>Abrasion</b>	Abrasion occurs when machining nodular cast iron	Change to dry cutting
	Abrasion under dry cutting conditions	Reduce cutting speed
	Abrasion occurs when machining grey cast iron	Change to dry cutting, increase cutting speed
<b>Surface quality</b>	Bad surface finish	Increase cutting speed, increase nose radius, reduce feed rate
	Bad cylindricity and coaxiality	Reduce nose radius, improve stability, change to positive insert
	Burrs	Change to positive insert, reduce chamfer width

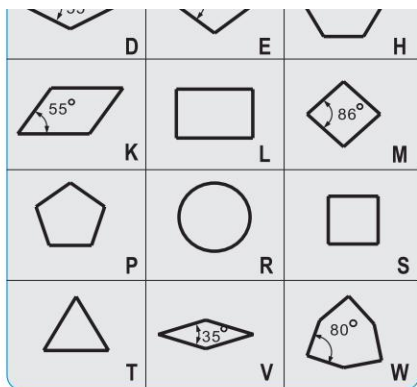
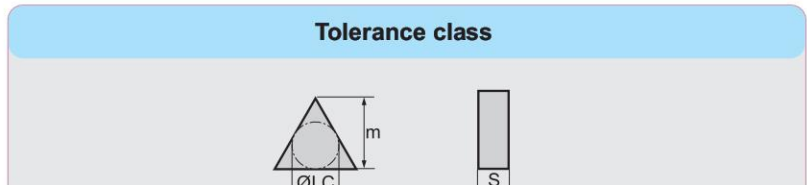
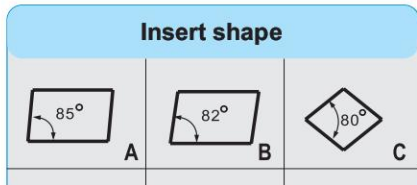
**Abnormal failure and solutions for hardened steel**

	Abnormal failure	Solution	
<b>Breakage</b>	Cutting edge breakage	Enlarge chamfered negative rake angle; raise cutting speed and reduce feed	
	Flaking and crater wear on rake face	Reduce cutting speed	
	Thermal cracks	Change to dry cutting; reduce cutting speed	
<b>Abrasion</b>	Wear occurs on chamfer of rake face	Reduce cutting speed	
	Rapid wear when finishing grey cast iron		
<b>Surface quality</b>	Bad surface finish	Vibration	Reduce chamfered negative rake angle; reduce nose radius; reduce feed rate; improve stability
		Tool mark	Increase nose radius; reduce feed rate; change to dry cutting; increase cutting speed
	Bad cylindricity and coaxiality		Reduce nose radius; improve stability; change to positive insert

# TURNING General Turning Inserts

## Ceramic inserts

### Ceramic inserts code key



Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)	Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	L	±0.025	±0.05-±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08-±0.18	±0.05-±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08-±0.18	±0.05-±0.13	±0.025
G	±0.025	±0.025	±0.13	U	±0.13-±0.38	±0.08-±0.25	±0.13

**R P C N**

**Clearance angle of main cutting edge**

Code	Clearance angle	Code	Clearance angle
A	3°	B	5°
C	7°	D	15°
E	20°	F	25°
G	30°	N	0°
P	11°	O	Other clearance angle

**Chipbreaker and clamping system**

Code	With/Without hole	Section plane of insert
N	Without	
B	With	
C	With	
A	With	
W	With	
Q	With	
X	---	Special

### Length of cutting edge

Diameter of IC (mm)	Insert shape					
	C	D	S	T	V	W
3.97						
5.0				06		

### Insert thickness

Thickness is defined as height from bottom of insert to the highest part of cutting edge.

Code	Insert thickness(mm)	Code	Insert thickness(mm)
T2	2.58	T6	6.75
03	3.18	07	7.94
T3	3.97	09	9.52
04	4.76	T9	9.72
T4	4.96	11	11.11
05	5.56	12	12.70
T5	5.95		

### Nose radius code

Code	Nose radius(mm)
00	No radius
02	0.2
04	0.4

6.0						
6.35	06	07		11	11	
8.0						
9.525	09	11	09	16	16	06
10.0						
12.0						
12.7	12	15	12	22	22	08
15.875	16	19	15	27		
16.0						
19.05	19		19	33		
20.0						
25.0	25	25				
25.4			25			
31.75						
32						

T2	2.58	T6	6.75
03	3.18	07	7.94
T3	3.97	09	9.52
04	4.76	T9	9.72
T4	4.96	11	11.11
05	5.56	12	12.70
T5	5.95		

12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Others
Diameter of insert (Metric)	Round insert

**00 07 00 T 040 20 - Y**

### Type of cutting edge

Code	Type of cutting edge	Picture
E	Honing	
T	Chamfering	
S	Chamfering + honing	
F	Sharp edges	

### Chamfer width (mm)

010	0.10	040	0.40
015	0.15	045	0.45
020	0.20	050	0.50
025	0.25	100	1.00
030	0.30	200	2.00

### Chamfer angle

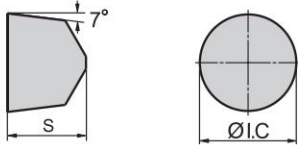
05	5°
10	10°
15	15°
20	20°
25	25°

### V-type positioning surface

# TURNING / General Turning Inserts

## Ceramic inserts

😊 Good working condition   🙄 Normal working condition   😞 Bad working condition



Workpiece material	<b>K</b> Cast iron	😊
	<b>S</b> Heat resistant alloy	🙄
	<b>H</b> Super hard material	😞

Inserts shape	Type	Dimensions(mm)		Grade
		ØI.C	S	
	<b>RCGN090700T01015-V</b>	9.525	7.94	🙄
	<b>RCGN090700T01520-V</b>	9.525	7.94	🙄
	<b>RCGN090700T01020-V</b>	9.525	7.94	😊
	<b>RCGN120700T01015-V</b>	12.7	7.94	🙄
	<b>RCGN120700T01020-V</b>	12.7	7.94	🙄
	<b>RCGN120700T01520-V</b>	12.7	7.94	🙄

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

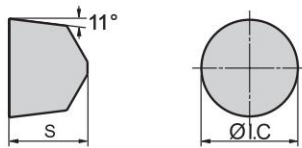
### Applicable tool



Page A205

2. Tailor-made nonstandard CRXCR

😊 Good working condition   🙄 Normal working condition   😞 Bad working condition



Workpiece material	<b>K</b> Cast iron	😊
	<b>S</b> Heat resistant alloy	🙄
	<b>H</b> Super hard material	😞

Inserts shape	Type	Dimensions(mm)		Grade
		ØI.C	S	
	<b>RPGN090700T01015-V</b>	9.525	7.94	🙄
	<b>RPGN090700T01520-V</b>	9.525	7.94	🙄
	<b>RPGN090700T01020-V</b>	9.525	7.94	😊
	<b>RPGN120700T01015-V</b>	12.7	7.94	🙄
	<b>RPGN120700T01020-V</b>	12.7	7.94	🙄
	<b>RPGN120700T01520-V</b>	12.7	7.94	🙄

★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

### Applicable tool



Page A205

2. Tailor-made nonstandard CRXCR

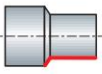
# **D**-type double-clamping tool holder




# TURNING General Turning Tools

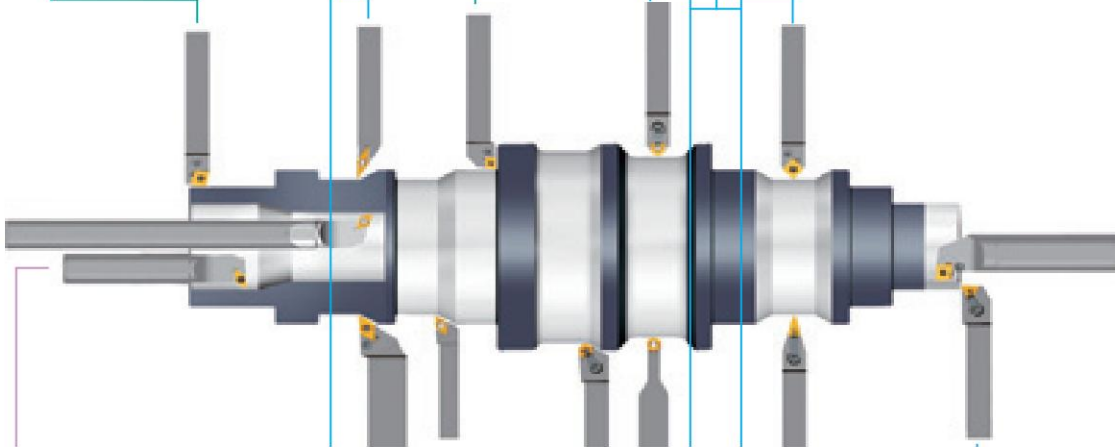
## Applications sketch map of turning tools

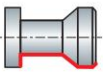
### External and internal turning

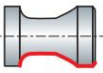
External turning	Tool holder type						
	DTGNR/L□□	DSBNR/L□□	PCBNR/L□□	PSBNR/L□□	PSSNR/L□□	PTGNR/L□□	PTTNR/L□□
	SCACR/L□□	SSBCR/L□□	SSSCR/L□□	STACR/L□□	STGCR/L□□	STECR/L□□	SWACR/L□□


External and end surface turning	Tool holder type
	PCBNR/L□□
	SCLCR/L□□







Profile turning	Tool holder type
	CKNNR/L□□



Profile turning	Tool holder type
	DDJNR/L□□
	SDACR/L□□
	SVJBR/L□□
	DVJNR/L□□
	PDJNR/L□□

Profile turning	Tool holder type
	SRGCR/L□□

End surface turning	Tool holder type
	PSKNR/L□□
	SSKCR/L□□
	PTFNR/L□□

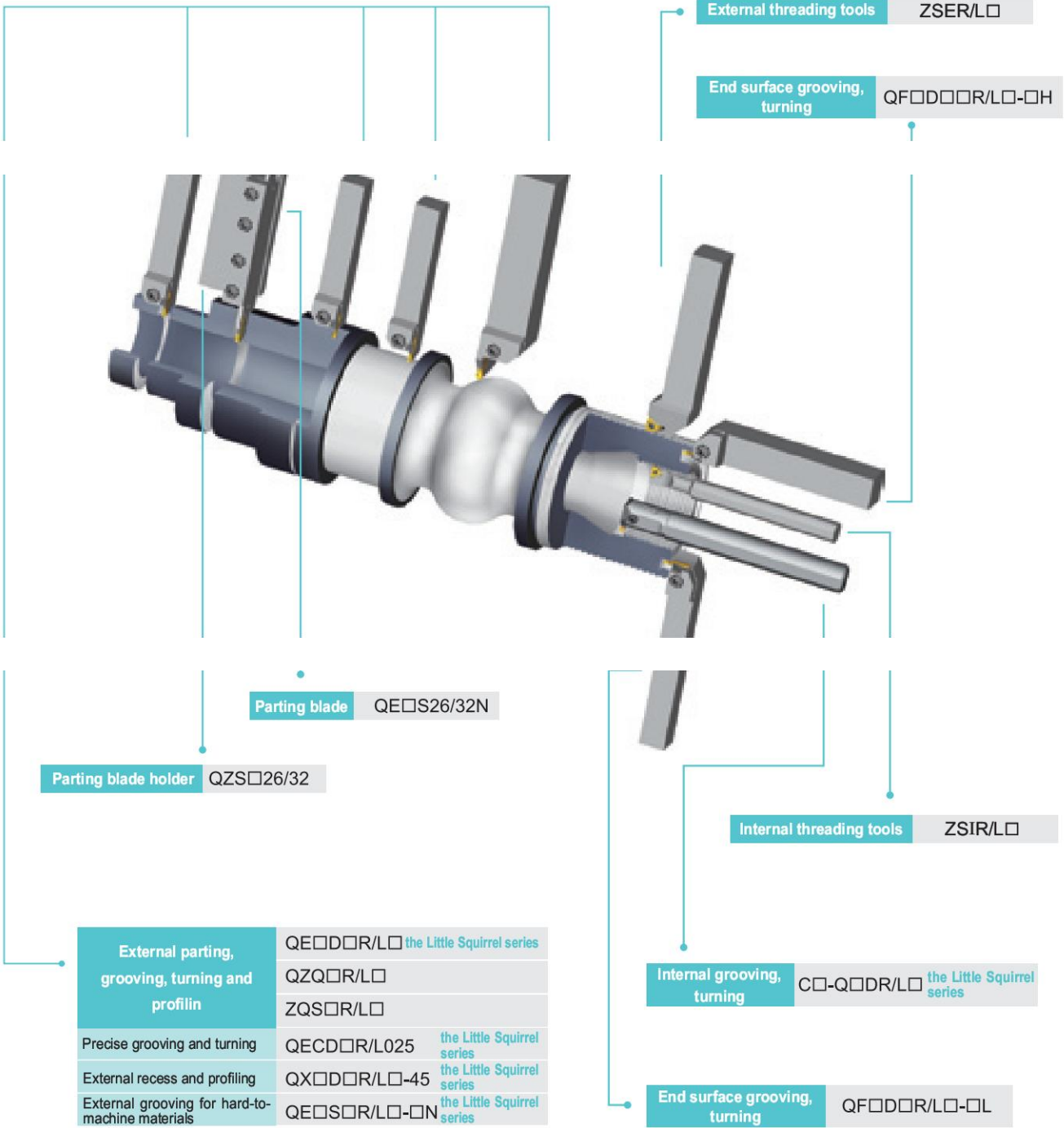
Tool holders for internal turning (Steel tool shank)						
	S□-PSKNR/L□	S□-PCLNR/L□	S□-PDPNR/L□	S□-PDUNR/L□	S□-SDQCR/L□	S□-SDZCR/L□
	S□-PTFNR/L□	S□-PWLNR/L□		S□-SDUCR/L□	S□-SDQPR/L□	
	S□-SCFCR/L□	S□-SCLCR/L□		S□-SDUPR/L□	S□-SVQBR/L□	
	S□-SSKCR/L□	S□-SCLPR/L□		S□-SVUBR/L□	S□-SVQCR/L□	

Tool holders for internal turning (Cemented carbide tool shank)				
	C□-STUPR/L□	C□-SCLPR/L□	C□-SDUPR/L□	C□-SDQPR/L□
		C□-SVUCR/L□	C□-SVQCR/L□	



Applications sketch map of turning tools

● Parting, grooving and threading tools



General turning  
Applications sketch map of turning

External parting, grooving, turning and profilin	QE□□□□R/L□ <small>the Little Squirrel series</small>
	QZQ□□R/L□
	ZQS□□R/L□
Precise grooving and turning	QECD□□R/L025 <small>the Little Squirrel series</small>
External recess and profiling	QX□□□□R/L□-45 <small>the Little Squirrel series</small>
External grooving for hard-to-machine materials	QE□S□□R/L□-□N <small>the Little Squirrel series</small>



## How to select external turning tools

### How to select external turning tools

#### Explanation of external turning tools detailed table

- Listed according to clamping types.

Approach angle of tools

Specification chart

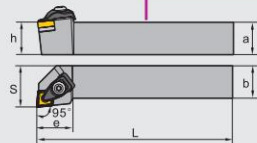
The first 4 letters in the type description stands for tool shape and application

Inserts type

The arrow shows suitable applications such as external turning, profiling and end turning, etc.

Corresponding tool holders of insert **CN**   **D-type clamping**

**DCLNR/L**  
Kr:95°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	a	b	L	h	s	e							
<b>DCLNR/L</b>	1616H09	▲	△	16	16	100	16	20	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K09	▲	△	20	20	125	20	25	24						
	2525M09	▲	△	25	25	150	25	32	24						
	2020K12	▲	▲	20	20	125	20	25	28						
	3ZZ5P12	▲	▲	3Z	2b	170	3Z	3Z	28						

▲Stock available △Make-to-order

Applicable inserts						
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> Wiper A54	<b>WGM</b> Wiper A55	<b>DR</b> Double-side A58	<b>HDR</b> A59	Without chipbreaker A59	A118
	<b>WGF</b> Wiper A54	<b>PM</b> A55	<b>DR</b> Single-side A58	<b>HPR</b> A59		A118 -A119
	<b>SF</b> A54	<b>DM</b> A56	<b>ER</b> Double-side A58			A119
	<b>EF</b> A54	<b>EM</b> A56	<b>ER</b> Single-side A58			
	<b>NF</b> A55	<b>NM</b> A57	<b>SNR</b> Double-side A58			
			<b>LR</b> Single-side A57			
Tool holder type	<b>DCLNR/L</b> □□H/K/M09		CN□□0903□□	CN□□0903□□		
	<b>DCLNR/L</b> □□K/M/P12		CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□

Products specification

Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

Applicable inserts

Including applications of inserts, reference page, insert shape and corresponding tool holders.





# TURNING



## External Turning Tools

**External turning tools overview** ● A158-A161

**External turning tools code key** ● A162-A163

**Detailed table of external turning tools** ● A166-A204

External turning tool holders by D type clamping A166-A171

External turning tool holders by P type clamping A172-A183

External turning tool holders by S type clamping A184-A203

External turning tool holders by C type clamping A204

**Detailed table of external turning tools  
(ceramic)** ● A205



# TURNING / General Turning Tools

## External turning tools overview

Clamping system	Tool type	Approach angle (K <sub>r</sub> )°	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
<b>D</b>	 DDJNR/L	95			☺				☺		A166
	 DSB NR/L	93				☺		☺	☺		A167
	 DTGNR/L	75	☺						☺		A168
	 DVBNN	91	☺						☺	☺	A169
	 DVJNR/L	72.5						☺	☺		A170
	 DVLNR/L	93				☺		☺	☺		A170
	 DWLNR/L	95			☺			☺			A171
<b>P</b>	 PCBNR/L	75	☺						☺		A172
	 PCLNR/L	95			☺				☺		A173
	 PDJNR/L										
	 PDPNN	62.5						☺	☺		A175

☺ Recommended    ☺ Available

External turning tools overview

Clamping system	Tool type	Approach angle (K $\alpha$ )	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
P	 PSDNN	75	☺						☺		A176
	 PSKNR/L	45						☺	☺		A177
	 PSSNR/L	75		☺					☺		A178
	 PTFNR/L	45	☺						☺		A179
	 PTINKR/L	90		☺					☺	☺	A180
	 PTGNR/L	60	☺						☺		A181
P	 PWLNR/L	90	☺						☺	☺	A182
	 SCACR/L	95			☺				☺		A183
	 SCLCR/L	90	☺						☺	☺	A184
P	 SDACR/L	90							☺	☺	A186

☺ Recommended ☺ Available



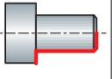















# TURNING / General Turning Tools

## External turning tools overview

Clamping system	Tool type	Approach angle (K <sup>o</sup> )	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
E	 SDNCN	93					☺		☺	☺	A187
	 SVJBR/L	62.5						☺	☺	☺	A188
	 SVABR/L	93					☺		☺	☺	A189
	 SVVBN	90					☺		☺	☺	A190
	 SVVCN	72.5						☺	☺	☺	A191
	 SVJCR/L	93					☺		☺	☺	A192
S	 SSBCR/L	75	☺						☺		A193
	 SSDCN	45						☺	☺		A194
	 SSKCR/L										A195
	 SSSCR/L	45	☺						☺		A197
	 SSSCR/L	45	☺						☺		A197

☺ Recommended    ☹ Available

External turning tools overview

Clamping system	Tool type	Approach angle (K <sup>α</sup> )	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
<b>S</b>		90	☺						☺	☺	A198
	STFCR/L	90		☺					☺		A198
		90		☺					☺		A198
	STGCR/L	91	☺						☺	☺	A199
		60	☺						☺		A200
	STECR/L	60	☺						☺		A200
<b>C</b>		90	☺						☺	☺	A201
	SWACR/L	90	☺						☺	☺	A201
		-						☺	☺		A202
SRDCN	-						☺	☺		A202	
<b>C</b>		-				☺			☺		A203
	SRGCR/L	-				☺			☺		A203
		93					☺		☺		A204
	CKJNR/L	93					☺		☺		A204
<b>C</b>		63						☺	☺		A204
	CKNNR/L	63						☺	☺		A204
<b>C</b>								☺			A204
	CRDCR/L							☺			A204
<b>C</b>							☺				A204
	CRDCR/L						☺				A204

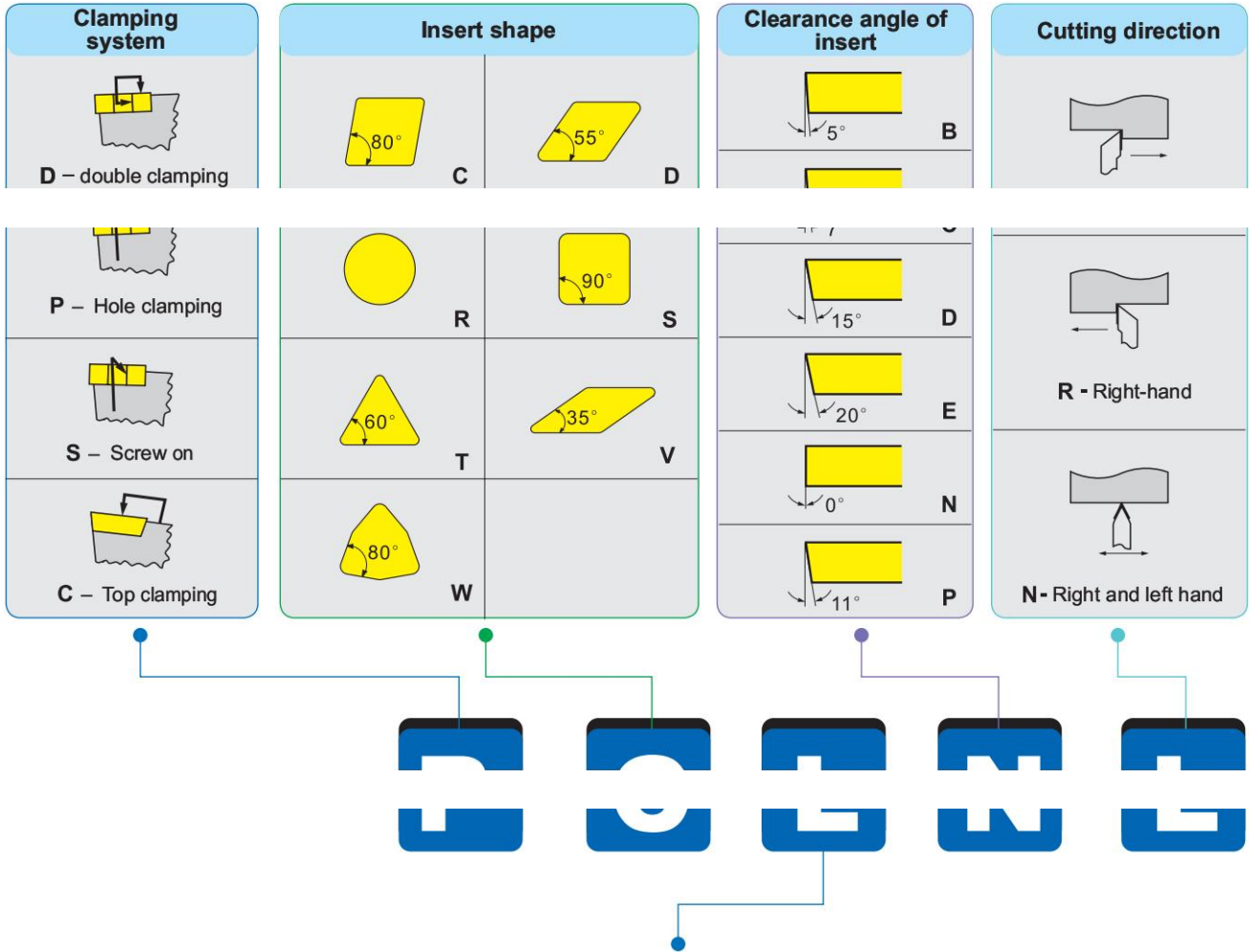
☺ Recommended    ☺ Available

# TURNING General Turning Tools

## External turning tools code key

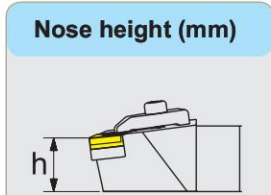
General turning

External turning tools code key

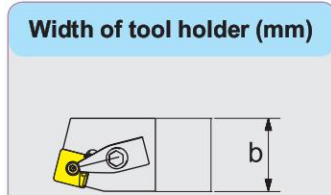


Tool holder style and approach angle							
A	B	C	D	E	F	G	H
J	K	L	M	N	O	P	Q
R	S	T	U	V	W	X	

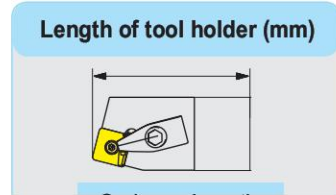
External turning tools code key



Code	Height
12	12
16	16
20	20
25	25
32	32
40	40
50	50



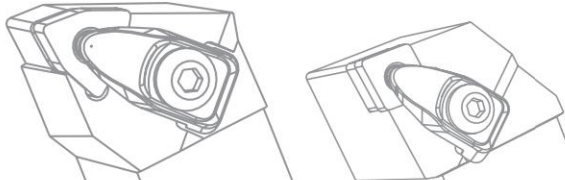
Code	Width
12	12
16	16
20	20
25	25
32	32
40	40
50	50



<b>E</b>	70
<b>F</b>	80
<b>H</b>	100
<b>K</b>	125
<b>M</b>	150
<b>P</b>	170
<b>Q</b>	180
<b>R</b>	200
<b>S</b>	250
<b>T</b>	300



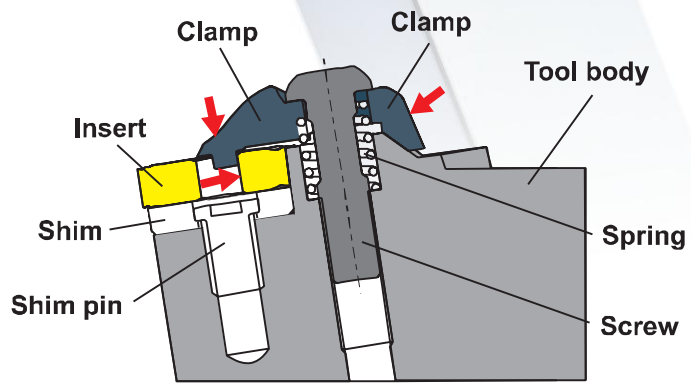
Length of cutting edge							
Inserts shape	C	D	R	S	T	V	W
Inscribed circle (mm)	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---
32.000	---	---	32	---	---	---	---



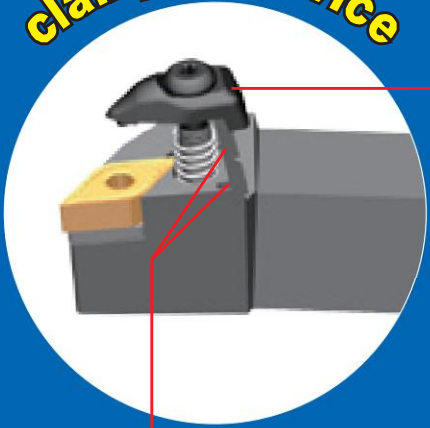
# D

## -type double-clamping tool holder

With newly developed double-clamping structure, D-type turning tools have high clamping rigidity and high positioning accuracy, achieving easy and secure clamping of inserts. It is the best choice for the clamping of straight hole negative inserts.



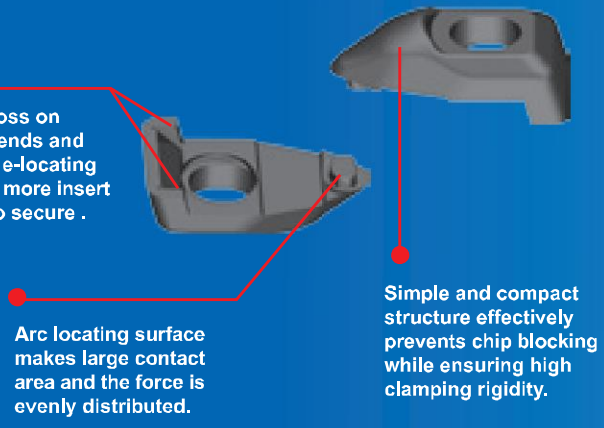
### Convenient secure clamping device



Slots in the tool body match perfectly with the clamp, realizing simple and easy clamping.

### Uniquely clamp

The clamp and the inner wall of insert hole make an arc contact. The stable and evenly distributed clamping force ensures more secure clamping.



lug boss on both ends and double-locating make more insert clamp secure .

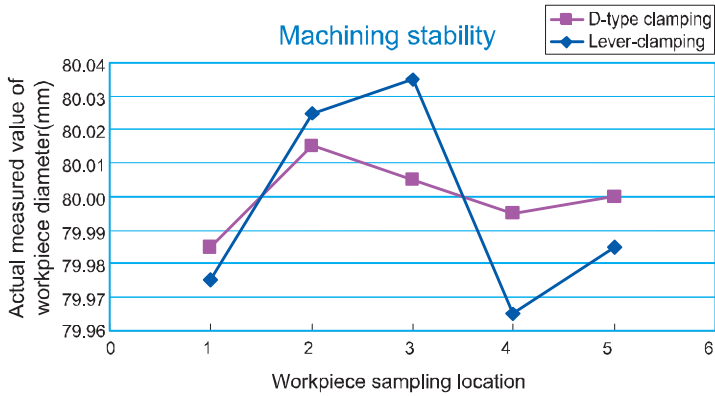
Arc locating surface makes large contact area and the force is evenly distributed.

Simple and compact structure effectively prevents chip blocking while ensuring high clamping rigidity.

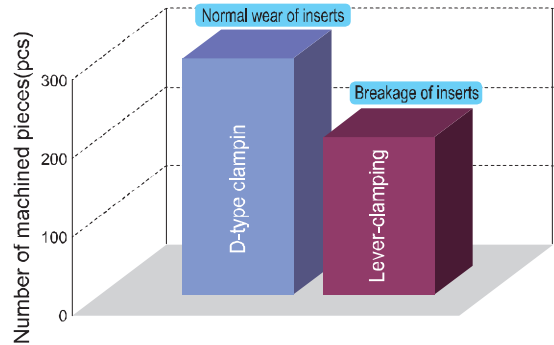


## Compared with lever-clamping:

① Accurate locating ensures more stable machining accuracy.



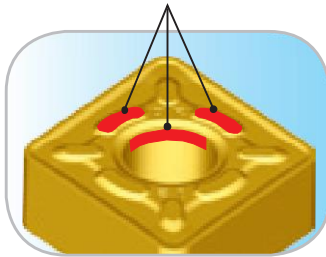
② High clamping rigidity effectively improves resistance to breakage of insert.



## Compared with similar products of company A:

① Locating surface contact: (checking the contact location of clamp by dyeing)

Force evenly distributed, firm clamping, high locating accuracy.



ZCC-CT



Similar product of company A

② Effect on tool life:

Tool holder: DCLNL3225P12

Insert: YBC252/CNMG120408-DR

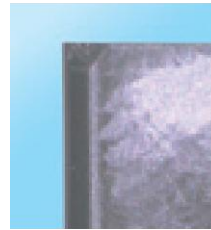
Cutting material: 45# steel

Cutting parameters:  $V_c=250\text{m/min}$

$a_p=2\text{mm}$

$f=0.6\text{mm/r}$

After 60 minutes of cutting



ZCC-CT



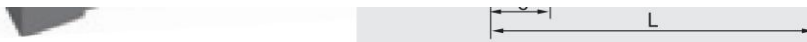
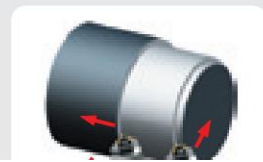
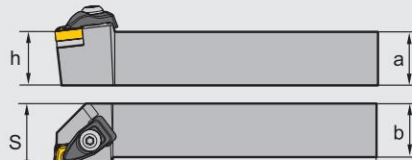
Similar product of company A

# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **CN** D-type clamping

**DCLNR/L**  
Kr:95°



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
<b>DCLNR/L</b>	<b>1616H09</b>	▲	△	16	16	100	16	20	24						
	<b>2020K09</b>	▲	△	20	20	125	20	25	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2525M09</b>	▲	△	25	25	150	25	32	24						
	<b>2020K12</b>	▲	▲	20	20	125	20	25	28						
	<b>2525M12</b>	▲	▲	25	25	150	25	32	28	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>3225P12</b>	▲	▲	32	25	170	32	32	28						

▲Stock available    △Make-to-order

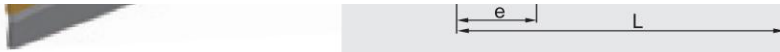
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A54	<b>WGM</b> Wiper  A55	<b>DR</b> Double-side  A58	<b>HDR</b>  A59	Without chipbreaker  A59	 A118
	<b>WGF</b> Wiper  A54	<b>PM</b>  A55	<b>DR</b> Single-side  A58	<b>HPR</b>  A59		 A118 -A119
	<b>SF</b>  A54	<b>DM</b>  A56	<b>ER</b> Double-side  A58			 A119
	<b>EF</b>  A54	<b>EM</b>  A56	<b>ER</b> Single-side  A58			
	<b>NF</b>  A55	<b>NM</b>  A57	<b>SNR</b> Double-side  A58			
			Single-side  A57			

Tool holder type	DCLNR/L□□H/K/M09	CN□□0903□□	CN□□0903□□				
	<b>DCLNR/L□□K/M/P12</b>	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□

Corresponding tool holders of insert **DN**   D-type clamping

**DDJNR/L**  
Kr:93°



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
		R	L	a	b	L	h	s	e							
<b>DDJNR/L</b>	<b>1616H11</b>	△	△	16	16	100	16	20	30	CM5×22C	D11BM	WH30L	C1RA	SM5×8.65XA1	SPR6	
	<b>2020K11</b>	▲	△	20	20	125	20	25	30							
	<b>2525M11</b>	▲	△	25	25	150	25	32	30							
		<b>3225P11</b>	△	△	32	25	170	32	32	30	CM6×25C	D15BM	WH40L	C2RA	SM6×10XA1	SPR4
		<b>2020K15</b>	▲	▲	20	20	125	20	25	35						
		<b>2525M15</b>	▲	▲	25	25	150	25	32	35						
		<b>3232P15</b>	▲	▲	32	32	170	32	40	35						

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper A63	<b>DR</b> Double-side A65	<b>HDR</b> A66	Without chipbreaker A66	A121 -A122
	<b>WGF</b> Wiper A61	<b>PM</b> A63	<b>DR</b> Single-side A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side A65			A124
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side A65			
	<b>A62</b>		<b>Single-side</b> A65			

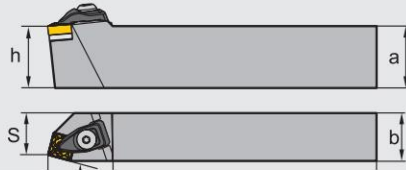
Tool holder type	<b>DDJNR/L□□H/K/M/P11</b>	DN□□1104□□	DN□□1104□□			DN□□1104□□
	<b>DDJNR/L□□K/M/P15</b>	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **SN** D-type clamping

**DSBNR/L**  
Kr:75°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
	R	L	a	b	L	h	s	e						
<b>DSBNR/L</b>	<b>1616H09</b>	▲ △	16	16	100	16	13	26	CM5×22C	S09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2020K12</b>	▲ ▲	20	20	125	20	17	34						
	<b>2525M12</b>	▲ ▲	25	25	150	25	22	34	CM6×25C	S12BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>3225P12</b>	▲ ▲	32	25	170	32	22	34						
	<b>3232P15</b>	▲ ▲	32	32	170	32	27	41	CM6×25C	S15BM	WH40L	C3RA	SM6×10XA2	SPR4

▲ Stock available    △ Make-to-order

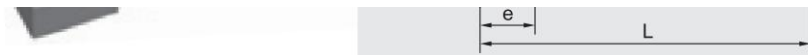
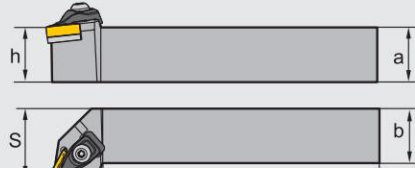
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74 Without chipbreaker	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side			
			<b>LR</b> Single-side  A69			

Tool holder type	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> H09	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> K/M/P12	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> P15
	SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **TN**   D-type clamping

**DTGNR/L**  
Kr:91°



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
		R	L	a	b	L	h	s	e							
<b>DTGNR/L</b>	<b>1616H16</b>	△	△	16	16	100	16	20	25							
	<b>2020K16</b>	▲	▲	20	20	125	20	25	25	CM5×22C	T16BM	WH30L	C1RA	SM5×8.65XA1	SPR6	
	<b>2525M16</b>	▲	▲	25	25	150	25	32	25							

▲Stock available    △Make-to-order

General turning

s

External turning

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper  A76	<b>DR</b> Double-side  A78	<b>HDR</b> A79	Without chipbreaker  A80	A130
	<b>WGF</b> Wiper  A75	<b>PM</b> A76	<b>DR</b> Single-side  A78			A130 -A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side  A78			A131
	<b>EF</b> 	<b>EM</b> 	<b>SNR</b> 			

			<b>LR</b> Single-side  A77			
--	--	--	-------------------------------	--	--	--

Tool holder type	<b>DTGNR/L</b> □□H/K/M16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□

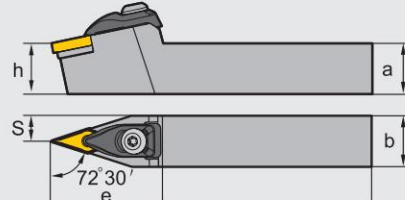
# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **VN** D-type clamping

#### DVVNN

Kr:72°30'

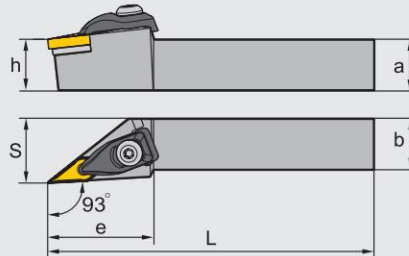


Type		Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
			a	b	L	h	s	e						
<b>DVVNN</b>	<b>2020K16</b>	△	20	20	125	20	10	44	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	<b>2525M16</b>	▲	25	25	150	25	12.5	44						

▲Stock available    △Make-to-order

#### DVJNR/L













Kr:93°



Type		R	L	Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
				a	b	L	h	s	e						
<b>DVJNR/L</b>	<b>2020K16</b>	▲	▲	20	20	125	20	25	41	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	<b>2525M16</b>	▲	▲	25	25	150	25	32	41						

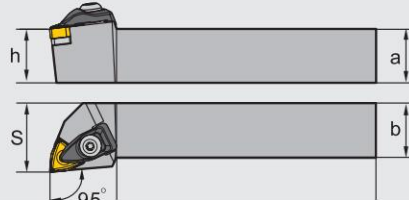
▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts	
Inserts shape	<b>DF</b>  A81	<b>PM</b>  A82	<b>SNR</b>  A82	 A133	
	<b>EF</b>  A81	<b>DM</b>  A82		 A133 -A134	
	<b>SF</b>  A81	<b>EM</b>  A82		 A134	
	<b>NGF</b>  A81	 A82			
Tool holder type	<b>DVVNN</b> □□K/M16	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□
	<b>DVJNR/L</b> □□K/M16	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□

Corresponding tool holders of insert **WN**   D-type clamping

**DWLNR/L**  
Kr:95°



Type		Stock		Basic dimensions(mm)					Screw	Shim	Wrench	Clamp	Shim screw	Spring	
		R	L	a	b	L	h	s	e						
<b>DWLNR/L</b>	<b>1616H06</b>	▲	△	16	16	100	16	25	25	CM5×22C	W06BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2020K06</b>	▲	▲	20	20	125	20	25	24						
	<b>2525M06</b>	▲	▲	25	25	150	25	32	24						
	<b>2020K08</b>	▲	▲	20	20	125	20	25	31	CM6×25C	W08BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>2525M08</b>	▲	▲	25	25	150	25	32	31						
	<b>3225P08</b>	△	△	32	25	170	32	32	31						

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A83	<b>WGM</b> Wiper  A84	<b>DR</b> Double-side  A86	Without chipbreaker  A86	 A136
	<b>WGF</b> Wiper  A83	<b>PM</b>  A85	<b>SNR</b> Double-side  A86		 A136 -A137
	<b>SF</b>  A83	<b>DM</b>  A85			 A137
	<b>EF</b> 	<b>EM</b> 			
	<b>NF</b>  A84	<b>NM</b>  A86			
Tool holder type	<b>DWLNR/L□□H/K/M06</b>	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□
	<b>DWLNR/L□□K/M/P08</b>	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□

General turning

External turning

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **CN** P-type clamping

**PCBNR/L**  
Kr:75°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PCBNR/L</b>	<b>2020K12</b>	▲	▲	20	20	125	20	17	27	LEM8×21	C12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	▲	25	25	150	25	22	27					
	<b>3232P12</b>	▲	▲	32	32	170	32	27	33					
	<b>2525M16</b>	▲	▲	25	25	150	25	22	33	LEM8×25	C16AP	WH30L	L5	SP5
	<b>3232P16</b>	▲	▲	32	32	170	32	27	33					
	<b>4040R16</b>	▲	▲	40	40	200	40	35	38	LEM10×27	C19AP	WH40L	L6	SP6
	<b>3232P19</b>	▲	▲	32	32	170	32	27	38					
<b>4040R19</b>	▲	▲	40	40	200	40	35	40						
<b>4040S2509</b>	▲	▲	40	40	250	40	35	50	LEM12×30	C25AP	WH50L	L6	SP6	

▲Stock available    △Make-to-order

### Applicable inserts

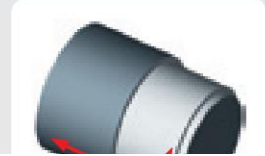
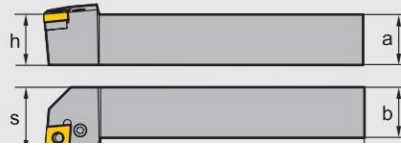
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	<b>DF</b>  A54	<b>WGM</b> Wiper  A55	<b>DR</b> Double-side  A58	<b>HDR</b>  A59	Without chipbreaker  A59
	<b>WGF</b> Wiper  A54	<b>PM</b>  A55	<b>DR</b> Single-side  A58	<b>HPR</b>  A59	
	<b>SF</b>  A54	<b>DM</b>  A55	<b>ER</b> Double-side  A58		
	<b>EF</b>  A54	<b>EM</b>  A56	<b>ER</b> Single-side  A58		
	<b>NF</b>  A54	<b>NM</b>  A56	<b>SNR</b> Double  A57		
			<b>LR</b> Single-side  A57		

Tool holder type	PCBNR/L□□K/M/P12	PCBNR/L□□M/P/R16	PCBNR/L□□P/R19	PCBNR/L□□S2507	PCBNR/L□□S2509
	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□
			CN□□2507□□		
			CN□□2509□□		



Corresponding tool holders of insert **CN**   P-type clamping

**PCLNR/L**  
Kr:95°



R-type shown

Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin	
		R	L	a	b	L	h	s						e
<b>PCLNR/L</b>	<b>2020K12</b>	▲	▲	20	20	125	20	25	28	LEM8×21	C12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	▲	25	25	150	25	32	28					
	<b>3225P12</b>	△	△	32	25	170	32	32	33					
	<b>3232P12</b>	▲	▲	32	32	170	32	40	28	LEM8×25	C16AP	WH30L	L5	SP5
	<b>2525M16</b>	▲	▲	25	25	150	25	32	33					
	<b>3225P16</b>	△	△	32	25	170	32	32	33					
	<b>3232P16</b>	▲	▲	32	32	170	32	40	33	LEM10×27	C19AP	WH40L	L6	SP6
	<b>4040R16</b>	△	△	40	40	200	40	50	42					
	<b>3232P19</b>	▲	▲	32	32	170	32	40	38					
<b>4040R19</b>	▲	▲	40	40	200	40	50	40						

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> Wiper A54	<b>WGM</b> Wiper A55	<b>DR</b> Double-side A58	<b>HDR</b> A59	Without chipbreaker A59	A118
	<b>WGF</b> Wiper A54	<b>PM</b> A55	<b>DR</b> Single-side A58	<b>HPR</b> A59		A118 -A119
	<b>SF</b> A54	<b>DM</b> A56	<b>ER</b> Double-side A58			A119
	<b>EF</b> A54	<b>EM</b> A56	<b>ER</b> Single-side A58			
	<b>NF</b>	<b>NM</b>	<b>SNR</b> Double			
			<b>LR</b> Single-side A57			

Tool holder type	PCLNR/L□□K/M/P12	PCLNR/L□□M/P/R16	PCLNR/L□□P/R19	PCLNR/L□□S2507	PCLNR/L□□S2509
	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□
			CN□□2507□□		
			CN□□2509□□		

General turning

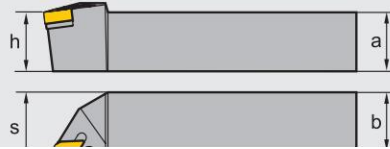
External turning

# TURNING / General Turning Tools

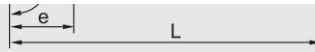
## External turning tools

### Corresponding tool holders of insert DN□□ P-type clamping

**PDJNR/L**  
Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PDJNR/L</b>	<b>1616H11</b>	▲	▲	16	16	100	16	20	25	LEM6×17	D11AP	WH25L	L3	SP3
	<b>2020K11</b>	▲	▲	20	20	125	20	25	25					
	<b>2525M11</b>	▲	▲	25	25	150	25	32	30					
	<b>2020K15</b>	▲	▲	20	20	125	20	25	35	LEM8×21	D15AP	WH30L	L4B	SP4
	<b>2525M15</b>	▲	▲	25	25	150	25	32	35					
	<b>3232P15</b>	▲	▲	32	32	170	32	40	35					
	<b>2020K15-3</b>	▲	△	20	20	125	20	25	35	LEM8×21	D15AP	WH30L	L4	SP4
	<b>2525M15-3</b>	▲	▲	25	25	150	25	32	35					

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A61	<b>WGM</b> Wiper  A63	<b>DR</b> Double-side  A65	<b>HDR</b>  A66	Without chipbreaker  A66	 A121 -A122
	<b>WGF</b> Wiper  A61	<b>PM</b>  A63	<b>DR</b> Single-side  A65			 A122 -A123
	<b>SF</b>  A62	<b>DM</b>  A64	<b>ER</b> Double-side  A65			 A124
	<b>EF</b>  A62	<b>EM</b>  A64	<b>ER</b> Single-side  A65			
	<b>NF</b>  A62	<b>NM</b>  A64	<b>SNR</b> Double  A65			
	<b>NGF</b>  A62		<b>LR</b> Single-side  A65			

Tool holder type	DN□□1104□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1504□□	DN□□1504□□
<b>PDJNR/L□□H/K/M11</b>	DN□□1104□□	DN□□1104□□				DN□□1104□□		
<b>PDJNR/L□□K/M/P15</b>	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
<b>PDJNR/L□□K/M/P15-3</b>	DN□□1504□□	DN□□1504□□				DN□□1504□□	DN□□1504□□	DN□□1504□□

Corresponding tool holders of insert **DN**   P-type clamping

**PDPNN**  
Kr:62°30'



R-type shown

Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin
		a	b	L	h	s	e						
<b>PDPNN</b>	<b>2020K15</b>	▲	20	20	125	20	8	38	LEM8×21	D15AP	WH30L	L4B	SP4
	<b>2525M15</b>	▲	25	25	150	25	12.5	38					
	<b>3232P15</b>	▲	32	32	170	32	16	38					
	<b>2020K15-3</b>	▲	20	20	125	20	8	38	LEM8×21	D15AP	WH30L	L4	SP4
	<b>2525M15-3</b>	▲	25	25	150	25	12.5	38					
	<b>3232P15-3</b>	▲	32	32	170	32	16	38					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A61	<b>WGM</b> Wiper  A63	<b>DR</b> Double-side  A65	<b>HDR</b>  A66	Without chipbreaker  A66	 A121 -A122
	<b>WGF</b> Wiper  A61	<b>PM</b>  A63	<b>DR</b> Single-side  A65			 A122 -A123
	<b>SF</b>  A62	<b>DM</b>  A64	<b>ER</b> Double-side  A65			 A124
	<b>EF</b>  A62	<b>EM</b>  A64	<b>ER</b> Single-side  A65			
	<b>NF</b>  A62	<b>NM</b>  A64	<b>SNR</b> Double  A65			
	<b>NGF</b>  A62		<b>LR</b> Single-side  A65			
Tool holder type	<b>PDPNN□□K/M/P15</b>	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	<b>PDPNN□□K/M/P15-3</b>	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□

