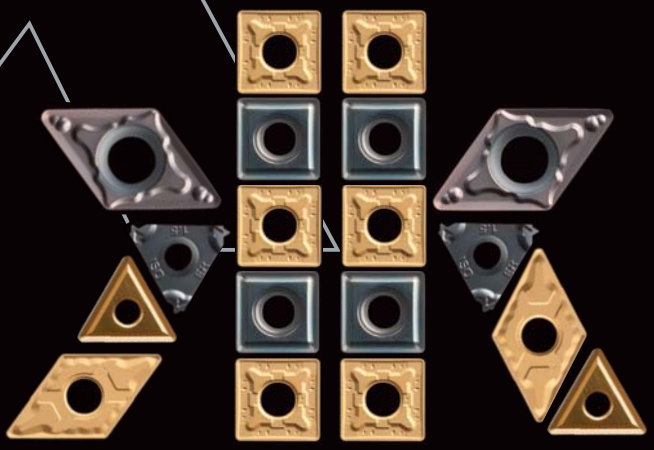
nikkoTOOLS



UPDATE 2018

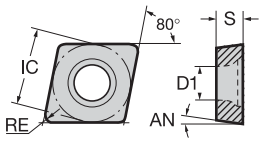
UPDATE 2018

INDEX

TURNING

CC

CARBIDE
Positive



Size	IC	S	D1	AN
0602□□	6.35	2.38	2.80	7°
09T3□□	9.525	3.97	4.40	7°
1204□□	12.70	4.76	5.50	7°

ISO513	HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP5015	HC-PVD JP5025	HW JU6010	HW JU6020	HT JU4015
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

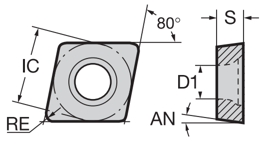
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p / f_n	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
FINISHING	PPF P M	CCET	060202R/L-PPF	RE 0.2	a_p ▸	0.10	**0.40**	0.70										
					f_n ▸	0.04	**0.07**	0.10						●			●
			060204R/L-PPF	RE 0.4	a_p ▸	0.10	**0.40**	0.70									
					f_n ▸	0.04	**0.08**	0.12						●			●
		CCET	09T302R/L-PPF	RE 0.2	a_p ▸	0.10	**0.50**	0.90									
					f_n ▸	0.04	**0.08**	0.12						●			●
			09T304R/L-PPF	RE 0.4	a_p ▸	0.10	**0.50**	0.90									
					f_n ▸	0.04	**0.09**	0.14						●			●
	PFU P M S	CCMT	060202-PFU	RE 0.2	a_p ▸	0.20	**0.80**	1.40									
					f_n ▸	0.04	**0.08**	0.12				●	●				●
			060204-PFU	RE 0.4	a_p ▸	0.20	**0.80**	1.40									
					f_n ▸	0.05	**0.11**	0.17		▲		●	●	●			●
		CCMT	09T302-PFU	RE 0.2	a_p ▸	0.30	**1.00**	1.70									
					f_n ▸	0.05	**0.10**	0.15				●	●	●			●
			09T304-PFU	RE 0.4	a_p ▸	0.30	**1.00**	1.70									
					f_n ▸	0.06	**0.14**	0.22		▲		●	●	●			●
			09T308-PFU	RE 0.8	a_p ▸	0.30	**1.00**	1.70									
					f_n ▸	0.08	**0.16**	0.24				●	●	●			●
MEDIUM	PPM P M	CCET	09T304R/L-PPM	RE 0.4	a_p ▸	0.50	**1.50**	2.50									
					f_n ▸	0.04	**0.07**	0.10						●			●
	PMU P M K	CCMT	060202-PMU	RE 0.2	a_p ▸	0.50	**1.50**	2.50									
					f_n ▸	0.05	**0.10**	0.15				○	●				●
			060204-PMU	RE 0.4	a_p ▸	0.50	**1.50**	2.50									
					f_n ▸	0.06	**0.13**	0.20	●			●	●	▲	●		●	●
			060208-PMU	RE 0.8	a_p ▸	0.50	**1.50**	2.50									
					f_n ▸	0.08	**0.16**	0.24	●			○	●		●			●
		CCMT	09T302-PMU	RE 0.2	a_p ▸	0.60	**1.80**	3.00									
					f_n ▸	0.06	**0.13**	0.20				●	●		●			●
			09T304-PMU	RE 0.4	a_p ▸	0.60	**1.80**	3.00									
					f_n ▸	0.07	**0.16**	0.25	●			●	●	▲	●		●	●
			09T308-PMU	RE 0.8	a_p ▸	0.60	**1.80**	3.00									
					f_n ▸	0.08	**0.19**	0.30	●	●		●	●	▲	●		●	●
		CCMT	120404-PMU	RE 0.4	a_p ▸	0.80	**2.20**	3.60									
					f_n ▸	0.08	**0.17**	0.26	●			●	●		●			
			120408-PMU	RE 0.8	a_p ▸	0.80	**2.20**	3.60									
					f_n ▸	0.10	**0.22**	0.32	●	○		●	●		●			
			120412-PMU	RE 1.2	a_p ▸	0.80	**2.20**	3.60									
					f_n ▸	0.12	**0.24**	0.36	●			○	○		○			
	PMN N	CCGX	060202-PMN	RE 0.2	a_p ▸	0.30	**1.50**	2.70									
					f_n ▸	0.05	**0.10**	0.15								●		
			060204-PMN	RE 0.4	a_p ▸	0.30	**1.50**	2.70									
					f_n ▸	0.06	**0.13**	0.20								●	●	
			060208-PMN	RE 0.8	a_p ▸	0.30	**1.50**	2.70									
					f_n ▸	0.08	**0.16**	0.24								○	●	
		CCGX	09T302-PMN	RE 0.2	a_p ▸	0.50	**2.00**	3.50									
					f_n ▸	0.06	**0.11**	0.16								●		
			09T304-PMN	RE 0.4	a_p ▸	0.50	**2.00**	3.50									
					f_n ▸	0.08	**0.16**	0.24								●	●	
			09T308-PMN	RE 0.8	a_p ▸	0.50	**2.00**	3.50									
					f_n ▸	0.10	**0.20**	0.30								○	●	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CC

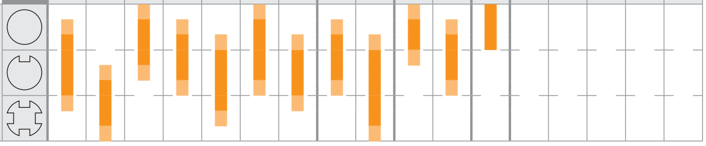
CARBIDE
Positive



Size	IC	S	D1	AN
0602□□	6.35	2.38	2.80	7°
09T3□□	9.525	3.97	4.40	7°
1204□□	12.70	4.76	5.50	7°

	HC-CVD							HC-PVD		HW		HT					
ISO513	**JC7010**	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC9010**	**JC9025**	**JP5015**	**JP5025**	**JU6010**	**JU6020**	**JU4015**					
P			200 380	180 360	140 300			80 220	60 180			200 380					
M						150 280	120 240	80 160	60 120			160 280					
K	180 380	150 300							80 170			200 400					
N										600 2000	500 1500						
S								40 80									
H																	

