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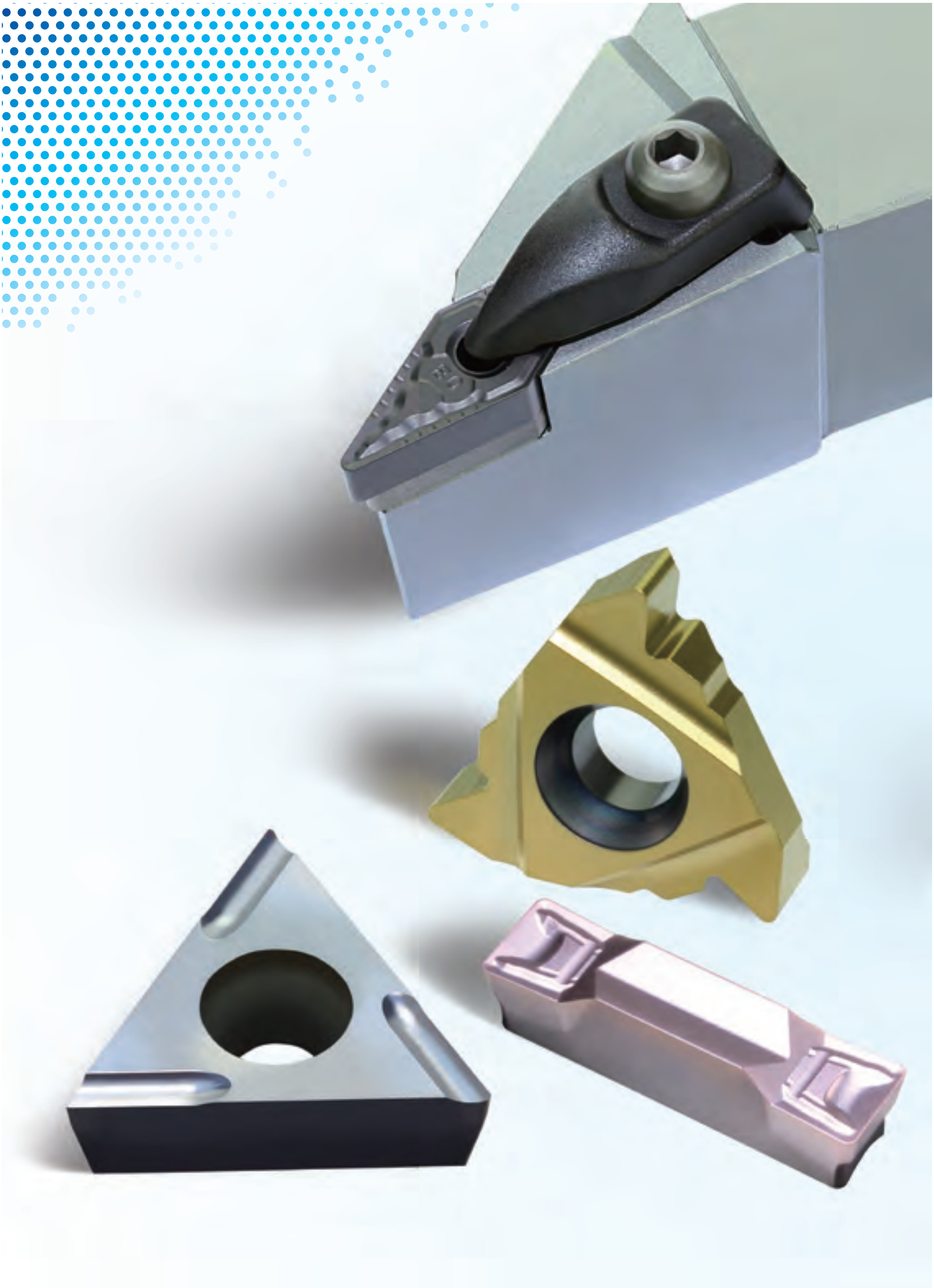
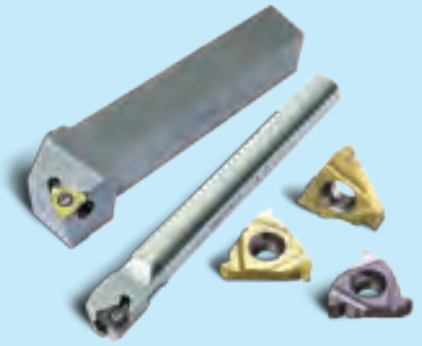


Turning Tools

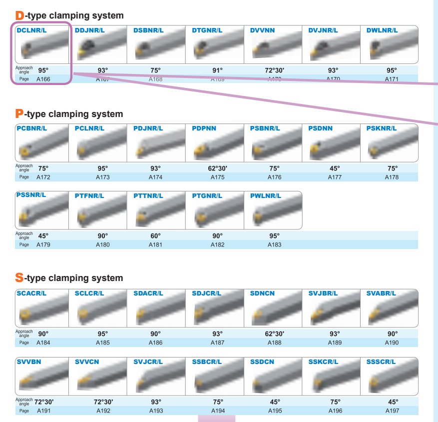
General turning tools
Parting and grooving tools
Threading tools

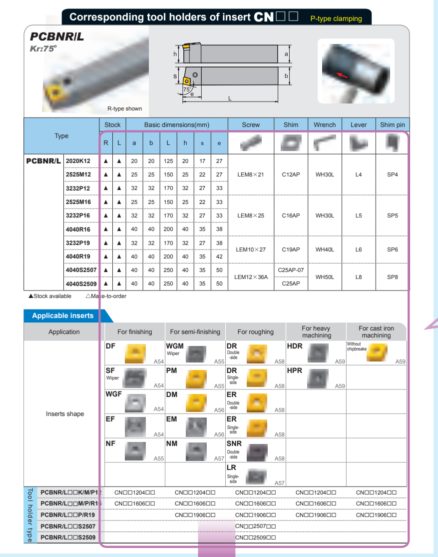
Turning A

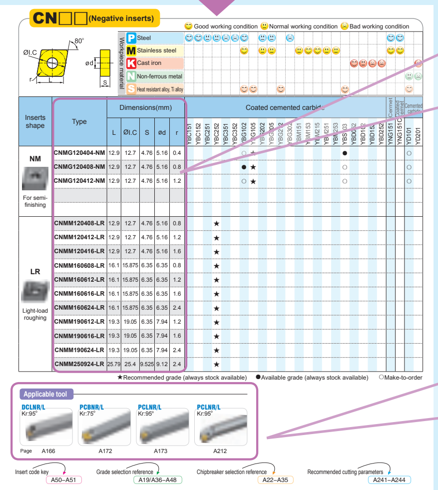


Guide to selecting general turning tools

Selection B

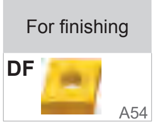






Step **1** : **I want to order tool holders**

•Approach angle, •Clamping system



Step **2** : **Details of tool holder**

•Tool holder type, Size, •Operation genre

•Applicable inserts

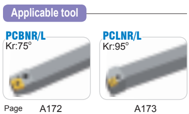
Dimensions(mm)				
L	I.C	S	d	r
12.9	12.7	4.76	5.16	0.4

Step **3** : **Details of insert**

•Shape, •Size, •Chipbreaker, •Grade, •Stock

Applicable tool holders

•Approach angle, •Page



Step **4** : **Return to locate tool holder**

Guide to selecting parting and grooving tools

Parting and grooving tools

QE□□R/L	QECDR/L
	
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QF□□RR/LL	QF□DR/L
	
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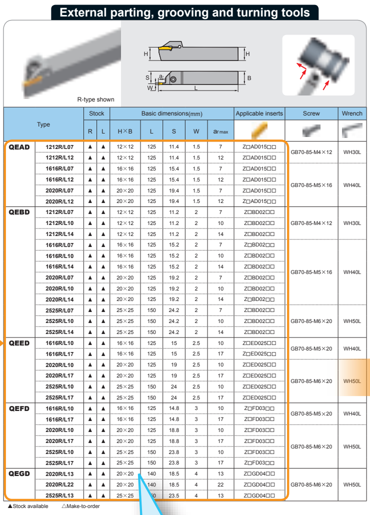
1 Selection of tool holder type

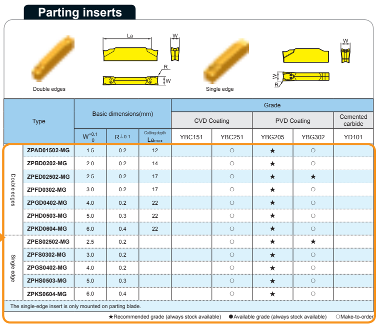


External parting, grooving and turning tools

Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	$a_{r\,max}$			
QEAD	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□□	GB70-85-M5×16	WH40L
	1616R/L12	▲	▲	16×16	125	15.4	1.5	12	Z□AD015□□		
	2020R/L07	▲	▲	20×20	125	19.4	1.5	7	Z□AD015□□		
	2020R/L12	▲	▲	20×20	125	19.4	1.5	12	Z□AD015□□		
QEBD	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□□		
	1616R/L14	▲	▲	16×16	125	15.2	2	14	Z□BD02□□		
	2020R/L07	▲	▲	20×20	125	19.2	2	7	Z□BD02□□		
	2020R/L10	▲	▲	20×20	125	19.2	2	10	Z□BD02□□		
	2020R/L14	▲	▲	20×20	125	19.2	2	14	Z□BD02□□		
	2525R/L07	▲	▲	25×25	150	24.2	2	7	Z□BD02□□	GB70-85-M6×20	WH50L
	2525R/L10	▲	▲	25×25	150	24.2	2	10	Z□BD02□□		
	2525R/L14	▲	▲	25×25	150	24.2	2	14	Z□BD02□□		
QEED	1616R/L10	▲	▲	16×16	125	15	2.5	10	Z□ED025□□	GB70-85-M5×20	WH40L
	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□□		
QEFD	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□□		
	2020R/L10	▲	▲	20×20	125	18.8	3	10	Z□FD03□□	GB70-85-M6×20	WH50L
	2020R/L17	▲	▲	20×20	125	18.8	3	17	Z□FD03□□		
	2525R/L10	▲	▲	25×25	150	23.8	3	10	Z□FD03□□		
	2525R/L17	▲	▲	25×25	150	23.8	3	17	Z□FD03□□		
QEGD	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	50	23.5	4	13	Z□GD04□□		

▲Stock available △Make-to-order

2 Tool holder type, Size and applicable inserts



Parting inserts

Type		Basic dimensions(mm)			Grade				
					CVD Coating		PVD Coating		Cemented carbide
		$W^{+0.1}_{0}$	R±0.1	Cutting depth La_{max}	YBC151	YBC251	YBG205	YBG302	YD101
Double edges	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		○	★	○	
Single edge	ZPES02502-MG	2.5	0.2			○	★	★	
	ZPFS0302-MG	3.0	0.2			○	★	○	
	ZPGS0402-MG	4.0	0.2			○	★	○	
	ZPHS0503-MG	5.0	0.3			○	★	○	
	ZPKS0604-MG	6.0	0.4			○	★	○	

The single-edge insert is only mounted on parting blade.

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

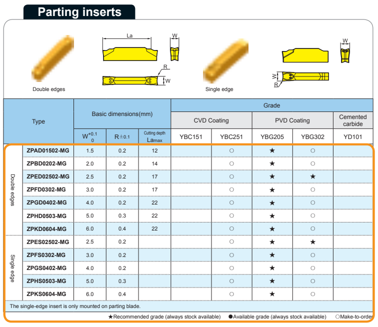
3 Insert type, Chip-breaker, Size and grade

Parting and grooving inserts

Little squirrel series

	ZP□D-MG	ZP□S-MG	ZT□D-MG
			
Cutting edge width	1.5,2,2.5,3,4,5,6	2.5,3,4,5,6	2.5,3,4,5,6
Page	A259	A259	A260

1 Selecting insert type


Parting inserts

Type		Basic dimensions(mm)			Grade				
					CVD Coating		PVD Coating		Cemented carbide
		$W^{+0.1}_{0}$	R±0.1	Cutting depth La_{max}	YBC151	YBC251	YBG205	YBG302	YD101
Double edges	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		○	★	○	
Single edge	ZPES02502-MG	2.5	0.2			○	★	★	
	ZPFS0302-MG	3.0	0.2			○	★	○	
	ZPGS0402-MG	4.0	0.2			○	★	○	
	ZPHS0503-MG	5.0	0.3			○	★	○	
	ZPKS0604-MG	6.0	0.4			○	★	○	

The single-edge insert is only mounted on parting blade.

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

2 Insert type, Chip-breaker, Size and grade

Guide of selecting threading tools

Threading tools

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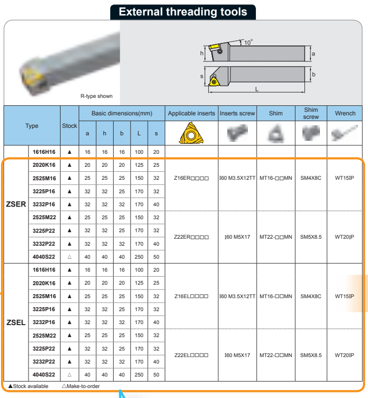
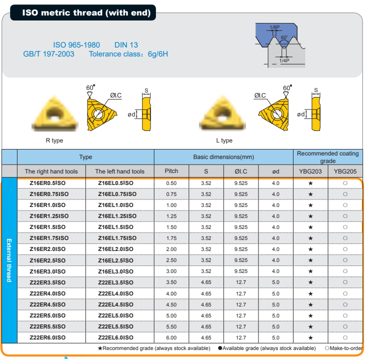


External threading tools

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	20					
	2020K16	▲	20	20	20	125	25	Z16ER□□□□	I60 M3.5X12TT	MT16-□□MN	SM4X8C	WT15IP
	2525M16	▲	25	25	25	150	32					
	3225P16	▲	32	32	25	170	32					
	3232P16	▲	32	32	32	170	40					
	2525M22	▲	25	25	25	150	32	Z22ER□□□□	I60 M5X17	MT22-□□MN	SM5X8.5	WT20IP
	3225P22	▲	32	32	25	170	32					
	3232P22	▲	32	32	32	170	40					
	4040S22	△	40	40	40	250	50					
ZSEL	1616H16	▲	16	16	16	100	20	Z16EL□□□□	I60 M3.5X12TT	MT16-□□MN	SM4X8C	WT15IP
	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	Z22EL□□□□	I60 M5X17	MT22-□□MN	SM5X8.5	WT20IP
	3225P22	▲	32	32	25	170	32					
	3232P22	▲	32	32	32	170	40					
	4040S22	△	40	40	40	250	50					

▲Stock available △Make-to-order



ISO metric thread (with end)

ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class：6g/6H

R type L type

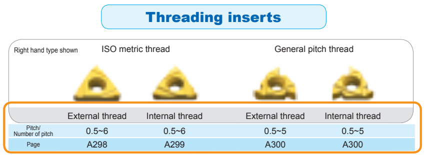
	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	ØI.C	ød	YBG203	YBG205
External thread	Z16ER0.5ISO	Z16EL0.5ISO	0.50	3.52	9.525	4.0	★	○
	Z16ER0.75ISO	Z16EL0.75ISO	0.75	3.52	9.525	4.0	★	○
	Z16ER1.0ISO	Z16EL1.0ISO	1.00	3.52	9.525	4.0	★	○
	Z16ER1.25ISO	Z16EL1.25ISO	1.25	3.52	9.525	4.0	★	○
	Z16ER1.5ISO	Z16EL1.5ISO	1.50	3.52	9.525	4.0	★	○
	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

1 Selection of tool holder type

2 Tool holder type, Size and applicable inserts

3 Insert type, Chip-breaker, Size and grade



Threading inserts

Right hand type shown

	ISO metric thread		General pitch 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
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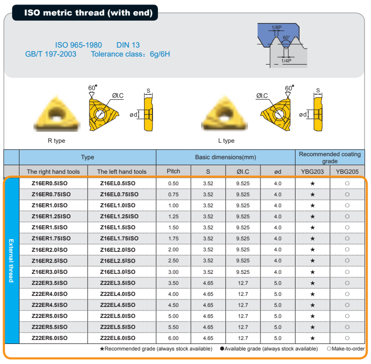

ISO metric thread (with end)

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
External thread	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	★	○
	Z16ER1.25ISO	Z16EL1.25ISO	1.25	3.52	9.525	4.0	★	○
	Z16ER1.5ISO	Z16EL1.5ISO	1.50	3.52	9.525	4.0	★	○
	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

1 Selecting insert category

2 Insert type, Chip-breaker, Size and grade

Cemented carbide and cermet inserts

Negative inserts

	For finishing							
		DNEG-NGF	**VNEG-NGF**	**CNMG-DF**	**CNMG-SF**	**CNMG-EF**	**CNEG-NF**	**DNMG-DF**
Cutting edge length		15	16	09,12	09,12	09,12	12	11,15
Page		A62	A81	A54	A54	A54	A55	A61

								
	DNMG-SF	**DNMG-EF**	**DNEG-NF**	**SNMG-DF**	**SNMG-EF**	**SNMG-SF**	**TNMG-DF**	**TNMG-SF**
Cutting edge length	11,15	11,15	15	09,12	09,12,15	09,12,15	16,22	11,16,22
Page	A62	A62	A62	A67	A67	A67	A75	A75

								
	TNMG-EF	**VNMG-DF**	**VNMG-EF**	**VNEG-NF**	**VNMG-SF**	**WNMG-DF**	**WNMG-SF**	**WNMG-EF**
Cutting edge length	11,16,22	16	16	16	16	06,08	06,08	06,08
Page	A76	A81	A81	A81	A81	A83	A83	A84

			**Wiper**	For finishing				
	WNEG-NF				**CNMG-WGF**	**DNMX-WGF**	**TNMX-WGF**	**WNMG-WGF**
Cutting edge length	08				12	11,15	16	06,08
Page	A84				A54	A61	A75	A83

	For semi-finishing						**For semi-finishing**	
		CNMG-WGM	**DNMX-WGM**	**TNMX-WGM**	**WNMG-WGM**			**CNMG-PM**
Cutting edge length		12	15	16	06,08			09,12,16,19
Page		A55	A63	A76	A84			A55

								
	CNMG-DM	**CNMG-EM**	**CNMG-NM**	**DNMG-PM**	**DNMG-DM**	**DNMG-EM**	**DNMG-NM**	**SNMG-PM**
Cutting edge length	09,12,16,19	12,16	12	11,15	11,15	11,15	15	09,12,15,19
Page	A56	A56	A57	A63	A64	A64	A64	A68

								
	SNMG-DM	**SNMG-EM**	**SNMG-NM**	**TNMG-PM**	**TNMG-DM**	**TNMG-EM**	**VNMG-PM**	**VNMG-DM**
Cutting edge length	09,12,15,19	12,15	12	11,16,22	11,16,22	16,22	16	16
Page	A68	A69	A69	A76	A77	A77	A82	A82

Negative inserts

	VNMG-EM	VNMG-NM	WNMG-PM	WNMG-DM	WNMG-EM	WNMG-NM
Cutting edge length	16	16	06,08	06,08	06,08	08
Page	A82	A82	A85	A85	A85	A86

For roughing	CNMG-SNR	DNMG-SNR	SNMG-SNR	TNMG-SNR	VNMG-SNR	WNMG-SNR
Cutting edge length	12,16,19	15	12	16	16	08
Page	A58	A65	A71	A78	A82	A86

	CNMM-LR	DNMM-LR	SNMM-LR	TNMM-LR	CNMG-DR	CNMM-DR	CNMG-ER	CNMM-ER
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
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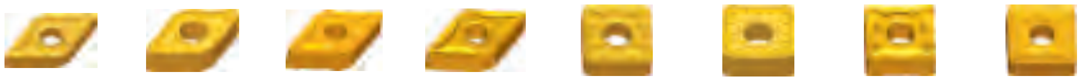


	DNMG-DR	DNMM-DR	DNMG-ER	DNMM-ER	SNMG-DR	SNMM-DR	SNMG-ER	SNMM-ER
Cutting edge length	15	15	15	15	12,15,19	12,15,19,25	12,15,19	25
Page	A65	A65	A65	A65	A70	A70-A71	A71	A71

	TNMG-DR	TNMM-DR	TNMG-ER	WNMG-DR
Cutting edge length	16,22,27	16,22,27	16,22	06,08
Page	A78	A78	A78	A86

For heavy machining	CNMM-HPR	SNMM-HPR		CNMM-HDR	DNMM-HDR	SNMM-HDR	TNMM-HDR
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

	175.32-22/227	175.32-24	175.32-25	175.32-28	For profiling	KNUX	All round	CNMG
Cutting edge length	19	19,30	19	19		16		12,16,19
Page	A88	A88	A88	A88		A87		A60

	CNMM	DNMG	SNMG	SNMM	TNMG	TNMM	VNMG
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

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

Positive inserts

For extra finishing -USF

						
	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**
Cutting edge length	09,11	09,11
Page	A113	A113

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

			
	TCMT-EM	VBMT-EM	VBMT-HM
Cutting edge length	09,11,16	11	16
Page	A102	A109	A109

For roughing						
	VBMT-SNR	CCMT-HR	DCMT-HR	SCMT-HR	TCMT-HR	VBMT-HR
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							
	CCGX-LC	DCGX-LC	SCGX-LC	TCGX-LC	VCGX-LC	CCGX-LH	DCGX-LH
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**			
	RCGX-LH	SCGX-LH	TCGX-LH	VCGX-LH		RCM(G)T	RCMX	SCMT
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
Page	A96	A99	A104	A106		A96	A97	A99

			**Without chipbreaker**					
	TCMT	WCMX-53		CCMW	DCMW	SCMW	TCMW	SPMW
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

Negative inserts

New PCBN&PCD inserts

PCBN inserts						
	CNGA	DNGA	SNGA	TNGA	VNGA	WNGA
Cutting edge length	12	15	12	16	16	08
Page	A118	A121	A126	A130	A133	A136

PCBN inserts turning case						
	CNGN	DNGN	SNGN	TNGN	VNGN	WNGN
Cutting edge length	12	15	12	16	16	08
Page	A120	A125	A129	A132	A135	A138

Positive inserts

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

	CCGW□□AF	DCGW□□AF	TCGW□□AF	VBGW□□AF	VCGW□□AF
PCD 0° Front Angle Blade					
Cutting edge length	06,09,12	07,11	09,11	16	16
Page	A144	A145	A146	A147	A148

	CCMX□□AF	DCMX□□AF	TCMX□□AF	VBMX□□AF	VCMX□□AF
PCD 7° Front Angle Blade					
Cutting edge width	06,09,12	07,11	09,11	16	16
Page	A144	A145	A146	A147	A148

Ceramic inserts

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

Parting and grooving inserts

	QC□□R/L	QC□□R/L□□□R	ZP□D-MG	ZP□S-MG
Little squirrel series **QC series shallow grooving inserts**				
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
Page	A260	A260	A260	A261	A261	A262	A262

	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

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

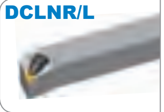
Right hand type shown	Unified thread		British Standard pipe thread		American standard pipe thread	
						
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	8~24	8~24	11~28	11~28	8~27	8~27
Page	A302	A302	A303	A303	A304	A304

Right hand type shown	ISO metric thread(Thin type)		General pitch thread(Thin type)		Whitworth thread(Thin type)	
Thin threading inserts series						
	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
Page	A309	A309	A310	A310	A311	A311

Tool holders for external turning

D-type clamping system

	DCLNR/L	DDJNR/L	DSBNR/L	DTGNR/L	DVVNN	DVJNR/L	DWLNR/L
							
Approach angle	95°	93°	75°	91°	72°30'	93°	95°
Page	A166	A167	A168	A169	A170	A170	A171

P-type clamping system

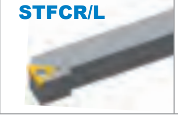
	PCBNR/L	PCLNR/L	PDJNR/L	PDPNN	PSBNR/L	PSDNN	PSKNR/L
							
Approach angle	75°	95°	93°	62°30'	75°	45°	75°
Page	A172	A173	A174	A175	A176	A177	A178

	PSSNR/L	PTFNR/L	PTTNR/L	PTGNR/L	PWLNR/L
					
Approach angle	45°	90°	60°	90°	95°
Page	A179	A180	A181	A182	A183

S-type clamping system

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

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

	STACR/L	STFCR/L	STGCR/L	STECR/L	SWACR/L	SRDCN	SRGCR/L
							
Approach angle	90°	90°	91°	60°	90°		
Page	A198	A198	A199	A200	A201	A202	A203

C-type clamping system

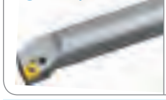
	CKJNR/L	CKNNR/L
		
Approach angle	93°	63°
Page	A204	A204

Turning tool holders for ceramic inserts

	CRDCR/L	CRDPR/L
		
Approach angle		
Page	A205	A205

Turning tool holders for internal machining

P-type clamping system

	PCLNR/L	PDPNR/L	PDUNR/L	PSKNR/L	PTFNR/L	PWLNR/L
						
Approach angle	95°	62°30'	93°	75°	90°	95°
Page	A212	A213	A214	A215	A216	A217

S-type clamping system

	SCLCR/L	SDQCR/L	SDUCR/L	SDZCR/L	SSKCR/L	STFCR/L	SVQCR/L
							
Approach angle	95°	107°30'	93°	95°	75°	90°	107°30'
Page	A218	A219	A220	A221	A222	A223	A224

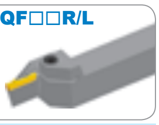
	SVUCR/L	SVQBR/L	SVUBR/L	SCLPR/L	SDQPR/L	SDUPR/L	STUPR/L
							
Approach angle	93°	107°30'	93°	95°	107°30'	93°	93°
Page	A225	A226	A227	A228	A229	A230	A231

	SCFCR	**SCLCR**
		
Approach angle	**90°**	**95°**
Page	A232	A233

Damping tool holders

	SCLPR/L	**SDQPR/L**	**SDUPR/L**	**STUPR/L**	**SVQCR/L**	**SVUCR/L**
						
Approach angle	**95°**	**107°30'**	**93°**	**93°**	**107°30'**	**93°**
Page	A235	A236	A237	A238	A239	A240

Parting and grooving tools

	QE□□R/L	**QECDR/L**	**QX□DR/L**	**QE□SR/L**	**QE□S□□N**	**QZS□**	**QF□□R/L**
							
Page	A272-A273	A273	A274	A274	A275	A275	A276-A277

	QF□□RR/LL	**QF□DR/L**	**C□□□-Q□DR/L**	**C40X-Q□DR/L**	**QZQ□□R/L**	**GQCR/L**	**S□□□-QC□□□□R/L**
							
Page	A278-A281	A282-A283	A284	A284	A288	A286	A286

Threading tools

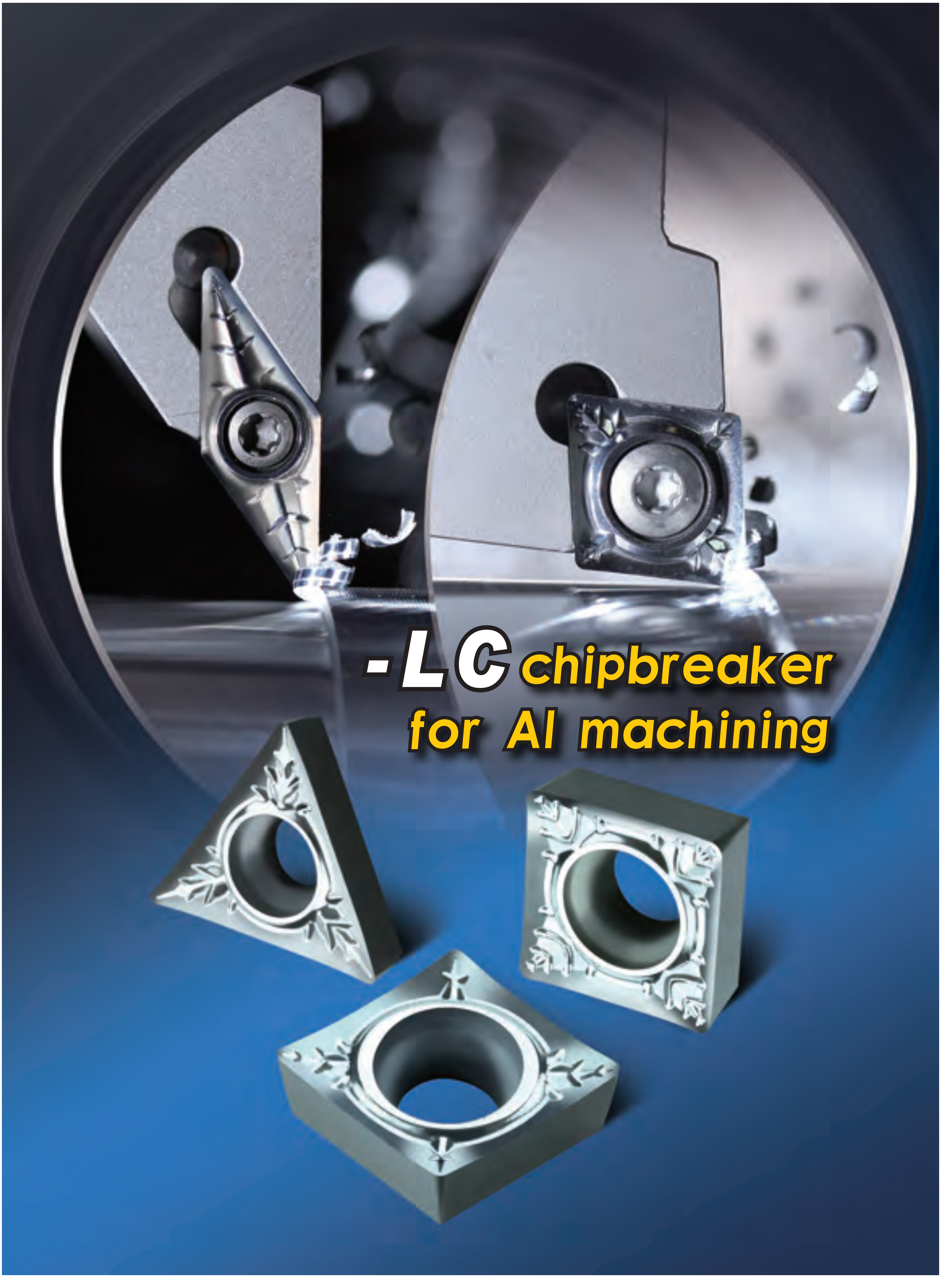
	ZSER/L	**ZSIR/L**
		
Page	A313	A314


-WGM
Wiper
-WGF

-HPR

New Generation of Roughing Chipbreaker

-LR



-LC chipbreaker for Al machining

YBM215

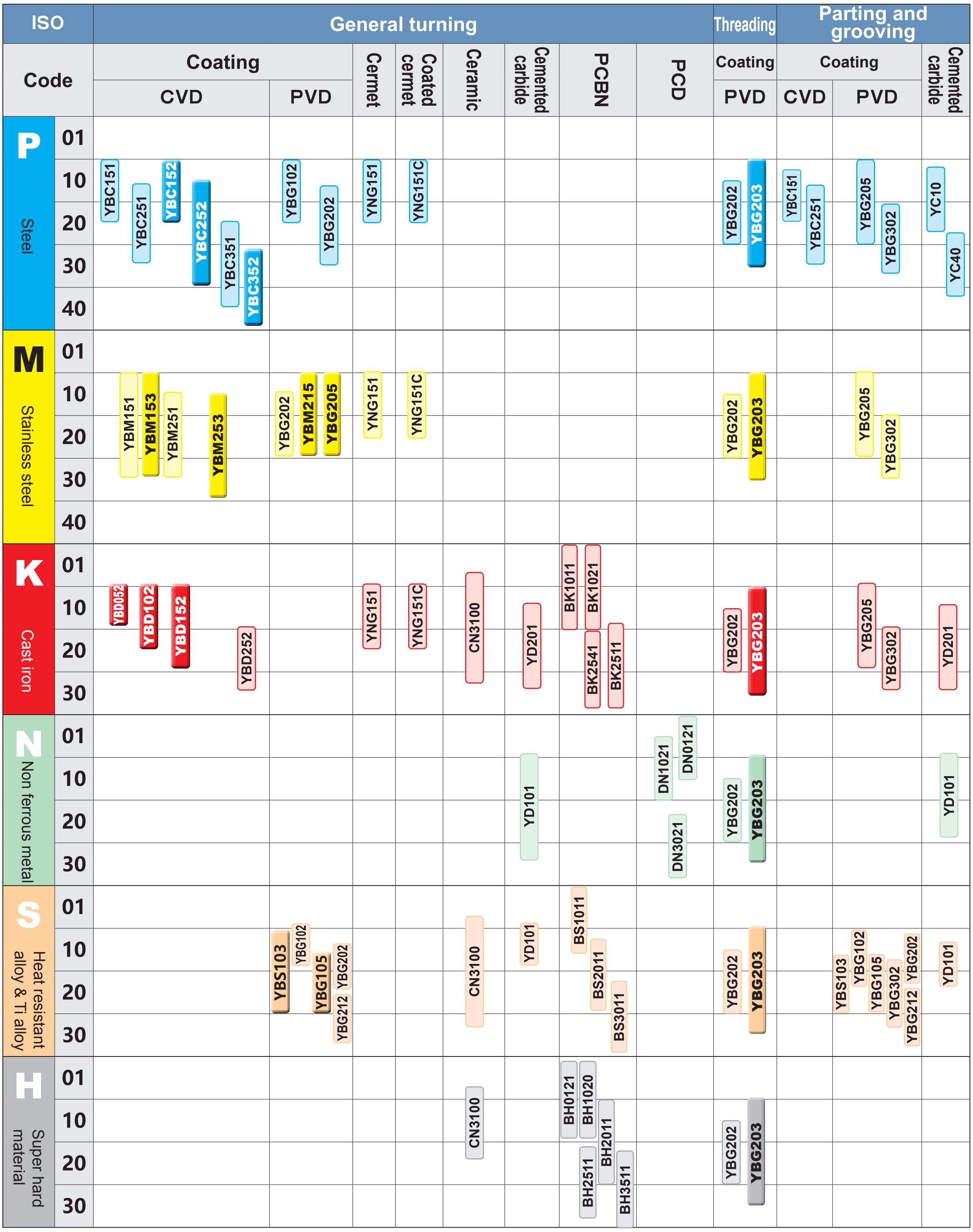
Outstanding wear nesrrtance,extends the tool life
achieves high effrcrent processing

Grade for stainless steel machrning

YBM153

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

Recommended Grade Overview for Turning Inserts



ISO		General turning								Threading	Parting and grooving		
Code		Coating		Cermet	Coated cermet	Ceramic	Cemented carbide	PCBN	PCD	Coating	Coating		Cemented carbide
		CVD	PVD							PVD	CVD	PVD	
P Steel	01												
	10	YBC151 YBC251 **YBC152** **YBC252**	YBG102 YBG202	YNG151	YNG151C					YBG202 **YBG203**	YBC151 YBC251	YBG205	YC10
	20	YBC351										YBG302	YC40
	30	**YBC352**											
	40												
M Stainless steel	01												
	10	YBM151 **YBM153** YBM251 **YBM253**	YBG202 **YBM215** **YBG205**	YNG151	YNG151C					YBG202 **YBG203**		YBG205	
	20											YBG302	
	30												
	40												
K Cast iron	01					CN3100		BK1011 BK1021					
	10	YBD052 **YBD102** **YBD152**		YNG151	YNG151C		YD201	BK2511		YBG202 **YBG203**		YBG205	YD201
	20	YBD252						BK2541				YBG302	
	30												
N Non ferrous metal	01								DN1021 DN0121				
	10						YD101			YBG202 **YBG203**			YD101
	20								DN3021				
	30												
S Heat resistant alloy & Ti alloy	01					CN3100		BS1011					
	10		**YBS103** YBG102 **YBG105** YBG202				YD101	BS2011		YBG202 **YBG203**		YBS103 YBG102 YBG105 YBG302 YBG202	YD101
	20		YBG212					BS3011				YBG212	
	30												
H Super hard material	01					CN3100		BH0121 BH1020					
	10							BH2011		YBG202 **YBG203**			
	20							BH2511 BH3511					
	30												

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

For finishing – For semi-finishing – For roughing – For heavy cutting – Without 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.

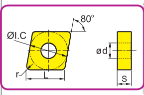
😐 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.

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

Main category of products

Positive or negative inserts

CN□□ **(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
NM For semi-finishing	CNMG120404-NM	12.9	12.7	4.76	5.16	0.4							○	★										●							○	
	CNMG120408-NM	12.9	12.7	4.76	5.16	0.8							●	★										○							○	
	CNMG120412-NM	12.9	12.7	4.76	5.16	1.2							○	★										○							○	
LR Light-load roughing	CNMM120408-LR	12.9	12.7	4.76	5.16	0.8				★																						
	CNMM120412-LR	12.9	12.7	4.76	5.16	1.2				★																						
	CNMM120416-LR	12.9	12.7	4.76	5.16	1.6				★																						
	CNMM160608-LR	16.1	15.875	6.35	6.35	0.8				★																						
	CNMM160612-LR	16.1	15.875	6.35	6.35	1.2				★																						
	CNMM160616-LR	16.1	15.875	6.35	6.35	1.6				★																						
	CNMM160624-LR	16.1	15.875	6.35	6.35	2.4				★																						
	CNMM190612-LR	19.3	19.05	6.35	7.94	1.2				★																						
	CNMM190616-LR	19.3	19.05	6.35	7.94	1.6				★																						
	CNMM190624-LR	19.3	19.05	6.35	7.94	2.4				★																						
	CNMM250924-LR	25.79	25.4	9.525	9.12	2.4				★																						

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

Shape and dimensions
L: cutting edge length
ØI.C: diameter of inscribed circle
S: Thickness
ød: Hole diameter
r: Nose radius

Type

Grade

Size

Stock

Illustration of stock

Applicable tool

Page A166 A172 A173 A212

Insert code key A50–A51 Grade selection reference A19/A36–A48 Chipbreaker selection reference A22–A35 Recommended cutting parameters A241–A244

Reference page of tool holders

Application of inserts

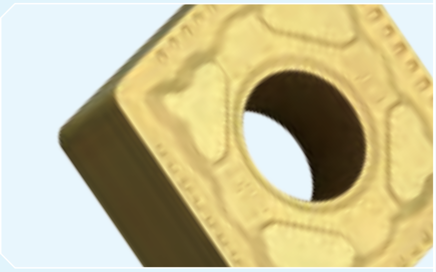
Shape

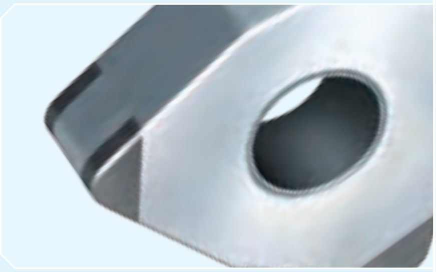
Insert chipbreaker
Chipbreaker code

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

TURNING A

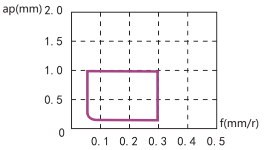
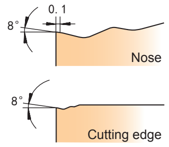
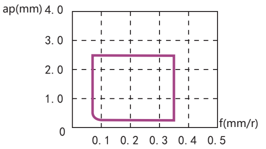
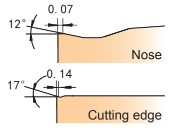
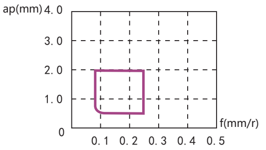
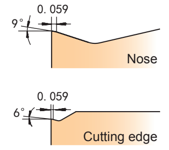
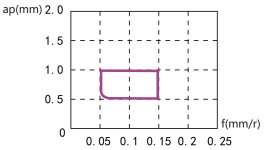
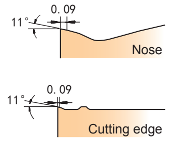
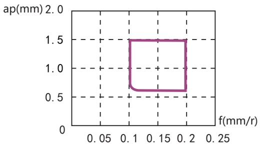
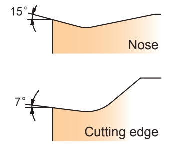
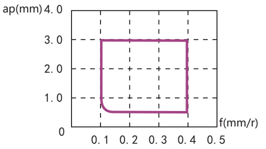
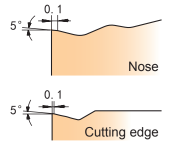
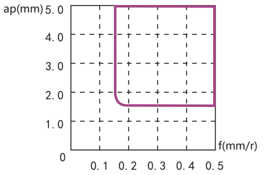
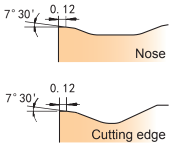
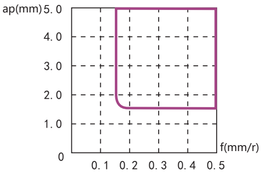
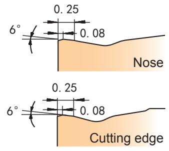
General turning inserts



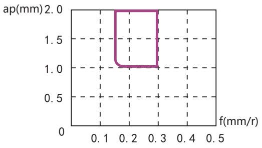
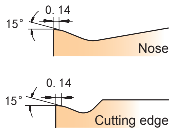
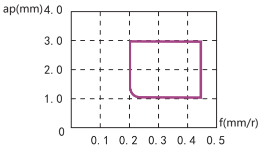
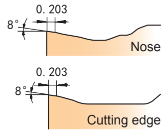
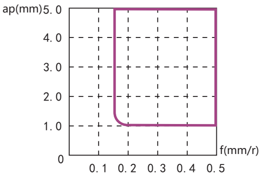
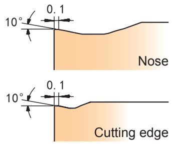
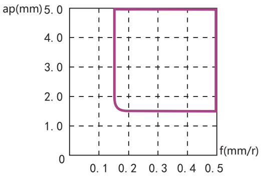
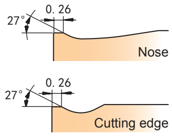
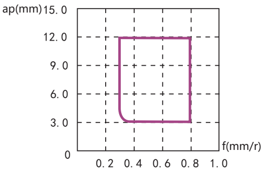
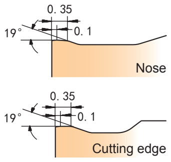
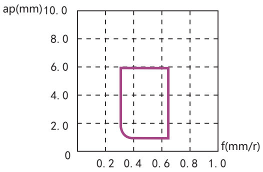
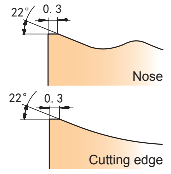
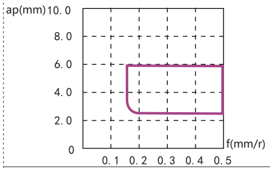
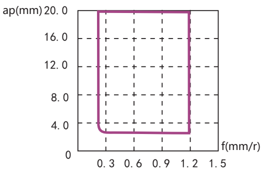
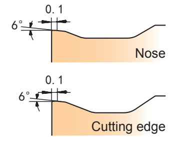
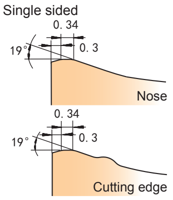


General turning inserts overview

Negative inserts with hole

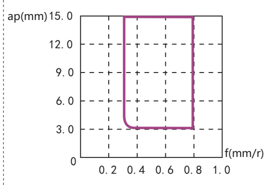
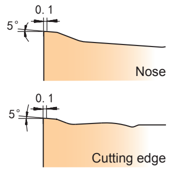
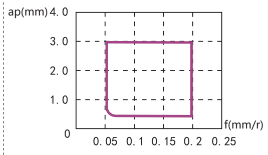
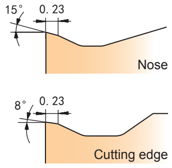
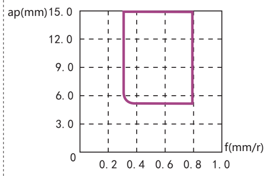
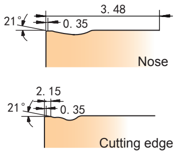
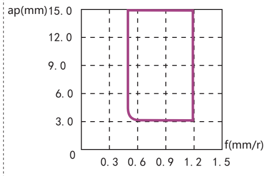
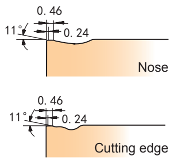
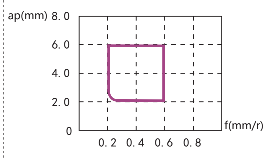
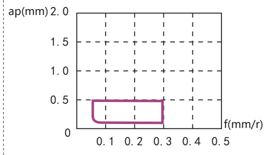
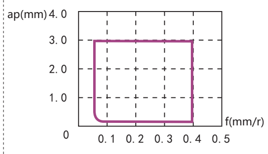
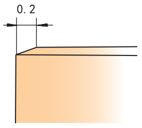
Appli-cation	Chipbreaker	Preci-sion	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For finishing	**SF** 	M			**Recommended chipbreaker for finishing of P-type materials** Double-sided chipbreaker with M-level tolerance has outstanding performance in finishing, achieving good surface quality. 
	DF 	M			**Recommended chipbreaker for finishing of P- type materials** 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. 
	EF 	M			**Recommended chipbreaker for finishing of M-type materials** Double-sided chipbreaker with M-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality. 
	NF 	E			**Recommended chipbreaker for finishing of S-type materials** Double-sided chipbreaker with E-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality. 
	NGF 	E			**Recommended chipbreaker for finishing of S- materials** 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. 
	WGF 	M			**Recommended chipbreaker for finishing of S- materials** 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. 
For semi-finishing	**DM** 	M			**Recommended chipbreaker for semi-finishing of P-type materials** 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. 
	PM 	M			**Recommended chipbreaer for semi-finishing of P-type materials** 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

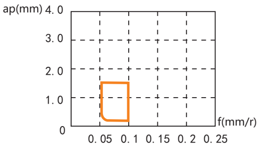
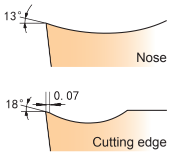
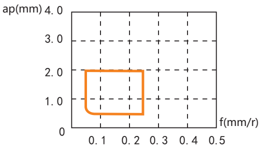
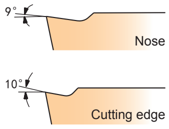
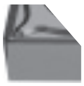
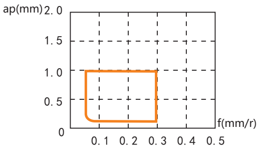
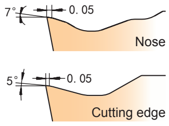
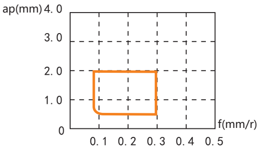
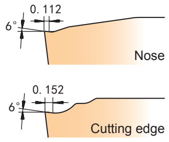
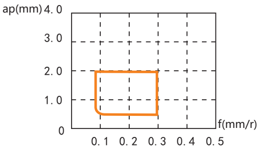
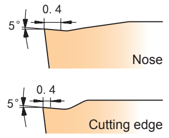
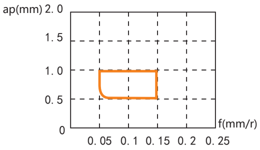
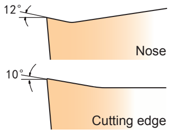
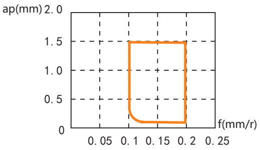
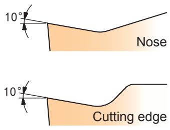
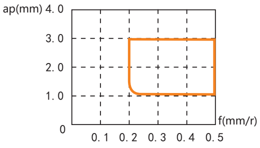
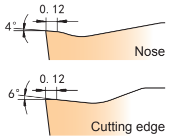
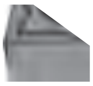
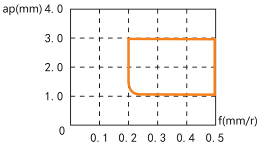
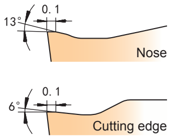
Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	**NM** 	M			**Recommended chipbreaker for semi-finishing of S-type materials** Double-sided chipbreaker with M-class tolerance keeps high precision after inserts are turned, with good capability to prevent wear and hardening to achieve higher machining efficiency than chipbreaker NF. 
	EM 	M			**Recommended chipbreaker for semi-finishing of M-type materials** 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. 
	WGM 	M			**Wiper chipbreaker for semi-finishing** 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 efficiently and good surface quality. 
	All round 	M			**From semi-finishing to roughing of P-type, M-type, K-type materials** Double-sided chipbreaker with M-level tolerance has good cutting edge strength and wide application. 
Light-load roughing	**DR** Double-side 	M			**Recommended chipbreaker for light roughing of P-type and K-type materials** Double-sided chipbreaker with M-level tolerance is the first choice for light roughing, can achieve high evacuation rate and efficiency of cutting edge. 
	LR Single-side 	M			**Recommended chipbreaker for light-load roughing of P-type materials** 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-leaded-stages can reduces the contact area with chips, so that heat can easily be dissipated. 
For roughing	**ER** Single/ Double side 	M	 	Double sided  Single sided 	**Recommended chipbreaker for roughing of M-type materials** Single / double-sided chipbreaker with M-level tolerance has good capacity of impact-resistance. It is designed to achieve balance between security and sharpness of the cutting edge, and it can achieve high efficiency by preventing the problems of adhering and high cutting heat when roughing stainless steel. 