General turning

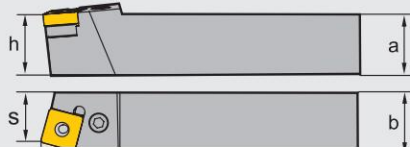
External turning

# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **SN** P-type clamping

**PSBNR/L**  
Kr:75°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PSBNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	13	21	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	▲	▲	20	20	125	20	17	23					
	<b>2020K12</b>	▲	▲	20	20	125	20	17	28					
	<b>2525M12</b>	▲	▲	25	25	150	25	22	28	LEM8×21	S12AP	WH30L	L4	SP4
	<b>3225P12</b>	▲	△	32	25	170	32	22	28					
	<b>3232P12</b>	▲	▲	32	32	170	32	27	28	LEM8×25	S15AP	WH30L	L5	SP5
	<b>2525M15</b>	▲	▲	25	25	150	25	22	35					
	<b>3232P15</b>	▲	▲	32	32	170	32	27	35					
	<b>3232P19</b>	▲	▲	32	32	170	32	27	40	LEM10×27	S19AP	WH40L	L6	SP6
<b>4040R19</b>	▲	▲	40	40	200	40	35	40						
<b>4040S2509</b>	▲	▲	40	40	250	40	35	48	LEM12×36A	S25AP-09	WH50L	L8	SP8	

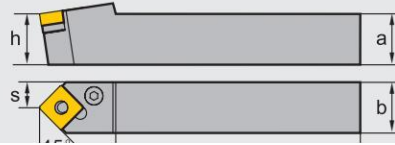
▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side			
			<b>LR</b> Single-side  A69			
Tool holder type	<b>PSBNR/L□□H/K09</b>	SN□□0903□□	SN□□0903□□		SN□□0903□□	
	<b>PSBNR/L□□K/M/P12</b>	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	<b>PSBNR/L□□M/P15</b>	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	<b>PSBNR/L□□P/R19</b>		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□
	<b>PSBNR/L□□S2507</b>			SN□□2507□□	SN□□2507□□	
<b>PSBNR/L□□S2509</b>			SN□□2509□□	SN□□2509□□		

Corresponding tool holders of insert **SN**   P-type clamping

**PSDNN**  
Kr:45°



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin
		a	b	L	h	s	e						
<b>PSDNN</b>	<b>2020K12</b>	▲	20	20	125	20	10	30	LEM8×21	S12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	25	25	150	25	12.5	30					
	<b>3232P12</b>	▲	32	32	170	32	16	40					
	<b>2525M15</b>	▲	25	25	150	25	12.5	40	LEM8×25	S15AP	WH30L	L5	SP5
	<b>3232P15</b>	▲	32	32	170	32	16	40					
	<b>3232P19</b>	▲	32	32	170	32	16	40	LEM10×27	S19AP	WH40L	L6	SP6
	<b>4040R19</b>	▲	40	40	200	40	20	40					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>ER</b> Single-side  A69			
Tool holder type	<b>PSDNN□□K/M/P12</b>	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	<b>PSDNN□□M/P15</b>	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	<b>PSDNN□□P/R19</b>		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□

General turning

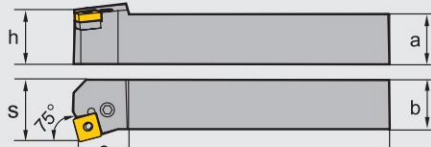
External turning

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **SN** P-type clamping

**PSKNR/L**  
Kr:75°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PSKNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	20	17	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	▲	△	20	20	125	20	25	20					
	<b>2020K12</b>	▲	▲	20	20	125	20	25	26	LEM8×21	S12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	▲	25	25	150	25	32	26					
	<b>3232P12</b>	▲	▲	32	32	170	32	40	26	LEM8×25	S15AP	WH30L	L5	SP5
	<b>2525M15</b>	▲	▲	25	25	150	25	32	32					
	<b>3232P15</b>	▲	▲	32	32	170	32	40	32	LEM10×27	S19AP	WH40L	L6	SP6
	<b>3232P19</b>	▲	▲	32	32	170	32	40	36					

▲ Stock available    △ Make-to-order

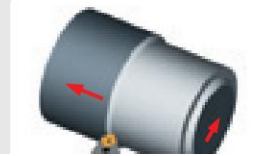
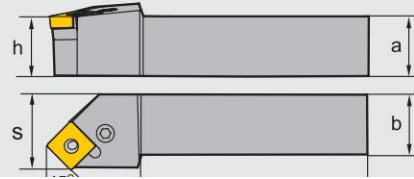
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR Double-side</b> A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR Single-side</b> A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER Double-side</b> A71			A128
		<b>NM</b> A69	<b>ER Single-side</b> A71			
			<b>SNR Double</b>			
			<b>LR Single-side</b> A69			

Tool holder type	PSKNR/L□□H/K09	PSKNR/L□□K/M/P12	PSKNR/L□□M/P15	PSKNR/L□□P/R19
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□

Corresponding tool holders of insert **SN**   P-type clamping

**PSSNR/L**  
Kr:45°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin
	R	L	a	b	L	h	s	e						
<b>PSSNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	20	25	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	△	△	20	20	125	20	25	25					
	<b>2020K12</b>	▲	▲	20	20	125	20	25	30					
	<b>2525M12</b>	▲	▲	25	25	150	25	32	30	LEM8×21	S12AP	WH30L	L4	SP4
	<b>3232P12</b>	▲	▲	32	32	170	32	40	40					
	<b>2525M15</b>	▲	▲	25	25	150	25	32	30	LEM8×25	S15AP	WH30L	L5	SP5
	<b>3232P15</b>	▲	▲	32	32	170	32	40	40					
	<b>3232P19</b>	▲	▲	32	32	170	32	40	40	LEM10×27	S19AP	WH40L	L6	SP6
	<b>4040P19</b>	▲	▲	40	40	200	40	50	40					
<b>4040S2507</b>	▲	▲	40	40	250	40	50	50	LEM12×36A	S25AP	WH50L	L8	SP8	
<b>4040S2509</b>	▲	▲	40	40	250	40	50	50		S25AP-09				

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR Double-side</b> A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR Single-side</b> A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER Double-side</b> A71			A128
		<b>NM</b> A69	<b>ER Single-side</b> A71			
			<b>SNR</b>			

			<b>LR Single-side</b> A69			
--	--	--	---------------------------	--	--	--

Tool holder type	PSSNR/L□□H/K09	PSSNR/L□□K/M/P12	PSSNR/L□□M/P15	PSSNR/L□□P/R19	PSSNR/L□□S2507	PSSNR/L□□S2509
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□

General turning

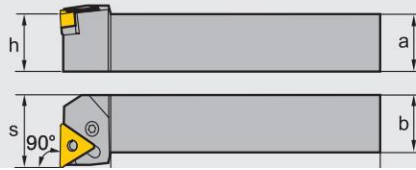
External turning

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **TN** P-type clamping

**PTFNR/L**  
Kr:90°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PTFNR/L</b>	<b>1616H16</b>	△	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M16</b>	▲	▲	25	25	150	25	32	20					
	<b>2525M22</b>	▲	▲	25	25	150	25	32	25	LEM8×21	T22AP	WH30L	L4	SP4
	<b>3232P22</b>	▲	▲	32	32	170	32	40	25					
	<b>3232P27</b>	▲	▲	32	32	170	32	40	34	LEM8×25	T27AP	WH30L	L5	SP5
	<b>4040S27</b>	▲	▲	40	40	250	40	50	34					

▲Stock available    △Make-to-order

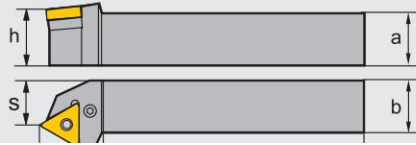
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper A76	<b>DR</b> Double-side A78	<b>HDR</b> A79	A80	A130
	<b>WGF</b> Wiper A75	<b>PM</b> A76	<b>DR</b> Single-side A78			A130 -A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side A78			A131
	<b>EF</b> A76	<b>EM</b> A77	<b>SNR</b> A78			
			<b>LR</b> 			
Tool holder type	<b>PTFNR/L□□H/K/M16</b>	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTFNR/L□□M/P22</b>	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□
	<b>PTFNR/L□□P/S27</b>		TN□□2706□□	TN□□2706□□	TN□□2706□□	



Corresponding tool holders of insert **TN**   P-type clamping

**PTTNR/L**  
Kr:60°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PTTNR/L</b>	<b>1616H16</b>	▲	▲	16	16	100	16	13	25	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	17	25					
	<b>2525M16</b>	△	△	25	25	150	25	22	25	LEM8×21	T22AP	WH30L	L4	SP4
	<b>2525M22</b>	▲	▲	25	25	150	20	22	32					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper A76	<b>DR</b> Double-side A78	<b>HDR</b> A79	A80	A130
	<b>WGF</b> Wiper A75	<b>PM</b> A76	<b>DR</b> Single-side A78			A130 -A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side A78			A131
	<b>EF</b> A76	<b>EM</b> A77	<b>SNR</b> A78			
			<b>LR</b> 			
Tool holder type	<b>PTTNR/L</b> □□H/K/M16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTTNR/L</b> □□M22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	

General turning

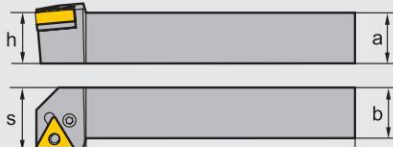
External turning

# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **TN** P-type clamping

**PTGNR/L**  
Kr:90°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PTGNR/L</b>	<b>1616H16</b>	▲	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M16</b>	▲	▲	25	25	150	25	32	20					
	<b>3232P16</b>	▲	▲	32	32	170	32	40	20	LEM8×21	T22AP	WH30L	L4	SP4
	<b>2525M22</b>	▲	▲	25	25	150	25	32	28					
	<b>3232P22</b>	▲	▲	32	32	170	32	40	28	LEM8×25	T27AP	WH30L	L5	SP5
	<b>3232P27</b>	▲	▲	32	32	170	32	40	33					
<b>4040S27</b>	▲	▲	40	40	250	40	50	33						

▲ Stock available    △ Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper A76	<b>DR</b> Double-side A78	<b>HDR</b> A79	A80	A130
	<b>WGF</b> Wiper A75	<b>PM</b> A76	<b>DR</b> Single-side A78			A130 -A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side A78			A131
	<b>EF</b> A76	<b>EM</b> A77	<b>SNR</b> A78			
			<b>LR</b> 			
Tool holder type	<b>PTGNR/L□□H/K/M/P16</b>	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTGNR/L□□M/P22</b>	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	
	<b>PTGNR/L□□P/S27</b>			TN□□2706□□	TN□□2706□□	

Corresponding tool holders of insert **WN**   P-type clamping

**PWLNRL**  
Kr:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PWLNRL/L</b>	<b>1616H06</b>	▲	▲	16	16	100	16	20	20	LEM6×13.4A	W06AP	WH25L	L3	SP3
	<b>2020K06</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M06</b>	▲	▲	25	25	150	25	32	20					
	<b>2020K08</b>	▲	▲	20	20	125	20	25	26	LEM8×21	W08AP	WH30L	L4	SP4
	<b>2525M08</b>	▲	▲	25	25	150	25	32	26					
	<b>3232P08</b>	△	△	32	32	170	32	40	28					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A83	<b>WGM</b> Wiper  A84	<b>DR</b> Double-side  A86	Without chipbreaker  A86	A136
	<b>WGF</b> Wiper  A83	<b>PM</b> A85	<b>SNR</b> Double-side  A86		A136 -A137
	<b>SF</b> A83	<b>DM</b> A85			A137
	<b>EF</b> A84	<b>EM</b> A85			
		A84	A86		

Tool holder type	PWLNRL/L□□H/K/M06	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0804□□	WN□□0804□□
	PWLNRL/L□□K/M/P08	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□

General turning

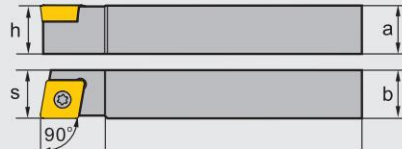
External turning

# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **CC** S-type clamping

**SCACRIL**  
Kr:90°



R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Wrench
		R	L	a	b	L	h	s	e		
<b>SCACR/L</b>	<b>0808F06</b>	△	△	8	8	80	8	8	16	I60M2.5×6.5	WT07IP
	<b>1010H06</b>	▲	△	10	10	100	10	10	16		
	<b>1212H06</b>	△	△	12	12	100	12	12	16		
	<b>1212H09</b>	▲	▲	12	12	100	12	12	20	I60M3.5×8	WT15IP
	<b>1616H09</b>	△	△	16	16	100	16	16	20		

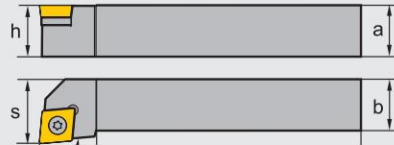
▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	<b>Without chipbreaker</b>  A92	 A139
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144
Tool holder type	<b>SCACR/L□□H/F06</b>	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX 0602□□	CC□□ 0602□□
	<b>SCACR/L□□H09</b>	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX 09T3□□	CC□□ 09T3□□

Corresponding tool holders of insert **CC**   S-type clamping

**SCLCRIL**  
Kr:95°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s	e					
<b>SCLCR/L</b>	<b>0808F06</b>	▲	△	08	08	80	08	10	12	I60M2.5×6.5	---	---	WT07IP
	<b>1010F06</b>	▲	▲	10	10	80	10	12	12				
	<b>1212H06</b>	△	△	12	12	100	12	16	12				
	<b>1616H06</b>	△	△	16	16	100	16	20	16				
	<b>1212H09</b>	▲	▲	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	▲	16	16	100	16	20	16				
	<b>2020K09</b>	△	△	20	20	125	20	25	16				
	<b>2525M09</b>	△	△	25	25	150	25	32	16				
	<b>2525M12</b>	▲	▲	25	25	150	25	32	20	I60M4×11X	C12BS	SM6×10XA	WT15IP WH40L
	<b>3225M12</b>	▲	▲	32	25	150	32	32	20				

▲Stock available    △Make-to-order

Applicable inserts

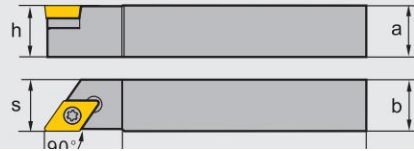
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	 Without chipbreaker A92	 A139
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144
Holder type	<b>SCLCR/L□□H/K/M09</b>	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CCGX 09T3□□	CC□□ 09T3□□
	<b>SCLCR/L□□K/M12</b>		CC□□ 1204□□	CC□□ 1204□□	CC□□ 1204□□	CCGX 1204□□	CC□□ 1204□□

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **DC** S-type clamping

**SDACRIL**  
Kr:90°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	a	b	L	h	s	e					
<b>SDACR/L</b>	<b>0808K07</b>	△	△	8	8	125	8	8	15	I60M2.5×6.5	---	---	WT071P
	<b>1010K07</b>	△	△	10	10	125	10	10	15				
	<b>1212K07</b>	△	△	12	12	125	10	10	15				
	<b>1212K11</b>	△	△	12	12	125	12	12	22	I60M3.5×8	---	---	WT151P
	<b>1616K11</b>	△	△	16	16	125	16	16	22	I60M3.5×12	D11BS	SM5×8.65XA	WT151P WH35L
	<b>2020K11</b>	△	△	20	20	125	20	20	22				
	<b>2525M11</b>	△	△	25	25	150	25	25	22				

▲ Stock available    △ Make-to-order

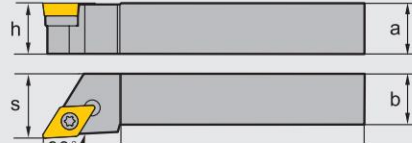
### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145

Tool type	SDACR/L□□□/M11	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DCGX 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□
Holder type								

Corresponding tool holders of insert **DC**   S-type clamping

**SDJCR/L**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	a	b	L	h	s	e					
<b>SDJCR/L</b>	<b>0808F07</b>	△	△	8	8	80	8	10	15	I60M2.5×6.5	---	---	WT07IP
	<b>1010F07</b>	▲	△	10	10	80	10	12	15				
	<b>1212H07</b>	▲	▲	12	12	100	12	16	15				
	<b>1414H07</b>	△	△	14	14	100	14	18	15				
	<b>1616H07</b>	▲	▲	16	16	100	16	20	15				
	<b>2020K07</b>	△	△	20	20	125	20	25	28				
	<b>2525M07</b>	△	△	25	25	150	25	32	28				
	<b>1212K11</b>	△	△	12	12	125	12	16	22				
	<b>2020K11</b>	▲	▲	20	20	125	20	25	22	I60M2.5×6.5	DT100	SMS 6.050M	WH35L
	<b>2525M11</b>	▲	▲	25	25	150	25	32	22				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	 Without chipbreaker A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145

Tc

holder type	<b>SDJCR/L</b> <input type="checkbox"/> <input type="checkbox"/> /M11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>
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General turning

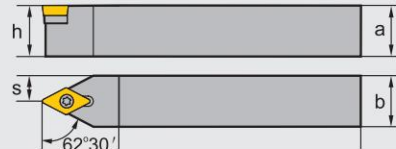
External turning

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **DC** S-type clamping

**SDNCN**  
Kr:62°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SDNCN</b>	<b>0808F07</b>	△	8	8	80	8	4	15	I60M2.5×6.5	---	---	WT07IP
	<b>1010F07</b>	▲	10	10	80	10	5	15				
	<b>1212H07</b>	▲	12	12	100	12	6	15				
	<b>1616H07</b>	△	16	16	100	16	8	15				
	<b>2020K07</b>	△	20	20	125	20	10	20				
	<b>2525M07</b>	△	25	25	150	25	12.5	20				
	<b>1616K11</b>	▲	16	16	125	16	8	22				
	<b>2020K11</b>	▲	20	20	125	20	10	22				
	<b>3225M11</b>	△	32	25	150	32	12.5	22				
	<b>3232P11</b>	△	32	32	170	32	16	22				

▲Stock available    △Make-to-order

### Applicable inserts

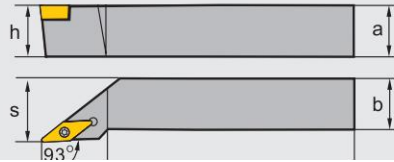
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts	
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140	
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145	
Tool holder	<b>SDNCN</b> <input type="checkbox"/> <input type="checkbox"/> F/H/K/M07		DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DCGX 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>

type



Corresponding tool holders of insert **VB**   S-type clamping

**SVJBRIL**  
Kr:93°



R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SVJBR/L</b>	<b>1212H11</b>	▲	▲	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	▲	16	16	100	16	20	25				
	<b>2020K11</b>	▲	▲	20	20	125	20	25	25				
	<b>2525M11</b>	▲	▲	25	25	150	25	32	25				
	<b>1616H16</b>	▲	▲	16	16	100	16	20	35	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	▲	▲	20	20	125	20	25	35				
	<b>2525M16</b>	▲	▲	25	25	150	25	32	35				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b> 			
		<b>NGF</b>  A108			
Tool holder type	<b>SVJBR/L□□H/K/M11</b>	VB□□1103□□	VB□□1103□□	VB□□1103□□	
	<b>SVJBR/L□□H/K/M16</b>		VB□□1604□□	VB□□1604□□	VB□□1604□□

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert **VB** S-type clamping

#### SVABRIL

Kr:90°



R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SVABR/L</b>	<b>1010F11</b>	△	△	10	10	80	10	10	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H16</b>	△	△	16	16	100	16	16	28	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	△	△	20	20	125	20	20	28				
	<b>2525M16</b>	△	△	25	25	150	25	25	28				

▲Stock available    △Make-to-order

### Applicable inserts

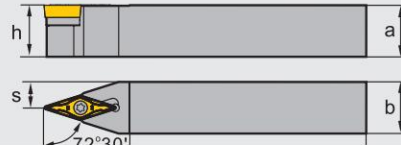
Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b> 			
		<b>NGF</b>  A108			
Tool holder type	<b>SVABR/L</b> □□F11	VB□□1103□□	VB□□1103□□	VB□□1103□□	
	<b>SVABR/L</b> □□H/K/M16		VB□□1604□□	VB□□1604□□	VB□□1604□□

Corresponding tool holders of insert **VB** □ □

S-type clamping

**SVVBN**












Kr:72°30'



Type		Stock	Basic dimensions(mm)					Screw	Shim	Shim screw	Wrench	
			a	b	L	h	s					e
<b>SVVBN</b>	<b>1212H11</b>	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT071P
	<b>1616H11</b>	▲	16	16	100	16	8	25				
	<b>2020K11</b>	▲	20	20	125	20	10	25				
	<b>2525M11</b>	△	25	25	150	25	12.5	35				
	<b>1616H16</b>	▲	16	16	100	16	8	35	I60M3.5×12	V16BS	SM5×8.65XA	WT151P WH35L
	<b>2020K16</b>	▲	20	20	125	20	10	35				
	<b>2525M16</b>	▲	25	25	150	25	12.5	35				

▲ Stock available    △ Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b>  A108			
		<b>NGF</b>  A108			

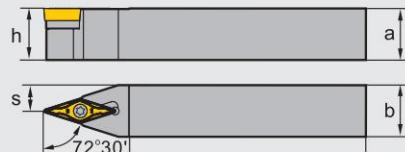
Tool holder type	SVVBN□□H/K/M11	SVVBN□□H/K/M16
	VB□□1103□□	VB□□1103□□
		VB□□1604□□
		VB□□1604□□
		VB□□1604□□
		VB□□1604□□

# TURNING / General Turning Tools

## External turning tools

### Corresponding tool holders of insert VC □ □ S-type clamping

#### SVVCN Kr:72°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SVVCN</b>	<b>1212H11</b>	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	16	16	100	16	8	27				
	<b>2020K11</b>	▲	20	20	125	20	10	30				
	<b>2525M11</b>	△	25	25	150	25	12.5	38				
<b>SVVCN</b>	<b>1616H16</b>	▲	16	16	100	16	8	33	I60M3.5×12	V16BSC	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	▲	20	20	125	20	10	33				
	<b>2525M16</b>	▲	25	25	150	25	12.5	38				

▲ Stock available    △ Make-to-order

### Applicable inserts

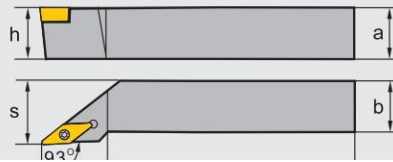
Application	For extra finishing	For finishing	For AI machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
		<b>NGF</b> 		

Tool holder type	SVVCN□□H/K/M11	VC□□1103□□	VC□□1103□□	VCGX1103□□	
	SVVCN□□H/K/M16		VC□□1604□□	VCGX1604□□	VC□□1604□□

Corresponding tool holders of insert VC □ □

S-type clamping

**SVJCRIL**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s	e					
<b>SVJCR/L</b>	<b>1212H11</b>	△	△	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	▲	16	16	100	16	20	25				
	<b>2020K11</b>	▲	▲	20	20	125	20	25	25				
	<b>2525M11</b>	▲	▲	25	25	150	25	32	35				
	<b>1616H16</b>	▲	▲	16	16	100	16	20	35	I60M3.5×12	V16BSC	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	▲	▲	20	20	125	20	25	35				
	<b>2525M16</b>	▲	▲	25	25	150	25	32	35				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For Al machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
		<b>NGF</b>  A105		
Tool holder type	<b>SVJCR/L□□H/K/M11</b>	VC□□1103□□	VC□□1103□□	VCGX1103□□
	<b>SVJCR/L□□H/K/M16</b>		VC□□1604□□	VCGX1604□□
				VC□□1604□□

General turning

External turning

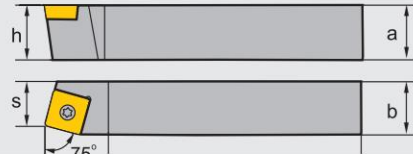
# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **SC** S-type clamping

#### SSBCRIL

Kr:75°



R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SSBCR/L</b>	<b>1212H09</b>	▲	▲	12	12	100	12	9	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	▲	16	16	100	16	13	16		I60M3.5×12	S09BS	SM5×8.65XA
	<b>2020K09</b>	△	△	20	20	125	20	17	20				
	<b>2525M09</b>	△	△	25	25	150	25	22	20				
	<b>2020K12</b>	▲	▲	20	20	125	20	17	25	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	△	△	25	25	150	25	22	25				

▲ Stock available    △ Make-to-order

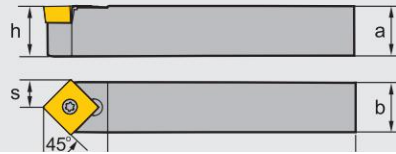
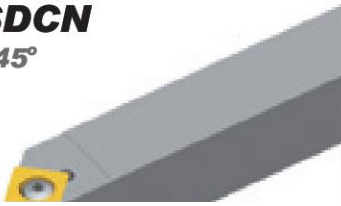
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
Inserts shape	<b>HF</b> A98	<b>HM</b> A98	<b>HR</b> A99	<b>LH</b> A99	Without chipbreaker  A99	
	A98	A98		A99		
Tool holder type	<b>SSBCR/L□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	<b>SSBCR/L□□K/M12</b>		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□

Corresponding tool holders of insert **SC**

S-type clamping

**SSDCN**  
Kr:45°



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SSDCN</b>	<b>1212H09</b>	▲	12	12	100	12	6	16	I60M3.5×8	—	—	WT15IP
	<b>1616H09</b>	▲	16	16	100	16	8	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K09</b>	△	20	20	125	20	10	20				
	<b>2525M09</b>	△	25	25	150	25	12.5	20	I60M4×11	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	▲	25	25	150	25	12.5	22				

▲Stock available    △Make-to-order

Applicable inserts

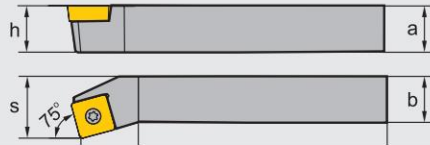
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
Inserts shape	<b>HF</b> A98	<b>HM</b> A98	<b>HR</b> A99	<b>LH</b> A99	Without chipbreaker  A99	
	A98	A98		A99		
Tool holder type	<b>SSDCN□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	<b>SSDCN□□M12</b>		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□

# TURNING / General Turning Tools




## External turning tools

### Corresponding tool holders of insert **SC** S-type clamping

**SSKCRIL**  
Kr:75°











R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SSKCR/L</b>	<b>1212H09</b>	△	△	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	△	16	16	100	16	20	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K09</b>	△	△	20	20	125	20	25	20				
	<b>2525M09</b>	△	△	25	25	150	25	32	20				
	<b>2020K12</b>	△	△	20	20	125	20	25	22	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	△	△	25	25	150	25	32	22				

▲Stock available    △Make-to-order

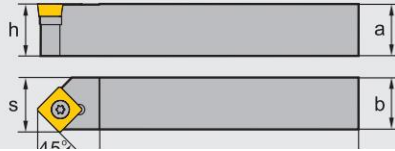
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99	
	 A98	 A98		 A99		
Tool holder type	<b>SSKCR/L□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	<b>SSKCR/L□□K/M12</b>		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□




Corresponding tool holders of insert **SC**   S-type clamping

**SSSCRIL**  
Kr:45°











R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SSSCR/L</b>	<b>1212H09</b>	△	△	12	12	100	12	16	16	I60M3.5×8	--	--	WT15IP
	<b>1616H09</b>	▲	▲	16	16	100	16	17	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K09</b>	△	△	20	20	125	20	21	20				
	<b>2525M09</b>	△	△	25	25	150	25	32	20				
	<b>2020K12</b>	▲	▲	20	20	125	20	21	24	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	△	△	25	25	150	25	32	22				

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99	
	 A98	 A98		 A99		
Tool holder type	<b>SSSCR/L□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	<b>SSSCR/L□□K/M12</b>		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□

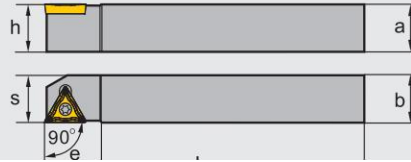
# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert **TC** S-type clamping

#### STACRIL

Kr:90°

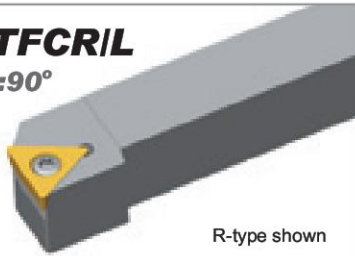


Type		Stock		Basic dimensions(mm)					Screw	Wrench	--	--	
		R	L	a	b	L	h	s					e
STACR/L	1010K11	△	△	10	10	100	10	10	12	I60M2.5×6.5	WT07IP	--	--
	1212F11	△	△	12	12	100	12	12	14				
	1616K11	△	△	16	16	100	16	16	16				

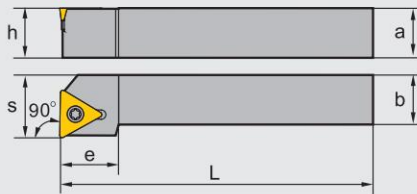
▲Stock available    △Make-to-order

#### STFCRIL

Kr:90°



R-type shown



Type		R	L	a	b	L	h	s	e	Screw	Wrench	Screw	Wrench
STFCR/L	1212H11	▲	▲	12	12	100	12	16	14	I60M2.5×6.5	--	--	WT07IP
	1616H11	▲	▲	16	16	100	16	20	14				
	2020K11	△	△	20	20	125	20	25	20				
	2525M11	△	△	25	25	150	25	32	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	1616K16	▲	▲	16	16	125	16	20	20				
	2020K16	▲	▲	20	20	125	20	25	20				
2525M16	△	△	25	25	150	25	32	25					

▲Stock available    △Make-to-order

### Applicable inserts

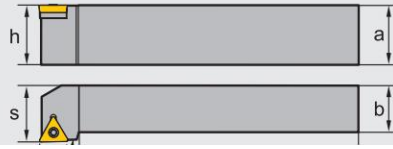
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
	HF	HM	HR	LH		
	EF	EM		LC		
	A102	A102		A103		

Tool holder type	STACR/L□□K/F11	STFCR/L□□H/K/M11	STFCR/L□□K/M16
	TC□□1102□□	TC□□1102□□	TC□□16T3□□
	TC□□1102□□	TC□□1102□□	TC□□16T3□□
	TC□□1102□□	TC□□1102□□	TC□□16T3□□
	TC□□1102□□	TC□□1102□□	TC□□16T3□□
	TC□□1102□□	TC□□1102□□	TC□□16T3□□
	TC□□1102□□	TC□□1102□□	TC□□16T3□□

Corresponding tool holders of insert **TC**

S-type clamping

**STGCR/L**  
Kr:91°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s	e					
<b>STGCR/L</b>	<b>0808F09</b>	▲	△	08	08	80	8	10	12	I60M2.2×5.5	---	---	WT061P
	<b>1010F09</b>	▲	▲	10	10	80	10	12	12				
	<b>1212H09</b>	△	△	12	12	100	12	16	12				
	<b>1212H11</b>	▲	▲	12	12	100	12	16	16				
	<b>1616H11</b>	▲	▲	16	16	100	16	20	16	I60M2.5×6.5	---	---	WT071P
	<b>2020K11</b>	△	△	20	20	125	20	25	20				
	<b>2525M11</b>	△	△	25	25	150	25	32	20				
	<b>1616K16</b>	△	△	16	16	125	16	20	20				
	<b>2525M16</b>	▲	▲	25	25	150	25	32	21				

▲Stock available    △Make-to-order

Applicable inserts

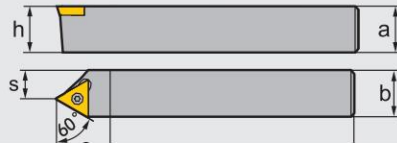
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
	<b>USF</b>	<b>HF</b>	<b>HM</b>	<b>HR</b>	<b>LH</b>		
	<b>SF</b>	<b>EF</b>	<b>EM</b>		<b>LC</b>		
<b>Tool holder type</b>	<b>STGCR/L□□F/H09</b>	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□
	<b>STGCR/L□□H/K/M11</b>		TC□□1102□□	TC□□1102□□	TC□□1102□□	TC□□1102□□	TC□□1102□□
	<b>STGCR/L□□K/M16</b>		TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□

# TURNING General Turning Tools





## External turning tools

### Corresponding tool holders of insert **TC** S-type clamping

**STECRIL**  
Kr:60°







R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	a	b	L	h	s	e					
<b>STECR/L</b>	<b>1616H11</b>	△	△	16	16	100	16	10.5	16	I60M2.5×6.5	---	---	WT07IP
	<b>2020K11</b>	△	△	20	20	125	20	14.5	20				
	<b>2020K16</b>	△	△	20	20	125	20	12.5	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP
	<b>2525M16</b>	△	△	25	25	150	25	17.0	25		WT35IP		

▲ Stock available    △ Make-to-order

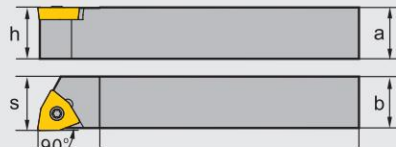
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>HF</b>  A101	<b>HM</b>  A103	<b>HR</b>  A103	<b>LH</b>  A104	 A104	 A141
	<b>EF</b>  A102	<b>EM</b>  A102		<b>LC</b>  A103		

holder type	<b>STECR/L</b> <input type="checkbox"/> <input type="checkbox"/> <b>K/M16</b>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TCGX16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>
-------------	---	---	---	---	--	---

Corresponding tool holders of insert WC □ □ S-type clamping

**SWACR/L**  
Kr:90°



R-type shown


Type		Stock		Basic dimensions(mm)						Screw	Wrench	—	—
		R	L	a	b	L	h	s	e				
<b>SWACR/L</b>	<b>1010E04</b>	△	△	10	10	70	10	10	10	I60M2.5×6.5	WT07IP	—	—
	<b>1212F04</b>	▲	△	12	12	80	12	12	14				
	<b>1616H06</b>	▲	△	16	16	100	16	16	20	I60M3×7	WT10IP	—	—
	<b>2020K08</b>	▲	▲	20	20	125	20	20	24				

▲Stock available    △Make-to-order

General turning

External turning

Applicable inserts

Application	For finishing	
Inserts shape	<b>53</b>	
		A107
Tool holder	<b>SWACR/L□□E/F04</b>	WC□X0402□□
	<b>SWACR/L□□H06</b>	WC□X06T3□□



# TURNING General Turning Tools

## External turning tools

### Corresponding tool holders of insert RC S-type clamping

#### SRDCN



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SRDCN</b>	<b>1616H08</b>	△	16	16	100	16	8	16	I60M3×7	---	---	WT10IP
	<b>2020K08</b>	△	20	20	125	20	10	16				
	<b>2525M08</b>	△	25	25	150	25	12.5	16	I60M3.5×10	---	---	WT15IP
	<b>2020K10</b>	△	20	20	125	20	10	20				
	<b>2525M10</b>	▲	25	25	150	25	12.5	20	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	<b>2525M12</b>	▲	25	25	150	25	12.5	35				
	<b>3232P12</b>	△	32	32	170	32	16	35	I60M4×15X	R16BS	SM6×10XA	WT15IP
	<b>3225P16</b>	▲	32	25	170	32	12.5	35				

▲Stock available    △Make-to-order

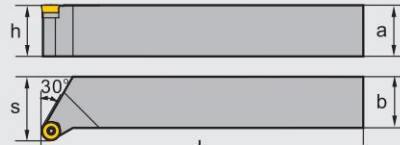
#### Applicable inserts

Application	For semi-finishing	For roughing	For Al machining
Inserts shape	 A96	 A96	<b>LH</b>  A96

Tool holder type	For semi-finishing	For roughing
<b>SRDCN□□K/M10</b>	RCMT10T3MO	RCMT10T3MO
<b>SRDCN□□M/P12</b>	RCMT1204MO	RCMT1204MO
<b>SRDCN□□P/S16</b>	RCMT1606MO	RCMT1606MO

Corresponding tool holders of insert **RC**   S-type clamping

**SRGCR/L**



R-type shown

Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s					
<b>SRGCR/L</b>	<b>1616H08</b>	△	△	16	16	100	16	20	I60M3×7	---	---	WT10IP
	<b>2020K08</b>	△	△	20	20	125	20	25				
	<b>2525M08</b>	△	△	25	25	150	25	32				
	<b>1616H10</b>	△	△	16	16	100	16	20	I60M3.5×10	---	---	WT15IP
	<b>2020K10</b>	▲	▲	20	20	125	20	25				
	<b>2525M10</b>	▲	▲	25	25	150	25	32				
	<b>2020K12</b>	▲	△	20	20	125	20	27	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	<b>2525M12</b>	▲	▲	25	25	150	25	32				

▲Stock available    △Make-to-order

Applicable inserts

Application	For semi-finishing	For roughing	For AI machining
Inserts shape			<b>LH</b>

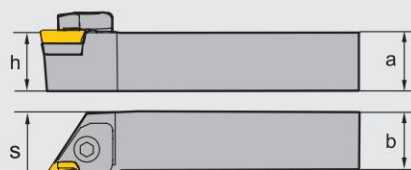
Tool holder type	For semi-finishing	For roughing
<b>SRGCR/L□□H/K/M10</b>	RCMT10T3MO	RCMT10T3MO
<b>SRGCR/L□□K/M12</b>	RCMT1204MO	RCMT1204MO
<b>SRGCR/L□□P16</b>	RCMT1606MO	RCMT1606MO

## External turning tools

### Corresponding tool holders of insert **KNUX** C-type clamping

#### CKJNR/L

Kr:93°



R-type shown

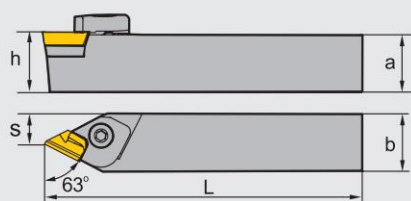


Type	Stock	Basic dimensions(mm)						Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench	
		a	b	L	h	s	e									
<b>CKJNR</b>	<b>2525M16</b>	△	25	25	150	25	32	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B	WH20L WH40L	
	<b>3232P16</b>	△	32	32	170	32	40									32
	<b>4040R16</b>	△	40	40	200	40	50									32
<b>CKJNL</b>	<b>2525M16</b>	△	25	25	150	25	32	KNUX1604□□L A87	C6L1T	CM6×25A	SPR1 SPR2	P0515	K16CCL	SM3×10B	WH20L WH40L	
	<b>3232P16</b>	△	32	32	170	32	40									32
	<b>4040R16</b>	△	40	40	200	40	50									32

▲Stock available    △Make-to-order

#### CKNNR/L

Kr:63°



R-type shown

Type	Stock	Basic dimensions(mm)					Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench
		a	b	L	h	s								
<b>CKNNR</b>	<b>2525M16</b>	△	25	25	150	25	14.3	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B
	<b>3232P16</b>	△	32	32	170	32	16.8							
<b>CKNNL</b>	<b>2525M16</b>	△	25	25	150	25	14.3	KNUX1604□□L A87	C6L1T	CM6×25A	SPR1 SPR2	P0515	K16CCL	SM3×10B
	<b>3232P16</b>	△	32	32	170	32	16.8							

▲Stock available    △Make-to-order



External turning tools for ceramic inserts

Corresponding tool holders of insert **RC/P**   C-type clamping

**CRDCR/L**  
**CRDPR/L**



R-type shown

Type		Stock		Basic dimensions(mm)						Applicable inserts	Clamp	Clamping screw	Wrench	Shim	
		R	L	a	b	L	h	s	Ar						
<b>CRDCR/L</b>	<b>2525M09V-19</b>	△	△	25	25	150	25	25.5	19	RCGN0907 <input type="checkbox"/> <input type="checkbox"/> A152	C3RH	M5*16(GB70-85)	WH40L	RC09XC	
	<b>3232P09V-28</b>	△	△	32	32	170	32	32.5	28						
	<b>4040S09V-38</b>	△	△	40	40	250	40	40.5	38						
		<b>2525M12V-19</b>	△	△	25	25	150	25	25.5	19	RCGN1207 <input type="checkbox"/> <input type="checkbox"/> A152	C4RH	M6*20(GB70-85)	WH50L	RC12XC
		<b>3232P12V-28</b>	△	△	32	32	170	32	32.5	28					
		<b>4040S12V-38</b>	△	△	40	40	250	40	40.5	38					
<b>CRDPR/L</b>	<b>2525M09V-19</b>	△	△	25	25	150	25	25.5	19	RPGN0907 <input type="checkbox"/> <input type="checkbox"/> A152	C3RH	M5*16(GB70-85)	WH40L	RP09XC	
	<b>3232P09V-28</b>	△	△	32	32	170	32	32.5	28						
		<b>2525M12V-19</b>	△	△	25	25	150	25	25.5	19	RPGN1207 <input type="checkbox"/> <input type="checkbox"/> A152	C4RH	M6*20(GB70-85)	WH50L	RP12XC
		<b>3232P12V-28</b>	△	△	32	32	170	32	32.5	28					
		<b>4040S12V-38</b>	△	△	40	40	250	40	40.5	38					

▲Stock available    △Make-to-order

General turning

External turning tools for ceramic i



## How to select internal turning tools

### How to select internal turning tools

#### Explanation of internal turning tools detailed table

- Listed according to clamping types.

Approach angle of tools

Specification chart

The first 4 letters in the type description stands for tool shape and applicatio.

The arrow shows suitable applications such as internal turning, profiling and end turning, etc.

Insert type

Corresponding tool holders of insert **DN**   P-type clamping

**PDPNR/L**  
Kr:62° 30'

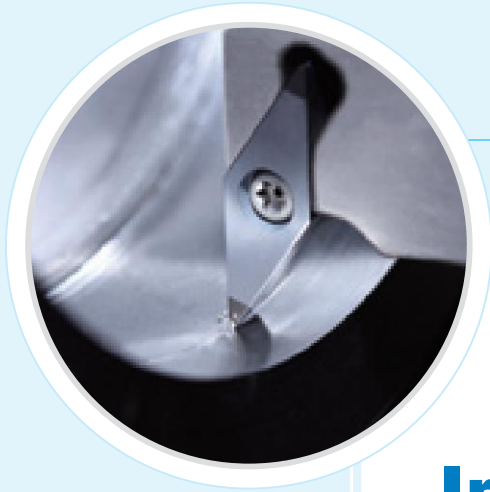
Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27					
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4

Applicable inserts		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	DF	WGM	DR	HDR			
	WGF	PM	DR				
	SF	DM	ER				
	EF	EM	ER				
	NF	NM	SNR				
	NGF		LR				
Tool holder type	<input type="checkbox"/> -PDPNR/L15-3	DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>		DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>
	<input type="checkbox"/> -PDPNR/L15	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>

Tool holders with oil hole

Products specification  
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

Applicable inserts  
Including applications of inserts, reference page, insert shape and corresponding tool holders.