GRADE APPLICATION AREA		Hardness	Toughness
GRADE APPLICATION AREA	Stable machining, continuous cut	+	–
🟧 main application	General machining, light interruption		
▨ applicable	Unstable machining, interrupted cut	–	+

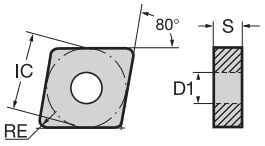


								JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015					
MEDIUM	**PMN** **N** polished surface	**CCGX**	**120402-PMN**	RE 0.2	a_p▸ f_n▸	0.50 0.08	**3.00** **0.14**	5.50 0.20										●							
			120404-PMN	RE 0.4	a_p▸ f_n▸	0.50 0.10	**3.00** **0.20**	5.50 0.30										●	●						
			120408-PMN	RE 0.8	a_p▸ f_n▸	0.50 0.15	**3.00** **0.25**	5.50 0.35										●	●						
ROUGHING	**PRU** **P** **K** reinforced edge	**CCMT**	**09T304-PRU**	RE 0.4	a_p▸ f_n▸	1.50 0.10	**2.50** **0.19**	3.50 0.28	●				●												
			09T308-PRU	RE 0.8	a_p▸ f_n▸	1.50 0.12	**2.50** **0.22**	3.50 0.32	●				●												
		CCMT	**120408-PRU**	RE 0.8	a_p▸ f_n▸	1.50 0.14	**3.00** **0.26**	4.50 0.38	●				●												
			120412-PRU	RE 1.2	a_p▸ f_n▸	1.50 0.16	**3.00** **0.28**	4.50 0.40	●				●												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

CARBIDE
Negative



Size	IC	S	D1
0903□□	9.525	3.18	3.81
1204□□	12.70	4.76	5.16
1606□□	15.87	6.35	6.35
1906□□	19.05	6.35	7.94
2509□□	25.40	9.52	9.12

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

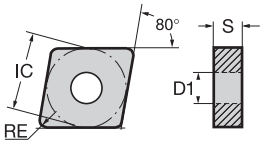
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
FINISHING	**NSP** P	CNMG	090304-NSP	RE 0.4	0.30 0.06	**0.70** **0.12**	1.10 0.18				●	●							●
			090308-NSP	RE 0.8	0.30 0.08	**0.70** **0.16**	1.10 0.24				●	●							●
		CNMG	120404-NSP	RE 0.4	0.40 0.08	**1.20** **0.15**	2.00 0.22			▲	●	●							●
			120408-NSP	RE 0.8	0.40 0.10	**1.20** **0.22**	2.00 0.34			▲	●	●							●
	NFP P	CNMG	120412-NFP	RE 1.2	0.50 0.11	**1.50** **0.23**	2.50 0.35				▽								
																			
	NFM M	CNMG	120404-NFM	RE 0.4	0.40 0.08	**1.20** **0.14**	2.00 0.20									●			
			120408-NFM	RE 0.8	0.40 0.10	**1.20** **0.20**	2.00 0.30									●			
MEDIUM	**NMP** P	CNMG	120404-NMP	RE 0.4	1.50 0.12	**2.50** **0.20**	3.50 0.28				●	●							
			120408-NMP	RE 0.8	1.50 0.16	**2.50** **0.25**	3.50 0.34				●	●							▽
			120412-NMP	RE 1.2	1.50 0.20	**2.50** **0.30**	3.50 0.40				●	●							
			120416-NMP	RE 1.6	1.50 0.25	**2.50** **0.35**	3.50 0.45				●	●							
		CNMG	160608-NMP	RE 0.8	3.00 0.20	**4.50** **0.30**	6.00 0.40				●	●							
			160612-NMP	RE 1.2	3.00 0.25	**4.50** **0.35**	6.00 0.45				●	●							
			160616-NMP	RE 1.6	3.00 0.30	**4.50** **0.40**	6.00 0.50				●	●							
		CNMG	190612-NMP	RE 1.2	4.00 0.30	**6.00** **0.40**	8.00 0.50				●	●							
			190616-NMP	RE 1.6	4.00 0.32	**6.00** **0.45**	8.00 0.58				○	○							
	NUP P M	CNMG	090304-NUP	RE 0.4	0.70 0.08	**1.50** **0.15**	2.30 0.22				●	●							●
			090308-NUP	RE 0.8	0.70 0.12	**1.50** **0.20**	2.30 0.28				●	●							●
		CNMG	120404-NUP	RE 0.4	1.00 0.10	**2.50** **0.20**	4.00 0.30			●	●	●			●				●
			120408-NUP	RE 0.8	1.00 0.15	**2.50** **0.25**	4.00 0.35			●	●	●			●				●
			120412-NUP	RE 1.2	1.00 0.18	**2.50** **0.30**	4.00 0.42			●	●	●			●				
			120416-NUP	RE 1.6	1.00 0.20	**2.50** **0.35**	4.00 0.50			●	●	○							

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

CARBIDE
Negative



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GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

ISO513	HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC8035	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP9015	HC-PVD JP9030	HW JU6020	HT JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

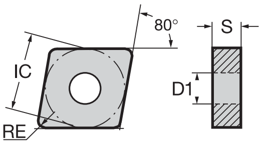
MEDIUM

						HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC8035	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP9015	HC-PVD JP9030	HW JU6020	HT JU4015
NUP P	**CNMG**	**160608-NUP**	RE 0.8	a_p ▸ 2.00 **4.50** 7.00 f_n ▸ 0.18 **0.30** 0.42			▲	○	○								
		160612-NUP	RE 1.2	a_p ▸ 2.00 **4.50** 7.00 f_n ▸ 0.22 **0.35** 0.48			▲	●	●								
	CNMG	**190608-NUP**	RE 0.8	a_p ▸ 3.00 **6.00** 9.00 f_n ▸ 0.22 **0.35** 0.48				○	○								
		190612-NUP	RE 1.2	a_p ▸ 3.00 **6.00** 9.00 f_n ▸ 0.25 **0.40** 0.55				○	○								
		190616-NUP	RE 1.6	a_p ▸ 3.00 **6.00** 9.00 f_n ▸ 0.30 **0.45** 0.60				○	○								
NMU P picture: right-hand	**CNMG**	**120408$^{R}_{L}$-NMU**	RE 0.8	a_p ▸ 1.00 **2.50** 4.00 f_n ▸ 0.20 **0.30** 0.40					○								
NMM M	**CNMG**	**090304-NMM**	RE 0.4	a_p ▸ 0.70 **1.50** 2.30 f_n ▸ 0.13 **0.20** 0.27								●		●			
		090308-NMM	RE 0.8	a_p ▸ 0.70 **1.50** 2.30 f_n ▸ 0.18 **0.25** 0.32								●		●			
	CNMG	**120404-NMM**	RE 0.4	a_p ▸ 1.00 **2.50** 4.00 f_n ▸ 0.15 **0.25** 0.35							▲	●	○	●		▽	
		120408-NMM	RE 0.8	a_p ▸ 1.00 **2.50** 4.00 f_n ▸ 0.20 **0.30** 0.40							▲	●	●	●		▽	
		120412-NMM	RE 1.2	a_p ▸ 1.00 **2.50** 4.00 f_n ▸ 0.25 **0.35** 0.45							▲	●	●	●			
		120416-NMM	RE 1.6	a_p ▸ 1.00 **2.50** 4.00 f_n ▸ 0.30 **0.40** 0.50								○		○			
	CNMG	**160608-NMM**	RE 0.8	a_p ▸ 2.00 **4.50** 7.00 f_n ▸ 0.25 **0.35** 0.45								●		○			
		160612-NMM	RE 1.2	a_p ▸ 2.00 **4.50** 7.00 f_n ▸ 0.30 **0.40** 0.50								●	●	●			
		160616-NMM	RE 1.6	a_p ▸ 2.00 **4.50** 7.00 f_n ▸ 0.35 **0.45** 0.55								●	●	●			
	CNMG	**190612-NMM**	RE 1.2	a_p ▸ 3.00 **6.00** 9.00 f_n ▸ 0.35 **0.45** 0.55								○		○			
		190616-NMM	RE 1.6	a_p ▸ 3.00 **6.00** 9.00 f_n ▸ 0.40 **0.50** 0.60								●		○			
NMK K	**CNMG**	**120404-NMK**	RE 0.4	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.10 **0.20** 0.30	●	○											
		120408-NMK	RE 0.8	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.15 **0.25** 0.35	●	●											
		120412-NMK	RE 1.2	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.20 **0.30** 0.40	●	●											
		120416-NMK	RE 1.6	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.25 **0.35** 0.45	●	○											
	CNMG	**160608-NMK**	RE 0.8	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.25 **0.35** 0.45	●	○											
		160612-NMK	RE 1.2	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.30 **0.40** 0.50	●	○											
		160616-NMK	RE 1.6	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.35 **0.45** 0.55	●	○											