General turning inserts overview

Negative inserts with hole

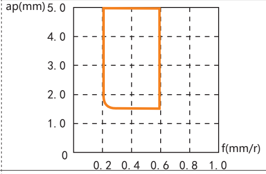
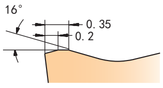
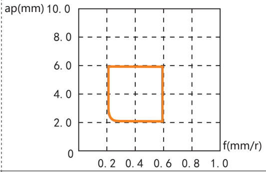
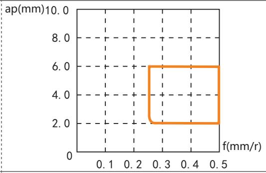
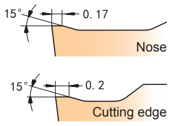
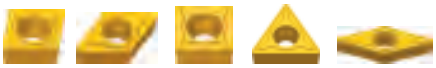
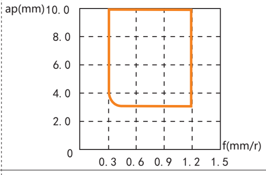
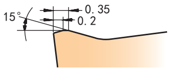
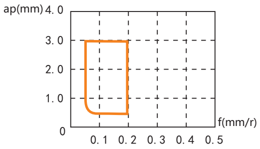
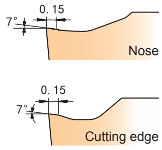
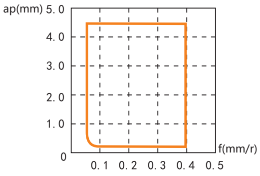
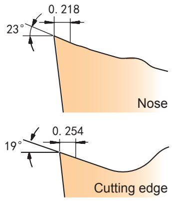
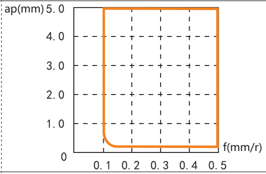
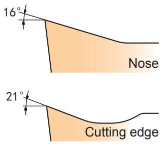
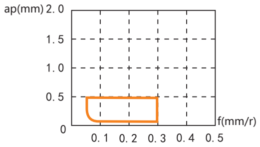
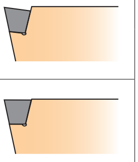
Appli-cation	Chipbreaker	Preci-sion	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For roughing	**DR** Single-side 	M			**Recommended chipbreaker for roughing of P-type materials** Single-sided chipbreaker with M-level tolerance has high security of cutting edge, which can achieve high feed rate and low cutting forces at great cutting depth and high feed rate. 
For roughing	**SNR** 	M			**Recommended chipbreaker for S-material high efficiency roughing** 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	**HDR** Single-side 	M			**Recommended chipbreaker for heavy lad machining of P materials** M level single-sided chip breaker with strengthen cutting edges, high safety and excellent plastic deformation resistance under high metal removal rate. 
Heavy-load machining	**HPR** Single-side 	M			**Recommended chipbreaker for heavy-load machining of P-type materials** 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	**Without chipbreaker** 	M			**For cast iron machining** Double-sided chipbreaker with M-level tolerance has high cutting edge strength. It can overcome inferior factors such as intettruption and vibration, etc. when machining cast iron. 
Super hard inserts	**Without chipbreaker** 	G			**For machining of non-ferrous metal and high-hardness metal** 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. 
Ceramic inserts	**Without chipbreaker** 	G			**For roughing of K-, H- high-temperature alloy roughing** Sialon Ceramics, V-positioning, solution for high-speed machining of cast iron, hardened steel and superalloy. 

Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For extra finishing	**USF** 	G			**Precision turning chipbreaker** 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. 
	R/L 	G			**Recommended chipbreaker for precise boring inserts** 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. 
	SF 	G			**First choice for finishing with high requirements on chipbreaker** With G-level tolerance, it is the first choice for precise finishing due to its excellent performance on chip breaking. 
For finishing	**HF** 	M			**Chipbreaker for finishing with wide application** With M-level tolerance, it is suitable for internal and external finishing of various materials such as steel and cast iron. 
	EF 	M			**Recommended chipbreaker for finishing of M-type materials** With M-level tolerance, it has sharp cutting edges and is suitable for cutting adhesive materials such as stainless steel, soft steel, etc. 
	NF 	E G			**Recommended chipbreaker for finishing S-type materials** With E and G-level tolerance and sharp cutting edges, it is suitable for internal and external finishing of high-temperature alloy materials. 
	NGF 	E G			**Recommended chipobreaker for S-material general finishing** E, G grade accuracy, for inner hole finishing of S materials. 
For semi-finishing	**HM** 	M			**Chipbreaker for semi-finishing with wide application** With M-level tolerance, it is suitable for internal and external semi-finishing of materials like steel, cast iron, etc. 
	EM 	M			**Recommended chipbreaker for semi-finishing of M-Type materials** With M-level tolerance, it has higher hardness of cutting edge than EF and can achieve higher efficiency. 

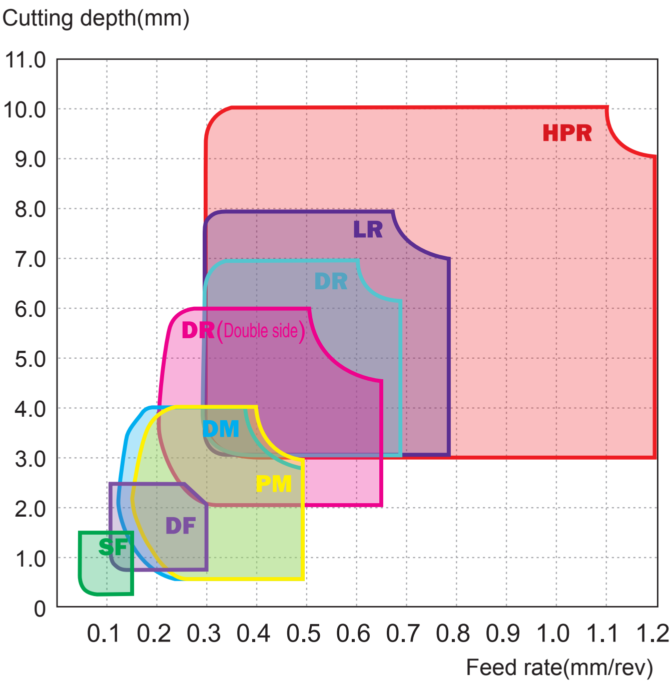
General turning inserts overview

Positive inserts with hole

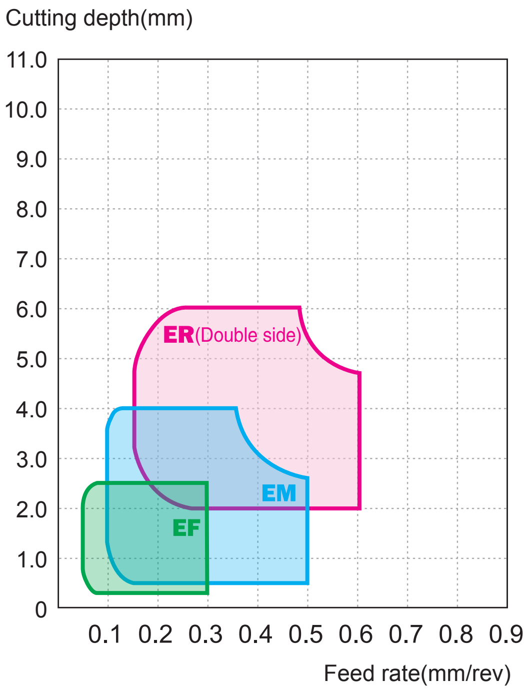
Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	All round 	M			**Recommended chipbreaker for semi-finishing of M-type materials** With M-level tolerance, it is suitable for profile machining materials like steel, cast iron, etc. 
Cast iron machining	Without chipbreaker 	M G			**Chipbreaker for machining of cast iron** With M- and G- level tolerance, it has high cutting edge strength and is suitable for internal and external machining of cast iron. 
For roughing	HR 	M			**General chipbreaker for roughing** With M-level tolerance, it is suitable for both internal and external roughing of materials such as steel, stainless steel, cast iron, etc. 
	Special chipbreaker 	M			**Recommended chipbreaker for heavy machining of P-type materials** Single-sided with M-level tolerance, it has good cutting edge strength with high security. It is the first choice for profile roughing. 
	SNR 	M			**Recommended chipobreaker for S-material high-efficiency roughing** M-level accuracy, for inner hole roughing of S materials. 
For Al machining	LC 	G			**Chipbreaker for machining of Al alloy** 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. 
	LH 	G			**Special chipbreaker for machining of Al alloy** 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 hard inserts	Without chipbreaker 	G			**Special chipbreaker for non-ferrous metals and materials with high hardness** With G-level tolerance, it is the best choice for machining of non-ferrous metals and materials with high-hardness by welding PCBN and PCD material to cemented carbide substrate. 

Chip breaking range reference for general turning inserts

Negative inserts

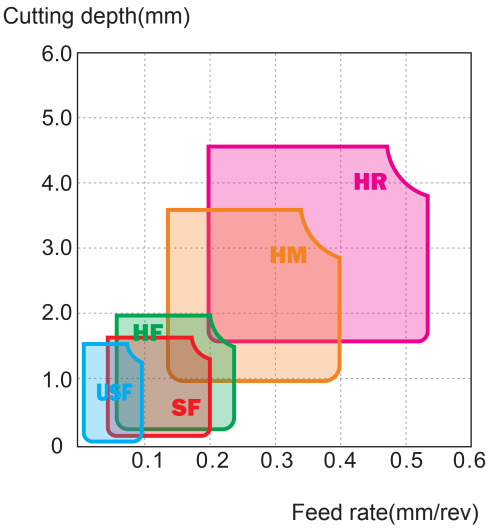


▶ Workpiece material: 45# steel

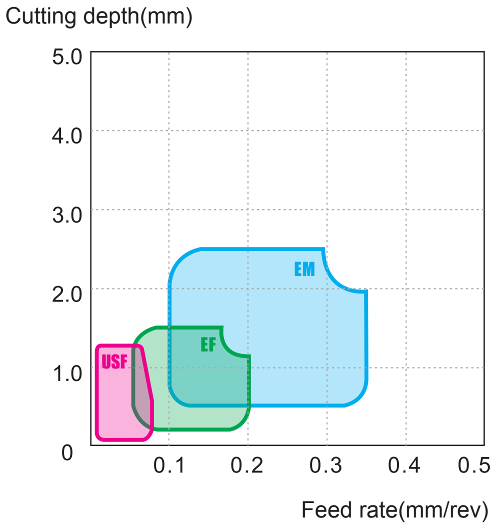


▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

Positive inserts



▶ Workpiece material: 45# steel

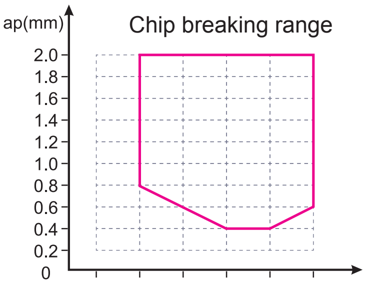


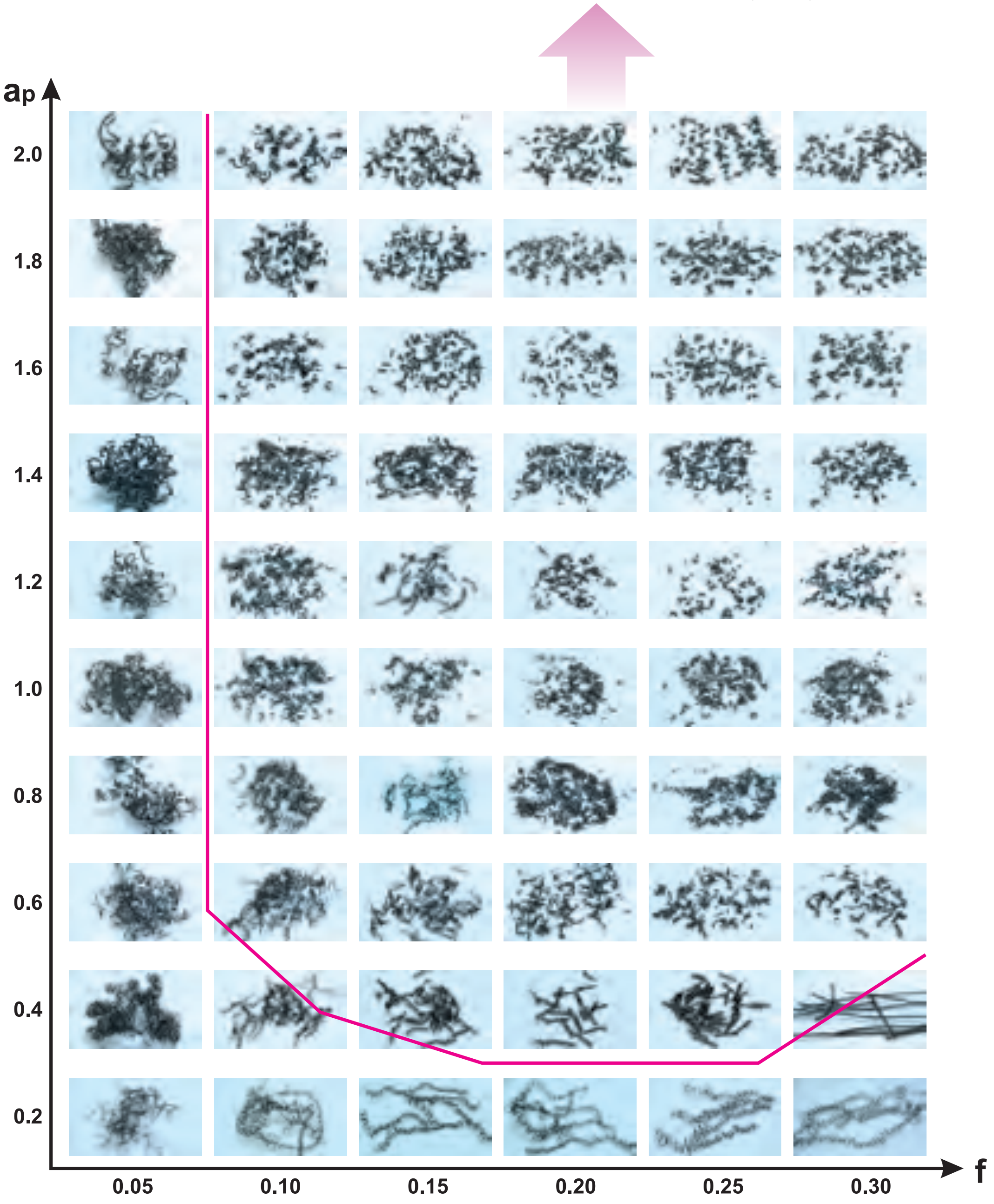
▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

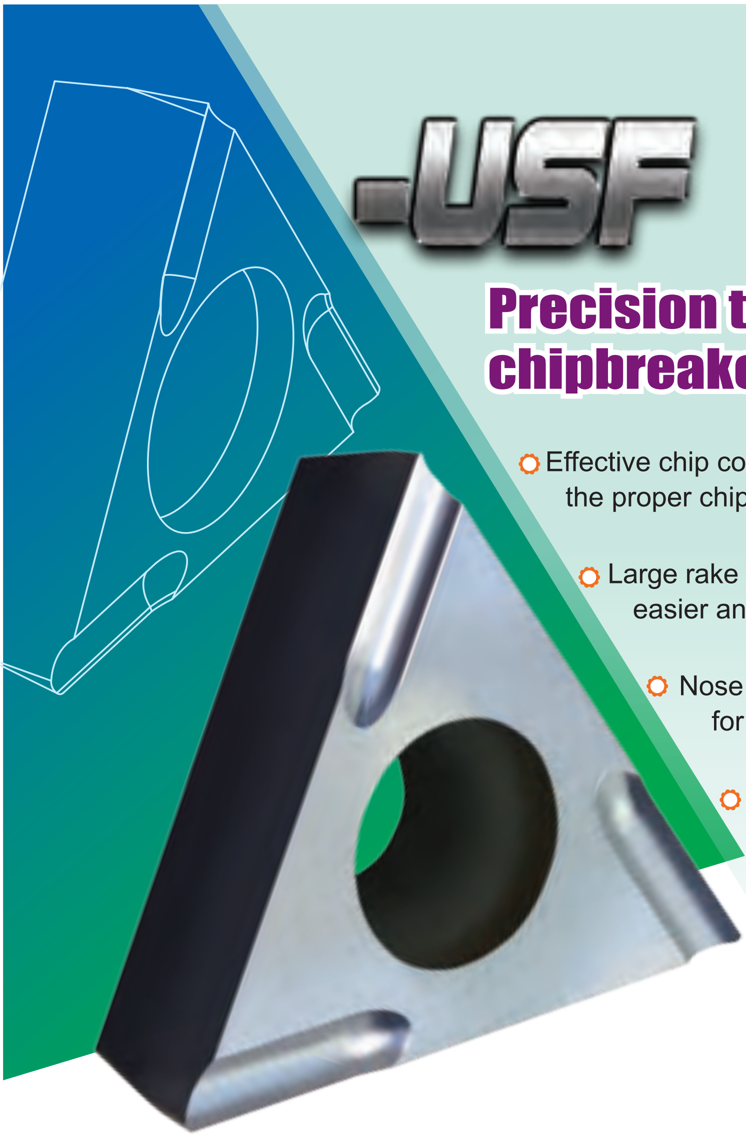
Cutting test for chip breaking range of general turning inserts

Case

Insert: CNMG120408-DF
Toolholder: PCLNL2525M12
Workpiece material: 45# steel
Cutting speed: 200m/min



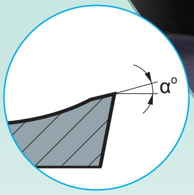




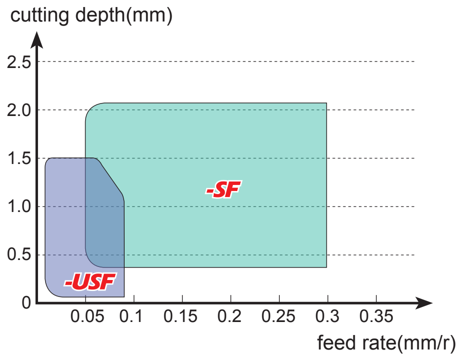
-USF

Precision turning chipbreaker

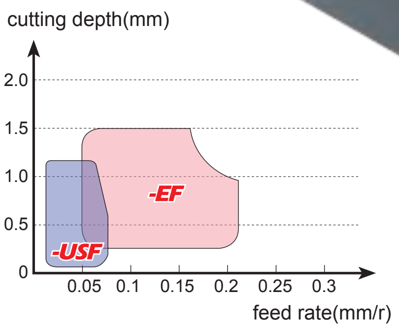
- Effective chip control due to the proper chipbreaker.
- Large rake angle makes cutting easier and faster.
- Nose radius precision controlled within 0.02mm for excellent machining precision.
- Special surface after-treatment for better surface quality.
- High strength screw clamping ensures good repeatability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



Application range of USF chipbreaker



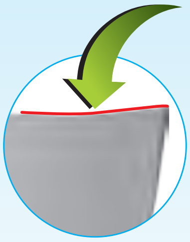
Workpiece material: 42CrMo

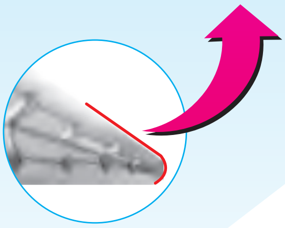


Workpiece material: 1Cr18Ni9Ti

-LC chipbreaker for aluminum

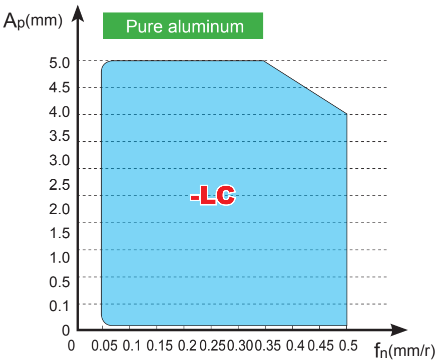
- -LC inserts are designed with a special chipbreaker. Large rake angle and clearance angle make the cutting edge sharper, ensuring easier cutting while remaining effective chip breaking.
- Achieved the mirror rake face after special treatment. Reduced the friction resistence, and stick free. Accordingly, make the chip removal fluently and improve the surface quality and tool life.
- The G-class tolerance of insert, higher Repeated Position Accuracy, at the same time, it can effectively avoid the vibration during the machining process.

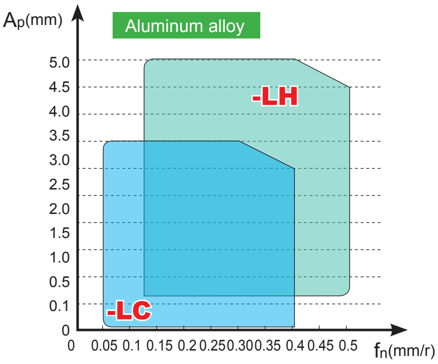

Optimized inclined angel makes controlling the chipping flow direction valid.

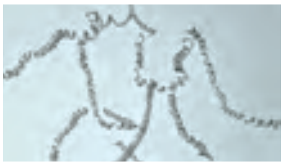

Smooth connection of insert nose and cutting edge makes rake face smoother.

–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.



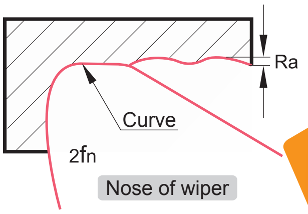


Workpiece material: Pure aluminum		
Cutting parameters	V=350m/min Ap=0.2mm F=0.2mm/r	
Chips		
Surface quality		
	-LC chipbreaker	similar products from overseas manufacturers

- **-LH chipbreaker is more suitable for machining aluminum alloy in condition of large cutting depth and high feed rate.**
- **-LC chipbreaker is more suitable for machining aluminum alloy in condition of small cutting depth and low feed rate.**
- **-LC chipbreaker can be used in machining pure aluminum.**

-WGF/WGM

chipbreaker series
Turning inserts with wiper



High efficiency

Roughness remains the same when feed rate is doubled.

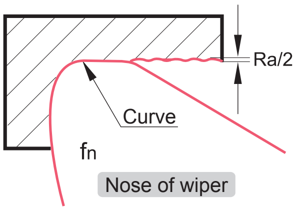
Wiper is assembled by three curves to form a circular arc edge. The nose of wiper provides less profile height on the surface that is formed by the cutting edge, resulting in a smooth turning surface.

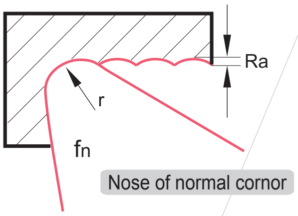
Inserts with wiper has high efficiency when used for finish and semi-finish turning. The surface quality remains the same even at double feed rate.

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.

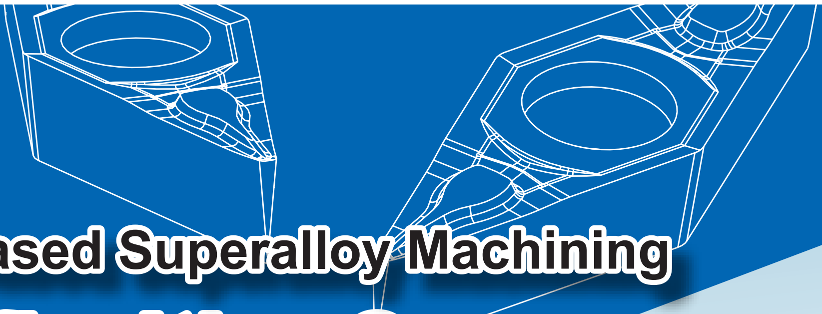
Guide to use

●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.



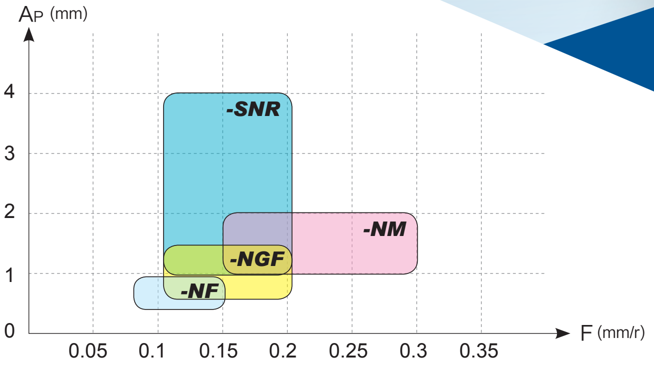
S- Ni-based Superalloy Machining

Difficulties Overcame

Features of Ni-based superalloy machining

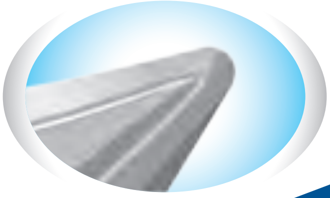
- High cutting resistance (containing a large amount of alloying elements, severe hardening, great plastic deformation ;
- High cutting temperature;
- Severe wear of inserts.

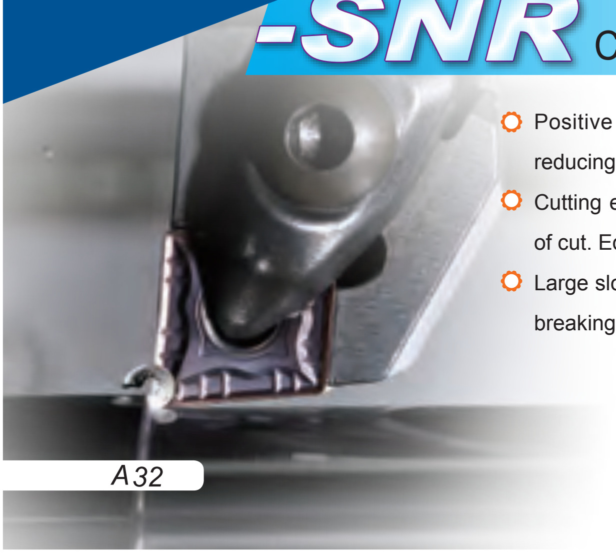
Chipbreaker for machining of Ni-based superalloy should have tough and sharp insert nose, smooth rake face and proper inclination angle.



-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

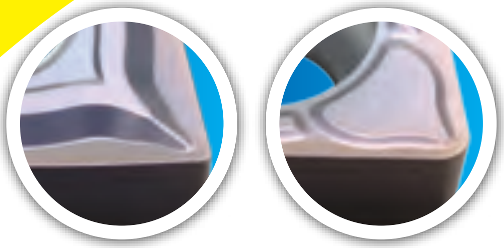
- Proper inclination angle design, sharp cutting edge, small cutting resistance;
- E-level tolerance of insert, high clamping accuracy, proper chipbreaker width, good chip breaking performance,excellent surface quality;
- Special edge treatment, high wear resistance.

-NFINM Chipbreaker for General Finishing

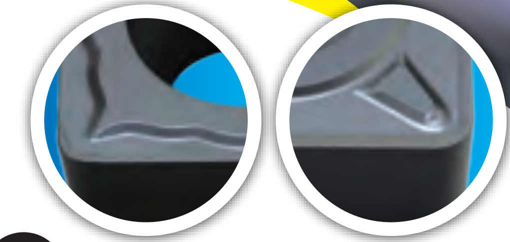
- -NF chipbreaker has sharp cutting edge, while -NM chipbreaker high cutting edge strength.
- Smooth surface of chipbreaker ensures unobstructed chip flow.
- High wear resistance of cutting edge after special treatment.

-EF -EM -ER

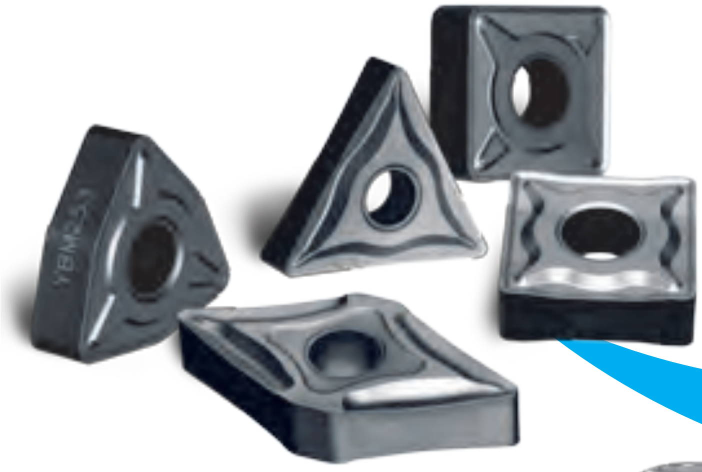
Specially designed for machining intensively adhesive and high-plasticity materials such as stainless steel, etc



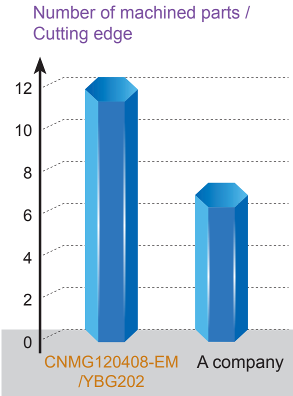
-EF Rake angle and inclined angle are specially designed for intensively adhesive stainless steel and high-plasticity materials which are hard to be machined. Sharp cutting edge enables it to cut lightly and easily and achieve good surface quality by well controlling chip breaking. It is especially suitable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

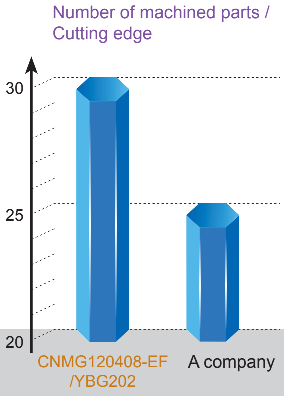


-ER Specially designed double rake angle with wide land achieves balance between edge security and sharpness, and effectively reduces cutting resistance and wear on groove.

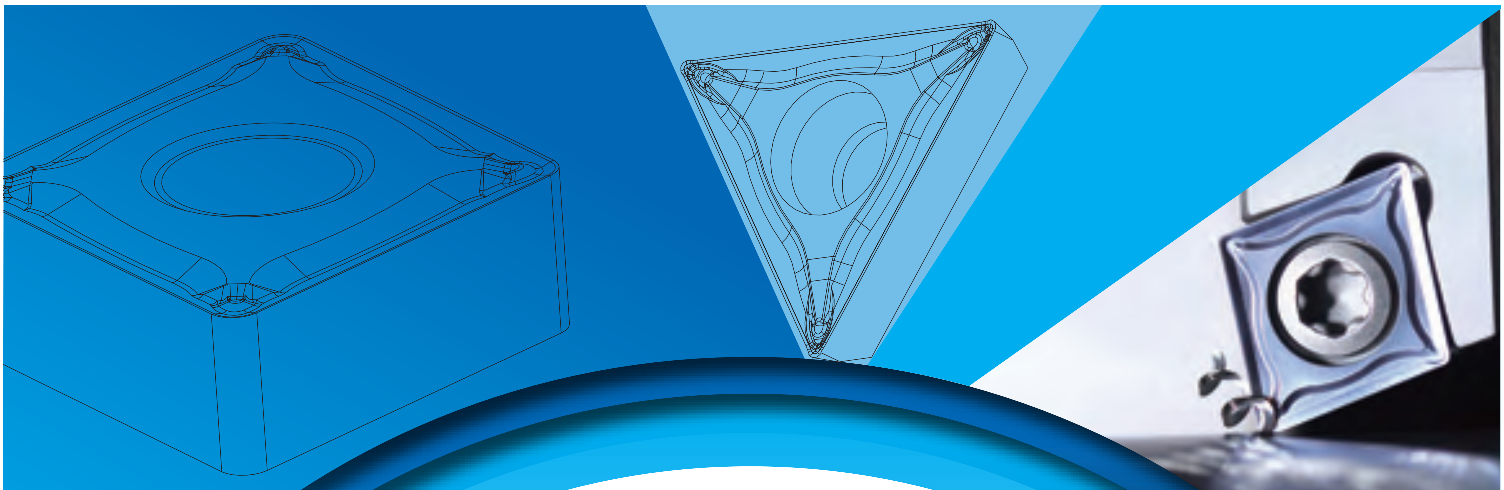


Machining end surface of valve
(intermittent machining)
Workpiece diameter:135mm
Rotating speed:350rpm
Feed rate:0.25mm/r
Cutting depth:1.5mm

Machining external of valve

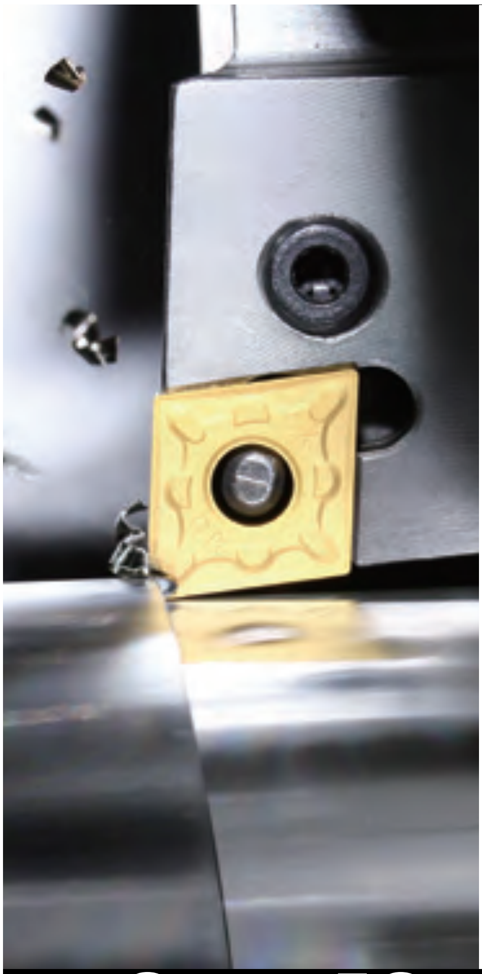


Machining external of valve
Workpiece diameter:89mm
Rotating speed:635rpm
Feed rate:0.15mm/r
Cutting depth:1.0mm



-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_2O_3 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_2O_3 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_2O_3 layer and TiN makes it suitable for finishing and semi-finishing of cast iron materials.

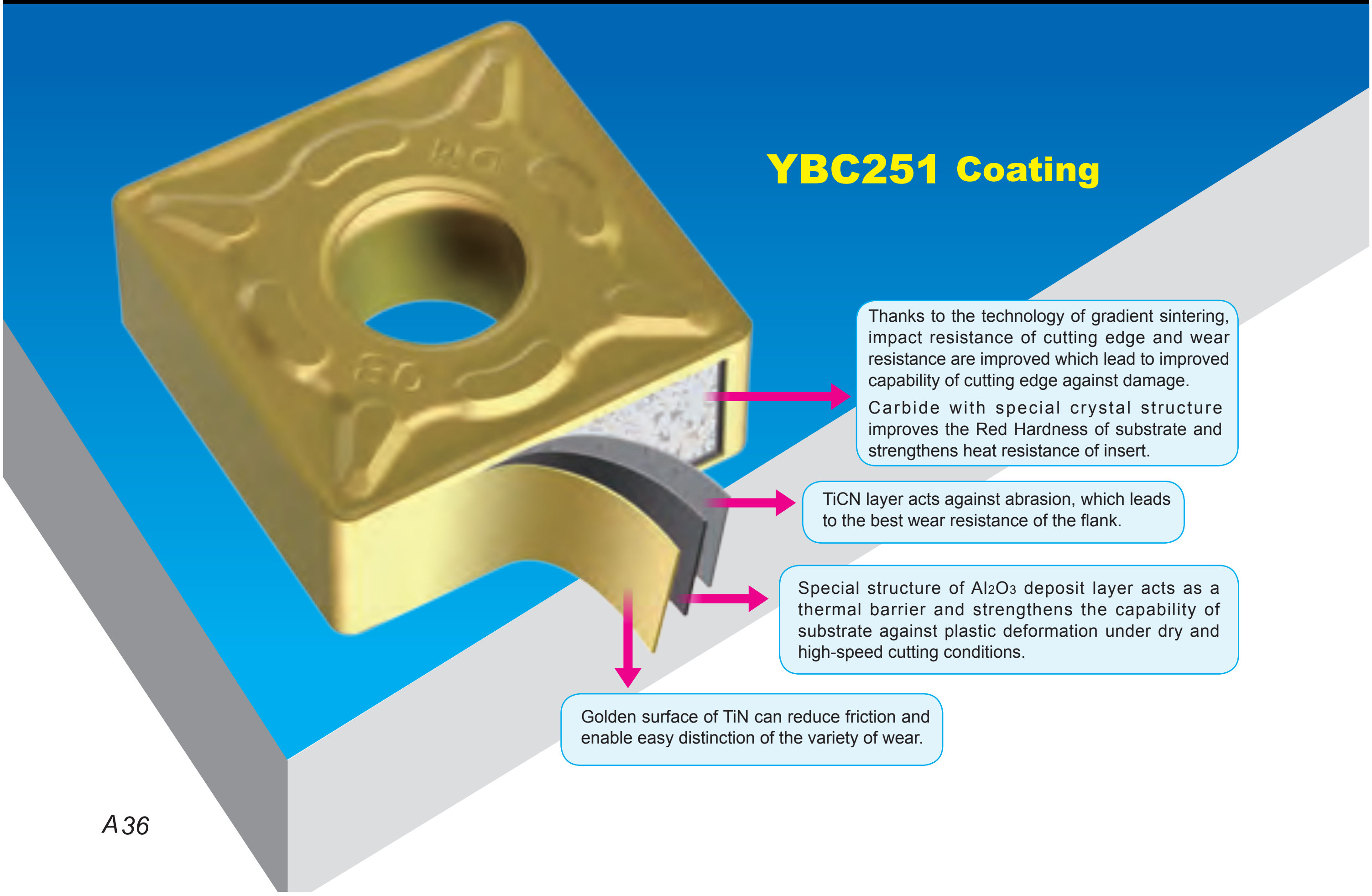
YBM151

Substrate with special structure, in combination with coating composed of TiCN, thin Al_2O_3 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_2O_3 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_2O_3 deposit layer acts as a thermal barrier and strengthens the capability of substrate against plastic deformation under dry and high-speed cutting conditions.

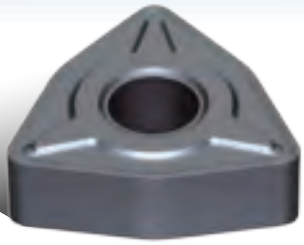
Golden surface of TiN can reduce friction and enable easy distinction of the variety of wear.

BLACK DIAMOND INSERTS

Innovation of machining techniques for stainless steel turning

YBM

YBM153



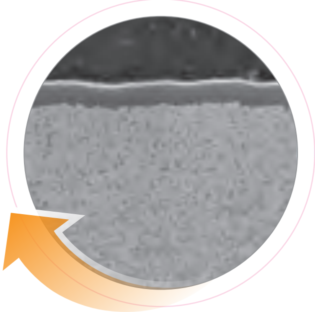
Best choice for roughing of stainless steel with high-speed under good working condition

Coating

- CVD coating with advanced ultra-fine grain coating technology, greatly improves wear resistance of inserts.
- 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.

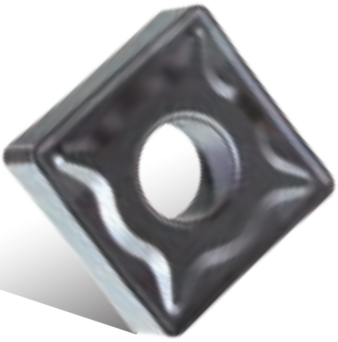
Substrate

- 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, flange and other parts in auto pipeline, valve and valve body in auto engine 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



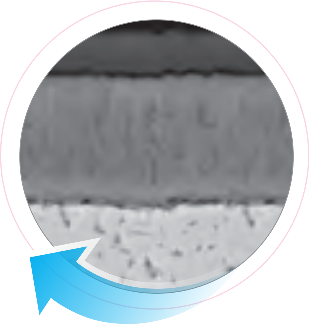
Ideal grade for turning of stainless steel with high cutting depth and high feed rate under bad working condition

Coating

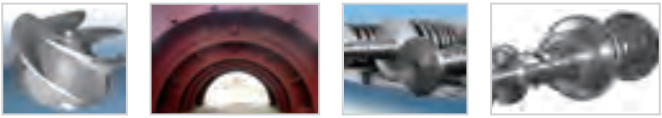
- Ultra-fine grain coating technology provides better wear resistance and toughness;
- Improved remain internal stress design ensures good toughness and anti-cracking performance;
- Polishing treatment on coating surface makes it suitable for cutting adhesive materials.

Substrate

- With gradient carbide substrate insert has better impact resistance and cutting edge strength.



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 YBC

YBC152

Thick TiCN and thick Al_2O_3 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

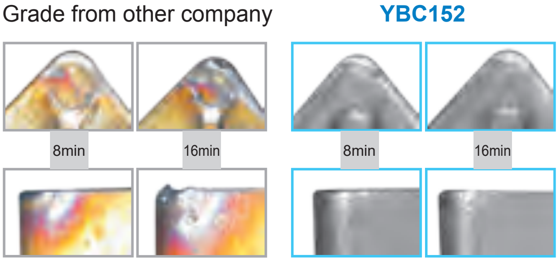
Comprising of thick TiCN and thick Al_2O_3 coatings, the grade has high capability against plastic deformation and good hardness of cutting edge. It is preferred grade for machining of steel from finishing to roughing. Under the same cutting conditions, the cutting speed can be increased by more than 25%, while the tool life can be 30% longer under the same cutting speed.

YBC352

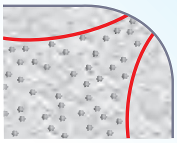
Thickness TiCN and Al_2O_3 coating, with strongest toughness and plastic deformation resistance, the ideal grade for high efficient steel rough machining under the bad condition.

Test comparison of inserts abrasion

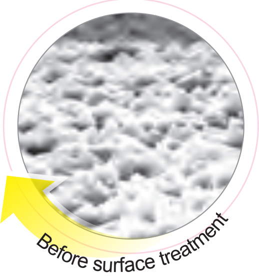
Workpiece material：$45^{\#}$steel
Inserts：CNMG120408-DM
Cutting parameters：Vc=400m/min a_p=1mm fn=0.2mm/r

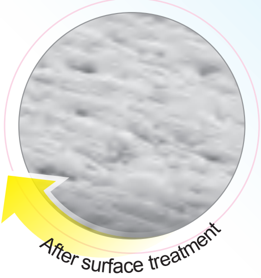


Perfect unification of toughness and anti-plastic deformation.
Specially designed cutting edge with "skeleton" realizes perfect unification of toughness and anti-plastic deformation.

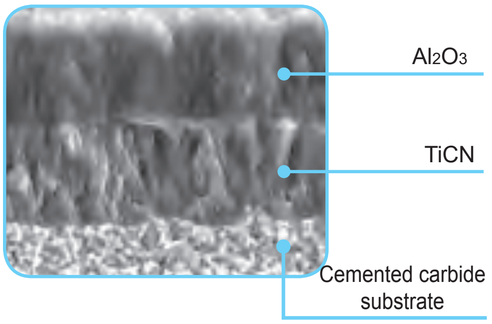


Roughness of insert surface is improved after special treatment on surface, which effectively reduces cutting forces, prevents workpiece adhering to surface of inserts and improves operation stability of inserts.





The perfect combination of fibrous TiCN and fine grain Al_2O_3 obviously improves abrasion resistance and anti-breakage of inserts.



YBD052

CVD coated grade, which is characterized by super fine grain and smooth surface, is the combination of hard substrate and coating (extra thick Al_2O_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 Al_2O_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 Al_2O_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.

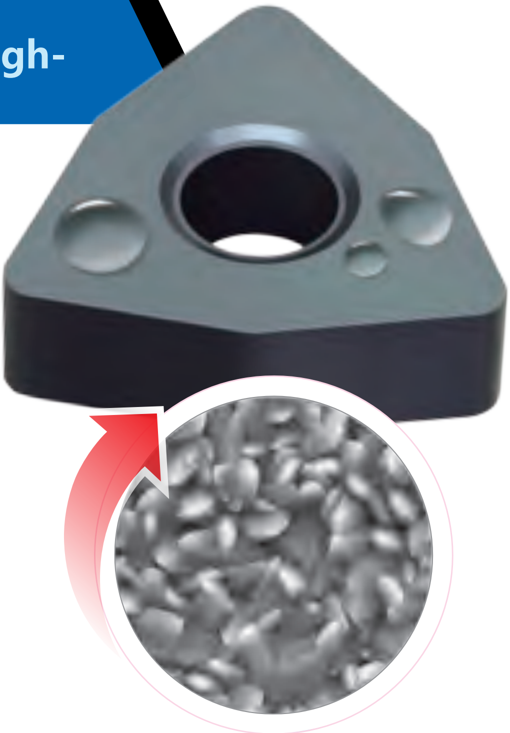
YBD252

CVD coated grade, which is the combination of hard substrate and coating (medium thick Al_2O_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.



Layer of fine grain with compact surface

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.