# TURNING



## Internal turning tools

**Internal turning tools overview** ● A209

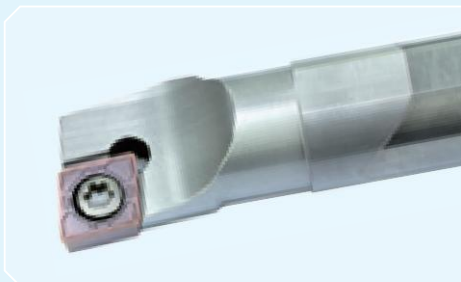
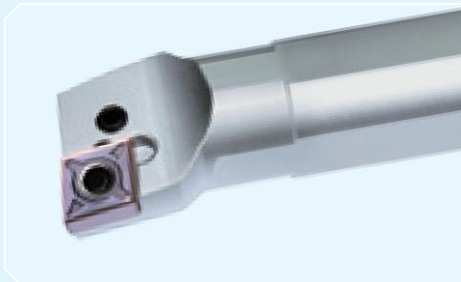
**Internal turning tools code key** ● A210-A211

**Detailed table of internal turning tools** ● A212-A240

Internal turning Tools by P-type clamping ● A212-A217

Internal turning tools by S-type clamping ● A218-A233

Damping internal turning tools and their features ● A234-A240










































# ***Internal turning tools***





Internal turning tools overview

Name	Feature	62°30'	75°	90°	90°	93°	93°	95°	95°	107°30'
P-I	<ul style="list-style-type: none"> <li>The minimum</li> </ul>									
Internal turning tools	<ul style="list-style-type: none"> <li>diameter is 20mm.</li> <li>Applicable inserts are economic negative inserts.</li> <li>Hole clamping</li> </ul>									
										
S-type internal turning tools	<ul style="list-style-type: none"> <li>The minimum machining diameter is 10mm.</li> <li>Applicable inserts are 5°</li> </ul>									
										
										
Internal turning tools	<ul style="list-style-type: none"> <li>positive inserts.</li> <li>Screw clamping.</li> </ul>									
										
Damping internal turning tools	<ul style="list-style-type: none"> <li>The minimum diameter can be machined is 12mm.</li> <li>Applicable inserts are 7° , 11° positive inserts.</li> <li>Good Performance on reducing shake.</li> </ul>									
										

General turning

v

Internal turning tools ove

# TURNING General Turning Tools

## Internal turning tools code key

Type of tool holder		Diameter of tool holder	Length of tool holder	Clamping system	Inserts shape	
Code	Type					
A	Steel tool holder with oil-hole	Code Diameter	Code Length	P-Hole clamping		
	Cemented					
E	Cemented carbide tool holder with oil hole	08 08	H 100	M-Top and hole clamping		
		10 10	K 125			
		16 16	M 150	S-Screw on		
S	Steel tool holder	20 20	N 160			
		25 25	Q 180	C-Top clamping		
		32 32	R 200			
X	Special inserts applied	40 40	S 250			
		50 50	T 300			
			U 350			
			V 400			


**S 16 R - S D U**

### Tool holder style and approach angle

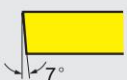
A	B	C	D	E	F	G	H
J	K	L	M	N	O	P	Q
R	S	T	U	V	W	X	

Internal turning tools code key

**Clearance angle of insert**

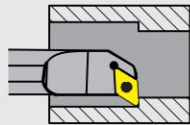


5° **B**



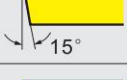
7° **C**

**Cutting direction**




**Manufacture option**

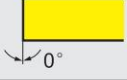
<b>D</b>	Increase offset f size+1.0mm
<b>E</b>	Increase offset




15° **D**



20° **E**

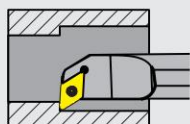


0° **N**



11° **P**

**L - Left hand**



**R - Right hand**






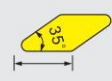

<b>R</b>	Round shank
<b>W</b>	Wedge clamping
<b>X</b>	Back boring

**C** **R** **07** **E**

General turning

Internal turning tools coc

Length of cutting edge

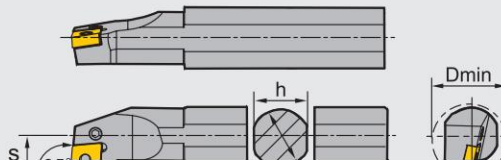
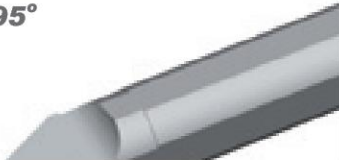
Inserts shape	<b>C</b>	<b>D</b>	<b>R</b>	<b>S</b>	<b>T</b>	<b>V</b>	<b>W</b>
							
Inscribed circle	Length of cutting edge(mm)						
5.556	—	—	—	—	09	—	—
6.350	06	07	—	—	11	—	—
9.525	09	11	09	09	16	16	06
15.875	16	19	15	15	27	—	—
19.050	19	—	19	19	33	—	—
25.400	25	—	25	25	44	—	—

# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **CN** P-type clamping

**PCLNR/L**  
Kr:95°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S16Q-PCLNR/L09	△	△	20	16	15	180	10	LEM5×12	WH20L	L3C	---	---
S20R-PCLNR/L09	△	△	25	20	19	200	12.5					
S25S-PCLNR/L09	△	△	32	25	24	250	15					
S25S-PCLNR/L12	△	△	32	25	24	250	16	LEM6×14	WH25L	L4A	---	---
S32T-PCLNR/L12	▲	▲	40	32	30	300	21	LEM8×21	WH30L	L4	C12APB	SP4
S40U-PCLNR/L12	▲	▲	50	40	38	350	26					
S50V-PCLNR/L12	▲	▲	63	50	48	400	31					
S50V-PCLNR/L16	△	△	63	50	48	400	31	LEM8×25	WH30L	L5	C16AP	SP5
S50S-PCLNR/L19	△	△	63	50	47	250	35	LEM10×27	WH40L	L6	C19AP	SP6
S50W-PCLNR/L19	▲	▲	63	50	47	450	35					

▲Stock available    △Make-to-order

### Applicable inserts

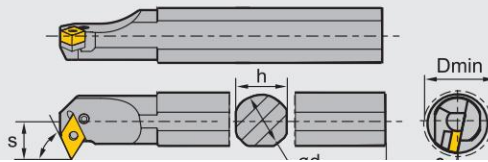
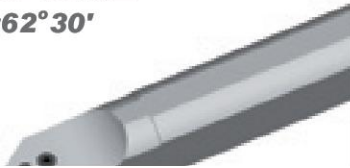
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	DF  A54	WGM Wiper  A55	DR Double-side  A58	HDR  A59	Without chipbreaker  A59	 A118
	WGF Wiper  A54	PM  A55	DR Single-side  A58	HPR  A59		 A118 -A119
	SF  A54	DM  A56	ER Double-side  A58			 A119
	EF  A54	EM  A56	ER Single-side  A58			
	NF  A54	NM  A56	SNR  A58			
			LR Single-side  A57			

Tool holder type	□□-PCLNR/L09	CN□□0903□□	CN□□0903□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	□□-PCLNR/L12	CN□□1204□□	CN□□1204□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
	□□-PCLNR/L16	CN□□1606□□	CN□□1606□□	CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□
	□□-PCLNR/L19		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□



Corresponding tool holders of insert **DN**   P-type clamping

**PDPNR/L**  
Kr:62° 30'



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27					
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDPNR/L15	△	△	50	40	38	350	27					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	DF  A61	WGM Wiper  A63	DR Double-side  A65	HDR  A66	Without chipbreaker  A66	A121 -A122
	WGF Wiper  A61	PM  A63	DR Single-side  A65			A122 -A123
	SF  A62	DM  A64	ER Double-side  A65			A123
	EF  A62	EM  A64	ER Single-side  A65			
	NF  A62	NM  A64	SNR  A65			
	NGF  A62		LR Single-side  A65			

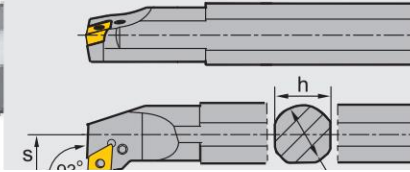
Tool holder type	□□-PDPNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1506□□	DN□□1504□□	DN□□1504□□
		□□-PDPNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

# TURNING / General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **DN** P-type clamping

**PDUNR/L**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
<b>S20R-PDUNR/L11</b>	△	△	25	20	19	200	13	LEM5×12	WH20L	L3D	---	---
<b>S25S-PDUNR/L11</b>	△	△	32	25	24	250	17					
<b>S32T-PDUNR/L15</b>	△	△	40	32	30	300	23	LEM8×21	WH30L	L4B	D15AP	SP4
<b>S32T-PDUNR/L15-3</b>	△	△	40	32	30	300	23	LEM8×21	WH30L	L4	D15AP	SP4
<b>S40U-PDUNR/L15</b>	△	△	50	40	38	350	27	LEM8×21	WH30L	L4B	D15AP	SP4
<b>S40U-PDUNR/L15-3</b>	▲	▲	50	40	38	350	27	LEM8×21	WH30L	L4	D15AP	SP4

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper  A63	<b>DR</b> Double-side  A65	<b>HDR</b> A66	Without chipbreaker  A66	A121 -A122
	<b>WGF</b> Wiper  A61	<b>PM</b> A63	<b>DR</b> Single-side  A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side  A65			A123
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side  A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side  A65			
	<b>NGF</b> A62		<b>LR</b> Single-side  A65			

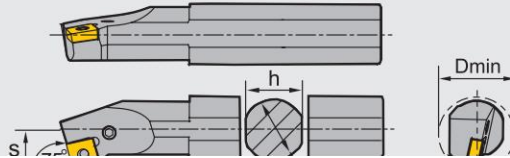
Tool holder type	□□-PDUNR/L11	□□-PDUNR/L15-3	□□-PDUNR/L15
	DN□□1104□□	DN□□1504□□	DN□□1506□□
	DN□□1104□□	DN□□1504□□	DN□□1506□□
	DN□□1504□□	DN□□1504□□	DN□□1506□□
	DN□□1504□□	DN□□1504□□	DN□□1506□□
	DN□□1504□□	DN□□1504□□	DN□□1506□□

General turning

Internal turning tools

Corresponding tool holders of insert **SN**   P-type clamping

**PSKNR/L**  
Kr:75°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
<b>S25S-PSKNR/L12</b>	▲	▲	32	25	24	250	17	LEM6×14	WH25L	L4A	--	--
<b>S32T-PSKNR/L12</b>	△	△	41	32	30	300	22	LEM8×21	WH30L	L4	S12APB	SP4
<b>S40U-PSKNR/L12</b>	△	△	50	40	38	350	27					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For roughing	PCBN/PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	Without chipbreaker  A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b>			
			<b>LR</b> Single-side  A69			

Tool holder type	<input type="checkbox"/> -PSKNR/L12	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>
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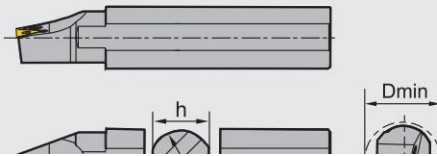
General turning  
Internal turning

# TURNING / General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **TN** P-type clamping

**PTFNRL**  
Kr:90°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
<b>S25S-PTFNR/L16</b>	▲	▲	32	25	24	250	16	LEM5×12	WH20L	L3B	---	---
<b>S32T-PTFNR/L16</b>	△	△	41	32	30	300	21	LEM6×17	WH25L	L3	T16APB	SP3
<b>S40U-PTFNR/L16</b>	△	△	50	40	38	350	26					

▲Stock available    △Make-to-order

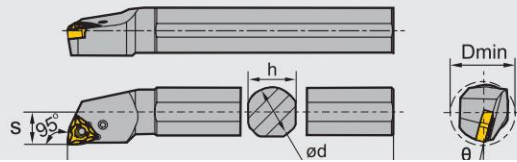
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper A76	<b>DR</b> Double-side A78	<b>HDR</b> A79	Without chipbreaker A80	A130
	<b>WG</b> Wiper A75	<b>PM</b> A76	<b>DR</b> Single-side A78			A130 -A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side A78			A131
	<b>EF</b> 	<b>EM</b> 	<b>SNR</b> 			
			<b>LR</b> Single-side A77			

Tool holder type	<input type="checkbox"/> -PTFNR/L16	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>

Corresponding tool holders of insert **WN**   P-type clamping

**PWLNRL**  
Kr:95°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S16R-PWLNRL/L06	△	△	20	16	15	200	10	LEM5X12	WH20L	L3D	---	---
S20R-PWLNRL/L06	△	△	25	20	19	200	12			L3B		
S25S-PWLNRL/L06	△	△	35	25	24	250	15					
S20R-PWLNRL/L08	△	△	23	20	19	200	12.5	LEM6X14	WH25L	L4A	---	---
S25S-PWLNRL/L08	△	△	32	25	24	250	16					
S32T-PWLNRL/L08	△	△	41	32	30	300	21	LEM8X21	WH30L	L4	W08AP	SP4

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN/PCD inserts	
Inserts shape	<b>DF</b>  A83	<b>WGM</b> Wiper  A84	<b>DR</b> Double-side  A86	Without chipbreaker  A86	 A136	
	<b>WGF</b> Wiper  A83	<b>PM</b>  A85	<b>SNR</b> Double-side  A86		 A136 -A137	
	<b>SF</b>  A83	<b>DM</b>  A85			 A137	
	<b>EF</b> 	<b>EM</b> 				
	<b>NF</b>  A84	<b>NM</b>  A86				
Tool holder type	<input type="checkbox"/> -PWLNRL/L06	WN <input type="checkbox"/> 0604 <input type="checkbox"/>	WN <input type="checkbox"/> 0604 <input type="checkbox"/>	WN <input type="checkbox"/> 0604 <input type="checkbox"/>	WN <input type="checkbox"/> 0604 <input type="checkbox"/>	
	<input type="checkbox"/> -PWLNRL/L08	WN <input type="checkbox"/> 0804 <input type="checkbox"/>	WN <input type="checkbox"/> 0804 <input type="checkbox"/>	WN <input type="checkbox"/> 0804 <input type="checkbox"/>	WN <input type="checkbox"/> 0804 <input type="checkbox"/>	WN <input type="checkbox"/> 0804 <input type="checkbox"/>

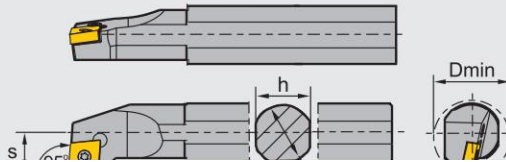
# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **CC** S-type clamping

#### SCLCRIL

Kr:95°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
S08K-SCLCR/L06	▲	▲	10	8	7.4	125	5	I60M2.5×5.5	WT07IP	---	---
S10K-SCLCR/L06	▲	▲	13	10	9	125	6.5				
S12M-SCLCR/L06	▲	▲	16	12	11	150	9				
S12M-SCLCR/L09	▲	▲	16	12	11	150	9	I60M3.5×8	WT15IP	---	---
S14N-SCLCR/L09	△	△	18	14	13	160	9				
S16Q-SCLCR/L09	△	△	20	16	15	180	10				
S20R-SCLCR/L09	△	△	25	20	19	200	12	I60M3.5×10	WT15IP	---	---
S25S-SCLCR/L09	△	△	32	25	24	250	15.5				
S20R-SCLCR/L12	△	△	25	20	19	200	12.5	I60M4×11X	WT15IP	---	---
S25S-SCLCR/L12	▲	▲	32	25	24	250	15.5	I60M4×11X	WT15IP	---	---

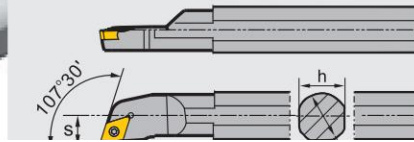
▲ Stock available    △ Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN/PCD inserts	
	USF	HF	HM	HR	LH			
Inserts shape	SF  A89	EF  A90	EM  A90		LC  A91		A144	
Tool holder type	<input type="checkbox"/> -SCLCR/L06	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CCGX0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLCR/L09	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLCR/L12		CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CCGX1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **DC**   S-type clamping

**SDQCR/L**  
Kr:107°30'



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	--	--
	R	L	Dmin	ød	h	L	S				
S10K-SDQCR/L07	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT071P	--	--
S12M-SDQCR/L07	▲	▲	16	12	11	150	9				
S16Q-SDQCR/L07	△	△	20	16	15	180	11	I60M2.5×6.5	WT071P	--	--
S20R-SDQCR/L11	△	△	25	20	19	200	13				
S25S-SDQCR/L11	△	△	32	25	24	250	17	I60M3.5×10	WT151P	--	--
S32T-SDQCR/L11	△	△	40	32	30	300	22				
S40T-SDQCR/L11	△	△	50	40	38	350	27				

▲ Stock available    △ Make-to-order

Applicable inserts

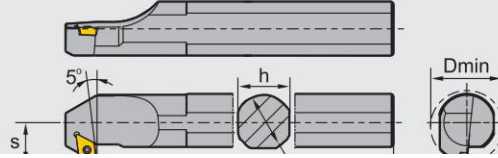
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
	USF	HF	HM	HR	LH	Without chipbreaker		
Inserts shape	SF  A93	EF  A94	EM  A94		LC  A95		A145	
Tool holder type	<input type="checkbox"/> -SDQCR/L07	DC□□0702□□	DC□□0702□□	DC□□0702□□		DCGX0702□□	DC□□0702□□	DC□□0702□□
	<input type="checkbox"/> -SDQCR/L11	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX11T3□□	DC□□11T3□□	DC□□11T3□□





Corresponding tool holders of insert **DC**   S-type clamping

**SDZCR/L**  
Kr:95°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S25S-SDZCR/L11</b>	△	△	33	25	24	250	18	I60M3.5×10	WT15IP	---	---
<b>S32T-SDZCR/L11</b>	△	△	40	32	30	300	22				
<b>S40U-SDZCR/L11</b>	△	△	48	40	38	350	27				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For AI machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>USF</b> A93	<b>HF</b> A93	<b>HM</b> A94	<b>HR</b> A95	<b>LH</b> A95	<b>Without chipbreaker</b> A95	A140
	<b>SF</b> 	<b>EF</b> 	<b>EM</b> 		<b>LC</b> 		

Tool holder type	<input type="checkbox"/> <b>SDZCR/L11</b>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>

General turning

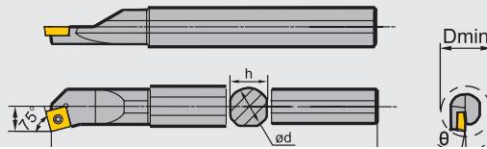
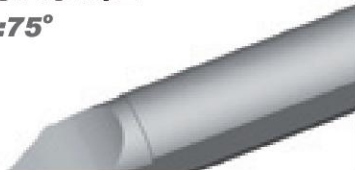
Internal turning

# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **SC** S-type clamping

**SSKCRIL**  
Kr:75°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S12M-SSKCR/L09</b>	▲	△	16	12	11	150	9	I60M3.5×8	WT15IP	—	—
<b>S16Q-SSKCR/L09</b>	△	△	20	16	15	180	11				
<b>S20R-SSKCR/L09</b>	△	△	25	20	19	200	13				
<b>S25S-SSKCR/L12</b>	△	△	32	25	24	250	17	I60M4×11X	WT15IP WH40L	—	—
<b>S32T-SSKCR/L12</b>	△	△	40	32	30	300	22				

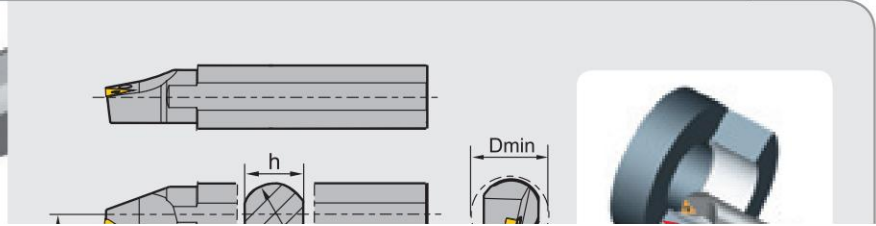
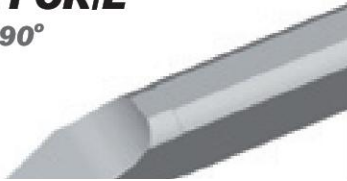
▲ Stock available    △ Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
	HF	HM	HR	LH	Without chipbreaker	
Inserts shape	EF  A98	EM  A98		LC  A99		
Tool holder type	<input type="checkbox"/> -SSKCR/L09	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SSKCR/L12		SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SCGX1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **TC**   S-type clamping

**STFCRIL**  
Kr:90°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S12M-STFCR/L11</b>	▲	▲	16	12	11	150	9	I60M2.5×6.5	WT07IP	---	---
<b>S16Q-STFCR/L11</b>	△	△	20	16	15	180	10				
<b>S20R-STFCR/L11</b>	△	△	25	20	19	200	12				
<b>S25S-STFCR/L16</b>	△	△	32	25	24	250	16	I60M3.5×10	WT15IP	---	---
<b>S32T-STFCR/L16</b>	△	△	40	32	30	300	21	I60M3.5×12	WT15IP WH35L	T16BS	SM5×8.65XA
<b>S40U-STFCR/L16</b>	△	△	50	40	38	350	25				

▲Stock available    △Make-to-order

Applicable inserts

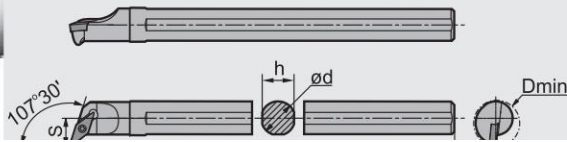
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
	<b>HF</b>	<b>HM</b>	<b>HR</b>	<b>LH</b>	Without chipbreaker		
Inserts shape	<b>EF</b> A102	<b>EM</b> A102		<b>LC</b> A103			
Tool holder type	<input type="checkbox"/> -STFCR/L11	TC <input type="checkbox"/> 1102 <input type="checkbox"/>	TC <input type="checkbox"/> 1102 <input type="checkbox"/>	TC <input type="checkbox"/> 1102 <input type="checkbox"/>	TCGX1102 <input type="checkbox"/>	TC <input type="checkbox"/> 1102 <input type="checkbox"/>	TC <input type="checkbox"/> 1102 <input type="checkbox"/>
	<input type="checkbox"/> -STFCR/L16	TC <input type="checkbox"/> 16T3 <input type="checkbox"/>	TC <input type="checkbox"/> 16T3 <input type="checkbox"/>	TC <input type="checkbox"/> 16T3 <input type="checkbox"/>	TCGX16T3 <input type="checkbox"/>	TC <input type="checkbox"/> 16T3 <input type="checkbox"/>	TC <input type="checkbox"/> 16T3 <input type="checkbox"/>

# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert VC□□ S-type clamping

**SVQCR/L**  
Kr:107°30'











R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S16Q-SVQCR/L11</b>	▲	▲	22	16	15	180	13	I60M2.5×6.5	WT07IP	--	--
<b>S20R-SVQCR/L16</b>	△	△	27	16	19	200	14	I60M3.5×12	WT15IP WH35L	V16BSC	SM5×8.65×A
<b>S25S-SVQCR/L16</b>	△	△	35	25	24	250	20				
<b>S32T-SVQCR/L16</b>	△	△	42	32	30	300	23				

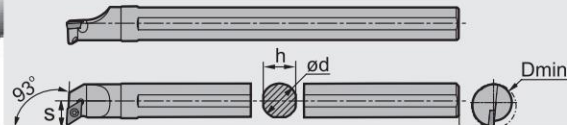
▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For AI machining	PCBN/PCD inserts
	<b>USF</b> 	<b>HF</b> 	<b>LH</b> 	
Inserts shape	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
Tool holder type	□□-SVQCR/L11	VC□□1103□□	VCGX1103□□	
	□□-SVQCR/L16		VCGX1604□□	VC□□1604□□

Corresponding tool holders of insert VC □ □ S-type clamping

**SVUCR/L**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S16Q-SVUCR/L11</b>	△	△	24	16	15	180	15	I60M2.5×6.5	WT07IP	--	--
<b>S20R-SVUCR/L11</b>	△	△	28	20	19	200	17				
<b>S25S-SVUCR/L16</b>	△	△	35	25	24	250	20	I60M3.5×12	WT15IP	V16BS	SM5×8.65×A
<b>S32T-SVUCR/L16</b>	△	△	42	32	30	300	23		WT15IP WH35L		

▲ Stock available    △ Make-to-order

General turning

Internal turning



Applicable inserts

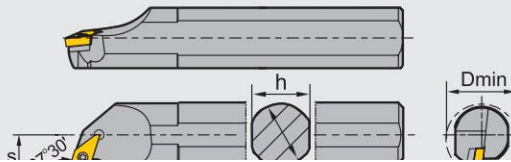
Application	For extra finishing	For finishing	For AI machining	PCBN/PCD inserts
	<b>USF</b>	<b>HF</b>	<b>LH</b>	
Inserts shape	<b>SF</b> A105	<b>NF</b> A105	<b>LC</b> A106	A148
Tool holder type	□ □ -SVUCR/L11	VC □ □ 1103 □ □	VC □ □ 1103 □ □	VCGX1103 □ □
	□ □ -SVUCR/L16		VC □ □ 1604 □ □	VC □ □ 1604 □ □

# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **VB** S-type clamping

**SVQBR/L**  
Kr:107°30'












R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S20R-SVQBR/L16</b>	△	△	27	20	19	200	14	I60M3.5×12		V16BS	SM5×8.65XA
<b>S25S-SVQBR/L16</b>	△	△	35	25	24	250	20				
<b>S32T-SVQBR/L16</b>	▲	▲	42	32	30	300	23				

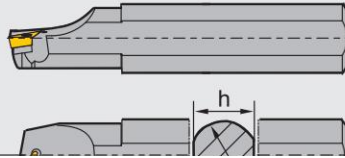
▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
Inserts shape	<b>EF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A147
	<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
	<b>NGF</b>  A108			
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SVQBR/L16	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **VB**   S-type clamping

**SVUBR/L**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S25S-SVUBR/L16</b>	△	△	35	25	24	250	20	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65XA
<b>S32T-SVUBR/L16</b>	△	△	42	32	30	300	23				

▲Stock available    △Make-to-order

Applicable inserts

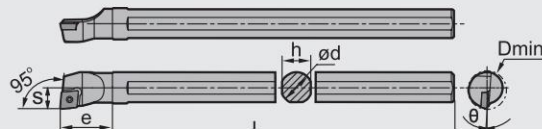
Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
Inserts shape	<b>EF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A147
	<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
	<b>NGF</b>  A108			
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SVUBR/L16	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>

# TURNING General Turning Tools



## Internal turning tools

### Corresponding tool holders of insert CP S-type clamping

**SCLPRIL**  
Kr:95°




R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	h	L	S	θ	e			--	--
<b>S10K-SCLPR/L06</b>	▲	▲	12	10	9	125	6	-7°	17	I60M2.5×5.5	WT07IP	--	--
<b>S12M-SCLPR/L06</b>	▲	▲	16	12	11	150	8	-4°	20			--	--
<b>S16Q-SCLPR/L09</b>	▲	▲	20	16	15	180	10	-4°	29	I60M3.5×8	WT15IP	--	--
<b>S20R-SCLPR/L09</b>	△	△	25	20	18	200	13	-4°	35			--	--

▲Stock available    △Make-to-order

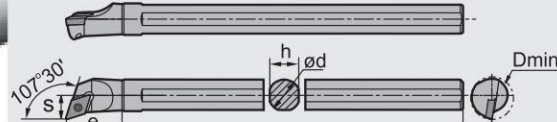
### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A110
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SCLPR/L06      CP <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -SCLPR/L09      CP <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>







Corresponding tool holders of insert DP   S-type clamping

**SDQPR/L**  
Kr:107°30'





R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	h	L	S	θ	e			--	--
S10K-SDQPR/L07	△	△	13	10	9	125	7	-8°	20	I60M2.5×5.5		--	--
S12M-SDQPR/L07	▲	△	16	12	11	150	9	-8°	22			--	--
S16Q-SDQPR/L07	▲	△	20	16	15	180	11	-6°	27	I60M2.5×6.5		--	--
S16Q-SDQPR/L11	▲	△	20	16	15	180	11	-6°	32			I60M3.5×8	
S16Q-SDQPR/L11	△	△	25	20	18	200	13	-6°	33	--	--		

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	<b>USF</b>  A111
	<b>SF</b>  A111
Tool holder type <input type="checkbox"/> -SDQPR/L07	DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> -SDQPR/L11	DP <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>

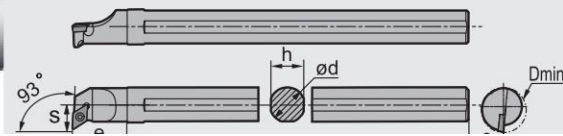


# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **DP** S-type clamping

**SDUPRIL**  
Kr:93°




R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	h	L	S	θ	e			--	--
<b>S10K-SDUPR/L07</b>	▲	▲	15	10	9	125	9	-8°	18	I60M2.5×5.5	WT07IP	--	--
<b>S12M-SDUPR/L07</b>	▲	△	16	12	11	150	9	-8°	19			--	--
<b>S16Q-SDUPR/L07</b>	△	△	20	16	15	180	11	-6°	25	I60M2.5×6.5		--	--

▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b> 

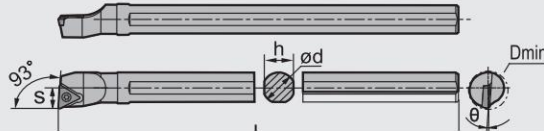
A 444

holder type	
-------------	--


Corresponding tool holders of insert TP

S-type clamping

**STUPRIL**  
Kr:93°




R-type shown

Type	Stock		Basic dimensions(mm)					Screw	Wrench	--	--
	R	L	Dmin	ød	h	L	S			--	--
<b>S10M-STUPR/L09</b>	△	△	13	10	9.4	150	6	I60M2.2×5.5	WT07IP	--	--
<b>S10M-STUPR/L11</b>	△	△	13	10	9.4	150	6			--	--
<b>S12Q-STUPR/L11</b>	△	△	16	12	11.4	180	7.5	I60M2.5×6.5	WT07IP	--	--
<b>S16R-STUPR/L11</b>	△	△	20	16	15	200	10			--	--

▲Stock available    △Make-to-order

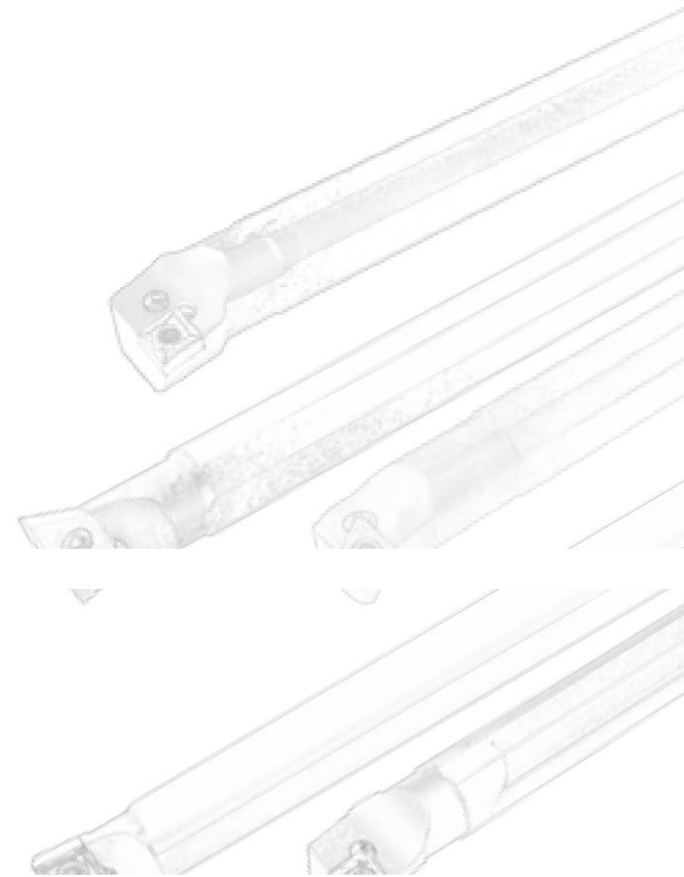
Applicable inserts

Application	For extra finishing
Inserts shape	SF 

holder type	TP
holder type	TP□□1103□□

General turning

Internal turning

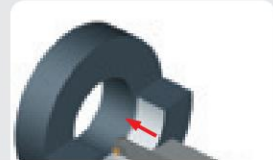


# TURNING / General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert **CC** S-type clamping

**SCFCRIL**  
Kr:90°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	L	s	a	b	e			--	--
<b>S10M-SCFCR/L06S25</b>	▲	▲	13	10	150	7	27	25	30	I60M2.5×5.5	WT07IP	--	--
<b>S12P-SCFCR/L06S25</b>	▲	▲	16	12	170	9	27	25	35	I60M2.5×6.5		--	--
<b>S16Q-SCFCR/L09S25</b>	▲	▲	20	16	180	11	27	25	40	I60M3.5×8	WT15IP	--	--
<b>S20R-SCFCR/L09S25</b>	△	△	25	20	200	13	27	25	45			--	--
<b>S25R-SCFCR/L12S25</b>	△	△	30	25	200	16	27	25	50			I60M4×11X	--

▲ Stock available    △ Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>USF</b> A89	<b>HF</b> A89	<b>HM</b> A90	<b>HR</b> A91	<b>LH</b> A91-92	A92 Without chipbreaker	A139
	<b>SF</b> A89	<b>EF</b> A90	<b>EM</b> A90		<b>LC</b> A91		A144
Tool holder type	<input type="checkbox"/> -SCFCR/L06S25	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX0602□□	CC□□0602□□
	<input type="checkbox"/> -SCFCR/L09S25	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX09T3□□	CC□□09T3□□
	<input type="checkbox"/> -SCFCR/L12S25		CC□□1204□□	CC□□1204□□	CC□□1204□□	CCGX1204□□	CC□□1204□□

General turning

Internal turning tools

Corresponding tool holders of insert **CC**   S-type clamping

**SCLCRIL**  
Kr:95°



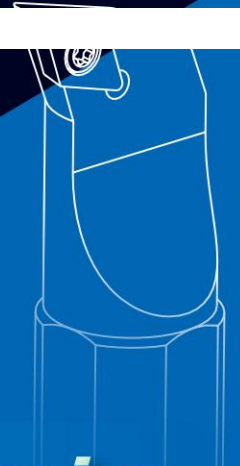
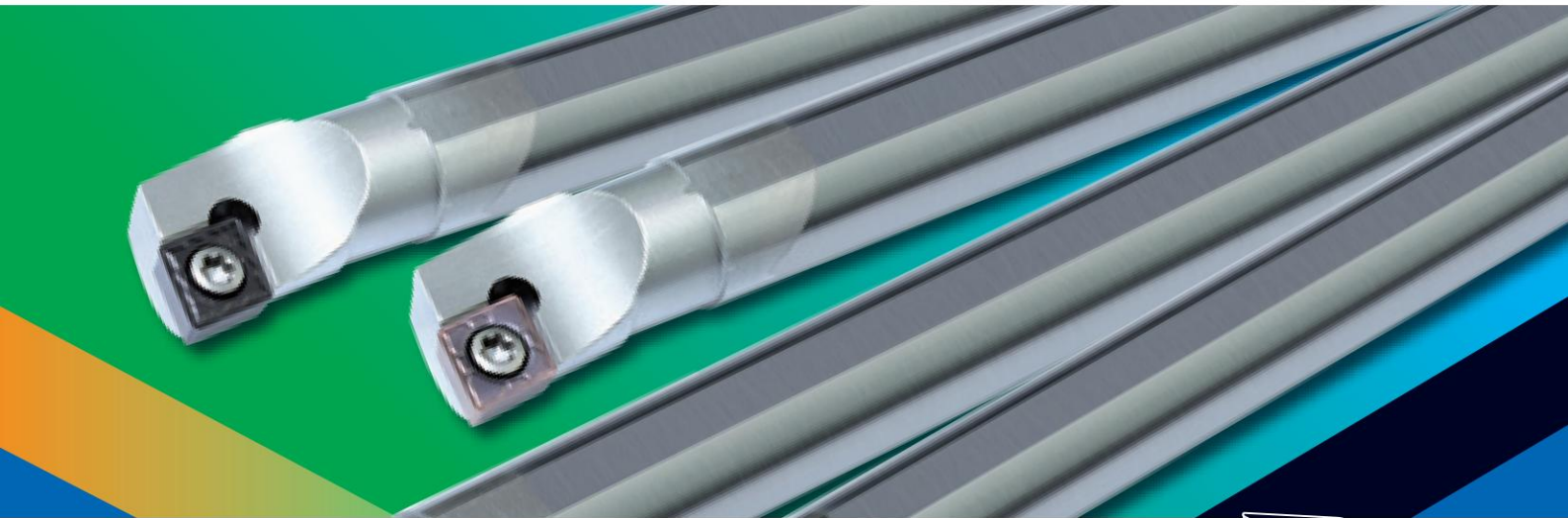
R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	L	s	a	b	e			--	--
<b>S10M-SCLCR/L06S20</b>	▲	▲	13	10	150	7	22	20	30	I60M2.5×5.5	WT07IP	--	--
<b>S12P-SCLCR/L06S20</b>	▲	▲	16	12	170	9	22	20	35			--	--
<b>S16Q-SCLCR/L09S20</b>	▲	▲	20	16	180	11	22	20	40	I60M3.5×8	WT15IP	--	--
<b>S20R-SCLCR/L09S20</b>	△	△	25	20	200	13	22	20	60			--	--

▲ Stock available    △ Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>USF</b> A89	<b>HF</b> A89	<b>HM</b> A90	<b>HR</b> A91	<b>LH</b> A91-92	A92 Without chipbreaker	A139
	<b>SF</b> A89	<b>EF</b> A90	<b>EM</b> A90		<b>LC</b> A91		A144
Tool holder (V)	<input type="checkbox"/> -SCLCR/L06S20	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX0602□□	CC□□0602□□
	<input type="checkbox"/> -SCLCR/L09S20	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX09T3□□	CC□□09T3□□



## *Damping tool holders for internal turning*

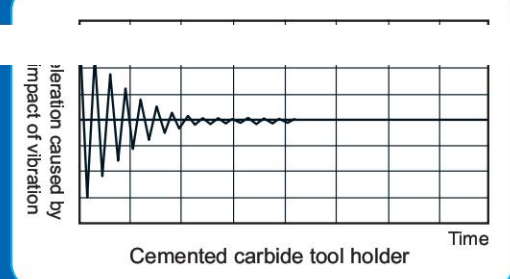
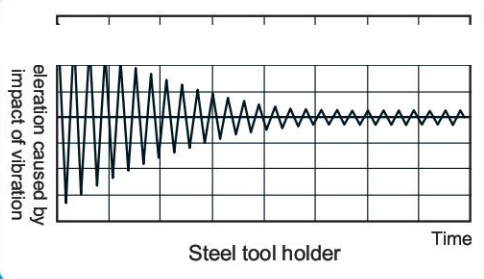
### Technical features

Increasing material rigidity of tool holder can reduce the amplitude, or obtain larger overhang under the condition of same systemic stability. Therefore, compared with steel tool holder, cemented carbide tool holder has better dampening effect, smaller amplitude and reaches convergence point sooner. As for machining under the condition of long overhang and easy vibration, they can exert excellent performance and achieve higher dimensional accuracy and surface quality.



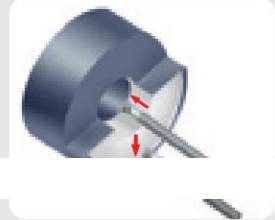
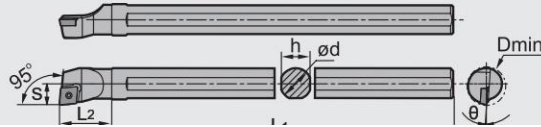
Under the same machining condition

**the maximum overhang of cemented carbide tool holder can reach  $L \leq 6D$ , while the recommended maximum overhang of steel tool holder is  $L \leq 3D$ .**




Corresponding tool holders of insert CP□□ (Damping tool holder) S-type clamping

**SCLPRIL**  
Kr:95°




R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	s	L1	L2	h	θ			--	--
<b>C10M-SCLPR/L06</b>	▲	△	12	10	6	150	17	9	-7°	I60M2.5×5.5	WT07IP	-	--
<b>C12Q-SCLPR/L06</b>	△	△	16	12	8	180	20	11	-4°			-	--
<b>C16R-SCLPR/L09</b>	▲	△	20	16	10	200	29	15	-4°	I60M3.5×8	WT15IP	-	--
<b>C20S-SCLPR/L09</b>	△	△	25	20	13	250	35	18	-4°			-	--

▲ Stock available    △ Make-to-order

Applicable inserts

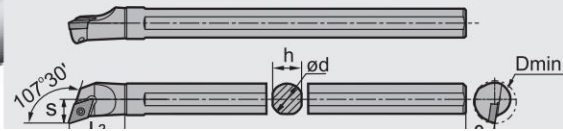
Application	For extra finishing
Inserts shape	<b>SF</b>  A110
Tool holder type	
□□-SCLPR/L06	CP□□0602□□
□□-SCLPR/L09	CP□□09T3□□

# TURNING General Turning Tools

## Internal turning tools

Corresponding tool holders of insert **DP**   (Damping tool holder) S-type clamping

**SDQPR/L**  
Kr:107°30'




R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L1	L2	h	θ				
C10M-SDQPR/L07	▲	△	13	10	7	150	20	9	-8°	I60M2.5×5.5	WT07IP	---	---
C12Q-SDQPR/L07	△	△	16	12	9	180	22	11	-8°				
C16R-SDQPR/L07	△	△	20	16	11	200	27	15	-6°	I60M2.5×6.5	WT15IP	---	---
C16R-SDQPR/L11	△	△	20	16	11	200	32	15	-6°				
C20S-SDQPR/L11	▲	△	25	20	13	250	33	18	-6°	I60M3.5×8			

▲ Stock available    △ Make-to-order

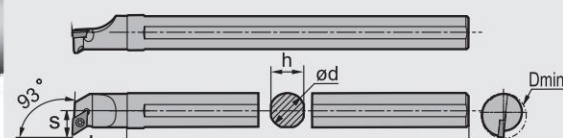
### Applicable inserts

Application	For extra finishing
Inserts shape	SF  A111
Tool holder type	
<input type="checkbox"/> -SDQPR/L07	DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> -SDQPR/L11	DP <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>






Corresponding tool holders of insert **DP** (Damping tool holder) S-type clamping

**SDUPRIL**  
Kr:93°




R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	s	L1	L2	h	θ			--	--
<b>C10M-SDUPR/L07</b>	△	△	15	10	9	150	18	9	-8°	I60M2.5×5.5		--	--
<b>C12Q-SDUPR/L07</b>	△	△	16	12	9	180	19	11	-8°			--	--
<b>C16R-SDUPR/L07</b>	△	△	20	16	11	200	25	15	-6°			--	--

▲Stock available    △Make-to-order

Applicable inserts

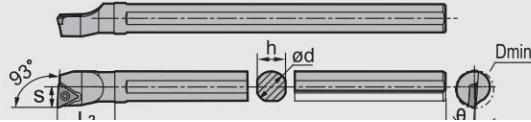
Application	For extra finishing
Inserts shape	<b>SF</b>  A111
Tool holder type	DP□□0702□□

# TURNING / General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert TP□□ (Damping tool holder) S-type clamping

#### STUPRIL Kr:93°




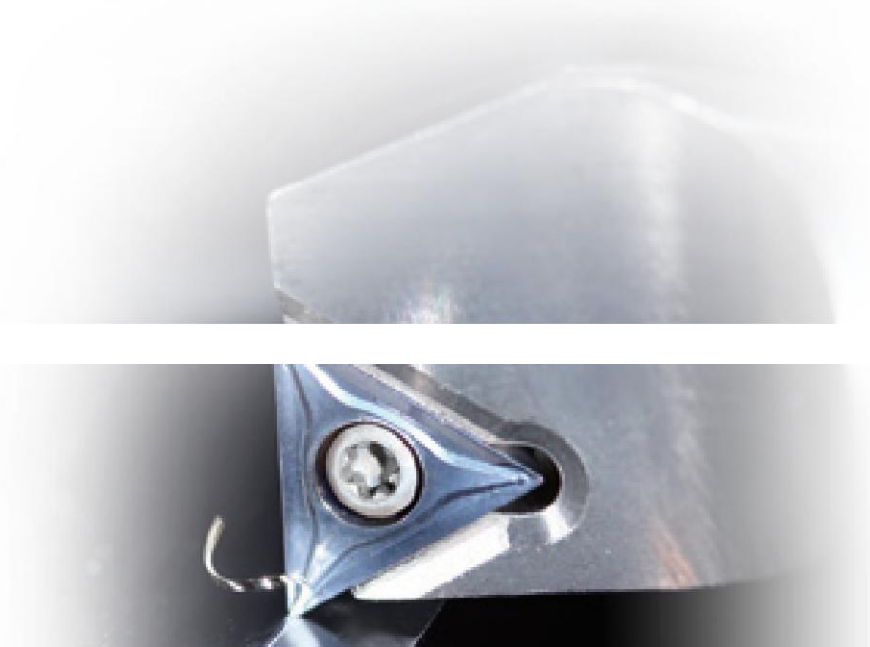
R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	s	L1	L2	h	θ				
C10M-STUPR/L09	▲	△	12	10	6	150	20	9	-6°	I60M2.2×5.5	WT07IP	--	--
C12Q-STUPR/L09	▲	△	16	12	8	180	22	11	-4°				
C12Q-STUPR/L11	▲	△	16	12	8	180	25	11	-4°	I60M2.5×6.5	WT07IP	--	--
C16R-STUPR/L11	▲	△	20	16	10	200	27	15	-3°				

▲ Stock available    △ Make-to-order

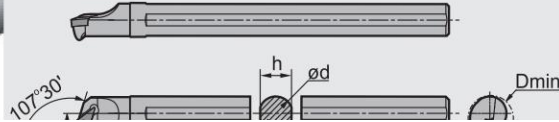
#### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A113
Tool holder type	
□□-STUPR/L09	TP□□0902□□
□□-STUPR/L11	TP□□1103□□



Corresponding tool holders of insert **VC** (Damping tool holder) S-type clamping

**SVQCR/L**  
Kr:107°30'



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	s	L1	L2	h	θ			--	--
<b>C16R-SVQCR/L11</b>	△	△	22	16	13	200	28	15	-6°	I60M2.5×6.5	WT07IP	--	--
<b>C20S-SVQCR/L11</b>	△	△	26	20	15	250	32	18	-4°			--	--

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For AI machining
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106
	<b>SF</b>  A105		<b>LC</b>  A106
Tool holder type	VC□□1103□□	VC□□1103□□	VCGX1103□□

General turning

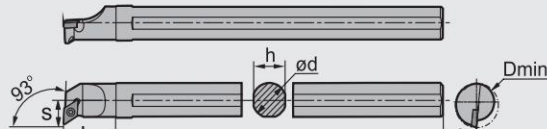
Internal turning

# TURNING General Turning Tools

## Internal turning tools

### Corresponding tool holders of insert VC□□ (Damping tool holder) S-type clamping

**SVUCR/L**  
Kr:93°



R-type shown

Type	Stock		Basic dimensions(mm)							Screw	Wrench	--	--
	R	L	Dmin	ød	s	L1	L2	h	θ				
<b>C16R-SVUCR/L11</b>	△	△	24	16	15	200	25	15	-6°	I60M2.5×6.5	WT07IP	--	--
<b>C20S-SVUCR/L11</b>	△	△	28	20	17	250	30	18	-4°				

▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For AI machining
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106
	<b>SF</b>  A105		<b>LC</b>  A106
Tool holder type	VC□□1103□□	VC□□1103□□	VCGX1103□□

**Table of recommended cutting parameters for general turning**

ISO Materials	Hardness	CVD Coating					PVD Coating			Cermet	Coated cermet	Cemented carbide		
		YBC151	YBC251	YBC152	YBC252	YBC351	YBC352	YBG102	YBG202	YBG302	YNG151	YNG151C	YC10	YC40
		Feed rate (mm/rev)												

P	Carbon steel	C=0.15%	Cutting speed (m/min)													
			125	430-200	430-190	500-270	480-240	380-165	430-220	460-220	380-180	360-165	550-350	580-350	360-165	300-145
		C=0.35%	150	380-180	410-180	460-250	460-230	300-150	350-200	440-210	300-170	280-150	500-300	520-300	280-150	220-130
		C=0.60%	200	330-150	350-150	400-220	400-200	260-130	310-180	380-180	260-150	240-130	460-260	480-260	240-130	180-80
	Alloy steel	Anneal	180	350-170	350-150	400-180	400-200	200-100	250-150	380-180	200-120	180-100	410-240	430-240	180-100	160-80
		Hardened	275	230-100	210-100	280-150	260-140	140-70	200-120	240-120	140-90	120-70	300-180	320-180	120-70	120-50
		Hardened	300	210-100	190-70	260-150	240-120	125-60	180-110	220-100	125-80	100-60	250-170	270-170	100-60	80-40
	High alloy steel	Anneal	350	180-80	170-70	230-120	220-120	110-55	160-100	200-100	110-75	90-55	230-150	250-150	90-55	70-45
		Hardened	200	320-150	260-120	360-190	310-170	175-80	220-130	290-150	175-100	155-80	350-200	370-200	155-80	135-60

P	Cast steel	Non-Alloy	180	240-120	200-100	280-160	250-140	135-75	190-130	230-125	135-95	115-75	260-170	280-170	115-75	95-55
		Low alloy	200	230-70	170-60	280-110	220-110	120-80	170-130	200-90	120-100	100-80	260-170	280-170	100-80	80-60
		High alloy	225	160-70	140-50	210-110	190-100	95-55	150-110	170-80	95-55	95-55	260-100	280-100	95-55	75-35

ISO Materials	Hardness HB	CVD Coating				PVD Coating				Cermet	Coated cermet		
		YBM151	YBM153	YBM251	YBM253	YBM215	YBG202	YBG205	YBG302	YNG151	YNG151C		
		Feed rate (mm/rev)											
		0.2-0.6	0.2-0.6	0.2-0.6	0.2-0.6	0.2-0.4	0.1-0.4	0.2-0.4	0.2-0.6	0.1-0.3	0.1-0.3		
Cutting speed (m/min)													
M	Stainless steel	Ferrite	180	280-180	280-180	250-140	260-140	290-190	300-190	290-190	250-150	330-220	350-210
		Austenite	260	250-150	250-150	200-110	210-110	240-160	250-160	240-160	220-120	250-150	270-140
		Martensite	330	200-140	200-140	210-130	220-130	250-170	260-170	250-170	210-120	270-170	290-160

## Application information of general turning

### Recommended table of cutting parameters for general turning

ISO	Materials	Hardness	CVD Coating				Cermet	Coated cermet	Ceramics	Cemented carbide	
			YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	CN3100	YC10	YC40
			Feed rate (mm/rev)								

Cutting speed (m/min)												
<b>K</b>	Malleable cast iron	Ferrite	130	350-230	330-220	320-105	250-170	280-160	300-180	800-600	150-90	105-45
		Pearlite	230	250-105	230-100	230-100	180-75	220-120	240-150	700-500	120-70	80-30
	Low cast iron		180	520-200	480-200	480-190	380-150	400-250	420-270	700-500	170-100	130-60
	High cast iron		260	230-120	220-115	210-100	170-90	360-240	380-260	800-600	130-70	95-40
	Nodular cast iron	Ferrite	160	310-150	300-150	290-140	220-110	330-190	350-210	600-450	140-80	115-45
		Pearlite	250	230-110	220-105	210-100	170-90	310-200	330-220	500-350	110-70	80-30

		Hardness HB	PVD Coating					Cemented carbide	Ceramics
			YBG102	YBG105	YBG202	YBS103	YBG212	YD101	CN3100

		Hardness HB	0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.2	0.05-0.2	0.05-0.35	0.05-0.2
			Cutting speed (m/min)						
<b>N</b>	Al alloy	No heat treatment	60					1750-800	
		Heat treatment	100					510-250	
	Cast aluminum alloy	No heat treatment	75					460-175	
		Heat treatment	90					300-110	
	Copper alloy	Lead alloy	110					610-205	
		Copper, pure copper	90					310-195	
Copper, nonleaded Copper, electrolytic copper		100					225-115		
<b>C</b>	Ni-base								

Recommended table of cutting parameters for general turning

ISO	Materials	PCBN											
		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
		Feed rate (mm/rev)											

		Cutting speed (m/min)											
<b>K</b>	Gray cast iron	400-1500		300-600									
	Hard cast iron	80-160		50-150									
<b>S</b>	Powder metallurgy and high temperature alloys										70-180	100-200	50-160
<b>H</b>	Hardened steel					150-250	140-220	100-170	120-180	80-150			

ISO	Materials	PCD			
		DN0121	DN0511	DN1021	DN3021
		Feed rate (mm/rev)			

		Cutting speed (m/min)							
<b>N</b>	Silumin ( si≤12% )	500~1000		900~3500		400~1200		300~700	
	fibre reinforced composite materials	200~1000							
	Metal base compound			1500~1800					
	Copper and magnesium alloy silumin			400~1260		400~1260			
	Cemented carbide			20~40					
	Unsintered ceramic materials							100~200	
	Sintered Ceramic							20~50	

## Application information of general turning

### Table of correctional cutting parameters of internal turning

#### Internal turning tools by P-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=3-4 (Diameter of shank≥Φ16mm)	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> 45#, 42CrMo	HB180—280	For semi-finishing	0.1- <b>0.25</b> -0.4	<5.0	0.1- <b>0.2</b> -0.3	<4.0
<b>M</b> Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤HB220	For semi-finishing	0.1- <b>0.2</b> -0.3	<4.0	0.1- <b>0.15</b> -0.25	<3.0
<b>K</b> Cast iron HT250	HB170—230	For semi-finishing	0.1- <b>0.25</b> -0.4	<5.0	0.1- <b>0.2</b> -0.3	<4.0

#### Internal turning tools by S-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=4		L/D=5		L/D=6	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> Carbon steel, Alloy steel 45#, 42CrMo	HB180-280	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2				
		For semi-finishing	0.15- <b>0.25</b> -0.35	<3.0	0.1- <b>0.15</b> -0.2	<1.5				
<b>M</b> Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤HB220	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2				
		For semi-finishing	0.15- <b>0.2</b> -0.25	<2.0	0.1- <b>0.15</b> -0.2	<1.0				
<b>N</b> Al alloy	---	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	-0.15	0.05- <b>0.1</b> -0.15	<0.1
		For semi-finishing	0.05- <b>0.1</b> -0.15	<2.0	0.05- <b>0.1</b> -0.15	<1.5	0.05- <b>0.1</b> -0.15	-1.0	0.05- <b>0.1</b> -0.15	<1.0

#### Damping internal turning tools

Workpiece material	Machining conditions	Chipbreaker	Inserts material	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> Steel HB180—280	For finishing	SF	YNG151 YNG151C	0.05- <b>0.2</b> -0.35	0.05- <b>0.1-0.3</b> -0.5
<b>M</b> Stainless steel ≤HB220				0.05- <b>0.2</b> -0.35	0.05- <b>0.1-0.3</b> -0.5

Blue words are recommended cutting parameters.