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

CARBIDE
Negative



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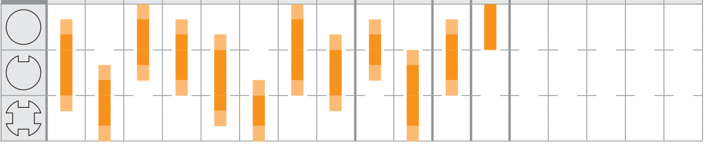
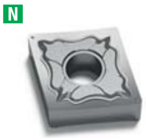
2509□□	25.40	9.52	9.12

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	
🟧 main application	Stable machining, continuous cut
	General machining, light interruption
🟨 applicable	Unstable machining, interrupted cut

Hardness + −
Toughness − +



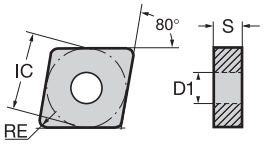
						min		max	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
MEDIUM	**NMK** K 	**CNMG**	**190612-NMK**	RE 1.2	a_p ▸ f_n ▸	3.00 0.35	**5.00** **0.45**	7.00 0.55	○	○										
			190616-NMK	RE 1.6	a_p ▸ f_n ▸	3.00 0.40	**5.00** **0.50**	7.00 0.60	○	○										
	NWU P K  wiper edge	**CNMG**	**120408-NWU**	RE 0.8	a_p ▸ f_n ▸	0.80 0.20	**2.00** **0.40**	3.20 0.60	●				●							●
			120412-NWU	RE 1.2	a_p ▸ f_n ▸	0.80 0.25	**2.00** **0.45**	3.20 0.65	●				●							●
	NMN N  polished surface	**CNGG**	**120404-NMN**	RE 0.4	a_p ▸ f_n ▸	0.50 0.10	**2.00** **0.20**	3.50 0.30											●	
			120408-NMN	RE 0.8	a_p ▸ f_n ▸	0.50 0.15	**2.00** **0.25**	3.50 0.35											●	
			120412-NMN	RE 1.2	a_p ▸ f_n ▸	0.50 0.20	**2.00** **0.30**	3.50 0.40											●	
ROUGHING	**NRP** P 	**CNMG**	**120408-NRP**	RE 0.8	a_p ▸ f_n ▸	2.00 0.25	**4.00** **0.35**	6.00 0.45			▲	●	●	●						
			120412-NRP	RE 1.2	a_p ▸ f_n ▸	2.00 0.30	**4.00** **0.40**	6.00 0.50			▲	●	●	●						
			120416-NRP	RE 1.6	a_p ▸ f_n ▸	2.00 0.35	**4.00** **0.45**	6.00 0.55			▲	●	●	●						
		CNMG	**160612-NRP**	RE 1.2	a_p ▸ f_n ▸	4.00 0.35	**6.00** **0.50**	8.00 0.65			▲	●	●	●						
			160616-NRP	RE 1.6	a_p ▸ f_n ▸	4.00 0.40	**6.00** **0.55**	8.00 0.70			▲	●	●	●						
		CNMG	**190612-NRP**	RE 1.2	a_p ▸ f_n ▸	6.00 0.40	**8.00** **0.55**	10.0 0.70					●	●						
			190616-NRP	RE 1.6	a_p ▸ f_n ▸	6.00 0.45	**8.00** **0.60**	10.0 0.75					●	●						
			190624-NRP	RE 2.4	a_p ▸ f_n ▸	6.00 0.50	**8.00** **0.65**	10.0 0.80					●	●						
	NTP P 	**CNMG**	**160612-NTP**	RE 1.2	a_p ▸ f_n ▸	5.00 0.40	**7.00** **0.55**	9.00 0.70				▽								
			160616-NTP	RE 1.6	a_p ▸ f_n ▸	5.00 0.45	**7.00** **0.60**	9.00 0.75				▽								
		CNMG	**190612-NTP**	RE 1.2	a_p ▸ f_n ▸	7.00 0.45	**9.00** **0.60**	11.0 0.75				▽	▽							
			190616-NTP	RE 1.6	a_p ▸ f_n ▸	7.00 0.50	**9.00** **0.65**	11.0 0.80				▽	▽							
	NRK K 	**CNMG**	**120408-NRK**	RE 0.8	a_p ▸ f_n ▸	1.50 0.20	**4.00** **0.30**	6.50 0.40	●	●										
			120412-NRK	RE 1.2	a_p ▸ f_n ▸	1.50 0.25	**4.00** **0.35**	6.50 0.45	●	●										
			120416-NRK	RE 1.6	a_p ▸ f_n ▸	1.50 0.30	**4.00** **0.40**	6.50 0.50	●	●										

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

▶

CN

CARBIDE
Negative



Size	IC	S	D1
0903□□	9.525	3.18	3.81
1204□□	12.70	4.76	5.16
1606□□	15.87	6.35	6.35
1906□□	19.05	6.35	7.94
2509□□	25.40	9.52	9.12

ISO513	HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC8035	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP9015	HC-PVD JP9030	HW JU6020	HT JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