Recommended combination of grade and chipbreaker

For machining of P-type materials

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

For machining of M-type materials

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

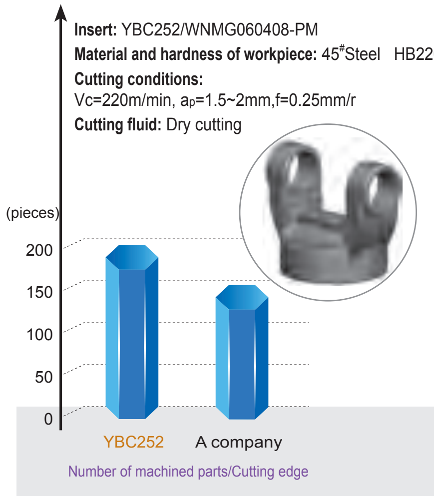
For machining of K-type materials

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 For semi-finishing For roughing	YBM151	110-280
		YBM153	
		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

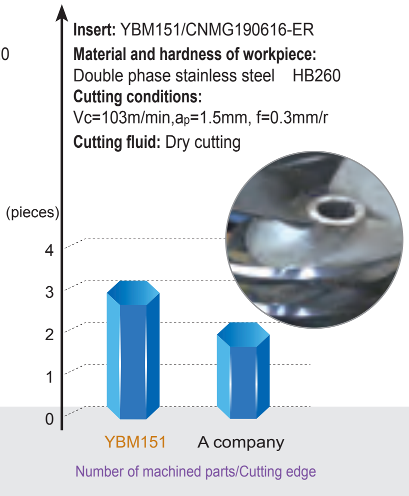


Insert: YBC252/WNMG060408-PM

Material and hardness of workpiece: $45^{\#}$Steel HB220

Cutting conditions:
Vc=220m/min, a_p=1.5~2mm,f=0.25mm/r

Cutting fluid: Dry cutting

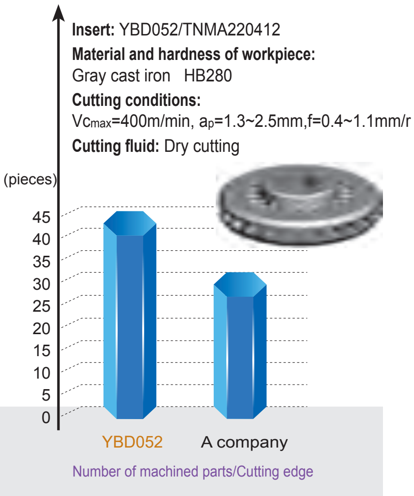


Insert: YBM151/CNMG190616-ER

Material and hardness of workpiece:
Double phase stainless steel HB260

Cutting conditions:
Vc=103m/min,a_p=1.5mm, f=0.3mm/r

Cutting fluid: Dry cutting



Insert: YBD052/TNMA220412

Material and hardness of workpiece:
Gray cast iron HB280

Cutting conditions:
Vc_{max}=400m/min, a_p=1.3~2.5mm,f=0.4~1.1mm/r

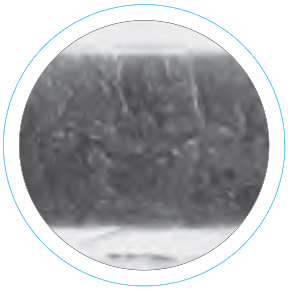
Cutting fluid: Dry cutting

Coated Cemented Carbide PVD

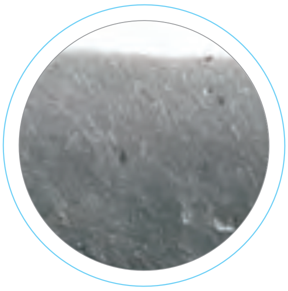
makes it easy to machine materials which are hard to be machined

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

For machining P-type materials

Grade	Type
YBG202	DM

For machining M-type materials

Grade	Type
YBG202 YBG205 YBM215	EF
YBG202 YBG205 YBM215	EM

For machining S-kind materials

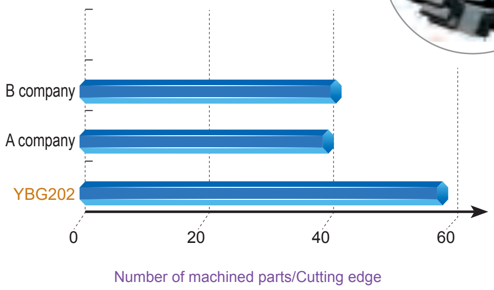
Grade	Type
YBG102 YBG105	NF/NGF
YBG212	NGF
YBG102 YBG105 YBS103	NM
YBG102 YBG105 YBG212 YBS103	SNR

Recommended cutting parameters

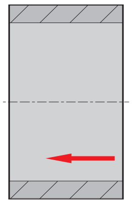
Workpiece material	Range of machining	Grade	Recommended cutting speed(m/min)
P Steel	For finishing	YBG102	180-460
	For semi-finishing	YBG202 YBG205	150-380
M Stainless steel	For finishing～for semi-finishing	YBG202 YBG205 YBM215	170-300
S Heat resistant Alloy Ti alloy	For finishing～for semi-finishing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

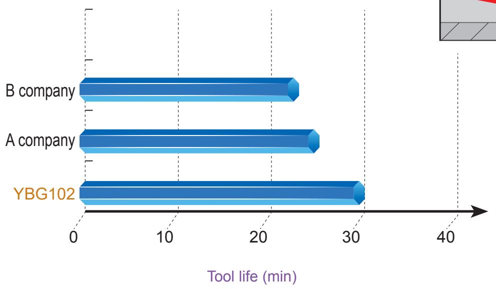
Case

Insert : YBG202/TNMG120404-EF
Hardness and material of workpiece : 0Cr18Ni9 HB240
Cutting conditions : Vc=200m/min, a_p=1mm, f=0.15mm/r
Cutting fluid : Dry cutting



Insert : YBG102/DNEG150404-NF
Hardness and material of workpiece :
High temperature alloy Inconel 718 HRC≥39
Cutting conditions : Vc=80m/min, a_p=0.3mm, f=0.15mm/r
Cutting fluid : Dry cutting





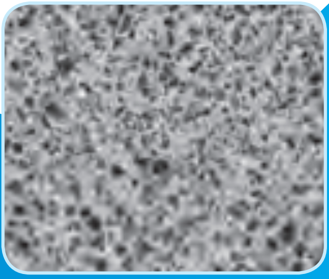
Cermet & Coated Cermet

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_2O_3 and Si_3N_4 ceramic. This fulfils the application blank of WC-base cemented carbide and Al_2O_3 and Si_3N_4 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 conductibility 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

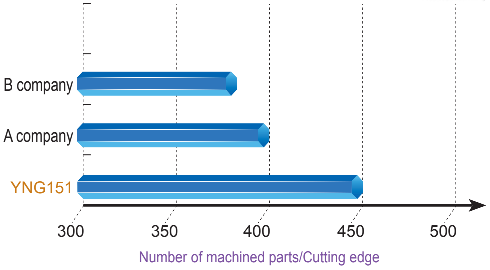
Hardness and material of workpiece:

20CrMnTi HB180-223

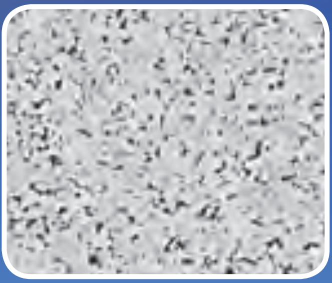
Cutting parameters: V_c=220m/min

a_p=0.5~1.0mm

f=0.14mm/r



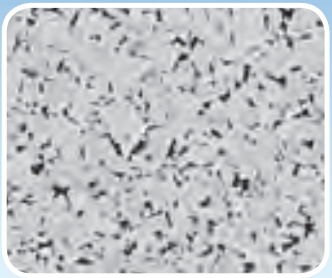
Outstanding chip breaking Good surface quality



Substrate of YD101: the combination of cemented carbide phrase 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)
K Cast iron	For semi-finishing For roughing	YD201	60-130
N Non-ferrous metal	For finishing For semi-finishing	YD101	110-1750
S Heat resistant Alloy Ti alloy	For finishing	YD101	20-50

Case

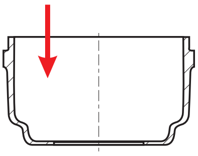
Insert：YD101/CCGX09T304-LH

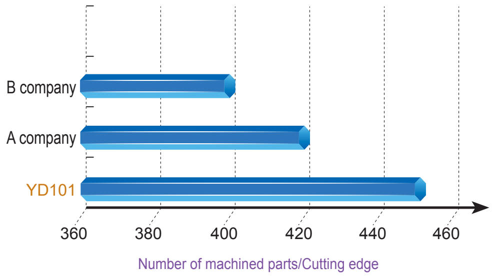
Workpiece material：ZL105 HB70

Cutting parameters：Vc=400m/min

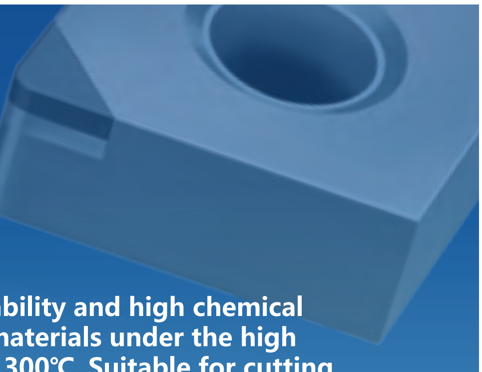
a_p=1mm

f=0.3mm/r



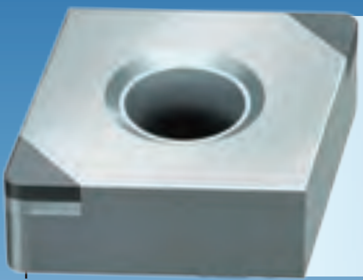


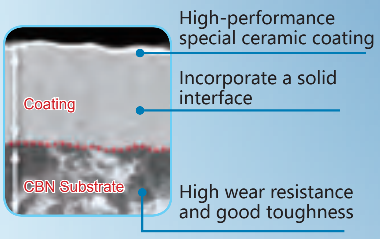
Workpiece has high surface quality and high dimensional precision.



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℃ ,Suitable for cutting hardened steel, cast iron, powder metallurgy and high temperature alloys.





High-performance special ceramic coating

Incorporate a solid interface

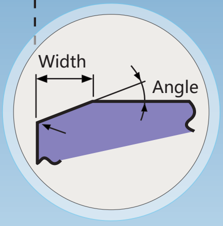
High wear resistance and good toughness

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

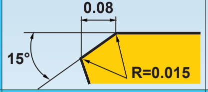
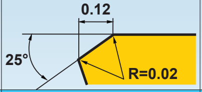
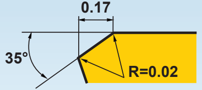
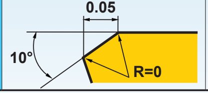
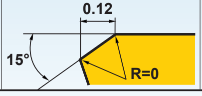
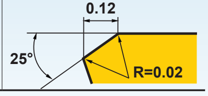
	Decrease	↔	Increase
Cutting resistance	○	→	×
Wear resistance	○	→	×
Damage resistance	×	→	○
Processing application	Continuous processing	↔	Intermittent processing

The shape of chamfering



Cutting edge specifications of PCBN inserts

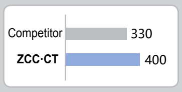
(The form below is just for typical example, the actual application shall be adjusted according to the corresponding situation.)

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

Case

Machining differential gears

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

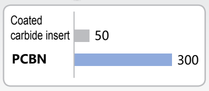


➢ 21% increase in processing life

➢ 42% savings in insert cost

Machining cylinder liner

Workpiece material: gray cast iron HT250, HB220
Insert model: CNGA120416AS01015-2
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.

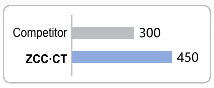


➢ Machining life increased by 5 times

➢ 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
Insert grade: BS3011
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



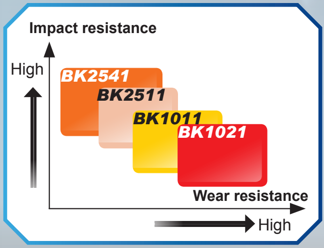
➢ Machining life increased by 6 times

➢ 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.

K 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 consistent surface quality.

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.

S 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.

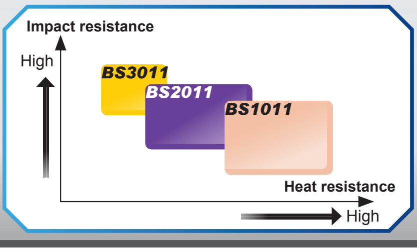
BS2011

Excellent heat resistance and chemical stability; Suitable for continuous to lightly interrupted machining of powder metallurgical parts; Suitable for processing powder metallurgical parts with an alloying element content of up to 10%.

BS3011

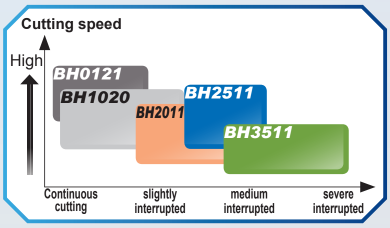
Very high hardness and wear resistance. Suitable for continuous to interrupted machining of powder metallurgy and high temperature alloy parts.

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



H 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.

BH2511

Excellent heat resistance and impact strength; 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.

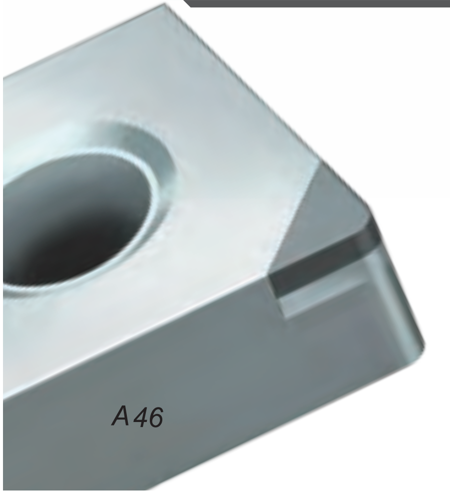
BH2011

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.

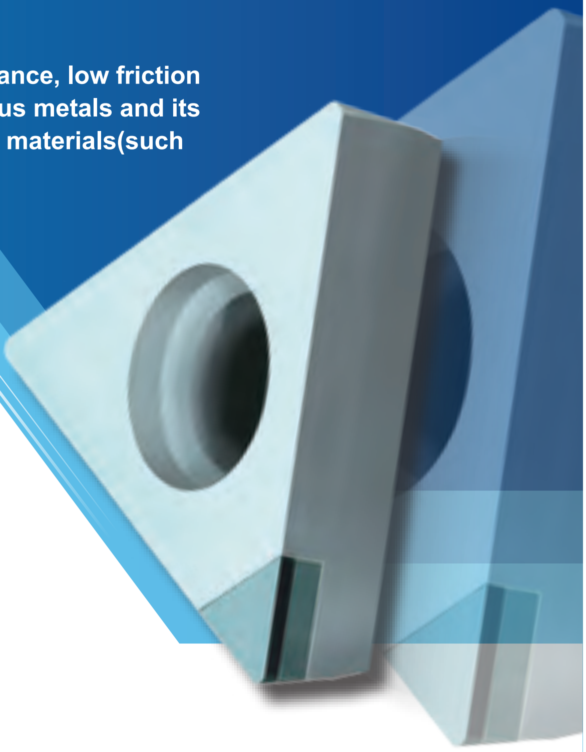


Recommended cutting data

Grade	Workpiece material	Cutting speed(m/min)	Feed amount(mm/r)	Depth of cut(mm)
BK1011	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
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 BK2541	Gray cast iron	300-600	0.1-0.5	1-3
	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

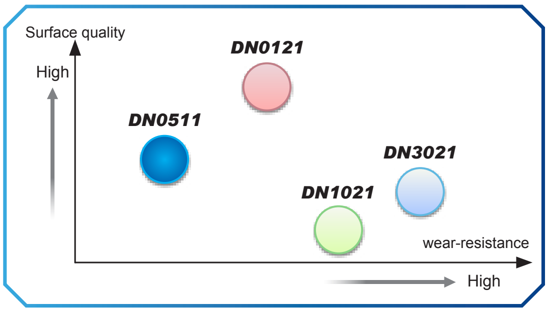
medium grain particle size
Excellent toughness and wear-resistance

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

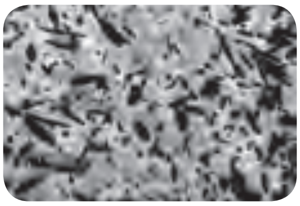
Application range:
suitable for MMC, high silumin, high-strength silumin and bimetallic materials



Recommended cutting data

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

Ceramic Grade



CN3100

Α-siaon/β-siaon matrix, the latest developmed

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/Al2O3 whisker ceramic material.

Physical properties

Grade	Density(g/cm^3)	HardnessHv(GPa)	Flexural strength(MPa)	Fracture toughness (MPa m$^{1/2}$)
CN3100	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)
CN3100	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.

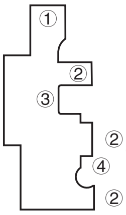


Figure 1

Process①
External machining1+End face machining1+Grooving1

Process②
End face machining2+End face machining2+End face machining2

Process③
Grooving3

Process④
Small grooving

Table of correctional coefficient between material hardness and cutting speed

Workpiece material		Theoretical Hardness	Correctional coefficient between hardness of materials and cutting speed								
			Hardness decrease		Hardness difference(Measured value – Theoretical value)					Hardness increase	
			-60	**-40**	**-20**	**0**	**+20**	**+40**	**+60**	**+80**	**+100**
P		HB180	1.42	1.24	1.11	1.0	0.91	0.84	0.77	0.72	0.67
M		HB180	1.44	1.25	1.11	1.0	0.91	0.84	0.78	0.73	0.68
K	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
N		HB75			1.05	1.0	0.95				
S		HB350			1.12	1.0	0.89				
Rockwell hardness HRC				-6	-3	0	+3	+6	+9		
H		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.

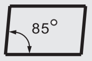
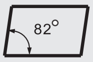
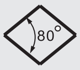
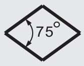
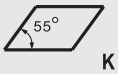
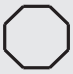
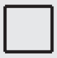
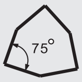
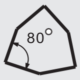
Correctional coefficient table between tool life and cutting speed

Tool life / Insert materials	Correctional coefficient between tool life and cutting speed					
	10 minutes	15 minutes (Standard life)	30 minutes	45 minutes	60 minutes	90 minutes
YBC151	1.12	1.00	0.82	0.73	0.67	0.60
YBC251	1.11	1.00	0.84	0.76	0.71	0.64
YBC351	1.11	1.00	0.84	0.76	0.70	0.63
YBC152	1.25	1.00	0.68	0.54	0.46	0.37
YBC252	1.55	1.00	0.47	0.30	0.22	0.14
YBM151	1.28	1.00	0.66	0.52	0.43	0.34
YBM153	1.32	1.00	0.64	0.48	0.37	0.31
YBM215	1.22	1.00	0.85	0.77	0.72	0.67
YBM251	1.19	1.00	0.75	0.63	0.56	0.47
YBM253	1.22	1.00	0.73	0.61	0.54	0.45
YBG202	1.10	1.00	0.85	0.77	0.72	0.66
YBG205	1.15	1.00	0.82	0.74	0.69	0.64
YBD052	1.22	1.00	0.80	0.65	0.60	0.55
YBD102	1.20	1.00	0.75	0.62	0.58	0.50
YBD152	1.11	1.00	0.70	0.60	0.50	0.40
YBG105	1.28	1.00	0.79	0.72	0.63	0.58
YBG212	1.25	1.00	0.75	0.70	0.60	0.50
YBS103	1.35	1.00	0.85	0.78	0.68	0.62
Actual cutting speed = Recommended cutting speed × Correctional coefficient of cutting speed						

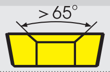
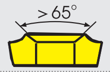
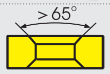
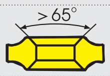
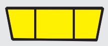
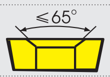
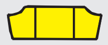
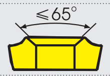
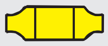
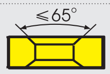
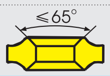
Example: If the material you are going to machine is normal alloy steel, and the selected insert is CNMG120404-DF/YBC151, then the recommended cutting speed is V=250m/min (standard life is 15 minutes). If you expect the tool life to reach 60 minutes, the correctional coefficient found in the table is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

General turning inserts code key

Insert shape

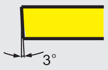
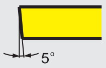
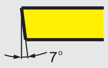
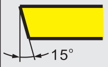
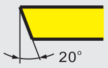
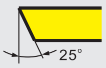
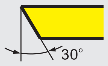
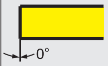
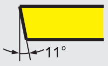
Insert shape/Code		
 A	 B	 C
 D	 E	 H
 K	 L	 M
 O	 P	 R
 S	 T	 T
 V	 W	Others Z

Chipbreaker and clamping system

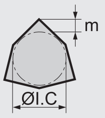
Metric							
Code	With/Without hole	With/Without chipbreaker	Section plane of insert	Code	With/Without hole	With/Without chipbreaker	Section plane of insert
B	With	Without		N	Without	Without	
H	With	Single-side		R	Without	Single-side	
C	With	Without		F	Without	Double-side	
J	With	Double-side		A	With	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					

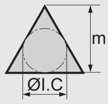
T N M G

Clearance angle of main cutting edge

Code	Clearance angle	Code	Clearance angle
A		B	
C		D	
E		F	
G		N	
P		O	Other clearance angles

Tolerance





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

(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
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
12.7	±0.13	±0.13	±0.13	±0.15	---	---
15.875	±0.15	±0.15	±0.15	±0.18	---	---
19.05	±0.15	±0.15	±0.15	±0.18	---	---
25.4	---	±0.18	---	---	---	---

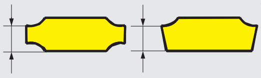
● Tolerance of inscribed circle ØI.C(mm)

Inscribed circle	Regular triangle	Square	Diamond with 80°	Diamond with 55°	Diamond with 35°	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
12.7	±0.08	±0.08	±0.08	±0.08	---	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	---	±0.10
19.05	±0.10	±0.10	±0.10	±0.10	---	±0.10
25.4	---	±0.13	---	---	---	±0.13

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		
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0		19	16					
19.05	19		19	19	33			
20.0			20					
25.0	25	25	25					
25.4			25	25				
31.75			31					
32			32					

Length of cutting edge



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
T2	2.58
03	3.18
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

Insert thickness

22 04 08 - DM (ISO)

4 3 2 (inch)

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
24	2.4
32	3.2
X	Others
Diameter of insert (Metric)	Round insert

Chipbreaker code

Inscribed circle

Code	Diameter of IC(mm)
2	6.35
3	9.525
4	12.7
5	15.875
6	19.05
8	25.4

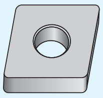
Thickness

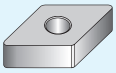
Code	Thickness (mm)
2	3.18
3	4.76
4	6.35
5	7.94
6	9.52

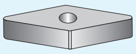
Nose radius

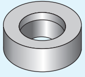
Code	Nose radius (mm)
0	0.2
1	0.4
2	0.8
3	1.2
4	1.6
5	2.0
6	2.4

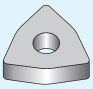
Metric and inch comparison table of negative inserts

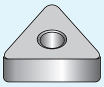
C-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	090304	321	-DF -WGF -SF -EF -NF -WGM -PM -DM -EM -NM -DR -ER -LR -HDR -HPR -SNR
	090308	322	
	120404	431	
	120408	432	
	120412	433	
	120416	434	
	160608	542	
	160612	543	
	160616	544	
	190608	642	
	190612	643	
	190616	644	
	190624	646	
	250724	856	
	250732	858	
	250924	866	
	250932	868	

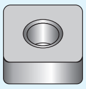
D-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	110404	331	-EF -DF -WGF -SF -NF -WGM -PM -DM -EM -NM -DR -ER -LR -HDR -SNR -NGF
	110408	332	
	110412	333	
	150404	431	
	150408	432	
	150412	433	
	150604	441	
	150608	442	
	150612	443	
	150616	444	
	190608	542	
	190612	543	

V-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	160404	331	-DF -EF -SF -NF -PM -DM -EM -NM -SNR -NGF
	160408	332	
	160412	333	

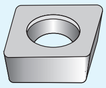
R-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	120400	43	

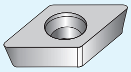
W-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	06T304	3(2.5)1	-DF -WGF -SF -EF -NF -WGM -PM -DM -EM -NM -DR -SNR
	06T308	3(2.5)2	
	06T312	3(2.5)3	
	060404	331	
	060408	332	
	060412	333	
	080404	431	
	080408	432	
	080412	433	

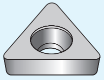
T-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	110304	221	-DF -WGF -SF -EF -WGM -PM -DM -EM -DR -ER -LR -HDR -SNR
	110308	222	
	160404	331	
	160408	332	
	160412	333	
	220404	431	
	220408	432	
	220412	433	
	220416	434	
	270608	542	
	270612	543	
	270616	544	

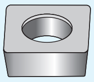
S-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	090304	321	-DF -SF -EF -PM -DM -EM -NM -DR -ER -LR -HDR -HPR -SNR
	090308	322	
	090312	323	
	120404	431	
	120408	432	
	120412	433	
	120416	434	
	150608	542	
	150612	543	
	150616	544	
	190412	633	
	190424	636	
	190612	643	
	190616	644	
	250724	856	
	250732	858	
	250924	866	
	250932	868	

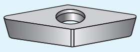
Metric and inch comparison table of positive insert

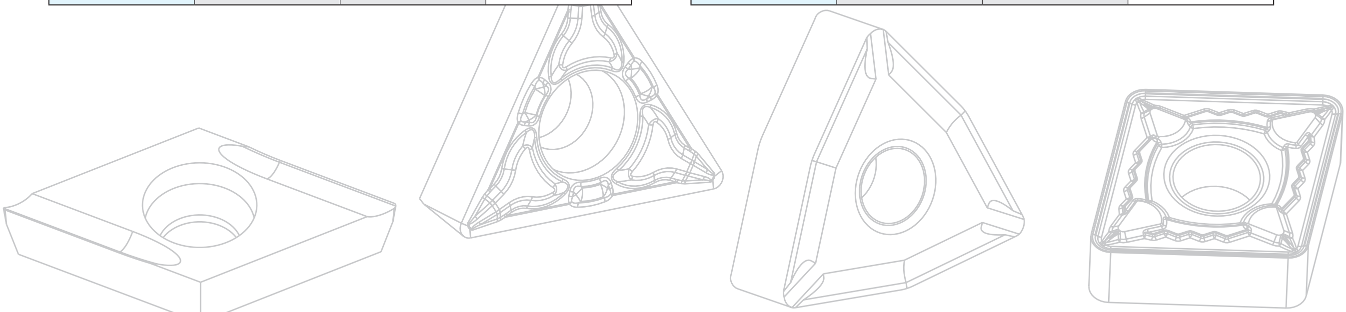
C-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	060202	2(1.5)0	-USF -SF -HF -EF -HM -EM -HR -LH -LC
	060204	2(1.5)1	
	060208	2(1.5)2	
	09T302	3(2.5)0	
	09T304	3(2.5)1	
	09T308	3(2.5)2	
	120404	431	
	120408	432	
	120412	433	

D-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	070202	2(1.5)0	-USF -SF -HF -EF -HM -EM -HR -LH -LC
	070204	2(1.5)1	
	070208	2(1.5)2	
	11T302	3(2.5)0	
	11T304	3(2.5)1	
	11T308	3(2.5)2	
	11T312	3(2.5)3	

T-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	06T102	1.2(1.2)0	-USF -SF -HF -EF -HM -EM -HR -LH -LC
	06T104	1.2(1.2)1	
	06T108	1.2(1.2)2	
	090202	1.8(1.5)0	
	090204	1.8(1.5)1	
	090208	1.8(1.5)2	
	110202	2(1.5)0	
	110204	2(1.5)1	
	110208	2(1.5)2	
	110302	220	
	110304	221	
	110308	222	
	16T302	3(2.5)0	
	16T304	3(2.5)1	
	16T308	3(2.5)2	
	16T312	3(2.5)3	
	160400	330	
	220408	432	
	220412	433	
	220416	434	
	270408	532	
	270412	533	
	330612	643	
	330616	644	

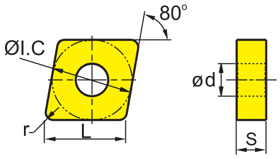
S-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	060204	2(1.5)1	-HF -EF -HM -EM -HR -LH -LC
	09T302	3(2.5)0	
	09T304	3(2.5)1	
	09T308	3(2.5) 2	
	120404	431	
	120408	432	
	120412	433	
	150404	531	
	150408	532	
	150412	533	
	190408	632	
	190412	633	
	190416	634	

V-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	110202	2(1.5)0	-USF -SF -HF -NF -LH -LC -NGF
	110204	2(1.5)1	
	110208	2(1.5)2	
	110302	220	
	110304	221	
	110308	222	
	160402	330	
	160404	331	
	160408	332	
	160412	333	



CN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF  For finishing	**CNMG090304-DF**	9.7	9.525	3.18	3.81	0.4		○		○					○																	
	CNMG090308-DF	9.7	9.525	3.18	3.81	0.8		○	○	○																						
	CNMG120404-DF	12.9	12.7	4.76	5.16	0.4		★	●	★					○							○							○			
	CNMG120408-DF	12.9	12.7	4.76	5.16	0.8		★	●	★	○				○							○							●			
	CNMG120412-DF	12.9	12.7	4.76	5.16	1.2		★	○	○												○										
WGF  For finishing Wiper	**CNMG120404-WGF**	12.9	12.7	4.76	5.16	0.4		★												★					★							
	CNMG120408-WGF	12.9	12.7	4.76	5.16	0.8		★												★					★							
SF  For finishing	**CNMG090304-SF**	9.7	9.525	3.18	3.81	0.4							○																○			
	CNMG090308-SF	9.7	9.525	3.18	3.81	0.8							○																○	★		
	CNMG120404-SF	12.9	12.7	4.76	5.16	0.4							○																	★		
	CNMG120408-SF	12.9	12.7	4.76	5.16	0.8							○																	★		
	CNMG120412-SF	12.9	12.7	4.76	5.16	1.2							○																○			
EF  For finishing	**CNMG090304-EF**	9.7	9.525	3.18	3.81	0.4									●	★				★	○											
	CNMG090308-EF	9.7	9.525	3.18	3.81	0.8									○	★				★	○											
	CNMG120404-EF	12.9	12.7	4.76	5.16	0.4									●	★				★	★											
	CNMG120408-EF	12.9	12.7	4.76	5.16	0.8							●		●	★				★	★											
	CNMG120412-EF	12.9	12.7	4.76	5.16	1.2									○	★				★	★											

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

Applicable tool

DCLNR/L
Kr:95°

PCBNR/L
Kr:75°

PCLNR/L
Kr:95°

PCLNR/L
Kr:95°

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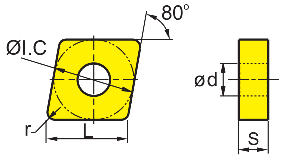
CN☐☐(Negative inserts)



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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
NF  For finishing	**CNEG120404-NF**	12.9	12.7	4.76	5.16	0.4							●	★																	○	
	CNEG120408-NF	12.9	12.7	4.76	5.16	0.8							○	★																	○	
	CNEG120412-NF	12.9	12.7	4.76	5.16	1.2							○	★																	○	
WGM  For finishing Wiper	**CNMG120408-WGM**	12.9	12.7	4.76	5.16	0.8				★						★											★					
	CNMG120412-WGM	12.9	12.7	4.76	5.16	1.2				★						★											★					
PM  For semi-finishing	**CNMG090304-PM**	9.7	9.525	3.18	3.81	0.4		★	●	○																						
	CNMG090308-PM	9.7	9.525	3.18	3.81	0.8		○	●	○																	★					
	CNMG120404-PM	12.9	12.7	4.76	5.16	0.4		★	●	★	○															★	★	○				
	CNMG120408-PM	12.9	12.7	4.76	5.16	0.8	●	★	●	★	●															★	★	★				
	CNMG120412-PM	12.9	12.7	4.76	5.16	1.2		○	●	★	●															★	★	★				
	CNMG120416-PM	12.9	12.7	4.76	5.16	1.6		★	●	○	●															★	○					
	CNMG160608-PM	16.1	15.875	6.35	6.35	0.8	●	○	●	○	○															○	○					
	CNMG160612-PM	16.1	15.875	6.35	6.35	1.2	●	○	●	○	●															★	○					
	CNMG160616-PM	16.1	15.875	6.35	6.35	1.6			●	○																○	○					
	CNMG190608-PM	19.3	19.05	6.35	7.94	0.8		★	●	○	○																★					
	CNMG190612-PM	19.3	19.05	6.35	7.94	1.2		★	●	★	●															○	★					
	CNMG190616-PM	19.3	19.05	6.35	7.94	1.6	●	★	●	○	●															○						

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

Applicable tool


DCLNR/L
Kr:95°


PCBNR/L
Kr:75°


PCLNR/L
Kr:95°


PCLNR/L
Kr:95°

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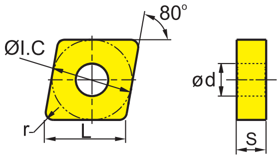
Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

Cemented carbide and cermet inserts

CN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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		○	●	○												○										
	CNMG190612-DM	19.3	19.05	6.35	7.94	1.2		★	●	★	○											○										
	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

Applicable tool

DCLNR/L
Kr:95°

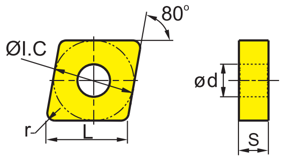
PCBNR/L
Kr:75°

PCLNR/L
Kr:95°

PCLNR/L
Kr:95°

Page	A166	A172	A173	A212

CN☐☐(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
NM  For semi-finishing	**CNMG120404-NM**	12.9	12.7	4.76	5.16	0.4							○	★										●							○	
	CNMG120408-NM	12.9	12.7	4.76	5.16	0.8							●	★										○							○	
	CNMG120412-NM	12.9	12.7	4.76	5.16	1.2							○	★										○							○	
LR  Light-load roughing	**CNMM120408-LR**	12.9	12.7	4.76	5.16	0.8				★																						
	CNMM120412-LR	12.9	12.7	4.76	5.16	1.2				★																						
	CNMM120416-LR	12.9	12.7	4.76	5.16	1.6				★																						
	CNMM160608-LR	16.1	15.875	6.35	6.35	0.8				★																						
	CNMM160612-LR	16.1	15.875	6.35	6.35	1.2				★																						
	CNMM160616-LR	16.1	15.875	6.35	6.35	1.6				★																						
	CNMM160624-LR	16.1	15.875	6.35	6.35	2.4				★																						
	CNMM190612-LR	19.3	19.05	6.35	7.94	1.2				★																						
	CNMM190616-LR	19.3	19.05	6.35	7.94	1.6				★																						
	CNMM190624-LR	19.3	19.05	6.35	7.94	2.4				★																						
	CNMM250924-LR	25.79	25.4	9.525	9.12	2.4				★																						

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

Applicable tool

DCLNR/L
Kr:95°

PCBNR/L
Kr:75°

PCLNR/L
Kr:95°

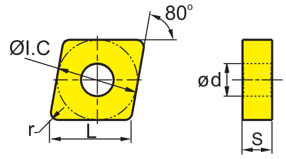
PCLNR/L
Kr:95°

Page	A166	A172	A173	A212

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

CN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DR  For light roughing	CNMG120408-DR	12.9	12.7	4.76	5.16	0.8		★	●	★	●												●			●						
	CNMG120412-DR	12.9	12.7	4.76	5.16	1.2		○	●	★	○												●			●						
	CNMG120416-DR	12.9	12.7	4.76	5.16	1.6		○		○													●			●						
	CNMG160608-DR	16.1	15.875	6.35	6.35	0.8			○	○													○									
	CNMG160612-DR	16.1	15.875	6.35	6.35	1.2			●	★	○												●			○						
	CNMG160616-DR	16.1	15.875	6.35	6.35	1.6			○	★	●																					
	CNMG190608-DR	19.3	15.875	6.35	7.94	0.8			○	○													●			○						
	CNMG190612-DR	19.3	19.05	6.35	7.94	1.2		○	●	★	●												○			○						
	CNMG190616-DR	19.3	19.05	6.35	7.94	1.6		○	●	★	●															○						
	CNMG190624-DR	19.3	19.05	6.35	7.94	2.4		○	●	○	●																					
DR  For roughing	CNMM120412-DR	12.9	12.7	4.76	5.16	1.2			●		○																					
	CNMM160612-DR	16.1	15.875	6.35	6.35	1.2			●		○																					
	CNMM160616-DR	16.1	15.875	6.35	6.35	1.6					○																					
	CNMM190612-DR	19.3	19.05	6.35	7.94	1.2			●	○	●																					
	CNMM190616-DR	19.3	19.05	6.35	7.94	1.6			●	★	●																					
	CNMM190624-DR	19.3	19.05	6.35	7.94	2.4		○	○		○																					
	CNMM250924-DR	25.79	25.4	9.525	9.12	2.4			○	★	○																					
ER  For roughing	CNMG120408-ER	12.9	12.7	4.76	5.16	0.8													●				★									
	CNMG120412-ER	12.9	12.7	4.76	5.16	1.2													●				★									
	CNMG160612-ER	16.1	15.875	6.35	6.35	1.2													●				★									
	CNMG160616-ER	16.1	15.875	6.35	6.35	1.6																	★									
	CNMG190612-ER	19.3	19.05	6.35	7.94	1.2																	★									
	CNMG190616-ER	19.3	19.05	6.35	7.94	1.6																	★									
ER  For roughing	CNMM250724-ER	25.79	25.4	7.94	9.12	2.4				★													★									
	CNMM250732-ER	25.79	25.4	7.94	9.12	3.2				★													★									
	CNMM250924-ER	25.79	25.4	9.525	9.12	2.4				★													★									
	CNMM250932-ER	25.79	25.4	9.525	9.12	3.2				★													★									
SNR  For roughing	CNMG120408-SNR	12.9	12.7	4.76	5.16	0.8							○	●			○							●								
	CNMG120412-SNR	12.9	12.7	4.76	5.16	1.2							○	●			○							●								
	CNMG160608-SNR	16.1	15.875	6.35	6.35	0.8							○	●			○							●								
	CNMG190616-SNR	19.3	19.05	6.35	7.94	1.6							○	●			○							●								

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

Applicable tool

DCLNR/L
Kr:95°

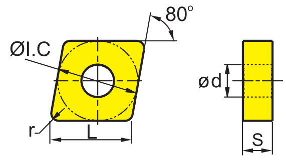
PCBNR/L
Kr:75°

PCLNR/L
Kr:95°

PCLNR/L
Kr:95°

Page A166 A172 A173 A212

CN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HDR  For heavy machining	CNMM120408-HDR	12.9	12.7	4.76	5.16	0.8		○	●	○	○	○																				
	CNMM120412-HDR	12.9	12.7	4.76	5.16	1.2			○	○	○	○																				
	CNMM120416-HDR	12.9	12.7	4.76	5.16	1.6			○		○	○																				
	CNMM160612-HDR	16.1	15.875	6.35	6.35	1.2			○		○	○																				
	CNMM160616-HDR	16.1	15.875	6.35	6.35	1.6				○	○	○																				
	CNMM190616-HDR	19.3	19.05	6.35	7.94	1.6			○	○	○	○																				
	CNMM190624-HDR	19.3	19.05	6.35	7.94	2.4		○	○	○	○	○																				
HPR  For heavy machining	CNMM190616-HPR	19.5	19.05	6.35	7.94	1.6				★		○																				
	CNMM250924-HPR	25.19	25.4	9.525	9.12	2.4				★		○																				
Without chipbreaker 	CNMA120404	12.9	12.7	4.76	5.16	0.4																			★	○	○					
	CNMA120408	12.9	12.7	4.76	5.16	0.8																			★	★	★					
	CNMA120412	12.9	12.7	4.76	5.16	1.2																			★	★	★					
	CNMA120416	12.9	12.7	4.76	5.16	1.6																			★	★	○					
	CNMA160608	16.1	15.875	6.35	6.35	0.8																				○						
	CNMA160612	16.1	15.875	6.35	6.35	1.2																				★						
	CNMA160616	16.1	15.875	6.35	6.35	1.6																			○	★	○					
	CNMA160620	16.1	15.875	6.35	6.35	2.0																					○					
	CNMA160630	16.1	15.875	6.35	6.35	3.0																					○					
	CNMA190612	19.3	19.05	6.35	7.94	1.2																			★	○	★					
	CNMA190616	19.3	19.05	6.35	7.94	1.6																			○	★	★					

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

Applicable tool

DCLNR/L
Kr:95°

PCBNR/L
Kr:75°

PCLNR/L
Kr:95°

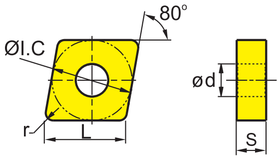
PCLNR/L
Kr:95°

Page	A166	A172	A173	A212

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

Cemented carbide and cermet inserts

CN□□(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
P Steel	☺	☺	😐	😐	☹	☹	☺		😐	😐		☹											☺	☺		
M Stainless steel							☺		😐	😐			😐	☺	☺	😐	😐						☺	☺		
K Cast iron																			☺	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							☺	☺			☺							☺							☺	

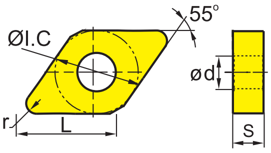
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
All round 	**CNMG120404**	12.9	12.7	4.76	5.16	0.4	●		●													●				○						
	CNMG120408	12.9	12.7	4.76	5.16	0.8	●	★	●	★	○											●				★	★	★				
	CNMG120412	12.9	12.7	4.76	5.16	1.2	●	★	●	★															○	○	○					
	CNMG160608	16.1	15.875	6.35	6.35	0.8	●		●													○										
	CNMG160612	16.1	15.875	6.35	6.35	1.2			●		○																					
	CNMG160616	16.1	15.875	6.35	6.35	1.6			○																							
	CNMG190608	19.3	19.05	6.35	7.94	0.8	○		○		○																					
	CNMG190612	19.3	19.05	6.35	7.94	1.2	○		●		○																					
	CNMG190616	19.3	19.05	6.35	7.94	1.6	○		○		○																					
All round 	**CNMM120404**	12.9	12.7	4.76	5.16	0.4	○																									
	CNMM120408	12.9	12.7	4.76	5.16	0.8	○		○																							
	CNMM120412	12.9	12.7	4.76	5.16	1.2	○																									
	CNMM190608	19.3	19.05	6.35	7.94	0.8					○																					
	CNMM190612	19.3	19.05	6.35	7.94	1.2			○		○																					
	CNMM190616	19.3	19.05	6.35	7.94	1.6			○																							
	CNMM190624	19.3	19.05	6.35	7.94	2.4					○																					

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

Applicable tool

DCLNR/L	**PCBNR/L**	**PCLNR/L**	**PCLNR/L**
Kr:95°	Kr:75°	Kr:95°	Kr:95°
			
Page A166	A172	A173	A212

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF  For finishing	**DNMG110404-DF**	11.6	9.525	4.76	3.81	0.4		○	●	○																			●			
	DNMG110408-DF	11.6	9.525	4.76	3.81	0.8		○	○	○																						
	DNMG110412-DF	11.6	9.525	4.76	3.81	1.2		○	○																							
	DNMG150404-DF	15.5	12.7	4.76	5.16	0.4		★	●	★																						
	DNMG150408-DF	15.5	12.7	4.76	5.16	0.8		★	●	★																						
	DNMG150412-DF	15.5	12.7	4.76	5.16	1.2		○		○																						
	DNMG150604-DF	15.5	12.7	6.35	5.16	0.4	●	★	●	★												○										
	DNMG150608-DF	15.5	12.7	6.35	5.16	0.8		★	●	○																						
	DNMG150612-DF	15.5	12.7	6.35	5.16	1.2			○																							
WGF  For finishing Wiper	**DNMX110404-WGF**	11.6	9.525	4.76	3.81	0.4		★												★					★							
	DNMX110408-WGF	11.6	9.525	4.76	3.81	0.8		★												★					★							
	DNMX150404-WGF	15.5	12.7	4.76	5.16	0.4		★												★					★							
	DNMX150408-WGF	15.5	12.7	4.761	5.16	0.8		★												★					★							
	DNMX150604-WGF	15.5	12.7	6.35	5.16	0.4		★												★					★							
	DNMX150608-WGF	15.5	12.7	6.35	5.16	0.8		★												★					★							

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

Applicable tool

DDJNR/L
Kr:93°

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PDJNR/L
Kr:93°

A174

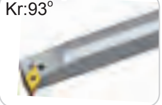
PDPNN
Kr:62°30'

A175

PDPNR/L
Kr:62°30'

A213

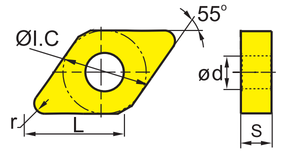
PDUNR/L
Kr:93°



A214

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
SF  For finishing	DNMG110404-SF	11.6	9.525	4.76	3.81	0.4							○																○	★		
	DNMG150404-SF	15.5	12.7	4.76	5.16	0.4							○																○	★		
	DNMG150408-SF	15.5	12.7	4.76	5.16	0.8							○																○	★		
	DNMG150604-SF	15.5	12.7	6.35	5.16	0.4							○																○	★		
	DNMG150608-SF	15.5	12.7	6.35	5.16	0.8							○																○	★		
EF  For finishing	DNMG110404-EF	11.6	9.525	4.76	3.81	0.4									●	★				★	★											
	DNMG110408-EF	11.6	9.525	4.76	3.81	0.8									○	★				★	○											
	DNMG110412-EF	11.6	9.525	4.76	3.81	1.2									○	★				★	○											
	DNMG150404-EF	15.5	12.7	4.76	5.16	0.4									●	★				★	○											
	DNMG150408-EF	15.5	12.7	4.76	5.16	0.8									●	★				★	○											
	DNMG150412-EF	15.5	12.7	4.76	5.16	1.2									○	★				★	○											
	DNMG150604-EF	15.5	12.7	6.35	5.16	0.4									●	★				★	★											
	DNMG150608-EF	15.5	12.7	6.35	5.16	0.8									●	★				★	★											
	DNMG150612-EF	15.5	12.7	6.35	5.16	1.2									○	★				★	★											
NF  For finishing	DNEG150404-NF	15.5	12.7	4.76	5.16	0.4							○	★																	○	
	DNEG150408-NF	15.5	12.7	4.76	5.16	0.8							○	★																	○	
	DNEG150604-NF	15.5	12.7	6.35	5.16	0.4							●	★																	○	
	DNEG150608-NF	15.5	12.7	6.35	5.16	0.8							●	★																	○	
NGF  For finishing	DNEG150408-NGF	15.5	12.7	4.76	5.16	0.8							○	●			○															
	DNEG150412-NGF	15.5	12.7	4.76	5.16	1.2							○	●			○															
	DNEG150608-NGF	15.5	12.7	6.35	5.16	0.8							○	●			○															
	DNEG150612-NGF	15.5	12.7	6.35	5.16	1.2							○	●			○															

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

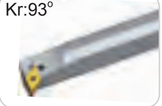
Applicable tool

DDJNR/L
Kr:93°


PDJNR/L
Kr:93°


PDPNN
Kr:62°30′


PDPNR/L
Kr:62°30′


PDUNR/L
Kr:93°


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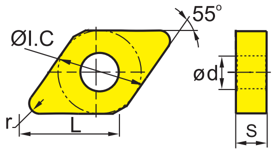
DN□□ (Negative inserts)



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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
WGM  For semi-finishing Wiper	**DNMX150408-WGM**	15.5	12.7	4.76	5.16	0.8				★						★											★					
	DNMX150412-WGM	15.5	12.7	4.76	5.16	1.2				★						★											★					
	DNMX150608-WGM	15.5	12.7	6.35	5.16	0.8				★						★											★					
	DNMX150612-WGM	15.5	12.7	6.35	5.16	1.2				★						★											★					
PM  For semi-finishing	**DNMG110404-PM**	11.6	9.525	4.76	3.81	0.4		●	●	○																	●					
	DNMG110408-PM	11.6	9.525	4.76	3.81	0.8		●	●	○	○															★	○	○				
	DNMG110412-PM	11.6	9.525	4.76	3.81	1.2			○	○																						
	DNMG150404-PM	15.5	12.7	4.76	5.16	0.4		●	●	○																						
	DNMG150408-PM	15.5	12.7	4.76	5.16	0.8	●	●	●	○	○															★	★	○				
	DNMG150412-PM	15.5	12.7	4.76	5.16	1.2			●	○			○													○	★	○				
	DNMG150416-PM	15.5	12.7	4.76	5.16	1.6			○	○																						
	DNMG150604-PM	15.5	12.7	6.35	5.16	0.4		●	●	○	○															★	★					
	DNMG150608-PM	15.5	12.7	6.35	5.16	0.8	●	○	●	★	●															★	★	○				
	DNMG150612-PM	15.5	12.7	6.35	5.16	1.2		★	●	★	○															★	○					
	DNMG150616-PM	15.5	12.7	6.35	5.16	1.6			○	○																						

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

Applicable tool

	DDJNR/L	**PDJNR/L**	**PDPNN**	**PDPNR/L**	**PDUNR/L**
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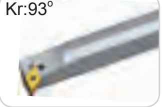
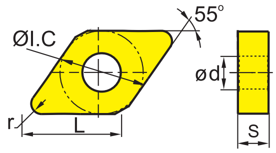
					