## Application information of general turning

### Frequent problems of turning and solutions

Common problem	Cause	Solutions	Tool material		Cutting conditions				Tool shape					Machine clamping system						
			Harder materials	Tougher materials	Cutting speed	Feed rate	Cutting depth	Cutting liquid	Change chipbreakers of inserts	Rake face	Nose radius	Approach angle	Cutting edge strength	Cutting edge inserts	Increase precision of tool holder	Increase rigidity of tool holder and workpiece	Clamping of tool holder and workpiece	Overhang of tool holder	Power gap	
Over abrasion on nose	Bad precision during machining	Abrasion intensified on flank	✓																	
		Unsuitable cutting conditions			↓	↑														
Surface precision deterioration	Bad surface quality	Abrasion intensified and cutting edge not sharp enough	✓		↓				✓		↑	↑		↓	✓					
		Cutting edge breakage		✓		↓	↓		✓		↑		↑				✓	✓	✓	
		Unsuitable geometrical shape of cutting edge							✓		↑		↓	✓						
		Unsuitable cutting conditions			↑	↓	↓	✓												
		Vibration		✓		↑	↓	↓	✓	✓	↑	↓	↑	↓		✓	✓	✓	✓	
		Built-up edge				↑	↑		✓	✓	↑			↓	✓					
Radiation of dir	Effect of cutting heat	Unsuitable cutting conditions			↓	↓	↓													
		Unsuitable geometrical shape of cutting edge	✓						✓	↑			↓							
Bad dimensions	Dimensions	Insert tolerance												✓						
		Offset of workpiece or tools							✓	↑	↓	↑			✓	✓	✓	✓		
Breakage	Abrasion on flank and rake face	Abrasion on clearance face	✓		↓				✓	↑	↑		↓							
		Abrasion on rake face	✓		↓	↓	↓		✓	↑		↓								
	Edge chipping		✓		↓	↓		✓			↓	↑		✓	✓	✓	✓			
	Built-up edge				↑	↑		✓	✓	↑		↓	✓							
	Thermal cracking				↓	↓	↓	✓	✓	↑		↓								
	Cutting edge nose deformation		✓		↑	↓	↓	✓	✓	↑	↑	↓	↓							
	Tool life			✓		↓	↓		✓		↑	↓	↑		✓	✓	✓	✓		
Chip control	Long, unbroken and snarled chips	Unsuitable cutting condition			↓	↑	↑	✓												
		Unsuitable geometry						✓			↓	↑								
	Too short and				↓	↓	✓													
Burr and knockdown flange	Steel and Al, burrs occurring	Unsuitable cutting condition			↑	↓		✓												
		Tool abrasion and unsuitable geometrical shape	✓						✓	↑	↓	↑	↓							
	Edge break out on cast iron	Unsuitable cutting conditions			↓	↑		✓												
		Tool abrasion and unsuitable geometrical shape	✓						✓	✓	↓	↓	↓							
	Heavy burr on soft steel	Unsuitable cutting condition				↓	↓													
Tool abrasion and unsuitable geometrical shape		✓						✓	↑	↑		↑		✓	✓	✓	✓			

## Application information of general turning

### Abrasion of tools and various damages

Tool damage type	Phenomenon	Cause	Solution
<b>Flank wear</b>	Cutting resistant force increasing Groove wear on flank	Tool material is too soft. Cutting speed is too high. Clearance angle is too small. Feed rate is too low.	<ul style="list-style-type: none"> <li>◆Select tool materials with good wear resistance.</li> <li>◆Reduce cutting speed.</li> <li>◆Enlarge clearance angle.</li> <li>◆Increase feed rate.</li> </ul>
<b>Rake face wear (Crater wear)</b>	Bad chip controlling Surface quality deterioration	Tool material is too soft. Cutting speed is too high. Feed rate is too high.	<ul style="list-style-type: none"> <li>◆Select tool materials with good wear resistance.</li> <li>◆Reduce cutting speed.</li> <li>◆Reduce feed rate.</li> </ul>
<b>Cutting edge breakage</b>	Occasional breakage Instability of tool life	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is small.	<ul style="list-style-type: none"> <li>◆Select tool materials with good toughness.</li> <li>◆Reduce feed rate.</li> <li>◆Increase land width (if rounding changes into chamfering).</li> <li>◆Enlarge tool bar size.</li> </ul>
<b>Breakage</b>	Cutting resistant force increasing Deterioration of surface roughness	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is low.	<ul style="list-style-type: none"> <li>◆Select tool materials with good toughness.</li> <li>◆Reduce feed rate.</li> <li>◆Increase land width (if rounding changes into chamfering).</li> <li>◆Enlarge tool bar size.</li> </ul>
		Tool material is too soft	
<b>(Cutting edge collapse)</b>	Workpiece dimension change Nose abrasion	Cutting depth and feed rate are too high. Cutting edge temperature is too high.	<ul style="list-style-type: none"> <li>◆Reduce cutting speed.</li> <li>◆Reduce cutting depth and feed rate.</li> <li>◆Select tool materials with good heat conductivity.</li> </ul>
<b>Built-up edge (Bonding)</b>	Surface quality deterioration during finishing Cutting resistant force increasing	Cutting speed is low. Cutting edge is not sharp enough. Tool material is unsuitable.	<ul style="list-style-type: none"> <li>◆Increase cutting speed.</li> <li>◆Enlarge rake angle.</li> <li>◆Select tool materials that are not easy to adhere together (coating, cermet, etc.)</li> </ul>
<b>Thermal cracking</b>	Damage because of thermal circulation Normally occurring during intermittent machining	Premature edge failure due to thermal cracks. Tool material is too hard.	<ul style="list-style-type: none"> <li>◆Adopt dry cutting.</li> <li>◆Select tool materials with good toughness.</li> </ul>
	burrs occurring	Feed rate and cutting speed	◆Select tool materials with good wear resistance.
	increasing		increase cutting speed
<b>Flaking</b>	Usually occurring when machining super hard materials, which is accompanied with vibration	Bonding occurs on cutting edge. Chip flow is obstructed.	<ul style="list-style-type: none"> <li>◆Sharpen cutting edge by enlarging rake angle.</li> <li>◆Enlarge chip pocket.</li> </ul>

*Parting and  
grooving tools*



# TURNING Parting and grooving tools

## How to select parting and grooving tools

### How to select parting and grooving tools

#### Structure of parting and grooving tools selection table

- Categorized as external machining, internal machining and profile machining.

series and Supplementary series).

#### Dimensions

Application of external machining, internal machining and profile machining

**External parting, grooving and turning tools**

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
	R	L	H × B	L	S	W	$\phi_{max}$			

#### Internal grooving and turning tools

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
	R	L	$\phi d$	L	S	W	$\phi_{max}$			

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench	
	R	L	H × B	L	S	W	$\phi_{max}$				
QEED	1616RL12	▲	▲	16 × 16	125	15.4	1.5	12	ZCND01500	GB70-85-M8 × 16	WH60L
	2020RL07	▲	▲	20 × 20	125	19.4	1.5	7	ZCND01500		
	2020RL12	▲	▲	20 × 20	125	19.4	1.5	12	ZCND01500		
	1212RL07	▲	▲	12 × 12	125	11.2	2	7	ZCB00300	GB70-85-M4 × 12	WH60L
	1212RL10	▲	▲	12 × 12	125	11.2	2	10	ZCB00300		
	1212RL14	▲	▲	12 × 12	125	11.2	2	14	ZCB00300		
	1616RL07	▲	▲	16 × 16	125	15.2	2	7	ZCB00300		
	1616RL10	▲	▲	16 × 16	125	15.2	2	10	ZCB00300		
	1616RL14	▲	▲	16 × 16	125	15.2	2	14	ZCB00300	GB70-85-M8 × 16	WH60L
	2020RL07	▲	▲	20 × 20	125	19.2	2	7	ZCB00300		
	2020RL10	▲	▲	20 × 20	125	19.2	2	10	ZCB00300		
	2020RL14	▲	▲	20 × 20	125	19.2	2	14	ZCB00300		
QEED	1616RL10	▲	▲	16 × 16	125	15	2.5	10	ZCB00300	GB70-85-M8 × 20	WH60L
	1616RL17	▲	▲	16 × 16	125	15	2.5	17	ZCB00300		
	2020RL10	▲	▲	20 × 20	125	19	2.5	10	ZCB00300		
	2020RL17	▲	▲	20 × 20	125	19	2.5	17	ZCB00300		
QEFD	1616RL10	▲	▲	16 × 16	125	14.8	3	10	ZCFD0300	GB70-85-M8 × 20	WH60L
	1616RL17	▲	▲	16 × 16	125	14.8	3	17	ZCFD0300		
	2020RL10	▲	▲	20 × 20	125	18.8	3	10	ZCFD0300		
	2020RL17	▲	▲	20 × 20	125	18.8	3	17	ZCFD0300		
QEED	2020RL10	▲	▲	25 × 25	150	24	2.5	10	ZCB00300		
	2020RL17	▲	▲	25 × 25	150	24	2.5	17	ZCB00300		
	2020RL13	▲	▲	20 × 20	140	18.5	4	13	ZCG00400	GB70-85-M8 × 20	WH60L
	2020RL22	▲	▲	20 × 20	140	18.5	4	22	ZCG00400		
2020RL13	▲	▲	25 × 25	150	23.5	4	13	ZCG00400			

▲ Stock available    △ Make-to-order

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench	
	R	L	$\phi d$	L	S	W	$\phi_{max}$				$\phi D_{min}$
C200-QEDRL05-27	▲	▲	20	180	152	3	5	27	ZTFD0300 ZRFD0300	GB70-85-M4 × 12 GB70-85-M5 × 16 GB70-85-M6 × 20	WH60L
C25R-QFDR/L07-33	▲	▲	25	200	203	3	7	33			
C32S-QFDR/L09-42	▲	▲	32	250	253	3	9	42			
C25R-QGDR/L08-35	▲	▲	25	200	215	4	8	35	ZYG00400 ZRG00400	GB70-85-M5 × 16 GB70-85-M6 × 20	WH60L WH50L
C32S-QGDR/L11-44	▲	▲	32	250	275	4	11	44			
C40T-QGDR/L13-54	▲	▲	40	300	335	4	13	54			
C25R-QHDR/L08-35	▲	▲	25	200	215	5	8	35	ZTH00500 ZRH00500	GB70-85-M5 × 16 GB70-85-M6 × 20	WH60L WH50L
C32S-QHDR/L11-44	▲	▲	32	250	275	5	11	44			
C40T-QHDR/L13-54	▲	▲	40	300	335	5	13	54			
C25R-QKDR/L08-35	▲	▲	25	200	215	6	8	35	ZTKD0600 ZRKD0600	GB70-85-M5 × 16 GB70-85-M6 × 20	WH60L WH50L
C32S-QKDR/L11-44	▲	▲	32	250	275	6	11	44			
C40T-QKDR/L13-54	▲	▲	40	300	335	6	13	54			

▲ Stock available    △ Make-to-order

#### Profile turning tools for AI

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
	R	L	$\phi D$ (Minimum machining diameter)	$\phi d$	S	L1	L2			
C40X-QLDR/L65-15A	▲	▲	160	40	21	320	65	ZRLD08-LH		
C40X-QLDR/L80-15A	▲	▲	160	40	21	320	80	ZRLD08-LH		
C40X-QKDR/L60-15A	▲	▲	160	40	20	320	60	ZRKD06-LH	GB70-85-M6 × 20	WH50L
C40X-QKDR/L75-15A	▲	▲	160	40	20	320	75	ZRKD06-LH		

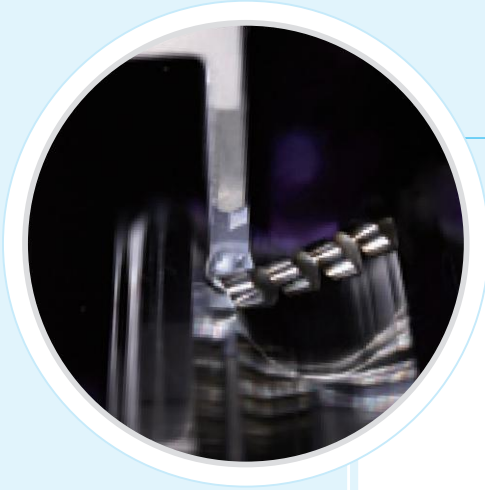
▲ Stock available    △ Make-to-order

#### Specification of products

Including type, basic dimensions, applicable

Indicating the minimum machining diameter

The minimum machining diameter is very important for internal machining.



# TURNING












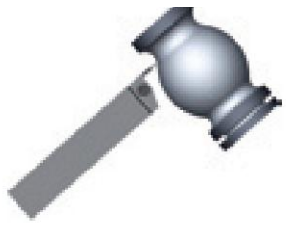




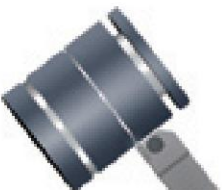

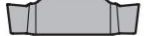



## Parting and grooving tools



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Supplementary series parting and grooving tools code key	A287
QZQ external grooving series	A288
<b>Application information on parting and grooving</b>	• A289-A290

# TURNING Parting and grooving tools

## Parting and grooving tools overview

Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters	
General turning		Little squirrel series QZ□□+QE□□ 	Parting inserts ZP□S□□ 	<ul style="list-style-type: none"> <li>Assemble structure of parting blade and holder; good rigidity; adjustable parting range.</li> <li>The maximum parting diameter</li> </ul>	
	Parting		A275 Little squirrel series QE□□R/L  A272-A273	ZP□D□□  ZP□S□□ 	<ul style="list-style-type: none"> <li>Inserts have three-dimensional chipbreaker with low cutting force and good performance on chip-breaking.</li> <li>The maximum parting diameter is 60mm.</li> </ul>
		 A288	Supplementary series QZ□□R/L  A288	ZQMX□□ 	<ul style="list-style-type: none"> <li>Cutting edge strength is suitable for bad machining conditions.</li> <li>The maximum parting diameter is 70mm.</li> </ul>
External grooving and turning	Grooving and turning		 A272-A273	 Profile turning ZR□D□□  Single cutting edge for deep grooving ZT□S□□ 	applications such as grooving, parting and profile turning, reducing tools categories needed. <ul style="list-style-type: none"> <li>A multifunctional tool when used with grooving inserts. Suitable for profile machining.</li> <li>The maximum slot depth machinable is 30mm.</li> </ul>
		Precise grooving		Little squirrel series QECD  A273	Precise grooving ZT□D□□-EG  Edge width 1.2~2.4mm
	Precise grooving		 A272-A273	Precise grooving ZT□D□□-EG  Edge width 2.4~6.5mm	cutting depth is 2.5mm. When edge width is above 2.4-6.5mm, the maximum cutting depth is 22mm.

General turning

Parting and grooving

Parting and grooving tools overview

External

Grooving and turning

Grooving and turning

Precise grooving

Precise grooving

## Parting and grooving tools overview

Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters
External machining	Shallow grooving	QC series GQCR/L	QC16/22□□□□	<ul style="list-style-type: none"> <li>Fine grinding of blades with high precision.</li> <li>Sharp edges and high machining accuracy.</li> <li>Three finely ground cutting edges for good economy.</li> </ul>
		A286		<ul style="list-style-type: none"> <li>groove width 0.3-4.0mm.</li> <li>Maximum depth of cut 4mm.</li> </ul>
Internal machining	Grooving and turning	Little squirrel series C□□-Q□□R/L□	Grooving, Turning ZT□□□□  Profile turning ZR□□□□ 	<ul style="list-style-type: none"> <li>By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed.</li> <li>The maximum slot depth machinable is 13mm.</li> <li>The minimum machining diameter is 27mm.</li> </ul>
	Shallow grooving	QC series S□□□-QC□□R/L□	QC11/16/22□□□□	<ul style="list-style-type: none"> <li>Fine grinding of blades with high precision.</li> <li>Machining groove width 0.5-4.8mm.</li> <li>Minimum machining diameter 16mm.</li> <li>Maximum depth of cut 4mm.</li> </ul>
End surface machining	Grooving and turning	Little squirrel series QF□□□□H	Grooving, Turning ZT□□□□  Profile turning ZR□□□□ 	<ul style="list-style-type: none"> <li>By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed.</li> <li>Grooving diameter is 48-400mm.</li> <li>Grooving depth is 10-30mm.</li> </ul>
		Little squirrel series QF□□□□L	Grooving, Turning ZT□□□□  Profile turning ZR□□□□ 	<ul style="list-style-type: none"> <li>90°holder, top clamping.</li> <li>By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed.</li> <li>Grooving diameter is 48-400mm.</li> <li>Grooving depth is 10-30mm.</li> </ul>
Recess machining	Recess machining	A274	ZT□□□□  Profile turning ZR□□□□ 	<ul style="list-style-type: none"> <li>The unique tool for recess machining.</li> <li>Complete range of specifications, able to achieve various recess machining.</li> </ul>




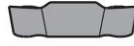




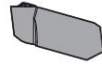

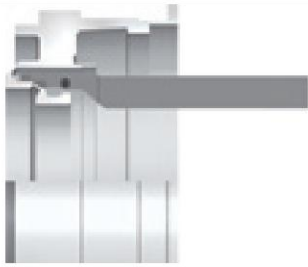
General turning

Parting groove

Parting and grooving tools overview

# TURNING Parting and grooving tools

## Parting and grooving tools overview

Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters
General turning	External machining	 <p>Little squirrel series QE□□R/L</p> 		<ul style="list-style-type: none"> <li>The unique tool for profiling of Al material</li> </ul>
	Internal profiling	 <p>A272-A273</p>	<p>Little squirrel series ZR□□-LH</p> 	<ul style="list-style-type: none"> <li>to combine sharpness and strength, suitable for continuous and intermittent turning.</li> </ul>
Parting and grooving tools overview	Inner wall and surface machining	 <p>Little squirrel series C40X□□</p>  <p>A284</p>		<ul style="list-style-type: none"> <li>Used for external, surface and inner wall machining of Al wheel hub.</li> </ul>
	Tools for aviation	 <p>Little squirrel series QE□S□□N</p> 	<p>Little squirrel series ZIG□□□</p>  <p>Little squirrel series ZIMF□□</p> 	<ul style="list-style-type: none"> <li>V-type locating, top clamping, precise locating, safe clamping.</li> <li>Normal square-ended inserts and precise square-ended inserts are suitable for adhesive materials hard to machine such as Ni-base</li> </ul>
aerospace industries	Non-standard Tools	 <p>Non-standard tools to match workpiece</p>	<p>Select and manufacture as required</p>	<ul style="list-style-type: none"> <li>Tailor made solutions for machining various parts to satisfy your requirements.</li> </ul>



Little squirrel series

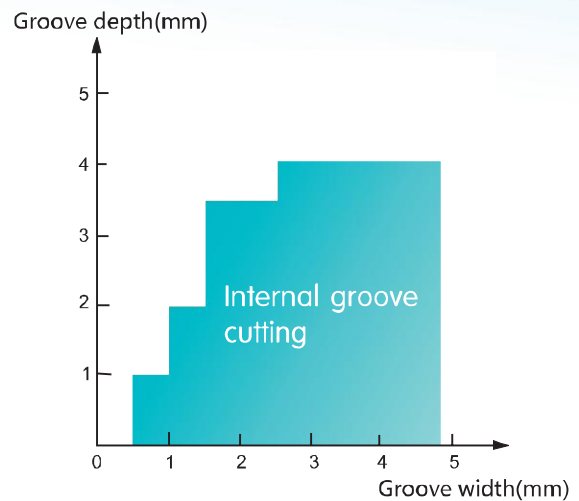
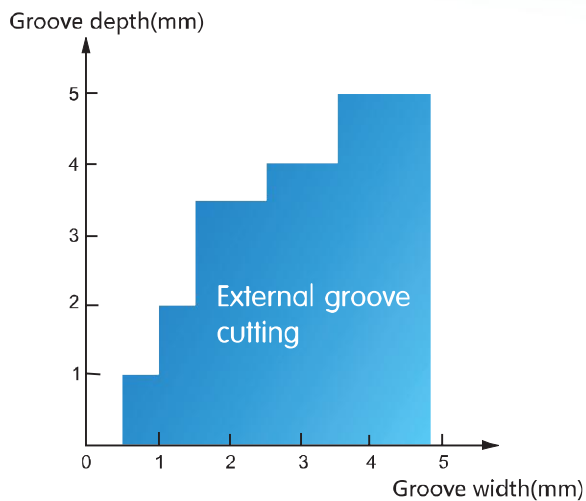


# QC series shallow grooving tools

**Machine industry shallow groove processing tool**

Widely used for shallow groove machining of shaft and ring parts in machinery industry

 **Shallow groove series tool grooving range**



## Little-Squirrel Series

**Profile turning inserts for parting of aviation titanium alloy. high temperature alloy**

### **-NF**

#### **Single-headed precision profile turning inserts**

Sharp edge, small cutting force, good surface quality;  
Indexing accuracy reaches  $\pm 0.025\text{mm}$ , safe and stable clamping;  
Mainly applied in finishing of high-temperature alloy, titanium alloy.

### **-NM**

#### **Precision profile turning inserts**

Sharp edge, small cutting force, good surface quality;  
Indexing accuracy reaches  $\pm 0.025\text{mm}$ ;  
Highly economical, two edges available;  
Compatible with little squirrel tool holder, suitable for small depth profile finishing and semi-finishing of high-temperature alloy and Ti-alloy.



# -SM

## Single-headed groove turning inserts

Straight edge, excellent surface quality;

Sharp edge, smaller cutting force;

Good chip breaking;

Mainly used for rough machining of high-temperature alloy and titanium alloy.



# -MM

## Straight edge groove turning inserts

High edge strength, sharp edge;

Highly economical, two edges available, compatible with little squirrel tool holder;

With special grades, suitable for roughing with small cutting depths of high-temperature alloy and titanium alloy.



### Case

Insert: YBG105/ZIMF604N-SM

Hardness of workpiece material: GH4169 (HB380)

Cutting data:  $V_c=45\text{m/min}$ ,  $f=0.2\text{mm/r}$

Coolant: Water



Products of company A



YBG105/ZIMF604N-SM

**Conclusion:** Under the same conditions, chip breaking performance is better and the time for stopping the removal of long winding chips is reduced.

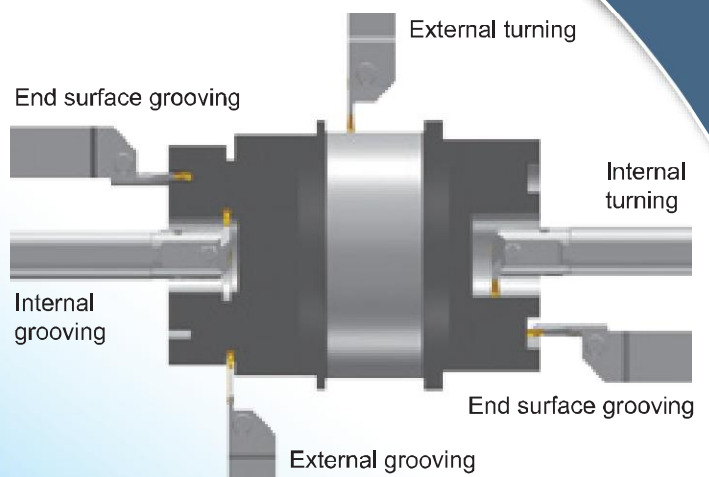
# -MG Chipbreaker

## Customized -MG chipbreaker series

Suitable for parting, grooving, profile turning and turning, etc. Easy machining and unobstructed chip flow lead to improved surface quality.

## Human-centered design realizes various application of one single insert, reducing number of tools needed

Inserts of the same edge with can work with corresponding tool holders to satisfy the requirements of external, internal and surface grooving and turning by using minimum numbers of inserts and tool holders, effectively reducing cost of tool storage and management.



The cutting force is reduced by 20%, and the vibration is diminished.

## Unique and professional structure design of parting inserts

- A special flank structure is designed to reduce cutting resistant force by 20% and diminish vibration, which improves the surface quality.
- A special edge design requires less rigidity of machine. It can be used on low power machines.



## Little squirrel series

# -EG

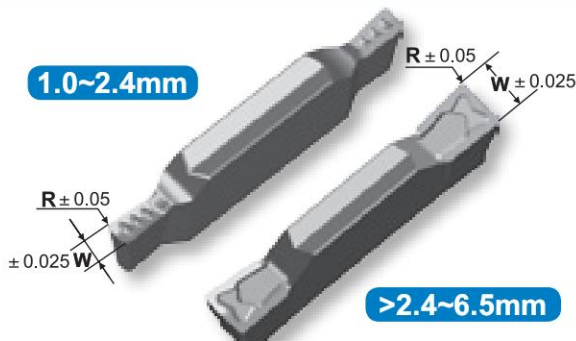
### Precision grooving and profile turning inserts

Special chipbreaker design, suitable for precise grooving of low-carbon steel, stainless steel, adhesive materials and non-ferrous metal.

The tolerance of the edge width S of precise grooving and profiling inserts can reach  $\pm 0.025$ . Inserts can also be mounted on the corresponding specifications of original tool series.

#### -EG Precision grooving inserts

The edge width can be anything between **1.0-6.5MM** according to your requirements.



The width of the Little Squirrel series precise grooving inserts can be anything between 1.0mm to 6.5mm, which means products with any edge width or nose radius can be provided according to customers' requirements. The inserts are mainly used for precise grooving, such as sealing slot and locating slot, etc.

#### -EG Precision profile turning inserts

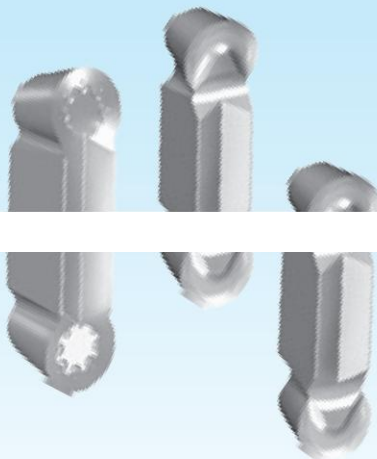


The Little Squirrel series precise profiling and turning inserts are mainly used for Precise grooving

# -LC/-LH

### Profile turning inserts for Al

The special chipbreaker for aluminum profiling is designed to combine sharpness and strength of the cutting edge, effectively reducing the friction between chips and the rake face. The inserts



Suitable for various machining of Al wheel boss periphery, surface and inner wall, etc.

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving inserts

### Little squirrel series parting, grooving and profiling inserts code key

General turning

Parting and grooving

Little squirrel series parting and grooving inserts

#### Insert applications

**ZP** > Parting **ZT** > Grooving and turning

#### Code of locating slot

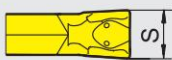
Code of locating slot	A	B	E	F	G	H	K	L
Corresponding edge width of inserts	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0

#### Code of cutting edge number

**S** > Single cutting edge **D** > Double cutting edge

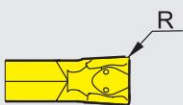
**ZP G D 04 04 - M G**

#### Cutting edge width



01=1.5mm  
02=2.0mm  
025=2.5mm  
03=3.0mm  
04=4.0mm

#### Nose radius



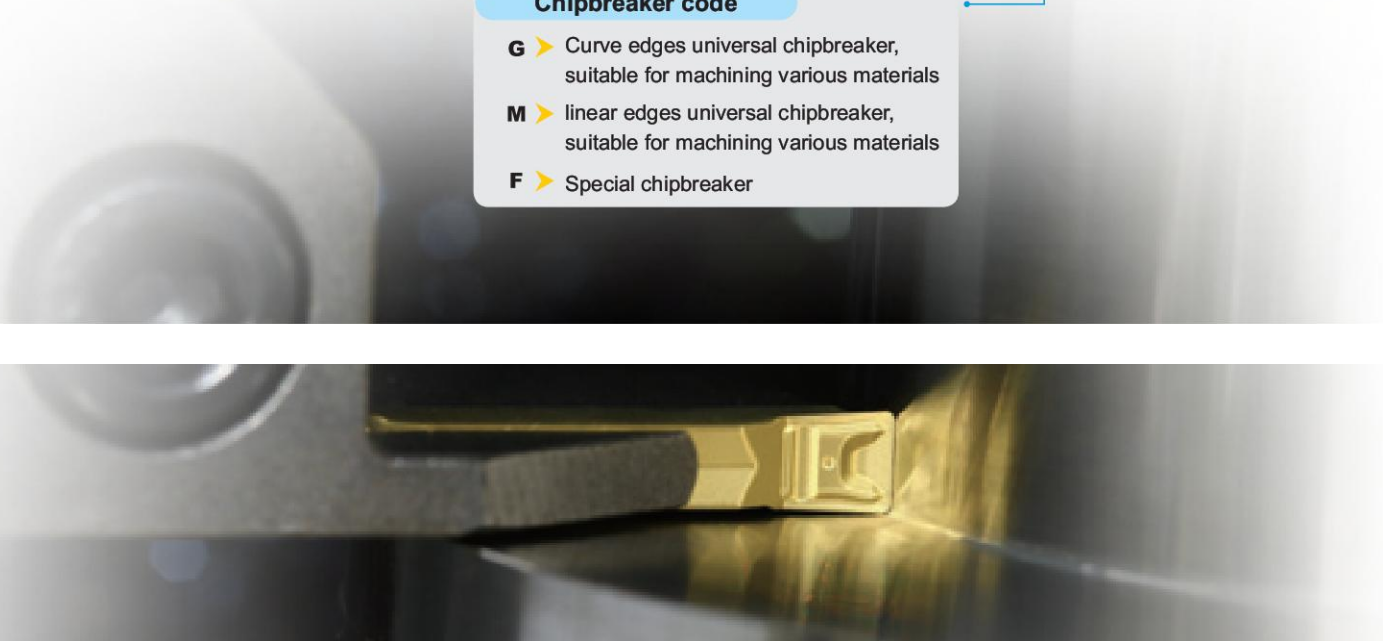
02=0.2mm  
03=0.3mm  
04=0.4mm  
08=0.8mm

#### Tolerance class

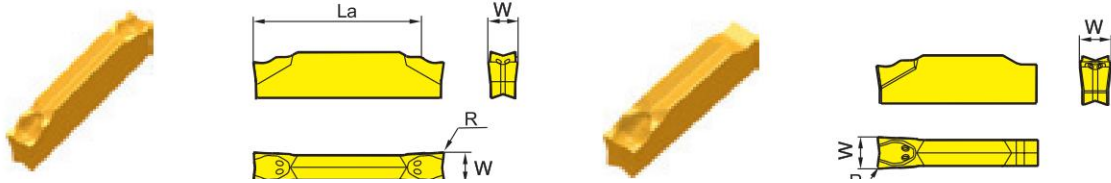
**M** > M-level tolerance  
**E** > E-level tolerance

#### Chipbreaker code

**G** > Curve edges universal chipbreaker, suitable for machining various materials  
**M** > linear edges universal chipbreaker, suitable for machining various materials  
**F** > Special chipbreaker



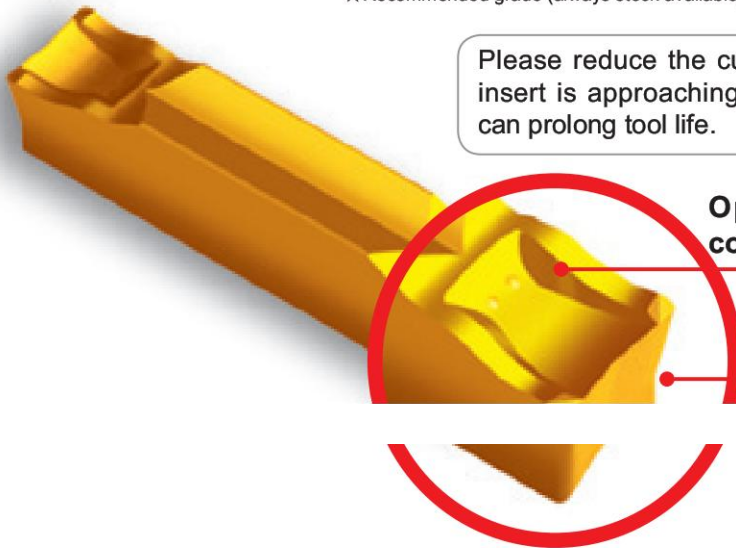
Parting inserts



Type	Basic dimensions(mm)			Grade					
	W <sup>+0.1</sup> <sub>0</sub>	R±0.1	Cutting depth La <sub>max</sub>	CVD Coating		PVD Coating		Cemented carbide	
				YBC151	YBC251	YBG205	YBG302	YD101	
Double edge	ZPAD01502-MG	1.5	0.2	12		○	★	○	
	ZPBD0202-MG	2.0	0.2	14		○	★	○	
	ZPED02502-MG	2.5	0.2	17		○	★	★	
	ZPFD0302-MG	3.0	0.2	17		○	★	○	
	ZPGD0402-MG	4.0	0.2	22		○	★	○	
	ZPHD0503-MG	5.0	0.3	22		○	★	○	
	ZPKD0604-MG	6.0	0.4	22		○	★	○	
SI	ZPES02502-MG	2.5	0.2			○	★	★	
	ZPFS0302-MG	3.0	0.2			○	★	○	
	ZPHS0503-MG	5.0	0.3			○	★	○	
	ZPKS0604-MG	6.0	0.4			○	★	○	

Single edge tool for cutter plate only

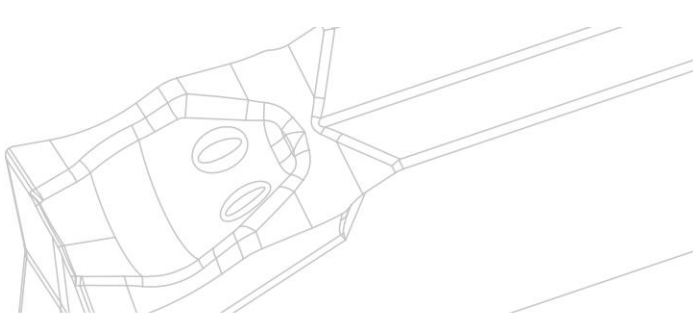
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



Please reduce the cutting speed by 30% when the insert is approaching the centre of workpiece. This can prolong tool life.

Optimal chipbreaker structure can control chip flow and curling well.

Cutting resistant force is reduced by 20% and vibration is diminished.



General turning

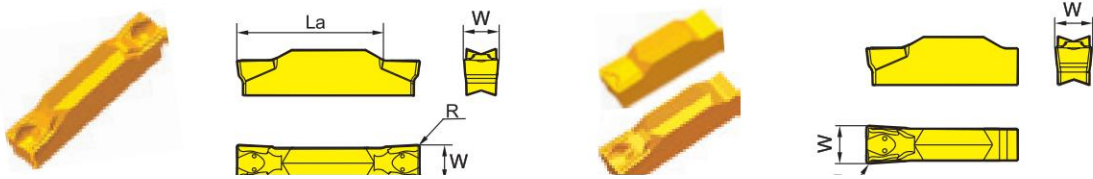
Parting groove

Little squirrel series parting and grooving inserts

# TURNING Parting and grooving tools

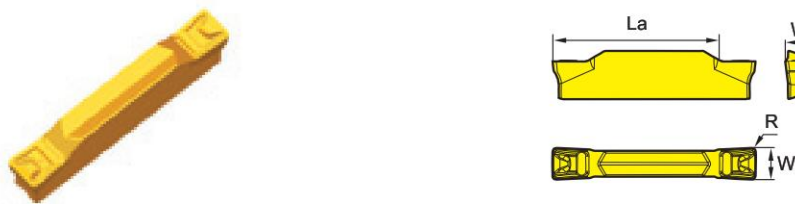
## Little squirrel series parting and grooving inserts

### Grooving and turning inserts



Type	Basic dimensions(mm)			Grade						
				CVD Coating		PVD Coating			Cemented carbide	
	$W^{+0.1}_0$	$R_{\pm 0.10}$	Cutting depth $L_{max}$	YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTED02503-MG	2.5	0.3	17	○	○	●	★	★	
	ZTFD0303-MG	3.0	0.3	17	○	○	●	★	★	
	ZTGD0404-MG	4.0	0.4	22	●	○	●	★	★	
	ZTHD0504-MG	5.0	0.4	22		○	●	★	★	
	ZTKD0608-MG	6.0	0.8	22		○	●	★	★	
Single edge	ZTHS0504-MG	5.0	0.4			○	○	★	○	
	ZTKS0608-MG	6.0	0.8			○	○	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



Type	Basic dimensions(mm)			Grade						
				CVD Coating		PVD Coating			Cemented carbide	
	W	$R_{\pm 0.1}$	Cutting depth $L_{max}$	YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTAD01502-MM	1.5±0.03	0.2	12	○	○	●	★	○	
	ZTBD02002-MM	2.0±0.03	0.2	14	○	○	●	★	○	
	ZTED02503-MM	2.5±0.03	0.3	17	○	○	●	★	○	
	ZTFD0303-MM	3.0±0.03	0.3	17	○	○	●	★	○	
Single edges	ZTHD0504-MM	5.0±0.04	0.4	22	○	○	●	★	○	
	ZTKD0608-MM	6.0±0.04	0.8	22	○	○	●	★	○	
	ZTLD0808-MM	8.0±0.05	0.8	28	○	○	●	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

ng and grooving

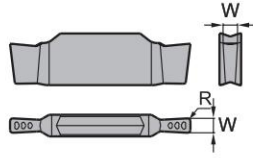
Little squirrel series parting and grooving inserts



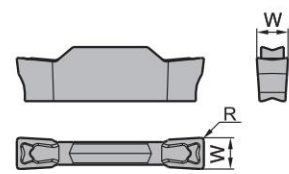
Precise grooving and turning inserts



1.0~2.4mm series



>2.4~6.5mm series



Type	Basic dimensions(mm)			Grade						
	W±0.025	R <sup>(2)</sup> ±0.05	Cutting depth L <sub>max</sub>	CVD Coating		PVD Coating			Cemented carbide	
				YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTCD□□□□□□ <sup>(1)</sup> -EG	1.0~1.6	See note. (2)	2.6	○	○	○	★	○	
		1.6~2.4		3.4	○	○	○	★	○	
	ZTED□□□□□□-EG	2.4~3.0		17	○	○	○	★	○	
	ZTFD□□□□□□-EG	3.0~3.8		17	○	○	○	★	○	
	ZTGD□□□□□□-EG	3.8~4.8		22	○	○	○	★	○	
	ZTHD□□□□□□-EG	4.8~5.8		22	○	○	○	★	○	
ZTKD□□□□□□-EG	5.8~6.5	22	○	○	○	★	○			

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

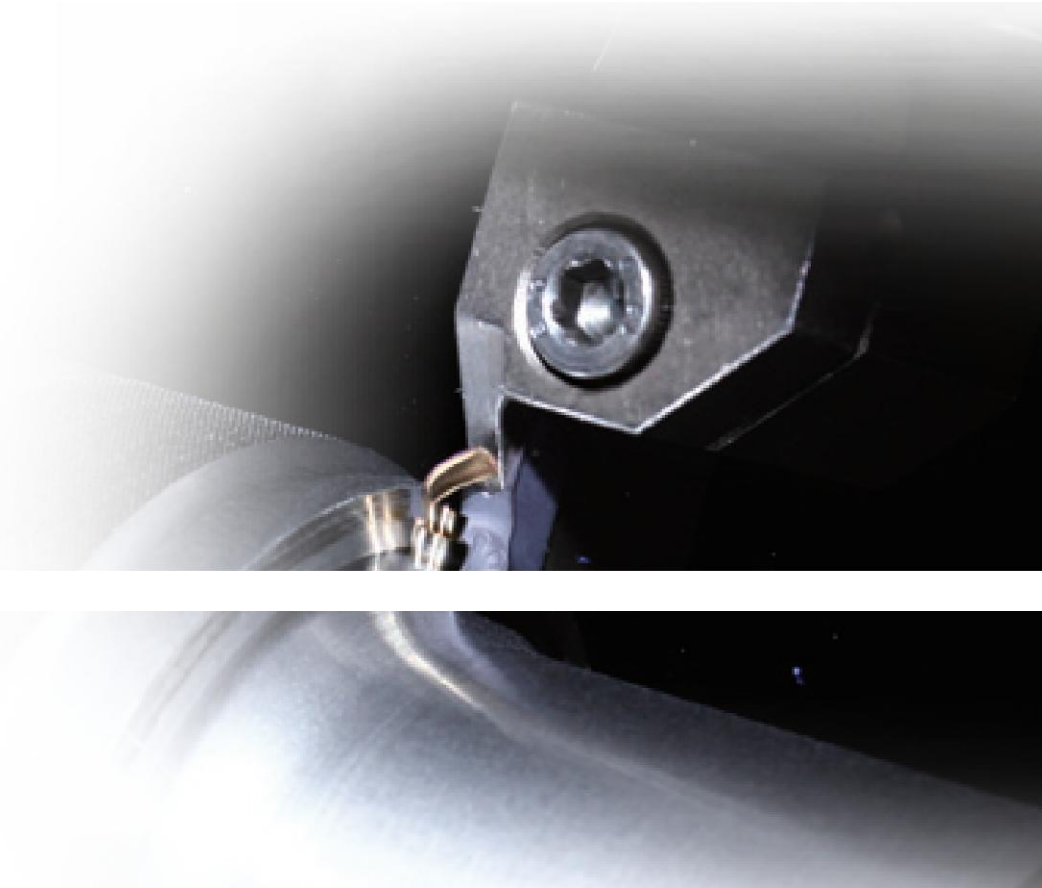
Note: (1) □ The code here in the description is determined by edge width and nose radius requested by customers. For example, when the customer requires an edge width of 3.5mm and a nose radius of 0.3mm, the description of the insert would be ZTFD03503-EG.

(2) The nose radius range is 0.2~0.5 as request.