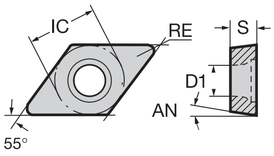
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ f_n ▸																		
ROUGHING	NRK K		CNMG	160612-NRK	RE 1.2	3.00	**6.00**	9.00	0.40	**0.55**	0.70	●	●										
				160616-NRK	RE 1.6	3.00	**6.00**	9.00	0.45	**0.60**	0.75	●	●										
			CNMG	190612-NRK	RE 1.2	5.00	**8.00**	11.0	0.45	**0.60**	0.75	○	○										
				190616-NRK	RE 1.6	5.00	**8.00**	11.0	0.50	**0.65**	0.80	○	○										
	Flat K		CNMA	120404	RE 0.4	2.00	**4.00**	6.00	0.15	**0.25**	0.35	○	○										
				120408	RE 0.8	2.00	**4.00**	6.00	0.25	**0.35**	0.45	●	○										
				120412	RE 1.2	2.00	**4.00**	6.00	0.35	**0.45**	0.55	●	○										
				120416	RE 1.6	2.00	**4.00**	6.00	0.45	**0.55**	0.65	○	○										
			CNMA	160612	RE 1.2	4.00	**7.00**	10.0	0.45	**0.60**	0.75	●	○										
				160616	RE 1.6	4.00	**7.00**	10.0	0.50	**0.65**	0.80	●	○										
			CNMA	190612	RE 1.2	6.00	**9.00**	12.0	0.50	**0.65**	0.80	○	○										
				190616	RE 1.6	6.00	**9.00**	12.0	0.55	**0.70**	0.85	●	○										
HEAVY ROUGHING	MRP P	 single side	CNMM	190616-MRP	RE 1.6	6.00	**9.00**	12.0	0.60	**0.75**	0.90					○	○						
				190624-MRP	RE 2.4	6.00	**9.00**	12.0	0.65	**0.80**	0.95					●	●						
			CNMM	250924-MRP	RE 2.4	8.00	**12.0**	16.0	0.70	**0.85**	1.00					●	●						

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DC

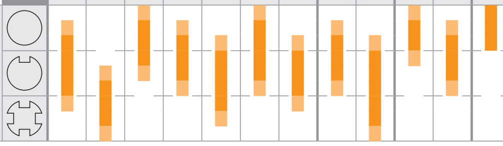
CARBIDE
Positive

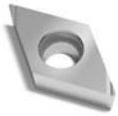


Size	IC	S	D1	AN
0702□□	6.35	2.38	2.80	7°
11T3□□	9.525	3.97	4.40	7°
1504□□	12.70	4.76	5.50	7°

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
	HC-CVD							HC-PVD		HW		HT
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness +	Toughness −
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut	Hardness −	Toughness +



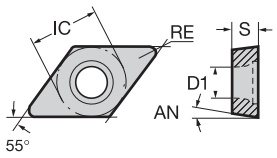
									JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
FINISHING	**PPF** P M  ground chipbreaker, picture: right-hand	DCET	070202^{R}/L-PPF	RE 0.2	a_p▸ f_n▸	0.10 0.04	**0.40** **0.07**	0.70 0.10									●			●
			070204^{R}/L-PPF	RE 0.4	a_p▸ f_n▸	0.10 0.04	**0.40** **0.08**	0.70 0.12									●			●
		DCET	11T302^{R}/L-PPF	RE 0.2	a_p▸ f_n▸	0.10 0.04	**0.50** **0.08**	0.90 0.12									●			●
			11T304^{R}/L-PPF	RE 0.4	a_p▸ f_n▸	0.10 0.04	**0.50** **0.09**	0.90 0.14									●			●
	PFU P M S  sharp edge	DCMT	070202-PFU	RE 0.2	a_p▸ f_n▸	0.20 0.04	**0.80** **0.08**	1.40 0.12				●	●		●	●	●			●
			070204-PFU	RE 0.4	a_p▸ f_n▸	0.20 0.05	**0.80** **0.11**	1.40 0.17				●	●		●	●	●			●
		DCMT	11T302-PFU	RE 0.2	a_p▸ f_n▸	0.30 0.05	**1.00** **0.10**	1.70 0.15				●	●		●	●	●			●
			11T304-PFU	RE 0.4	a_p▸ f_n▸	0.30 0.06	**1.00** **0.14**	1.70 0.22			▲	●	●		●	●	●			●
			11T308-PFU	RE 0.8	a_p▸ f_n▸	0.30 0.08	**1.00** **0.16**	1.70 0.24			▲	●	●		●	●	●			●
MEDIUM	**PPM** P M  ground chipbreaker, picture: right-hand	DCET	070204^{R}/L-PPM	RE 0.4	a_p▸ f_n▸	0.40 0.03	**1.00** **0.06**	1.60 0.09									●			●
		DCET	11T302^{R}/L-PPM	RE 0.2	a_p▸ f_n▸	0.50 0.04	**1.50** **0.06**	2.50 0.08									●			●
			11T304^{R}/L-PPM	RE 0.4	a_p▸ f_n▸	0.50 0.04	**1.50** **0.07**	2.50 0.10									●			●
	PMU P M K  general purpose	DCMT	070202-PMU	RE 0.2	a_p▸ f_n▸	0.50 0.05	**1.50** **0.10**	2.50 0.15				●	●		○					●
			070204-PMU	RE 0.4	a_p▸ f_n▸	0.50 0.06	**1.50** **0.13**	2.50 0.20	●			●	●		●		●			●
			070208-PMU	RE 0.8	a_p▸ f_n▸	0.50 0.08	**1.50** **0.16**	2.50 0.24	●			○	●		○					●
		DCMT	11T302-PMU	RE 0.2	a_p▸ f_n▸	0.60 0.06	**1.80** **0.13**	3.00 0.20				●	●		●					●
			11T304-PMU	RE 0.4	a_p▸ f_n▸	0.60 0.07	**1.80** **0.16**	3.00 0.25	●			●	●	▲	●		●			●
			11T308-PMU	RE 0.8	a_p▸ f_n▸	0.60 0.08	**1.80** **0.19**	3.00 0.30	●			●	●	▲	●		●			●
		DCMT	150404-PMU	RE 0.4	a_p▸ f_n▸	0.80 0.08	**2.00** **0.17**	3.20 0.26	○				●							
			150408-PMU	RE 0.8	a_p▸ f_n▸	0.80 0.10	**2.00** **0.22**	3.20 0.32	○			●	●		●					
			150412-PMU	RE 1.2	a_p▸ f_n▸	0.80 0.12	**2.00** **0.24**	3.20 0.36					●		○					
	PMN N  polished surface	DCGX	070202-PMN	RE 0.2	a_p▸ f_n▸	0.30 0.05	**1.50** **0.10**	2.70 0.15										●		
			070204-PMN	RE 0.4	a_p▸ f_n▸	0.30 0.06	**1.50** **0.13**	2.70 0.20										○	●	
			070208-PMN	RE 0.8	a_p▸ f_n▸	0.30 0.08	**1.50** **0.16**	2.70 0.24										○	●	
		DCGX	11T302-PMN	RE 0.2	a_p▸ f_n▸	0.50 0.06	**2.00** **0.11**	3.50 0.16										●		
			11T304-PMN	RE 0.4	a_p▸ f_n▸	0.50 0.08	**2.00** **0.16**	3.50 0.24										●	●	
			11T308-PMN	RE 0.8	a_p▸ f_n▸	0.50 0.10	**2.00** **0.20**	3.50 0.30										○	●	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