Page	A167	A174	A175	A213	A214

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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	DNMG110404-DM	11.6	9.525	4.76	3.81	0.4		●	●	○												○										
	DNMG110408-DM	11.6	9.525	4.76	3.81	0.8		★	●	★	○											●										
	DNMG110412-DM	11.6	9.525	4.76	3.81	1.2		○		○																						
	DNMG150404-DM	15.5	12.7	4.76	5.16	0.4		○	●	★																			○			
	DNMG150408-DM	15.5	12.7	4.76	5.16	0.8		★	●	★																			●			
	DNMG150412-DM	15.5	12.7	4.76	5.16	1.2		★	○	★																						
	DNMG150416-DM	15.5	12.7	4.76	5.16	1.6				○																						
	DNMG150604-DM	15.5	12.7	6.35	5.16	0.4		★	●	★	○											●							●			
	DNMG150608-DM	15.5	12.7	6.35	5.16	0.8		★	●	★	●											●										
	DNMG150612-DM	15.5	12.7	6.35	5.16	1.2		●	●	★	○																					
	DNMG150616-DM	15.5	12.7	6.35	5.16	1.6		○	○	○																						
EM  For semi-finishing	DNMG110404-EM	11.6	9.525	4.76	3.81	0.4									○	★					○		★									
	DNMG110408-EM	11.6	9.525	4.76	3.81	0.8									○	★					○		★									
	DNMG110412-EM	11.6	9.525	4.76	3.81	1.2									○	★					○		★									
	DNMG150404-EM	15.5	12.7	4.76	5.16	0.4									●	★					★		★									
	DNMG150408-EM	15.5	12.7	4.76	5.16	0.8									●	★					★		★									
	DNMG150412-EM	15.5	12.7	4.76	5.16	1.2									○	★					★		★									
	DNMG150604-EM	15.5	12.7	6.35	5.16	0.4							○		●	★					○		★									
	DNMG150608-EM	15.5	12.7	6.35	5.16	0.8									●	★					○		★									
	DNMG150612-EM	15.5	12.7	6.35	5.16	1.2									○	★					○		★									
NM  For semi-finishing	DNMG150412-NM	15.5	12.7	4.76	5.16	1.2							○	★										○							○	
	DNMG150612-NM	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

	DDJNR/L	**PDJNR/L**	**PDPNN**	**PDPNR/L**	**PDUNR/L**
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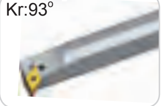
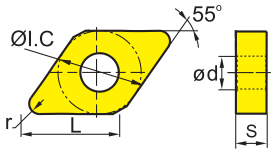
					
Page	A167	A174	A175	A213	A214

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
LR  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				★																						
DR  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					○																○					
DR  For roughing	**DNMM150608-DR**	15.5	12.7	6.35	5.16	0.8		○	○																							
	DNMM150612-DR	15.5	12.7	6.35	5.16	1.2		○	●																							
	DNMM150616-DR	15.5	12.7	6.35	5.16	1.6					○																					
ER  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																	★									
ER  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																	★									
SNR  For roughing	**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

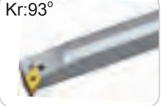
DDJNR/L Kr:93°

PDJNR/L Kr:93°

PDPNN Kr:62°30'

PDPNR/L Kr:62°30'

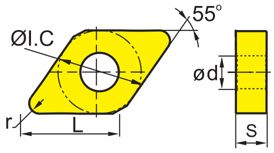
PDUNR/L Kr:93°



Page	DDJNR/L	PDJNR/L	PDPNN	PDPNR/L	PDUNR/L
Page	A167	A174	A175	A213	A214

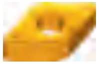
Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

DN□□(Negative inserts)



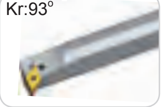
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

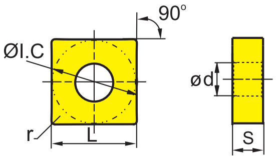
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
HDR  For heavy machining	**DNMM150608-HDR**	15.5	12.7	6.35	5.16	0.8			○		○	○																				
	DNMM150612-HDR	15.5	12.7	6.35	5.16	1.2					○	○																				
	DNMM150616-HDR	15.5	12.7	6.35	5.16	1.6					○	○																				
All round 	**DNMG150604**	15.5	12.7	6.35	5.16	0.4			○																							
	DNMG150608	15.5	12.7	6.35	5.16	0.8			○																							
	DNMG150612	15.5	12.7	6.35	5.16	1.2			○																							
	DNMG150616	15.5	12.7	6.35	5.16	1.6			○																							
	DNMG190608	19.3	15.875	6.35	7.94	0.8			○																							
	DNMG190612	19.3	15.875	6.35	7.94	1.2			○		○																					
Without chipbreaker 	**DNMA110416**	11.6	9.525	4.76	3.81	1.6																					○					
	DNMA110424	11.6	9.525	4.76	3.81	2.4																					○					
	DNMA150404	15.5	12.7	4.76	5.16	0.4																					○					
	DNMA150408	15.5	12.7	4.76	5.16	0.8																			★	★	○					
	DNMA150604	15.5	12.7	6.35	5.16	0.4																			○	○	○					
	DNMA150608	15.5	12.7	6.35	5.16	0.8																			○	★	★					
	DNMA150612	15.5	12.7	6.35	5.16	1.2																			○	○	○					
	DNMA150616	15.5	12.7	6.35	5.16	1.6																				○	○					

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

Applicable tool

	DDJNR/L	**PDJNR/L**	**PDPNN**	**PDPNR/L**	**PDUNR/L**
	Kr:93°	Kr:93°	Kr:62°30'	Kr:62°30'	Kr:93°
					
Page	A167	A174	A175	A213	A214

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF  For finishing	**SNMG090304-DF**	9.525	9.525	3.18	3.81	0.4		○																								
	SNMG090308-DF	9.525	9.525	3.18	3.81	0.8		○																								
	SNMG120404-DF	12.7	12.7	4.76	5.16	0.4		○																								
	SNMG120408-DF	12.7	12.7	4.76	5.16	0.8		○	●	○																			○			
	SNMG120412-DF	12.7	12.7	4.76	5.16	1.2		○		○																						
EF  For finishing	**SNMG090304-EF**	9.525	9.525	3.18	3.81	0.4									○	★				★	○											
	SNMG090308-EF	9.525	9.525	3.18	3.81	0.8									○	★				★	○											
	SNMG090312-EF	9.525	9.525	3.18	3.81	1.2									○	★				★	○											
	SNMG120404-EF	12.7	12.7	4.76	5.16	0.4									●	★				★	★											
	SNMG120408-EF	12.7	12.7	4.76	5.16	0.8									●	★				★	★											
	SNMG120412-EF	12.7	12.7	4.76	5.16	1.2									○	★				★	★											
	SNMG150608-EF	15.875	15.875	6.35	6.35	0.8									○	★				★	○											
	SNMG150612-EF	15.875	15.875	6.35	6.35	1.2									○	★				★	○											
SF  For finishing	**SNMG090304-SF**	9.525	9.525	3.18	3.81	0.4							○																○	★		
	SNMG090308-SF	9.525	9.525	3.18	3.81	0.8							○																○	★		
	SNMG120404-SF	12.7	12.7	4.76	5.16	0.4							○																○	★		
	SNMG120408-SF	12.7	12.7	4.76	5.16	0.8							○																○	★		
	SNMG120412-SF	12.7	12.7	4.76	5.16	1.2							○																○			
	SNMG150608-SF	15.875	15.875	6.35	6.35	0.8							○																○			

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

Applicable tool

DSBNR/L
Kr:75°

PSBNR/L
Kr:75°

PSDNN
Kr:45°

PSKNR/L
Kr:75°

PSSNR/L
Kr:45°

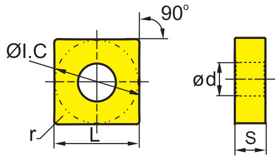
PSKNR/L
Kr:75°

Page	A168	A176	A177	A178	A179	A215

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

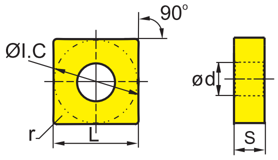
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
PM  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			●	○																						
DM  For semi-finishing	**SNMG090304-DM**	9.525	9.525	3.18	3.81	0.4		○		○																						
	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

Applicable tool

	DSBNR/L	**PSBNR/L**	**PSDNN**	**PSKNR/L**	**PSSNR/L**	**PSKNR/L**
	Kr:75°	Kr:75°	Kr:45°	Kr:75°	Kr:45°	Kr:75°
						
Page	A168	A176	A177	A178	A179	A215

SN□□(Negative inserts)



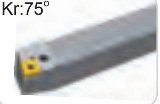
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EM  For semi-finishing	**SNMG120404-EM**	12.7	12.7	4.76	5.16	0.4									●	★					★		★									
	SNMG120408-EM	12.7	12.7	4.76	5.16	0.8									●	★					★		★									
	SNMG120412-EM	12.7	12.7	4.76	5.16	1.2									●	★					★		★									
	SNMG120416-EM	12.7	12.7	4.76	5.16	1.6									○	★					○		★									
	SNMG150612-EM	15.875	15.875	6.35	6.35	1.2									●	★					○		★									
	SNMG150616-EM	15.875	15.875	6.35	6.35	1.6									○	★					○		★									
NM  For semi-finishing	**SNMG120408-NM**	12.7	12.7	4.76	5.16	0.8							●	★										○							○	
	SNMG120412-NM	12.7	12.7	4.76	5.16	1.2							○	★										○							○	
LR  Light-load roughing	**SNMM120408-LR**	12.9	12.7	4.76	5.16	0.8				★																						
	SNMM120412-LR	12.9	12.7	4.76	5.16	1.2				★																						
	SNMM120416-LR	12.9	12.7	4.76	5.16	1.6				★																						
	SNMM150612-LR	15.875	15.875	6.35	6.35	1.2				★																						
	SNMM150616-LR	15.875	15.875	6.35	6.35	1.6				★																						
	SNMM190612-LR	19.3	19.05	6.35	7.94	1.2				★																						
	SNMM190616-LR	19.3	19.05	6.35	7.94	1.6				★																						
	SNMM190624-LR	19.3	19.05	6.35	7.94	2.4				★																						
	SNMM250924-LR	25.79	25.4	9.525	9.12	2.4				★																						

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

Applicable tool

	DSBNR/L	**PSBNR/L**	**PSDNN**	**PSKNR/L**	**PSSNR/L**	**PSKNR/L**
	Kr:75°	Kr:75°	Kr:45°	Kr:75°	Kr:45°	Kr:75°
						
Page	A168	A176	A177	A178	A179	A215

Insert code key A50–A51

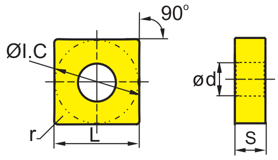
Grade selection reference A19/A36–A48

Chipbreaker selection reference A22–A35

Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DR  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			●	○	○																					
DR  For roughing	**SNMM120408-DR**	12.7	12.7	4.76	5.16	0.8					○																					
	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

Applicable tool

DSBNR/L
Kr:75°

Page A168

PSBNR/L
Kr:75°

A176

PSDNN
Kr:45°

A177

PSKNR/L
Kr:75°

A178

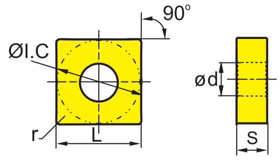
PSSNR/L
Kr:45°

A179

PSKNR/L
Kr:75°

A215

SN□□(Negative 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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DR  For roughing	**SNMM190612-DR**	19.05	19.05	6.35	7.94	1.2			●	○	○																					
	SNMM190616-DR	19.05	19.05	6.35	7.94	1.6		○	●	★	●																					
	SNMM190624-DR	19.05	19.05	6.35	7.94	2.4		★	●	○	●																					
	SNMM250724-DR	25.4	25.4	7.94	9.12	2.4			●		○																					
	SNMM250924-DR	25.4	25.4	9.525	9.12	2.4			●	★	●																					
ER  For roughing	**SNMG120408-ER**	12.7	12.7	4.76	5.16	0.8																	★									
	SNMG120412-ER	12.7	12.7	4.76	5.16	1.2																	★									
	SNMG150608-ER	15.875	15.875	6.35	6.35	0.8																	★									
	SNMG150612-ER	15.875	15.875	6.35	6.35	1.2																	★									
	SNMG190612-ER	19.05	19.05	6.35	7.94	1.2																	★									
	SNMG190616-ER	19.05	19.05	6.35	7.94	1.6																	★									
ER  For roughing	**SNMM250724-ER**	25.4	25.4	7.94	9.12	2.4				●													★									
	SNMM250732-ER	25.4	25.4	7.94	9.12	3.2				●													★									
	SNMM250924-ER	25.4	25.4	9.525	9.12	2.4				●													★									
	SNMM250932-ER	25.4	25.4	9.525	9.12	3.2				●													★									
SNR  For roughing	**SNMG120408-SNR**	12.7	12.7	4.76	5.16	0.8							○	●			○							●								

★Recommended grade (always stock available) ●Available 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

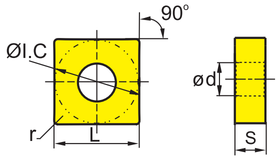
PSKNR/L
Kr:75°

A215

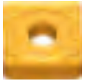
Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HDR  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			○	○	○	○																				
	SNMM190624-HDR	19.05	19.05	6.35	7.94	2.4					○	○																				
	SNMM250724-HDR	25.4	25.4	7.94	9.12	2.4				★	●	○																				
	SNMM250924-HDR	25.4	25.4	9.525	9.12	2.4					○	○																				
HPR  For heavy machining	**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

Applicable tool

DSBNR/L
Kr:75°


PSBNR/L
Kr:75°


PSDNN
Kr:45°

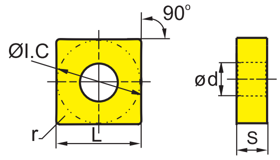

PSKNR/L
Kr:75°


PSSNR/L
Kr:45°


PSKNR/L
Kr:75°


Page	A168	A176	A177	A178	A179	A215

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
All round 	SNMG090304	9.525	9.525	3.18	3.81	0.4			○																							
	SNMG090308	9.525	9.525	3.18	3.81	0.8			○		○																					
	SNMG120404	12.7	12.7	4.76	5.16	0.4			●																							
	SNMG120408	12.7	12.7	4.76	5.16	0.8	○		●		○											●					○					
	SNMG120412	12.7	12.7	4.76	5.16	1.2			○	○	●																					
	SNMG120416	12.7	12.7	4.76	5.16	1.6	○		○																							
	SNMG150608	15.875	15.875	6.35	6.35	0.8			○																							
	SNMG150612	15.875	15.875	6.35	6.35	1.2	○		●																							
	SNMG190612	19.05	19.05	6.35	7.94	1.2	○		●		○																					
	SNMG190616	19.05	19.05	6.35	7.94	1.6	○		●																							
	SNMG250724	25.4	25.4	7.94	9.12	2.4	○		○		●																					
	SNMG250924	25.4	25.4	9.525	9.12	2.4			○		●																					
All round 	SNMM090304	9.525	9.525	3.18	3.81	0.4																										○
	SNMM090308	9.525	9.525	3.18	3.81	0.8			○																							
	SNMM120408	12.7	12.7	4.76	5.16	0.8	○																									
	SNMM120412	12.7	12.7	4.76	5.16	1.2			○																							
	SNMM120416	12.7	12.7	4.76	5.16	1.6			○																							

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

Applicable tool

DSBNR/L
Kr:75°

PSBNR/L
Kr:75°

PSDNN
Kr:45°

PSKNR/L
Kr:75°

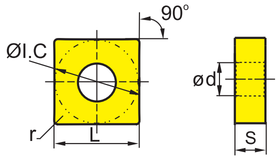
PSSNR/L
Kr:45°

PSKNR/L
Kr:75°

Page	A168	A176	A177	A178	A179	A215

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
All round 	**SNMM190608**	19.05	19.05	6.35	7.94	0.8			○																							
	SNMM190612	19.05	19.05	6.35	7.94	1.2			○																							
	SNMM190616	19.05	19.05	6.35	7.94	1.6			○																							
	SNMM250724	25.4	25.4	7.94	9.12	2.4			●		●																					
	SNMM250924	25.4	25.4	9.525	9.12	2.4					○																					
Without chipbreaker 	**SNMA090304**	9.525	9.525	3.18	3.81	0.4																					○					
	SNMA090308	9.525	9.525	3.18	3.81	0.8																			○	○						
	SNMA120404	12.7	12.7	4.76	5.16	0.4																			○							
	SNMA120408	12.7	12.7	4.76	5.16	0.8																			○	★	★					●
	SNMA120416	12.7	12.7	4.76	5.16	1.6																			○	○	★					
	SNMA150608	15.875	15.875	6.35	6.35	0.8																					○					
	SNMA150612	15.875	15.875	6.35	6.35	1.2																					★					
	SNMA190612	19.05	19.05	6.35	7.94	1.2																			○	○	★					
	SNMA190616	19.05	19.05	6.35	7.94	1.6																				★	★					

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

Applicable tool

DSBNR/L
Kr:75°

PSBNR/L
Kr:75°

PSDNN
Kr:45°

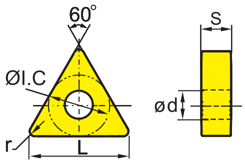
PSKNR/L
Kr:75°

PSSNR/L
Kr:45°

PSKNR/L
Kr:75°

Page	A168	A176	A177	A178	A179	A215

TN□□(Negative inserts)



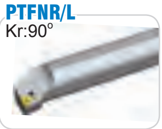
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF  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		○																								
WGF  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		★												★					★							
SF  For finishing	TNMG110304-SF	11	6.35	3.18	2.26	0.4							○																○	★		
	TNMG160404-SF	16.5	9.525	4.76	3.81	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							○																○	★		

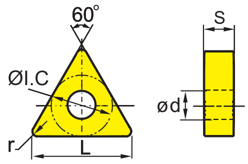
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

	DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	PTFNR/L
	Kr:91°	Kr:90°	Kr:60°	Kr:90°	Kr:90°
					
Page	A169	A180	A181	A182	A216

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

TN□□(Negative inserts)



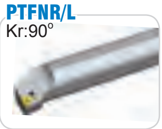
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EF  For finishing	TNMG110304-EF	11	6.35	3.18	2.26	0.4									○	★				★	○											
	TNMG110308-EF	11	6.35	3.18	2.26	0.8									○	★				★	○											
	TNMG160404-EF	16.5	9.525	4.76	3.81	0.4									●	★				★	★											
	TNMG160408-EF	16.5	9.525	4.76	3.81	0.8									●	★				★	★											
	TNMG160412-EF	16.5	9.525	4.76	3.81	1.2									○	★				★	★											
	TNMG220404-EF	22	12.7	4.76	5.16	0.4									○	★				★	○											
	TNMG220408-EF	22	12.7	4.76	5.16	0.8									○	★				★	○											
	TNMG220412-EF	22	12.7	4.76	5.16	1.2									○	★				★	○											
WGM  For semi-finishing Wiper	TNMX160408-WGM	16.5	9.525	4.76	3.81	0.8				★						★											★					
	TNMX160412-WGM	16.5	9.525	4.76	3.81	1.2				★						★											★					
PM  For semi-finishing	TNMG110304-PM	11	6.35	3.18	2.26	0.4		★	●	○																						
	TNMG110308-PM	11	6.35	3.18	2.26	0.8		★	○	○																						
	TNMG160404-PM	16.5	9.525	4.76	3.81	0.4		★	●	★																★	★					
	TNMG160408-PM	16.5	9.525	4.76	3.81	0.8		★	●	★	●		○													★	★	★				
	TNMG160412-PM	16.5	9.525	4.76	3.81	1.2		★	●	○	○															★	★	○				
	TNMG220408-PM	22	12.7	4.76	5.16	0.8		★	●	○	●															★	○	○				
	TNMG220412-PM	22	12.7	4.76	5.16	1.2	●	★	●	○	○															○	○					
	TNMG220416-PM	22	12.7	4.76	5.16	1.6			○	○																	○					

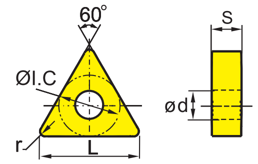
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

	DTGNR/L	**PTFNR/L**	**PTTNR/L**	**PTGNR/L**	**PTFNR/L**
	Kr:91°	Kr:90°	Kr:60°	Kr:90°	Kr:90°
					
Page	A169	A180	A181	A182	A216

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	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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	TNMG110308-DM	11	6.35	3.18	2.26	0.8		○		○																						
	TNMG160404-DM	16.5	9.525	4.76	3.81	0.4		★	●	★	○				○														●			
	TNMG160408-DM	16.5	9.525	4.76	3.81	0.8		★	●	★	●				●							●							○			
	TNMG160412-DM	16.5	9.525	4.76	3.81	1.2		○	○	★	○																					
	TNMG220404-DM	22	12.7	4.76	5.16	0.4		★	●	★	○											○										
	TNMG220408-DM	22	12.7	4.76	5.16	0.8		★	●	★	●											○							○			
	TNMG220412-DM	22	12.7	4.76	5.16	1.2		○	○	○	○																					
	TNMG220416-DM	22	12.7	4.76	5.16	1.6		○	○	○																						
EM  For semi-finishing	TNMG160404-EM	16.5	9.525	4.76	3.81	0.4									●	★					★		★									
	TNMG160408-EM	16.5	9.525	4.76	3.81	0.8									●	★					★		★									
	TNMG160412-EM	16.5	9.525	4.76	3.81	1.2									○	★					★		★									
	TNMG220408-EM	22	12.7	4.76	5.16	0.8									●	★					○		★									
	TNMG220412-EM	22	12.7	4.76	5.16	1.2									○	★					○		★									
	TNMG220416-EM	22	12.7	4.76	5.16	1.6									○	★					○		★									
LR  Light-load roughing	TNMM160408-LR	16.5	9.525	4.76	3.81	0.8				★																						
	TNMM160412-LR	16.5	9.525	4.76	3.81	1.2				★																						
	TNMM220408-LR	22	12.7	4.76	5.16	0.8				★																						
	TNMM220412-LR	22	12.7	4.76	5.16	1.2				★																						
	TNMM220416-LR	22	12.7	4.76	5.16	1.6				★																						

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

Applicable tool

	DTGNR/L Kr:91°	**PTFNR/L** Kr:90°	**PTTNR/L** Kr:60°	**PTGNR/L** Kr:90°	**PTFNR/L** Kr:90°
					
Page	A169	A180	A181	A182	A216

Insert code key A50–A51

Grade selection reference A19/A36–A48

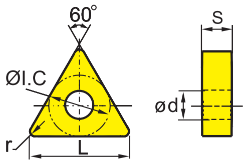
Chipbreaker selection reference A22–A35

Recommended cutting parameters A241–A244

A TURNING General Turning Inserts

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	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P	Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M	Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K	Cast iron																			😊	😐	☹	☹				☹
N	Non-ferrous metal																									😐	☹
S	Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

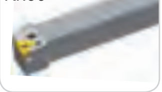
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
DR  For light roughing	TNMG160408-DR	16.5	9.525	4.76	3.81	0.8		○		○	○															○	○					
	TNMG160412-DR	16.5	9.525	4.76	3.81	1.2		○	○	○	○															●	●					
	TNMG220408-DR	22	12.7	4.76	5.16	0.8				○	●															○						
	TNMG220412-DR	22	12.7	4.76	5.16	1.2			○	○	○																○					
	TNMG220416-DR	22	12.7	4.76	5.16	1.6					○															○						
	TNMG270608-DR	27.5	15.875	6.35	6.35	0.8					○																					
	TNMG270612-DR	27.5	15.875	6.35	6.35	1.2					○																					
	TNMG270616-DR	27.5	15.875	6.35	6.35	1.6					○																					
DR  For roughing	TNMM160408-DR	16.5	9.525	4.76	3.81	0.8			○		○																					
	TNMM160412-DR	16.5	9.525	4.76	3.81	1.2			○		○																					
	TNMM220408-DR	22	12.7	4.76	5.16	0.8			●		●																					
	TNMM220412-DR	22	12.7	4.76	5.16	1.2			●		○																					
	TNMM220416-DR	22	12.7	4.76	5.16	1.6			○		○																					
	TNMM270612-DR	27.5	15.875	6.35	5.16	1.2					○																					
	TNMM270616-DR	27.5	15.875	6.35	5.16	1.6					○																					
ER  For roughing	TNMG160408-ER	16.5	9.525	4.76	3.81	0.8																	★									
	TNMG160412-ER	16.5	9.525	4.76	3.81	1.2																	★									
	TNMG220408-ER	22	12.7	4.76	5.16	0.8																	★									
	TNMG220412-ER	22	12.7	4.76	5.16	1.2																	★									
SNR  For roughing	TNMG160408-SNR	16.5	9.525	4.76	3.81	0.8							○	●			○							●								

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

Applicable tool

DTGNR/L
Kr:91°

PTFNR/L
Kr:90°



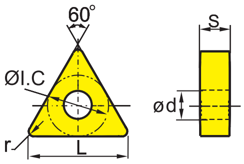
PTTNR/L
Kr:60°

PTGNR/L
Kr:90°

PTFNR/L
Kr:90°

Page A169 A180 A181 A182 A216

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	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HDR  For heavy machining	**TNMM160408-HDR**	16.5	9.525	4.76	3.81	0.8					○	○																				
	TNMM160412-HDR	16.5	9.525	4.76	3.81	1.2					○	○																				
	TNMM220408-HDR	22	12.7	4.76	5.16	0.8					○	○																				
	TNMM220412-HDR	22	12.7	4.76	5.16	1.2					○	○																				
	TNMM220416-HDR	22	12.7	4.76	5.16	1.6					○	○																				
	TNMM270612-HDR	27.5	15.875	6.35	6.35	1.2					○	○																				
	TNMM270616-HDR	27.5	15.875	6.35	6.35	1.6					○	○																				
	TNMM270624-HDR	27.5	15.875	6.35	6.35	2.4					○	○																				
All round 	**TNMG110308**	11	6.35	3.18	2.26	0.8			○																							
	TNMG160404	16.5	9.525	4.76	3.81	0.4	○		●																							
	TNMG160408	16.5	9.525	4.76	3.81	0.8	●	○	●																							
	TNMG160412	16.5	9.525	4.76	3.81	1.2	●		●	○												○										
	TNMG220404	22	12.7	4.76	5.16	0.4	○		●		○																					
	TNMG220408	22	12.7	4.76	5.16	0.8	○		●		○											○										
	TNMG220412	22	12.7	4.76	5.16	1.2	●		●		○																					
	TNMG220416	22	12.7	4.76	5.16	1.6			○																							
	TNMG270612	27.5	15.875	6.35	6.35	1.2			●		●																					
	TNMG270616	27.5	15.875	6.35	6.35	1.6			○		○																					
	TNMG330916	33	19.05	9.525	7.94	1.6					●																					
	TNMG330924	33	19.05	9.525	7.94	2.4	○		○		●																					

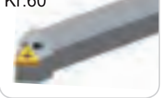
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

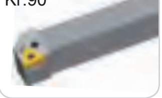
DTGNR/L
Kr:91°

PTFNR/L
Kr:90°

PTTNR/L
Kr:60°



PTGNR/L
Kr:90°

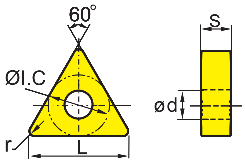


PTFNR/L
Kr:90°

Page A169 A180 A181 A182 A216

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
All round 	**TNMM160404**	16.5	9.525	4.76	3.81	0.4			○																							
	TNMM160408	16.5	9.525	4.76	3.81	0.8					○																					
	TNMM160412	16.5	9.525	4.76	3.81	1.2	○		○																							
	TNMM220408	22	12.7	4.76	5.16	0.8			○																							
	TNMM220412	22	12.7	4.76	5.16	1.2			●		○											○										
	TNMM220416	22	12.7	4.76	5.16	1.6					○																					
	TNMM270616	27.5	15.875	6.35	6.35	1.6			●		○																					
Without chipbreaker 	**TNMA160404**	16.5	9.525	4.76	3.81	0.4																			○	★	★					
	TNMA160408	16.5	9.525	4.76	3.81	0.8	○																		★	★	★					○
	TNMA160412	16.5	9.525	4.76	3.81	1.2																			★	○	○					
	TNMA160416	16.5	9.525	4.76	3.81	1.6																			○	○	○					
	TNMA220404	22	12.7	4.76	5.16	0.4																			○	○	○					
	TNMA220408	22	12.7	4.76	5.16	0.8																			○	○	○					
	TNMA270616	27.5	15.875	6.35	6.35	1.6																					○					

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

Applicable tool

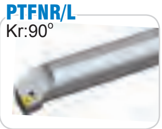
DTGNR/L
Kr:91°

PTFNR/L
Kr:90°

PTTNR/L
Kr:60°

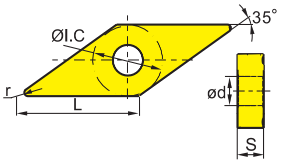
PTGNR/L
Kr:90°

PTFNR/L
Kr:90°



Page	A169	A180	A181	A182	A216

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF 	**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																																
EF 	**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																																
NF 	**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																																
NGF 	**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																																
SF 	**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

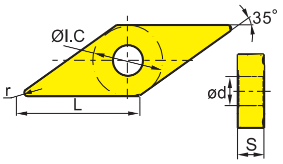
Applicable tool

DVVNN
Kr:72°30'

DVJNR/L
Kr:93°

Page	A170	A170

VN□□(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							😊	😊			😊							😊							😊	

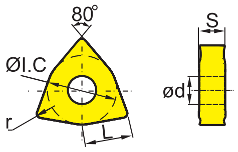
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
PM  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			○	○																	○	○					
DM  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		○	○	○												○											
EM  For semi-finishing	**VNMG160404-EM**	16.6	9.525	4.76	3.81	0.4									●	★					★		★										
	VNMG160408-EM	16.6	9.525	4.76	3.81	0.8									●	★					★		★										
NM  For semi-finishing	**VNMG160412-NM**	16.6	9.525	4.76	3.81	1.2							○	★										○							○	
SNR  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	**DVJNR/L**
	Kr:72°30'	Kr:93°
		
Page	A170	A170

WN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
DF  For finishing	WNMG06T304-DF	6.5	9.525	3.97	3.81	0.4		★																								
	WNMG06T308-DF	6.5	9.525	3.97	3.81	0.8		★		★																						
	WNMG06T312-DF	6.5	9.525	3.97	3.81	1.2		★		★																						
	WNMG060404-DF	6.5	9.525	4.76	3.81	0.4		★	●	★												○										
	WNMG060408-DF	6.5	9.525	4.76	3.81	0.8		★	●	★												●										
	WNMG060412-DF	6.5	9.525	4.76	3.81	1.2		★	●	○												○										
	WNMG080404-DF	8.7	12.7	4.76	5.16	0.4		★	●	○												○										
	WNMG080408-DF	8.7	12.7	4.76	5.16	0.8		★	●	★												●										
	WNMG080412-DF	8.7	12.7	4.76	5.16	1.2		○	○	○																						
WGF  For finishing Wiper	WNMG060404-WGF	6.5	9.525	4.76	3.81	0.4		★												★					★							
	WNMG060408-WGF	6.5	9.525	4.76	3.81	0.8		★												★					★							
	WNMG080404-WGF	8.7	12.7	4.76	5.16	0.4		★												★					★							
	WNMG080408-WGF	8.7	12.7	4.76	5.16	0.8		★												★					★							
SF  For finishing	WNMG06T304-SF	6.5	9.525	3.97	3.81	0.4							○																○	★		
	WNMG06T308-SF	6.5	9.525	3.97	3.81	0.8							○																○			
	WNMG06T312-SF	6.5	9.525	3.97	3.81	1.2							○																○			
	WNMG060404-SF	6.5	9.525	4.76	3.81	0.4							○																○	★		
	WNMG060408-SF	6.5	9.525	4.76	3.81	0.8							○																○	★		
	WNMG080404-SF	8.7	12.7	4.76	5.16	0.4							○																○	★		
	WNMG080408-SF	8.7	12.7	4.76	5.16	0.8							○																○	★		
	WNMG080412-SF	8.7	12.7	4.76	5.16	1.2							○																○			

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

Applicable tool

DWLNR/L
Kr:95°

PWLNR/L
Kr:95°

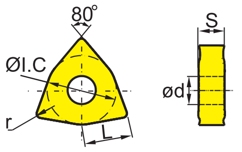
PWLNR/L
Kr:95°

Page	A171	A183	A217

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

WN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EF  For finishing	**WNMG06T304-EF**	6.5	9.525	3.97	3.81	0.4									○	★				★	○											
	WNMG06T308-EF	6.5	9.525	3.97	3.81	0.8									○	★				★	○											
	WNMG06T312-EF	6.5	9.525	3.97	3.81	1.2									○	★				★	○											
	WNMG060404-EF	6.5	9.525	4.76	3.81	0.4									●	★				★	○											
	WNMG060408-EF	6.5	9.525	4.76	3.81	0.8									●	★				★	○											
	WNMG080404-EF	8.7	12.7	4.76	5.16	0.4							○		●	★				★	★											
	WNMG080408-EF	8.7	12.7	4.76	5.16	0.8							○		●	★				★	★											
NF  For finishing	**WNEG080404-NF**	8.7	12.7	4.76	5.16	0.4							○	★																	○	
	WNEG080408-NF	8.7	12.7	4.76	5.16	0.8							○	★																	○	
WGM  For semi-finishing Wiper	**WNMG060408-WGM**	6.5	9.525	4.76	3.81	0.8				★						★											★					
	WNMG060412-WGM	6.5	9.525	4.76	3.81	1.2				★						★											★					
	WNMG080408-WGM	8.7	12.7	4.76	5.16	0.8				★						★											★					
	WNMG080412-WGM	8.7	12.7	4.76	5.16	1.2				★						★											★					

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

Applicable tool

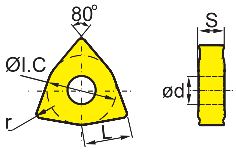
DWLNR/L
Kr:95°

PWLNR/L
Kr:95°

PWLNR/L
Kr:95°

Page A171 A183 A217

WN□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
PM  For semi-finishing	**WNMG060408-PM**	6.5	9.525	4.76	3.81	0.8		★	●	○	○															★	★					
	WNMG060412-PM	6.5	9.525	4.76	3.81	1.2		○		○																★	★					
	WNMG080404-PM	8.7	12.7	4.76	5.16	0.4		○	●	○	○																					
	WNMG080408-PM	8.7	12.7	4.76	5.16	0.8		★	●	★	●															★	★	★				
	WNMG080412-PM	8.7	12.7	4.76	5.16	1.2		★	●	★	●															★	★	★				
	WNMG080416-PM	8.7	12.7	4.76	5.16	1.6				○																○	○					
	WNMG080608-PM	8.7	12.7	6.35	5.16	0.8				○																						
DM  For semi-finishing	**WNMG06T304-DM**	6.5	9.525	3.97	3.81	0.4				○																						
	WNMG06T308-DM	6.5	9.525	3.97	3.81	0.8			○	○																						
	WNMG06T312-DM	6.5	9.525	3.97	3.81	1.2				○																						
	WNMG060408-DM	6.5	9.525	4.76	3.81	0.8		★	●	★	●											●										
	WNMG060412-DM	6.5	9.525	4.76	3.81	1.2			○	○																						
	WNMG080404-DM	8.7	12.7	4.76	5.16	0.4		★	●	★	○				○							○										
	WNMG080408-DM	8.7	12.7	4.76	5.16	0.8		★	●	★	●											○										
	WNMG080412-DM	8.7	12.7	4.76	5.16	1.2		★	●	★												○										
	WNMG080416-DM	8.7	12.7	4.76	5.16	1.6				○																						
EM  For semi-finishing	**WNMG06T304-EM**	6.5	9.525	3.97	3.81	0.4									○	★					○		★									
	WNMG06T308-EM	6.5	9.525	3.97	3.81	0.8									○	★					○		★									
	WNMG06T312-EM	6.5	9.525	3.97	3.81	1.2									○	★					○		★									
	WNMG060404-EM	6.5	9.525	4.76	3.81	0.4									○	★					○		★									
	WNMG060408-EM	6.5	9.525	4.76	3.81	0.8									●	★					○		★									
	WNMG080404-EM	8.7	12.7	4.76	5.16	0.4									●	★					★		★									
	WNMG080408-EM	8.7	12.7	4.76	5.16	0.8									●	★					★		★									
	WNMG080412-EM	8.7	12.7	4.76	5.16	1.2									●	★					★		★									

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

Applicable tool

DWLNR/L
Kr:95°

Page A171

PWLNR/L
Kr:95°

A183

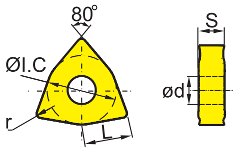
PWLNR/L
Kr:95°

A217

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

WN□□(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
P	Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M	Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K	Cast iron																			😊	😐	☹	☹				☹
N	Non-ferrous metal																									😐	☹
S	Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
NM  For semi-finishing	**WNMG080408-NM**	8.7	12.7	4.76	5.16	0.8							○	★										○							○	
	WNMG080412-NM	8.7	12.7	4.76	5.16	1.2							○	★										○							○	
DR  For roughing	**WNMG060408-DR**	6.5	9.525	4.76	3.81	0.8		○	○	○																○						
	WNMG060412-DR	6.5	9.525	4.76	3.81	1.2			○	○	○															○	○					
	WNMG080408-DR	8.7	12.7	4.76	5.16	0.8		○	○	★	○															●	●					
	WNMG080412-DR	8.7	12.7	4.76	5.16	1.2		○	○	★	○															●	●					
	WNMG080416-DR	8.7	12.7	4.76	5.16	1.6				○																○	○					
SNR  For roughing	**WNMG080408-SNR**	8.7	12.7	4.76	5.16	0.8							○	●			○							●								
	WNMG080412-SNR	8.7	12.7	4.76	5.16	1.2							○	●			○							●								
Without chipbreaker 	**WNMA06T308**	6.5	9.525	3.97	3.81	0.8																			○							
	WNMA060404	6.5	9.525	4.76	3.81	0.4																					○					
	WNMA060408	6.5	9.525	4.76	3.81	0.8																			★	○	○					
	WNMA060412	6.5	9.525	4.76	3.81	1.2																					○					
	WNMA080404	8.7	12.7	4.76	5.16	0.4																				○						
	WNMA080408	8.7	12.7	4.76	5.16	0.8																			★	★	★					
	WNMA080412	8.7	12.7	4.76	5.16	1.2																			★	★	★					
	WNMA080416	8.7	12.7	4.76	5.16	1.6																					★					

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

Applicable tool

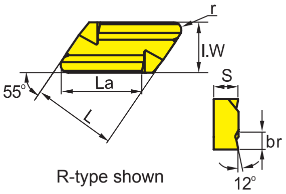
DWLNR/L
Kr:95°

PWLNR/L
Kr:95°

PWLNR/L
Kr:95°

Page A171 A183 A217

KN☐☐(Negative inserts)



R-type shown

😊 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							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)						Coated cemented carbide																						Cermet	Coated cermet	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	KNUX160405L11	16	16.15	9.525	4.76	2.2	0.5	○		●	★	○											●										
	KNUX160410L11	16	16.15	9.525	4.76	2.2	1.0			●													○										
	KNUX160405L12	16	16.15	9.525	4.76	2.2	0.5	○		●													○										
	KNUX160410L12	16	16.15	9.525	4.76	2.2	1.0	○	○	●													○										
	KNUX160415L12	16	16.15	9.525	4.76	2.2	1.5			○																							
	KNUX160405R11	16	16.15	9.525	4.76	2.2	0.5	●		●	○	●											●										
	KNUX160410R11	16	16.15	9.525	4.76	2.2	1.0	○		●													○										
	KNUX160405R12	16	16.15	9.525	4.76	2.2	0.5	●		●													○										
	KNUX160410R12	16	16.15	9.525	4.76	2.2	1.0	○	○	●		○											○										
	KNUX160415R12	16	16.15	9.525	4.76	2.2	1.5			○																							

Note: KNUX160405L11
Chipbreaker code: 11→Declining chipbreaker 12→Straight chipbreaker

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

Applicable tool

CKJNR/L
Kr:93°

CKNNR/L
Kr:63°

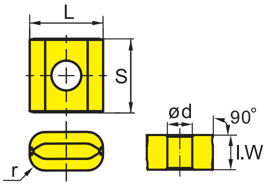
Page	A204	A204

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

Cemented carbide and cermet inserts

Heavy turning(Negative inserts)

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

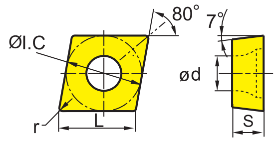


Workpiece material	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	I.W	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
 Inserts for train wheel hub	**175.32-191940-22**	19.05	10	19.05	6.35	4.0	●		●																							
	175.32-191940-27	19.05	10	19.05	7.2	4.0			●																							
 Inserts for train wheel hub	**175.32-191940-24**	19.05	10	19.05	6.35	4.0	○		●																							
	175.32-301940-24	30	10	19.05	6.35	4.0	○		●																							
 Inserts for train wheel hub	**175.32-191940-25**	19.05	10	19.05	6.35	4.0			●																							
 Inserts for train wheel hub	**175.32-191940-28**	19.05	10	19.05	6.35	4.0	●	★	●	○																						

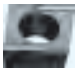
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

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							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  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									○	○																
USF  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									○	○																
SF  For extra finishing	**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							○																○	★		
HF  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

Applicable tool

SCACR/L
Kr:90°

Page A184

SCLCR/L
Kr:95°

A185

SCLCR/L
Kr:95°

A218

SCFCR/L
Kr:90°

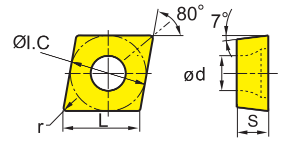
A232

SCLCR/L
Kr:95°

A233

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

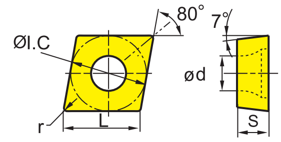
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
EF  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							○		●	★				○	○											
HM  For semi-finishing	**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	●	★	●	★	●				●							●				●	●					
	CCMT09T308-HM	9.7	9.525	3.97	4.4	0.8		★	●	★	●				●							●				●	●					
	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		○	○																	○						
EM  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

Applicable tool

SCACR/L Kr:90°	SCLCR/L Kr:95°	SCLCR/L Kr:95°	SCFCR/L Kr:90°	SCLCR/L Kr:95°
				
Page A184	A185	A218	A232	A233

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							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HR  For roughing	**CCMT060204-HR**	6.4	6.35	2.38	2.8	0.4		○	●	○	○				○																	
	CCMT060208-HR	6.4	6.35	2.38	2.8	0.8		○	●		●											●					●					
	CCMT09T304-HR	9.7	9.525	3.97	4.4	0.4			●		○				○																	
	CCMT09T308-HR	9.7	9.525	3.97	4.4	0.8		★	●	★	●											●			●	●	●				●	
	CCMT120408-HR	12.9	12.7	4.76	5.56	0.8		★	●		●				○							●			●	●	●				●	●
	CCMT120412-HR	12.9	12.7	4.76	5.56	1.2		○	●		●											○				●	○					
LC  For Al machining	**CCGX060202-LC**	6.4	6.35	2.38	2.8	0.2																									★	
	CCGX060204-LC	6.4	6.35	2.38	2.8	0.4																									★	
	CCGX09T302-LC	9.7	9.525	3.97	4.4	0.2																									★	
	CCGX09T304-LC	9.7	9.525	3.97	4.4	0.4																									★	
	CCGX09T308-LC	9.7	9.525	3.97	4.4	0.8																									★	
	CCGX120404-LC	12.9	12.7	4.76	5.5	0.4																									★	
	CCGX120408-LC	12.9	12.7	4.76	5.5	0.8																									★	
LH  For Al machining	**CCGX060202-LH**	6.4	6.35	2.38	2.8	0.2																									★	
	CCGX060204-LH	6.4	6.35	2.38	2.8	0.4																									★	●
	CCGX060208-LH	6.4	6.35	2.38	2.8	0.8																									★	
	CCGX09T302-LH	9.7	9.525	3.97	4.4	0.2																									★	

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

Applicable tool

SCACR/L
Kr:90°

SCLCR/L
Kr:95°

SCLCR/L
Kr:95°

SCFCR/L
Kr:90°

SCLCR/L
Kr:95°

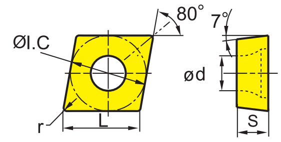
Page	A184	A185	A218	A232	A233

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
LH  For Al machining	**CCGX09T304-LH**	9.7	9.525	3.97	4.4	0.4																									★	●
	CCGX09T308-LH	9.7	9.525	3.97	4.4	0.8																									★	
	CCGX120402-LH	12.9	12.7	4.76	5.56	0.2																									○	
	CCGX120404-LH	12.9	12.7	4.76	5.56	0.4																									★	
	CCGX120408-LH	12.9	12.7	4.76	5.56	0.8																									★	
	CCGX120412-LH	12.9	12.7	4.76	5.56	1.2																									○	
Without chipbreaker 	**CCMW060204**	6.4	6.35	2.38	2.8	0.4																									●	
	CCMW09T304	9.7	9.525	3.97	4.4	0.4																									●	●
	CCMW09T308	9.7	9.525	3.97	4.4	0.8	○																								○	
	CCMW120404	12.9	12.7	4.76	5.56	0.4																										●
	CCMW120408	12.9	12.7	4.76	5.56	0.8																									●	○

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

Applicable tool

SCACR/L
Kr:90°

SCLCR/L
Kr:95°

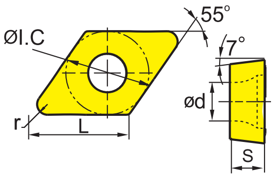
SCLCR/L
Kr:95°

SCFCR/L
Kr:90°

SCLCR/L
Kr:95°

Page	SCACR/L	SCLCR/L	SCLCR/L	SCFCR/L	SCLCR/L
Page	A184	A185	A218	A232	A233

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  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									●	○																
USF  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									●	○																
SF  For extra finishing	**DCGT070202-SF**	7.8	6.35	2.38	2.8	0.2							○																○			
	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							○																○	○		
HF  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		★	●	★	○				●											○	○		●			○
	DCMT11T308-HF	11.6	9.525	3.97	4.4	0.8		★	●	○					○														○			

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

Applicable tool

SDACR/L
Kr:90°

SDJCR/L
Kr:93°

SDNCN
Kr:62°30'

SDQCR/L
Kr:107°30'

SDUCR/L
Kr:93°

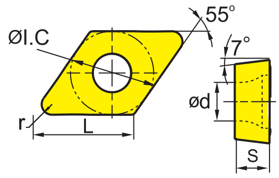
SDZCR/L
Kr:95°

Page	A186	A187	A188	A219	A220	A221

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EF  For finishing	DCMT070202-EF	7.8	6.35	2.38	2.8	0.2							○		●	★				★	○											
	DCMT070204-EF	7.8	6.35	2.38	2.8	0.4							○		●	★				★	○											
	DCMT11T302-EF	11.6	9.525	3.97	4.4	0.2							○		●	★				★	○											
	DCMT11T304-EF	11.6	9.525	3.97	4.4	0.4							○		●	★				★	○											
	DCMT11T308-EF	11.6	9.525	3.97	4.4	0.8							○		●	★				○	○											
HM  For semi-finishing	DCMT070204-HM	7.8	6.35	2.38	2.8	0.4		★	●	★	●				●							●					●					
	DCMT070208-HM	7.8	6.35	2.38	2.8	0.8		★	●	★					○							○					○					
	DCMT11T304-HM	11.6	9.525	3.97	4.4	0.4	●	★	●	★	○				●							●				●	●		●		●	○
	DCMT11T308-HM	11.6	9.525	3.97	4.4	0.8	●	★	●	★	●				●							●				●	○		○			○
	DCMT11T312-HM	11.6	9.525	3.97	4.4	1.2			○																							
EM  For semi-finishing	DCMT070204-EM	7.8	6.35	2.38	2.8	0.4									●	★					○		★									
	DCMT070208-EM	7.8	6.35	2.38	2.8	0.8									●	★					○		★									
	DCMT11T304-EM	11.6	9.525	3.97	4.4	0.4									●	★					○		★									
	DCMT11T308-EM	11.6	9.525	3.97	4.4	0.8									●	★					○		★									