General turning

Parting groove

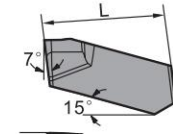
Little squirrel series parting and grooving inserts



# TURNING Parting and grooving tools

## Little squirrel series parting and grooving inserts

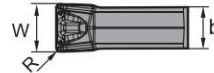
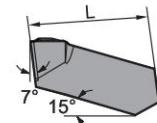
### Single-edge grooving and turning inserts for semi-finishing and roughing difficult-to-machine materials



Type	Basic dimensions(mm)				Grade				
					PVD Coating				Cemented carbide
	W±0.05	R±0.1	b	L	YBG102	YBG202	YBG205	YBS103	YD101
ZIMF304N-NM	3	0.4	2.4	15.3	★	○	★	●	○
ZIMF406N-NM	4	0.6	3.2	15.3	★	○	★	●	○
ZIMF506N-NM	5	0.6	4.0	15.3	★	○	★	○	○
ZIMF608N-NM	6	0.8	4.0	15.3	★	○	★	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

### Single-edge grooving and turning inserts for semi-finishing and roughing difficult-to-machine materials



Type	Basic dimensions(mm)				Grade				
					PVD Coating				Cemented carbide
	W±0.05	R±0.1	b	L	YBG105	YBG212	YBG205	YBS103	YD101
ZIMF304N-SM	3	0.4	2.4	15.3	★	★		●	○
ZIMF404N-SM	4	0.4	3.2	15.3	★	★		○	○
ZIMF504N-SM	5	0.4	4.0	15.3	★	★		○	○
ZIMF604N-SM	6	0.4	5.1	15.3	★	★		○	○

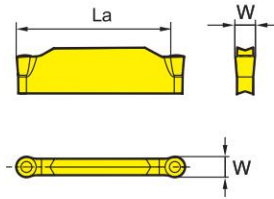
General turning

Parting and grooving

Little squirrel series parting and grooving inserts

Little squirrel series parting and grooving inserts

Profiling inserts

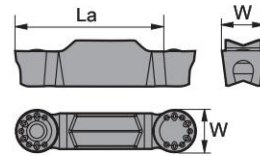


Grade

Double edges	Type	W <sup>+0.1</sup> <sub>0</sub>	Cutting depth La <sub>max</sub>	CVD Coating					carbide
				YBC151	YBC251	YBG202	YBG205	YBG302	YD101
	ZRED025-MG	2.5	17.5		○	●	★	★	
	ZRFD03-MG	3.0	17		○	●	★	★	
	ZRGD04-MG	4.0	21		○	●	★	★	
	ZRHD05-MG	5.0	20		○	○	★	★	
	ZRKD06-MG	6.0	19		○	●	★	★	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Profiling inserts

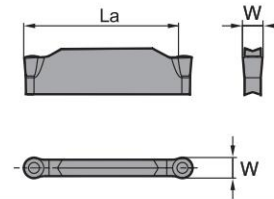


Grade

Double edges	Type	W±0.025	Cutting depth La <sub>max</sub>	CVD Coating		PVD Coating			carbide
				YBC151	YBC251	YBG105	YBG212	YBG302	YBS103
	ZRFD03-NM	3	17			★	★		●
	ZRGD04-NM	4	21			★	★		●
	ZRHD05-NM	5	20			★	★		○
	ZRKD06-NM	6	19			★	★		○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Precision profiling inserts



Grade

Double edges	Type	W±0.025	Cutting depth La <sub>max</sub>	CVD Coating		PVD Coating		Cemented carbide
				YBC151	YBC251	YBG202	YBG302	YD101
	ZRFD03-EG	3.0	17		○		○	
	ZRGD04-EG	4.0	21		○		○	
	ZRHD05-EG	5.0	20		○		○	
	ZRKD06-EG	6.0	19		○		○	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

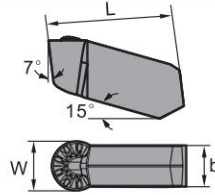
Parting groove

Little squirrel series parting and grooving inserts

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving inserts

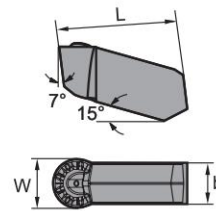
### Single-edge inserts for profiling materials hard to be machined



Type	Basic dimensions(mm)			PVD Coating			Cemented carbide
	$W \pm 0.025$	b	L	YBG102	YBG202	YBS103	YD101
ZIGQ3N-NM	3	2.4	15.3	★	○	●	○
ZIGQ4N-NM	4	3.2	15.3	★	○	●	○
ZIGQ5N-NM	5	4.0	15.3	★	○	○	○
ZIGQ6N-NM	6	5.0	15.3	★	○	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

### Single-edge inserts for profiling materials hard to be machined



Type	Basic dimensions(mm)			Grade			
				PVD Coating			Cemented carbide
	$W \pm 0.025$	b	L	YBG105	YBG212	YBS103	YD101
ZIGQ3N-NF	3	2.4	15.3	★	★	●	
ZIGQ4N-NF	4	3.2	15.3	★	★	○	
ZIGQ5N-NF	5	4.0	15.3	★	★	○	
ZIGQ6N-NF	6	5.0	15.3	★	★	○	

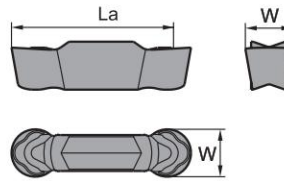
General turning

Parting and grooving

Little squirrel series parting and grooving inserts



Profiling inserts for Al



Type	Basic dimensions(mm)		Grade
	$W \pm 0.02$	Cutting depth $L_{max}$	Cemented carbide
ZRKD06-LH	6.0	19	YD101
ZRLD08-LH	8.0	22	★

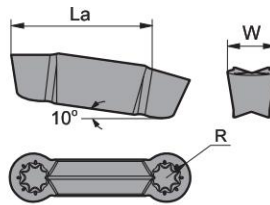
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Parting groove

Little squirrel series parting and grooving inserts

Profiling inserts for Al



Type	Basic dimensions(mm)			Grade
	$W \pm 0.02$	R	Cutting depth $L_{max}$	Cemented carbide
ZILD08-LC	8.0	4.0	22	YD101
				●

# TURNING Parting and grooving tools

## QC series shallow grooving inserts

### QC series shallow grooving inserts code key

#### ● Square head shallow groove inserts

**QC 22 R 300 - R 03**

Shallow grooving inserts

Cutting edge length code

Inner tangent circle diameter(mm)

Cutting edge length code	Inner tangent circle diameter(mm)
11	6.35
16	9.525
22	12.70


Grooving width(mm)

Code	Width
050	0.50
100	1.00
...	...
480	4.80


Rounding or chamfering(mm)

Code	Size
02	0.2
03	0.3
04	0.4

Direction

Code	Form
R	Rightward 

Inserts tip form

Code	Form
R	Circular arc 

#### ● Round head shallow groove inserts

**QC 22 R 300 R**



Shallow grooving inserts

Cutting edge length code

Inner tangent circle diameter(mm)

Cutting edge length code	Inner tangent circle diameter(mm)
11	6.35
16	9.525

Direction

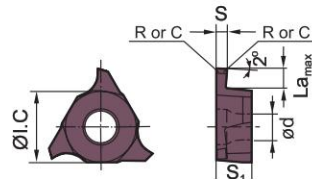
R	Rightward 
L	Leftward 

Grooving width(mm)

Code	Width
050	0.50
...	...
480	4.80

Head form: round head

## Square head shallow groove inserts



General turning

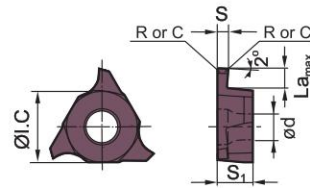
Parting groove

QC series shallow grooving inserts

Type		Basic dimensions(mm)						Grade	
		S $\pm 0.025$	La <sub>max</sub>	R/C	ØI.C	S <sub>1</sub>	ød	PVD Coating	
								YBG202	YBG205
QC11R/L	120-R02	1.20	1.50	R0.2	6.35	3.18	2.8	○	○
	125-R02	1.25	1.50	R0.2	6.35	3.18	2.8	○	○
	145-R02	1.45	1.50	R0.2	6.35	3.18	2.8	○	○
	150-R02	1.50	1.50	R0.2	6.35	3.18	2.8	○	○
	200-R02	2.00	2.00	R0.2	6.35	3.18	2.8	○	○
	225-R02	2.25	2.00	R0.2	6.35	3.18	2.8	○	○
QC16R/L	110-R01	1.10	2.00	R0.1	9.525	3.18	4.4	○	○
	125-R02	1.25	2.00	R0.2	9.525	3.18	4.4	○	○
	145-R02	1.45	2.00	R0.2	9.525	3.18	4.4	○	○
	150-R02	1.50	2.00	R0.2	9.525	3.18	4.4	○	★
	185-R02	1.85	2.50	R0.2	9.525	3.18	4.4	○	○
	200-R02	2.00	2.50	R0.2	9.525	3.18	4.4	○	★
	250-R02	2.50	2.50	R0.2	9.525	3.18	4.4	○	★
	300-R02	3.00	3.00	R0.2	9.525	3.18	4.4	○	★
QC22R/L	125-R02	1.25	2.00	R0.2	12.70	4.76	5.5	○	○
	145-R02	1.45	2.00	R0.2	12.70	4.76	5.5	○	○
	150-R02	1.50	3.50	R0.2	12.70	4.76	5.5	○	★
	175-R02	1.75	3.50	R0.2	12.70	4.76	5.5	○	○
	185-R02	1.85	3.50	R0.2	12.70	4.76	5.5	○	○
	200-R02	2.00	3.50	R0.2	12.70	4.76	5.5	○	★
	230-R02	2.30	3.50	R0.2	12.70	4.76	5.5	○	○
	250-R03	2.50	4.00	R0.3	12.70	4.76	5.5	○	★
	265-R03	2.65	4.00	R0.3	12.70	4.76	5.5	○	○
	280-R03	2.80	4.00	R0.3	12.70	4.76	5.5	○	○

## QC series shallow grooving inserts

### Square head shallow groove inserts



Type		Basic dimensions(mm)						Grade	
		S $\pm 0.025$	La <sub>max</sub>	R/C	ØI.C	S <sub>1</sub>	ød	PVD Coating	
								YBG202	YBG205
QC22R/L	300-R03	3.00	4.00	R0.3	12.70	4.76	5.5	○	★
	320-R03	3.20	4.00	R0.3	12.70	4.76	5.5	○	○
	330-R03	3.30	4.00	R0.3	12.70	4.76	5.5	○	○
	350-R03	3.50	5.00	R0.3	12.70	4.76	5.5	○	★
	400-R04	4.00	5.00	R0.4	12.70	4.76	5.5	○	★
	430-R04	4.30	5.00	R0.4	12.70	4.76	5.5	○	○
	450-R04	4.50	5.00	R0.4	12.70	4.76	5.5	○	○
	480-R04	4.80	5.00	R0.4	12.70	5.06	5.5	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

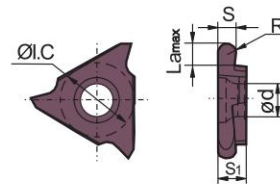
Example of special specification customization:

1. Custom-made insert width of 1.6mm, the tip form of the arc form, arc radius of 0.3mm right blade, I.C value of 12.7mm, then the custom-made insert model is QC22R160-R03.
2. Customized edae width range: QC11: 0.50~3.0mm: QC16: 0.50~3.0mm: QC22: 1.0~4.8mm.

### Round head shallow groove inserts



R-type shown



Type		Basic dimensions(mm)						Grade	
		S $\pm 0.025$	La <sub>max</sub>	R/C	ØI.C	S <sub>1</sub>	ød	PVD Coating	
								YBG202	YBG205
QC16R/L	200R	2.00	2.50	1.00	12.70	3.18	4.4	○	○
	300R	3.00	2.50	1.50	12.70	3.18	4.4	○	○
QC22R/L	100R	1.00	2.00	0.50	12.70	4.76	5.5	○	○
	200R	2.00	3.50	1.00	12.70	4.76	5.5	○	○
	250R	2.50	4.00	1.25	12.70	4.76	5.5	○	○
	300R	3.00	4.00	1.50	12.70	4.76	5.5	○	○
	400R	4.00	5.00	2.00	12.70	4.76	5.5	○	○

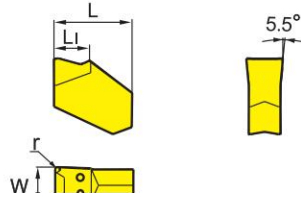
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Example of special specification customization:

Custom-made inserts width of 1.6mm, the tip form of the arc form, the arc radius of 0.8mm right insert, then the custom-made insert model is QC22R160R.



ZQMX series



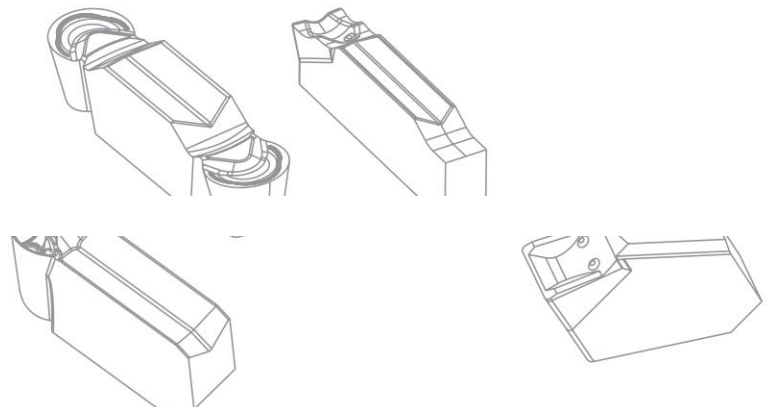
General turning

Parting groove

Supplementary series parting and grooving inserts

Type	Basic dimensions(mm)				Grade		
					CVD Coating	Cemented carbide	
	L1	W	r	L	YBC251	YC40	YD201
ZQMX3N11-1E	4.4	3.125	0.3	11	●	●	●
ZQMX4N11-1E	4.95	4.125	0.3	11	●	●	●
ZQMX5N11-1E	5.0	5.125	0.3	11	●	●	●
ZQMX6N11-1E	5.28	6.4	0.3	11	●	●	○
ZQMX7N11-1E	4.53	7.05	0.3	14		○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



# TURNING / Parting and grooving tools

## Little squirrel series parting and grooving tools

### Little squirrel series parting and grooving tools code key

#### ● External and surface turning

##### Code of grooving tools

**E** > External cutting    **F** > End surface cutting

##### Code of locating slot

Accords with locating slot code of insert and corresponds to certain range of insert edge width

##### Code of edge number of corresponding inserts

**S** > Single cutting edge    **D** > Double cutting edge

**Q E G D** [ **2525 R 13**  
**32 N** ]

**Q F G D 2525 R 22 S - 130 H**

##### Nose height and width of tool holder

##### Left and right hand of tool

**R** > Right    **L** > Left    **N** > Both are acceptable

##### Maximum cutting depth

##### Supplementary code

**S**: Strengthened tool holder for external and surface deep grooving

##### The minimum diameter of end surface grooving tools for initial machining

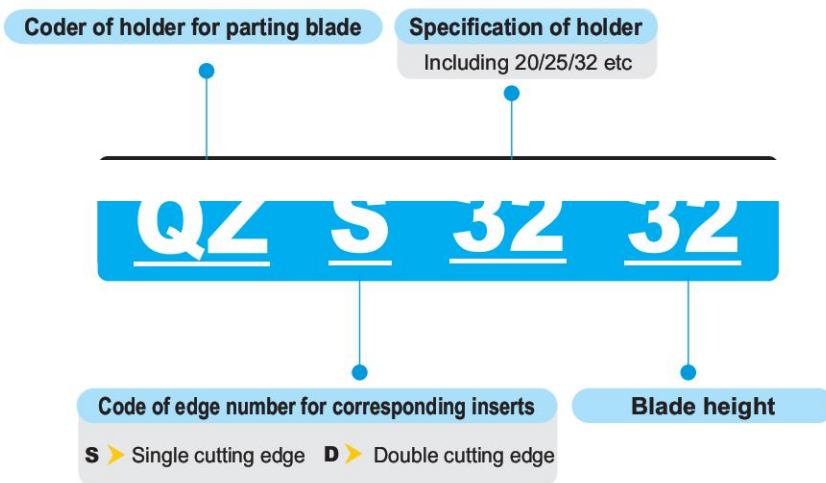
##### Holder type of end surface grooving tools

General turning

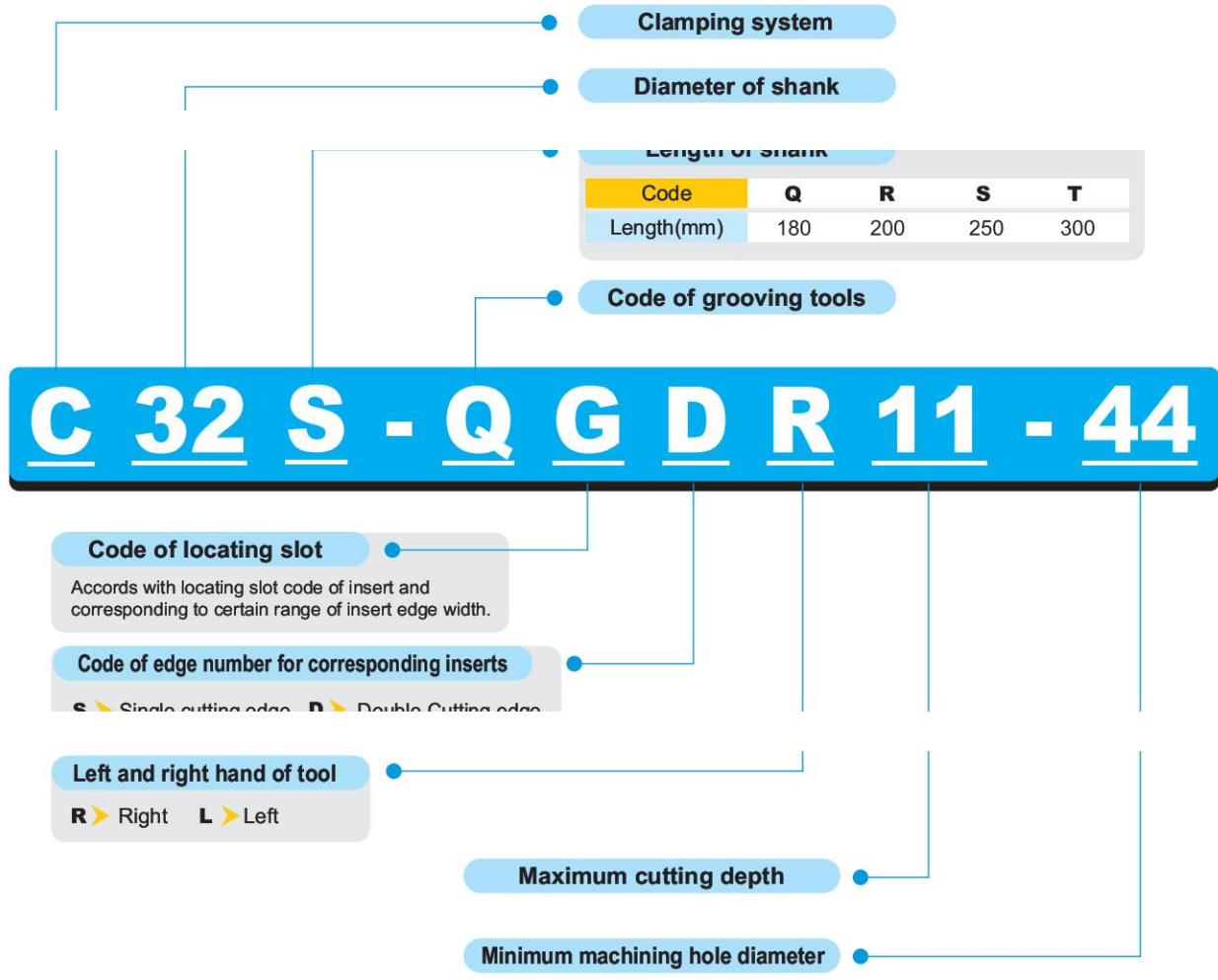
ing and grooving

Little squirrel series parting and grooving tools

● Holder for parting blade



● Internal machining



General turning

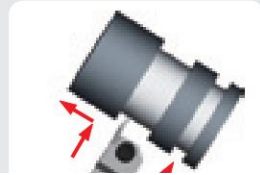
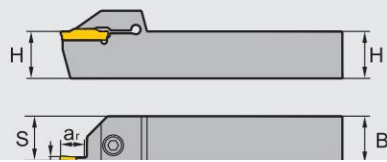
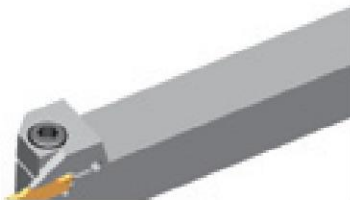
Parting groove

Little squirrel series parting and grooving tools

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving tools

### External parting, grooving and turning tools



R-type shown

Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	ar max			
<b>QEAD</b>	1212R/L07	▲	▲	12×12	125	11.4	1.5	7	Z□AD015□□	GB70-85-M4×12	WH30L
	1212R/L12	▲	▲	12×12	125	11.4	1.5	12	Z□AD015□□		
	1616R/L07	▲	▲	16×16	125	15.4	1.5	7	Z□AD015□□		
	1616R/L12	▲	▲	16×16	125	15.4	1.5	12	Z□AD015□□	GB70-85-M5×16	WH40L
	2020R/L07	▲	▲	20×20	125	19.4	1.5	7	Z□AD015□□		
	2020R/L12	▲	▲	20×20	125	19.4	1.5	12	Z□AD015□□		
<b>QEBD</b>	1212R/L07	▲	▲	12×12	125	11.2	2	7	Z□BD02□□	GB70-85-M4×12	WH30L
	1212R/L10	▲	▲	12×12	125	11.2	2	10	Z□BD02□□		
	1212R/L14	▲	▲	12×12	125	11.2	2	14	Z□BD02□□		
	1616R/L07	▲	▲	16×16	125	15.2	2	7	Z□BD02□□	GB70-85-M5×16	WH40L
	1616R/L10	▲	▲	16×16	125	15.2	2	10	Z□BD02□□		
	2020R/L07	▲	▲	20×20	125	19.2	2	7	Z□BD02□□		
2020R/L10	▲	▲	20×20	125	19.2	2	10	Z□BD02□□	GB70-85-M6×20	WH50L	
2020R/L14	▲	▲	20×20	125	19.2	2	14	Z□BD02□□			
2525R/L07	▲	▲	25×25	150	24.2	2	7	Z□BD02□□			
2525R/L10	▲	▲	25×25	150	24.2	2	10	Z□BD02□□	GB70-85-M6×20	WH50L	
2525R/L14	▲	▲	25×25	150	24.2	2	14	Z□BD02□□			
<b>QEED</b>	1616R/L10	▲	▲	16×16	125	15	2.5	10			Z□ED025□□
	1616R/L17	▲	▲	16×16	125	15	2.5	17	Z□ED025□□		
	2020R/L10	▲	▲	20×20	125	19	2.5	10	Z□ED025□□	GB70-85-M6×20	WH50L
	2020R/L17	▲	▲	20×20	125	19	2.5	17	Z□ED025□□		
	2525R/L10	▲	▲	25×25	150	24	2.5	10	Z□ED025□□		
	2525R/L17	▲	▲	25×25	150	24	2.5	17	Z□ED025□□		
<b>QEFD</b>	1616R/L10	▲	▲	16×16	125	14.8	3	10	Z□FD03□□	GB70-85-M5×20	WH40L
	1616R/L17	▲	▲	16×16	125	14.8	3	17	Z□FD03□□		
<b>QEGD</b>	2020R/L17	▲	▲	20×20	125	18.8	3	17	Z□FD03□□	GB70-85-M6×20	WH50L
	2525R/L10	▲	▲	25×25	150	23.8	3	10	Z□FD03□□		
	2525R/L17	▲	▲	25×25	150	23.8	3	17	Z□FD03□□		
<b>QEGD</b>	2020R/L13	▲	▲	20×20	140	18.5	4	13	Z□GD04□□	GB70-85-M6×20	WH50L
	2020R/L22	▲	▲	20×20	140	18.5	4	22	Z□GD04□□		
	2525R/L13	▲	▲	25×25	150	23.5	4	13	Z□GD04□□		

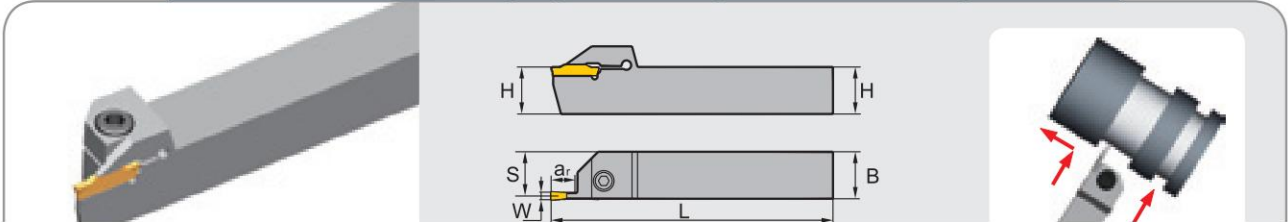
▲Stock available    △Make-to-order

General turning

Parting and grooving

Little squirrel series parting and grooving tools

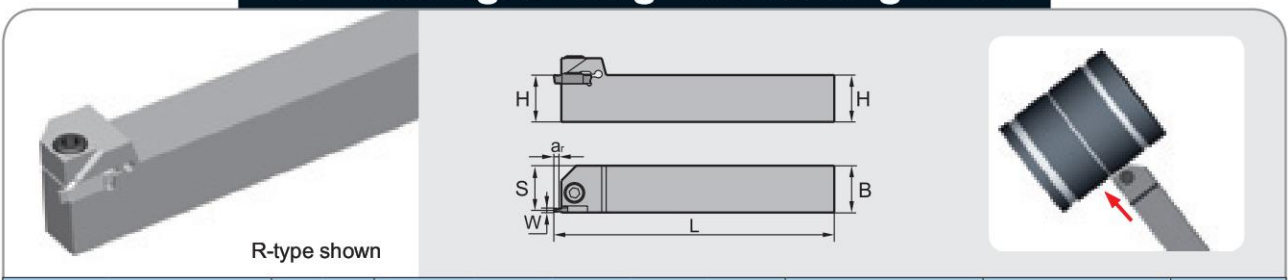
### External parting, grooving and turning tools



Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	ar <sub>max</sub>			
<b>QEGD</b>	2525R/L22	▲	▲	25×25	150	23.5	4	22	Z□GD04□□	GB70-85-M6×20	WH50L
	3232R/L13	▲	▲	32×32	170	30.5	4	13	Z□GD04□□		
	3232R/L22	▲	▲	32×32	170	30.5	4	22	Z□GD04□□		
<b>QEHD</b>	2525R/L13	▲	▲	25×25	150	23	5	13	Z□HD05□□	GB70-85-M6×20	WH50L
	2525R/L22	▲	▲	25×25	150	23	5	22	Z□HD05□□		
<b>QEHS</b>	2525N30	▲	▲	25×25	150	12.5	5	30	Z□HS05□□		
<b>QEHD</b>	3232R/L13	▲	▲	32×32	170	30	5	13	Z□HD05□□		
	3232R/L22	▲	▲	32×32	170	30	5	22	Z□HD05□□		
<b>QEHS</b>	3232N30	▲	▲	32×32	170	16	5	30	Z□HS05□□		
<b>QEKD</b>	2525R/L13	▲	▲	25×25	150	22.6	6	13	Z□KD06□□		
	2525R/L22	▲	▲	25×25	150	22.6	6	22	Z□KD06□□		
<b>QEKS</b>	2525N30	▲	▲	25×25	150	12.5	6	30	Z□KS06□□		
	3232R/L22	▲	▲	32×32	170	29.6	6	22	Z□KD06□□		
<b>QEKS</b>	3232N30	▲	▲	32×32	170	16	6	30	Z□KS06□□		
<b>QELD</b>	2525R/L16	▲	▲	25×25	150	22	8	16	ZTLD0808-MM	GB70-85-M6×20	WH50L
	2525R/L25	▲	▲	25×25	150	22	8	25	ZTLD0808-MM	GB70-85-M6×20	WH50L
	3232R/L28	▲	▲	32×32	170	29	8	28	ZTLD0808-MM	GB70-85-M8×30	WH60L

▲Stock available    △Make-to-order

### Precision grooving and turning tools



Type		R	L	H×B	L	S	W	ar <sub>max</sub>	Applicable inserts	Screw	Wrench
<b>QECD</b>	1616R/L025	△	△	16×16	125	14.75				GB70-85-M5×20	WH40L
	2020R/L025	▲	△	20×20	125	18.75	1.0~2.4	2.5	ZTCD□□□□□□-EG	GB70-85-M6×20	WH50L
	2525R/L025	▲	△	25×25	150	23.75					

▲Stock available    △Make-to-order

General turning

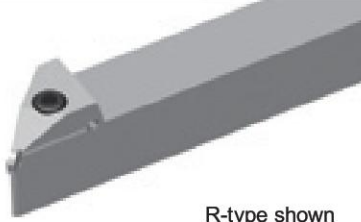
Parting groove

Little squirrel series parting and grooving tools

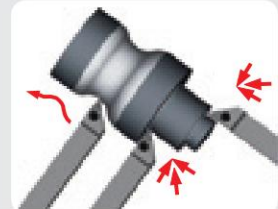
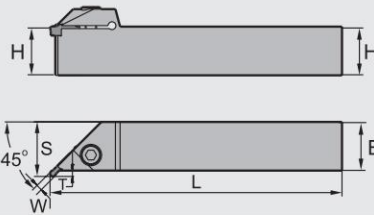
# TURNING Parting and grooving tools

## Little squirrel series parting and grooving tools

### External relief groove machining and profiling tools



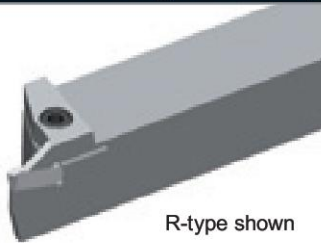
R-type shown



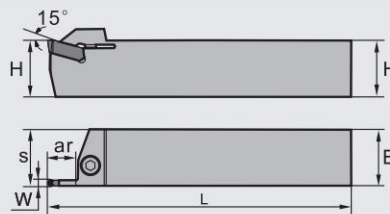
Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	ar max			
<b>QXFD</b>	2020R/L03-45	△	△	20×20	125	23	3.0	3.0	ZR(T)FD03-□□	GB70-85-M6×20	WH50L
	2525R/L03-45	△	△	25×25	150	28					
	3232R/L03-45	△	△	32×32	170	35					
<b>QXGD</b>	2020R/L03-45	△	△	20×20	125	23	4.0	3.0	ZR(T)GD04-□□		
	2525R/L03-45	△	△	25×25	150	28					
	3232R/L03-45	△	△	32×32	170	35					
<b>QXHD</b>	2020R/L04-45	△	△	20×20	125	24	5.0	4.0	ZR(T)HD05-□□		
	2525R/L04-45	△	△	25×25	150	29					
	3232R/L04-45	△	△	32×32	170	36					
<b>QXKD</b>	2020R/L04-45	△	△	20×20	125	24					
	3232R/L04-45	△	△	32×32	170	36					

▲Stock available    △Make-to-order

### External grooving tools for difficult-to-machine materials



R-type shown



Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	ar max			
<b>QEFS</b>	2525R/L12-3N	△	△	25×25	150	25.3	3	12	ZIGQ3N-□□	GB70-85-M6×20	WH50L
	3232R/L22-3N	△	△	32×32	170	32.3	3	22	ZIMF304N-□□		
	3232R/L22-4N	△	△	32×32	170	32.3	4	22	ZIGQ4N-□□ ZIMF40□N-□□		
<b>QEHS</b>	2525R/L12-5N	△	△	25×25	150	25.4	5	12	ZIGQ5N-□□		
	3232R/L22-5N	△	△	32×32	170	32.4	5	22	ZIMF50□N-□□		
<b>QEKS</b>	2525R/L12-6N	△	△	25×25	150	25.4	6	12	ZIGQ6N-□□		
	3232R/L22-6N	△	△	32×32	170	32.4	6	22	ZIMF60□N-□□		

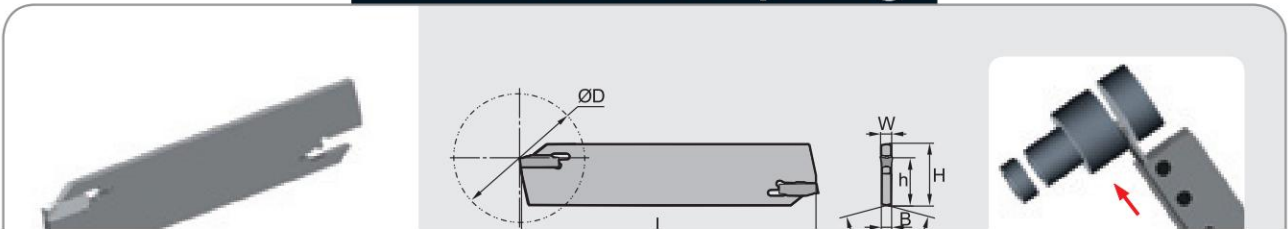
▲Stock available    △Make-to-order

General turning

ng and grooving

Little squirrel series parting and grooving tools

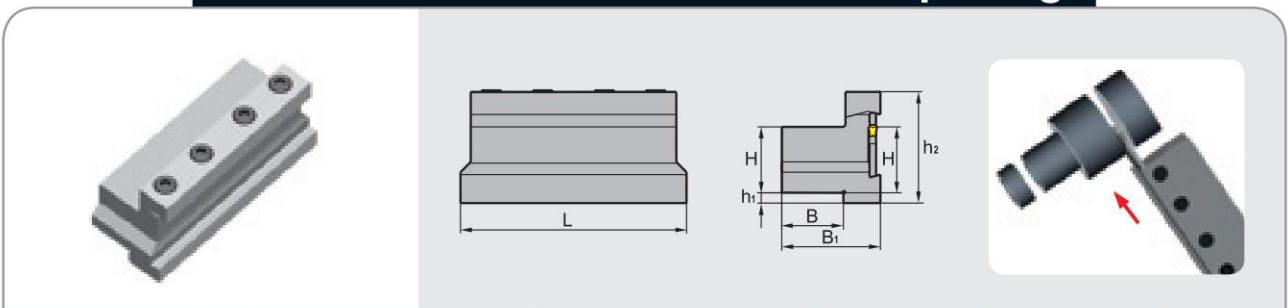
Blade for external parting



Type	Stock	Basic dimensions(mm)						Applicable inserts	Wrench
		L	H	h	B	W	ØDmax (Maximum parting diameter)		
QEES26N	▲	110	26	19	2	2.5	60	ZPES02502-MG	W50RL
QEFS26N	▲	110	26	19	2.4	3	60	ZPFS0302-MG	
QEGS26N	▲	110	26	19	3.2	4	70	ZPGS0402-MG	
QEHS26N	▲	110	26	19	4	5	70	ZPHS0503-MG	
QEKS26N	▲	110	26	19	5	6	70	ZPKS0604-MG	
QEES32N	▲	150	32	24.6	2	2.5	100	ZPES02502-MG	
QEFS32N	▲	150	32	24.6	2.4	3	100	ZPFS0302-MG	
QEGS32N	▲	150	32	24.6	3.2	4	120	ZPGS0402-MG	
QEHS32N	▲	150	32	24.6	4	5	120	ZPHS0503-MG	

▲Stock available    △Make-to-order

Holder for blade used for external parting



Type	Stock	Basic dimensions(mm)						Clamp	Screw	Wrench
		L	H	h1	h2	B	B1			
QZS2026	▲	86	20	10	46.6	19	38	QZC26	GB70-85-M6×20	WH50L
QZS2526	▲	86	25	5	46.6	23	42	QZC26		
QZS3226	▲	86	30	3	51.6	30	48	QZC26		
QZS2032	▲	110	20	13	50	19	38	QZC32		
QZS2532	▲	110	25	8	50	23	42	QZC32		
QZS3232	▲	110	32	5	54	30	48	QZC32		

▲Stock available    △Make-to-order

General turning

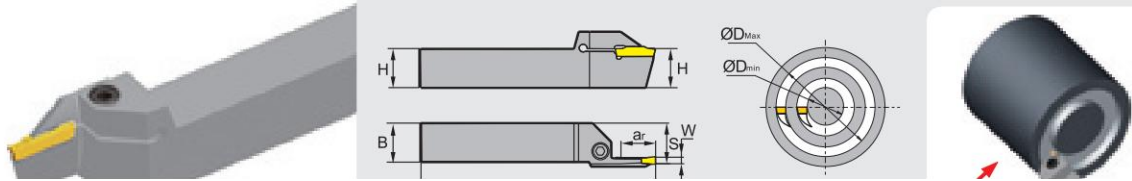
Parting groove

Little squirrel series parting and grooving tools

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving tools

### End surface grooving and turning tools



L-type shown

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	L	S	W	ar <sub>max</sub>	ØD (min-max)				
<b>QFFD</b>	2020R/L7-48H	▲	▲	20×20	150	21	3	7	48-66	ZTFD0303-□□		
	2020R/L10-48H	▲	▲	20×20	150	21	3	10	48-66			
	2525R/L10-48H	▲	▲	25×25	150	26	3	10	48-66			
	2525R/L17-48H	▲	▲	25×25	150	26	3	17	48-66			
	2020R/L7-60H	△	△	20×20	150	21	3	7	60-80			
	2020R/L10-60H	△	△	20×20	150	21	3	10	60-80			
	2525R/L10-60H	▲	▲	25×25	150	26	3	10	60-80			
	2525R/L17-60H	▲	▲	25×25	150	26	3	17	60-80			
	2020R/L7-74H	△	△	20×20	150	21	3	7	74-110			
	2020R/L10-74H	△	▲	20×20	150	21	3	10	74-110			
2525R/L17-74H	▲	▲	25×25	150	26	3	17	74-110	GB70-85-M6×20	WH50L		
2020R/L7-100H	△	△	20×20	150	21	3	7	100-150				
2020R/L10-100H	△	△	20×20	150	21	3	10	100-150				
2525R/L10-100H	▲	▲	25×25	150	26	3	10	100-150				
2525R/L17-100H	▲	▲	25×25	150	26	3	17	100-150				
<b>QFGD</b>	2020R/L10-52H	△	△	20×20	150	21	4	10	52-72	ZTGD0404-□□		
	2525R/L13-52H	▲	▲	25×25	150	26	4	13	52-72			
	2020R/L15-52H	△	△	20×20	150	21	4	15	52-72			
	2525R/L22-52H	▲	▲	25×25	150	26	4	22	52-72			
	2020R/L10-64H	△	▲	20×20	150	21	4	10	64-100			
	2525R/L13-64H	▲	▲	25×25	150	26	4	13	64-100			
	2020R/L15-64H	△	△	20×20	150	21	4	15	64-100			
	2525R/L22-64H	▲	▲	25×25	150	26	4	22	64-100			
	2020R/L10-90H	△	△	20×20	150	21	4	10	90-140			
	2525R/L13-90H	▲	▲	25×25	150	26	4	13	90-140			
2525R/L22-90H	▲	▲	25×25	150	26	4	22	90-140				
2020R/L10-130H	△	△	20×20	150	21	4	10	130-230				
2525R/L13-130H	▲	▲	25×25	150	26	4	13	130-230				
2020R/L15-130H	△	△	20×20	150	21	4	15	130-230				
2525R/L22-130H	▲	▲	25×25	150	26	4	22	130-230				

▲Stock available    △Make-to-order

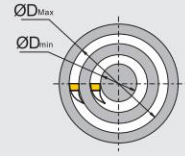
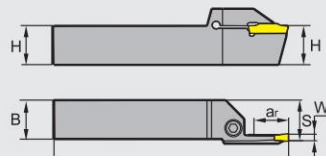
General turning

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Little squirrel series parting and grooving tools



## End surface grooving and turning tools



General turning

L-type shown

Parting groove

Little squirrel series parting and grooving tools

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	L	S	W	ar max	ØD (min-max)				
<b>QFHD</b>	2525R/L13-58H	▲	▲	25×25	150	26	5	13	58-96	ZTHD0504-□□	GB70-85-M6×20	WH50L
	2525R/L22-58H	▲	▲	25×25	150	26	5	22	58-96			
	2525R/L13-86H	△	▲	25×25	150	26	5	13	86-140			
	2525R/L22-86H	▲	▲	25×25	150	26	5	22	86-140			
	2525R/L13-130H	▲	▲	25×25	150	26	5	13	130-200			
	2525R/L22-130H	▲	▲	25×25	150	26	5	22	130-200			
	2525R/L13-185H	▲	▲	25×25	150	26	5	13	185-400			
	2525R/L22-185H	▲	▲	25×25	150	26	5	22	185-400			
<b>QFHS</b>	2525R/L30-185H	△	△	25×25	150	26	5	30	185-400	ZTHS0504-MG		
<b>QFHD</b>	2525R/L22-60H	▲	▲	25×25	150	26	6	22	60-100	ZTKD0608-□□	GB70-85-M6×20	WH50L
	2525R/L13-88H	△	▲	25×25	150	26	6	13	88-180			
	2525R/L22-88H	▲	▲	25×25	150	26	6	22	88-180			
	2525R/L13-160H	▲	▲	25×25	150	26	6	13	160-400			
	2525R/L22-160H	▲	▲	25×25	150	26	6	22	160-400			
<b>QFKS</b>	2525R/L30-160H	△	△	25×25	150	26	6	30	160-400	ZTKS0608-MG		
<b>QFLD</b>	2525R/L25-75H	▲	▲	25×25	150	27	8	25	75-150	ZTLD0808-MM	GB70-85-M6×20	WH50L
	2525R/L25-140H	▲	▲	25×25	150	27	8	25	140-400	ZTLD0808-MM	GB70-85-M6×20	WH50L
	3232R/L28-140H	▲	▲	32×32	170	30	8	28	140-400	ZTLD0808-MM	GB70-85-M8×30	WH60L

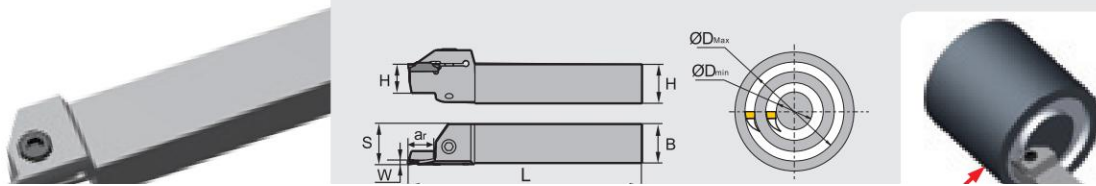
▲Stock available

△Make-to-order

# TURNING / Parting and grooving tools

## Little squirrel series parting and grooving tools

### End surface grooving and turning tools



RR-type shown

Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	L	S	W	ar <sub>max</sub>	ØD (min-max)				
<b>QFFD</b>	2020RR7-48H	△	20×20	150	21	3	7	48-66	ZTFD0303-□□		
	2020RR10-48H	△	20×20	150	21	3	10	48-66			
	2525RR10-48H	△	25×25	150	26	3	10	48-66			
	2525RR17-48H	△	25×25	150	26	3	17	48-66			
	2020RR7-60H	△	20×20	150	21	3	7	60-80			
	2020RR10-60H	△	20×20	150	21	3	10	60-80			
	2525RR10-60H	△	25×25	150	26	3	10	60-80			
	2525RR17-60H	△	25×25	150	26	3	17	60-80			
	2020RR7-74H	△	20×20	150	21	3	7	74-110			
	2020RR10-74H	△	20×20	150	21	3	10	74-110			
2525RR17-74H	△	25×25	150	26	3	17	74-110	GB70-85-M6×20	WH50L		
2020RR7-100H	△	20×20	150	21	3	7	100-150				
2020RR10-100H	△	20×20	150	21	3	10	100-150				
2525RR10-100H	△	25×25	150	26	3	10	100-150				
2525RR17-100H	△	25×25	150	26	3	17	100-150				
<b>QFGD</b>	2020RR10-52H	△	20×20	150	21	4	10	52-72	ZTGD0404-□□		
	2020RR15-52H	△	20×20	150	26	4	15	52-72			
	2525RR13-52H	△	25×25	150	21	4	13	52-72			
	2525RR22-52H	△	25×25	150	26	4	22	52-72			
	2020RR10-64H	△	20×20	150	21	4	10	64-100			
	2020RR15-64H	△	20×20	150	26	4	15	64-100			
	2525RR13-64H	△	25×25	150	21	4	13	64-100			
	2525RR22-64H	△	25×25	150	26	4	22	64-100			
	2020RR10-90H	△	20×20	150	21	4	10	90-140			
	2020RR15-90H	△	20×20	150	26	4	15	90-140			
2525RR22-90H	△	25×25	150	26	4	22	90-140				
2020RR10-130H	△	20×20	150	21	4	10	130-230				
2020RR15-130H	△	20×20	150	26	4	15	130-230				
2525RR13-130H	△	25×25	150	21	4	13	130-230				
2525RR22-130H	△	25×25	150	26	4	22	130-230				

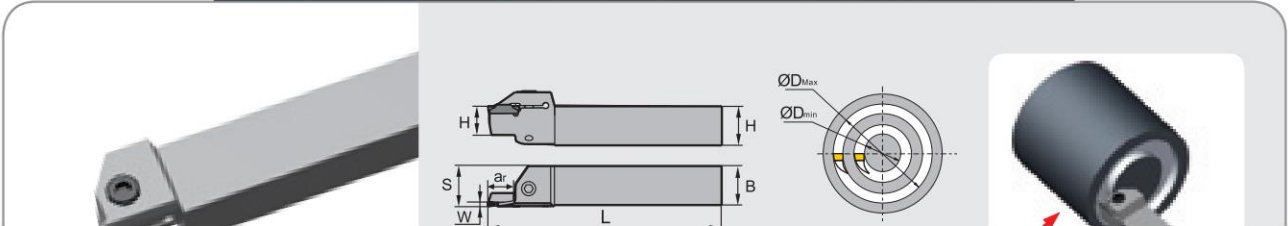
▲Stock available    △Make-to-order

General turning

ing and grooving

Little squirrel series parting and grooving tools

End surface grooving and turning tools



RR-type shown

Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	L	S	W	ar <sub>max</sub>	ØD (min-max)				
<b>QFHD</b>	<b>2525RR13-58H</b>	△	25×25	150	26	5	13	58-96	ZTHD0504-□□	GB70-85-M6×20	WH50L
	<b>2525RR22-58H</b>	△	25×25	150	26	5	22	58-96			
	<b>2525RR13-86H</b>	△	25×25	150	26	5	13	86-140			
	<b>2525RR22-86H</b>	△	25×25	150	26	5	22	86-140			
	<b>2525RR13-130H</b>	△	25×25	150	26	5	13	130-200			
	<b>2525RR22-130H</b>	△	25×25	150	26	5	22	130-200			
	<b>2525RR13-185H</b>	△	25×25	150	26	5	13	185-400			
	<b>2525RR22-185H</b>	△	25×25	150	26	5	22	185-400			
<b>QFHS</b>	<b>2525RR30-185H</b>	△	25×25	150	26	5	30	185-400	ZTHS0504-MG		
<b>QFHS</b>	<b>2525RR22-60H</b>	△	25×25	150	26	6	22	60-100	ZTKD0608-□□	GB70-85-M6×20	WH50L
	<b>2525RR13-88H</b>	△	25×25	150	26	6	13	88-180			
	<b>2525RR22-88H</b>	△	25×25	150	26	6	22	88-180			
	<b>2525RR13-160H</b>	△	25×25	150	26	6	13	160-400			
	<b>2525RR22-160H</b>	△	25×25	150	26	6	22	160-400			
	<b>QFKS</b>	<b>2525RR30-160H</b>	△	25×25	150	26	6	30			

▲Stock available    △Make-to-order

General turning

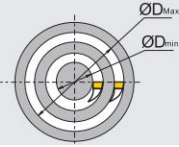
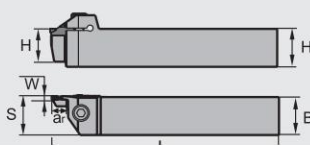
Parting groove

Little squirrel series parting and grooving tools

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving tools

### End surface grooving and turning tools



LL-type shown

of turning

Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	L	S	W	ar <sub>max</sub>	ØD (min-max)				
<b>QFFD</b>	2020LL7-48H	△	20×20	150	21	3	7	48-66	ZTFD0303-□□		
	2020LL10-48H	△	20×20	150	21	3	10	48-66			
	2525LL10-48H	△	25×25	150	26	3	10	48-66			
	2525LL17-48H	△	25×25	150	26	3	17	48-66			
	2020LL7-60H	△	20×20	150	21	3	7	60-80			
	2020LL10-60H	△	20×20	150	21	3	10	60-80			
	2525LL10-60H	△	25×25	150	26	3	10	60-80			
	2525LL17-60H	△	25×25	150	26	3	17	60-80			
	2020LL7-74H	△	20×20	150	21	3	7	74-110			
	2020LL10-74H	△	20×20	150	21	3	10	74-110			
	2525LL17-74H	△	25×25	150	26	3	17	74-110	GB70-85-M6×20	WH50L	
	2020LL7-100H	△	20×20	150	21	3	7	100-150			
	2020LL10-100H	△	20×20	150	21	3	10	100-150			
	2525LL10-100H	△	25×25	150	26	3	10	100-150			
	2525LL17-100H	△	25×25	150	26	3	17	100-150			
<b>QFGD</b>	2020LL10-52H	△	20×20	150	21	4	10	52-72	ZTGD0404-□□		
	2020LL15-52H	△	20×20	150	26	4	15	52-72			
	2525LL13-52H	△	25×25	150	21	4	13	52-72			
	2525LL22-52H	△	25×25	150	26	4	22	52-72			
	2020LL10-64H	△	20×20	150	21	4	10	64-100			
	2020LL15-64H	△	20×20	150	26	4	15	64-100			
	2525LL13-64H	△	25×25	150	21	4	13	64-100			
	2525LL22-64H	△	25×25	150	26	4	22	64-100			
	2020LL10-90H	△	20×20	150	21	4	10	90-140			
		2020LL15-90H	△	20×20	150	26	4	15			
	2525LL22-90H	△	25×25	150	26	4	22	90-140			
	2020LL10-130H	△	20×20	150	21	4	10	130-230			
	2020LL15-130H	△	20×20	150	26	4	15	130-230			
	2525LL13-130H	△	25×25	150	21	4	13	130-230			
	2525LL22-130H	△	25×25	150	26	4	22	130-230			

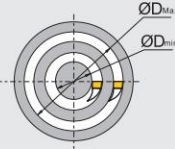
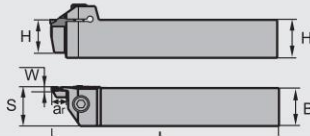
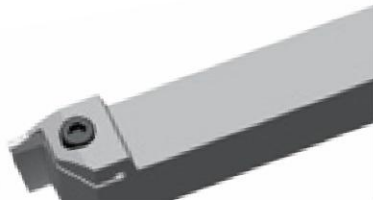
▲Stock available    △Make-to-order