▶

DC

CARBIDE
Positive



Size	IC	S	D1	AN
0702□□	6.35	2.38	2.80	7°
11T3□□	9.525	3.97	4.40	7°
1504□□	12.70	4.76	5.50	7°

ISO513	HC-CVD							HC-PVD		HW		HT
	JC7010	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC9010**	**JC9025**	**JP5015**	**JP5025**	**JU6010**	**JU6020**	**JU4015**
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

ROUGHING

PRU P K

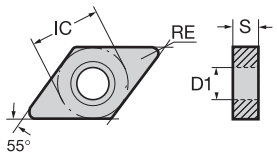
reinforced edge

DCMT	**11T304-PRU**	RE 0.4	a_p ▸	1.50	**2.50**	3.50	●				●												
			f_n ▸	0.10	**0.19**	0.28																	
	11T308-PRU	RE 0.8	a_p ▸	1.50	**2.50**	3.50	●				●												
			f_n ▸	0.12	**0.22**	0.32																	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DN

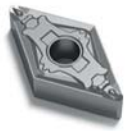
CARBIDE
Negative



Size	IC	S	D1
1104□□	9.525	4.76	3.81
1506□□	12.70	6.35	5.16

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

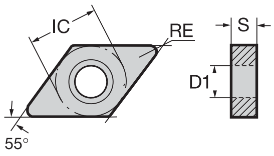
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ f_n ▸																		
FINISHING	**NSP** P		**DNMG**	**110404-NSP**	RE 0.4	0.30 0.06	**0.70** **0.12**	1.10 0.18				●	●								●		
				110408-NSP	RE 0.8	0.30 0.08	**0.70** **0.16**	1.10 0.24				●	●								●		
			DNMG	**150604-NSP**	RE 0.4	0.40 0.08	**1.20** **0.15**	2.00 0.22			▲	●	●								●		
				150608-NSP	RE 0.8	0.40 0.10	**1.20** **0.22**	2.00 0.34			▲	●	●								●		
	NFP P		**DNMG**	**110408-NFP**	RE 0.8	0.50 0.07	**1.00** **0.14**	1.50 0.21				▽	▽										
	NFM M		**DNMG**	**110404-NFM**	RE 0.4	0.30 0.05	**0.70** **0.10**	1.10 0.15											●				
				110408-NFM	RE 0.8	0.30 0.07	**0.70** **0.15**	1.10 0.23											●				
			DNMG	**150604-NFM**	RE 0.4	0.40 0.08	**1.20** **0.14**	2.00 0.20											●				
				150608-NFM	RE 0.8	0.40 0.10	**1.20** **0.20**	2.00 0.30											●				
MEDIUM	**NMP** P		**DNMG**	**110404-NMP**	RE 0.4	1.00 0.10	**1.50** **0.15**	2.00 0.20				●	●										
				110408-NMP	RE 0.8	1.00 0.15	**1.50** **0.20**	2.00 0.25	●			●	●										
			DNMG	**150604-NMP**	RE 0.4	1.50 0.12	**2.50** **0.20**	3.50 0.28				●	●										
				150608-NMP	RE 0.8	1.50 0.16	**2.50** **0.25**	3.50 0.34				●	●										
				150612-NMP	RE 1.2	1.50 0.20	**2.50** **0.30**	3.50 0.40				●	●										
				150616-NMP	RE 1.6	1.50 0.25	**2.50** **0.35**	3.50 0.45				●	●										
	NUP P M		**DNMG**	**110404-NUP**	RE 0.4	0.70 0.08	**1.50** **0.15**	2.30 0.22				●	●								●		
				110408-NUP	RE 0.8	0.70 0.12	**1.50** **0.20**	2.30 0.28				●	●								●		
				110412-NUP	RE 1.2	0.70 0.15	**1.50** **0.25**	2.30 0.35				●	●										
			DNMG	**150604-NUP**	RE 0.4	1.00 0.10	**2.50** **0.20**	4.00 0.30			●	●	●			●					●		
				150608-NUP	RE 0.8	1.00 0.15	**2.50** **0.25**	4.00 0.35			●	●	●			●					●		
				150612-NUP	RE 1.2	1.00 0.18	**2.50** **0.30**	4.00 0.42			●	●	●			●							
	NMU P M	 picture: right-hand	**DNMG**	**150604^{R}/$_{L}$-NMU**	RE 0.4	1.00 0.10	**2.50** **0.20**	4.00 0.30					●			●							
				150608^{R}/$_{L}$-NMU	RE 0.8	1.00 0.20	**2.50** **0.30**	4.00 0.40					●			●							

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DN

CARBIDE
Negative

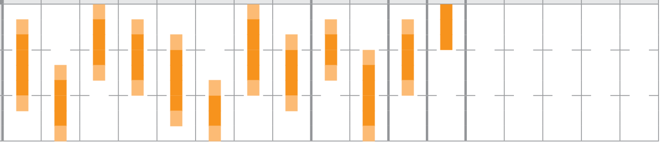


Size	IC	S	D1
1104□□	9.525	4.76	3.81
1506□□	12.70	6.35	5.16

	HC-CVD								HC-PVD		HW	HT					
ISO513	**JC7010**	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC8035**	**JC9010**	**JC9025**	**JP9015**	**JP9030**	**JU6020**	**JU4015**					
P			200 380	180 360	140 300	100 240						200 380					
M							150 280	120 240	100 220	80 200		160 280					
K	180 380	150 300										200 400					
N											500 1500						
S																	
H																	

GRADE APPLICATION AREA	Stable machining, continuous cut
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

Hardness + −
Toughness − +



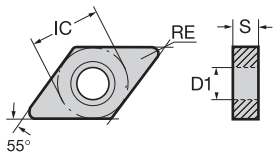
				RE					JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015					
MEDIUM	**NMM** M 	**DNMG**	**110404-NMM**	RE 0.4	a_p ▸ f_n ▸	0.70 0.13	**1.50** **0.20**	2.30 0.27								●		○							
			110408-NMM	RE 0.8	a_p ▸ f_n ▸	0.70 0.18	**1.50** **0.25**	2.30 0.32								●		●							
		DNMG	**150604-NMM**	RE 0.4	a_p ▸ f_n ▸	1.00 0.15	**2.50** **0.25**	4.00 0.35								●		●							
			150608-NMM	RE 0.8	a_p ▸ f_n ▸	1.00 0.20	**2.50** **0.30**	4.00 0.40							▲	●		●							
			150612-NMM	RE 1.2	a_p ▸ f_n ▸	1.00 0.25	**2.50** **0.35**	4.00 0.45								●		●							
	NMK K 	**DNMG**	**150604-NMK**	RE 0.4	a_p ▸ f_n ▸	0.50 0.10	**2.00** **0.20**	3.50 0.30	●	○															
			150608-NMK	RE 0.8	a_p ▸ f_n ▸	0.50 0.15	**2.00** **0.25**	3.50 0.35	●	○															
			150612-NMK	RE 1.2	a_p ▸ f_n ▸	0.50 0.20	**2.00** **0.30**	3.50 0.40	○	○															
	NMN N  polished surface	**DNGG**	**150604-NMN**	RE 0.4	a_p ▸ f_n ▸	0.50 0.10	**2.00** **0.20**	3.50 0.30											●						
			150608-NMN	RE 0.8	a_p ▸ f_n ▸	0.50 0.15	**2.00** **0.25**	3.50 0.35											●						
ROUGHING	**NRP** P 	**DNMG**	**150608-NRP**	RE 0.8	a_p ▸ f_n ▸	2.00 0.25	**4.00** **0.35**	6.00 0.45			▲	●	●	●											
			150612-NRP	RE 1.2	a_p ▸ f_n ▸	2.00 0.30	**4.00** **0.40**	6.00 0.50			▲	●	●	●											
			150616-NRP	RE 1.6	a_p ▸ f_n ▸	2.00 0.35	**4.00** **0.45**	6.00 0.55				●	●	●											
	NTP P 	**DNMG**	**150608-NTP**	RE 0.8	a_p ▸ f_n ▸	3.00 0.30	**5.00** **0.40**	7.00 0.50				▽													
			150612-NTP	RE 1.2	a_p ▸ f_n ▸	3.00 0.35	**5.00** **0.45**	7.00 0.55					▽												
	NRK K 	**DNMG**	**150608-NRK**	RE 0.8	a_p ▸ f_n ▸	1.50 0.20	**4.00** **0.30**	6.50 0.40	●	○															
			150612-NRK	RE 1.2	a_p ▸ f_n ▸	1.50 0.25	**4.00** **0.35**	6.50 0.45	●	○															