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

Applicable tool

SDACR/L
Kr:90°

SDJCR/L
Kr:93°

SDNCN
Kr:62°30'

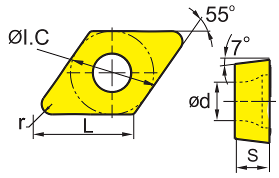
SDQCR/L
Kr:107°30'

SDUCR/L
Kr:93°

SDZCR/L
Kr:95°

Page	A186	A187	A188	A219	A220	A221

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HR	**DCMT11T304-HR**	11.6	9.525	3.97	4.4	0.4		○	●	○	○											○				○	●					
	**DCMT11T308-HR**	11.6	9.525	3.97	4.4	0.8		●	●	★	○											○			○	●	●					
	DCMT11T312-HR	11.6	9.525	3.97	4.4	1.2		○	●																							
For roughing																																
LC	**DCGX070201-LC**	7.8	6.35	2.38	2.8	0.1																									★	
	**DCGX070202-LC**	7.8	6.35	2.38	2.8	0.2																									★	
	DCGX070204-LC	7.8	6.35	2.38	2.8	0.4																									★	
For Al machining	**DCGX11T304-LC**	11.6	9.525	3.97	4.4	0.4																									★	
	DCGX11T308-LC	11.6	9.525	3.97	4.4	0.8																									★	
LH	**DCGX070202-LH**	7.8	6.35	2.38	2.8	0.2																									★	
	**DCGX070204-LH**	7.8	6.35	2.38	2.8	0.4																									★	○
	DCGX11T302-LH	11.6	9.525	3.97	4.4	0.2																									★	○
For Al machining	**DCGX11T304-LH**	11.6	9.525	3.97	4.4	0.4																									★	●
	DCGX11T308-LH	11.6	9.525	3.97	4.4	0.8																									★	
Without chipbreaker	**DCMW070204**	7.8	6.35	2.38	2.8	0.4																				○						
	**DCMW11T304**	11.6	9.525	3.97	4.4	0.4																									●	
	DCMW11T308	11.6	9.525	3.97	4.4	0.8																									●	

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

Applicable tool

SDACR/L
Kr:90°


SDJCR/L
Kr:93°


SDNCN
Kr:62°30'


SDQCR/L
Kr:107°30'


SDUCR/L
Kr:93°

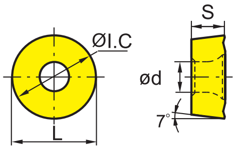

SDZCR/L
Kr:95°


Page A186 A187 A188 A219 A220 A221

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

Cemented carbide and cermet inserts

RC□□(Positive inserts)

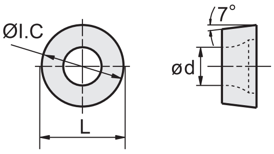


😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)				Coated cemented carbide																						Cermet	Coated 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
	RCGT1204MO	12	12	4.76	4.4			○																							
	RCMT0803MO	8.0	8.0	3.18	3.36				○																						
	RCMT10T3MO	10	10	3.97	4.4				○																						
	RCMT1204MO	12	12	4.76	4.4	○		●	★															★	★	○					
	RCMT1606MO	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	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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)				Coated cemented carbide																						Cermet	Coated 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
LH  For Al machining	RCGX0803MO-LH	8.0	8.0	3.18	3.36																									★	

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

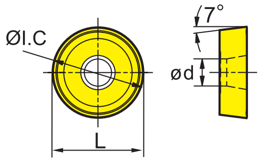
Applicable tool

SRDCN

SRGCR/L

Page A202 A203

RC□□(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
	P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
	M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
	K Cast iron																			😊	😐	☹	☹				☹
	N Non-ferrous metal																									😐	☹
	S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

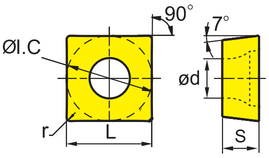
Inserts shape	Type	Dimensions(mm)				Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
	**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

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

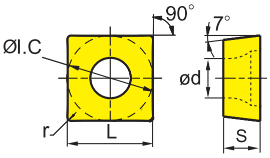
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
HF  For finishing	SCMT09T302-HF	9.525	9.525	3.97	4.4	0.2		○	○						○																	
	SCMT09T304-HF	9.525	9.525	3.97	4.4	0.4		●	●	○																						
	SCMT09T308-HF	9.525	9.525	3.97	4.4	0.8		●	○						○												○					○
EF  For finishing	SCMT09T302-EF	9.525	9.525	3.97	4.4	0.2							○		●	★				★	○											
	SCMT09T304-EF	9.525	9.525	3.97	4.4	0.4							○		●	★				★	○											
	SCMT09T308-EF	9.525	9.525	3.97	4.4	0.8							○		●	★				○	○											
HM  For semi-finishing	SCMT09T304-HM	9.525	9.525	3.97	4.4	0.4		○	●													●				●	●					
	SCMT09T308-HM	9.525	9.525	3.97	4.4	0.8		●	●	○	●				○							●				●	○					
	SCMT120404-HM	12.7	12.7	4.76	5.56	0.4		○	●		○																●					
	SCMT120408-HM	12.7	12.7	4.76	5.56	0.8		●	●	○	○		●		○							●				●						
	SCMT120412-HM	12.7	12.7	4.76	5.56	1.2		○	○													○										
EM  For semi-finishing	SCMT09T304-EM	9.525	9.525	3.97	4.4	0.4									●	★					○		★									
	SCMT09T308-EM	9.525	9.525	3.97	4.4	0.8									●	★					○		★									
	SCMT120404-EM	12.7	12.7	4.76	5.56	0.4									●	★					○		★									
	SCMT120408-EM	12.7	12.7	4.76	5.56	0.8									●	★					○		★									
	SCMT120412-EM	12.7	12.7	4.76	5.56	1.2									●	★					○		★									

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

Applicable tool

	SSBCR/L Kr:75°	**SSDCN** Kr:45°	**SSKCR/L** Kr:75°	**SSSCR/L** Kr:45°	**SSKCR/L** Kr:75°
					
Page	A194	A195	A196	A197	A222

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
LC  For Al machining	**SCGX09T304-LC**	9.525	9.525	3.97	4.4	0.4																									★	
	SCGX09T308-LC	9.525	9.525	3.97	4.4	0.8																									★	
	SCGX120408-LC	12.7	12.7	4.76	5.5	0.8																									★	
LH  For Al machining	**SCGX09T302-LH**	9.525	9.525	3.97	4.4	0.2																									○	
	SCGX09T304-LH	9.525	9.525	3.97	4.4	0.4																									○	
	SCGX09T308-LH	9.525	9.525	3.97	4.4	0.8																									★	
	SCGX120404-LH	12.7	12.7	4.76	5.56	0.4																									○	
	SCGX120408-LH	12.7	12.7	4.76	5.56	0.8																									★	
HR  For roughing	**SCMT09T304-HR**	9.525	9.525	3.97	4.4	0.4		★	●		●				●												○					
	SCMT09T308-HR	9.525	9.525	3.97	4.4	0.8		★	○		●															●	●					
	SCMT09T312-HR	9.525	9.525	3.97	4.4	1.2		★																								
	SCMT120404-HR	12.7	12.7	4.76	5.56	0.4		○	●		○																					
	SCMT120408-HR	12.7	12.7	4.76	5.56	0.8		★	●	○	●				○										○	●	●					
	SCMT120412-HR	12.7	12.7	4.76	5.56	1.2		○	○		●														○	○						
All round 	**SCMT09T304**	9.525	9.525	3.97	4.4	0.4	○		●																							
	SCMT120404	12.7	12.7	4.76	5.56	0.4			○		○																					
	SCMT120408	12.7	12.7	4.76	5.56	0.8	○		●																		○					
Without chipbreaker 	**SCMW060204**	6.35	6.35	2.38	2.8	0.4																										○
	SCMW09T304	9.525	9.525	3.97	4.4	0.4																							○			
	SCMW09T308	9.525	9.525	3.97	4.4	0.8	○																									
	SCMW120408	12.7	12.7	4.76	5.56	0.8	●																									

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

Applicable tool

SSBCR/L
Kr:75°

SSDCN
Kr:45°

SSKCR/L
Kr:75°

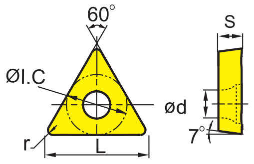
SSSCR/L
Kr:45°

SSKCR/L
Kr:75°

Page A194 A195 A196 A197 A222

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  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									●	○																
USF  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									●	○																
SF  For extra finishing	**TCGT090202-SF**	9.6	5.56	2.38	2.5	0.2							○																			
	TCGT090204-SF	9.6	5.56	2.38	2.5	0.4																								○		
	TCGT090208-SF	9.6	5.56	2.38	2.5	0.8							○																			
	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

Applicable tool

STACR/L
Kr:90°

STFCR/L
Kr:90°

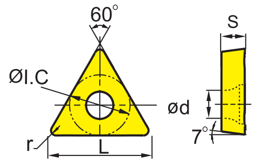
STGCR/L
Kr:91°

STECR/L
Kr:60°

STFCR/L
Kr:90°

Page	A198	A198	A199	A200	A223

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HF  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

Applicable tool


STACR/L
Kr:90°


STFCR/L
Kr:90°


STGCR/L
Kr:91°

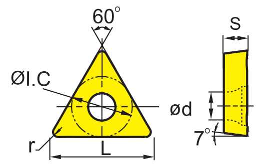

STECR/L
Kr:60°


STFCR/L
Kr:90°

Page A198 A198 A199 A200 A223

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

TC□□(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							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EF  For finishing	**TCMT090202-EF**	9.6	5.56	2.38	2.5	0.2							○		●	★				★	○											
	TCMT090204-EF	9.6	5.56	2.38	2.5	0.4							○		●	★				★	○											
	TCMT110202-EF	11	6.35	2.38	2.8	0.2							○		●	★				★	○											
	TCMT110204-EF	11	6.35	2.38	2.8	0.4							○		●	★				★	○											
	TCMT110208-EF	11	6.35	2.38	2.8	0.8							○		●	★				○	○											
	TCMT16T304-EF	16.5	9.525	3.97	4.4	0.4							○		●	★				★	○											
	TCMT16T308-EF	16.5	9.525	3.97	4.4	0.8							○		●	★				○	○											
EM  For semi-finishing	**TCMT090204-EM**	9.6	5.56	2.38	2.8	0.4									●	★					○		★									
	TCMT090208-EM	9.6	5.56	2.38	2.8	0.8									●	★					○		★									
	TCMT110204-EM	11	6.35	2.38	2.8	0.4									●	★					○		★									
	TCMT110208-EM	11	6.35	2.38	2.8	0.8									●	★					○		★									
	TCMT110212-EM	11	6.35	2.38	2.8	1.2									●	★					○		★									
	TCMT16T304-EM	16.5	9.525	3.97	4.4	0.4									●	★					○		★									
	TCMT16T308-EM	16.5	9.525	3.97	4.4	0.8									●	★					○		★									
	TCMT16T312-EM	16.5	9.525	3.97	4.4	1.2									●	★					○		★									

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

Applicable tool

STACR/L
Kr:90°

STFCR/L
Kr:90°

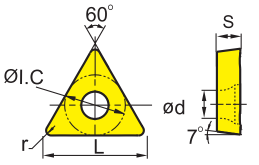
STGCR/L
Kr:91°

STECR/L
Kr:60°

STFCR/L
Kr:90°

Page	A198	A198	A199	A200	A223

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
HM  For semi-finishing	**TCMT090204-HM**	9.6	5.56	2.38	2.5	0.4		★	●		○											○					●					
	TCMT090208-HM	9.6	5.56	2.38	2.5	0.8		○	●		○																					
	TCMT110204-HM	11	6.35	2.38	2.8	0.4		★	●	○	○				●							●				●	●		○			
	TCMT110208-HM	11	6.35	2.38	2.8	0.8		★	●		○																●					
	TCMT16T304-HM	16.5	9.525	3.97	4.4	0.4		★	●	★	●											●				○	●					
	TCMT16T308-HM	16.5	9.525	3.97	4.4	0.8		★	●	★	●											●				●	●				○	
	TCMT16T312-HM	16.5	9.525	3.97	4.4	1.2			●		●											○										
HR  For roughing	**TCMT090204-HR**	9.6	5.56	2.38	2.5	0.4			○																							
	TCMT090208-HR	9.6	5.56	2.38	2.5	0.8																					○					●
	TCMT110204-HR	11	6.35	2.38	2.8	0.4			○																							
	TCMT110208-HR	11	6.35	2.38	2.8	0.8			○																							
	TCMT16T304-HR	16.5	9.525	3.97	4.4	0.4		○	●																							
	TCMT16T308-HR	16.5	9.525	3.97	4.4	0.8		●	●		●															●	●					
	TCMT16T312-HR	16.5	9.525	3.97	4.4	1.2		○	●																	●	●					○
	TCMT220408-HR	22	12.7	4.76	5.5	0.8		○	●		○											●										
LC  For Al machining	**TCGX090202-LC**	9.6	5.56	2.38	2.5	0.2																									★	
	TCGX090204-LC	9.6	5.56	2.38	2.5	0.4																									★	
	TCGX110202-LC	11	6.35	2.38	2.8	0.2																									★	
	TCGX110204-LC	11	6.35	2.38	2.8	0.4																									★	
	TCGX110208-LC	11	6.35	2.38	2.8	0.8																									★	
	TCGX16T304-LC	16.5	9.525	3.97	4.4	0.4																									★	
	TCGX16T308-LC	16.5	9.525	3.97	4.4	0.8																									★	

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

Applicable tool

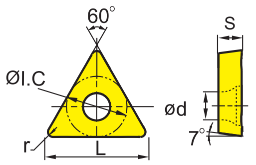
	STACR/L	**STFCR/L**	**STGCR/L**	**STECR/L**	**STFCR/L**
	Kr:90°	Kr:90°	Kr:91°	Kr:60°	Kr:90°
					
Page	A198	A198	A199	A200	A223

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

A TURNING General Turning Inserts

Cemented carbide and cermet inserts

TC□□(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												😊	😊			😊							😊							😊	
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
LH  For Al machining	**TCGX090202-LH**	9.6	5.56	2.38	2.5	0.2																									★	
	TCGX090204-LH	9.6	5.56	2.38	2.5	0.4																									★	
	TCGX110202-LH	11	6.35	2.38	2.8	0.2																									★	
	TCGX110204-LH	11	6.35	2.38	2.8	0.4																									★	
	TCGX110208-LH	11	6.35	2.38	2.8	0.8																									★	
	TCGX16T302-LH	16.5	9.525	3.97	4.4	0.2																									○	
	TCGX16T304-LH	16.5	9.525	3.97	4.4	0.4																									★	
	TCGX16T308-LH	16.5	9.525	3.97	4.4	0.8																									★	
All round 	**TCMT220408**	22	12.7	4.76	5.5	0.8	○		●																	○						○
Without chipbreaker 	**TCMW110204**	11	6.35	2.38	2.8	0.4																									●	○
	TCMW16T304	16.5	9.525	3.97	4.4	0.4	○																									○
	TCMW16T308	16.5	9.525	3.97	4.4	0.8										○										○	○					
	TCMW16T312	16.5	9.525	3.97	4.4	1.2	○									○																
	TCMW220408	22	12.7	4.76	5.5	0.8	○																				○					

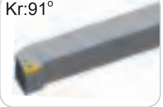
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

STACR/L
Kr:90°

STFCR/L
Kr:90°

STGCR/L
Kr:91°

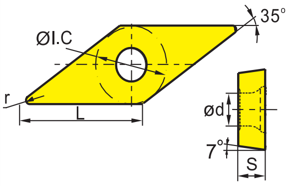


STECR/L
Kr:60°

STFCR/L
Kr:90°

Page	A198	A198	A199	A200	A223

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  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									●	○																
USF  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									●	○																
SF  For extra finishing	**VCGT110302-SF**	11	6.35	3.18	2.8	0.2							○																○	★		
	VCGT110304-SF	11	6.35	3.18	2.8	0.4							○																○	★		
HF  For finishing	**VCGT110304-HF**	11	6.35	3.18	2.8	0.4			●																							
NF  For finishing	**VCGT160408-NF**	16.5	9.525	4.76	4.4	0.8							●	★																		
NGF  For finishing	**VCGT160408-NGF**	16.5	9.525	4.76	4.4	0.8							○	●			○															

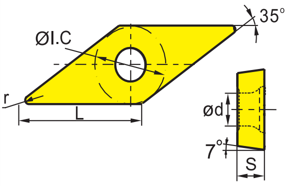
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

SVQCR/L Kr:107°30' 	**SVUCR/L** Kr:93° 	**SVVCN** Kr:72°30' 	**SVJCR/L** Kr:93° 
Page A224	A225	A192	A193

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

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

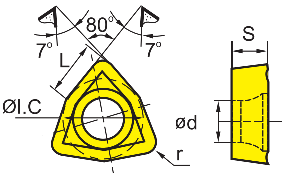
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented carbide	
		L	ØI.C	S	ød	r	YBC151	YBC152	YBC251	YBC252	YBC351	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
LC  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																									★	
LH  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																									★	
	VCGX110301-LH	11	6.35	3.18	2.8	0.1																									★	●
	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

Applicable tool

SVQCR/L Kr:107°30' 	**SVUCR/L** Kr:93° 	**SVVCN** Kr:72°30' 	**SVJCR/L** Kr:93° 
Page A224	A225	A192	A193

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	YBG302	YBM151	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
53 	WCMX040208R-53	4.3	6.35	2.38	3.1	0.8			●																							○
	WCMX06T308R-53	6.5	9.525	3.97	3.7	0.8	●		○																							○
	WCMX080412R-53	8.7	12.7	4.76	4.3	1.2									○	○	○											○				

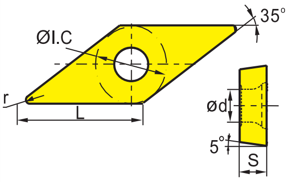
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

Page A201

Cemented carbide and cermet inserts

VB□□(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
P	Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M	Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K	Cast iron																			😊	😐	☹	☹				☹
N	Non-ferrous metal																									😐	☹
S	Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
SF  For extra finishing	**VBGT110302-SF**	11	6.35	3.18	2.8	0.2							○																○	○		
	VBGT110304-SF	11	6.35	3.18	2.8	0.4							○																○	○		
EF  For finishing	**VBMT110302-EF**	11	6.35	3.18	2.8	0.2							○		●	★				★	○											
	VBMT110304-EF	11	6.35	3.18	2.8	0.4							○		●	★				★	○											
	VBMT110308-EF	11	6.35	3.18	2.8	0.8							○		●	★				○	○											
	VBMT160404-EF	16.5	9.525	4.76	4.4	0.4							○		●	★				★	●											
	VBMT160408-EF	16.5	9.525	4.76	4.4	0.8							○		●	★				○	●											
HF  For finishing	**VBMT110202-HF**	11	6.35	2.38	2.8	0.2			●		○				●																	
	VBMT110204-HF	11	6.35	2.38	2.8	0.4			●						○												○					
	VBMT110208-HF	11	6.35	2.38	2.8	0.8			●						○																	
NF  For finishing	**VBET160404-NF**	16.5	9.525	4.76	4.4	0.4							●	★																		
	VBET160408-NF	16.5	9.525	4.76	4.4	0.8							●	★																		
NGF  For finishing	**VBET160404-NGF**	16.5	9.525	4.76	4.4	0.4							○	●			○															
	VBET160408-NGF	16.5	9.525	4.76	4.4	0.8							○	●			○															
	VBET160412-NGF	16.5	9.525	4.76	4.4	1.2							○	●			○															

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

Applicable tool

SVJBR/L
Kr:93°

SVABR/L
Kr:90°

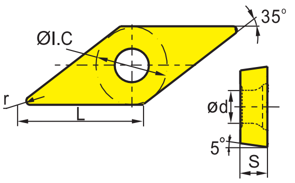
SVVBN
Kr:72°30'

SVQBR/L
Kr:107°30'

SVUBR/L
Kr:93°

Page	A189	A190	A191	A226	A227

VB☐☐(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
P	Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M	Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K	Cast iron																			😊	😐	☹	☹				☹
N	Non-ferrous metal																									😐	☹
S	Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
EM  For semi-finishing	**VBMT110304-EM**	11	6.35	3.18	2.8	0.4									●	★					○		★									
	VBMT110308-EM	11	6.35	3.18	2.8	0.8									●	★					○		★									
HM  For semi-finishing	**VBMT160404-HM**	16.5	9.525	4.76	4.4	0.4		★	●	★	●				●							●				●						○
	VBMT160408-HM	16.5	9.525	4.76	4.4	0.8		★	●	★	●				●							●				●	●					
	VBMT160412-HM	16.5	9.525	4.76	4.4	1.2			●						○							○					○					○
HR  For roughing	**VBMT160404-HR**	16.5	9.525	4.76	4.4	0.4		★	●	○	●																					
	VBMT160408-HR	16.5	9.525	4.76	4.4	0.8		○	●	○	●																○					
	VBMT160412-HR	16.5	9.525	4.76	4.4	1.2					○																					
	VBGT160408-HR	16.5	9.525	4.76	4.4	0.8			○																							
SNR  For roughing	**VBMT160408-SNR**	16.5	9.525	4.76	4.4	0.8							○	●			○							●								
	VBMT160412-SNR	16.5	9.525	4.76	4.4	1.2							○	●			○							○								

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

Applicable tool

SVJBR/L
Kr:93°

SVABR/L
Kr:90°

SVVBN
Kr:72°30'

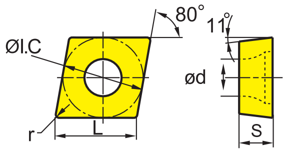
SVQBR/L
Kr:107°30'

SVUBR/L
Kr:93°

Page	A189	A190	A191	A226	A227

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

CP□□(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊								😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
SF  For extra finishing	**CPGT060202-SF**	6.4	6.35	2.38	2.8	0.2							○																○			
	CPGT060204-SF	6.4	6.35	2.38	2.8	0.4							○																○			
	CPGT09T304-SF	9.7	9.525	3.97	4.4	0.4							○																○	○		

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

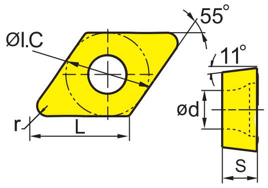
Applicable tool

SCLPR/L
Kr:95°

Page A228

DP□□(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
P Steel	☺	☺	😐	😐	☹	☹	☺		😐	😐		☹											☺	☺		
M Stainless steel							☺		😐	😐			😐	☺	☺	😐	😐						☺	☺		
K Cast iron																			☺	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							☺	☺			☺							☺							☺	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  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									●	○																
USF  For extra finis hing	**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									○	○																
SF  For extra finishing	**DPGT070202-SF**	7.8	6.35	2.38	2.8	0.2							○																○	○		
	DPGT070204-SF	7.8	6.35	2.38	2.8	0.4							○																○			
	DPGT070208-SF	7.8	6.35	2.38	2.8	0.8							○																			
	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

Applicable tool

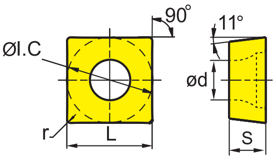
SDQPR/L
Kr:107°30'

SDUPR/L
Kr:93°

Page	A229	A230

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

SP□□(Positive inserts)



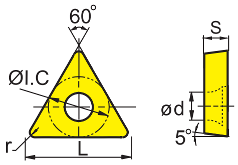
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
Without chipbreaker 	**SPMW09T304**	9.525	9.525	3.97	4.4	0.4			○																						○	
	SPMW09T308	9.525	9.525	3.97	4.4	0.8	●																									
	SPMW120408	12.7	12.7	4.76	5.56	0.8																										○

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

TB□□(Positive inserts)



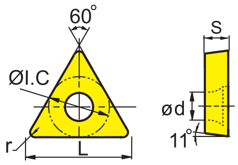
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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	**TBGH060102L**	6.4	3.97	1.59	2.2	0.2							★																★			
	TBGH060104L	6.4	3.97	1.59	2.2	0.4							★																			

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

TP☐☐(Positive inserts)



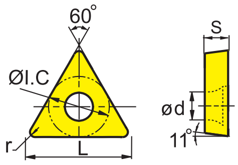
😊 Good working condition 😐 Normal working condition ☹ Bad working condition

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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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	**TPGH090202L**	9.6	5.56	2.38	2.8	0.2							●																○			
	TPGH090204L	9.6	5.56	2.38	2.8	0.4							●																●			
	TPGH110302L	11	6.35	3.18	3.18	0.2							○																●			
	TPGH110304L	11	6.35	3.18	3.18	0.4							●																●			

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

TP☐☐(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
P Steel	😊	😊	😐	😐	☹	☹	😊		😐	😐		☹											😊	😊		
M Stainless steel							😊		😐	😐			😐	😊	😊	😐	😐						😊	😊		
K Cast iron																			😊	😐	☹	☹				☹
N Non-ferrous metal																									😐	☹
S Heat resistant alloy, Ti alloy							😊	😊			😊							😊							😊	

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
SF  For extra finishing	**TPGT090202-SF**	9.6	5.56	2.38	2.5	0.2							○																	○		
	TPGT090204-SF	9.6	5.56	2.38	2.5	0.4							○																○	★		
	TPGT090208-SF	9.6	5.56	2.38	2.5	0.8							○																○			
	TPGT110302-SF	11	6.35	3.18	2.8	0.2							○																○			
	TPGT110304-SF	11	6.35	3.18	2.8	0.4							○																○	○		
	TPGT110308-SF	11	6.35	3.18	2.8	0.8							○																	○		

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

Applicable tool

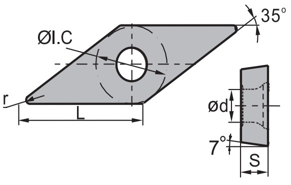
STUPR/L
Kr:93°

Page A231

Insert code key A50–A51
Grade selection reference A19/A36–A48
Chipbreaker selection reference A22–A35
Recommended cutting parameters A241–A244

VP☐☐(Positive inserts)

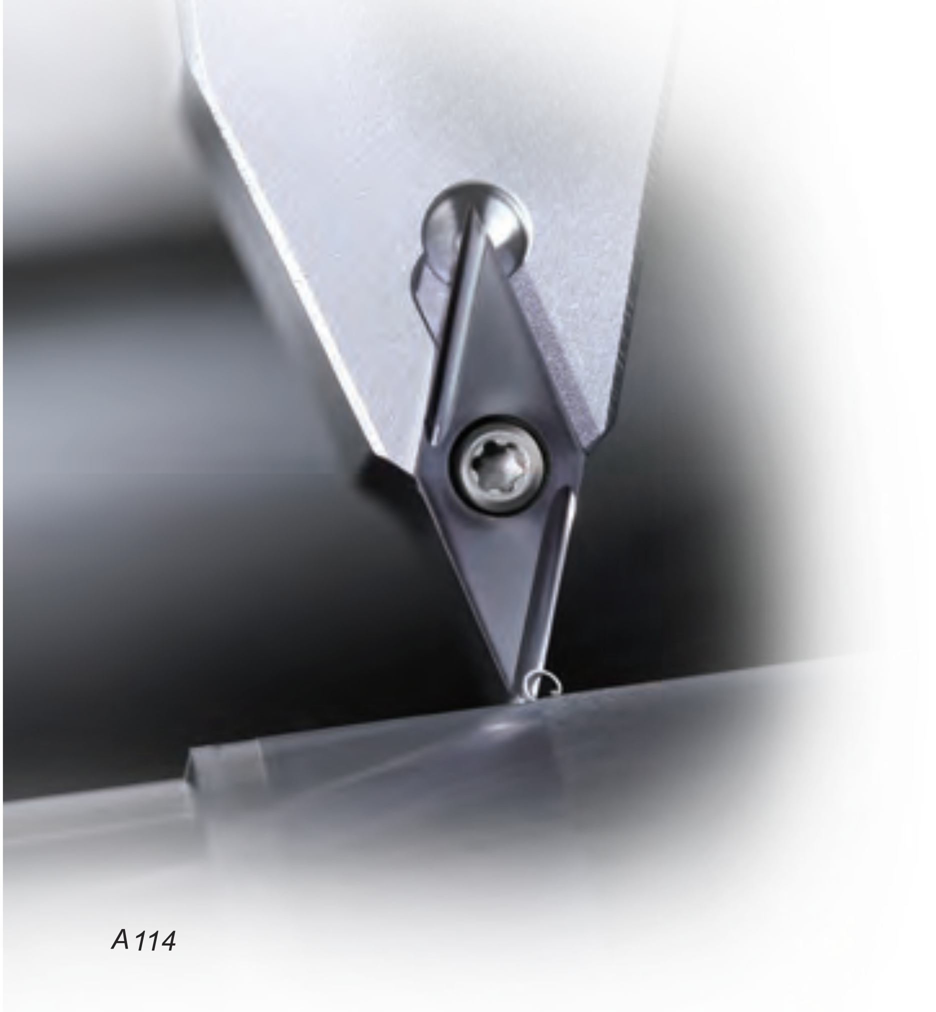
😊 Good working condition 😐 Normal working condition ☹ Bad working condition



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

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						Cermet	Coated cermet	Cemented 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
USF  For extra finishing	**VPGT080201R-USF**	8	4.76	2.38	2.3	0.1									○	○																
	VPGT080202R-USF	8	4.76	2.38	2.3	0.2									○	○																
	VPGT110301R-USF	11	6.35	3.18	2.8	0.1									●	○																
USF  For extra finishing	**VPGT080201L-USF**	8	4.76	2.43	2.3	0.1									●	○																
	VPGT080202L-USF	8	4.76	2.43	2.3	0.2									●	○																
	VPGT110301L-USF	11	6.35	3.18	2.8	0.1									○	○																

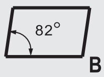
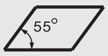
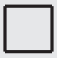
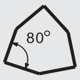
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



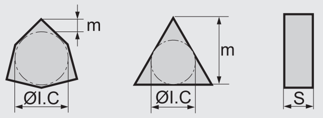
PCBN&PCD Insert

PCBN&PCD inserts code key

Insert shape

 A	 B	 C
 D	 E	 H
 K	 L	 M
 P	 S	 T
 V	 W	Others Z

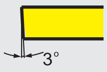
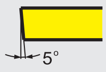
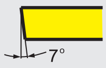
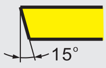
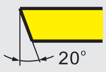
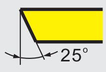
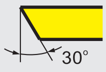
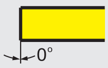
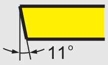
Tolerance class



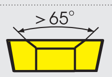
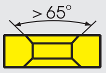
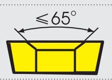
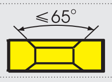
Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)	Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	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

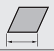
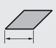
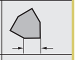
Clearance angle of main cutting edge

Code	Clearance angle	Code	Clearance angle
A		B	
C		D	
E		F	
G		N	
P		O	Other clearance angle

Chipbreaker and clamping system

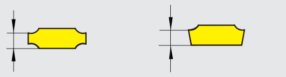
Code	With/ Without hole	Section plane of insert
N	Without	
B	With	
C	With	
A	With	
W	With	
Q	With	
X	---	Special

Length of cutting edge

Diameter of IC (mm)	Insert shape						
	C	D	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		
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				

PCBN&PCD inserts code key

Insert thickness



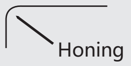
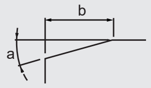
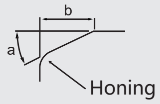
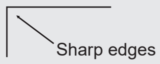
Thickness is defined as height from bottom of insert to the highest part of cutting edge.

Code	Insert thickness(mm)	Code	Insert thickness(mm)
02	2.38	**06**	6.35
T2	2.58	**T6**	6.75
03	3.18	**07**	7.94
T3	3.97	**09**	9.52
04	4.76	**T9**	9.72
T4	4.96	**11**	11.11
05	5.56	**12**	12.70
T5	5.95		

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
24	2.4
32	3.2
X	Others
Diameter of insert (Metric)	Round insert

Type of cutting edge

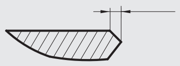
Code	Type of cutting edge	Picture
E	Honing	
T	Chamfering	
S	Chamfering +honing	
F	Sharp edges	

04 04 A T 010 20 - 2 S

Insert Structure

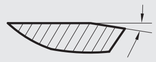
Code	Type of cutting edge	Diagram
A	Single-sided insert	
B	Intact insert	
C	penetration insert	
D	Double-sided insert	

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

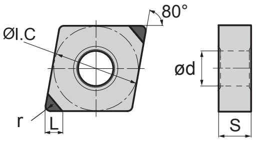
Cutting edge number

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

CN□□ (Negative angle)



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.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	S01735	12.7	4.76	5.156	0.4	2.5							○	○	○			
		CNGA120408AS01735-2		12.7	4.76	5.156	0.8	2.4							○	○	○			
		CNGA120412AS01735-2		12.7	4.76	5.156	1.2	2.3							○	○	○			
		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

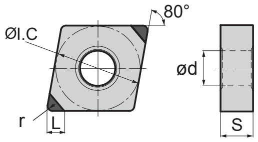
DCLNR/L
Kr:95°

PCLNR/L
Kr:95°

PCLNR/L
Kr:95°

Page	A166	A173	A212

CN□□ （Negative angle）



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder 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							○	★	○			
		CNGA120412DS01735-4		12.7	4.76	5.156	1.2	2.3							○	★	○			
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

DCLNR/L
Kr:95°

PCLNR/L
Kr:95°

PCLNR/L
Kr:95°

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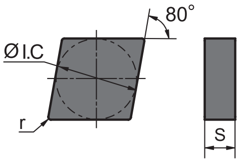
CN□□ （Negative angle）



🙂 Good working condition 😐 Normal working condition ☹️ Bad working condition

Workpiece material	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
K Cast iron	🙂	🙂	😐	☹️								
S Heat resistant alloy, Ti alloy										🙂	😐	☹️
H Super hard material					🙂	🙂	😐	☹️	☹️			
N Non ferrous metal												

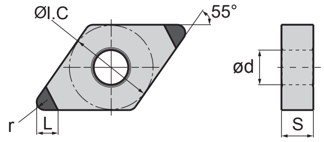
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		**CNGN120404BE**	**BE**	12.7	4.76	0.4			○									
		CNGN120408BE		12.7	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.

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

DN□□ （Negative angle）



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Single-sided insert		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	○	○								○	○	○
		DNGA150612AT01215-2		12.7	6.35	5.156	1.2	2.0	○	○								○	○	○
		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.

★ 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°

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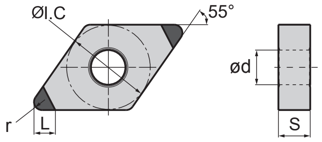
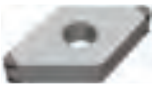
DN□□ (Negative angle)



😊 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												

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)					Cast iron				Hardened steel					Powder 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	○	○								○	○	○
		DNGA150612DE-4		12.7	6.35	5.156	1.2	2.0	○	○								○	○	○
		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°

PDJNR/L
Kr:93°

PDPNN
Kr:62°30'

PDPNR/L
Kr:62°30'

PDUNR/L
Kr:93°

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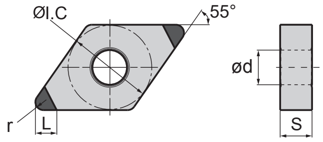
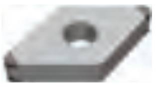
DN☐☐ (Negative angle)



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Double-sided insert		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	S00815	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					★	★	○					
		DNGA150602DS00815-4		12.7	6.35	5.156	0.2	2.7					★	★	○					
		DNGA150604DS00815-4		12.7	6.35	5.156	0.4	2.5					★	★	○					
		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	S01735	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°

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PDJNR/L
Kr:93°

A174

PDPNN
Kr:62°30'

A175

PDPNR/L
Kr:62°30'

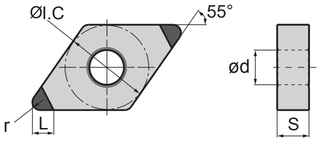
A213

PDUNR/L
Kr:93°

A214

PCBN&PCD inserts

DN□□ (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													

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)					Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Penetration insert		**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			★									
		DNGA150612CT01215-2		12.7	6.35	5.156	1.2	2.0			★									
		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°

PDJNR/L
Kr:93°

PDPNN
Kr:62°30'

PDPNR/L
Kr:62°30'

PDUNR/L
Kr:93°

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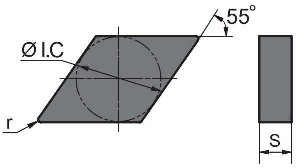
DN□□ (Negative angle)



😊 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												

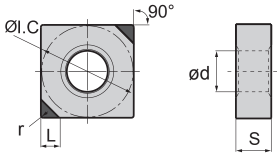
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		**DNGN150404BE**	**BE**	12.7	4.76	0.4			○									
		DNGN150408BE		12.7	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			★									
		DNGN150612BT01215		12.7	6.35	1.2			★									
		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

SN□□ (Negative angle)



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

Workpiece material	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Single-sided insert		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										○	○	○
		SNGA120408AT01215-4		12.7	4.76	5.156	0.8	2.2										○	○	○
		SNGA120412AT01215-4		12.7	4.76	5.156	1.2	2.0										○	○	○
		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.

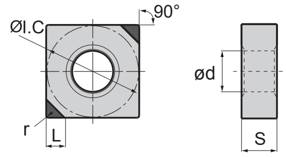
When using PCBN blades, please try to keep the cutting depth below. 0.5mm.

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

Applicable tool

	DSBNR/L	**PSBNR/L**	**PSDNN**	**PSKNR/L**	**PSSNR/L**	**PSKNR/L**
	Kr:75°	Kr:75°	Kr:45°	Kr:75°	Kr:45°	Kr:75°
						
Page	A168	A176	A177	A178	A179	A215

SN□□ (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												

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)					Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Double-sided insert		**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					○	○	○	○	○			
		SNGA120412DS01225-8		12.7	4.76	5.156	1.2	2.0					○	○	○	○	○			
		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

DSBNR/L
Kr:75°


PSBNR/L
Kr:75°


PSDNN
Kr:45°


PSKNR/L
Kr:75°


PSSNR/L
Kr:45°


PSKNR/L
Kr:75°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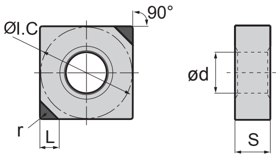
SN□□ (Negative angle)



😊 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												

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)					Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Penetration insert		**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			★									
		SNGA120412CT01215-2		12.7	4.76	5.156	1.2	2.0			★									
		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°

PSBNR/L
Kr:75°

PSDNN
Kr:45°

PSKNR/L
Kr:75°

PSSNR/L
Kr:45°

PSKNR/L
Kr:75°

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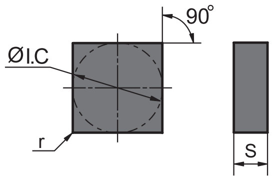
SN☐☐ (Negative angle)



😊 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												

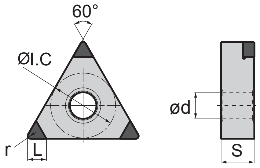
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		**SNGN120404BE**	**BE**	12.7	4.76	0.4			○									
		SNGN120408BE		12.7	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.

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

TN□□ (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												

Type	Shape of insert	Model	Specifi-cation	Dimension(mm)					Cast iron				Hardened steel					Powder 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	T01215	9.525	4.76	3.81	0.4	2.5	○	○								○	○	○
		TNGA160408AT01215-3		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					○	○	○					
		TNGA160412AS00815-3		9.525	4.76	3.81	1.2	2.0					○	○	○					
		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							○	○	○			
Double-sided insert		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°

PTFNR/L
Kr:90°

PTTNR/L
Kr:60°

PTGNR/L
Kr:90°

PTFNR/L
Kr:90°

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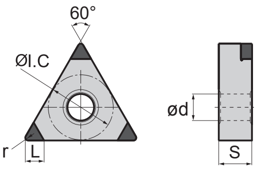
TN□□ （Negative angle）



☺ Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.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							○	★	○			
Penetration insert		TNGA160404CE-3	CE	9.525	4.76	3.81	0.4	2.5			○									
		TNGA160408CE-3		9.525	4.76	3.81	0.8	2.2			○									
		TNGA160412CE-3		9.525	4.76	3.81	1.2	2.0			○									
		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°

PTFNR/L
Kr:90°

PTTNR/L
Kr:60°

PTGNR/L
Kr:90°

PTFNR/L
Kr:90°

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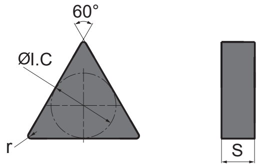
TN□□ (Negative angle)



😊 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													

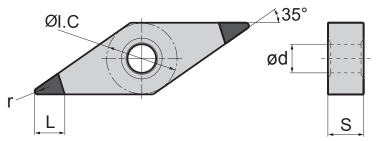
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		**TNGN160404BE**	**BE**	9.525	4.76	0.4			○									
		TNGN160408BE		9.525	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													
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					Powder 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	**T01215**	9.525	4.76	3.81	0.4	2.8										○	○	○
		VNGA160408AT01215-2		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					○	○	○					
		VNGA160412AS00815-2		9.525	4.76	3.81	1.2	2.0					○	○	○					
		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							○	○	○			
Double-sided insert		**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

DVVNN
Kr:72°30'

DVJNR/L
Kr:93°

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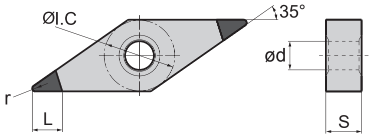
VN□□（Negative angle）



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

Workpiece material													
Workpiece material	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					Powder 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	CE	9.525	4.76	3.81	0.2	3.3			○									
		VNGN160404CE-2		9.525	4.76	3.81	0.4	2.8			○									
		VNGN160408CE-2		9.525	4.76	3.81	0.8	2.5												
		VNGN160412CE-2		9.525	4.76	3.81	1.2	2.0			○									
		VNGA160402CT01215-2	T01215	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

DVVNN
Kr:72°30'

DVJNR/L
Kr:93°

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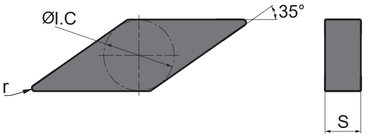
VN□□ （Negative angle）



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
K	Cast iron	😊	😊	😐	☹								
S	Heat resistant alloy, Ti alloy										😊	😐	☹
H	Super hard material					😊	😊	😐	☹	☹			
N	Non ferrous metal												

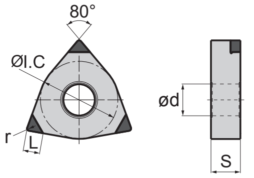
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		VNGN160402BE	BE	9.525	4.76	0.4			○									
		VNGN160404BE		9.525	4.76	0.4			○									
		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

WN□□（Negative angle）



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder alloy& Superalloy		
				ØI.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	T01215	12.7	4.76	5.16	0.4	2.5										○	○	○
		WNGA080408AT01215-3		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					○	○	○					
		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							○	○	○			
Double-sided insert		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

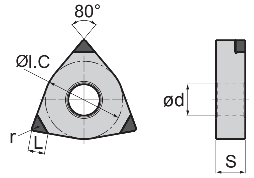
DWLNR/L
Kr:95°

PWLNR/L
Kr:95°

PWLNR/L
Kr:95°

Page	A171	A183	A217

WN☐☐ （Negative angle）



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

Workpiece material		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
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					Powder 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							○	★	○			
		WNGA080412DS01735-6		12.7	4.76	3.81	1.2	2.0							○	★	○			
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

DWLNR/L
Kr:95°

Page A171

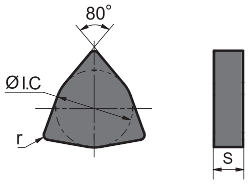
PWLNR/L
Kr:95°

A183

PWLNR/L
Kr:95°

A217

WN□□ (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												

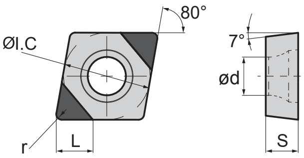
Type	Shape of insert	Model	Specifi-cation	Dimension(mm)			Cast iron				Hardened steel					Powder alloy& Superalloy		
				ØI.C	S	r	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
Intact insert		**WNGN080404BE**	**BE**	12.7	4.76	0.4			○									
		WNGN080408BE		12.7	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		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
K	Cast iron	😊	😊	😐	☹								
S	Heat resistant alloy, Ti alloy										😊	😐	☹
H	Super hard material					😊	😊	😐	☹	☹			
N	Non ferrous metal												

Insert shape	Sepcification	Dimsension(mm)					Cast iron				Hardened steel					Powder alloy& Superalloy		
		ØI.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	○	○								○	○	○
	CCGW09T308AE-2	9.525	3.97	4.4	0.8	2.4	○	○								○	○	○
	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	○	○								○	○	○

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

SCACR/L
Kr:90°

SCLCR/L
Kr:95°

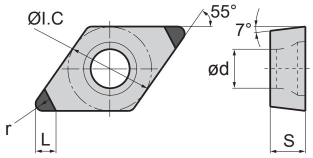
SCLCR/L
Kr:95°

SCFCR/L
Kr:90°

SCLCR/L
Kr:95°

Page	A184	A185	A218	A232	A233

DC□□ （Positive 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												

Insert shape	Sepcification	Dimsension(mm)					Cast iron				Hardened steel					Powder 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	○	○								○	○	○
	DCGW11T304AE-2	9.525	3.97	4.4	0.4	2.5	○	○								○	○	○
	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

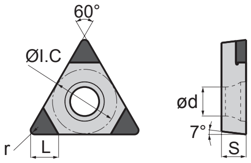
SDUCR/L
Kr:93°

A220

SDZCR/L
Kr:95°

A221

TC□□ （Positive angle）



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

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

Insert shape	Sepcification	Dimsension(mm)					Cast iron				Hardened steel					Powder 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	○	○								○	○	○
	TCGW110204AE-3	6.35	2.38	2.8	0.4	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°

STFCR/L
Kr:90°

STGCR/L
Kr:91°

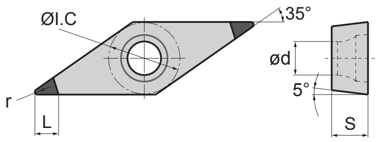
STECR/L
Kr:60°

STFCR/L
Kr:90°

Page	A198	A198	A199	A200	A223

VB□□ (Positive 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												

Insert shape	Sepcification	Dimsension(mm)					Cast iron				Hardened steel					Powder alloy& Superalloy		
		ØI.C	S	ød	r	L	BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
	**VBGW160402AE-2**	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	VBGW160404AE-2	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	VBGW160408AE-2	9.525	4.76	4.4	0.8	2.5	○	○								○	○	○
	VBGW160402AS01225-2	9.525	4.76	4.4	0.2	3.3					○	○	○	○		○	○	○
	VBGW160404AS01225-2	9.525	4.76	4.4	0.4	2.8					○	○	○	○		○	○	○
	VBGW160408AS01225-2	9.525	4.76	4.4	0.8	2.5					○	○	○	○		○	○	○
	VBGW160402AT01225-2	9.525	4.76	4.4	0.2	3.3	○	○								○	○	○
	VBGW160404AT01225-2	9.525	4.76	4.4	0.4	2.8	○	○								○	○	○
	VBGW160408AT01225-2	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.