General turning

ing and grooving

Little squirrel series parting and grooving tools

End surface grooving and turning tools



LL-type shown

Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	L	S	W	ar max	ØD (min-max)				
<b>QFHD</b>	<b>2525LL13-58H</b>	△	25×25	150	26	5	13	58-96	ZTHD0504-□□	GB70-85-M6×20	WH50L
	<b>2525LL22-58H</b>	△	25×25	150	26	5	22	58-96			
	<b>2525LL13-86H</b>	△	25×25	150	26	5	13	86-140			
	<b>2525LL22-86H</b>	△	25×25	150	26	5	22	86-140			
	<b>2525LL13-130H</b>	△	25×25	150	26	5	13	130-200			
	<b>2525LL22-130H</b>	△	25×25	150	26	5	22	130-200			
	<b>2525LL13-185H</b>	△	25×25	150	26	5	13	185-400			
	<b>2525LL22-185H</b>	△	25×25	150	26	5	22	185-400			
<b>QFHS</b>	<b>2525LL30-185H</b>	△	25×25	150	26	5	30	185-400	ZTHS0504-MG		
<b>QFHS</b>	<b>2525LL22-60H</b>	△	25×25	150	26	6	22	60-100	ZTKD0608-□□	GB70-85-M6×20	WH50L
	<b>2525LL13-88H</b>	△	25×25	150	26	6	13	88-180			
	<b>2525LL22-88H</b>	△	25×25	150	26	6	22	88-180			
	<b>2525LL13-160H</b>	△	25×25	150	26	6	13	160-400			
	<b>2525LL22-160H</b>	△	25×25	150	26	6	22	160-400			
<b>QFKS</b>	<b>2525LL30-160H</b>	△	25×25	150	26	6	30	160-400	ZTKS0608-MG		

▲Stock available    △Make-to-order

General turning

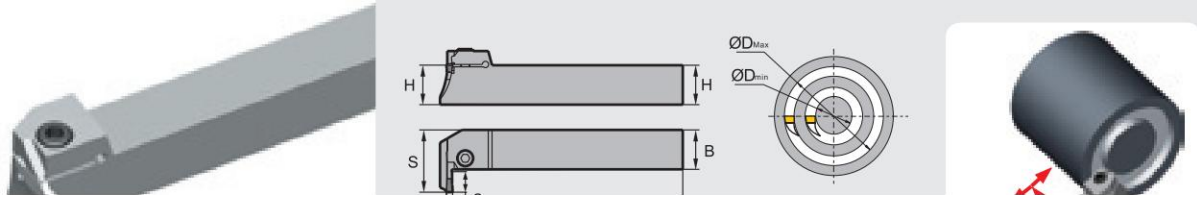
Parting groove

Little squirrel series parting and grooving tools

# TURNING Parting and grooving tools

## Little squirrel series parting and grooving tools

### L type tools for surface grooving and turning



R-type shown

Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench	
	R	L	H×B	L	S	W	ar <sub>max</sub>	ØD (min-max)				
<b>QFFD</b>	2020R/L7-48L	△	△	20×20	150	28.5	3	7	48-66	ZTFD0303-□□		
	2020R/L10-48L	△	△	20×20	150	31.5	3	10	48-66			
	2525R/L10-48L	▲	▲	25×25	150	36.5	3	10	48-66			
	2525R/L17-48L	△	△	25×25	150	43.5	3	17	48-66			
	2020R/L7-60L	△	△	20×20	150	28.5	3	7	60-80			
	2020R/L10-60L	△	△	20×20	150	31.5	3	10	60-80			
	2525R/L10-60L	▲	▲	25×25	150	36.5	3	10	60-80			
	2525R/L17-60L	△	△	25×25	150	43.5	3	17	60-80			
	2020R/L7-74L	△	△	20×20	150	28.5	3	7	74-110			
	2020R/L10-74L	△	△	20×20	150	31.5	3	10	74-110			
2525R/L17-74L	△	△	25×25	150	43.5	3	17	74-110	GB70-85-M6×20	WH50L		
2020R/L7-100L	△	△	20×20	150	28.5	3	7	100-150				
2020R/L10-100L	△	△	20×20	150	31.5	3	10	100-150				
2525R/L10-100L	▲	▲	25×25	150	36.5	3	10	100-150				
2525R/L17-100L	△	△	25×25	150	43.5	3	17	100-150				
<b>QFGD</b>	2020R/L10-52L	△	△	20×20	150	31.5	4	10	52-72	ZTGD0404-□□		
	2525R/L13-52L	▲	△	25×25	150	39.5	4	13	52-72			
	2020R/L15-52L	△	△	20×20	150	36.5	4	15	52-72			
	2525R/L22-52L	△	△	25×25	150	48.5	4	22	52-72			
	2020R/L10-64L	△	△	20×20	150	31.5	4	10	64-100			
	2525R/L13-64L	△	△	25×25	150	39.5	4	13	64-100			
	2020R/L15-64L	△	△	20×20	150	36.5	4	15	64-100			
	2525R/L22-64L	△	△	25×25	150	48.5	4	22	64-100			
	2020R/L10-90L	△	△	20×20	150	31.5	4	10	90-140			
	2525R/L13-90L	▲	△	25×25	150	39.5	4	13	90-140			
2525R/L22-90L	▲	△	25×25	150	48.5	4	22	90-140	ZTGD0404-□□			
2020R/L10-130L	△	△	20×20	150	31.5	4	10	130-230				
2525R/L13-130L	△	△	25×25	150	39.5	4	13	130-230				
2020R/L15-130L	△	△	20×20	150	36.5	4	15	130-230				
2525R/L22-130L	▲	▲	25×25	150	48.5	4	22	130-230				

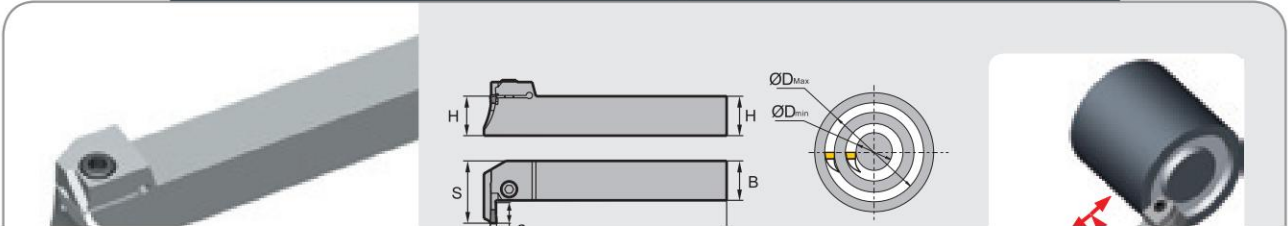
▲Stock available    △Make-to-order

General turning

ing and grooving

Little squirrel series parting and grooving tools

L type tools for surface grooving and turning



General turning

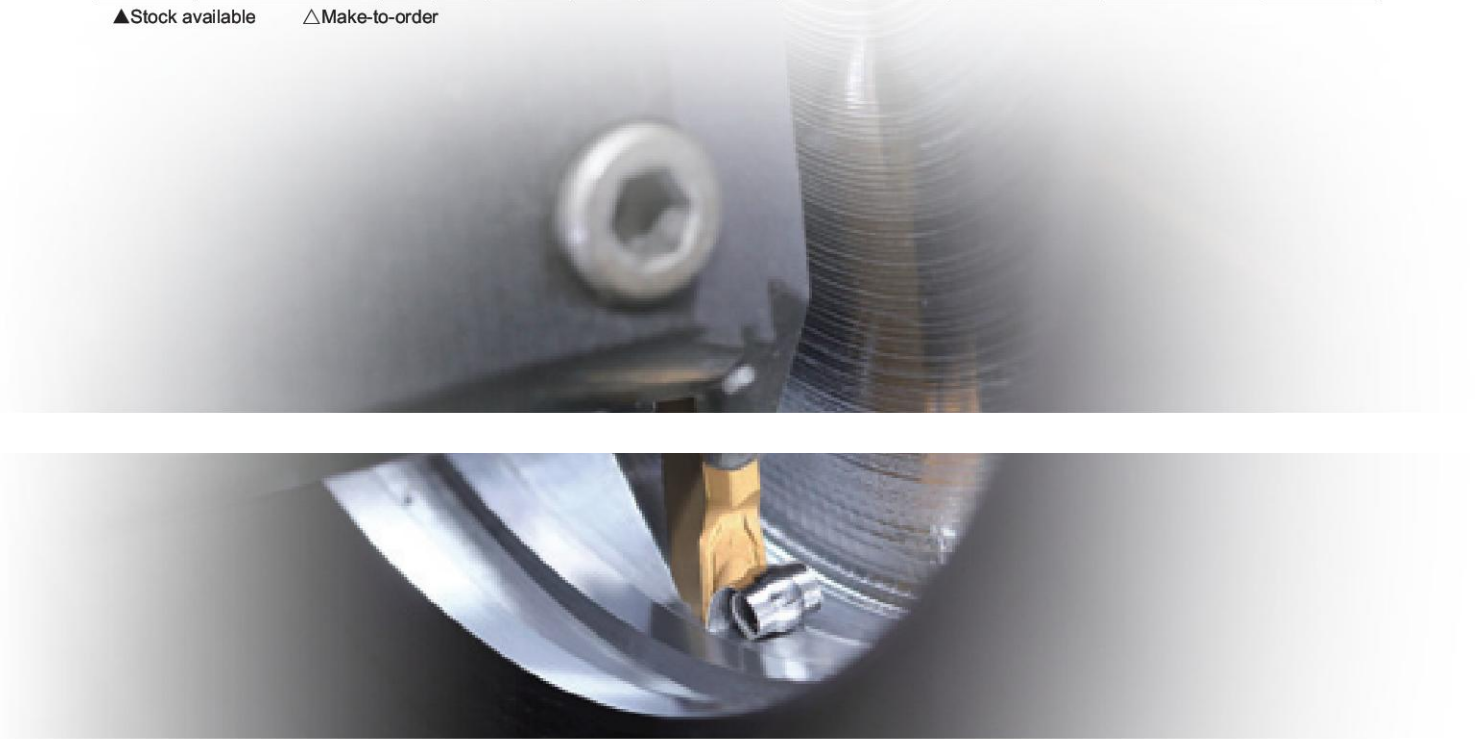
R-type shown

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	L	S	W	a <sub>r</sub> max	ØD (min-max)				
<b>QFHD</b>	2525R/L13-58L	△	△	25×25	150	39.5	5	13	58-96	ZTHD0504-□□	GB70-85-M6×20	WH50L
	2525R/L22-58L	△	△	25×25	150	48.5	5	22	58-96			
	2525R/L13-86L	△	△	25×25	150	39.5	5	13	86-140			
	2525R/L22-86L	△	△	25×25	150	48.5	5	22	86-140			
	2525R/L13-130L	△	△	25×25	150	39.5	5	13	130-200			
	2525R/L22-130L	△	△	25×25	150	48.5	5	22	130-200			
	2525R/L13-185L	△	△	25×25	150	39.5	5	13	185-400			
	2525R/L22-185L	▲	△	25×25	150	48.5	5	22	185-400			
<b>QFHS</b>	2525R/L30-185L	△	△	25×25	150	56.5	5	30	185-400	ZTHS0504-MG		
<b>QFSD</b>	2525R/L22-60L	▲	▲	25×25	150	48.5	6	22	60-100	ZTKD0608-□□	GB70-85-M6×20	WH50L
	2525R/L13-88L	△	▲	25×25	150	39.5	6	13	88-180			
	2525R/L22-88L	▲	▲	25×25	150	48.5	6	22	88-180			

▲Stock available    △Make-to-order

Parting groove

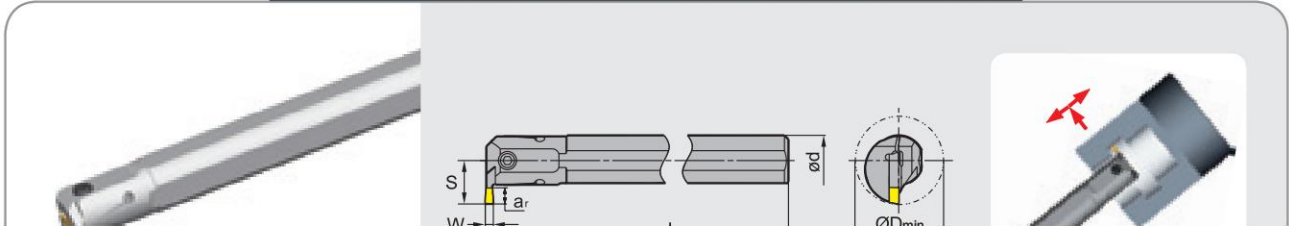
Little squirrel series parting and grooving tools



# TURNING Parting and grooving tools

Little squirrel series parting and grooving tools

## Internal grooving and turning tools

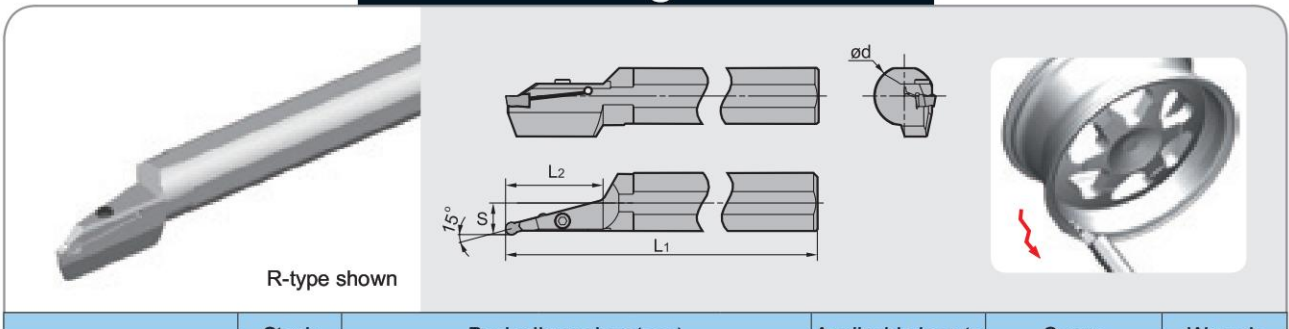


R-type shown

Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench
	R	L	ød	L	S	W	ar <sub>max</sub>	ØD <sub>min</sub>			
C20Q-QEDR/L05-27	▲	▲	20	180	15.2	2.5	5	27	ZTED025□□ ZRED025□□	GB70-85-M4×12	WH30L
C25R-QEDR/L07-33	▲	▲	25	200	20.3	2.5	7	33		GB70-85-M5×16	WH40L
C32S-QEDR/L09-42	▲	▲	32	250	25.3	2.5	9	42		GB70-85-M5×20	
C20Q-QFDR/L05-27	▲	▲	20	180	15.2	3	5	27	ZTFD03□□ ZRFD03□□	GB70-85-M4×12	WH30L
C25R-QFDR/L07-33	▲	▲	25	200	20.3	3	7	33		GB70-85-M5×16	WH40L
C32S-QFDR/L09-42	▲	▲	32	250	25.3	3	9	42		GB70-85-M5×20	
C25R-QGDR/L08-35	▲	▲	25	200	21.5	4	8	35	ZTGD04□□ ZRGD04□□	GB70-85-M5×16	WH40L
C32S-QGDR/L11-44	▲	▲	32	250	27.5	4	11	44		GB70-85-M6×20	WH50L
C40T-QGDR/L13-54	▲	▲	40	300	33.5	4	13	54		GB70-85-M6×20	
C25R-QHDR/L08-35	▲	▲	25	200	21.5	5	8	35	ZTHD05□□	GB70-85-M5×16	WH40L
C40T-QHDR/L13-54	▲	▲	40	300	33.5	5	13	54		GB70-85-M6×20	
C25R-QKDR/L08-35	▲	▲	25	200	21.5	6	8	35	ZTKD06□□ ZRKD06□□	GB70-85-M5×16	WH40L
C32S-QKDR/L11-44	▲	▲	32	250	27.5	6	11	44		GB70-85-M6×20	WH50L
C40T-QKDR/L13-54	▲	▲	40	300	33.5	6	13	54		GB70-85-M6×20	

▲Stock available    △Make-to-order

## Profile turning tools for Al



R-type shown

Type	R	L	øD (Minimum machining diameter)	ød	S	L1	L2	Applicable inserts	Screw	Wrench
C40X-QLDR/L65-15A	▲	▲	160	40	21	320	65	ZRLD08-LH	GB70-85-M6×20	WH50L
C40X-QLDR/L80-15A	▲	△	160	40	21	320	80	ZRLD08-LH		
C40X-QKDR/L60-15A	△	△	160	40	20	320	60	ZRKD06-LH		
C40X-QKDR/L75-15A	△	△	160	40	20	320	75	ZRKD06-LH		

▲Stock available    △Make-to-order

General turning

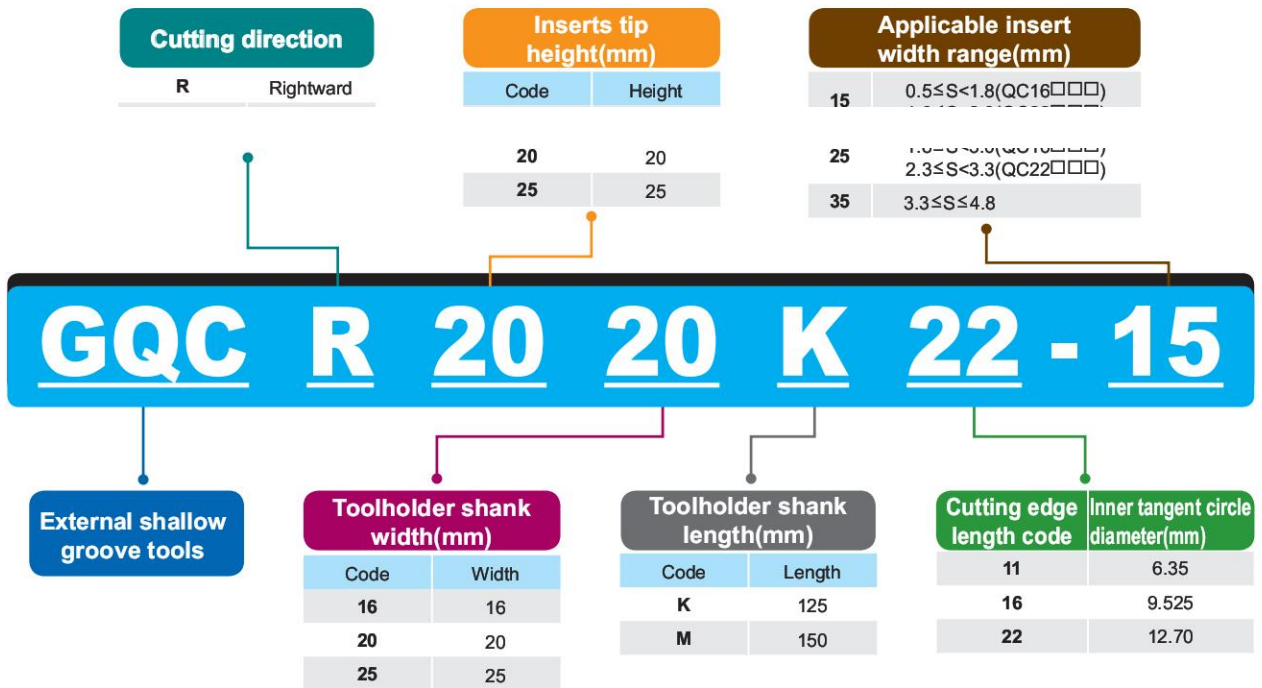
Internal grooving

Little squirrel series parting and grooving tools

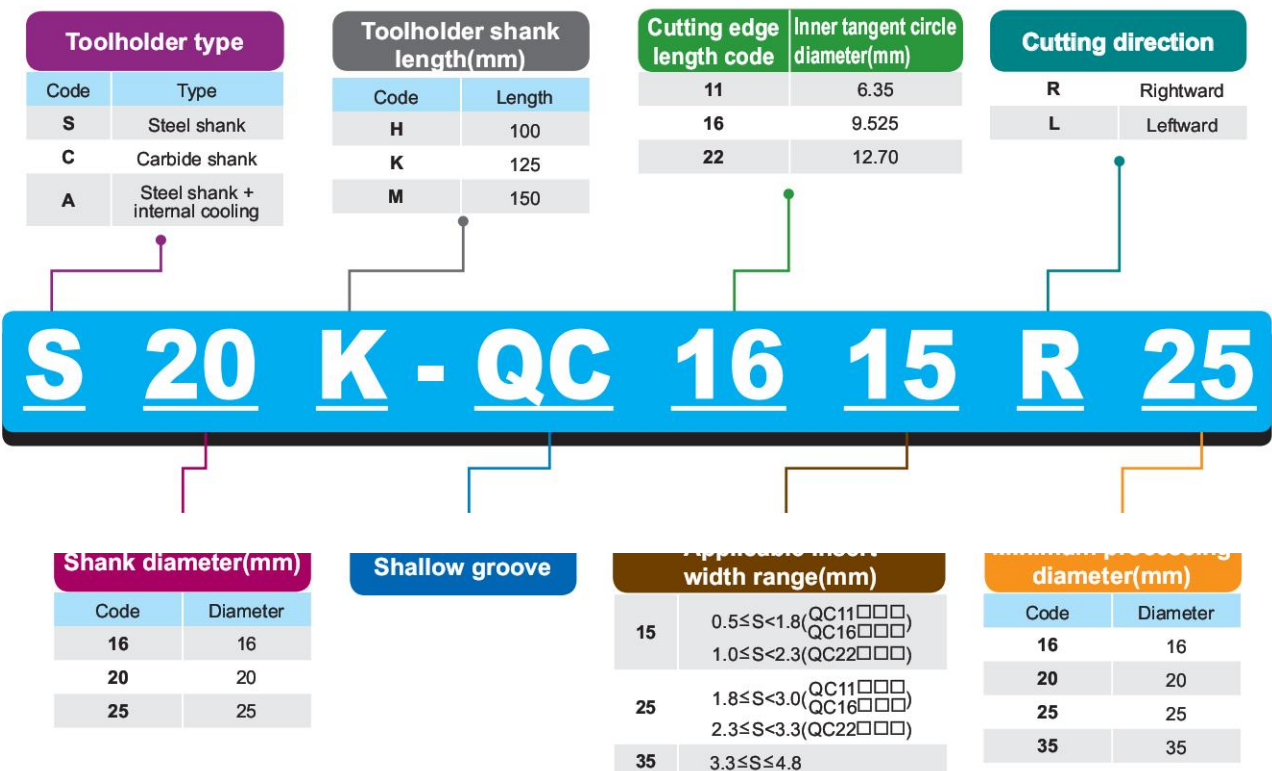


**QC series** shallow grooving tools code key

● External shallow groove tools



● Internal shallow groove tools



General turning

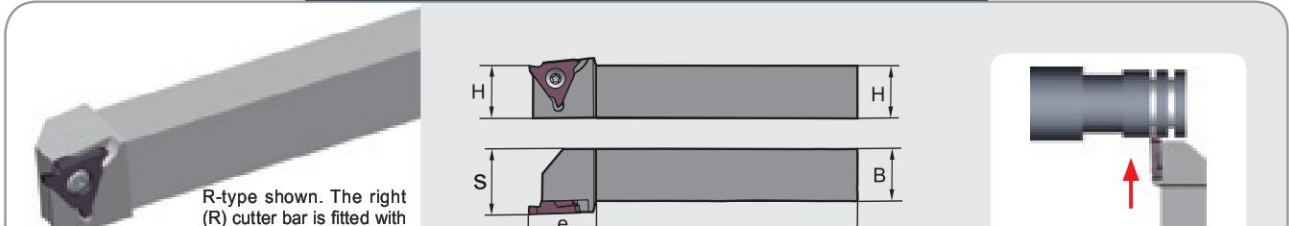
Parting groove

QC series shallow grooving tools

# TURNING Parting and grooving tools

## QC series shallow grooving tools

### External shallow groove tools



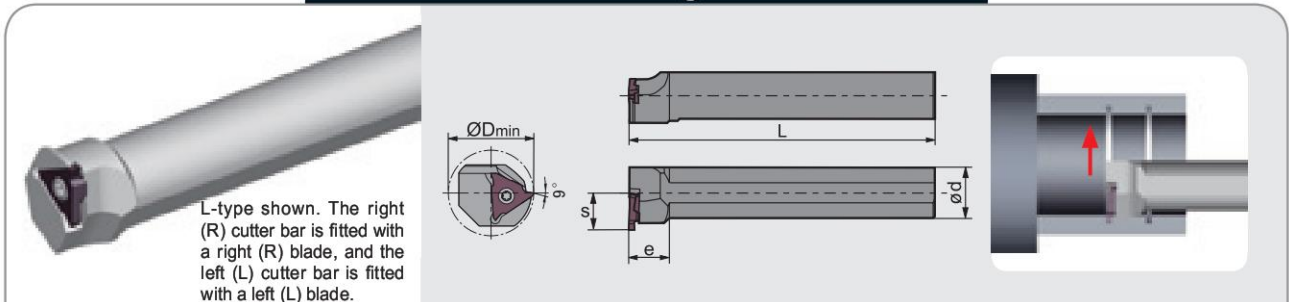
R-type shown. The right (R) cutter bar is fitted with

with a left (L) blade.

Type	Stock	Basic dimensions(mm)					Width (mm)	Applicable inserts	Screw	Wrench	
		H	B	S	e	L					
<b>GQCR/L</b>	1616K16-15	▲	16	16	21	25.5	125	QC16R/L 110~180	I60M3.5×10	WT15IP	
	2020K16-15	▲	20	20	25		125				
	2525M16-15	▲	25	25	30		150				
	1616K16-25	▲	16	16	21		125				QC16R/L 180~300
	2020K16-25	▲	20	20	25		125				
	2525M16-25	▲	25	25	30		150				
	2020K22-15	▲	20	20	25		125	1.0-2.3	QC22R/L 100~230	I60M5×13	WT20IP
	2525M22-15	▲	25	25	30		150	2.3-3.3	QC22R/L 230~330		
	2020K22-25	▲	20	20	25		125				
	2525M22-25	▲	25	25	30		150	3.3-4.8	QC22R/L 330~480		
2020K22-35	▲	20	20	25	125						

▲Stock available    △Make-to-order

### Internal shallow groove tools



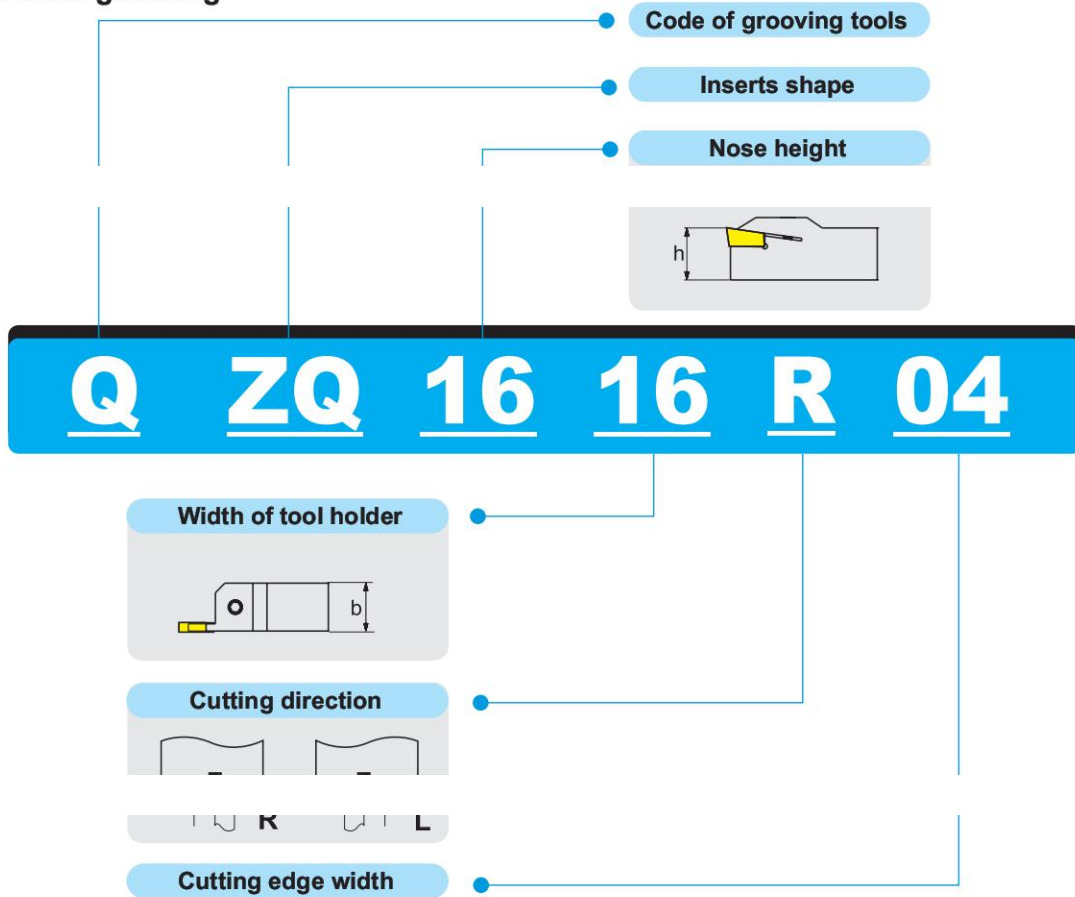
L-type shown. The right (R) cutter bar is fitted with a right (R) blade, and the left (L) cutter bar is fitted with a left (L) blade.

Type	Stock	Basic dimensions(mm)					Width (mm)	Applicable inserts	Screw	Wrench
		ØDmin	ød	S	e	L				
<b>S20K-QC1115R/L 16</b>	▲	16	20	11.1	40	125	1.2-1.8	QC11R/L 120~180		
<b>S20K-QC1125R/L 16</b>	▲	16	20	11.1	40	125	1.8-3.0	QC11R/L 180~300		
<b>S16H-QC1125R/L 20</b>	▲	21	16	11.5	12	100	1.8-3.0	QC11R/L 180~300	I60M3.5×10	WT15IP
<b>S20M-QC1615R/L 25</b>	▲	26	20	12.5	15	150	1.1-1.8	QC16R/L 110~180		
<b>S20M-QC1625R/L 25</b>	▲			12.5			1.8-3.0	QC16R/L 180~300		
<b>S25M-QC2215R/L 35</b>	▲	35	25	18.2	20	150	1.0-2.3	QC22R/L 100~230	I60M5×13	WT20IP
<b>S25M-QC2225R/L 35</b>	▲			18.2			2.3-3.3	QC22R/L 230~330		
<b>S25M-QC2235R/L 35</b>	▲			18.2			3.3-4.8	QC22R/L 330~480		

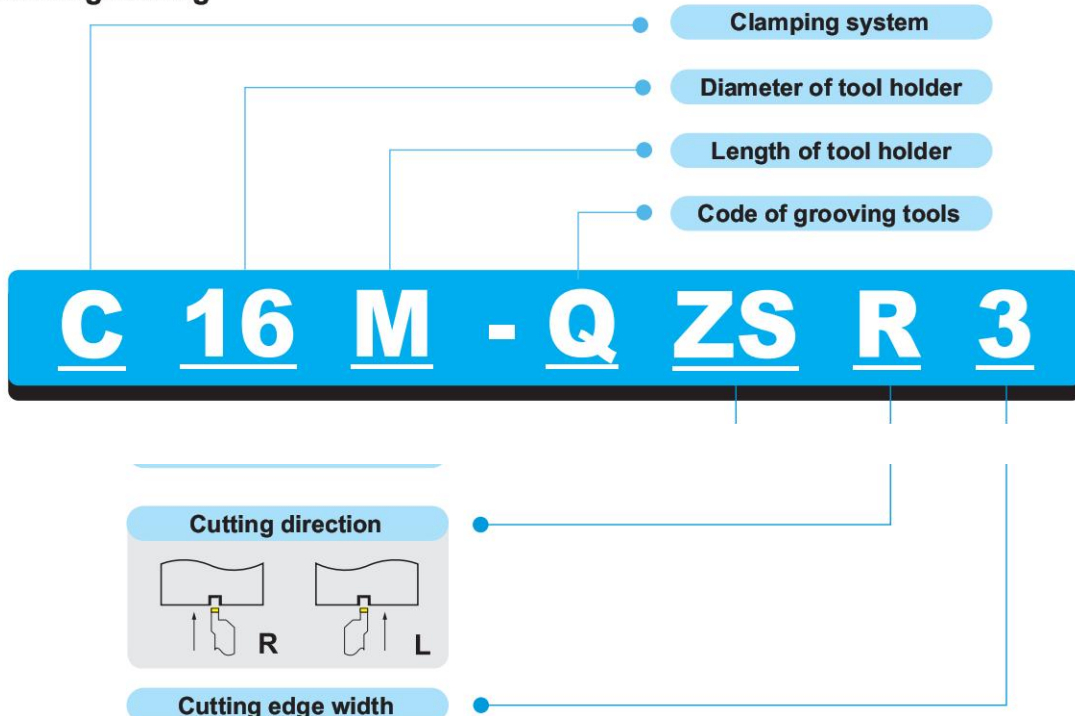
▲Stock available    △Make-to-order

Parting and grooving tools code key

● External grooving



● Internal grooving



General turning

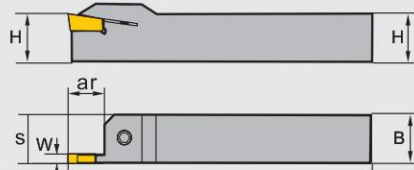
Parting groove

Supplementary series parting and grooving inserts




# TURNING Parting and grooving tools

Supplementary series parting and grooving inserts

## External parting and grooving tools: QZQ series



R-type shown

Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench	
	R	L	H	B	L	S	W	ar <sub>max</sub>				
<b>QZQ</b>	1616R/L03	▲	▲	16	16	100	16.4	3	16	ZQMX3N11-IE	GB70-85-M5×16	WH40L
	1616R/L04	▲	▲	16	16	100	16.4	4	18	ZQMX4N11-IE		
	2020R/L03	▲	▲	20	20	125	20.4	3	20	ZQMX3N11-IE		
	2020R/L04	▲	▲	20	20	125	20.4	4	20	ZQMX4N11-IE	GB70-85-M6×20	WH50L
	2525R/L03	▲	▲	25	25	150	25.4	3	20	ZQMX3N11-IE		
	2525R/L04	▲	▲	25	25	150	25.4	4	20	ZQMX4N11-IE		
	2525R/L05	▲	▲	25	25	150	25.4	5	25	ZQMX5N11-IE		
	2525R/L06	▲	▲	25	25	150	25.7	6	32	ZQMX6N11-IE		
	3225R/L03	▲	▲	32	25	170	25.4	3	25	ZQMX3N11-IE		
3225R/L05	▲	▲	32	25	170	25.4	5	25	ZQMX5N11-IE			
3225R/L06	▲	▲	32	25	170	25.7	6	35	ZQMX6N11-IE			

▲Stock available    △Make-to-order

General turning

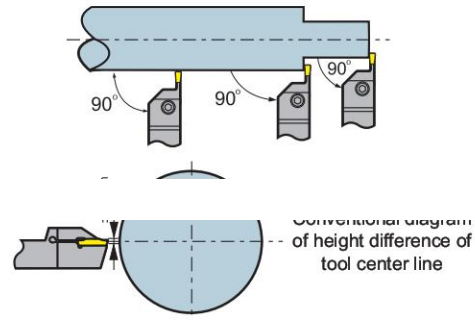
Parting and grooving

Supplementary series parting and grooving inserts

## Center height control of parting and grooving tools

- No matter which parting or grooving tools you select, the ideal surface quality is only achieved by ensuring that insert is vertical from the center line of workpiece, which can also effectively reduce vibration during machining.
- The height tolerance between insert edge bottom and the center height of workpiece should be remained in  $\pm 0.1\text{mm}$ , especially for

improve tool life, reduce cutting resistant force, and diminish burrs.



## Parting

- When the insert is approaching the center of workpiece, the cutting speed should be reduced by 30%, which is good for improving life and surface quality.
- As long as conditions allow, try to shorten the overhang of tools as much as possible to ensure good stability.

## External grooving, turning and profiling

- In-feed sequence: When cutting depth  $> 0.5\text{mm}$ , radial in-feed (Max. cutting depth can be  $0.75 \times \text{insert edge width } S$ )  $\rightarrow$  radial out-feed about  $0.1\text{mm}$   $\rightarrow$  axial in-feed  $\rightarrow$  flank out-feed  $\rightarrow$  axial in-feed  $\rightarrow$  radial machining to required depth.

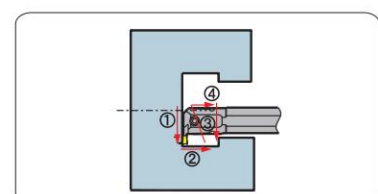
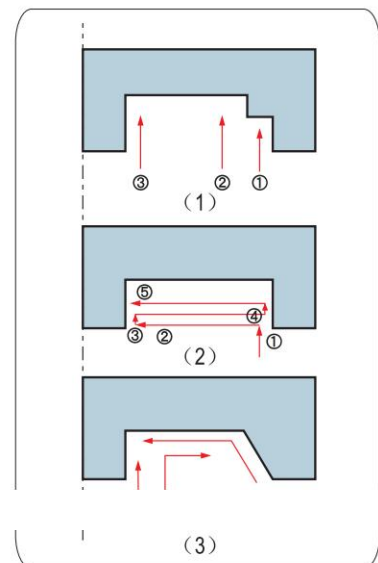
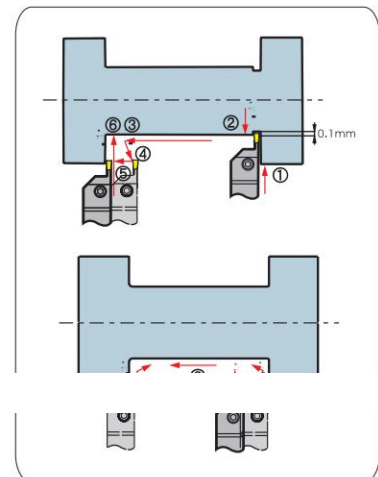
vibration caused by the friction between tools and chips.

## Surface grooving and turning

- Finishing (Multi-slot cutting)  
Cut inwards from Max. diameter. Inserts offset to inward flange when retracting, as is shown in diagram (1).
- Recess turning  
Axial turning depth should not exceed  $0.75 \times S$  (cutting edge width).  
If slot width is larger than slot depth, it is recommended to adopt recess turning, as is shown in diagram (2).  
If slot depth is larger than slot depth, it is recommended to adopt multi-slot cutting.
- Finish machining  
First finish bottom and external diameter fringe, then finish the internal diameter to required size, as is shown in diagram (3).

## Internal grooving and turning

- To facilitate chip flow, always feed along the direction of moving from the deepest in the hole to outside.



# TURNING Parting and grooving tools

## Application information of parting and grooving

The cutting parameters recommended are suitable for wet machining.

Insert size	Recommended feed rate(mm/r)						
	Insert width(mm)	Parting	Grooving	Grooving(-MM)	Turning	Turning(-MM)	Profiling
2.5		0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.15	0.05-0.2	0.05-0.15
3		0.05-0.15	0.05-0.15	0.05-0.2	0.07-0.15	0.07-0.2	0.1-0.2
4		0.05-0.2	0.05-0.2	0.05-0.25	0.07-0.25	0.07-0.2	0.1-0.2
5		0.07-0.2	0.07-0.22	0.07-0.25	0.1-0.25	0.1-0.3	0.15-0.3
6		0.1-0.3	0.07-0.25	0.07-0.3	0.1-0.3	0.1-0.35	0.15-0.3
8				0.1-0.4		0.15-0.45	

Workpiece material	Hardness	YBG302	YBG202 YBG205	YBG105	YBG212	YBC151	YBC251	YBS103	YD101	YD201	YBG102	YC10	YC40
<b>P</b> Carbon steel	125≤HB≤170	120-260	150-280			140-280	150-280					130-280	110-260
	Low alloy steel	180≤HB≤275	80-175	110-200		100-240	110-200					90-200	70-175
	High alloy steel	180≤HB≤325	80-160	110-190		100-220	110-190					90-190	70-160
	Cast steel	180≤HB≤250	75-140	100-170		80-160	100-170					80-170	60-140
<b>M</b> Ferrite, Martensite	200≤HB≤300	70-170	100-200			100-200						80-200	60-170
	Austenite	180≤HB≤300	80-200	110-220		110-220						90-220	70-200
<b>K</b> Malleable cast iron	130≤HB≤230	100-200	130-220							90-160			
	Grey cast iron	180≤HB≤220	90-170	120-200						80-140			
	Nodular cast	160≤HB≤250	80-150	110-180						60-140			
<b>N</b> Al alloy	--								200-400				
<b>S</b> High temperature alloy	≤400			40-70	20-50			30-80	20-50		30-60		

The cutting parameters recommended are suitable for wet machining.

Advice: internal machining and end machining, The cutting speed should be reduced by 30%-40%.

### Recommended cutting parameters for QC series shallow groove tools

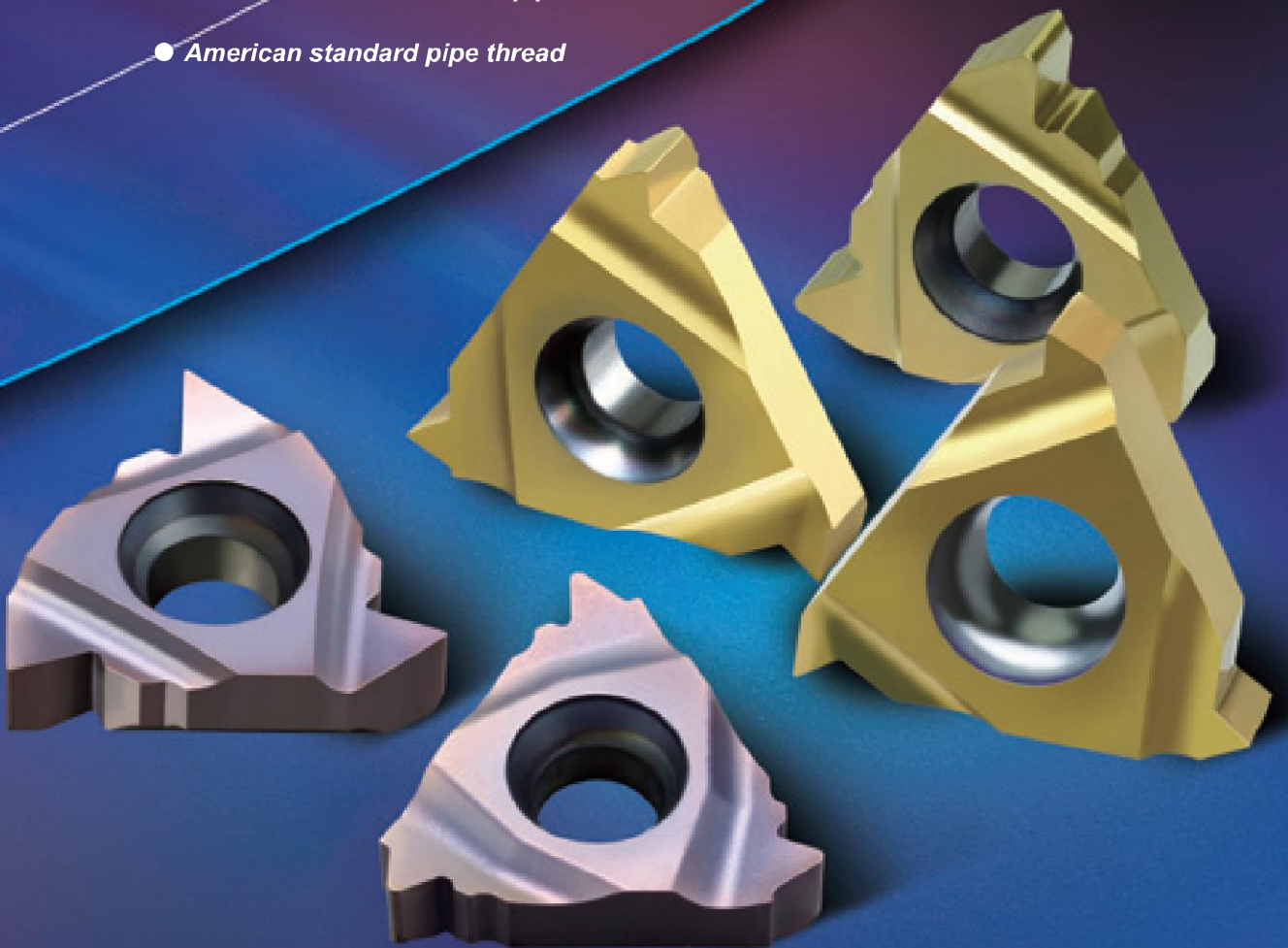
Processed material	Recommended insert material (cutting speed m/min)		A: Tool feed for grooving(mm/r)				
	PVD Coating		B: Tool feed for transverse machining(mm/r)				
	YBG202	YBG205	C: Depth of cut for transverse machining(mm)				
			QC**R/L050-120	QC**R/L125-225	QC**R/L230-325	QC**R/L330-400	QC**R/L400-480
Carbon Steel	80-180	80-180	A: 0.03-0.08	A: 0.04-0.09	A: 0.05-0.1	A: 0.05-0.12	A: 0.05-0.12
			Non-horizontal processing	B: 0.04-0.09	B: 0.05-0.1	B: 0.05-0.1	B: 0.05-1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.8(MAX)
			A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
Stainless Steel	60-130	60-130	Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)
			A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
			Non-horizontal processing	B: 0.04-0.08	B: 0.05-0.09	B: 0.05-0.1	B: 0.05-1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)

The cutting parameters above are applicable to external grooving. When machining internal hole grooves, please reduce the cutting speed and feed by 10%.



# 6series

- *ISO metric thread*
- *General pitch thread*
- *Whitworth thread*
- *Unified thread*
- *British standard pipe thread*
- *American standard pipe thread*



## Threading insert

Fully ground high precision inserts for high quality, high precision threading in a variety of materials e.g. steel, stainless steel, hard-to-machine materials.

# TURNING Threading Tools

## How to select threading tools

### How to select threading tools

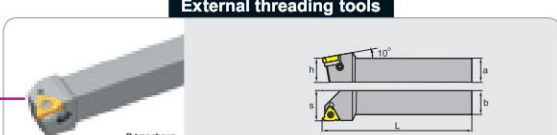
#### Structure of threading tools selected table

- Categorized as external threading and internal threading according to machining type.
- Separately listed out according to series.