▸

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DN

CARBIDE
Negative



Size	IC	S	D1
1104□□	9.525	4.76	3.81
1506□□	12.70	6.35	5.16

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +

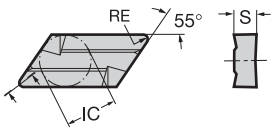
ROUGHING — Flat **K**

DNMA	**150608**	RE 0.8	a_p ▸	2.00	**4.00**	6.00	●	○													
			f_n ▸	0.25	**0.35**	0.45															
	150612	RE 1.2	a_p ▸	2.00	**4.00**	6.00	●	○													
			f_n ▸	0.35	**0.45**	0.55															

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

KN

CARBIDE
Negative



Size	IC	S
1604□□	9.525	4.76

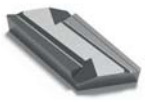
ISO513	HC-CVD								HC-PVD		HW	HT
	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +

MEDIUM

11 P



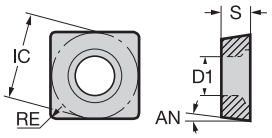
picture: right-hand

		RE	a_p ▸			f_n ▸			JC8025	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
KNUX	160405R/L-11	RE 0.5	1.00	**2.50**	4.00	0.15	**0.25**	0.35	●						
	160410R/L-11	RE 1.0	1.00	**2.50**	4.00	0.20	**0.30**	0.40	●						

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

SC

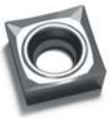
CARBIDE
Positive



Size	IC	S	D1	AN
09T3□□	9.525	3.97	4.40	7°
1204□□	12.70	4.76	5.50	7°

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
	HC-CVD							HC-PVD		HW		HT
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

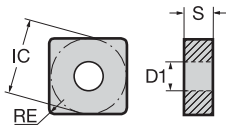
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

MEDIUM	**PMU** P M K  general purpose	**SCMT**	**09T304-PMU**	RE 0.4	a_p ▸ 0.60 **1.80** 3.00 f_n ▸ 0.07 **0.16** 0.25	○			●	●	▲	●					●							
			09T308-PMU	RE 0.8	a_p ▸ 0.60 **1.80** 3.00 f_n ▸ 0.08 **0.19** 0.30	●			●	●		●					○						
		SCMT	**120404-PMU**	RE 0.4	a_p ▸ 0.80 **2.20** 3.60 f_n ▸ 0.08 **0.17** 0.26				○	●													
			120408-PMU	RE 0.8	a_p ▸ 0.80 **2.20** 3.60 f_n ▸ 0.10 **0.22** 0.32	●			●	●		●											
	PMN N  polished surface	**SCGX**	**09T304-PMN**	RE 0.4	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.08 **0.16** 0.24											○	●						
			09T308-PMN	RE 0.8	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.10 **0.20** 0.30											○	●						
		SCGX	**120404-PMN**	RE 0.4	a_p ▸ 0.50 **3.00** 5.50 f_n ▸ 0.10 **0.20** 0.30											○	●						
			120408-PMN	RE 0.8	a_p ▸ 0.50 **3.00** 5.50 f_n ▸ 0.15 **0.25** 0.35											○	●						
ROUGHING	**PRU** P K  reinforced edge	**SCMT**	**09T308-PRU**	RE 0.8	a_p ▸ 1.50 **2.50** 3.50 f_n ▸ 0.12 **0.22** 0.32	●				●													
		SCMT	**120408-PRU**	RE 0.8	a_p ▸ 1.50 **3.00** 4.50 f_n ▸ 0.14 **0.26** 0.38	●				●													

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

SN

CARBIDE
Negative



Size	IC	S	D1
0903□□	9.525	3.18	3.81
1204□□	12.70	4.76	5.16
1906□□	19.05	6.35	7.94
2509□□	25.40	9.52	8.80

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

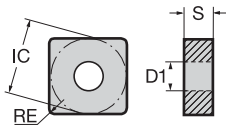
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ / f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
FINISHING	**NSP** P	SNMG	120404-NSP	RE 0.4		0.40	**1.20**	2.00				●								
						0.08	**0.15**	0.22												
			120408-NSP	RE 0.8		0.40	**1.20**	2.00				●								
						0.10	**0.22**	0.34												
	NFP P	SNMG	120404-NFP	RE 0.4		0.50	**1.50**	2.50				▽	▽							
						0.06	**0.12**	0.18												
			120408-NFP	RE 0.8		0.50	**1.50**	2.50				▽	▽							
						0.08	**0.17**	0.26												
	NFM M	SNMG	120404-NFM	RE 0.4		0.40	**1.20**	2.00								●				
						0.08	**0.14**	0.20												
			120408-NFM	RE 0.8		0.40	**1.20**	2.00								●				
						0.10	**0.20**	0.30												
MEDIUM	**NMP** P	SNMG	120404-NMP	RE 0.4		1.50	**2.50**	3.50				●	●							
						0.12	**0.20**	0.28												
			120408-NMP	RE 0.8		1.50	**2.50**	3.50				●	●							
						0.16	**0.25**	0.34												
			120412-NMP	RE 1.2		1.50	**2.50**	3.50				●	●							
						0.20	**0.30**	0.40												
			120416-NMP	RE 1.6		1.50	**2.50**	3.50				○	○							
						0.25	**0.35**	0.45												
	NUP P	SNMG	120404-NUP	RE 0.4		1.00	**2.50**	4.00				○	○							
						0.10	**0.20**	0.30												
			120408-NUP	RE 0.8		1.00	**2.50**	4.00				○	●							
						0.15	**0.25**	0.35												
			120412-NUP	RE 1.2		1.00	**2.50**	4.00				○	●							
						0.18	**0.30**	0.42												
			120416-NUP	RE 1.6		1.00	**2.50**	4.00				○	○							
						0.20	**0.35**	0.50												
	NMU P picture: right-hand	SNMG	120408^{R}/$_{L}$-NMU	RE 0.8		1.00	**2.50**	4.00					○							
						0.20	**0.30**	0.40												
	NMM M	SNMG	120404-NMM	RE 0.4		1.00	**2.50**	4.00							●		○			
						0.15	**0.25**	0.35												
			120408-NMM	RE 0.8		1.00	**2.50**	4.00							●		○			
						0.20	**0.30**	0.40												
			120412-NMM	RE 1.2		1.00	**2.50**	4.00							○		○			
						0.25	**0.35**	0.45												
			120416-NMM	RE 1.6		1.00	**2.50**	4.00							○		○			
						0.30	**0.40**	0.50												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