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

★ 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

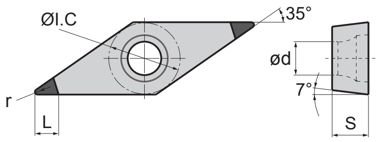
SVQBR/L
Kr:107°30'

A226

SVUBR/L
Kr:93°

A227

VC□□ (Positive 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												

Insert shape	Sepcification	Dimsension(mm)					Cast iron				Hardened steel					Powder 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 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

SVVCN
Kr:72°30'


SVJCR/L
Kr:93°


SVQCR/L
Kr:107°30'


SVUCR/L
Kr:93°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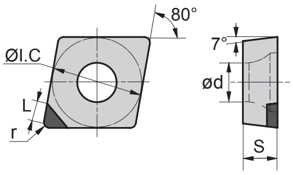
CC□□ (Positive angle)



☺ Good working condition 😐 Normal working condition ☹ Bad working condition

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

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	○	○	○	○
		CCMX060204AF	6.35	2.38	2.8	0.4	2.5	○	○	○	○
		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°

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SCLCR/L
Kr:95°

A185

SCLCR/L
Kr:95°

A218

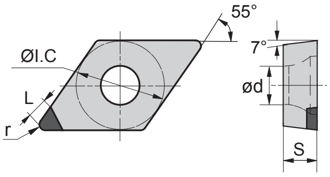
SCFCR/L
Kr:90°

A232

SCLCR/L
Kr:95°

A233

DC☐☐（Positive angle）



🙂 Good working condition 😐 Normal working condition 🙁 Bad working condition

Workpiece material	K Cast iron				
	S Heat resistant alloy, Ti alloy				
	H Super hard material				
	N 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 angle		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	○	○	○	○
		DCMX11T304AF	9.525	3.97	4.4	0.4	2.5	○	○	○	○
		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°

SDJCR/L
Kr:93°

SDNCN
Kr:62°30'

SDQCR/L
Kr:107°30'

SDUCR/L
Kr:93°

SDZCR/L
Kr:95°

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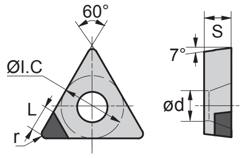
TC□□ （Positive inserts）



☺ Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material		DN0121	DN0511	DN1021	DN3021
K	Cast iron				
S	Heat resistant alloy, Ti alloy				
H	Super hard material				
N	Non ferrous metal	☺	☺	😐	☹

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 angle		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	○	○	○	○
		TCMX110204AF	6.35	2.38	2.8	0.4	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°

STFCR/L
Kr:90°

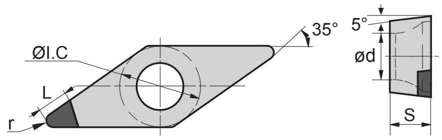
STGCR/L
Kr:91°

STECR/L
Kr:60°

STFCR/L
Kr:90°

Page					
Page	A198	A198	A199	A200	A223

VB□□ （Positive inserts）



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

Workpiece material	DN0121	DN0511	DN1021	DN3021
K Cast iron				
S Heat resistant alloy, Ti alloy				
H Super hard material				
N Non ferrous metal	😊	😊	😐	☹

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

SVABR/L
Kr:90°

SVVBN
Kr:72°30'

SVQBR/L
Kr:107°30'

SVUBR/L
Kr:93°

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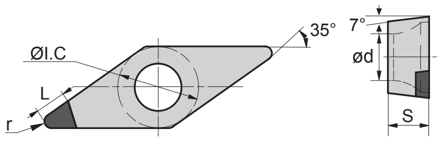
PCBN&PCD inserts

VC□□ （Positive inserts）



🙂 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	🙂	🙂	😐	☹

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 angl		**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

SVVCN
Kr:72°30'

SVJCR/L
Kr:93°

SVQCR/L
Kr:107°30'

SVUCR/L
Kr:93°

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Abnormal failure and solutions for cast iron machining

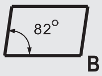
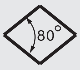
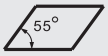
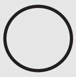
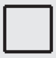
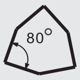
Abnormal failure		Solution
Breakage	Breakage occurs on chamfer of rake face	Enlarge chamfered negative rake angle
	Edge crashing appears when finishing grey cast iron	
Abrasion	Abrasion occurs when machining nodular cast iron	Change to dry cutting
	Abrasion under dry cutting conditions	Reduce cutting speed
	Abrasion occurs when machining grey cast iron	Change to dry cutting, increase cutting speed
Surface quality	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

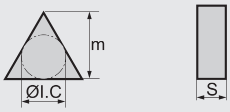
Abnormal failure			Solution
Breakage	Cutting edge breakage		Enlarge chamfered negative rake angle; raise cutting speed and reduce feed
	Flaking and crater wear on rake face		Reduce cutting speed
	Thermal cracks		Change to dry cutting; reduce cutting speed
Abrasion	Wear occurs on chamfer of rake face		Reduce cutting speed
	Rapid wear when finishing grey cast iron		
Surface quality	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

Ceramic inserts code key

Insert shape

 A	 B	 C
 D	 E	 H
 K	 L	 M
 P	 R	 S
 T	 V	 W

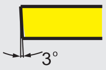
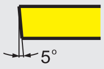
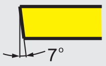
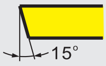
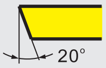
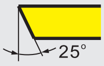
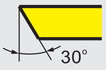
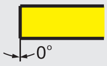
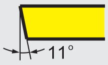
Tolerance class



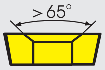
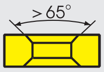
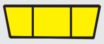
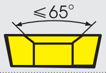
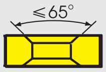
Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)	Code	Nose height M Tolerance(mm)	Inscribed circle Tolerance(mm)	Thickness S Tolerance(mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	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

R P G N

Clearance angle of main cutting edge

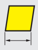
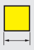
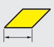
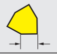
Code	Clearance angle	Code	Clearance angle
A		B	
C		D	
E		F	
G		N	
P		O	Other clearance angle

Chipbreaker and clamping system

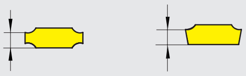
Code	With/Without hole	Section plane of insert
N	Without	
B	With	
C	With	
A	With	
W	With	
Q	With	
X	---	Special

Ceramic inserts code key

Length of cutting edge

Diameter of IC (mm)	Insert shape					
	C	D	S	T	V	W
						
3.97				06		
5.0						
5.56				09		
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		15	27		
16.0		19				
19.05	19		19	33		
20.0						
25.0	25	25				
25.4			25			
31.75						
32						

Insert thickness



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

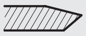
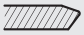
Code	Insert thickness(mm)	Code	Insert thickness(mm)
02	2.38	**06**	6.35
T2	2.58	**T6**	6.75
03	3.18	**07**	7.94
T3	3.97	**09**	9.52
04	4.76	**T9**	9.72
T4	4.96	**11**	11.11
05	5.56	**12**	12.70
T5	5.95		

Nose radius code

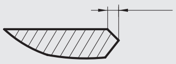
Code	Nose radius(mm)
00	No radius
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Others
Diameter of insert (Metric)	Round insert

09 07 00 T 010 20 - V

Type of cutting edge

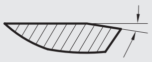
Code	Type of cutting edge	Picture
E	Honing	
T	Chamfering	
S	Chamfering +honing	
F	Sharp edges	

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
035	0.35		

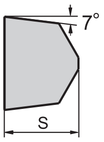
Chamfer angle

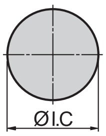


05	5°
10	10°
15	15°
20	20°
25	25°
30	30°

V-type positioning surface

Ceramic inserts





🙂 Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material	K Cast iron	☹
	S Heat resistant alloy	😐
	H Super hard material	😐

Inserts shape	Type	Dimensions(mm)		Grade
		ØI.C	S	CN3100
	**RCGN090700T01015-V**	9.525	7.94	○
	RCGN090700T01520-V	9.525	7.94	○
	RCGN090700T01020-V	9.525	7.94	●
	RCGN120700T01015-V	12.7	7.94	○
	RCGN120700T01020-V	12.7	7.94	○
	RCGN120700T01520-V	12.7	7.94	○

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

Applicable tool

1 **CRDCR/L**

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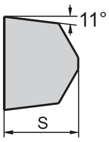
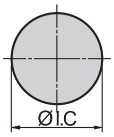
2.Tailor-made nonstandard CRXCR





🙂 Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material	K Cast iron	☹
	S Heat resistant alloy	😐
	H Super hard material	😐

Inserts shape	Type	Dimensions(mm)		Grade
		ØI.C	S	CN3100
	**RPGN090700T01015-V**	9.525	7.94	○
	RPGN090700T01520-V	9.525	7.94	○
	RPGN090700T01020-V	9.525	7.94	●
	RPGN120700T01015-V	12.7	7.94	○
	RPGN120700T01020-V	12.7	7.94	○
	RPGN120700T01520-V	12.7	7.94	○

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

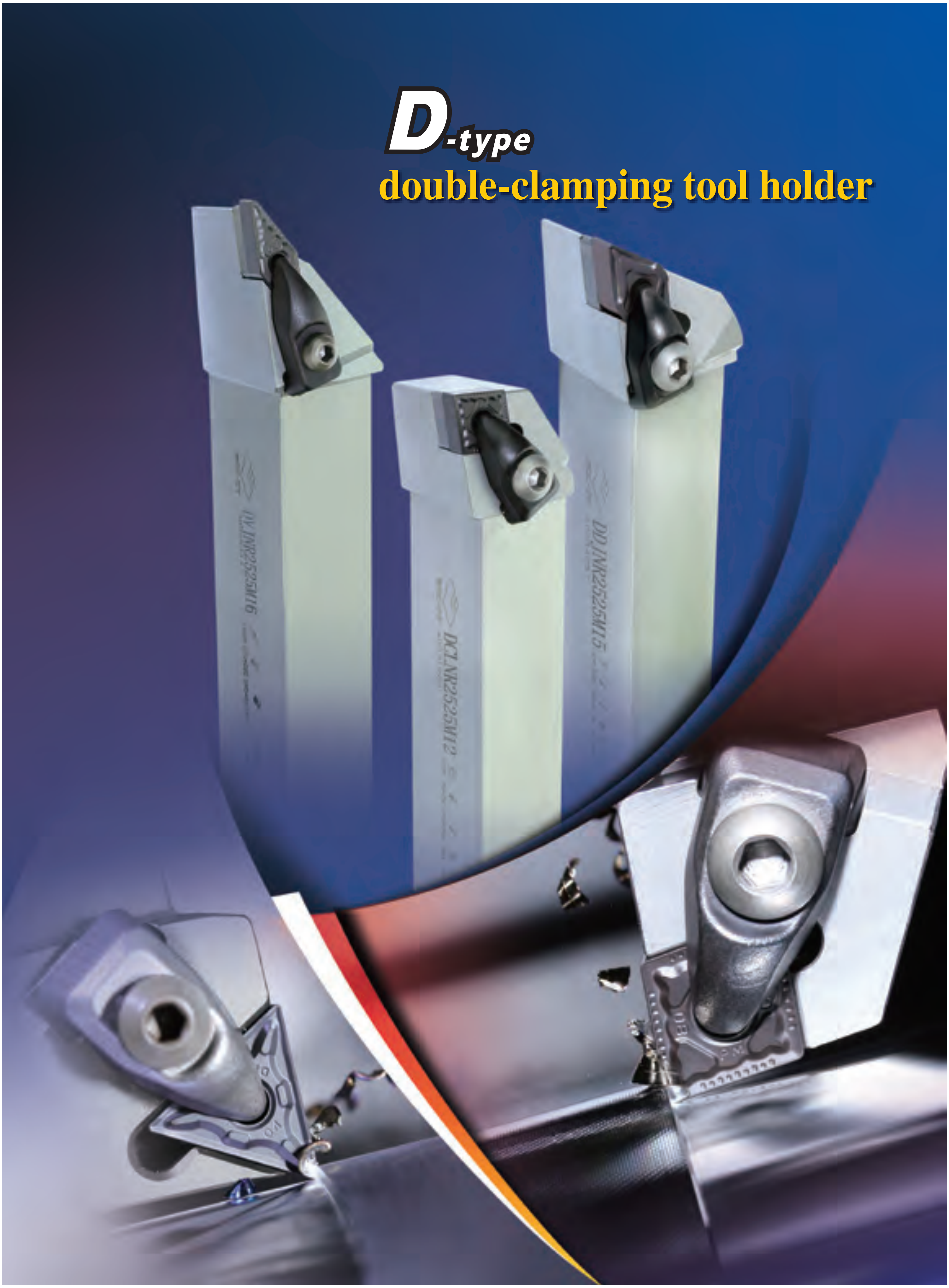
Applicable tool

1 **CRDPR/L**

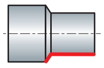
Page A205

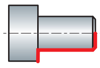
2.Tailor-made nonstandard CRXCR

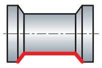
D-type
double-clamping tool holder

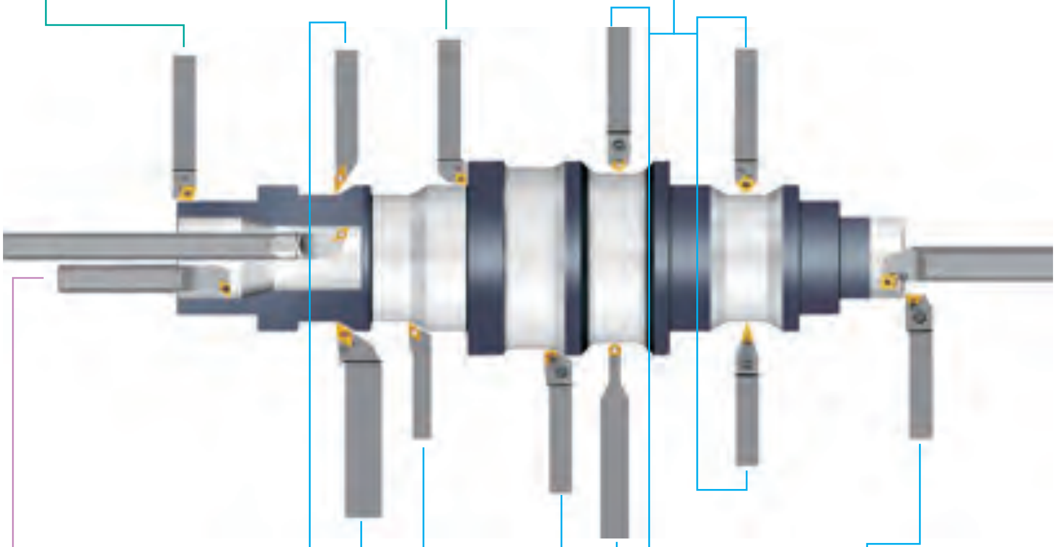


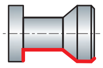
External and internal turning

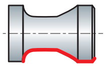
External turning	Tool holder type						
	DTGNR/L□□	DSBNR/L□□	PCBNR/L□□	PSBNR/L□□	PSSNR/L□□	PTGNR/L□□	PTTNR/L□□
	SCACR/L□□	SSBCR/L□□	SSSCR/L□□	STACR/L□□	STGCR/L□□	STECR/L□□	SWACR/L□□

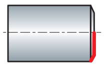
External and end surface turning	Tool holder type	
	DCLNR/L□□	DWLNR/L□□
	PCLNR/L□□	PWLNR/L□□
	SCLCR/L□□	

Profile turning	Tool holder type			
	DVVNN□□	PDPNN□□	PSDNN□□	SDNCN□□
	SVVBN□□	SVVCN□□	SSDCN□□	SRDCN□□
	CKNNR/L□□			



Profile turning	Tool holder type		
	DDJNR/L□□	DVJNR/L□□	PDJNR/L□□
	SDACR/L□□	SDJCR/L□□	SVABR/L□□
	SVJBR/L□□	SVJCR/L□□	CKJNR/L□□

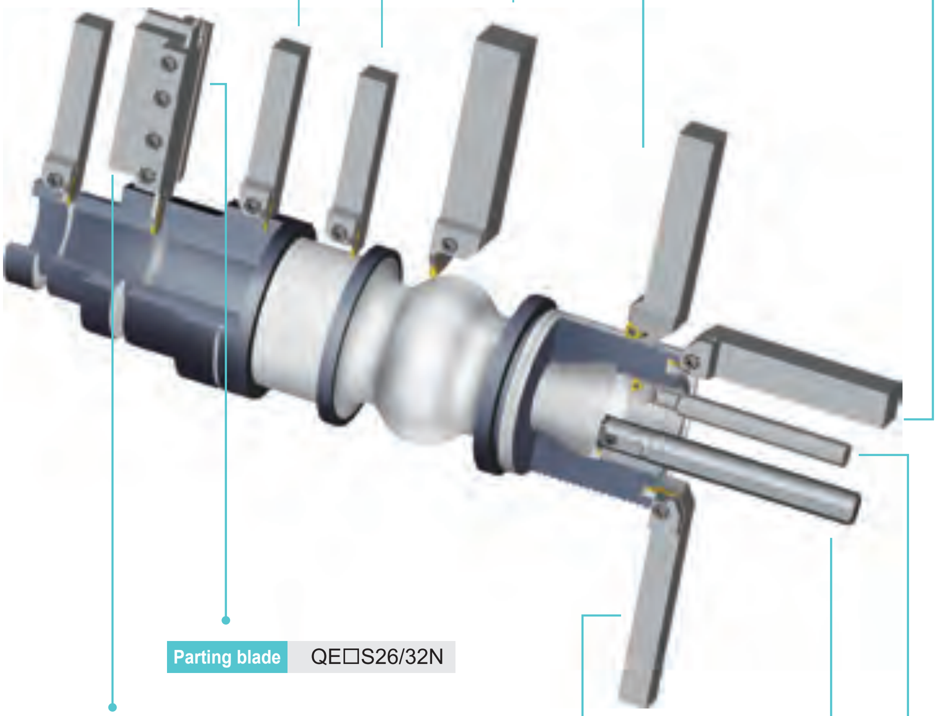
Profile turning	Tool holder type
	SRGCR/L□□

End surface turning	Tool holder type	
	PSKNR/L□□	PTFNR/L□□
	SSKCR/L□□	STFCR/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□	
	S□-STFCR/L□			S□-SVUCR/L□		
	S□-STUPR/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□

Parting, grooving and threading tools



External threading tools ZSER/L☐

End surface grooving, turning QF☐D☐☐R/L☐-☐H

Parting blade QE☐S26/32N

Parting blade holder QZS☐26/32

Internal threading tools ZSIR/L☐

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

Internal grooving, turning C☐-Q☐DR/L☐ the Little Squirrel series

End surface grooving, turning QF☐D☐R/L☐-☐L

How to select external turning tools

Explanation of external turning tools detailed table

- Listed according to clamping types.

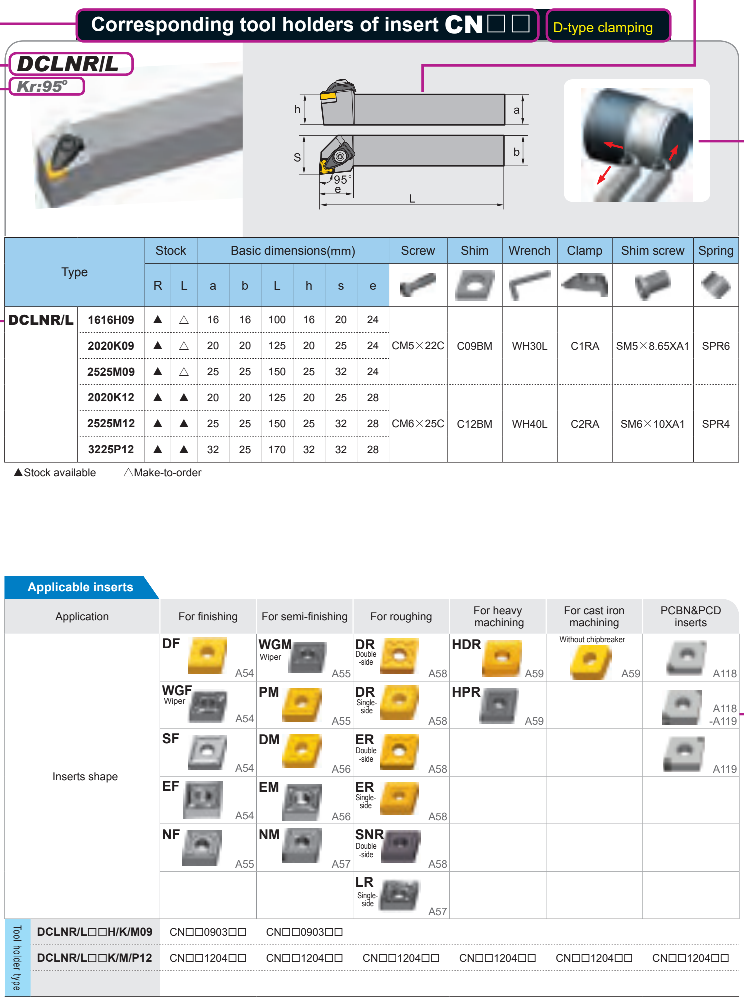
Approach angle of tools

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

Inserts type

Specification chart

Application chart
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						
DCLNR/L	**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	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M12	▲	▲	25	25	150	25	32	28						
	3225P12	▲	▲	32	25	170	32	32	28						

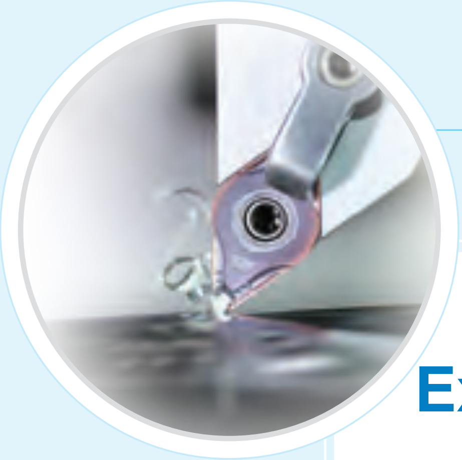
▲Stock available △Make-to-order

Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**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 A55	**NM** A57	**SNR** Double -side A58			
				LR Single-side A57			
Tool holder type	**DCLNR/L□□H/K/M09**	CN□□0903□□	CN□□0903□□				
	DCLNR/L□□K/M/P12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□

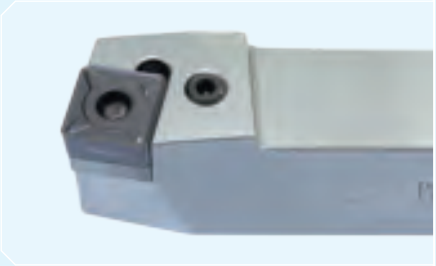
Products specification
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

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

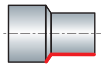
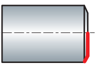
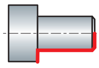
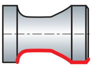
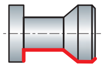
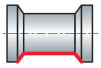
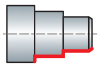


TURNING A

External Turning Tools

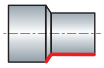
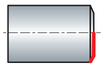
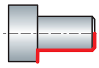
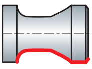
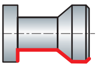
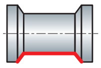
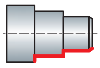
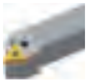


External turning tools overview

Clamping system	Tool type	Approach angle(Kr°)	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	
											
D	DCLNR/L 	95			😊				😊		A166
	DDJNR/L 	93					😊		😊	☺	A167
	DSBNR/L 	75	😊						😊		A168
	DTGNR/L 	91	😊						😊	☺	A169
	DVVNN 	72.5						😊	😊		A170
	DVJNR/L 	93					😊		😊	☺	A170
	DWLNR/L 	95			😊				😊		A171
P	PCBNR/L 	75	😊						😊		A172
	PCLNR/L 	95			😊				😊		A173
	PDJNR/L 	93					😊		😊	☺	A174
	PDPNN 	62.5						😊	😊		A175

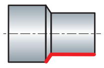
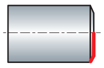
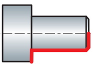
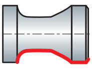
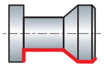
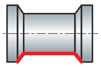
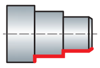
😊 Recommended ☺ Available

External turning tools overview

Clamping system	Tool type	Approach angle(Kr°)	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	**PSBNR/L** 	75	☻						☻		A176
	PSDNN 	45						☻	☻		A177
	PSKNR/L 	75		☻					☻		A178
	PSSNR/L 	45	☻						☻		A179
	PTFNR/L 	90		☻					☻	☺	A180
	PTTNR/L 	60	☻						☻		A181
	PTGNR/L 	90	☻						☻	☺	A182
	PWLNR/L 	95			☻				☻		A183
S	**SCACR/L** 	90	☻						☻	☻	A184
	SCLCR/L 	95			☻				☻	☻	A185
	SDACR/L 	90					☻		☻	☻	A186

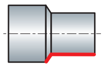
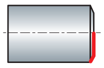
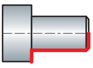
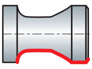
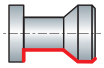
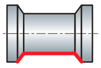
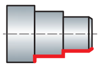
☻ Recommended ☺ Available

External turning tools overview

Clamping system	Tool type	Approach angle(Kr°)	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	
											
S	**SDJCR/L** 	93					☺		☺	☺	A187
	SDNCN 	62.5						☺	☺	☺	A188
	SVJBR/L 	93					☺		☺	☺	A189
	SVABR/L 	90					☺		☺	☺	A190
	SVVBN 	72.5						☺	☺	☺	A191
	SVVCN 	72.5						☺	☺	☺	A192
	SVJCR/L 	93					☺		☺	☺	A193
	SSBCR/L 	75	☺						☺		A194
	SSDCN 	45						☺	☺		A195
	SSKCR/L 	75		☺					☺		A196
	SSSCR/L 	45	☺						☺		A197

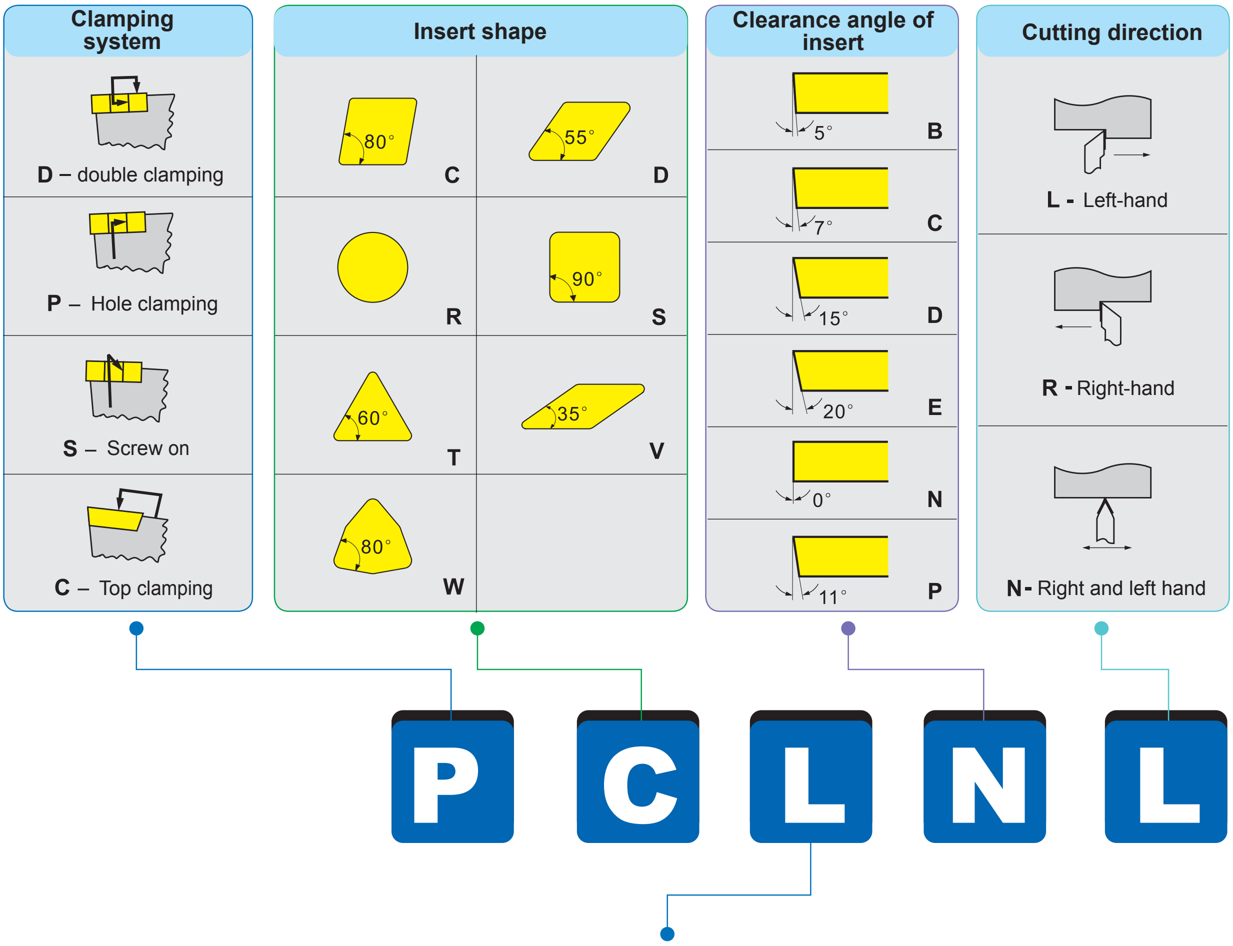
☺ Recommended ☺ Available

External turning tools overview

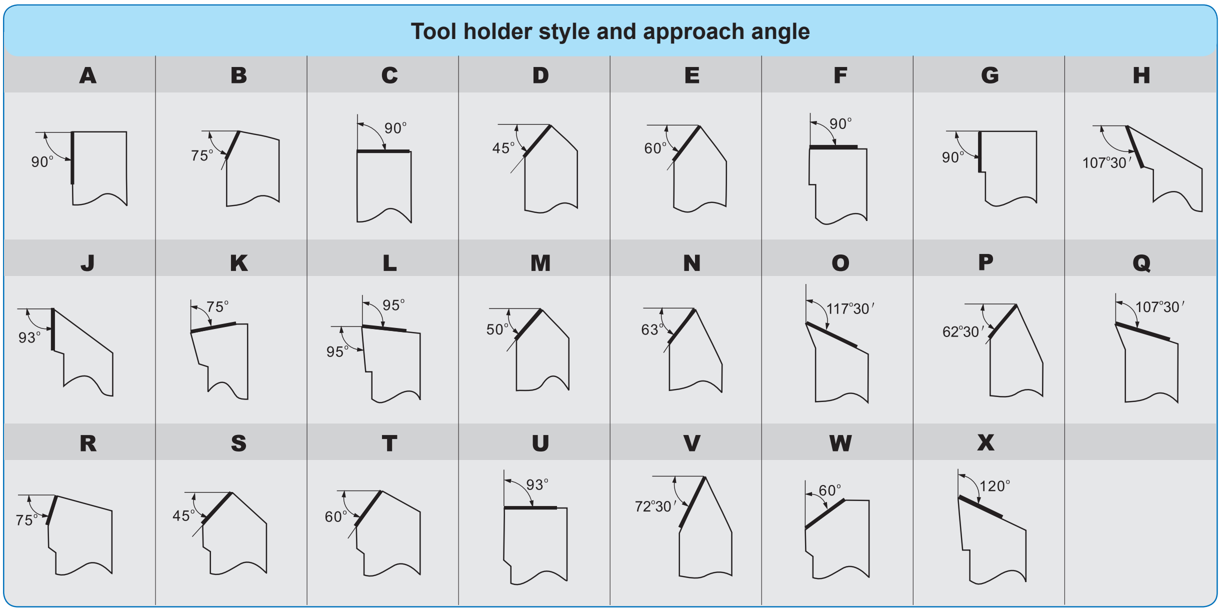
Clamping system	Tool type	Approach angle(Kr°)	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
S	**STACR/L** 	**90**	☺						☺	☺	A198
	STFCR/L 	**90**		☺					☺		A198
	STGCR/L 	**91**	☺						☺	☺	A199
	STECR/L 	**60**	☺						☺		A200
	SWACR/L 	**90**	☺						☺	☺	A201
	SRDCN 	--						☺	☺		A202
	SRGCR/L 	--				☺			☺		A203
C	**CKJNR/L** 	**93**					☺		☺		A204
	CKNNR/L 	**63**						☺	☺		A204
	CRDCR/L **CRDPR/L** 	--					☺		☺		A205

☺ Recommended ☺ Available

External turning tools code key

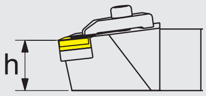


Tool holder style and approach angle



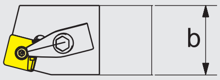
External turning tools code key

Nose height (mm)



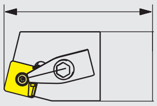
Code	Height
12	12
16	16
20	20
25	25
32	32
40	40
50	50

Width of tool holder (mm)



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

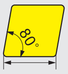
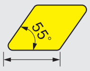
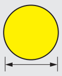
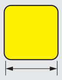
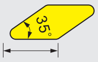
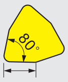
Length of tool holder (mm)



Code	Length
E	70
F	80
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

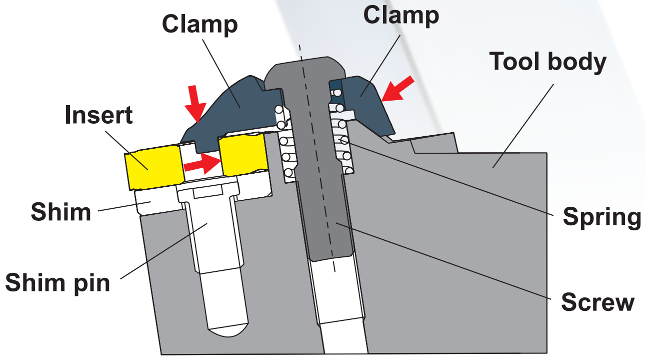
25 25 M 12

Length of cutting edge

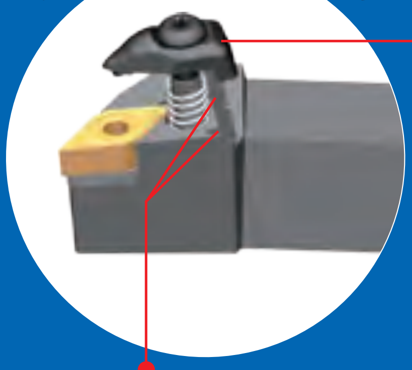
Inserts shape	C	D	R	S	T	V	W
							
Inscribed circle (mm)	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---
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.

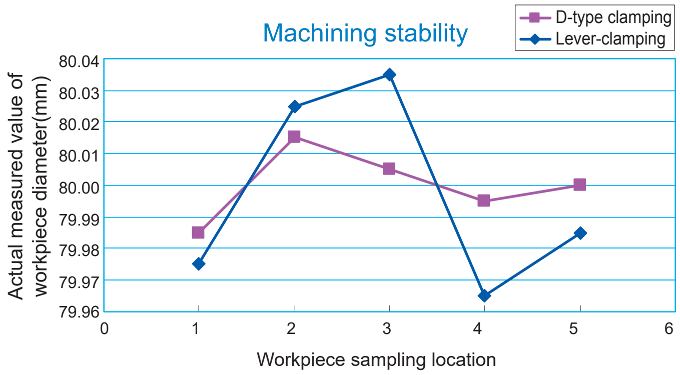
lug boss on both ends and double-locating make more insert clamp secure .

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

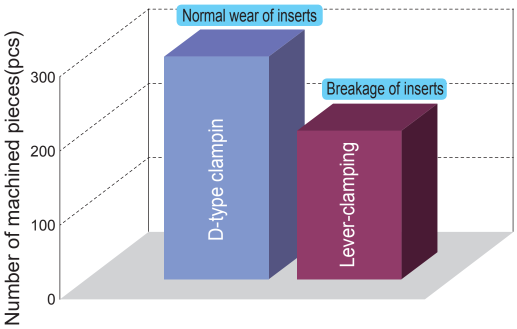
Simple and compact structure effectively prevents chip blocking while ensuring high clamping rigidity.

Compared with lever-clamping:

① Accurate locating ensures more stable machining accuracy.



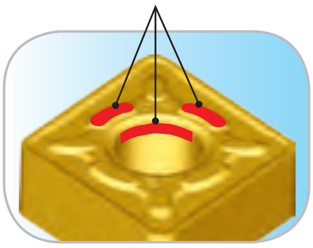
② High clamping rigidity effectively improves resistance to breakage of insert.



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.



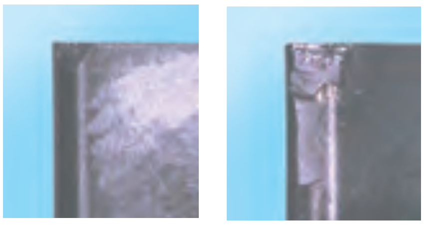
ZCC·CT

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=250m/min
a_p=2mm
f=0.6mm/r

After 60 minutes of cutting



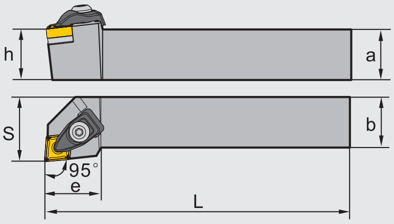
ZCC·CT

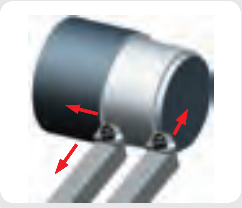
Similar product of company A

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

DCLNR/L

Kr:95°

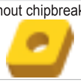




Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
DCLNR/L	**1616H09**	▲	△	16	16	100	16	20	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K09	▲	△	20	20	125	20	25	24						
	2525M09	▲	△	25	25	150	25	32	24						
	2020K12	▲	▲	20	20	125	20	25	28	CM6×25C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

▲Stock available　△Make-to-order

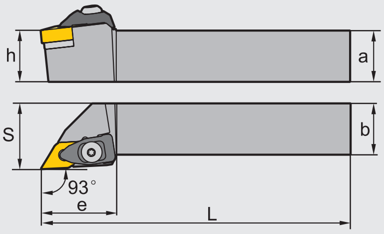
Applicable inserts

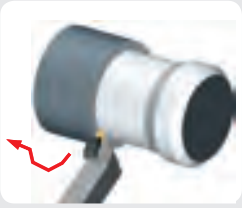
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	**DF**  A54	**WGM** Wiper  A55	**DR** Double-side  A58	**HDR**  A59	Without chipbreaker  A59	 A118
	WGF Wiper  A54	**PM**  A55	**DR** Single-side  A58	**HPR**  A59		 A118-A119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

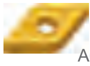




Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
DDJNR/L	**1616H11**	△	△	16	16	100	16	20	30	CM5×22C	D11BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K11	▲	△	20	20	125	20	25	30						
	2525M11	▲	△	25	25	150	25	32	30						
	3225P11	△	△	32	25	170	32	32	30			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

▲Stock available △Make-to-order

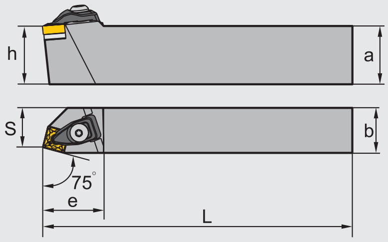
Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**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			 A124
		EF  A62	**EM**  A64	**ER** Single-side  A65			
		NF  A62	**NM**  A64	**SNR** Double-side  A65			
		NGF  A62		**LR** Single-side  A65			
Tool holder type	**DDJNR/L□□H/K/M/P11**	DN□□1104□□	DN□□1104□□			DN□□1104□□	
	DDJNR/L□□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

Corresponding tool holders of insert SN□□ D-type clamping

DSBNR/L

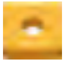
Kr:75°



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

▲Stock available △Make-to-order

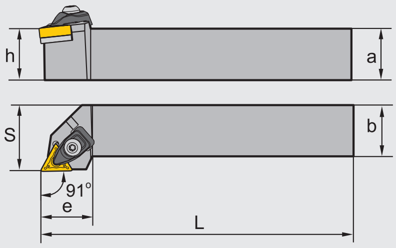
Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A67	**PM**  A68	**DR** Double-side  A70	**HDR**  A72	Without chipbreaker  A74	 A126
		EF  A67	**DM**  A68	**DR** Single-side  A70 -71	**HPR**  A72		 A127
		SF  A67	**EM**  A69	**ER** Double-side  A71			 A128
			NM  A69	**ER** Single-side  A71			
				SNR Double-side  A71			
				LR Single-side  A69			
Tool holder type	**DSBNR/L□□H09**	SN□□0903□□	SN□□0903□□			SN□□0903□□	
	DSBNR/L□□K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	DSBNR/L□□P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	

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

DTGNR/L

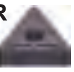
Kr:91°



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

▲Stock available △Make-to-order

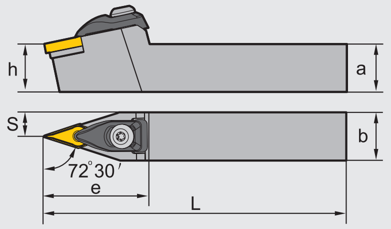
Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A75	**WGM** Wiper  A76	**DR** Double-side  A78	**HDR**  A79	Without chipbreaker  A80	 A130
		WGF Wiper  A75	**PM**  A76	**DR** Single-side  A78			 A130-A131
		SF  A75	**DM**  A77	**ER** Double-side  A78			 A131
		EF  A76	**EM**  A77	**SNR** Double-side  A78			
				LR Single-side  A77			
Tool holder type	**DTGNR/L□□H/K/M16**	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□

Corresponding tool holders of insert VN□□ D-type clamping

DVVNN

Kr:72°30'

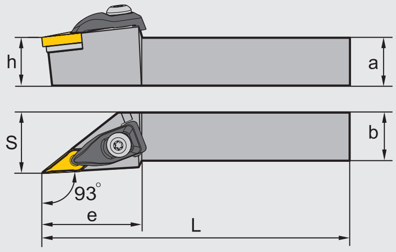


Type		Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
			a	b	L	h	s	e						
DVVNN	**2020K16**	△	20	20	125	20	10	44	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	2525M16	▲	25	25	150	25	12.5	44						

▲Stock available △Make-to-order

DVJNR/L

Kr:93°



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

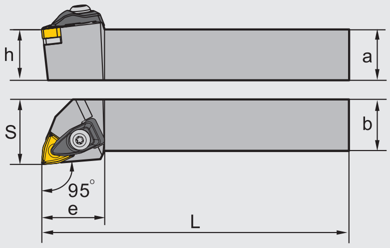
▲Stock available △Make-to-order

Applicable inserts

Application		For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape		**DF**  A81	**PM**  A82	**SNR**  A82	 A133
		EF  A81	**DM**  A82		 A133 -A134
		SF  A81	**EM**  A82		 A134
		NF  A81	**NM**  A82		
		NGF  A81			
Tool holder type	**DVVNN□□K/M16**	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□
	DVJNR/L□□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						
DWLNR/L	**1616H06**	▲	△	16	16	100	16	25	25	CM5×22C	W06BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K06	▲	▲	20	20	125	20	25	24						
	2525M06	▲	▲	25	25	150	25	32	24						
	2020K08	▲	▲	20	20	125	20	25	31	CM6×25C	W08BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M08	▲	▲	25	25	150	25	32	31						
	3225P08	△	△	32	25	170	32	32	31						

▲Stock available △Make-to-order

Applicable inserts

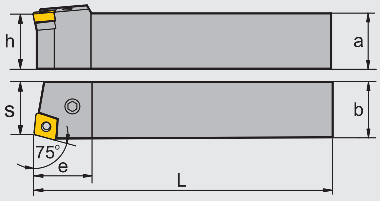
Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape	**DF**  A83	**WGM** Wiper  A84	**DR** Double -side  A86	Without chipbreaker  A86	 A136
	WGF Wiper  A83	**PM**  A85	**SNR** Double -side  A86		 A136 -A137
	SF  A83	**DM**  A85			 A137
	EF 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

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					
PCBNR/L	**2020K12**	▲	▲	20	20	125	20	17	27	LEM8×21	C12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	22	27					
	3232P12	▲	▲	32	32	170	32	27	33					
	2525M16	▲	▲	25	25	150	25	22	33	LEM8×25	C16AP	WH30L	L5	SP5
	3232P16	▲	▲	32	32	170	32	27	33					
	4040R16	▲	▲	40	40	200	40	35	38					
	3232P19	▲	▲	32	32	170	32	27	38	LEM10×27	C19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	35	40					
	4040S2507	▲	▲	40	40	250	40	35	50	LEM12×36A	C25AP-07	WH50L	L8	SP8
	4040S2509	▲	▲	40	40	250	40	35	50		C25AP			

▲Stock available △Make-to-order

Applicable inserts

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

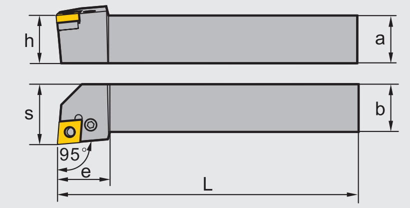
Tool holder type					
PCBNR/L□□K/M/P12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
PCBNR/L□□M/P/R16	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
PCBNR/L□□P/R19		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□
PCBNR/L□□S2507			CN□□2507□□		
PCBNR/L□□S2509			CN□□2509□□		

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

PCLNR/L

Kr:95°

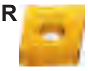

R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin
		R	L	a	b	L	h	s	e					
PCLNR/L	**2020K12**	▲	▲	20	20	125	20	25	28	LEM8×21	C12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	32	28					
	3225P12	△	△	32	25	170	32	32	33					
	3232P12	▲	▲	32	32	170	32	40	28					
	2525M16	▲	▲	25	25	150	25	32	33	LEM8×25	C16AP	WH30L	L5	SP5
	3225P16	△	△	32	25	170	32	32	33					
	3232P16	▲	▲	32	32	170	32	40	33					
	4040R16	△	△	40	40	200	40	50	42					
	3232P19	▲	▲	32	32	170	32	40	38	LEM10×27	C19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	50	40					
	4040S2507	▲	▲	40	40	250	40	50	49	LEM12×36A	C25AP-07	WH50L	L8	SP8
	4040S2509	▲	▲	40	40	250	40	50	49		C25AP			

▲Stock available △Make-to-order

Applicable inserts

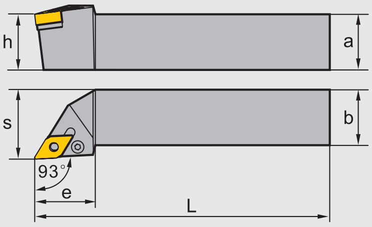
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A54	**WGM** Wiper  A55	**DR** Double-side  A58	**HDR**  A59	Without chipbreaker  A59	 A118
		WGF Wiper  A54	**PM**  A55	**DR** Single-side  A58	**HPR**  A59		 A118-A119
		SF  A54	**DM**  A56	**ER** Double-side  A58			 A119
		EF  A54	**EM**  A56	**ER** Single-side  A58			
		NF  A55	**NM**  A57	**SNR** Double-side  A58			
				LR Single-side  A57			
Tool holder type	**PCLNR/L□□K/M/P12**	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	PCLNR/L□□M/P/R16	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	
	PCLNR/L□□P/R19		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□	
	PCLNR/L□□S2507			CN□□2507□□			
	PCLNR/L□□S2509			CN□□2509□□			

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

PDJNR/L

Kr:93°

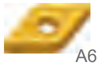
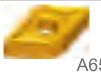