**Dimensions of product**

**Indicating external threading or internal threading**

**External threading tools**



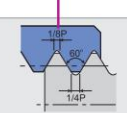

Type	Stock	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench
		a	h	b	L	s					
1616H16	▲	16	16	16	100	20	Z16ER□□□□	ISO M3.5X12TT	MT16-□□MN	SM4X3C	WT16P
2020K16	▲	20	20	20	125	25					
2525M16	▲	25	25	25	150	32					
3225P16	▲	32	32	25	170	32					
ZSER 3233P16	▲	32	32	32	170	40					

**Threading insert type**  
Including type, standard, tolerance class

**Diagram of thread pitch**

**ISO metric thread (with end)**

ISO 965-1980 DIN 13  
GB/T 197-2003 Tolerance class: 6g/6H

Type		Basic dimensions(mm)				Recommended coating grade	
The right hand tools	The left hand tools	Pitch	S	Ø.C	ed	YBG203	YBG205
Z16ER0.5ISO	Z16EL0.5ISO	0.50	3.52	9.525	4.0	★	○
Z16ER0.75ISO	Z16EL0.75ISO	0.75	3.52	9.525	4.0	★	○
Z16ER1.0ISO	Z16EL1.0ISO	1.00	3.52	9.525	4.0	★	○

**Product specification**  
Including type (right hand and left hand), basic dimensions, stock

3233P22	▲	32	32	32	170	40	Z16ER□□□□	ISO M3.5X12TT	MT16-□□MN	SM4X3C	WT16P
4040S22	△	40	40	40	250	50					
1616H16	▲	16	16	16	100	20					
2020K16	▲	20	20	20	125	25					
2525M16	▲	25	25	25	150	32					
ZSEL 3225P16	▲	32	32	25	170	32	Z22EL□□□□	ISO M5X17	MT22-□□MN	SM5X8.5	WT20P
3233P16	▲	32	32	32	170	40					
2525M22	▲	25	25	25	150	32					
3225P22	▲	32	32	25	170	32					
3233P22	▲	32	32	32	170	40					
4040S22	△	40	40	40	250	50					

▲ Stock available    △ Make-to-order


**Product specification**  
Including type (right hand and left hand), basic dimensions, stock

External thread	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	Ø.C	ed	YBG203	YBG205
Z16ER1.75ISO	Z16EL1.75ISO	1.75	3.52	9.525	4.0	★	○	
Z16ER2.0ISO	Z16EL2.0ISO	2.00	3.52	9.525	4.0	★	○	
Z16ER2.5ISO	Z16EL2.5ISO	2.50	3.52	9.525	4.0	★	○	
Z16ER3.0ISO	Z16EL3.0ISO	3.00	3.52	9.525	4.0	★	○	
Z22ER3.5ISO	Z22EL3.5ISO	3.50	4.65	12.7	5.0	★	○	
Z22ER4.0ISO	Z22EL4.0ISO	4.00	4.65	12.7	5.0	★	○	
Z22ER4.5ISO	Z22EL4.5ISO	4.50	4.65	12.7	5.0	★	○	
Z22ER5.0ISO	Z22EL5.0ISO	5.00	4.65	12.7	5.0	★	○	
Z22ER5.5ISO	Z22EL5.5ISO	5.50	4.65	12.7	5.0	★	○	
Z22ER6.0ISO	Z22EL6.0ISO	6.00	4.65	12.7	5.0	★	○	

★ Recommended grade (always stock available)    ● Available grade (always stock available)    □ Make-to-order

**Product specification**  
Including type (right hand and left hand), basic dimensions, stock

**Dimension diagram of insert**



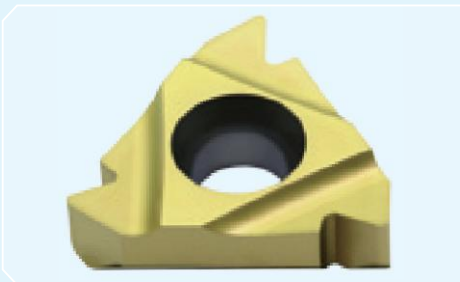




# TURNING



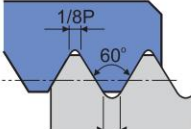
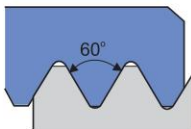
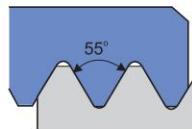





## Threading Tools



<b>Threading tools overview</b>	•	A294-A295
<b>Introduction on threading insert grade and chipbreaker</b>	•	A296
<b>Threading insert</b>	•	A297-A304
Thin Threading insert code key		A297
Thin ISO metric external thread		A298-A299
Thin General pitch thread		A300
Thin Whitworth thread		A301
Thin Unified thread		A302
Thin British standard pipe thread		A303
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Thin threading insert code key		A305
Thin ISO metric external thread		A306
Thin general pitch thread		A307
Thin Whitworth thread		A308
Thin unified thread		A309
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Thin American standard pipe thread		A311
<b>Threading tools</b>	•	A312-A314
Threading tools code key		A312
External threading tools		A313
Internal threading tools		A314
<b>Application information on threading</b>	•	A315-A325

# TURNING Threading Tools

## Threading tools overview

Applications		For general use		
Legend				
Thread name		ISO metric thread With end	General pitch thread Without end	General pitch thread Without end
Profil		<b>GM</b>	<b>60</b>	<b>55</b>
Shape of insert (length: 11, 16, 22mm)		R style shown  A298-299	R style shown  A300	R style shown  A300
Tool holder	Pitch	Dimensions (mm) (H×W×L) (Dia×L×Min. dia)	Pitch/mm	Pitch/mm (pitch/Inch)
			Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
External thread	 R-type shown A313	16×16×100 20×20×125 25×25×150 32×25×170 32×32×170 40×40×250	0.5~6.0	0.5~5.0 (5~48) 0.5~5.0 (5~48)
Internal thread		16×125×12 16×150×16 16×150×20 20×150×25 20×180×25 25×150×32 32×200×40	0.5~6.0	0.5~5.0 (5~48) 0.5~5.0 (5~48)
	R-type shown A314	40×300×50 50×350×63		

General turning

Turning and boring

Threading

Threading tools overview

For general use	For aerospace industry	Heater, gas and water pipe thread	For gas and water faucet and pipe connection
			
Whitworth thread	Unified thread (American standard threads)	British standard taper pipe threads	American standard taper pipe threads
<b>W</b>	<b>UN</b>	<b>BSPT</b>	<b>NPT</b>
R style shown	R style shown	R style shown	R style shown
 <p>A301</p>	 <p>A302</p>	 <p>A303</p>	 <p>A304</p>
Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
8~19	8~24	11~28	8~27
8~19	8~24	11~28	8~27

General turning

Parting groove

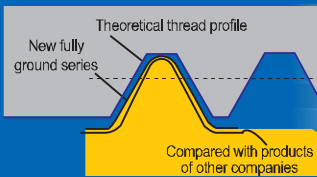
Threading

Threading tools overview

suitable for threading in a variety of materials

# New nano coating grade YBG203

- Specially treated edge for superior surface quality
- Sharp nose with small cutting resistance and superior performance
- Full ground inserts with high dimensional precision for high quality threading



Thread type	Grade of tolerance
ISO metric thread	6g/6H
Whitworth thread W	Medium Class A
British standard pipe thread	Standard BSPT
Unified thread	2A/2B
American standard pipe thread	Standard NPT

- New nano coating grade specially designed for threading with longer insert life



Advanced surface treatment techniques effectively reduce friction and allows for better wear observation.

Advanced TiAlN substrate nano coating, in combination with proper coating ingredients, improves the mechanical and thermal properties of coating.

Further optimizing coating structure, improving coating stress, enhancing bond strength of coating and substrate.



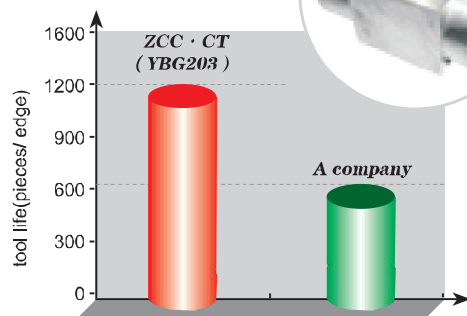
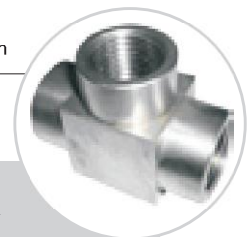
## Case:

Workpiece material: 42CrMo(HB260)

Insert: Z16ER2.0ISO/YBG203

Thread pitch: p=2.0mm

Cutting data: Vc=120 m/min



84% tool life improvement of ZCC·CT product than that of company A under the same cutting condition.

Threading inserts code key

Insert size

Code	Diameter of IC(mm)
Z11	ø6.35
Z16	ø9.525

Cutting style

- E -External threading inserts
- I -Internal threading inserts

Cutting direction

- R-Righ
- L-Left

Z16 E R 2.0 ISO (PP)

Screw pitch

Full profile (Range of screw pitch is indicated by numbers).

mm	TPI
0.5-6.0	48-5

V profile (Range of screw pitch is indicated by letters).

	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5

Thread specification	Range of thread pitch
ISO metric thread	0.5-6.0
General pitch thread	0.5-5.0

British standard pipe thread	11-28
Unified thread	8-24
American standard pipe thread	8-27

Profile

- ISO—ISO metric 60° thread
- 60—60° general pitch thread
- 55—55° general pitch thread
- W—Whitworth thread
- UN—Unified thread(American standard threads)
- BSPT—British standard taper piper thread
- NPT—American standard taper piper thread

Chip breaker

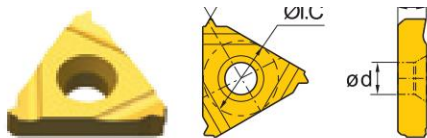
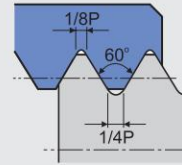
- fully ground edge insert
- PP -3-Dimensional chip-breaking insert

# TURNING Threading Tools

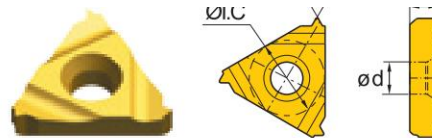
## Threading insert

### ISO metric thread (with end)

ISO 965-1980 DIN 13  
GB/T 197-2003 Tolerance class: 6g/6H



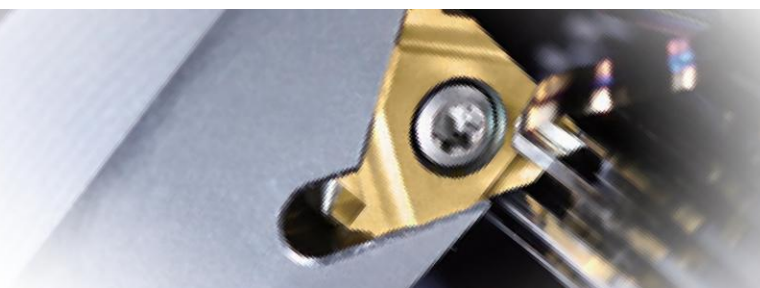
R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	$\phi$ 1.C	$\phi$ d	YBG203	YBG205
External thread	<b>Z16ER0.5ISO</b>	<b>Z16EL0.5ISO</b>	0.50	3.52	9.525	4.0	★	○
	<b>Z16ER0.75ISO</b>	<b>Z16EL0.75ISO</b>	0.75	3.52	9.525	4.0	★	○
	<b>Z16ER1.0ISO</b>	<b>Z16EL1.0ISO</b>	1.00	3.52	9.525	4.0	★	○
	<b>Z16ER1.25ISO</b>	<b>Z16EL1.25ISO</b>	1.25	3.52	9.525	4.0	★	○
	<b>Z16ER1.5ISO</b>	<b>Z16EL1.5ISO</b>	1.50	3.52	9.525	4.0	★	○
	<b>Z16ER1.75ISO</b>	<b>Z16EL1.75ISO</b>	1.75	3.52	9.525	4.0	★	○
	<b>Z16ER2.0ISO</b>	<b>Z16EL2.0ISO</b>	2.00	3.52	9.525	4.0	★	○
Internal thread	<b>Z16ER3.0ISO</b>	<b>Z16EL3.0ISO</b>	3.00	3.52	9.525	4.0	★	○
	<b>Z22ER3.5ISO</b>	<b>Z22EL3.5ISO</b>	3.50	4.65	12.7	5.0	★	○
	<b>Z22ER4.0ISO</b>	<b>Z22EL4.0ISO</b>	4.00	4.65	12.7	5.0	★	○
	<b>Z22ER4.5ISO</b>	<b>Z22EL4.5ISO</b>	4.50	4.65	12.7	5.0	★	○
	<b>Z22ER5.0ISO</b>	<b>Z22EL5.0ISO</b>	5.00	4.65	12.7	5.0	★	○
	<b>Z22ER5.5ISO</b>	<b>Z22EL5.5ISO</b>	5.50	4.65	12.7	5.0	★	○
	<b>Z22ER6.0ISO</b>	<b>Z22EL6.0ISO</b>	6.00	4.65	12.7	5.0	★	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



General turning

Internal and external turning

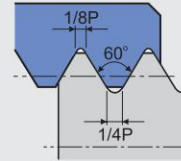
Threading

Threading insert

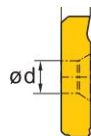
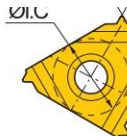
Internal thread

### ISO metric thread (with end)

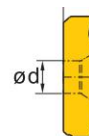
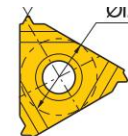
ISO 965-1980    DIN 13  
 GB/T 197-2003    Tolerance class: 6g/6H



R type



L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	ØI.C	ød	YBG203	YBG205
	Z11IR0.5ISO	Z11IL0.5ISO	0.50	3.05	6.35	3.2	★	○
	Z11IR0.75ISO	Z11IL0.75ISO	0.75	3.05	6.35	3.2	★	○
	Z11IR1.0ISO	Z11IL1.0ISO	1.00	3.05	6.35	3.2	★	○
	Z11IR1.25ISO	Z11IL1.25ISO	1.25	3.05	6.35	3.2	★	○
	Z11IR1.5ISO	Z11IL1.5ISO	1.50	3.05	6.35	3.2	★	○
	Z11IR1.75ISO	Z11IL1.75ISO	1.75	3.05	6.35	3.2	★	○
	Z11IR2.0ISO	Z11IL2.0ISO	2.00	3.05	6.35	3.2	★	○

Internal thread	Z16IR0.75ISO	Z16IL0.75ISO	0.75	3.52	9.525	4.0	★	○
	Z16IR1.0ISO	Z16IL1.0ISO	1.00	3.52	9.525	4.0	★	○
	Z16IR1.25ISO	Z16IL1.25ISO	1.25	3.52	9.525	4.0	★	○
	Z16IR1.5ISO	Z16IL1.5ISO	1.50	3.52	9.525	4.0	★	○
	Z16IR1.75ISO	Z16IL1.75ISO	1.75	3.52	9.525	4.0	★	○
	Z16IR2.0ISO	Z16IL2.0ISO	2.00	3.52	9.525	4.0	★	○
	Z16IR2.5ISO	Z16IL2.5ISO	2.50	3.52	9.525	4.0	★	○
	Z16IR3.0ISO	Z16IL3.0ISO	3.00	3.52	9.525	4.0	★	○
	Z22IR3.5ISO	Z22IL3.5ISO	3.50	4.65	12.7	5.0	★	○
	Z22IR4.0ISO	Z22IL4.0ISO	4.00	4.65	12.7	5.0	★	○
	Z22IR4.5ISO	Z22IL4.5ISO	4.50	4.65	12.7	5.0	★	○
	Z22IR5.0ISO	Z22IL5.0ISO	5.00	4.65	12.7	5.0	★	○
	Z22IR5.5ISO	Z22IL5.5ISO	5.50	4.65	12.7	5.0	★	○
	Z22IR6.0ISO	Z22IL6.0ISO	6.00	4.65	12.7	5.0	★	○

★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

General turning

Parting groove

Threading

Threading insert

# TURNING Threading Tools

## Threading insert

### General pitch thread (without end)



	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	YBG203	YBG205	
External thread	55°	<b>Z16ERA55</b>	<b>Z16ELA55</b>	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		<b>Z16ERG55</b>	<b>Z16ELG55</b>	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		<b>Z16ERAG55</b>	<b>Z16ELAG55</b>	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		<b>Z22ERN55</b>	<b>Z22ELN55</b>	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	<b>Z16ERA60</b>	<b>Z16ELA60</b>	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		<b>Z16ERG60</b>	<b>Z16ELG60</b>	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		<b>Z16ERAG60</b>	<b>Z16ELAG60</b>	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		<b>Z22ERN60</b>	<b>Z22ELN60</b>	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	YBG203	YBG205	
Intern	55°	<b>Z11IRA55</b>	<b>Z11ILA55</b>	0.5-1.5(48-16)	3.05	6.35	3.2	55°	★	○
		<b>Z16IRA55</b>	<b>Z16ILA55</b>	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		<b>Z16IRG55</b>	<b>Z16ILG55</b>	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		<b>Z16IRAG55</b>	<b>Z16ILAG55</b>	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		<b>Z22IRN55</b>	<b>Z22ILN55</b>	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
Extern	60°	<b>Z16IRA60</b>	<b>Z16ILA60</b>	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		<b>Z16IRG60</b>	<b>Z16ILG60</b>	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		<b>Z16IRAG60</b>	<b>Z16ILAG60</b>	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		<b>Z22IRN60</b>	<b>Z22ILN60</b>	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Internal and external turning

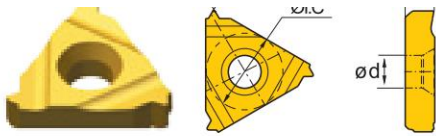
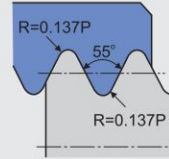
Threading

Threading insert

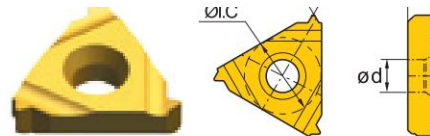


### Whitworth thread (with end)

ISO 228/1:1982,  
DIN 259, B.S.84:1956  
Tolerance class: Medium class A



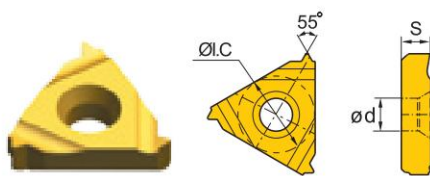
R type



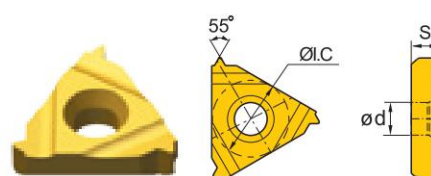
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
External thread	<b>Z16ER8W</b>	<b>Z16EL8W</b>	8	3.52	9.525	4.0	★	○
	<b>Z16ER9W</b>	<b>Z16EL9W</b>	9	3.52	9.525	4.0	★	○
	<b>Z16ER10W</b>	<b>Z16EL10W</b>	10	3.52	9.525	4.0	★	○
	<b>Z16ER11W</b>	<b>Z16EL11W</b>	11	3.52	9.525	4.0	★	○
	<b>Z16ER12W</b>	<b>Z16EL12W</b>	12	3.52	9.525	4.0	★	○
	<b>Z16ER14W</b>	<b>Z16EL14W</b>	14	3.52	9.525	4.0	★	○
	<b>Z16ER16W</b>	<b>Z16EL16W</b>	16	3.52	9.525	4.0	★	○
	<b>Z16ER19W</b>	<b>Z16EL19W</b>	19	3.52	9.525	4.0	★	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
	<b>Z16IR8W</b>	<b>Z16IL8W</b>	8	3.52	9.525	4.0	★	○
	<b>Z16IR9W</b>	<b>Z16IL9W</b>	9	3.52	9.525	4.0	★	○
	<b>Z16IR10W</b>	<b>Z16IL10W</b>	10	3.52	9.525	4.0	★	○
Internal thread	<b>Z16IR12W</b>	<b>Z16IL12W</b>	12	3.52	9.525	4.0	★	○
	<b>Z16IR14W</b>	<b>Z16IL14W</b>	14	3.52	9.525	4.0	★	○
	<b>Z16IR16W</b>	<b>Z16IL16W</b>	16	3.52	9.525	4.0	★	○
	<b>Z16IR18W</b>	<b>Z16IL18W</b>	18	3.52	9.525	4.0	★	○
	<b>Z16IR19W</b>	<b>Z16IL19W</b>	19	3.52	9.525	4.0	★	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Parting groove

Threading

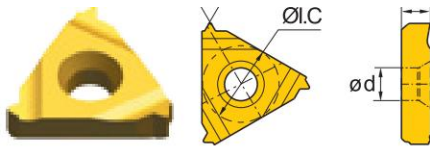
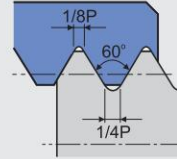
Threading insert

# TURNING Threading Tools

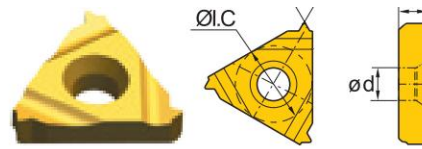
## Threading insert

### Unified thread (with end)

ASME B1.1-1989  
Tolerance class: 2A/2B



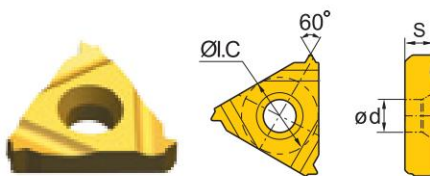
R type



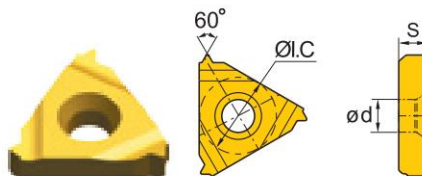
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
External thread	<b>Z16ER8UN</b>	<b>Z16EL8UN</b>	8	3.52	9.525	4.0	★	○
	<b>Z16ER10UN</b>	<b>Z16EL10UN</b>	10	3.52	9.525	4.0	★	○
	<b>Z16ER12UN</b>	<b>Z16EL12UN</b>	12	3.52	9.525	4.0	★	○
	<b>Z16ER14UN</b>	<b>Z16EL14UN</b>	14	3.52	9.525	4.0	★	○
	<b>Z16ER16UN</b>	<b>Z16EL16UN</b>	16	3.52	9.525	4.0	★	○
	<b>Z16ER18UN</b>	<b>Z16EL18UN</b>	18	3.52	9.525	4.0	★	○
	<b>Z16ER20UN</b>	<b>Z16EL20UN</b>	20	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
In	<b>Z16IR8UN</b>	<b>Z16IL8UN</b>	8	3.52	9.525	4.0	★	○
	<b>Z16IR10UN</b>	<b>Z16IL10UN</b>	10	3.52	9.525	4.0	★	○
	<b>Z16IR12UN</b>	<b>Z16IL12UN</b>	12	3.52	9.525	4.0	★	○
Full thread	<b>Z16IR16UN</b>	<b>Z16IL16UN</b>	16	3.52	9.525	4.0	★	○
	<b>Z16IR18UN</b>	<b>Z16IL18UN</b>	18	3.52	9.525	4.0	★	○
	<b>Z16IR20UN</b>	<b>Z16IL20UN</b>	20	3.52	9.525	4.0	★	○
	<b>Z16IR24UN</b>	<b>Z16IL24UN</b>	24	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○Make-to-order

General turning

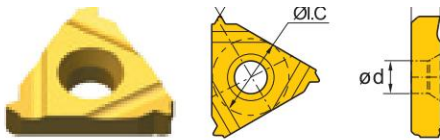
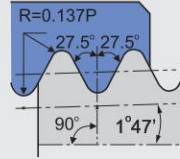
Turning and boring

Threading

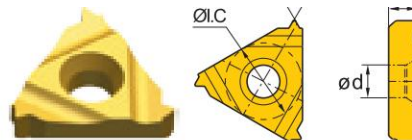
Threading insert

### British standard taper pipe thread (with end)

ISO 7/1:1994  
B.S.21:1985  
Standard BSPT



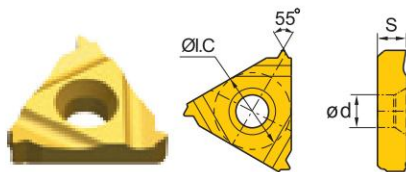
R type



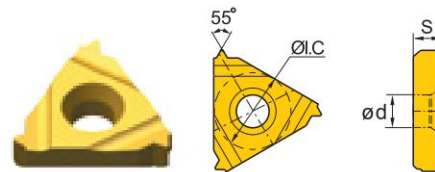
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
External thread	<b>Z16ER11BSPT</b>	<b>Z16EL11BSPT</b>	11	3.52	9.525	4.0	★	○
	<b>Z16ER14BSPT</b>	<b>Z16EL14BSPT</b>	14	3.52	9.525	4.0	★	○
	<b>Z16ER19BSPT</b>	<b>Z16EL19BSPT</b>	19	3.52	9.525	4.0	★	○
	<b>Z16ER28BSPT</b>	<b>Z16EL28BSPT</b>	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG203	YBG205
Internal thread	<b>Z16IR11BSPT</b>	<b>Z16IL11BSPT</b>	11	3.52	9.525	4.0	★	○
	<b>Z16IR14BSPT</b>	<b>Z16IL14BSPT</b>	14	3.52	9.525	4.0	★	○
	<b>Z16IR19BSPT</b>	<b>Z16IL19BSPT</b>	19	3.52	9.525	4.0	★	○
	<b>Z16IR28BSPT</b>	<b>Z16IL28BSPT</b>	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○Make-to-order

General turning

Parting groove

Threading

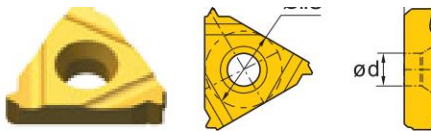
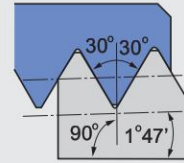
Threading insert

# TURNING Threading Tools

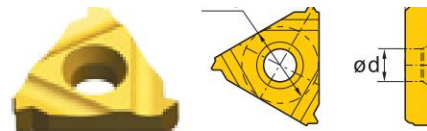
## Threading insert

### American standard taper pipe thread (with end)

ASME B1.20.1-1983  
Standard NPT



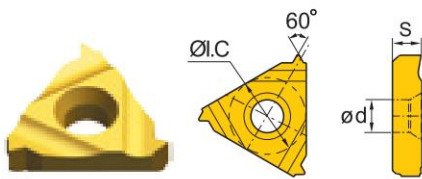
R type



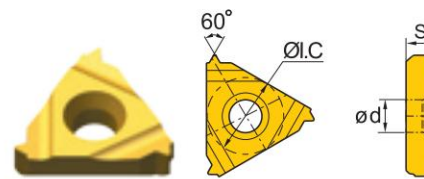
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	Ød	YBG203	YBG205
External thread	<b>Z16ER8NPT</b>	<b>Z16EL8NPT</b>	8	3.52	9.525	4.0	★	○
	<b>Z16ER11.5NPT</b>	<b>Z16EL11.5NPT</b>	11.5	3.52	9.525	4.0	★	○
	<b>Z16ER14NPT</b>	<b>Z16EL14NPT</b>	14	3.52	9.525	4.0	★	○
	<b>Z16ER18NPT</b>	<b>Z16EL18NPT</b>	18	3.52	9.525	4.0	★	○
	<b>Z16ER27NPT</b>	<b>Z16EL27NPT</b>	27	3.52	9.525	4.0	★	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	Ød	YBG203	YBG205
Internal thread	<b>Z16IR8NPT</b>	<b>Z16IL8NPT</b>	8	3.52	9.525	4.0	★	○
	<b>Z16IR11.5NPT</b>	<b>Z16IL11.5NPT</b>	11.5	3.52	9.525	4.0	★	○
	<b>Z16IR14NPT</b>	<b>Z16IL14NPT</b>	14	3.52	9.525	4.0	★	○
	<b>Z16IR18NPT</b>	<b>Z16IL18NPT</b>	18	3.52	9.525	4.0	★	○
	<b>Z16IR27NPT</b>	<b>Z16IL27NPT</b>	27	3.52	9.525	4.0	★	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Turning and boring

Threading

Threading insert

### Threading inserts code key

#### Cutting direction

**R** > Right rotation **L** > Left rotation

#### Insert shape



- 22** > Indicates that the inner cutting circle diameter of the blade is 12.7
- 16** > Indicates that the inner cutting circle diameter of the blade is 9.525
- 11** > Indicates that the inner cutting circle diameter of the blade is 6.35

#### Number of cutting edge teeth

**01** > Number of teeth per cutting edge

#### Cutting Type

- W** > External thread cutting inserts
- N** > Internal thread cutting inserts

**R T 16 01 W 3 00 GM (R)**

#### Pitch

Full tooth shape  
(pitch range is indicated by numbers)

mm	TPI
0.35-9.0	72-2

V-tooth  
(pitch range is indicated by letter)

	mm	TPI
<b>A</b>	0.5-1.5	48-16
<b>AG</b>	0.5-3.0	48-8
<b>G</b>	1.75-3.0	14-8
<b>N</b>	3.5-5.0	7-5
<b>Q</b>	5.5-6.0	4 1/2-4

#### Threaded tooth shape

<b>GM</b>	ISO metric 60° thread
<b>60</b>	60° general pitch thread
<b>55</b>	55° general pitch thread
<b>W</b>	Whitworth thread
<b>UN</b>	Unified thread
<b>BSPT</b>	British standard pipe thread
<b>NPT</b>	American standard pipe thread

#### Supplementary number

**B** > Thin Threaded Inserts

General turning

Parting groove

Threading

Threading tools

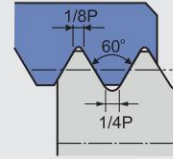
# TURNING Threading Tools

## Threading tools

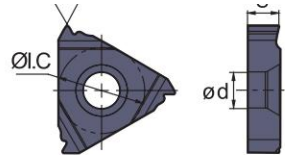
### ISO metric thread (with end) **Thin type**

ISO 965-1980, DIN 13, GB/T 197-2003

Tolerance class: 6g/6H



R type

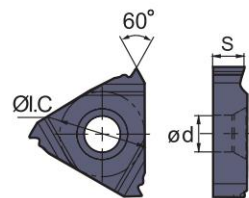


	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm	S	ØI.C	ød	YBG202
External thread	<b>RT16.01W-0.50GMB</b>	0.50	3.52	9.525	4.0	★
	<b>RT16.01W-0.75GMB</b>	0.75	3.52	9.525	4.0	★
	<b>RT16.01W-1.00GMB</b>	1.00	3.52	9.525	4.0	★
	<b>RT16.01W-1.25GMB</b>	1.25	3.52	9.525	4.0	★
	<b>RT16.01W-1.50GMB</b>	1.50	3.52	9.525	4.0	★
	<b>RT16.01W-1.75GMB</b>	1.75	3.52	9.525	4.0	★
	<b>RT16.01W-2.00GMB</b>	2.00	3.52	9.525	4.0	★
	<b>RT16.01W-3.00GMB</b>	3.00	3.52	9.525	4.0	★

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm	S	ØI.C	ød	YBG202
	<b>RT16.01N-0.50GMB</b>	0.50	3.52	9.525	4.0	★
	<b>RT16.01N-0.75GMB</b>	0.75	3.52	9.525	4.0	★
	<b>RT16.01N-1.00GMB</b>	1.00	3.52	9.525	4.0	★
Internal thread	<b>RT16.01N-1.50GMB</b>	1.50	3.52	9.525	4.0	★
	<b>RT16.01N-1.75GMB</b>	1.75	3.52	9.525	4.0	★
	<b>RT16.01N-2.00GMB</b>	2.00	3.52	9.525	4.0	★
	<b>RT16.01N-2.50GMB</b>	2.50	3.52	9.525	4.0	★
	<b>RT16.01N-3.00GMB</b>	3.00	3.52	9.525	4.0	★

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

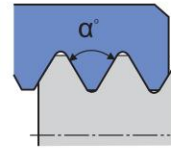
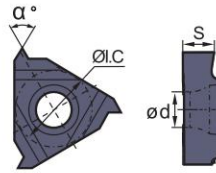
General turning

Internal and external turning

Threading

Threading tools

### General pitch thread (without end) Thin type

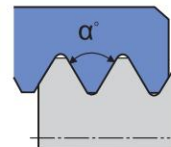
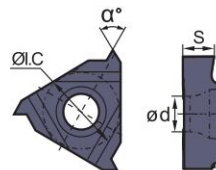


		Type	Basic dimensions(mm)				Recommended coating grade	
		The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	YBG202
External thread	60°	<b>RT16.01W-A60B</b>	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★
		<b>RT16.01W-G60B</b>	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★
		<b>RT16.01W-AG60B</b>	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★
	55°	<b>RT16.01W-A55B</b>	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★
		<b>RT16.01W-G55B</b>	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★
		<b>RT16.01W-AG55B</b>	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



		Type	Basic dimensions(mm)				Recommended coating grade	
		The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	YBG202
Internal thread	60°	<b>RT16.01N-A60B</b>	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★
		<b>RT16.01N-G60B</b>	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★
		<b>RT16.01N-AG60B</b>	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★
	55°	<b>RT16.01N-A55B</b>	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★
		<b>RT16.01N-G55B</b>	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Parting groove

Threading

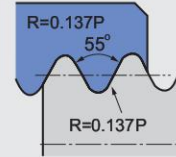
Threading tools

# TURNING Threading Tools

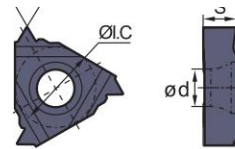
## Threading tools

### Whitworth thread (with end) **Thin type**

ISO 228/1:1982, DIN 259, B.S.84:1956  
Tolerance class: Medium class A



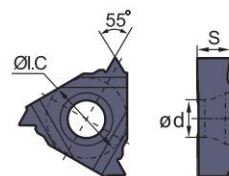
R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
External thread	<b>RT16.01W-8WB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01W-9WB</b>	9	3.52	9.525	4.0	★
	<b>RT16.01W-10WB</b>	10	3.52	9.525	4.0	★
	<b>RT16.01W-11WB</b>	11	3.52	9.525	4.0	★
	<b>RT16.01W-12WB</b>	12	3.52	9.525	4.0	★
	<b>RT16.01W-14WB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01W-16WB</b>	16	3.52	9.525	4.0	★



R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
Internal thread	<b>RT16.01N-8WB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01N-9WB</b>	9	3.52	9.525	4.0	★
	<b>RT16.01N-10WB</b>	10	3.52	9.525	4.0	★
Internal thread	<b>RT16.01N-12WB</b>	12	3.52	9.525	4.0	★
	<b>RT16.01N-14WB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01N-16WB</b>	16	3.52	9.525	4.0	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Internal and external turning

Threading

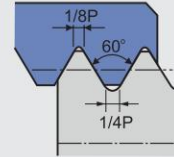
Threading tools



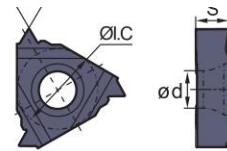
Unified thread (with end) **Thin type**

ASME B1.1-1989

Tolerance class: 2A/2B



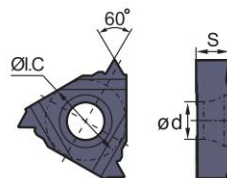
R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
External thread	<b>RT16.01W-8UNB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01W-10UNB</b>	10	3.52	9.525	4.0	★
	<b>RT16.01W-12UNB</b>	12	3.52	9.525	4.0	★
	<b>RT16.01W-14UNB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01W-16UNB</b>	16	3.52	9.525	4.0	★
	<b>RT16.01W-18UNB</b>	18	3.52	9.525	4.0	★
	<b>RT16.01W-20UNB</b>	20	3.52	9.525	4.0	★



R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
Internal thread	<b>RT16.01N-8UNB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01N-10UNB</b>	10	3.52	9.525	4.0	★
	<b>RT16.01N-12UNB</b>	12	3.52	9.525	4.0	★
Internal thread	<b>RT16.01N-16UNB</b>	16	3.52	9.525	4.0	★
	<b>RT16.01N-18UNB</b>	18	3.52	9.525	4.0	★
	<b>RT16.01N-20UNB</b>	20	3.52	9.525	4.0	★
	<b>RT16.01N-24UNB</b>	24	3.52	9.525	4.0	★

★Recommended grade (always stock available) ● Available grade (always stock available) ○Make-to-order

General turning

Parting groove

Threading

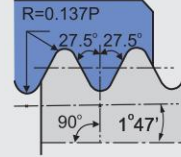
Threading tools

# TURNING Threading Tools

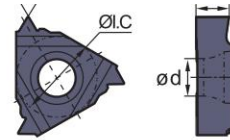
## Threading tools

### British standard taper pipe thread (with end) **Thin type**

ISO 7/1:1994, B.S.21:1985  
Standard BSPT



R type

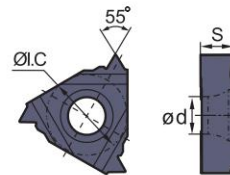


	Type	Basic dimensions(mm)				Recommended coating grade
		Pitch/mm (pitch/Inch)	S	ØI.C	ød	
	The right hand tools					YBG202
External thread	<b>RT16.01W-11BSPTB</b>	11	3.52	9.525	4.0	★
	<b>RT16.01W-14BSPTB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01W-19BSPTB</b>	19	3.52	9.525	4.0	★
	<b>RT16.01W-28BSPTB</b>	28	3.52	9.525	4.0	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade
		Pitch/mm (pitch/Inch)	S	ØI.C	ød	
	The right hand tools					YBG202
Internal thread	<b>RT16.01N-11BSPTB</b>	11	3.52	9.525	4.0	★
	<b>RT16.01N-14BSPTB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01N-19BSPTB</b>	19	3.52	9.525	4.0	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

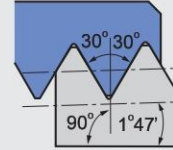
Turning and boring

Threading

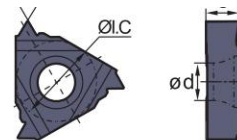
Threading tools

### American standard taper pipe thread (with end) **Thin type**

ASME B1.20.1-1983  
Standard NPT



R type

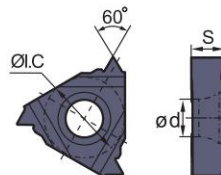


	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
External thread	<b>RT16.01W-8NPTB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01W-11.5NPTB</b>	11.5	3.52	9.525	4.0	★
	<b>RT16.01W-14NPTB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01W-18NPTB</b>	18	3.52	9.525	4.0	★
	<b>RT16.01W-27NPTB</b>	27	3.52	9.525	4.0	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade
	The right hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	YBG202
Internal thr	<b>RT16.01N-8NPTB</b>	8	3.52	9.525	4.0	★
	<b>RT16.01N-11.5NPTB</b>	11.5	3.52	9.525	4.0	★
	<b>RT16.01N-14NPTB</b>	14	3.52	9.525	4.0	★
	<b>RT16.01N-18NPTB</b>	18	3.52	9.525	4.0	★
	<b>RT16.01N-27NPTB</b>	27	3.52	9.525	4.0	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Parting groove

Threading

Threading tools

# TURNING Threading Tools

## Threading tools

### Threading tools code key

#### Clamping system

Top clamping    Screw clamping



ZC

ZS

#### Thread type

Internal thread



#### Cutting direction

Right hand

Left hand

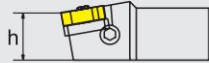


R

L

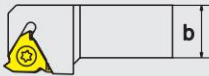
**ZS E R 20 20 K 16**

#### Nose height



Note: 00 for round tool holder.  
Only to integer, for example:  
h=8mm is labeled as 08.

#### Shank width



Note: Diameter for round tool holder  
for example: b=8mm is labeled as 08.

#### Tool length

Code	H	K	M	P	Q	R	S	T	U
Length	100	125	150	170	180	200	250	300	350

#### Insert size

Code	11	16	22
Inscribed circle	6.35	9.525	12.70

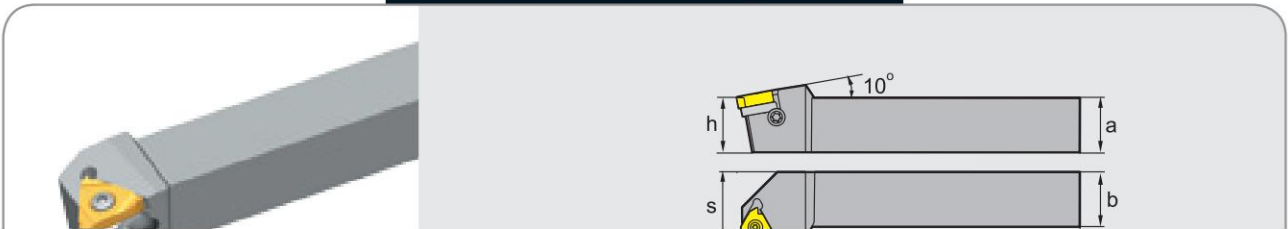
General turning

Eng and driving











Threading

Threading tools

External threading tools



R-type shown

Type	Stock	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench	
		a	h	b	L	s						
ZSER	1616H16	▲	16	16	16	100						
	2020K16	▲	20	20	20	125						25
	2525M16	▲	25	25	25	150						32
	3225P16	▲	32	32	25	170						32
	3232P16	▲	32	32	32	170						40
	2525M22	▲	25	25	25	150						32
	3225P22	▲	32	32	25	170						32
	3232P22	▲	32	32	32	170						40
ZSEL	1616H16	▲	16	16	16	100						
	2020K16	▲	20	20	20	125						25
	2525M16	▲	25	25	25	150						32
	3225P16	▲	32	32	25	170						32
	3232P16	▲	32	32	32	170						40
	2525M22	▲	25	25	25	150						32
	3225P22	▲	32	32	25	170						32
	3232P22	▲	32	32	32	170						40
	4040S22	△	40	40	40	250						50

▲Stock available

△Make-to-order

General turning

Parting groove

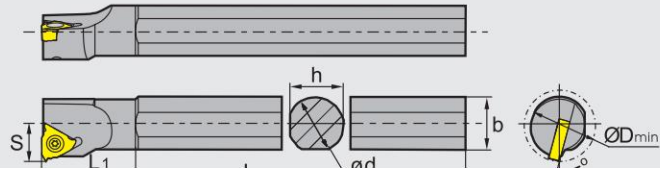
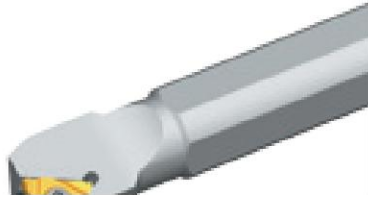
Threading

Threading tools

# TURNING Threading Tools

## Threading tools

### Internal threading tools



R-type shown

Type	Stock	Basic dimensions(mm)								Applicable inserts	Inserts screw	Shim	Shim screw	Wrench
		d	L	b	D <sub>min</sub>	s	h	L <sub>1</sub>						
ZSIR	0016K11	▲	16	125	15.5	12	10	15	20.9	Z11IR□□□□	I60 M2.5X6.5T	---	---	WT08IP
	0016M11	▲	16	150	16	16	10.5	15	25.9		Z16IR□□□□	I60 M3.5X08TT	---	
	0016M16	▲	16	150	15.5	20	12	15	27	I60 M3.5X12TT		MT16-□□MN	SM4X8C	WT15IP
	0020M16	▲	20	150	19	25	14	18	28.7					
	0020Q16	▲	20	180	19	25	14	18	34					
	0025M16	▲	25	150	24	32	17	23	28.8					
	0032R16	▲	32	200	31	40	22	30	30.9					
	0032S16	▲	32	250	31	40	22	30	30.9					
	0040T16	▲	40	300	38.5	50	27	37	31.5					
	0050U16	▲	50	350	48.5	63	35	49	40.2					
ZSIR	0025R22	▲	25	200	24	32	19	23	39	Z22IR□□□□	I60 M4×15X	MT22-□□MN	SM5X8.5	WT20IP
	0032S22	▲	32	250	31	40	22	30	36.4					
	0040T22	▲	40	300	38.5	50	27	37	37.2					
	0050U22	▲	50	350	48.5	63	35	47	42.6					
ZSIL	0016K11	▲	16	125	15.5	12	10	15	20.9	Z11IL□□□□	I60 M2.5X6.5T	---	---	WT07IP
	0016M11	▲	16	150	16	16	10.5	15	25.9		Z16IL□□□□	I60 M3.5X08TT	---	
	0016M16	▲	16	150	16	20	12	15	27	I60 M3.5X12TT		MT16-□□MN	SM4X8C	WT15IP
	0020M16	▲	20	150	19	25	14	18	28.7					
	0020Q16	▲	20	180	19	25	14	18	34					
	0025M16	▲	25	150	24	32	17	23	28.8					
	0032R16	▲	32	200	31	40	22	30	30.9					
	0032S16	▲	32	250	31	40	22	30	30.9					
	0040T16	▲	40	300	38.5	50	27	37	31.5					
	0050U16	▲	50	350	48.5	63	35	49	40.2					
ZSIL	0025R22	▲	25	200	24	32	19	23	39	Z22IL□□□□	I60 M4×15X	MT22-□□MN	SM5X8.5	WT20IP
	0032S22	▲	32	250	31	40	22	30	36.4					
	0040T22	▲	40	300	38.5	50	27	37	37.2					
	0050U22	▲	50	350	48.5	63	35	47	42.6					

▲Stock available

△Make-to-order

General turning

Turning and boring

Threading

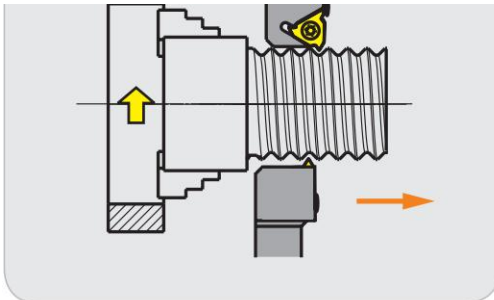
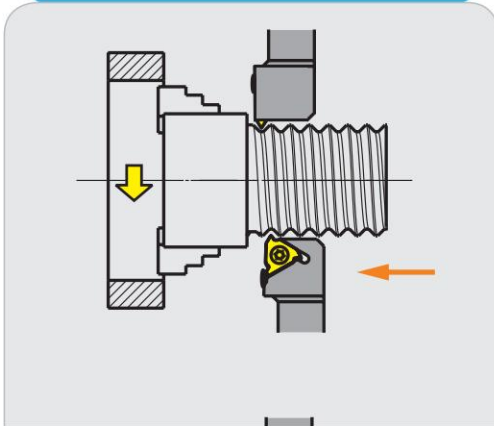
Threading tools

Please follow the following steps to get the best threading result:

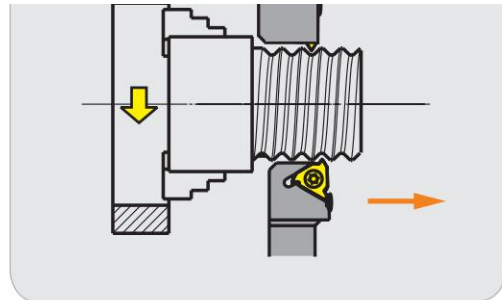
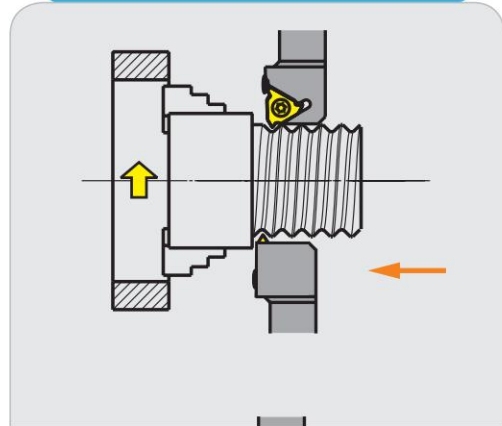
- 1 Select proper thread machining method.
- 2 Define helical angle and select shim.
- 3 Select proper insert and tool holder size.
- 4 By checking reference table of standard threading programs, select feasible cutting parameters.

### Machining method of threading tools

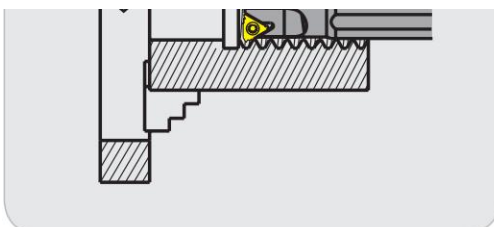
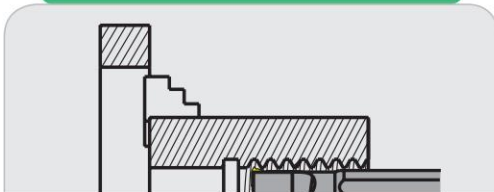
External threading machining (Right thread)



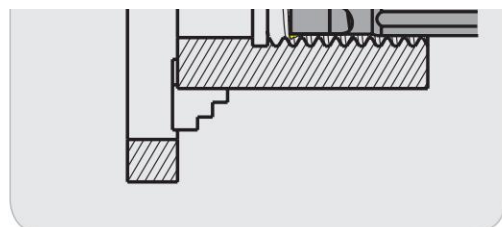
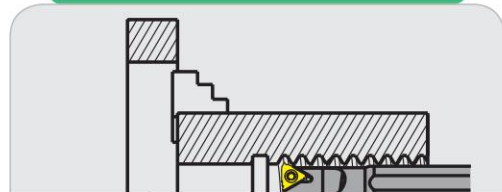
External threading machining (Left thread)



Internal threading machining (Right thread)



Internal threading machining (Left thread)



# TURNING Threading Tools

## Application information of threading

### Decide helical angle and select shim

The clearance angle of threading inserts is actually along the edge (flank). This has significant effect on heat diffusion, spread of abrasion as well as tool life, security and pitch quality. The clearance angle of threading pitch on clearance face is determined by thread helical angle. These two angles are similar to each other to some extent. If inclined angle of insert is different from the helical angle, then the clearance angle won't be the same either.

The helical angle of pitch has to be the same with the inclined angle of insert to

angle is calculated as below:

$$e = \arctan \frac{P}{d_2 \times \pi}$$

P= Pitch

d<sub>2</sub>= pitch diameter

The most common inclined angle is 1°. MT standard shim and its inclined angle is also 1°.