SN

CARBIDE
Negative



Size	IC	S	D1
0903□□	9.525	3.18	3.81
1204□□	12.70	4.76	5.16
1906□□	19.05	6.35	7.94
2509□□	25.40	9.52	8.80

ISO513	HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC8035	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP9015	HC-PVD JP9030	HW JU6020	HT JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

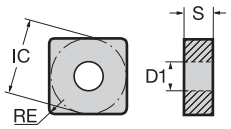
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ f_n ▸																			
MEDIUM	NMM M		SNMG	190612-NMM	RE 1.2		3.00	**6.00**	9.00									○		○				
							0.35	**0.45**	0.55															
				190616-NMM	RE 1.6		3.00	**6.00**	9.00									○		○				
							0.40	**0.50**	0.60															
	NMK K		SNMG	120408-NMK	RE 0.8		0.50	**2.00**	3.50	●	○													
							0.15	**0.25**	0.35															
				120412-NMK	RE 1.2		0.50	**2.00**	3.50	●	○													
							0.20	**0.30**	0.40															
	NMN N		SNGG	120404-NMN	RE 0.4		0.50	**2.00**	3.50													●		
							0.10	**0.20**	0.30															
				120408-NMN	RE 0.8		0.50	**2.00**	3.50													●		
							0.15	**0.25**	0.35															
				120412-NMN	RE 1.2		0.50	**2.00**	3.50													●		
	polished surface						0.20	**0.30**	0.40															
ROUGHING	NRP P		SNMG	120408-NRP	RE 0.8		2.00	**4.00**	6.00						●	●								
							0.25	**0.35**	0.45															
				120412-NRP	RE 1.2		2.00	**4.00**	6.00						●	●								
							0.30	**0.40**	0.50															
				120416-NRP	RE 1.6		2.00	**4.00**	6.00						●	●								
							0.35	**0.45**	0.55															
			SNMG	190612-NRP	RE 1.2		6.00	**8.00**	10.0						○	○								
							0.40	**0.55**	0.70															
				190616-NRP	RE 1.6		6.00	**8.00**	10.0						●	●								
							0.45	**0.60**	0.75															
				190624-NRP	RE 2.4		6.00	**8.00**	10.0						●	●								
							0.50	**0.65**	0.80															
	NTP P		SNMG	120408-NTP	RE 0.8		3.00	**5.00**	7.00					▽	▽									
							0.30	**0.40**	0.50															
				120412-NTP	RE 1.2		3.00	**5.00**	7.00					▽	▽									
							0.35	**0.45**	0.55															
	NRK K		SNMG	120408-NRK	RE 0.8		1.50	**4.00**	6.50	●	○													
							0.20	**0.30**	0.40															
				120412-NRK	RE 1.2		1.50	**4.00**	6.50	●	○													
							0.25	**0.35**	0.45															
				120416-NRK	RE 1.6		1.50	**4.00**	6.50	●	●													
							0.30	**0.40**	0.50															
			SNMG	190612-NRK	RE 1.2		5.00	**8.00**	11.0	○	○													
							0.45	**0.60**	0.75															
				190616-NRK	RE 1.6		5.00	**8.00**	11.0	○	○													
							0.50	**0.65**	0.80															

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

SN

CARBIDE
Negative



Size	IC	S	D1
0903□□	9.525	3.18	3.81
1204□□	12.70	4.76	5.16
1906□□	19.05	6.35	7.94
2509□□	25.40	9.52	8.80

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	Stable machining, continuous cut
main application	General machining, light interruption
applicable	Unstable machining, interrupted cut

Hardness + / – ; Toughness – / +

ROUGHING

Flat K

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
SNMA	090308	RE 0.8	1.00	**2.00**	3.00	0.22	**0.30**	0.38	○											
SNMA	120404	RE 0.4	2.00	**4.00**	6.00	0.15	**0.25**	0.35	●	○										
	120408	RE 0.8	2.00	**4.00**	6.00	0.25	**0.35**	0.45	●	○										
	120412	RE 1.2	2.00	**4.00**	6.00	0.35	**0.45**	0.55	●	○										
	120416	RE 1.6	2.00	**4.00**	6.00	0.45	**0.55**	0.65	●	○										

HEAVY ROUGHING

MRP P

single side

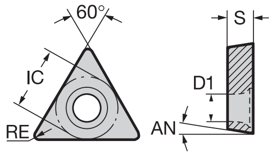
			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
SNMM	190616-MRP	RE 1.6	6.00	**9.00**	12.0	0.60	**0.75**	0.90					○	○						
	190624-MRP	RE 2.4	6.00	**9.00**	12.0	0.65	**0.80**	0.95					●	●						
SNMM	250924-MRP	RE 2.4	8.00	**12.0**	16.0	0.70	**0.85**	1.00					●	●						

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TURNING
THREADING
MILLING
DRILLING
ADVANCED MATERIALS
ACCESSORIES

TC

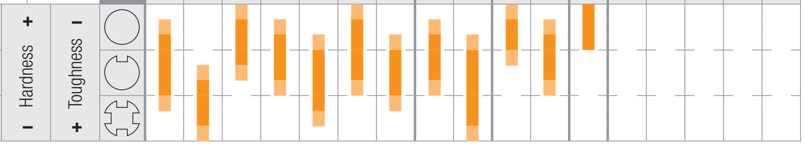
CARBIDE
Positive



Size	IC	S	D1	AN
0902□□	5.56	2.38	2.50	7°
1102□□	6.35	2.38	2.80	7°
16T3□□	9.525	3.97	4.40	7°
2204□□	12.70	4.76	5.50	7°

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015					
	HC-CVD							HC-PVD		HW		HT					
P			200 380	180 360	140 300			80 220	60 180			200 380					
M						150 280	120 240	80 160	60 120			160 280					
K	180 380	150 300							80 170			200 400					
N										600 2000	500 1500						
S								40 80									
H																	

GRADE APPLICATION AREA	Stable machining, continuous cut
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