R-type shown



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

▲Stock available △Make-to-order

Applicable inserts

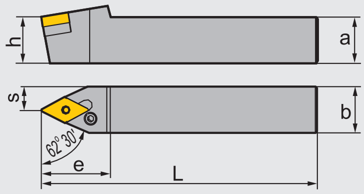
	Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
	Inserts shape	**DF**  A61	**WGM** Wiper  A63	**DR** Double-side  A65	**HDR**  A66	Without chipbreaker  A66	 A121-A122
		WGF Wiper  A61	**PM**  A63	**DR** Single-side  A65			 A122-A123
		SF  A62	**DM**  A64	**ER** Double-side  A65			 A124
		EF  A62	**EM**  A64	**ER** Single-side  A65			
		NF  A62	**NM**  A64	**SNR** Double-side  A65			
		NGF  A62		**LR** Single-side  A65			
Tool holder type	**PDJNR/L□□H/K/M11**	DN□□1104□□	DN□□1104□□			DN□□1104□□	
	PDJNR/L□□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	PDJNR/L□□K/M/P15-3	DN□□1504□□	DN□□1504□□			DN□□1504□□	DN□□1504□□

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

PDPNN

Kr:62°30'

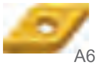
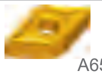

R-type shown



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

▲Stock available △Make-to-order

Applicable inserts

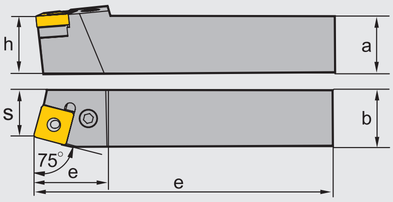
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	**DF**  A61	**WGM** Wiper  A63	**DR** Double-side  A65	**HDR**  A66	Without chipbreaker  A66	 A121-A122
	WGF Wiper  A61	**PM**  A63	**DR** Single-side  A65			 A122-A123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

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

PSBNR/L

Kr:75°

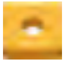
R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin
		R	L	a	b	L	h	s	e					
PSBNR/L	**1616H09**	▲	▲	16	16	100	16	13	21	LEM6×13.4A	S09AP	WH25L	L3	SP3
	2020K09	▲	▲	20	20	125	20	17	23					
	2020K12	▲	▲	20	20	125	20	17	28	LEM8×21	S12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	22	28					
	3225P12	▲	△	32	25	170	32	22	28					
	3232P12	▲	▲	32	32	170	32	27	28					
	2525M15	▲	▲	25	25	150	25	22	35	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	▲	32	32	170	32	27	35					
	3232P19	▲	▲	32	32	170	32	27	40	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	35	40					
	4040S2507	▲	▲	40	40	250	40	35	48	LEM12×36A	S25AP	WH50L	L8	SP8
	4040S2509	▲	▲	40	40	250	40	35	48		S25AP-09			

▲Stock available △Make-to-order

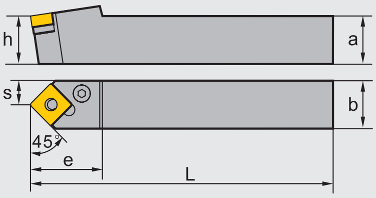
Applicable inserts

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

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

PSDNN

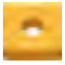
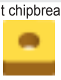
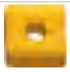
Kr:45°



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

▲Stock available　　△Make-to-order

Applicable inserts

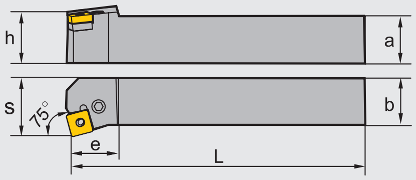
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A67	**PM**  A68	**DR** Double-side  A70	**HDR**  A72	Without chipbreaker  A74	 A126
		EF  A67	**DM**  A68	**DR** Single-side  A70-71	**HPR**  A72		 A127
		SF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

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

PSKNR/L

Kr:75°

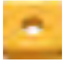
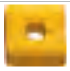

R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin
		R	L	a	b	L	h	s	e					
PSKNR/L	**1616H09**	▲	▲	16	16	100	16	20	17	LEM6×13.4A	S09AP	WH25L	L3	SP3
	2020K09	▲	△	20	20	125	20	25	20					
	2020K12	▲	▲	20	20	125	20	25	26	LEM8×21	S12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	32	26					
	3232P12	▲	▲	32	32	170	32	40	26					
	2525M15	▲	▲	25	25	150	25	32	32	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	▲	32	32	170	32	40	32					
	3232P19	▲	▲	32	32	170	32	40	36	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	50	40					

▲Stock available △Make-to-order

Applicable inserts

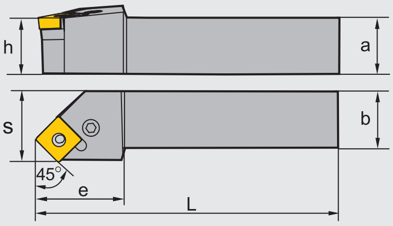
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A67	**PM**  A68	**DR** Double-side  A70	**HDR**  A72	Without chipbreaker  A74	 A126
		EF  A67	**DM**  A68	**DR** Single-side  A70-71	**HPR**  A72		 A127
		SF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

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

PSSNR/L

Kr:45°

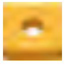
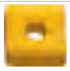
R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin
		R	L	a	b	L	h	s	e					
PSSNR/L	**1616H09**	▲	▲	16	16	100	16	20	25	LEM6×13.4A	S09AP	WH25L	L3	SP3
	2020K09	△	△	20	20	125	20	25	25					
	2020K12	▲	▲	20	20	125	20	25	30	LEM8×21	S12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	32	30					
	3232P12	▲	▲	32	32	170	32	40	40					
	2525M15	▲	▲	25	25	150	25	32	30	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	▲	32	32	170	32	40	40					
	3232P19	▲	▲	32	32	170	32	40	40	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	50	40					
	4040S2507	▲	▲	40	40	250	40	50	50	LEM12×36A	S25AP	WH50L	L8	SP8
	4040S2509	▲	▲	40	40	250	40	50	50		S25AP-09			

▲Stock available △Make-to-order

Applicable inserts

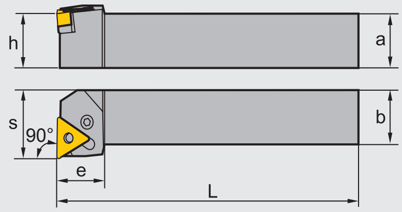
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A67	**PM**  A68	**DR** Double -side  A70	**HDR**  A72	Without chipbreaker  A74	 A126
		EF  A67	**DM**  A68	**DR** Single-side  A70 -71	**HPR**  A72		 A127
		SF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

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					
PTFNR/L	**1616H16**	△	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	25	20					
	2525M16	▲	▲	25	25	150	25	32	20					
	2525M22	▲	▲	25	25	150	25	32	25	LEM8×21	T22AP	WH30L	L4	SP4
	3232P22	▲	▲	32	32	170	32	40	25					
	3232P27	▲	▲	32	32	170	32	40	34	LEM8×25	T27AP	WH30L	L5	SP5
	4040S27	▲	▲	40	40	250	40	50	34					

▲Stock available　△Make-to-order

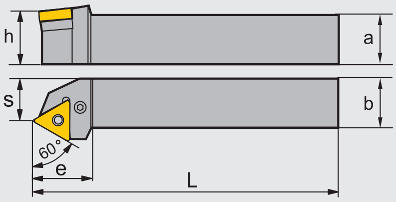
Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	**DF**  A75	**WGM** Wiper  A76	**DR** Double-side  A78	**HDR**  A79	Without chipbreaker  A80	 A130
	WGF Wiper  A75	**PM**  A76	**DR** Single-side  A78			 A130-A131
	SF  A75	**DM**  A77	**ER** Double-side  A78			 A131
	EF  A76	**EM**  A77	**SNR**  A78			
			LR Single-side  A77			
Tool holder type **PTFNR/L□□H/K/M16**	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
PTFNR/L□□M/P22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	
PTFNR/L□□P/S27			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					
PTTNR/L	**1616H16**	▲	▲	16	16	100	16	13	25	LEM6×13.4A	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	17	25					
	2525M16	△	△	25	25	150	25	22	25					
	2525M22	▲	▲	25	25	150	20	22	32	LEM8×21	T22AP	WH30L	L4	SP4

▲Stock available △Make-to-order

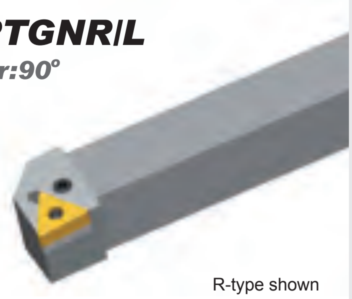
Applicable inserts

	Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
	Inserts shape	**DF**  A75	**WGM** Wiper  A76	**DR** Double-side  A78	**HDR**  A79	Without chipbreaker  A80	 A130
		WGF Wiper  A75	**PM**  A76	**DR** Single-side  A78			 A130-A131
		SF  A75	**DM**  A77	**ER** Double-side  A78			 A131
		EF  A76	**EM**  A77	**SNR**  A78			
				LR Single-side  A77			
Tool holder type	**PTTNR/L□□H/K/M16**	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	PTTNR/L□□M22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□		

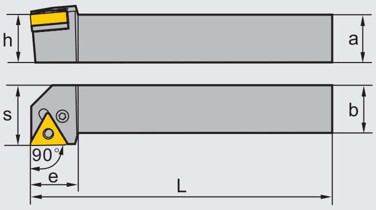
Corresponding tool holders of insert TN□□ P-type clamping

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					
PTGNR/L	**1616H16**	▲	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	25	20					
	2525M16	▲	▲	25	25	150	25	32	20					
	3232P16	▲	▲	32	32	170	32	40	20					
	2525M22	▲	▲	25	25	150	25	32	28	LEM8×21	T22AP	WH30L	L4	SP4
	3232P22	▲	▲	32	32	170	32	40	28					
	3232P27	▲	▲	32	32	170	32	40	33	LEM8×25	T27AP	WH30L	L5	SP5
	4040S27	▲	▲	40	40	250	40	50	33					

▲Stock available △Make-to-order

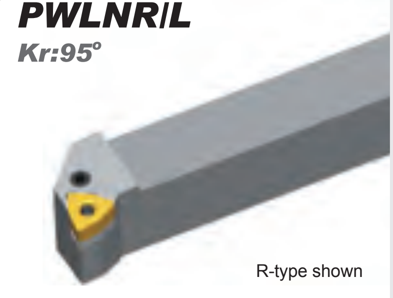
Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
	Inserts shape	**DF**  A75	**WGM** Wiper  A76	**DR** Double-side  A78	**HDR**  A79	Without chipbreaker  A80	 A130
		WGF Wiper  A75	**PM**  A76	**DR** Single-side  A78			 A130-A131
		SF  A75	**DM**  A77	**ER** Double-side  A78			 A131
		EF  A76	**EM**  A77	**SNR**  A78			
				LR Single-side  A77			
Tool holder type	**PTGNR/L□□H/K/M/P16**	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	PTGNR/L□□M/P22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□		
	PTGNR/L□□P/S27			TN□□2706□□	TN□□2706□□		

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

PWLNR/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					
PWLNR/L	**1616H06**	▲	▲	16	16	100	16	20	20	LEM6×13.4A	W06AP	WH25L	L3	SP3
	2020K06	▲	▲	20	20	125	20	25	20					
	2525M06	▲	▲	25	25	150	25	32	20					
	2020K08	▲	▲	20	20	125	20	25	26	LEM8×21	W08AP	WH30L	L4	SP4
	2525M08	▲	▲	25	25	150	25	32	26					
	3232P08	△	△	32	32	170	32	40	28					

▲Stock available △Make-to-order

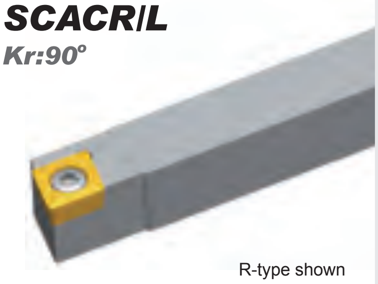
Applicable inserts

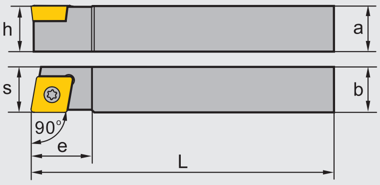
Application		For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape		**DF**  A83	**WGM** Wiper  A84	**DR** Double -side  A86	Without chipbreaker  A86	 A136
		WGF Wiper  A83	**PM**  A85	**SNR** Double -side  A86		 A136 -A137
		SF  A83	**DM**  A85			 A137
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

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

SCACR/L

Kr:90°


R-type shown



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

▲Stock available △Make-to-order

Applicable inserts

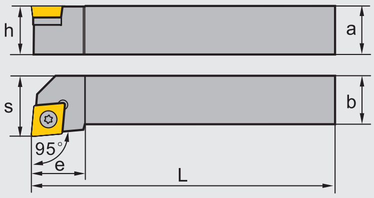
Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**USF**  A89	**HF**  A89	**HM**  A90	**HR**  A91	**LH**  A91-92	Without chipbreaker  A92	 A139
		SF  A89	**EF**  A90	**EM**  A90		**LC**  A91		 A144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

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

SCLCR/L

Kr:95°

R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
SCLCR/L	**0808F06**	▲	△	08	08	80	08	10	12	I60M2.5×6.5	---	---	WT07IP
	1010F06	▲	▲	10	10	80	10	12	12				
	1212H06	△	△	12	12	100	12	16	12				
	1616H06	△	△	16	16	100	16	20	16				
	1212H09	▲	▲	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	▲	16	16	100	16	20	16				
	2020K09	△	△	20	20	125	20	25	16				
	2525M09	△	△	25	25	150	25	32	16				
	2020K12	▲	▲	20	20	125	20	25	20	I60M4×11X	C12BS	SM6×10XA	WT15IP WH40L
	2525M12	▲	▲	25	25	150	25	32	20				
	3225M12	▲	▲	32	25	150	32	32	20				

▲Stock available △Make-to-order

Applicable inserts

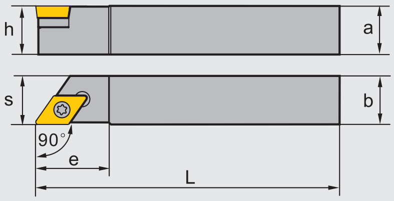
Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**USF**  A89	**HF**  A89	**HM**  A90	**HR**  A91	**LH**  A91-92	Without chipbreaker  A92	 A139
		SF  A89	**EF**  A90	**EM**  A90		**LC**  A91		 A144
Tool holder type	**SCLCR/L□□H/F06**	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CCGX 0602□□	CC□□ 0602□□	CC□□ 0602□□
	SCLCR/L□□H/K/M09	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CCGX 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□
	SCLCR/L□□K/M12		CC□□ 1204□□	CC□□ 1204□□	CC□□ 1204□□	CCGX 1204□□	CC□□ 1204□□	CC□□ 1204□□

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

SDACR/L

Kr:90°

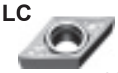
R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
SDACR/L	**0808K07**	△	△	8	8	125	8	8	15	I60M2.5×6.5	---	---	WT07IP
	1010K07	△	△	10	10	125	10	10	15				
	1212K07	△	△	12	12	125	10	10	15				
	1212K11	△	△	12	12	125	12	12	22	I60M3.5×8	---	---	WT15IP
	1616K11	△	△	16	16	125	16	16	22	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	2020K11	△	△	20	20	125	20	20	22				
	2525M11	△	△	25	25	150	25	25	22				

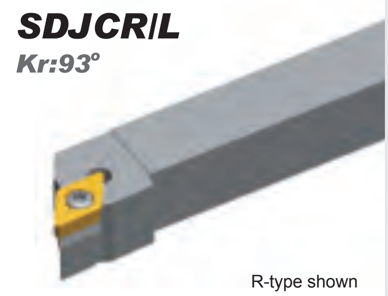
▲Stock available △Make-to-order

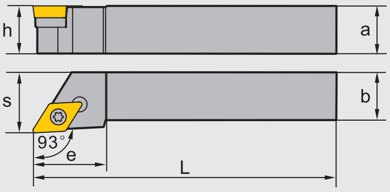
Applicable inserts

Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**USF**  A93	**HF**  A93	**HM**  A94	**HR**  A95	**LH**  A95	Without chipbreaker  A95	 A140
		SF  A93	**EF**  A94	**EM**  A94		**LC**  A95		 A145
Tool holder type	**SDACR/L□□K07**	DC□□ 0702□□	DC□□ 0702□□	DC□□ 0702□□		DCGX 0702□□	DC□□0702□□	DC□□0702□□
	SDACR/L□□K/M11	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DCGX 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□

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				
SDJCR/L	**0808F07**	△	△	8	8	80	8	10	15	I60M2.5×6.5	---	---	WT07IP
	1010F07	▲	△	10	10	80	10	12	15				
	1212H07	▲	▲	12	12	100	12	16	15				
	1414H07	△	△	14	14	100	14	18	15				
	1616H07	▲	▲	16	16	100	16	20	15				
	2020K07	△	△	20	20	125	20	25	28				
	2525M07	△	△	25	25	150	25	32	28				
	1212K11	△	△	12	12	125	12	16	22	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	1616K11	▲	▲	16	16	125	16	20	22				
	2020K11	▲	▲	20	20	125	20	25	22				
	2525M11	▲	▲	25	25	150	25	32	22				

▲Stock available △Make-to-order

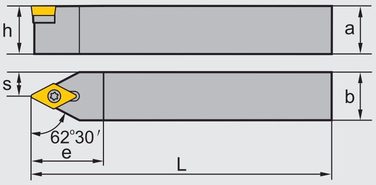
Applicable inserts

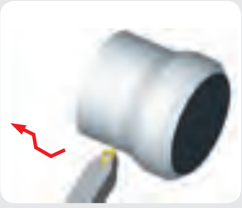
Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**USF**  A93	**HF**  A93	**HM**  A94	**HR**  A95	**LH**  A95	Without chipbreaker  A95	 A140
		SF  A93	**EF**  A94	**EM**  A94		**LC**  A95		 A145
Tool holder type	**SDJCR/L□□F/H/K/M07**	DC□□0702□□	DC□□ 0702□□	DC□□0702□□		DCGX 0702□□	DC□□ 0702□□	DC□□ 0702□□
	SDJCR/L□□K/M11	DC□□ 11T3□□	DC□□ 11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□

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				
SDNCN	**0808F07**	△	8	8	80	8	4	15	I60M2.5×6.5	---	---	WT07IP
	1010F07	▲	10	10	80	10	5	15				
	1212H07	▲	12	12	100	12	6	15				
	1616H07	△	16	16	100	16	8	15				
	2020K07	△	20	20	125	20	10	20				
	2525M07	△	25	25	150	25	12.5	20				
	1616K11	▲	16	16	125	16	8	22	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	2020K11	▲	20	20	125	20	10	22				
	2525M11	▲	25	25	150	25	12.5	22				
	3225M11	△	32	25	150	32	12.5	22				
	3232P11	△	32	32	170	32	16	22				

▲Stock available △Make-to-order

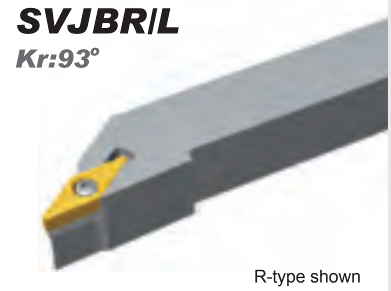
Applicable inserts

Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape		**USF**  A93	**HF**  A93	**HM**  A94	**HR**  A95	**LH**  A95	Without chipbreaker  A95	 A140
		SF  A93	**EF**  A94	**EM**  A94		**LC**  A95		 A145
Tool holder type	**SDNCN□□F/H/K/M07**	DC□□0702□□	DC□□ 0702□□	DC□□0702□□		DCGX 0702□□	DC□□ 0702□□	DC□□ 0702□□
	SDNCN□□K/M/P11	DC□□ 11T3□□	DC□□ 11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□

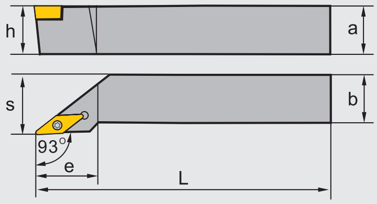
Corresponding tool holders of insert VB□□ S-type clamping

SVJBR/L

Kr:93°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
SVJBR/L	**1212H11**	▲	▲	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	▲	16	16	100	16	20	25				
	2020K11	▲	▲	20	20	125	20	25	25				
	2525M11	▲	▲	25	25	150	25	32	25				
	1616H16	▲	▲	16	16	100	16	20	35	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	▲	20	20	125	20	25	35				
	2525M16	▲	▲	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	**SF**  A108	**HF**  A108	**HM**  A109	**HR**  A109	 A142
		NF  A108	**EM**  A109	**SNR**  A109	 A147
		EF  A108			
		NGF  A108			

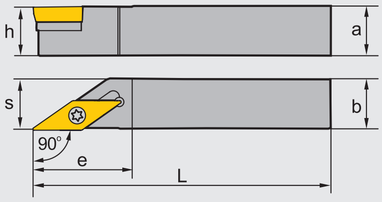
Tool holder type						
	SVJBR/L□□H/K/M11	VB□□1103□□	VB□□1103□□	VB□□1103□□		
	SVJBR/L□□H/K/M16		VB□□1604□□	VB□□1604□□	VB□□1604□□	VB□□1604□□

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

SVABR/L

Kr:90°


R-type shown



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

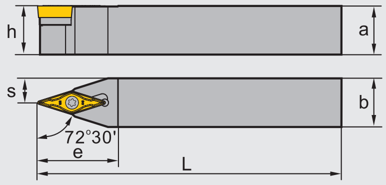
▲Stock available △Make-to-order

Applicable inserts

Application		For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape		**SF**  A108	**HF**  A108	**HM**  A109	**HR**  A109	 A142
			NF  A108	**EM**  A109	**SNR**  A109	 A147
			EF  A108			
			NGF  A108			
Tool holder type	**SVABR/L□□F11**	VB□□1103□□	VB□□1103□□	VB□□1103□□		
	SVABR/L□□H/K/M16		VB□□1604□□	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				
SVVBN	**1212H11**	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	16	16	100	16	8	25				
	2020K11	▲	20	20	125	20	10	25				
	2525M11	△	25	25	150	25	12.5	35				
	1616H16	▲	16	16	100	16	8	35	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	20	20	125	20	10	35				
	2525M16	▲	25	25	150	25	12.5	35				

▲Stock available △Make-to-order

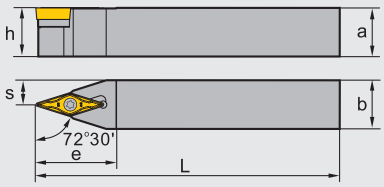
Applicable inserts

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

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				
SVVCN	**1212H11**	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	16	16	100	16	8	27				
	2020K11	▲	20	20	125	20	10	30				
	2525M11	△	25	25	150	25	12.5	38				
	1616H16	▲	16	16	100	16	8	33	I60M3.5×12	V16BSC	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	20	20	125	20	10	33				
	2525M16	▲	25	25	150	25	12.5	38				

▲Stock available △Make-to-order

Applicable inserts

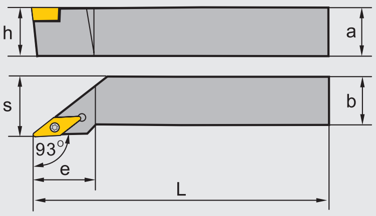
	Application	For extra finishing	For finishing	For Al machining	PCBN&PCD inserts
	Inserts shape	**USF**  A105	**HF**  A105	**LH**  A106	 A143
		SF  A105	**NF**  A105	**LC**  A106	 A148
			NGF  A105		
Tool holder type	**SVVCN□□H/K/M11**	VC□□1103□□	VC□□1103□□	VCGX1103□□	
	SVVCN□□H/K/M16		VC□□1604□□	VCGX1604□□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

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

SVJCR/L

Kr:93°

R-type shown



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

▲Stock available △Make-to-order

Applicable inserts

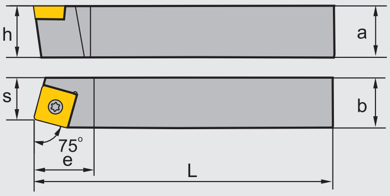
Application		For extra finishing	For finishing	For Al machining	PCBN&PCD inserts
Inserts shape		**USF**  A105	**HF**  A105	**LH**  A106	 A143
		SF  A105	**NF**  A105	**LC**  A106	 A148
			NGF  A105		
Tool holder type	**SVJCR/L□□H/K/M11**	VC□□1103□□	VC□□1103□□	VCGX1103□□	
	SVJCR/L□□H/K/M16		VC□□1604□□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

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

SSBCR/L

Kr:75°

R-type shown



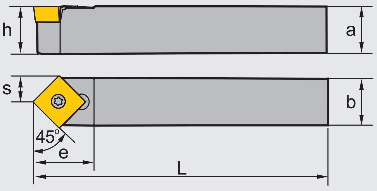
Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
SSBCR/L	**1212H09**	▲	▲	12	12	100	12	9	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	▲	16	16	100	16	13	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	2020K09	△	△	20	20	125	20	17	20				
	2525M09	△	△	25	25	150	25	22	20				
	2020K12	▲	▲	20	20	125	20	17	25	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	2525M12	△	△	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	**HF**  A98	**HM**  A98	**HR**  A99	**LH**  A99	Without chipbreaker  A99
		EF  A98	**EM**  A98		**LC**  A99	
Tool holder type	**SSBCR/L□□H/K/M09**	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	SSBCR/L□□K/M12		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□

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



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

▲Stock available △Make-to-order

Applicable inserts

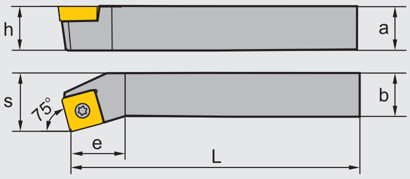
	Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
	Inserts shape	**HF**  A98	**HM**  A98	**HR**  A99	**LH**  A99	Without chipbreaker  A99
		EF  A98	**EM**  A98		**LC**  A99	
Tool holder type	**SSDCN□□H/K/M09**	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□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

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

SSKCR/L

Kr:75°


R-type shown



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

▲Stock available △Make-to-order

Applicable inserts

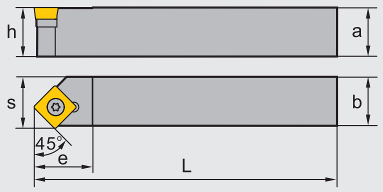
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
Inserts shape	**HF**  A98	**HM**  A98	**HR**  A99	**LH**  A99	Without chipbreaker  A99
	EF  A98	**EM**  A98		**LC**  A99	
Tool holder type **SSKCR/L□□H/K/M09**	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□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

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

SSSCR/L

Kr:45°

R-type shown



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

▲Stock available △Make-to-order

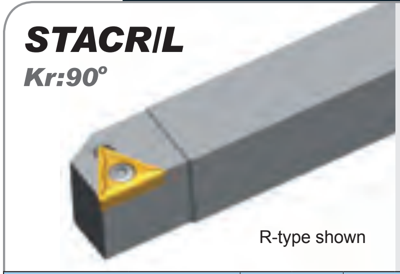
Applicable inserts

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

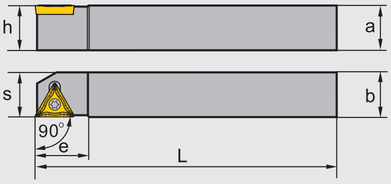
Corresponding tool holders of insert TC□□ S-type clamping

STACR/L

Kr:90°



R-type shown

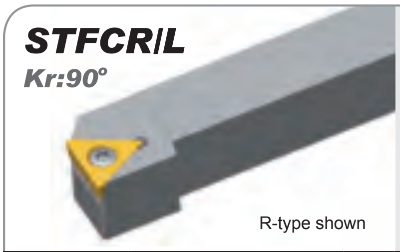


Type		Stock		Basic dimensions(mm)						Screw	Wrench	---	---
		R	L	a	b	L	h	s	e			---	---
STACR/L	**1010K11**	△	△	10	10	100	10	10	12	I60M2.5×6.5	WT07IP	---	---
	1212F11	△	△	12	12	100	12	12	14				
	1616K11	△	△	16	16	100	16	16	16				

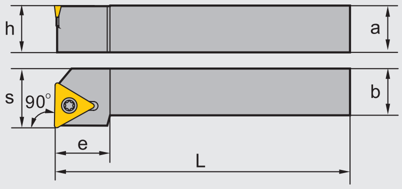
▲Stock available △Make-to-order

STFCR/L

Kr:90°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
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				
	1616K16	▲	▲	16	16	125	16	20	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	▲	20	20	125	20	25	20				
	2525M16	△	△	25	25	150	25	32	25				

▲Stock available △Make-to-order

Applicable inserts

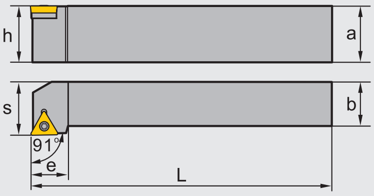
	Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
	Inserts shape	**HF**  A101	**HM**  A103	**HR**  A103	**LH**  A104	Without chipbreaker  A104	 A141
		EF  A102	**EM**  A102		**LC**  A103		
Tool holder type	**STACR/L□□K/F11**	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	STFCR/L□□H/K/M11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	STFCR/L□□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□	

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

STGCR/L

Kr:91°

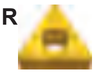
R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
STGCR/L	**0808F09**	▲	△	08	08	80	8	10	12	I60M2.2×5.5	---	---	WT06IP
	1010F09	▲	▲	10	10	80	10	12	12				
	1212H09	△	△	12	12	100	12	16	12				
	1212H11	▲	▲	12	12	100	12	16	16	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	▲	16	16	100	16	20	16				
	2020K11	△	△	20	20	125	20	25	20				
	2525M11	△	△	25	25	150	25	32	20				
	1616K16	△	△	16	16	125	16	20	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	▲	20	20	125	20	25	21				
	2525M16	▲	▲	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	PCBN&PCD inserts
Inserts shape		**USF**  A100	**HF**  A101	**HM**  A103	**HR**  A103	**LH**  A104	Without chipbreaker  A104	 A141
		SF  A100	**EF**  A102	**EM**  A102		**LC**  A103		
Tool holder type	**STGCR/L□□F/H09**	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□	TCGX0902□□	TC□□0902□□	TC□□0902□□
	STGCR/L□□H/K/M11		TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	STGCR/L□□K/M16		TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□	

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

STECR/L

Kr:60°


R-type shown

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

▲Stock available △Make-to-order

Applicable inserts

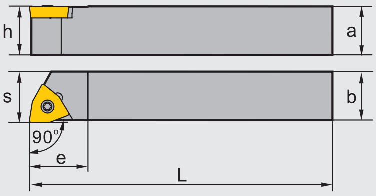
	Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
	Inserts shape	**HF**  A101	**HM**  A103	**HR**  A103	**LH**  A104	Without chipbreaker  A104	 A141
		EF  A102	**EM**  A102		**LC**  A103		
Tool holder type	**STECR/L□□H/K11**	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	STECR/L□□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□	

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

SWACR/L

Kr:90°

R-type shown

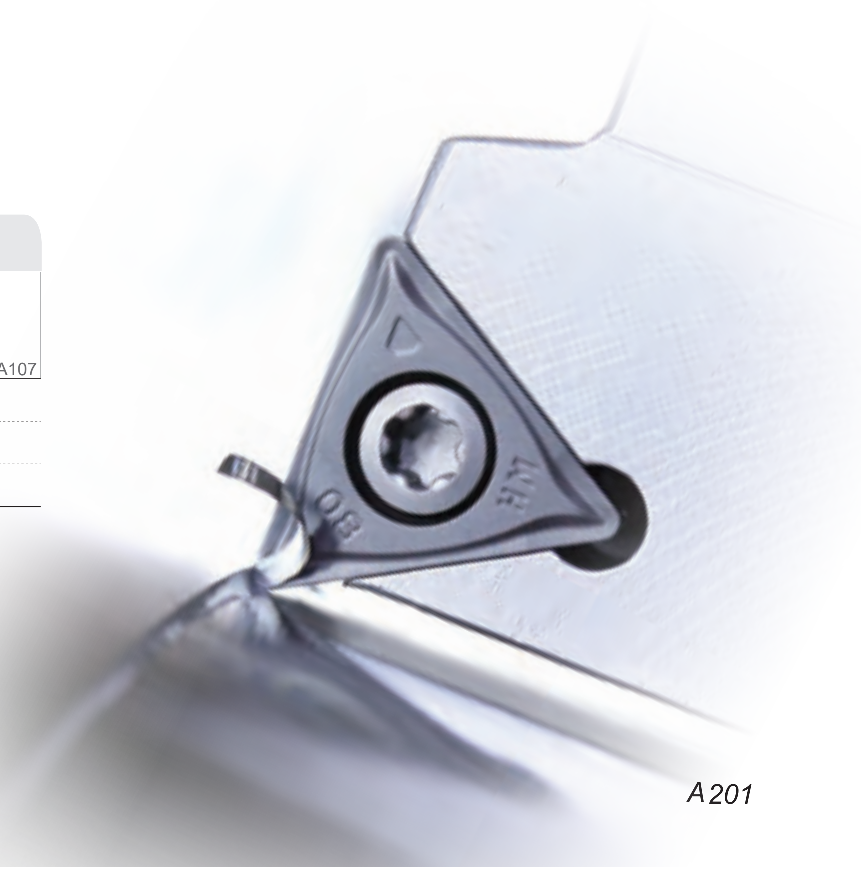


Type		Stock		Basic dimensions(mm)						Screw	Wrench	—	—
		R	L	a	b	L	h	s	e			—	—
SWACR/L	**1010E04**	△	△	10	10	70	10	10	10	I60M2.5×6.5	WT07IP	---	---
	1212F04	▲	△	12	12	80	12	12	14				
	1616H06	▲	△	16	16	100	16	16	20	I60M3×7	WT10IP	---	---
	2020K08	▲	▲	20	20	125	20	20	24	I60M3.5×12	WT15IP	---	---

▲Stock available △Make-to-order

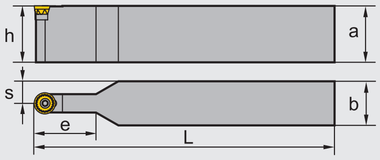
Applicable inserts

Application		For finishing
Inserts shape		53  A107
Tool holder type	**SWACR/L□□E/F04**	WC□X0402□□
	SWACR/L□□H06	WC□X06T3□□
	SWACR/L□□K08	WC□X0804□□



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				
SRDCN	**1616H08**	△	16	16	100	16	8	16	I60M3×7	---	---	WT10IP
	2020K08	△	20	20	125	20	10	16				
	2525M08	△	25	25	150	25	12.5	16				
	2020K10	△	20	20	125	20	10	20	I60M3.5×10	---	---	WT15IP
	2525M10	▲	25	25	150	25	12.5	20				
	2525M12	▲	25	25	150	25	12.5	35	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	3232P12	△	32	32	170	32	16	35				
	3225P16	▲	32	25	170	32	12.5	35	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L
	4040S16	△	40	40	250	40	20	40				

▲Stock available △Make-to-order

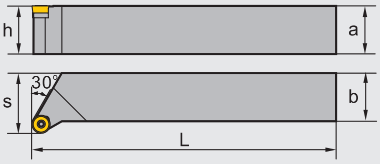
Applicable inserts

Application		For semi-finishing	For roughing	For Al machining
Inserts shape		 A96	 A96	LH  A96
Tool holder type	**SRDCN□□K/M/H08**	RCMT0803MO	RCMT0803MO	RCGX0803MO-LH
	SRDCN□□K/M10	RCMT10T3MO	RCMT10T3MO	
	SRDCN□□M/P12	RCMT1204MO	RCMT1204MO	
	SRDCN□□P/S16	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				
SRGCR/L	**1616H08**	△	△	16	16	100	16	20	I60M3×7	---	---	WT10IP
	2020K08	△	△	20	20	125	20	25				
	2525M08	△	△	25	25	150	25	32				
	1616H10	△	△	16	16	100	16	20	I60M3.5×10	---	---	WT15IP
	2020K10	▲	▲	20	20	125	20	25				
	2525M10	▲	▲	25	25	150	25	32				
	2020K12	▲	△	20	20	125	20	27	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	2525M12	▲	▲	25	25	150	25	32				
	3232P16	▲	△	32	32	170	32	40	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L

▲Stock available △Make-to-order

Applicable inserts

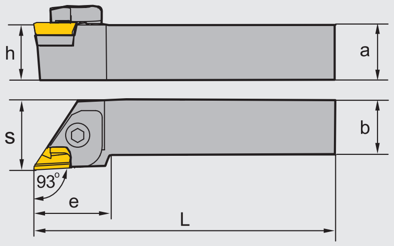
	Application	For semi-finishing	For roughing	For Al machining
	Inserts shape	 A96	 A96	**LH**  A96
Tool holder type	**SRGCR/L□□H/K/M08**	RCMT0803MO	RCMT0803MO	RCGX0803MO-LH
	SRGCR/L□□H/K/M10	RCMT10T3MO	RCMT10T3MO	
	SRGCR/L□□K/M12	RCMT1204MO	RCMT1204MO	
	SRGCR/L□□P16	RCMT1606MO	RCMT1606MO	

Corresponding tool holders of insert KNUX□□ C-type clamping

CKJNR/L

Kr:93°


R-type shown



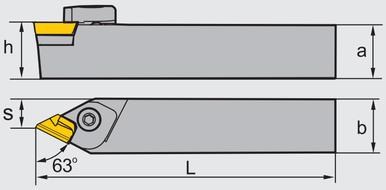
Type		Stock	Basic dimensions(mm)						Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench
			a	b	L	h	s	e								
CKJNR	**2525M16**	△	25	25	150	25	32	32	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B	WH20L WH40L
	3232P16	△	32	32	170	32	40	32								
	4040R16	△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

▲Stock available △Make-to-order

CKNNR/L

Kr:63°


R-type shown



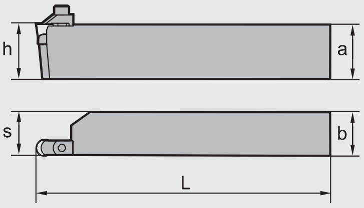
Type		Stock	Basic dimensions(mm)					Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench
			a	b	L	h	s								
CKNNR	**2525M16**	△	25	25	150	25	14.3	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B	WH20L WH40L
	3232P16	△	32	32	170	32	16.8								
CKNNL	**2525M16**	△	25	25	150	25	14.3	KNUX1604□□L A87	C6L1T	CM6×25A	SPR1 SPR2	P0515	K16CCL	SM3×10B	
	3232P16	△	32	32	170	32	16.8								

▲Stock available △Make-to-order

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					
CRDCR/L	2525M09V-19	△	△	25	25	150	25	25.5	19	RCGN0907□□ A152	C3RH	M5*16(GB70-85)	WH40L	RC09XC
	3232P09V-28	△	△	32	32	170	32	32.5	28					
	4040S09V-38	△	△	40	40	250	40	40.5	38					
	2525M12V-19	△	△	25	25	150	25	25.5	19	RCGN1207□□ A152	C4RH	M6*20(GB70-85)	WH50L	RC12XC
	3232P12V-28	△	△	32	32	170	32	32.5	28					
	4040S12V-38	△	△	40	40	250	40	40.5	38					
CRDPR/L	2525M09V-19	△	△	25	25	150	25	25.5	19	RPGN0907□□ A152	C3RH	M5*16(GB70-85)	WH40L	RP09XC
	3232P09V-28	△	△	32	32	170	32	32.5	28					
	4040S09V-38	△	△	40	40	250	40	40.5	38					
	2525M12V-19	△	△	25	25	150	25	25.5	19	RPGN1207□□ A152	C4RH	M6*20(GB70-85)	WH50L	RP12XC
	3232P12V-28	△	△	32	32	170	32	32.5	28					
	4040S12V-38	△	△	40	40	250	40	40.5	38					

▲Stock available △Make-to-order

How to select internal turning tools

Explanation of internal turning tools detailed table

- Listed according to clamping types.

Approach angle of tools

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

Insert type

Specification chart

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

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** Double-side A65			
		NGF A62		**LR** Single-side A65			
Tool holder type	**□□-PDPNR/L15-3**	DN□□1504□□	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□
	□□-PDPNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

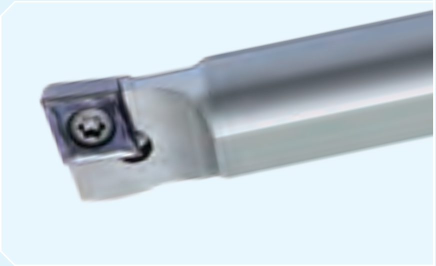
Tool holders with oil hole

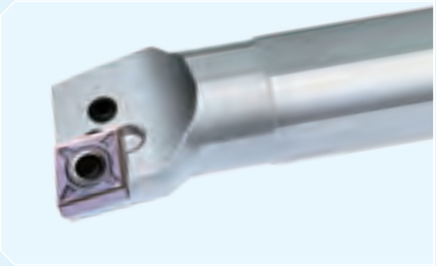
Products specification
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

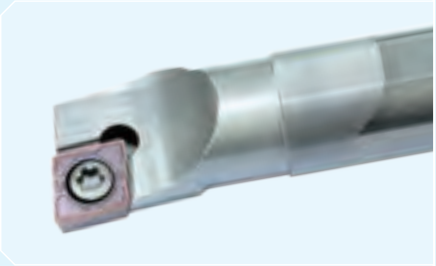
Applicable inserts
Including applications of inserts, reference page, insert shape and corresponding tool holders.