Calculation of clearance angle:

Clearance angle is calculated as below:

$$\beta = \arctan (\tan \theta \times \tan \alpha)$$

2θ=Thread profile angle

α=The rake angle of external standard threading tools is 10°; the rake angle of internal standard threading tools is 15°.

flank.

Please change the shim to adjust the difference between helical angle of thread and inclined angle of shim to be within 2°~0°.

For example: when P=1.5, d<sub>2</sub>=24mm, helical angle 1.14°-(2°~0°)=inclined angle (-0.86°~1.14°) it is feasible to use standard shim 1°.

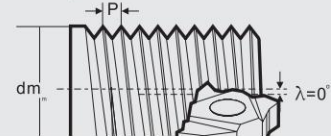
Shim specification table is as follows:

Screw pitch range	Insert dimensions	Inclined angle	Shim
0.5-3.0	16	0	MT16-00MN
		1	MT16-01MN
		2	MT16-02MN

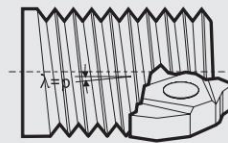
3.5-6.0	22	0	MT22-00MN
		1	MT22-01MN
		2	MT22-02MN
		3	MT22-03MN

Note: the standard angle of shim for our threading tools is 1°. ((MT16-01MN or MT22-01MN))

e = Helical angle



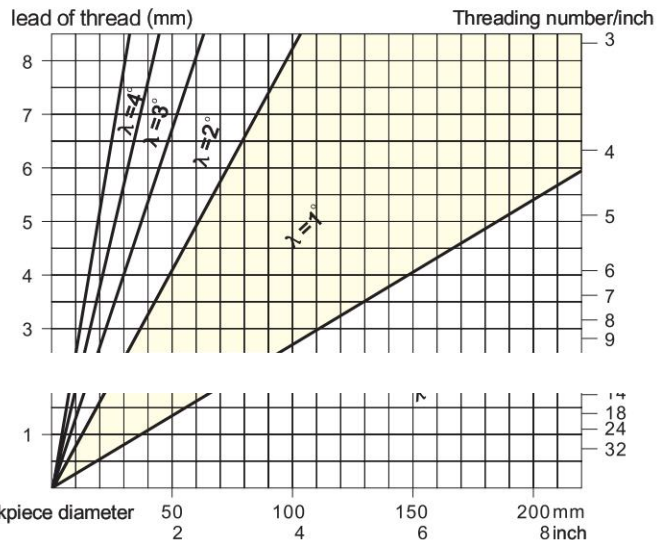
λ = Inclined angle



Please refer to the table below for actual value:

Thread profile angle 2θ	β	
	External thread	Internal thread
60°	5.8°	8.79°
30°	2.7°	4.1°
29°	2.6°	3.96°

Select shim:





Select proper inserts and size of tool holder (Please refer to detailed table of threading tools and inserts)

### Parameter table for threading program under different standards

Table of recommended in-feed for metric ISO external threading with wiper edge

Screw pitch	1.0	1.25	1.5	1.75	2.0	2.5	3.0	4.0	5.0
Total in feed	0.50	0.60	1.00	1.15	1.30	1.30	1.34	0.50	0.34
Number of passes	5	6	7	8	9	11	13	15	17
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)								
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.20/-	0.20/-	0.21/-	0.22/-	0.24/-	0.25/-	0.26/-	0.35/-	0.40/-
2	0.18/0.10	0.18/0.10	0.18/0.10	0.20/0.12	0.22/0.13	0.24/0.14	0.24/0.14	0.30/0.17	0.35/0.20
3	0.16/0.09	0.14/0.09	0.18/0.10	0.18/0.10	0.20/0.12	0.21/0.12	0.20/0.12	0.25/0.14	0.30/0.17
4	0.10/0.06	0.10/0.08	0.15/0.09	0.15/0.09	0.15/0.09	0.18/0.10	0.20/0.12	0.20/0.12	0.28/0.16
5	0.08/-	0.08/0.06	0.12/0.07	0.13/0.08	0.12/0.07	0.15/0.09	0.18/0.10	0.18/0.10	0.25/0.14
6			0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07	0.15/0.09	0.18/0.10	0.20/0.12
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.13/0.08	0.16/0.09	0.18/0.10
8				0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.15/0.09	0.16/0.09
9					0.08/-	0.10/0.06	0.10/0.06	0.13/0.08	0.15/0.09
10						0.08/0.05	0.10/0.06	0.13/0.08	0.15/0.09
11						0.08/-	0.08/0.06	0.12/0.07	0.13/0.08
12							0.08/0.05	0.12/0.07	0.13/0.08
13								0.11/0.06	0.12/0.07
14								0.10/0.06	0.12/0.07
15								0.08/-	0.11/0.06
16									0.10/0.06
17									0.08/-

General turning

Parting groove

Threading

Application information of threading

# TURNING Threading Tools

## Application information of threading

Table of recommended in-feed for metric ISO internal threading with wiper edge

Screw pitch	1.00	1.25	1.5	1.75	2.0	2.5	3.0	4.0	5.0
Total in-feed	0.62	0.77	0.92	1.06	1.21	0.15	1.79	2.36	2.95
Number of passes	5	6	7	8	9	11	13	15	17
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)								

1	0.18/-	0.20/-	0.22/-	0.23/-	0.24/-	0.25/-	0.26/-	0.30/-	0.32/-
2	0.14/0.08	0.15/0.09	0.16/0.09	0.16/0.09	0.18/0.10	0.20/0.12	0.20/0.12	0.25/0.14	0.28/0.16
3	0.12/0.07	0.12/0.07	0.14/0.08	0.14/0.08	0.15/0.09	0.15/0.09	0.20/0.12	0.22/0.13	0.25/0.14
4	0.10/0.06	0.12/0.07	0.12/0.07	0.13/0.08	0.14/0.08	0.15/0.09	0.18/0.10	0.20/0.12	0.22/0.13
5	0.08/-	0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07	0.13/0.08	0.15/0.09	0.18/0.10	0.21/0.12
6			0.09/0.05	0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07	0.15/0.09	0.20/0.12
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.12/0.07	0.15/0.09	0.18/0.10
8				0.08/-	0.09/0.05	0.10/0.06	0.10/0.06	0.15/0.09	0.18/0.10
9					0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.15/0.09
10						0.09/0.05	0.10/0.06	0.12/0.07	0.15/0.09
11							0.08/-	0.10/0.06	0.12/0.07
12								0.08/0.05	0.11/0.06
13									0.11/0.06
14									0.10/0.06
15									0.08/-
16									0.10/0.06
17									0.08/-

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Table of recommended in-feed for American unified standard external threading with wiper edge

Screw pitch	24	20	18	16	14	12	11	10	9	8	7	6	5
Total in-feed	<b>0.649</b>	<b>0.779</b>	<b>0.866</b>	<b>0.974</b>	<b>1.113</b>	<b>1.299</b>	<b>1.416</b>	<b>1.558</b>	<b>1.731</b>	<b>1.948</b>	<b>2.226</b>	<b>2.597</b>	<b>3.116</b>
Number of passes	<b>5</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
Order to follow in	Value of radial in-feed (X) and flank in-feed (Z)												
1	0.206 /—	0.210 /—	0.233 /—	0.226 /—	0.196 /—	0.229 /—	0.220 /—	0.214 /—	0.210 /—	0.211 /—	0.213 /—	0.218 /—	0.229 /—
2	0.148 /0.086	0.163 /0.094	0.181 /0.104	0.188 /0.109	0.189 /0.110	0.222 /0.128	0.228 /0.132	0.240 /0.139	0.256 /0.148	0.276 /0.160	0.304 /0.176	0.343 /0.198	0.399 /0.230
3	0.114 /0.066	0.125 /0.072	0.139 /0.080	0.145 /0.083	0.146 /0.084	0.170 /0.098	0.176 /0.102	0.184 /0.106	0.196 /0.113	0.212 /0.122	0.234 /0.135	0.263 /0.152	0.306 /0.177
4	0.096 /0.055	0.105 /0.061	0.117 /0.068	0.122 /0.070	0.123 /0.071	0.143 /0.083	0.148 /0.086	0.155 /0.090	0.165 /0.095	0.179 /0.103	0.197 /0.114	0.222 /0.128	0.258 /0.149
5	0.085 /0.049	0.093 /0.054	0.103 /0.059	0.107 /0.062	0.108 /0.062	0.126 /0.073	0.131 /0.075	0.137 /0.079	0.146 /0.084	0.158 /0.091	0.173 /0.100	0.195 /0.113	0.227 /0.131
6		0.084 /0.048	0.093 /0.054	0.097 /0.056	0.098 /0.056	0.114 /0.066	0.118 /0.068	0.124 /0.072	0.132 /0.076	0.142 /0.082	0.157 /0.091	0.177 /0.102	0.205 /0.119
7				0.089 /0.052	0.090 /0.052	0.105 /0.061	0.109 /0.063	0.114 /0.066	0.121 /0.070	0.131 /0.076	0.144 /0.083	0.163 /0.094	0.189 /0.109
8					0.084 /0.048	0.090 /0.056	0.101 /0.058	0.100 /0.061	0.110 /0.065	0.122 /0.070	0.134 /0.078	0.151 /0.087	0.170 /0.101
9					0.079 /0.045	0.092 /0.053	0.095 /0.055	0.100 /0.057	0.106 /0.061	0.114 /0.066	0.126 /0.073	0.142 /0.082	0.165 /0.095
10							0.090 /0.052	0.094 /0.054	0.100 /0.058	0.108 /0.063	0.119 /0.069	0.134 /0.078	0.156 /0.090
11								0.090 /0.052	0.095 /0.055	0.103 /0.059	0.113 /0.065	0.128 /0.074	0.149 /0.086
12									0.091 /0.053	0.098 /0.057	0.108 /0.063	0.122 /0.071	0.142 /0.082
13										0.094 /0.054	0.104 /0.060	0.117 /0.068	0.136 /0.079
14											0.100 /0.058	0.113 /0.065	0.131 /0.076
												0.063 /0.073	
16													0.122 /0.071

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Table of recommended in-feed for American unified standard internal threading with wiper edge

Screw pitch	24	20	18	16	14	12	11	10	9	8	7	6	5
Total in-feed	<b>0.573</b>	<b>0.687</b>	<b>0.764</b>	<b>0.860</b>	<b>0.982</b>	<b>1.146</b>	<b>1.250</b>	<b>1.375</b>	<b>1.528</b>	<b>1.719</b>	<b>1.964</b>	<b>2.291</b>	<b>2.750</b>
Number of passes	<b>5</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>
Order to follow in	Value of radial in-feed (X) and flank in-feed (Z)												
1	0.193 —	0.200 —	0.222 —	0.219 —	0.220 —	0.228 —	0.250 —	0.247 —	0.246 —	0.252 —	0.262 —	0.278 —	0.302 —
2	0.127 /0.073	0.239 /0.081	0.155 /0.089	0.161 /0.093	0.173 /0.100	0.190 /0.110	0.207 /0.120	0.216 /0.125	0.229 /0.132	0.247 /0.142	0.271 /0.156	0.304 /0.176	0.353 /0.204
3	0.098 /0.056	0.107 /0.062	0.119 /0.069	0.124 /0.072	0.132 /0.076	0.146 /0.084	0.159 /0.092	0.166 /0.096	0.176 /0.101	0.189 /0.109	0.208 /0.120	0.234 /0.135	0.271 /0.156
4	0.082 /0.048	0.090 /0.052	0.100 /0.058	0.104 /0.060	0.112 /0.064	0.123 /0.071	0.134 /0.077	0.140 /0.081	0.148 /0.086	0.160 /0.092	0.175 /0.101	0.197 /0.114	0.228 /0.132
5	0.073 /0.042	0.079 /0.046	0.088 /0.051	0.092 /0.053	0.098 /0.057	0.108 /0.062	0.118 /0.068	0.123 /0.071	0.130 /0.075	0.141 /0.081	0.1543 /0.089	0.173 /0.100	0.201 /0.116
6		0.072 /0.041	0.080 /0.046	0.083 /0.048	0.089 /0.051	0.098 /0.056	0.107 /0.062	0.111 /0.064	0.118 /0.068	0.127 /0.073	0.140 /0.081	0.157 /0.091	0.182 /0.105
7				0.077 /0.044	0.082 /0.047	0.090 /0.053	0.098 /0.057	0.102 /0.059	0.108 /0.063	0.117 /0.067	0.128 /0.074	0.144 /0.083	0.167 /0.097
8					0.076 /0.044	0.084 /0.048	0.091 /0.053	0.099 /0.055	0.107 /0.058	0.109 /0.063	0.119 /0.069	0.134 /0.078	0.150 /0.090
9						0.079 /0.045	0.086 /0.050	0.090 /0.052	0.095 /0.055	0.102 /0.059	0.112 /0.065	0.126 /0.073	0.146 /0.084
10								0.085 /0.049	0.090 /0.052	0.097 /0.056	0.106 /0.061	0.119 /0.069	0.138 /0.080
11									0.085 /0.049	0.092 /0.053	0.101 /0.058	0.113 /0.065	0.131 /0.076
12										0.088 /0.051	0.096 /0.056	0.108 /0.063	0.126 /0.073
13											0.092 /0.053	0.101 /0.060	0.121 /0.070
14												0.100 /0.058	0.116 /0.067
													/0.065

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Table of recommended in-feed for British standard internal and external threading with wiper edge

Screw pitch	28	20	19	16	14	12	11	10	9	8	7	6	5
Total in-feed	<b>0.581</b>	<b>0.813</b>	<b>0.856</b>	<b>1.017</b>	<b>1.162</b>	<b>1.355</b>	<b>1.479</b>	<b>1.626</b>	<b>1.807</b>	<b>2.033</b>	<b>2.324</b>	<b>2.711</b>	<b>3.253</b>
Number of passes	<b>5</b>	<b>6</b>	<b>6</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>16</b>
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)												
1	0.179 /— —	0.211 /— —	0.223 /— —	0.196 /— —	0.223 /— —	0.226 /— —	0.246 /— —	0.236 /— —	0.230 /— —	0.255 /— —	0.195 /— —	0.197 /— —	0.204 /— —
2	0.134 /0.070	0.172 /0.089	0.181 /0.094	0.186 /0.097	0.213 /0.111	0.234 /0.122	0.255 /0.133	0.226 /0.139	0.282 /0.147	0.304 /0.158	0.322 /0.167	0.361 /0.189	0.421 /0.219
3	0.104 /0.054	0.132 /0.069	0.139 /0.072	0.143 /0.074	0.163 /0.085	0.180 /0.093	0.197 /0.102	0.206 /0.106	0.216 /0.113	0.233 /0.121	0.247 /0.128	0.278 /0.145	0.323 /0.168
4	0.087 /0.045	0.111 /0.058	0.117 /0.061	0.120 /0.063	0.138 /0.072	0.151 /0.079	0.165 /0.086	0.172 /0.090	0.182 /0.095	0.197 /0.102	0.208 /0.108	0.234 /0.122	0.272 /0.142
5	0.077 /0.040	0.098 /0.051	0.103 /0.054	0.106 /0.055	0.121 /0.063	0.133 /0.069	0.145 /0.076	0.152 /0.079	0.161 /0.084	0.1738 /0.090	0.183 /0.095	0.207 /0.108	0.240 /0.125
6		0.089 /0.046	0.093 /0.049	0.096 /0.050	0.110 /0.057	0.121 /0.063	0.131 /0.068	0.137 /0.071	0.145 /0.076	0.157 /0.082	0.166 /0.086	0.187 /0.097	0.217 /0.113
7				0.088 /0.046	0.101 /0.052	0.111 /0.058	0.121 /0.063	0.126 /0.066	0.134 /0.070	0.144 /0.075	0.152 /0.079	0.172 /0.089	0.200 /0.104
8				0.082 /0.043	0.093 /0.049	0.103 /0.054	0.113 /0.059	0.117 /0.061	0.124 /0.065	0.134 /0.070	0.142 /0.074	0.160 /0.083	0.189 /0.097
9						0.097 /0.050	0.106 /0.055	0.110 /0.057	0.117 /0.061	0.126 /0.066	0.133 /0.069	0.150 /0.078	0.174 /0.091
10								0.104 /0.054	0.111 /0.058	0.119 /0.062	0.126 /0.066	0.142 /0.074	0.165 /0.086
11									0.105 /0.055	0.113 /0.059	0.120 /0.062	0.135 /0.070	0.157 /0.082
12										0.108 /0.056	0.114 /0.060	0.129 /0.067	0.150 /0.078
13											0.110 /0.055	0.124 /0.064	0.144 /0.075
14												0.119 /0.062	0.138 /0.072
15												0.060 /0.060	0.069 /0.069
16													0.129 /0.067

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## Application information of threading

■ Table of recommended in-feed for NPT internal and external threading with wiper edge

Screw pitch	27	18	14	11.5	8
Total in-feed	<b>0.75</b>	<b>1.129</b>	<b>1.451</b>	<b>1.767</b>	<b>2.54</b>
Number of passes	<b>6</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>14</b>
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)				
	X/Z	X/Z	X/Z	X/Z	X/Z
2	0.15/0.087	0.181/0.104	0.200/0.115	0.208/0.120	0.250/0.144
3	0.13/0.075	0.152/0.088	0.170/0.098	0.182/0.105	0.245/0.141
4	0.11/0.063	0.141/0.081	0.150/0.086	0.168/0.097	0.230/0.133
5	0.09/0.052	0.131/0.075	0.140/0.081	0.155/0.089	0.210/0.121
6	0.08/0.46	0.121/0.070	0.130/0.075	0.145/0.084	0.195/0.112
7		0.101/0.058	0.120/0.069	0.138/0.079	0.180/0.104
8		0.082/0.047	0.110/0.063	0.124/0.072	0.175/0.101
9			0.100/0.058	0.117/0.067	0.170/0.098
10			0.091/0.052	0.105/0.060	0.155/0.089
11				0.095/0.055	0.140/0.080
12				0.090/0.052	0.125/0.072
13					0.110/0.063
14					0.100/0.058

■ Table of recommended in-feed for BSPT internal and external threading with wiper edge

Screw pitch	28	19	14	11
Total in-feed	<b>0.581</b>	<b>0.856</b>	<b>1.162</b>	<b>1.479</b>
Number of passes	<b>5</b>	<b>6</b>	<b>8</b>	<b>10</b>
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)			
	X/Z	X/Z	X/Z	X/Z
1	0.179/-	0.223/-	0.222/-	0.214/-
2	0.134/0.070	0.181/0.094	0.213/0.111	0.242/0.126
3	0.103/0.054	0.139/0.072	0.163/0.085	0.186/0.097
4	0.087/0.045	0.117/0.061	0.138/0.072	0.157/0.082
5	0.078/0.040	0.103/0.054	0.121/0.063	0.138/0.072
6		0.093/0.049	0.110/0.057	0.125/0.065
7			0.097/0.052	0.115/0.060
8			0.094/0.049	0.107/0.056
9				0.100/0.052
10				0.095/0.049

### Table of recommended cutting parameters

ISO	Material	Unit cutting force Kc0.4 N/mm <sup>2</sup>	Hardness HB	Grade		
				YBG202	YBG203	
				YBG205		
Cutting speed(m/min)						
<b>P</b>	Carbon steel	C=0.35%	2100	150	140-155	
		C=0.60%	2250	200	130-145	
	Alloy steel	Anneal	2100	180	110-130	
		Hardened	2600	275	80-100	
		Hardened	2700	300	70-90	
		Hardened	2850	350	60-80	
	High alloy steel	Anneal	2600	200	90-115	
		Hardened	3900	325	70-90	
	Cast steel	Non-alloy	2000	180	180-210	
		low alloy	2500	200	90-115	
		High alloy	2700	225	90-115	
		Martensite steel 12%Mn	3600	250	40-50	
<b>M</b>	Stainless steel	Austenite	2450	180	110-130	
		Martensite/Ferrite	2300	200	130-170	
<b>K</b>	Malleable cast iron	Pearlite	1100	230	85-105	
	Gray cast iron	Low tensile-strength	1100	180	110-140	
		High tensile-strength	1500	260	90-115	
	Nodular cast iron	Ferrite	1100	160	110-130	
Pearlite		1800	250	80-100		
<b>N</b>	Al alloy	Non-aging treatment	500	60	1300-1450	
		Aging treatment	800	100	450-500	
	Cast aluminum alloy	Non-aging treatment	750	75	430-470	
Aging treatment		900	90	250-290		
<b>S</b>	Heat resistant alloy	Iron base	Anneal	3000	200	35-50
			Aging	3050	280	25-35
		Ni- or Co- base	Anneal	3500	250	15-25
			Aging	4150	350	10-20
			Casting	4150	320	10-15

Note: •The values in the above table are range values. High values in the range could be considered in actual cutting. When trying new cutting speed, please check the cutting edge condition before operation.  
 •In stainless steel threading, high cutting speed should be used to prevent built-up edge.  
 •The cutting parameters should be reduced when cutting small pitch thread and when using tools with small nose radius.  
 •When cutting thread by tools with small nose radius, such as NPT standard thread, it is advisable to use tools with big nose radius first to rough, so as to improve the life of tools with small nose radius.

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### In-feed way of threading tools

#### Radial in-feed



- Easy operating, high general.
- V-shape chip caused by long chip steel workpiece will produce big bend stress on cutting edge.
- It requires low cutting depth, sharp cutting edge and good tough material.



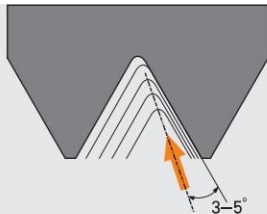
- Because the interface of cutting chips on the right and left side is long, so it is easy to cause vibration and make the cutting edge suffer more overloading.

#### Flank in-feed



- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- There are enough space to leave chips flow when flank in-feed.
- Big abrasion on right flank.

#### Modified flank in-feed



- Right Cutting Edge also engage on cutting depth to a certain extent, it can reduce the abrasion on right side of clearance face.
- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- Good Cutting Performance.

#### Alternate flank in-feed



- Cutting edge trade off when machining, equality abrasion on left and right side of clearance face on cutting edge, it can improve the life of tools.
- Chips are flowing from both of right and left side, good chips flowing.
- Recommend using in big screw-pitch thread cutting.

Recommend adopting flank in-feed or alternate flank in-feed under allowable range of machining equipment or programmer, it can eliminate the machining vibration effectively, and it has enough space discharge the chips between pitch. Cutting edge suffer a small stress, machining stable, it likes the general turning process when machining thread, good chip control without extra chips.



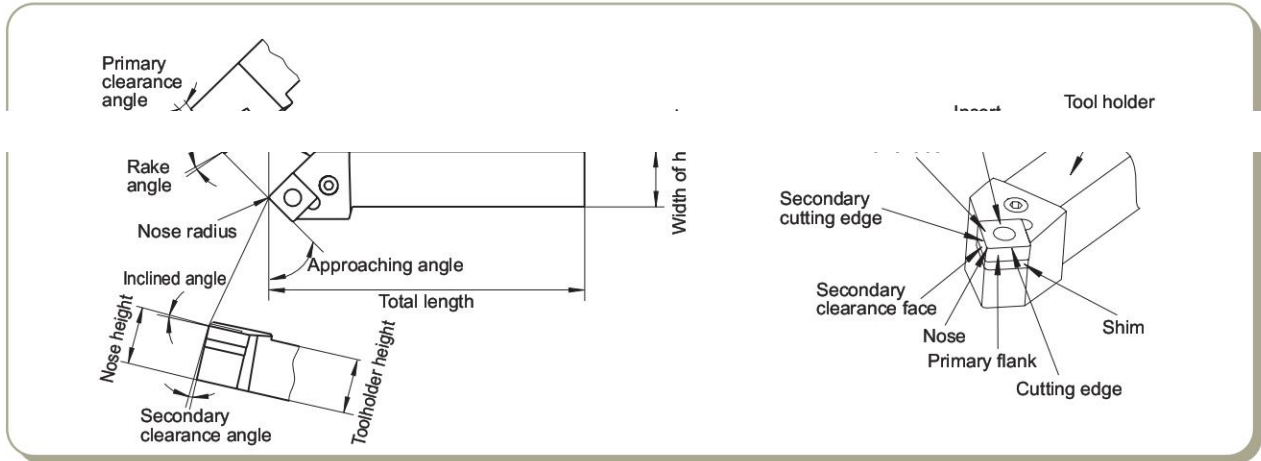
### Common problems in threading and solutions

Problem	Cause	Solutions
Wear on clearance face	Cutting speed too high.	Reduce cutting speed.
	Low cutting depth, abrasion.	Reduce frequency of feed and friction of cutting edge.
Asymmetric wear on right and left cutting edge	The inclined angle of insert is different from the helical angle of thread.	Change to proper shim to get correct inclined angle.
	Flank in-feed is not correct.	Change the way of flank in-feed.
Breakage	Cutting speed too low.	Increase cutting speed.
	Cutting force too high.	Increase frequency of feed and reduce Max in-feed.
	Unstable clamping.	Check if workpiece vibrates. Reduce overhang of tool. Verify clamping of workpiece and tool.
	Chip twisting.	Increase the pressure of cooling liquid to blow away chips.
Plastic deformation	High cutting speed, high temperature on cutting area.	Reduce cutting speed. Increase feed frequency and reduce Max cutting depth.
Low thread surface quality	Cutting speed too low. The insert is over the center line. Chips are not under control.	Increase cutting speed. Adjust centre height. Change the operation way of tools to well control chips.
Incorrect profile	Incorrect center height.	Adjust centre height.
	Pitch on machine is not correct.	Adjust machine.
Shallow profile	Cutting speed set wrong.	Adjust cutting depth.
Surface damage	Chips involved or contacted.	Change to flank in-feed to control chip flow direction.
Built-up edge	Temperature of cutting edge is too low. Usually occur when machining stainless steel and low carbon steel.	Increase cutting speed as well as pressure and concentration of cooling fluid. Choose inserts with good toughness.
Crack on surface	Cutting force too high	Reduce the cutting depth of each feed.
Vibration	Incorrect clamping of workpiece or tool	Minimize overhang of tool.
	Incorrect cutting parameters	Increase cutting speed or reduce it substantially.
	Incorrect tool clamping	Adjust center height.

### General technical information for turning

### The functions of each part of turning tools

#### 1 The names of each part of turning tools



#### 2 Effects of rake angle

Larger rake angle makes cutting edge sharper, reduces resistant forces of chip flow, diminishes friction and prevent deformation, leading to smaller cutting forces and cutting power, lower cutting temperature, less abrasion and higher surface quality. However, too large rake angle would reduce

tool life. Serious breakage and abrasion on tool would occur, reducing tool life. Please choose rake angle according to machining conditions.

Value selection	Situations
Small rake angle	<ul style="list-style-type: none"> <li>● When machining brittle and hard materials</li> <li>● When roughing and intermittent cutting</li> </ul>
Large rake angle	<ul style="list-style-type: none"> <li>● When finishing</li> </ul>

#### 3 Effects of clearance angle

The main function of clearance angle is to reduce the friction between the clearance face of tool and the surface of workpiece. When the rake angle is fixed, larger clearance angle can increase the sharpness of cutting edge, reduce cutting forces and friction, and then achieve higher surface quality. However, if clearance angle is too large, the strength of cutting edge would decrease. Also, heat can't be diffused easily and serious abrasion would occur, reducing tool life.

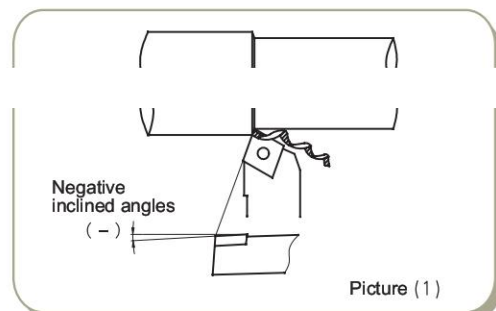
The principle of choosing clearance angle: Choose small clearance angle if friction is not serious.

Value Selection	Situations
Small clearance angle	<ul style="list-style-type: none"> <li>● In order to increase nose strength when roughing</li> <li>● When machining brittle and hard materials</li> </ul>
Large clearance angle	<ul style="list-style-type: none"> <li>● In order to reduce friction when finishing</li> <li>● When machining materials easy to be hardened</li> </ul>

#### 4 Effects of inclined angle

The inclined angle affects the direction of chip flow, and also affects the strength and impact resistance of insert nose.

◆As diagram (1) shows, when the inclined angle is negative, namely nose is in the lowest point as apposed to the bottom of tool, chips flow to the machined surface of workpiece.

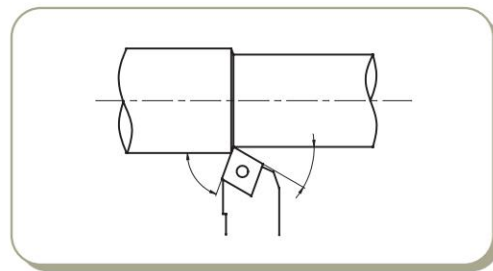
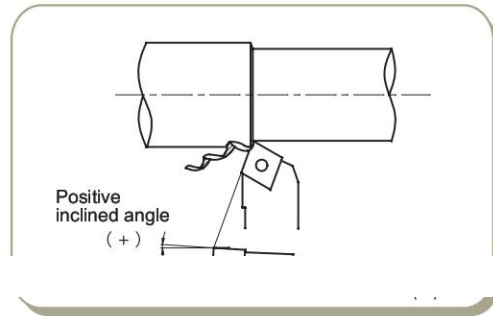


General technical information for turning

◆ As diagram (2) shows, when inclined angle is positive, namely the nose is in the highest point as apposed to the bottom of the tool, chips flow to the areas of workpiece surface that haven't been machined.

◆ The change of inclined angle also affects insert nose strength and impact resistance. When the inclined angle is negative, the nose is in the lowest point of cutting edge. When the cutting edge enters the workpiece, the contacting point is on the cutting edge or rake face.

protecting the nose from impact and should be chosen for tools with big rake angle. This can not only increase nose strength, but also prevent the impact of entry.



5 Effects of approach angle

Reduced approaching angle increases the strength of tools and enable heat to diffuse easily, improving surface quality. This is because when the approach angle is small, cutting edge width is large, and then the unit width of cutting edge bears less cutting force. Meanwhile, tool life can be improved.

Normally, select 90° approach angle for turning of slender and step shaft; select 45° approach angle for external turning, end surface machining and chamfering. When approach angle is larger, radial force is reduced, cutting is stable, cutting thickness is increased, and chip breaking is excellent.

Value selection	Situations
Small approach angle	For those materials with high intensity, high hardness and hardened layer on the surface
Big approach angle	When rigidity of the machine is not enough

6 Effects of minor angle

Minor angle is the main angle that can affect surface quality, and it can also affect tool strength. If the approach angle is too small, the friction between the secondary flank and machined surface of workpiece will increase, causing vibration.

The principle of selecting minor angle: Select small minor angle when roughing or when the friction is unaffected and there is no vibration. Select large minor angle when finishing.

7 Nose radius

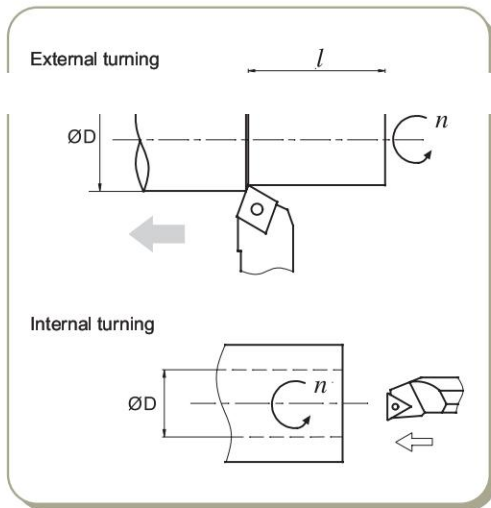
Nose radius significantly affects nose strength and surface quality.

Large nose radius means higher cutting edge strength, and the abrasion on the rake face and clearance face can be reduced to some extent. However, if the nose radius is too large, radial force will increase, and vibration is easy to occur, affecting machining precision and surface quality.

Value selection	Situations
Small nose radius	<ul style="list-style-type: none"> <li>●Finishing at small cutting depth</li> <li>●Machining parts such as slender shaft</li> <li>●When the rigidity of the machine is not enough</li> </ul>
	<ul style="list-style-type: none"> <li>●When roughing</li> <li>●When machining hard materials</li> </ul>
	<ul style="list-style-type: none"> <li>●When the rigidity of the machine is not enough</li> </ul>

### Calculation method of turning parameters

#### 1 Calculation of cutting speed



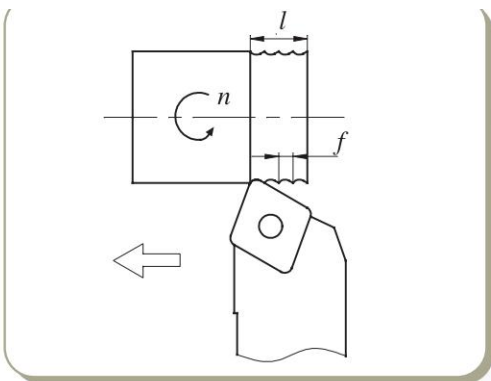
$$V_c = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

In the formula:  $V_c$ : Cutting speed (m/min)  
 $n$ : Rotating speed of main axle (rev/min)  
 $D$ : Diameter of workpiece (mm)

For example: When the rotating speed is 280rev/min and the diameter of workpiece is 150mm, the cutting speed should be:

$$V_c = \frac{\pi \times D \times n}{1000} \text{ (m/min)} = 132 \text{ (m/min)}$$

#### 2 Calculation of feed rate

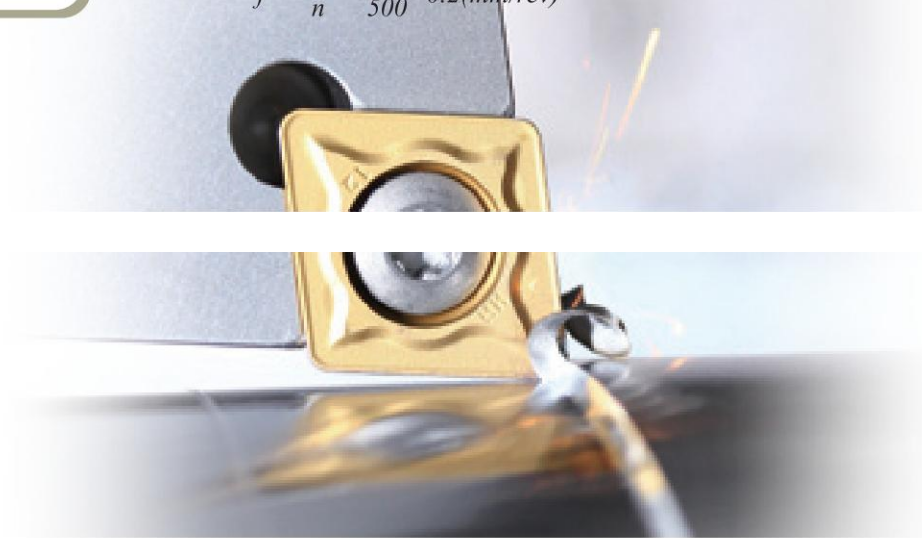


$$f = \frac{l}{n} \text{ (mm/rev)}$$

In the formula:  $f$ : Feed rate per rotation (mm/rev)  
 $l$ : Cutting length per minute (mm/min)  
 $n$ : Rotating speed of main axle (rev/min)

For example: When the rotating speed of main axle is 500rev/min, and the cutting length per minute is 100mm/min, the feed rate per rotation should be:

$$f = \frac{l}{n} = \frac{100}{500} = 0.2 \text{ (mm/rev)}$$



**3 Cutting time calculation of external and internal turning**

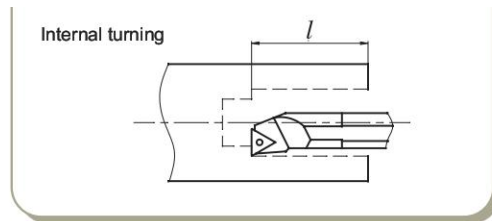
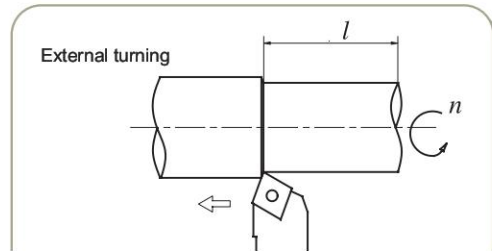
$$T = \frac{l}{f \times n} \text{ (min)}$$

In the formula: T: Cutting time (min)  
l: Length of machined areas (mm)

n: Rotating speed of main axle (rev/min)

For example: When the rotating speed of main axle is 250rev/min, and the feed rate is 0.2mm/rev, the time needed for a cutting length of 150mm should be:

$$T = \frac{l}{f \times n} = \frac{150}{0.2 \times 250} = 3 \text{ (min)}$$

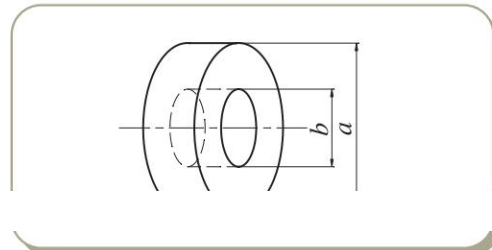


**4 Time calculation for end surface turning (constant linear speed)**

$$T = \frac{\pi \times (a^2 - b^2)}{4000 \times V_c \times f} \text{ (min)}$$

v<sub>c</sub>: Cutting speed (m/min)  
f: Feed rate (mm/rev)

For end surface without hole, b=0, the formula is still valid.



**5 Theoretical value calculation of machined surface roughness**

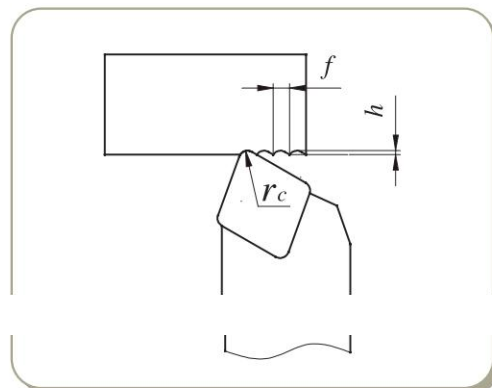
$$R = \frac{f^2}{8r_c} \times 1000 \text{ (}\mu\text{m)}$$

In the formula: R: Theoretical roughness value of machined surface  
f: Feed rate (mm/rev)  
r<sub>c</sub>: Nose radius (mm)

For example: When the feed rate is 0.2mm/rev, and the nose radius

should be:

$$R = \frac{f^2}{8r_c} \times 1000 = \frac{0.2^2}{8 \times 0.4} \times 1000 = 12.5 \text{ (}\mu\text{m)}$$



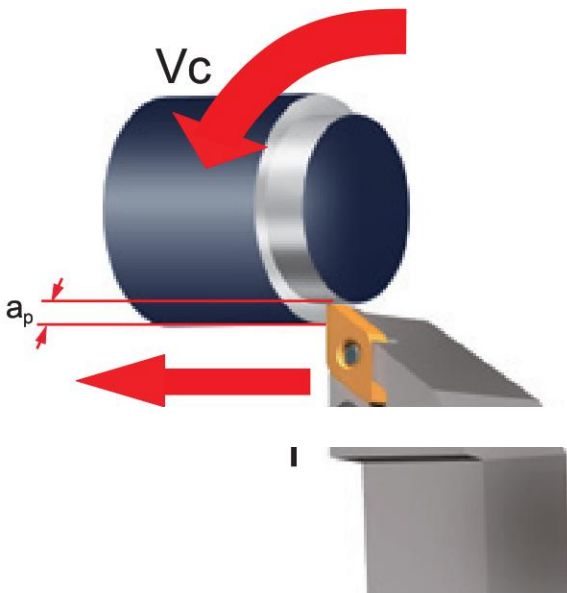
### General technical information for turning

#### Effect of three main turning parameters on machining

##### Effects of three main parameters

Normally, short machining time, long tool life and high

material quality, hardness, and shape of the workpiece, and properties of machine should be fully considered, and then we can select suitable tools and adopt high-efficiency cutting parameters, namely three parameters.



##### Cutting speed ( $V_c$ )

When the workpiece is rotating on the machine, the number of its rotation per minute is defined as Rotating speed of main axle ( $n$ ). Because of its rotation, the cutting speed measured on the contacting point of diameter is defined as linear speed, m/min. Normally, linear speed is considered to measure the effect of cutting speed on machining.

##### Effect of cutting speed

When the cutting speed is increased, cutting temperature will increase and tool life will be shortened. Cutting speed varies according to the different types and hardness of workpiece. The below conclusions are reached after many cutting experiments:

(1) Normally tool life would be reduced to half when the cutting speed is increased by 20%. Tool life would be 20% of the original life if the cutting speed is raised

(2) Low speed (20-40m/min) cutting could easily cause vibration and shorten tool life.

##### Feed rate ( $f_n$ )

Feed rate is defined as the moving distance of tool after workpiece rotates for one circle, measured by mm/rotation.

##### Effect of feed rate

Feed rate is a key factor that determines surface quality. Meanwhile it also affect the range of chip forming and the thickness of chips during machining.

In term of the effect on tool life, small feed rate leads to serious abrasion on clearance face, greatly reducing tool life.

##### Cutting depth ( $a_p$ )

Cutting depth is defined as the difference between machined surface and unmachined surface, measured by mm. It is half the difference value between the original diameter and machined diameter.

##### Effect of cutting depth

Cutting depth should be determined by the machining allowance and shape of workpiece, power and rigidity of machine, and tool rigidity.

The change of cutting depth has little effect on tool life. If the cutting depth is too low, the cutting nose only scrapes the hardened layer on the workpiece surface, reducing tool life. When there is hardened oxide layer on workpiece surface, higher cutting depth should be

to avoid cutting nose just cutting the hardened layer of workpiece.

Comparison table for turning inserts chipbreaker

Comparison table for turning insert chipbreaker

ISO	Machining range	ZCC	SANDVIK	KORLOY	TaeguTec	WALTER	SECO	MI	BISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TU	KYOCERA	VALANTTE	
P	For extra finishing		QF LC	HU	FA FX	FP5	FF1 FF2	PK	H, FY FS	FB FA, FL	FF		FE	01	DP*, GP, PP, VF, XP XP-T, XF	F1	
	For finishing	DF	PF XF	HF	FG FM	MP3, FV5 NF3, NF4	MF2		C SH	FE, SU, LU, SX, SE	LF, FN	PF, UR UA, UT	BE, CE B, BH	1 TSI	HQ, CQ PQ	F2(2B), F5(5C)	
	For finishing (Soft steel)	SF		FC					(						XQ, XS		
	For finishing (Wiper)	WGI	WL WF	HW	WS	NF	W-MF2		V	LUW SEW	FW			AF F	WF WP, WQ		
	For semi-finishing	DM PM	PM QM XM	HA HC HM	PC FT MT SM MP	MF3 MF5 M3 M5			2 A 4	GU UG UX GE	P MN	PG UB	CT AB AY AE AH	N T 3	PG, CJ, GS, PS HS, PT	F3, F4(8A), M2(2C), M3 M4, M5(5B), M6, M7, 55, M8	
	For semi-finishing (Wiper)	WGI	WMX WM		WT	NM W-M6 W-M3 W-MF5			V	G UW	MW RW				WE		
	For light roughing	LR <sup>Single</sup> DR <sup>Double</sup>	PR, HM XMR		RT	NM6, RP5 NM9, RP7	MR7 MR6		2 4	MU, MX ME, UZ	RN RP	UD, GG	Y, RE		RH, GT		
	For heavy roughing	HDF HPF	QR PR HR MR	HR HH	RX, HD HY, HT RT, RH HZ, EH	NR6 NRF NRR	R5, R56 R4, R6 R7, PR9 R57, RR6 R8		HL HX HR	MP, HG HP, HU HW, HF	MR, RM RH	UC	TE, UE HX, HE H	T 3	PX	R3, R4, R6(9A) R7(9B), R9(9C)	

※ Periphery grinding type

Comparison table for turning inserts chipbreaker

Threading

Parting groove

General turning

### Comparison table for turning inserts chipbreaker

ISO	Machining range	ZCC	SANDVIK	KORLOY	TaeguTec	WALTER	SECO	MI	BISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TU	LOY	KYOCERA	VALANTTE
M	For finishing	EF	MF	HA	SF	NF4, FM5	MF1		LM	SU, EF	FP, LF*		MP, AB BH		MQ GU	F1, F2(2B), F5(5C)	
	For semi-finishing	EV	MM, QM XM, K	HS	ML, EM MM, VF	MM5 RM5 NM4	MF4	ES MM A	EX, EG UP, GU HM	MP	SF, SG SZ	DE PV SE AH		MS, MU SU, HU, ST, TK	F3, F4(8A), M2(2C), M3 M4, M5(5B), M6, M7, 55, M8		
	For roughing	ER	MR	GS, HM	MT	NR4 NR5	M5, MR7 RR6	HZ HL	EM, MU MP	UP RP		AE			R3, R4, R6(9A) R7(9B), R9(9C)		
K	For finishing	PV	KF			MK5	MF2, M3 MF5, M4				FN		VA, AH		KQ	F2(2B)	
	For Semi-Finishing	PV	KM	MC		RK5 NM5	M5		UZ, GZ UX	RP, UN	PG	V, AE		KG, C	M5(5B), M6, M8		
	For roughing	With chip breaker	KR KRR	GR, HR GH	KT	RK7						GG	RE		KH, GC	R3, R4, R7(9B)	
S	For finishing	NF/N	SF SGF*	EA		NF4, NFT MS3	MF5, MF1 MF4	LS MJ*	EF, SU*	FS, LF* MS				MQ	F5(5C), M2(2C)		
	For semi-finishing	NV	NGP*, SM			NMT, NMS	M1		EG, EX SU*, UP	NGP* UP, P		VI		SA M	SQ, MS MU, TK	M4, M5(5B), M7, 55	
	For roughing	SNF	SR SMR	ET		NRS NRT	MR3 MR4		MU	RP					SG SX		

\* Periphery grinding type

### Comparison table for turning insert chipbreaker

Negative

fts

Comparison table for turning inserts chipbreaker

Threading

ing and

General turning



Comparison table for turning inserts chipbreaker

ISO	Machining range	ZCC	Positive inserts													
Comparison table for turning inserts chipbreaker			SANDVIK	KORLOY	TaeguTec	WALTER	SECO	JBISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TUNGSHIN	LOY	KYOCERA	VALANTTE
<b>P</b>	For finishing	SF,	PF, UF XF	HFP	FA, FG FX	PF4 FP4	FF1 F1	SV LP	FP, LU SU, SK	11, UF LF, FP		JQ	PI PS	SF SS	GP, XP VF, PP	PF4 JQ, JZ
	For finishing (Wiper)		WF			PF2* PF, PF5*	W-F1	W	LUW SDW	FW				WP		
	For semi-finishing	HF	UM, XM PM, PR XR	HMP C25	MT, PC	PS5 PM5 FP6	F2 MF2, M5	MP	MU	MF, MP	FT	JE	2	4	HQ, XQ GK MF*	PM2 PM4
<b>M</b>	For semi-finishing (Wiper)		WM		WT	PM	W-F2 W-M3	IW		MMW						
	For finishing	EI	MF	HFP		FM4	F1, F2	LM	FC*, SI* LU, SU	MF	MP	MP	PF PS	CF*, CK* GQ*, GF* MQ, SK	1A, 2A	
<b>K</b>	For semi-finishing	EA	MM	HMP C25		MM4 RM4		IM	MU	MP				HQ GK	PM2 PM4	
	For semi-finishing	HR with chip-br	KF KM KR	HMP C25		FK6	F1 M3, M5	IK at chip- aker	MU Without chip- breaker	Without chip- breaker			With b	Without chip- breaker*	PM2 PM4	
<b>S</b>	For finishing/ For semi-finishing	NG					F1 F2	LS* FS-P* P*	SL* LF* HP*					MQ	PM2, 1A 2A	
	For general turning	LF	AL	TAAK MA	FL	PM2, FN2 MN2	AL*	Z*	AG	HP*	ALU ACB ASF			AH*	1L, 1A 2A	

\* Periphery grinding type

Comparison table for turning inserts chipbreaker

Threading

Parting groove

General turning