TURNING A

Internal turning tools







Internal turning tools

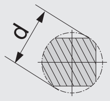
Name	Feature	62°30′	75°	90°	90°	93°	93°	95°	95°	107°30′
										
P-type internal turning tools	● The minimum machining diameter is 20mm. ● Applicable inserts are economic negative inserts. ● Hole clamping	**PDPN**  A213	**PSKN**  A215	**PTFN**  A216			**PDUN**  A214		**PCLN**  A212	
									PWLN  A217	
S-type internal turning tools	● The minimum machining diameter is 10mm. ● Applicable inserts are 5° , 7° and 11° positive inserts. ● Screw clamping.		**SSKC**  A222	**SCFC**  A232	**STFC**  A223	**STUP**  A231	**SDUC**  A220	**SDZC**  A221		**SDQC**  A219
							SDUP  A230		**SCLC**  A218	**SDQP**  A229
							SVUC  A225		 A233	**SVQB**  A226
							SVUB  A227		**SCLP**  A228	**SVQC**  A224
Damping internal turning tools	● The minimum diameter can be machined is 12mm. ● Applicable inserts are 7° 、11° positive inserts. ● Good Performance on reducing shake.					**STUP**  A238	**SDUP**  A237		**SCLP**  A235	**SDQP**  A236
							SVUC  A240			**SVQC**  A239

Internal turning tools code key

Type of tool holder

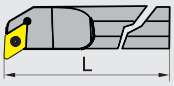
Code	Type
A	Steel tool holder with oil-hole
C	Cemented carbide tool holder
E	Cemented carbide tool holder with oil hole
S	Steel tool holder
X	Special inserts applied

Diameter of tool holder



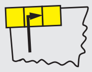
Code	Diameter
08	08
10	10
16	16
20	20
25	25
32	32
40	40
50	50

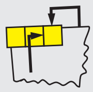
Length of tool holder

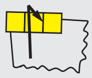


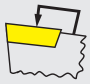
Code	Length
H	100
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400

Clamping system

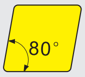

P-Hole clamping


M-Top and hole clamping

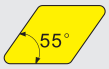

S-Screw on


C-Top clamping

Inserts shape

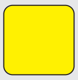


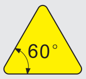
C



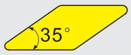
D


R

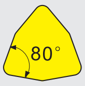

S



T



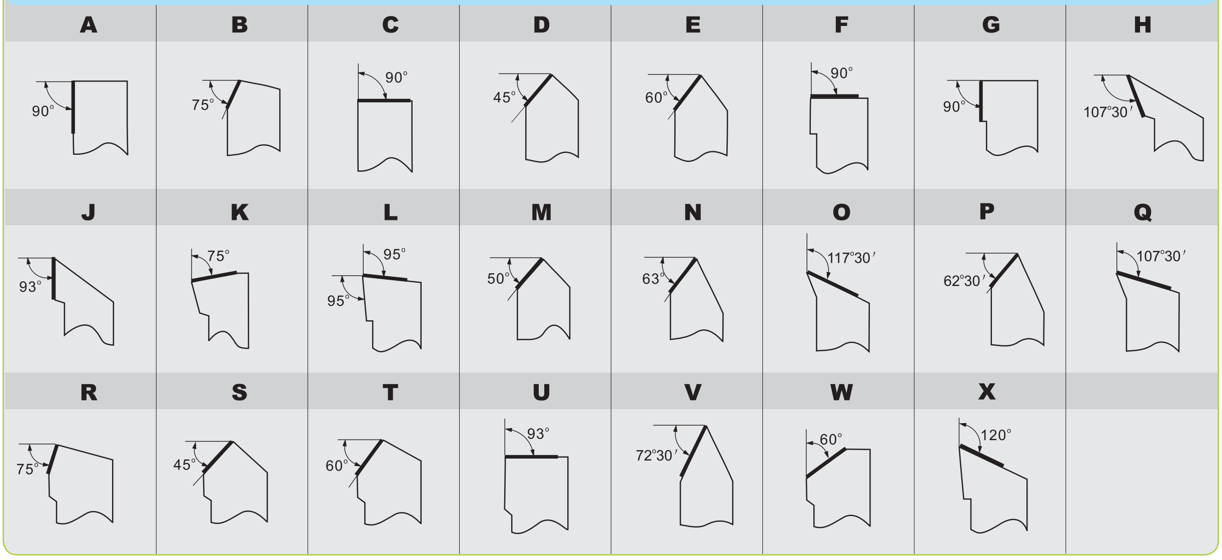
V



W

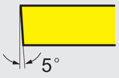
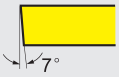
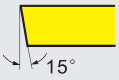
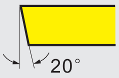
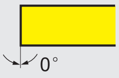
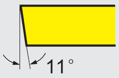
S 16 R - S D U

Tool holder style and approach angle

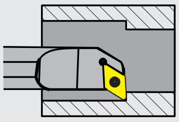


Internal turning tools code key

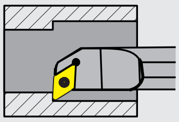
Clearance angle of insert

 5°	**B**
 7°	**C**
 15°	**D**
 20°	**E**
 0°	**N**
 11°	**P**

Cutting direction



L - Left hand



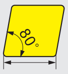
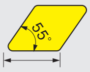
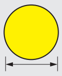
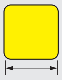
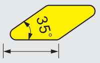
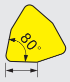
R - Right hand

Manufacture option

D	Increase offset f size+1.0mm
E	Increase offset f size+2.0mm
R	Round shank
W	Wedge clamping
X	Back boring

C R 07

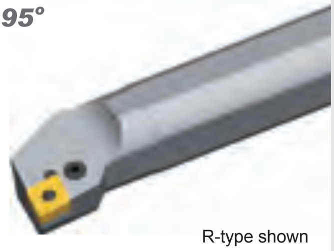
Length of cutting edge

Inserts shape	C	D	R	S	T	V	W
							
Inscribed circle	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---

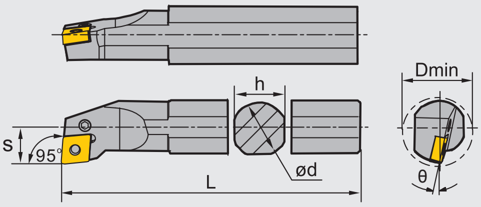
Corresponding tool holders of insert CN□□ P-type clamping

PCLNR/L

Kr:95°



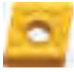
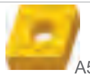
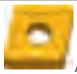
R-type shown



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

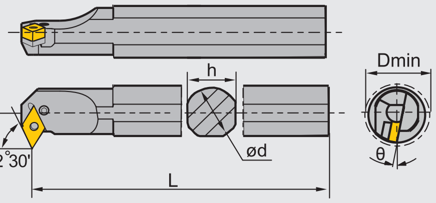
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape		**DF**  A54	**WGM** Wiper  A55	**DR** Double-side  A58	**HDR**  A59	Without chipbreaker  A59	 A118
		WGF Wiper  A54	**PM**  A55	**DR** Single-side  A58	**HPR**  A59		 A118-A119
		SF  A54	**DM**  A56	**ER** Double-side  A58			 A119
		EF  A54	**EM**  A56	**ER** Single-side  A58			
		NF  A55	**NM**  A57	**SNR** Double-side  A58			
				LR Single-side  A57			
Tool holder type	□□-PCLNR/L09	CN□□0903□□	CN□□0903□□				
	□□-PCLNR/L12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	□□-PCLNR/L16	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	
	□□-PCLNR/L19		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					

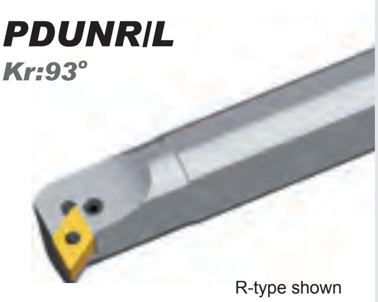
▲Stock available △Make-to-order

Applicable inserts

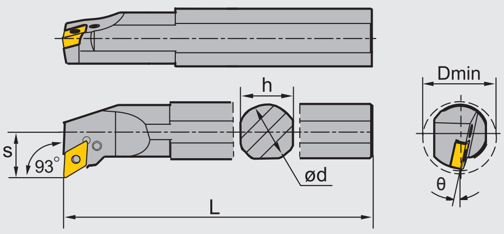
	Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
	Inserts shape	**DF**  A61	**WGM** Wiper  A63	**DR** Double-side  A65	**HDR**  A66	Without chipbreaker  A66	 A121-A122
		WGF Wiper  A61	**PM**  A63	**DR** Single-side  A65			 A122-A123
		SF  A62	**DM**  A64	**ER** Double-side  A65			 A123
		EF  A62	**EM**  A64	**ER** Single-side  A65			
		NF  A62	**NM**  A64	**SNR** Double-side  A65			
		NGF  A62		**LR** Single-side  A65			
Tool holder type	**□□-PDPNR/L15-3**	DN□□1504□□	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□
	□□-PDPNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

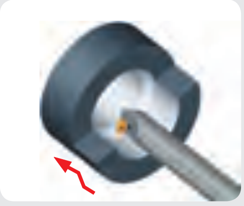
Corresponding tool holders of insert DN□□ P-type clamping

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					
S20R-PDUNR/L11	△	△	25	20	19	200	13	LEM5×12	WH20L	L3D	---	---
S25S-PDUNR/L11	△	△	32	25	24	250	17					
S32T-PDUNR/L15	△	△	40	32	30	300	23	LEM8×21	WH30L	L4B	D15AP	SP4
S32T-PDUNR/L15-3	△	△	40	32	30	300	23	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDUNR/L15	△	△	50	40	38	350	27	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDUNR/L15-3	▲	▲	50	40	38	350	27	LEM8×21	WH30L	L4	D15AP	SP4

▲Stock available △Make-to-order

Applicable inserts

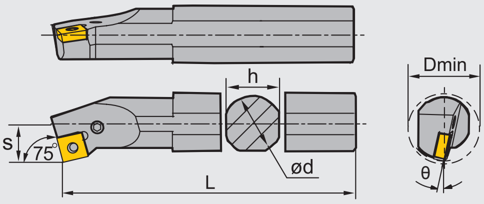
Application		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape		**DF**  A61	**WGM** Wiper  A63	**DR** Double-side  A65	**HDR**  A66	Without chipbreaker  A66	 A121-A122
		WGF Wiper  A61	**PM**  A63	**DR** Single-side  A65			 A122-A123
		SF  A62	**DM**  A64	**ER** Double-side  A65			 A123
		EF  A62	**EM**  A64	**ER** Single-side  A65			
		NF  A62	**NM**  A64	**SNR** Double-side  A65			
		NGF  A62		**LR** Single-side  A65			
Tool holder type	**□□-PDUNR/L11**	DN□□1104□□	DN□□1104□□		DN□□1104□□		
	□□-PDUNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□
	□□-PDUNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

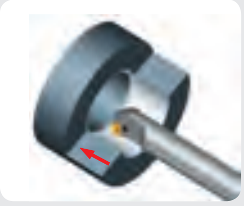
Corresponding tool holders of insert SN□□ P-type clamping

PSKNR/L

Kr:75°

R-type shown

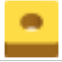




Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S25S-PSKNR/L12	▲	▲	32	25	24	250	17	LEM6×14	WH25L	L4A	---	---
S32T-PSKNR/L12	△	△	41	32	30	300	22	LEM8×21	WH30L	L4	S12APB	SP4
S40U-PSKNR/L12	△	△	50	40	38	350	27					

▲Stock available △Make-to-order

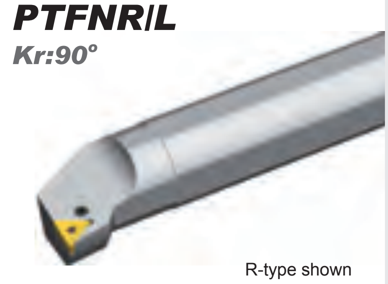
Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For roughing	PCBN/PCD inserts
Inserts shape	**DF**  A67	**PM**  A68	**DR** Double-side  A70	**HDR**  A72	Without chipbreaker  A74	 A126
	EF  A67	**DM**  A68	**DR** Single-side  A70-71	**HPR**  A72		 A127
	SF  A67	**EM**  A69	**ER** Double-side  A71			 A128
		NM  A69	**ER** Single-side  A71			
			SNR Double-side  A71			
			LR Single-side  A69			
Tool holder type **□□-PSKNR/L12**	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□

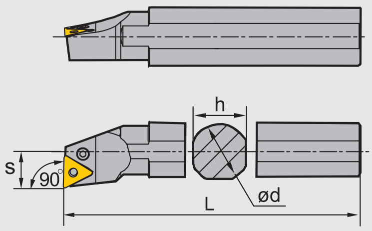
Corresponding tool holders of insert TN□□ P-type clamping

PTFNR/L

Kr:90°



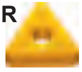
R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S25S-PTFNR/L16	▲	▲	32	25	24	250	16	LEM5×12	WH20L	L3B	---	---
S32T-PTFNR/L16	△	△	41	32	30	300	21	LEM6×17	WH25L	L3	T16APB	SP3
S40U-PTFNR/L16	△	△	50	40	38	350	26					

▲Stock available △Make-to-order

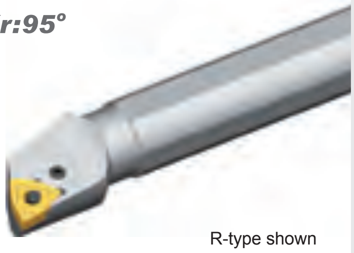
Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	**DF**  A75	**WGM** Wiper  A76	**DR** Double-side  A78	**HDR**  A79	Without chipbreaker  A80	 A130
	WG Wiper  A75	**PM**  A76	**DR** Single-side  A78			 A130-A131
	SF  A75	**DM**  A77	**ER** Double-side  A78			 A131
	EF  A76	**EM**  A77	**SNR** Double-side  A78			
			LR Single-side  A77			
Tool holder type **□□-PTFNR/L16**	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□

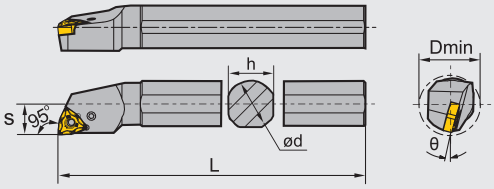
Corresponding tool holders of insert WN□□ P-type clamping

PWLNR/L

Kr:95°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S16R-PWLNR/L06	△	△	20	16	15	200	10	LEM5X12	WH20L	L3D	---	---
S20R-PWLNR/L06	△	△	25	20	19	200	12			L3B		
S25S-PWLNR/L06	△	△	35	25	24	250	15					
S20R-PWLNR/L08	△	△	23	20	19	200	12.5	LEM6X14	WH25L	L4A	---	---
S25S-PWLNR/L08	△	△	32	25	24	250	16					
S32T-PWLNR/L08	△	△	41	32	30	300	21	LEM8X21	WH30L	L4	W08AP	SP4

▲Stock available △Make-to-order

Applicable inserts

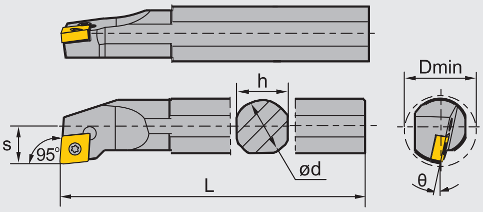
Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN/PCD inserts
Inserts shape	**DF**  A83	**WGM** Wiper  A84	**DR** Double-side  A86	Without chipbreaker  A86	 A136
	WGF Wiper  A83	**PM**  A85	**SNR** Double-side  A86		 A136-A137
	SF  A83	**DM**  A85			 A137
	EF  A84	**EM**  A85			
	NF  A84	**NM**  A86			
Tool holder type **□□-PWLNR/L06**	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	
□□-PWLNR/L08	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□

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

SCLCR/L

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			
S25S-SCLCR/L09	△	△	32	25	24	250	15.5		WT15IP	---	---
S20R-SCLCR/L12	△	△	25	20	19	200	12.5	I60M4×11X	WT15IP	---	---
S25S-SCLCR/L12	▲	▲	32	25	24	250	15.5	I60M4×11X	WT15IP	---	---
S32T-SCLCR/L12	△	△	39	32	30	300	20	I60M4×11X	WH40L WT15IP	C12BS	SM6×10×A
S40U-SCLCR/L12	△	△	50	40	38	350	24.5				

▲Stock available △Make-to-order

Applicable inserts

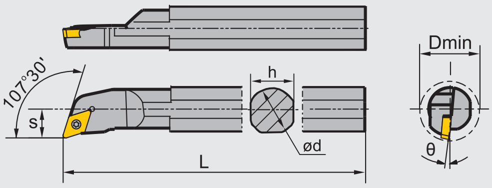
Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape		**USF**  A89	**HF**  A89	**HM**  A90	**HR**  A91	**LH**  A91-92	Without chipbreaker  A92	 A139
		SF  A89	**EF**  A90	**EM**  A90		**LC**  A91		 A144
Tool holder type	**□□-SCLCR/L06**	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX0602□□	CC□□0602□□	CC□□0602□□
	□□-SCLCR/L09	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX09T3□□	CC□□09T3□□	CC□□09T3□□
	□□-SCLCR/L12		CC□□1204□□	CC□□1204□□	CC□□1204□□	CCGX1204□□	CC□□1204□□	CC□□1204□□

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	WT07IP	---	---
S12M-SDQCR/L07	▲	▲	16	12	11	150	9	I60M2.5×6.5			
S16Q-SDQCR/L07	△	△	20	16	15	180	11				
S20R-SDQCR/L11	△	△	25	20	19	200	13	I60M3.5×8	WT15IP	---	---
S25S-SDQCR/L11	△	△	32	25	24	250	17	I60M3.5×10			
S32T-SDQCR/L11	△	△	40	32	30	300	22				
S40T-SDQCR/L11	△	△	50	40	38	350	27				

▲Stock available △Make-to-order

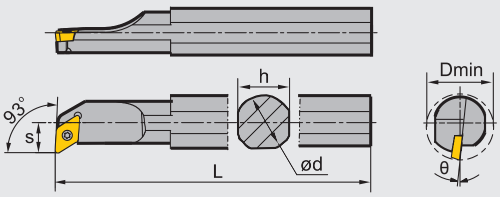
Applicable inserts

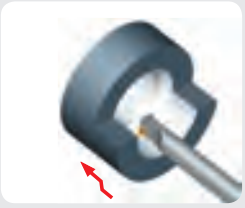
	Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
	Inserts shape	**USF**  A93	**HF**  A93	**HM**  A94	**HR**  A95	**LH**  A95	Without chipbreaker  A95	 A140
		SF  A93	**EF**  A94	**EM**  A94		**LC**  A95		 A145
Tool holder type	**□□-SDQCR/L07**	DC□□0702□□	DC□□0702□□	DC□□0702□□		DCGX0702□□	DC□□0702□□	DC□□0702□□
	□□-SDQCR/L11	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX11T3□□	DC□□11T3□□	DC□□11T3□□

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

SDUCR/L
Kr:93°

R-type shown





Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S			---	---
S10K-SDUCR/L07	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT07IP	---	---
S12M-SDUCR/L07	▲	▲	16	12	11	150	9	I60M2.5×6.5			
S16Q-SDUCR/L07	△	△	20	16	15	180	11				
S20R-SDUCR/L11	△	△	25	20	19	200	13	I60M3.5×8	WT15IP	---	---
S25S-SDUCR/L11	△	△	32	25	24	250	17	I60M3.5×10			
S32T-SDUCR/L11	△	△	40	32	30	300	22				
S40U-SDUCR/L11	△	△	50	40	38	350	27				

▲Stock available △Make-to-order

Applicable inserts

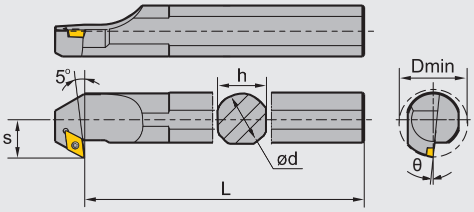
Application		For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape		USF  A93	HF  A93	HM  A94	HR  A95	LH  A95	Without chipbreaker  A95	 A140
		SF  A93	EF  A94	EM  A94		LC  A95		 A145
Tool holder type	□□-SDUCR/L07	DC□□0702□□	DC□□0702□□	DC□□0702□□		DCGX0702□□	DC□□0702□□	DC□□0702□□
	□□-SDUCR/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				
S25S-SDZCR/L11	△	△	33	25	24	250	18	I60M3.5×10	WT15IP	---	---
S32T-SDZCR/L11	△	△	40	32	30	300	22	I60M3.5×12	WT15IP WH35L	D11BS	SM5×8.65XA
S40U-SDZCR/L11	△	△	48	40	38	350	27				

▲Stock available △Make-to-order

Applicable inserts

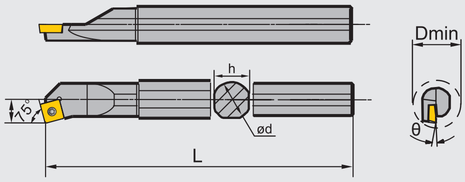
	Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
	Inserts shape	**USF**  A93	**HF**  A93	**HM**  A94	**HR**  A95	**LH**  A95	Without chipbreaker  A95	 A140
		SF  A93	**EF**  A94	**EM**  A94		**LC**  A95		 A145
Tool holder type	**□□-SDZCR/L11**	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX11T3□□	DC□□11T3□□	DC□□11T3□□

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

SSKCR/L

Kr:75°

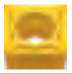
R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
S12M- SSKCR/L09	▲	△	16	12	11	150	9	I60M3.5×8	WT15IP	---	---
S16Q- SSKCR/L09	△	△	20	16	15	180	11				
S20R- SSKCR/L09	△	△	25	20	19	200	13				
S25S- SSKCR/L12	△	△	32	25	24	250	17	I60M4×11X	WT15IP	---	---
S32T- SSKCR/L12	△	△	40	32	30	300	22		WT15IP WH40L	S12BS	SM6×10XA

▲Stock available △Make-to-order

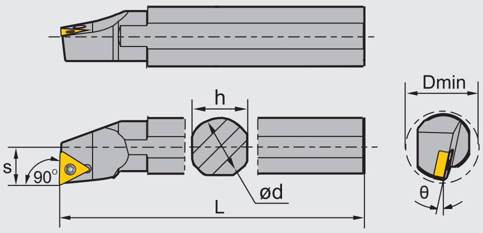
Applicable inserts

Application		For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
Inserts shape		**HF**  A98	**HM**  A98	**HR**  A99	**LH**  A99	Without chipbreaker  A99
		EF  A98	**EM**  A98		**LC**  A99	
Tool holder type	**□□-SSKCR/L09**	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□	SC□□09T3□□
	□□-SSKCR/L12		SC□□1204□□	SC□□1204□□	SCGX1204□□	SC□□1204□□

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

STFCR/L
Kr:90°

R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
S12M-STFCR/L11	▲	▲	16	12	11	150	9	I60M2.5×6.5	WT07IP	---	---
S16Q-STFCR/L11	△	△	20	16	15	180	10				
S20R-STFCR/L11	△	△	25	20	19	200	12				
S25S-STFCR/L16	△	△	32	25	24	250	16	I60M3.5×10	WT15IP	---	---
S32T-STFCR/L16	△	△	40	32	30	300	21	I60M3.5×12	WT15IP WH35L	T16BS	SM5×8.65XA
S40U-STFCR/L16	△	△	50	40	38	350	25				

▲Stock available △Make-to-order

Applicable inserts

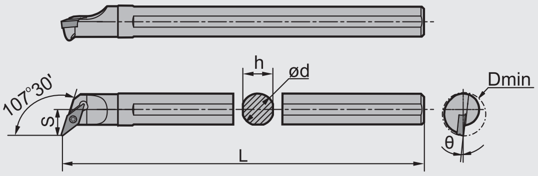
Application		For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape		**HF**  A101	**HM**  A103	**HR**  A103	**LH**  A104	Without chipbreaker  A104	 A141
		EF  A102	**EM**  A102		**LC**  A103		
Tool holder type	**□□-STFCR/L11**	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	□□-STFCR/L16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□	TC□□16T3□□

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				
S16Q-SVQCR/L11	▲	▲	22	16	15	180	13	I60M2.5×6.5	WT07IP	---	---
S20R-SVQCR/L16	△	△	27	16	19	200	14	I60M3.5×12	WT15IP WH35L	V16BSC	SM5×8.65×A
S25S-SVQCR/L16	△	△	35	25	24	250	20				
S32T-SVQCR/L16	△	△	42	32	30	300	23				

▲Stock available △Make-to-order

Applicable inserts

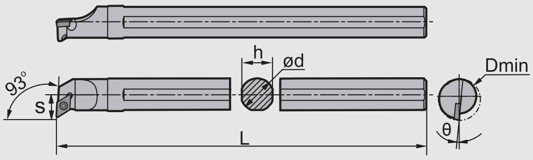
	Application	For extra finishing	For finishing	For Al machining	PCBN/PCD inserts
	Inserts shape	**USF**  A105	**HF**  A105	**LH**  A106	 A143
		SF  A105	**NF**  A105	**LC**  A106	 A148
Tool holder type	**□□-SVQCR/L11**	VC□□1103□□	VC□□1103□□	VCGX1103□□	
	□□-SVQCR/L16		VC□□1604□□	VCGX1604□□	VC□□1604□□

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				
S16Q-SVUCR/L11	△	△	24	16	15	180	15	I60M2.5×6.5	WT07IP	---	---
S20R-SVUCR/L11	△	△	28	20	19	200	17				
S25S-SVUCR/L16	△	△	35	25	24	250	20	I60M3.5×12	WT15IP		
S32T-SVUCR/L16	△	△	42	32	30	300	23		WT15IP WH35L	V16BS	SM5×8.65×A

▲Stock available △Make-to-order

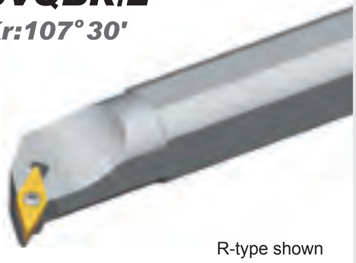
Applicable inserts

	Application	For extra finishing	For finishing	For Al machining	PCBN/PCD inserts
	Inserts shape	USF  A105	HF  A105	LH  A106	 A143
		SF  A105	NF  A105	LC  A106	 A148
Tool holder type	**☐☐-SVUCR/L11**	VC☐☐1103☐☐	VC☐☐1103☐☐	VCGX1103☐☐	
	☐☐-SVUCR/L16		VC☐☐1604☐☐	VC☐☐1604☐☐	VC☐☐1604☐☐

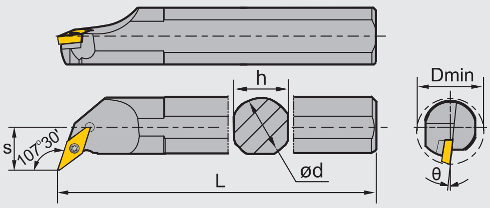
Corresponding tool holders of insert VB□□ S-type clamping

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				
S20R-SVQBR/L16	△	△	27	20	19	200	14	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65XA
S25S-SVQBR/L16	△	△	35	25	24	250	20				
S32T-SVQBR/L16	▲	▲	42	32	30	300	23				

▲Stock available △Make-to-order

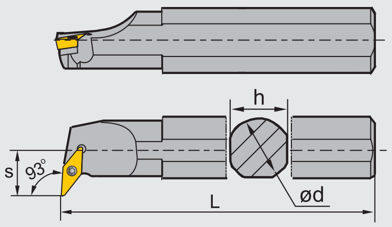
Applicable inserts

	Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
	Inserts shape	**EF**  A108	**HM**  A109	**HR**  A109	 A147
		NF  A108	**EM**  A109	**SNR**  A109	 A147
		NGF  A108			
Tool holder type	**□□-SVQBR/L16**	VB□□1604□□	VB□□1604□□	VB□□1604□□	VB□□1604□□

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				
S25S- SVUBR/L16	△	△	35	25	24	250	20	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65XA
S32T-SVUBR/L16	△	△	42	32	30	300	23				

▲Stock available △Make-to-order

Applicable inserts

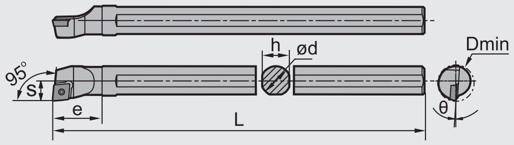
Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
Inserts shape	**EF**  A108	**HM**  A109	**HR**  A109	 A147
	NF  A108	**EM**  A109	**SNR**  A109	 A147
	NGF  A108			
Tool holder type **□□-SVUBR/L16**	VB□□1604□□	VB□□1604□□	VB□□1604□□	VB□□1604□□

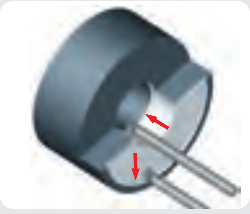
Corresponding tool holders of insert CP□□ S-type clamping

SCLPR/L

Kr:95°

R-type shown





Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S	θ	e			---	---
S10K-SCLPR/L06	▲	▲	12	10	9	125	6	-7°	17	I60M2.5×5.5	WT07IP	---	---
S12M-SCLPR/L06	▲	▲	16	12	11	150	8	-4°	20				
S16Q-SCLPR/L09	▲	▲	20	16	15	180	10	-4°	29	I60M3.5×8	WT15IP	---	---
S20R-SCLPR/L09	△	△	25	20	18	200	13	-4°	35				

▲Stock available △Make-to-order

Applicable inserts

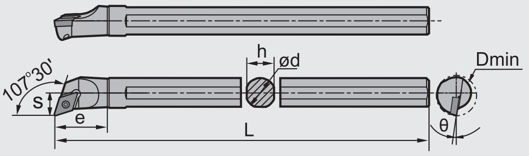
	Application	For extra finishing
	Inserts shape	**SF**  A110
Tool holder type	**□□-SCLPR/L06**	CP□□0602□□
	□□-SCLPR/L09	CP□□09T3□□

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	WT07IP	---	---
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	WT15IP	---	---
S16Q-SDQPR/L11	△	△	25	20	18	200	13	-6°	33				

▲Stock available △Make-to-order

Applicable inserts

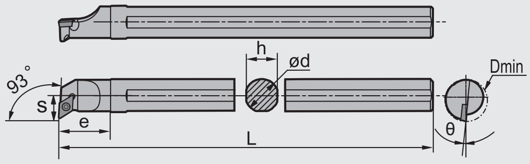
	Application	For extra finishing
	Inserts shape	**USF**  A111 **SF**  A111
Tool holder type	□□-SDQPR/L07	DP□□0702□□
	□□-SDQPR/L11	DP□□11T3□□

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

SDUPR/L

Kr:93°

R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S	θ	e			---	---
S10K-SDUPR/L07	▲	▲	15	10	9	125	9	-8°	18	I60M2.5×5.5	WT07IP	---	---
S12M-SDUPR/L07	▲	△	16	12	11	150	9	-8°	19				
S16Q-SDUPR/L07	△	△	20	16	15	180	11	-6°	25	I60M2.5×6.5			

▲Stock available △Make-to-order

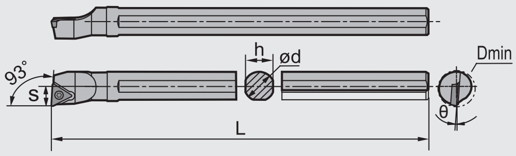
Applicable inserts

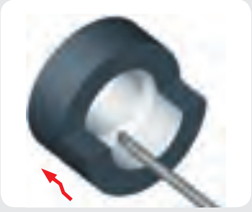
	Application	For extra finishing
	Inserts shape	**SF**  A111
Tool holder type	□□-SDUPR/L07	DP□□0702□□

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

STUPR/L
Kr:93°

R-type shown





<table>
<tr><th rowspan="2">Type</th><th colspan="2">Stock</th><th colspan="5">Basic dimensions(mm)</th><th>Screw</th><th>Wrench</th><th>---</th><th>---</th></tr>
<tr><th>R</th><th>L</th><th>Dmin</th><th>ød</th><th>h</th><th>L</th><th>S</th><th></th><th></th><th>---</th><th>---</th></tr>
<tr><td>S10M-STUPR/L09</td><td>△</td><td>△</td><td>13</td><td>10</td><td>9.4</td><td>150</td><td>6</td><td rowspan="2">I60M2.2×5.5</td><td rowspan="2">WT07IP</td><td rowspan="2">---</td><td rowspan="2">---</td></tr>
<tr><td>S10M-STUPR/L11</td><td>△</td><td>△</td><td>13</td><td>10</td><td>9.4</td><td>150</td><td>6</td></tr>
<tr><td>S12Q-STUPR/L11</td><td>△</td><td>△</td><td>16</td><td>12</td><td>11.4</td><td>180</td><td>7.5</td><td rowspan="2">I60M2.5×6.5</td><td rowspan="2">WT07IP</td><td rowspan="2">---</td><td rowspan="2">---</td></tr>
<tr><td>S16R-STUPR/L11</td><td>△</td><td>△</td><td>20</td><td>16</td><td>15</td><td>200</td><td>10</td></tr>
</table>

▲Stock available △Make-to-order

Applicable inserts

<table>
<tr><th colspan="2">Application</th><th>For extra finishing</th></tr>
<tr><td colspan="2">Inserts shape</td><td>SF

A113</td></tr>
<tr><td rowspan="3">Tool holder type</td><td>□□-STUPR/L09</td><td>TP□□0902□□</td></tr>
<tr><td>□□-STUPR/L11</td><td>TP□□1103□□</td></tr>
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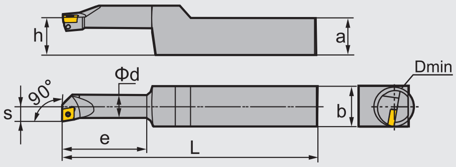
Corresponding tool holders of insert CC□□ S-type clamping

SCFCR/L

Kr:90°

R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	L	s	a	b	e			---	---
S10M-SCFCR/L06S25	▲	▲	13	10	150	7	27	25	30	I60M2.5×5.5	WT07IP	---	---
S12P -SCFCR/L06S25	▲	▲	16	12	170	9	27	25	35	I60M2.5×6.5			
S16Q-SCFCR/L09S25	▲	▲	20	16	180	11	27	25	40	I60M3.5×8	WT15IP	---	---
S20R-SCFCR/L09S25	△	△	25	20	200	13	27	25	45				
S25R-SCFCR/L12S25	△	△	30	25	200	16	27	25	50	I60M4×11X		---	---

▲Stock available △Make-to-order

Applicable inserts

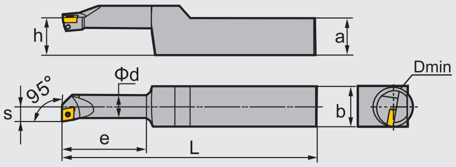
	Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
	Inserts shape	**USF**  A89	**HF**  A89	**HM**  A90	**HR**  A91	**LH**  A91-92	Without chipbreaker  A92	 A139
		SF  A89	**EF**  A90	**EM**  A90		**LC**  A91		 A144
Tool holder type	**□□-SCFCR/L06S25**	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX0602□□	CC□□0602□□	CC□□0602□□
	□□-SCFCR/L09S25	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX09T3□□	CC□□09T3□□	CC□□09T3□□
	□□-SCFCR/L12S25		CC□□1204□□	CC□□1204□□	CC□□1204□□	CCGX1204□□	CC□□1204□□	CC□□1204□□

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

SCLCR/L

Kr:95°

R-type shown

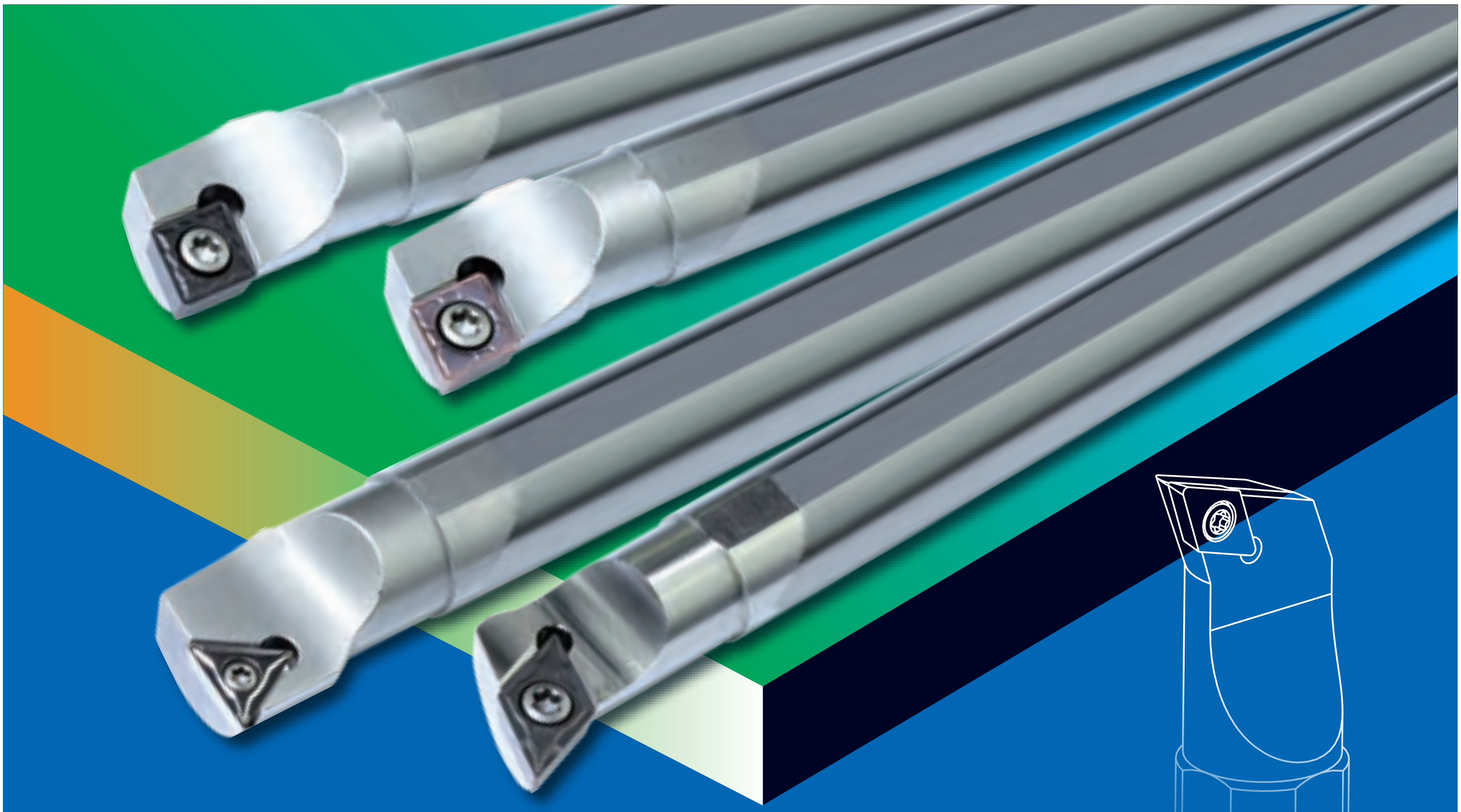


Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	L	s	a	b	e			---	---
S10M-SCLCR/L06S20	▲	▲	13	10	150	7	22	20	30	I60M2.5×5.5	WT07IP	---	---
S12P -SCLCR/L06S20	▲	▲	16	12	170	9	22	20	35				
S16Q-SCLCR/L09S20	▲	▲	20	16	180	11	22	20	40	I60M3.5×8	WT15IP	---	---
S20R-SCLCR/L09S20	△	△	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	**USF**  A89	**HF**  A89	**HM**  A90	**HR**  A91	**LH**  A91-92	Without chipbreaker  A92	 A139
		SF  A89	**EF**  A90	**EM**  A90		**LC**  A91		 A144
Tool holder type	**□□-SCLCR/L06S20**	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX0602□□	CC□□0602□□	CC□□0602□□
	□□-SCLCR/L09S20	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX09T3□□	CC□□09T3□□	CC□□09T3□□



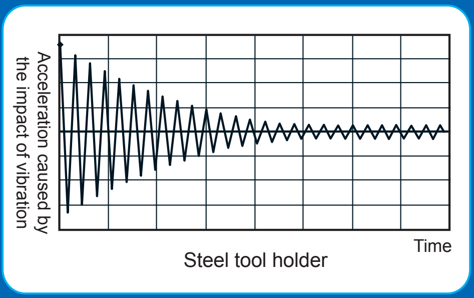
Damping tool holders for internal turning

Technical features

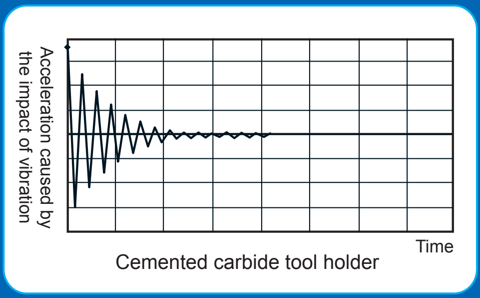
Increasing material rigidity of tool holder can reduce the amplitude, or obtain larger overhang under the condition of same systemic stability. Therefore, compared with steel tool holder, cemented carbide tool holder has better dampening effect, smaller amplitude and reaches convergence point sooner. 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≤6D, while the recommended maximum overhang of steel tool holder is L≤3D.



Steel tool holder



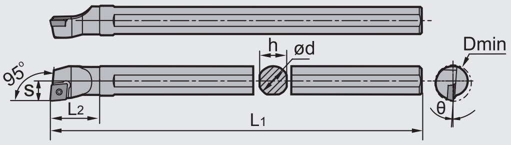
Cemented carbide tool holder

Corresponding tool holders of insert CP□□(Damping tool holder) S-type clamping

SCLPR/L

Kr:95°

R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L1	L2	h	θ			---	---
C10M-SCLPR/L06	▲	△	12	10	6	150	17	9	-7°	I60M2.5×5.5	WT07IP	--	--
C12Q-SCLPR/L06	△	△	16	12	8	180	20	11	-4°				
C16R-SCLPR/L09	▲	△	20	16	10	200	29	15	-4°	I60M3.5×8	WT15IP	--	--
C20S-SCLPR/L09	△	△	25	20	13	250	35	18	-4°				

▲Stock available △Make-to-order

Applicable inserts

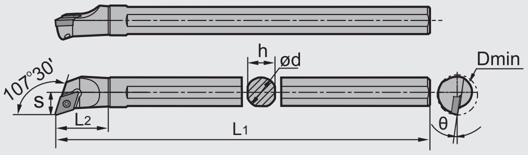
	Application	For extra finishing
	Inserts shape	**SF**  A110
Tool holder type	**□□-SCLPR/L06**	CP□□0602□□
	□□--SCLPR/L09	CP□□09T3□□

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			
C16R-SDQPR/L11	△	△	20	16	11	200	32	15	-6°	I60M3.5×8	WT15IP	---	---
C20S-SDQPR/L11	▲	△	25	20	13	250	33	18	-6°				

▲Stock available △Make-to-order

Applicable inserts

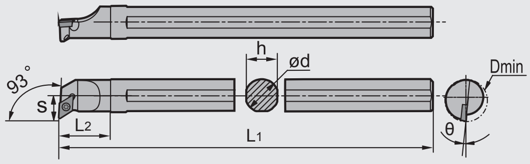
	Application	For extra finishing
	Inserts shape	**SF**  A111
Tool holder type	**□□-SDQPR/L07**	DP□□0702□□
	□□-SDQPR/L11	DP□□11T3□□

Corresponding tool holders of insert DP□□(Damping tool holder) S-type clamping

SDUPR/L

Kr:93°


R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L1	L2	h	θ			---	---
C10M-SDUPR/L07	△	△	15	10	9	150	18	9	-8°	I60M2.5×5.5	WT07IP	---	---
C12Q-SDUPR/L07	△	△	16	12	9	180	19	11	-8°	I60M2.5×6.5		---	---
C16R-SDUPR/L07	△	△	20	16	11	200	25	15	-6°			---	---

▲Stock available △Make-to-order

Applicable inserts

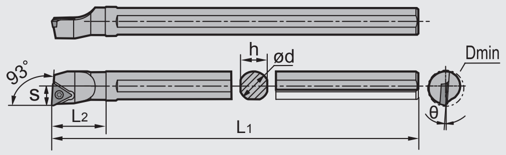
	Application	For extra finishing
	Inserts shape	**SF**  A111
Tool holder type	□□-SDUPR/L07	DP□□0702□□

Corresponding tool holders of insert TP□□(Damping tool holder) S-type clamping

STUPR/L

Kr:93°

R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L_1	L_2	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

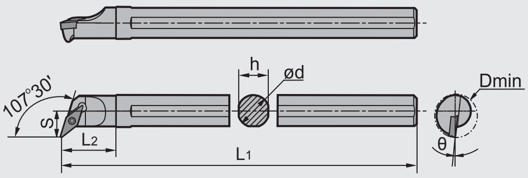
Applicable inserts

	Application	For extra finishing
	Inserts shape	**SF**  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	L_1	L_2	h	θ			---	---
C16R-SVQCR/L11	△	△	22	16	13	200	28	15	-6°	I60M2.5×6.5	WT07IP	---	---
C20S-SVQCR/L11	△	△	26	20	15	250	32	18	-4°				

▲Stock available △Make-to-order

Applicable inserts

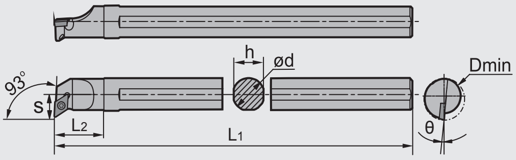
	Application	For extra finishing	For finishing	For Al machining
	Inserts shape	**USF**  A105 **SF**  A105	**HF**  A105	**LH**  A106 **LC**  A106
Tool holder type	**□□-SVQCR/L11**	VC□□1103□□	VC□□1103□□	VCGX1103□□

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	L_1	L_2	h	θ			---	---
C16R-SVUCR/L11	△	△	24	16	15	200	25	15	-6°	I60M2.5×6.5	WT07IP	---	---
C20S-SVUCR/L11	△	△	28	20	17	250	30	18	-4°				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For Al machining
Inserts shape	**USF**  A105 **SF**  A105	**HF**  A105	**LH**  A106 **LC**  A106
Tool holder type **□□-SVUCR/L11**	VC□□1103□□	VC□□1103□□	VCGX1103□□

Table of recommended cutting parameters for general turning

ISO	Materials		Hardness HB	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)												
				0.1-0.6	0.1-0.8	0.1-0.6	0.1-0.8	0.2-1.0	0.2-1.0	0.2-0.4	0.1-0.6	0.05-0.8	0.05-0.2	0.05-0.2	0.1-0.4	0.1-0.5
				Cutting speed (m/min)												
P	Carbon steel	C=0.15%	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
		Hardened	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
	High alloy steel	Anneal	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
		Hardene	325	140-90	100-50	190-130	150-100	85-40	140-90	130-80	85-60	65-40	170-110	190-110	65-40	45-30
	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

Recommended table of cutting parameters for general turning

ISO	Materials		Hardness HB	CVD Coating				Cermet	Coated cermet	Ceramics	Cemented carbide	
				YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	CN3100	YC10	YC40
				Feed rate (mm/rev)								
				0.1-0.4	0.1-0.4	0.1-0.5	0.1-0.8	0.1-0.4	0.1-0.4	0.1-1.5	0.1-0.3	0.1-0.4
				Cutting speed (m/min)								
K	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

ISO	Materials		Hardness HB	PVD Coating					Cemented carbide	Ceramics
				YBG102	YBG105	YBG202	YBS103	YBG212	YD101	CN3100
				Feed rate (mm/rev)						
				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)						
N	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	
S	Ni-base alloy	Ni-base alloy	40	90-30	90-40	90-30	90-20	90-30	70-20	15-260

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)											
		0.02-0.5		0.1-0.5		0.05-0.5				0.05-0.25			
		Cutting speed (m/min)											
K	Gray cast iron	400-1500		300-600									
	Hard cast iron	80-160		50-150									
S	Powder metallurgy and high temperature alloys										70-180	100-200	50-160
H	Hardened steel					150-250	140-220	100-170	120-180	80-150			

ISO	Materials	PCD			
		DN0121	DN0511	DN1021	DN3021
		Feed rate (mm/rev)			
		0.05~0.4			
		Cutting speed (m/min)			
N	Silumin (si≤12%)	500~1000	900~3500	400~1200	300~700
	fibre reinforced composite materials	200~1000			
	Metal base compound		1500~1800		
	Coppeer and magnesium alloyssilumin		400~1260	400~1260	
	Cemented carbide		20~40		
	Unsintered ceramic materials				100~200
	Sintered Ceramic				20~50

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)
P	Carbon steel, Alloy steel $45^{\#}$, 42CrMo	HB180—280	For semi-finishing	0.1-**0.25**-0.4	<5.0	0.1-**0.2**-0.3	<4.0
M	Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤HB220	For semi-finishing	0.1-**0.2**-0.3	<4.0	0.1-**0.15**-0.25	<3.0
K	Cast iron HT250	HB170—230	For semi-finishing	0.1-**0.25**-0.4	<5.0	0.1-**0.2**-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)
P	Carbon steel, Alloy steel $45^{\#}$, 42CrMo	HB180-280	For finishing	0.05-**0.1**-0.15	<0.2	0.05-**0.1**-0.15	<0.2				
			For semi-finishing	0.15-**0.25**-0.35	<3.0	0.1-**0.15**-0.2	<1.5				
M	Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤HB220	For finishing	0.05-**0.1**-0.15	<0.2	0.05-**0.1**-0.15	<0.2				
			For semi-finishing	0.15-**0.2**-0.25	<2.0	0.1-**0.15**-0.2	<1.0				
N	Al alloy	---	For finishing	0.05-**0.1**-0.15	<0.2	0.05-**0.1**-0.15	<0.2	0.05-**0.1**-0.15	-0.15	0.05-**0.1**-0.15	<0.1
			For semi-finishing	0.05-**0.1**-0.15	<2.0	0.05-**0.1**-0.15	<1.5	0.05-**0.1**-0.15	-1.0	0.05-**0.1**-0.15	<1.0

Damping internal turning tools

Workpiece material		Machining conditions	Chipbreaker	Inserts material	Feed rate (mm/rev)	Cutting depth (mm)
P	Steel HB180—280	For finishing	SF	YNG151 YNG151C	0.05-**0.2**-0.35	0.05-**0.1**-**0.3**-0.5
M	Stainless steel ≤HB220				0.05-**0.2**-0.35	0.05-**0.1**-**0.3**-0.5
K	Cast iron HB170—230				0.05-**0.2**-0.35	0.05-**0.1**-**0.3**-0.5

Blue words are recommended cutting parameters.

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 chipbreaker of inserts	Rake face	Nose radius	Approach angle	Cutting edge strength	Increase precision of inserts	Increase rigidity of tool holder	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	Effect of cutting heat	Unsuitable cutting conditions			↓	↓	↓											
		Unsuitable geometrical shape of cutting edge	✓						✓	↑			↓					
Bad precision of dimensions	Dimensions fluctuate during cutting	Insert tolerance												✓				
		Offset of workpiece or tools							✓	↑	↓	↑			✓	✓	✓	✓
Breakage	Abrasion on flank and rake face	Abrasion on clearance face	✓		↓				✓	↑	↑		↓					
		Abrasion on rake face	✓		↓	↓	↓		✓	↑		↓						
	Edge chipping	Vibration and impact		✓		↓	↓		✓			↓	↑		✓	✓	✓	✓
	Built-up edge	Unsuitable workpiece hardness for cutting conditions			↑	↑		✓	✓	↑			↓	✓				
	Thermal cracking	Hardness of workpiece material and tool material unsuitable for cutting conditions			↓	↓	↓	✓	✓	↑			↓					
	Cutting edge nose deformation	Occurring during intermittent machining with high feed rate	✓		↑	↓	↓	✓	✓	↑	↑	↓	↓					
	Tool life	Unsuitable materials and cutting conditions		✓		↓	↓		✓		↑	↓	↑		✓	✓	✓	✓
Chip controlling	Long, unbroken and snarled chips	Unsuitable cutting condition			↓	↑	↑	✓										
		Unsuitable geometry							✓		↓	↑						
	Too short and hard chips	Unsuitable cutting condition				↓	↓	✓										
		Unsuitable geometrical shape of cutting edge							✓		↑	↓						
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
Flank wear	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.	◆Select tool materials with good wear resistance. ◆Reduce cutting speed. ◆Enlarge clearance angle. ◆Increase feed rate.
Rake face wear (Crater wear)	Bad chip controlling Surface quality deterioration	Tool material is too soft. Cutting speed is too hig. Feed rate is too high.	◆Select tool materials with good wear resistance. ◆Reduce cutting speed. ◆Reduce feed rate.
Cutting edge breakage	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.	◆Select tool materials with good toughness. ◆Reduce feed rate. ◆Increase land width (if rounding changes into chamfering). ◆Enlarge tool bar size.
Breakage	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.	◆Select tool materials with good toughness. ◆Reduce feed rate. ◆Increase land width (if rounding changes into chamfering). ◆Enlarge tool bar size.
Plastic deformation (Cutting edge collapse)	Workpiece dimensions change Nose abrasion	Tool material is too soft. Cutting speed is too high. Cutting depth and feed rate are too high. Cutting edge temperature is too high.	◆Select tool material with good wear resistance ◆Reduce cutting speed. ◆Reduce cutting depth and feed rate. ◆Select tool materials with good heat conductivity.
Built-up edge (Bonding)	Surface quality deterioration during finishing Cutting resistant force increasing	Cutting speed is low. Cutting edge is not sharp enough. Tool material is unsuitable.	◆Increase cutting speed. ◆Enlarge rake angle. ◆Select tool materials that are not easy to adhere together (coating, cermet, etc.)
Thermal cracking	Damage because of thermal circulation Normally occurring during intermittent machining	Premature edge failure due to thermal cracks. Tool material is too hard.	◆Adopt dry cutting. ◆Select tool materials with good toughness.
Chattering	burrs occurring Cutting resistant force increasing	Feed rate and cutting speed are too high.	◆Select tool materials with good wear resistance. ◆Sharpen cutting edge by enlarging rake angle. ◆Reduce cutting speed.
Flaking	Usually occurring when machining super hard materials, which is accompanied with vibration	Bonding occurs on cutting edge. Chip flow is obstructed.	◆Sharpen cutting edge by enlarging rake angle. ◆Enlarge chip pocket.