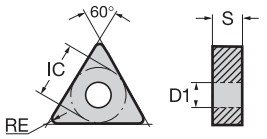


						min	typ	max	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
FINISHING	**PFU** P M S  sharp edge	TCMT	110202-PFU	RE 0.2	a_p ▸ f_n ▸	0.20 0.04	**0.80** **0.08**	1.40 0.12				●	●		●	●	●			●
			110204-PFU	RE 0.4	a_p ▸ f_n ▸	0.20 0.05	**0.80** **0.11**	1.40 0.17				●	●		●	●	●			●
MEDIUM	**PMU** P M K  general purpose	TCMT	090204-PMU	RE 0.4	a_p ▸ f_n ▸	0.50 0.05	**1.00** **0.09**	1.50 0.13	●			●	●		●					●
		TCMT	110202-PMU	RE 0.2	a_p ▸ f_n ▸	0.50 0.05	**1.50** **0.10**	2.50 0.15				○	●		●		▽			●
			110204-PMU	RE 0.4	a_p ▸ f_n ▸	0.50 0.06	**1.50** **0.13**	2.50 0.20	●			●	●	▲	●		●			●
			110208-PMU	RE 0.8	a_p ▸ f_n ▸	0.50 0.08	**1.50** **0.16**	2.50 0.24	●			●	●		●					●
		TCMT	16T304-PMU	RE 0.4	a_p ▸ f_n ▸	0.60 0.07	**1.80** **0.16**	3.00 0.25	●			●	●		●		●			●
			16T308-PMU	RE 0.8	a_p ▸ f_n ▸	0.60 0.08	**1.80** **0.19**	3.00 0.30	●	●		●	●		●		●			●
			16T312-PMU	RE 1.2	a_p ▸ f_n ▸	0.60 0.10	**1.80** **0.22**	3.00 0.34	●				○							
		TCMT	220408-PMU	RE 0.8	a_p ▸ f_n ▸	0.80 0.10	**2.00** **0.22**	3.20 0.32	○				●							
	PMN N  polished surface	TCGX	090204-PMN	RE 0.4	a_p ▸ f_n ▸	0.30 0.05	**1.00** **0.11**	1.70 0.17										○	●	
		TCGX	110202-PMN	RE 0.2	a_p ▸ f_n ▸	0.30 0.05	**1.50** **0.10**	2.70 0.15										●		
			110204-PMN	RE 0.4	a_p ▸ f_n ▸	0.30 0.06	**1.50** **0.13**	2.70 0.20										○	●	
			110208-PMN	RE 0.8	a_p ▸ f_n ▸	0.30 0.08	**1.50** **0.16**	2.70 0.24										○	●	
		TCGX	16T302-PMN	RE 0.2	a_p ▸ f_n ▸	0.50 0.06	**2.00** **0.11**	3.50 0.16										●		
			16T304-PMN	RE 0.4	a_p ▸ f_n ▸	0.50 0.08	**2.00** **0.16**	3.50 0.24										○	●	
			16T308-PMN	RE 0.8	a_p ▸ f_n ▸	0.50 0.10	**2.00** **0.20**	3.50 0.30										○	●	
ROUGHING	**PRU** P K  reinforced edge	TCMT	16T304-PRU	RE 0.4	a_p ▸ f_n ▸	1.50 0.10	**2.50** **0.19**	3.50 0.28	●				●							
			16T308-PRU	RE 0.8	a_p ▸ f_n ▸	1.50 0.12	**2.50** **0.22**	3.50 0.32	●				●							

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TN

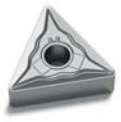
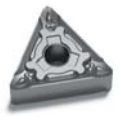
CARBIDE
Negative



Size	IC	S	D1
1604□□	9.525	4.76	3.81
2204□□	12.70	4.76	5.16

ISO513	HC-CVD								HC-PVD		HW	HT
	JC7010	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC8035**	**JC9010**	**JC9025**	**JP9015**	**JP9030**	**JU6020**	**JU4015**
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

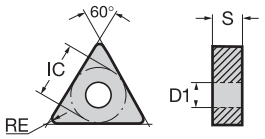
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

					a_p ▸ / f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
FINISHING	**NSP** P		**TNMG**	**160404-NSP**	RE 0.4	a_p ▸	0.40 **1.20** 2.00			▲	●	●							●
						f_n ▸	0.08 **0.15** 0.22												
				160408-NSP	RE 0.8	a_p ▸	0.40 **1.20** 2.00			▲	●	●							●
						f_n ▸	0.10 **0.22** 0.34												
	NFP P		**TNMG**	**160404-NFP**	RE 0.4	a_p ▸	0.50 **1.50** 2.50				▽								
						f_n ▸	0.06 **0.12** 0.18												
				160408-NFP	RE 0.8	a_p ▸	0.50 **1.50** 2.50				▽	▽							
						f_n ▸	0.08 **0.17** 0.26												
	NFM M		**TNMG**	**160404-NFM**	RE 0.4	a_p ▸	0.40 **1.20** 2.00									●			
						f_n ▸	0.08 **0.14** 0.20												
				160408-NFM	RE 0.8	a_p ▸	0.40 **1.20** 2.00									●			
						f_n ▸	0.10 **0.20** 0.30												
MEDIUM	**NMP** P		**TNMG**	**160404-NMP**	RE 0.4	a_p ▸	1.50 **2.50** 3.50				●	●							▽
						f_n ▸	0.12 **0.20** 0.28												
				160408-NMP	RE 0.8	a_p ▸	1.50 **2.50** 3.50				●	●							▽
						f_n ▸	0.16 **0.25** 0.34												
				160412-NMP	RE 1.2	a_p ▸	1.50 **2.50** 3.50				●	●							
						f_n ▸	0.20 **0.30** 0.40												
			TNMG	**220408-NMP**	RE 0.8	a_p ▸	3.00 **4.50** 6.00				○	●							
						f_n ▸	0.20 **0.30** 0.40												
				220412-NMP	RE 1.2	a_p ▸	3.00 **4.50** 6.00				●	●							
						f_n ▸	0.25 **0.35** 0.45												
	NUP P M		**TNMG**	**160404-NUP**	RE 0.4	a_p ▸	1.00 **2.50** 4.00			●	●	●			●				●
						f_n ▸	0.10 **0.20** 0.30												
				160408-NUP	RE 0.8	a_p ▸	1.00 **2.50** 4.00			●	●	●			●				●
						f_n ▸	0.15 **0.25** 0.35												
				160412-NUP	RE 1.2	a_p ▸	1.00 **2.50** 4.00			●	●	●			●				
						f_n ▸	0.18 **0.30** 0.42												
			TNMG	**220408-NUP**	RE 0.8	a_p ▸	2.00 **4.50** 7.00				○	○							
						f_n ▸	0.18 **0.30** 0.42												
				220412-NUP	RE 1.2	a_p ▸	2.00 **4.50** 7.00				○	○							
						f_n ▸	0.22 **0.35** 0.48												
				220416-NUP	RE 1.6	a_p ▸	2.00 **4.50** 7.00				○	○							
						f_n ▸	0.24 **0.40** 0.56												
	NMU P M	 picture: right-hand	**TNMG**	**160404$^{R}_{L}$-NMU**	RE 0.4	a_p ▸	1.00 **2.50** 4.00				○	●			●				
						f_n ▸	0.15 **0.25** 0.35												
				160408$^{R}_{L}$-NMU	RE 0.8	a_p ▸	1.00 **2.50** 4.00				○	●			●				
						f_n ▸	0.20 **0.30** 0.40												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TN

CARBIDE
Negative

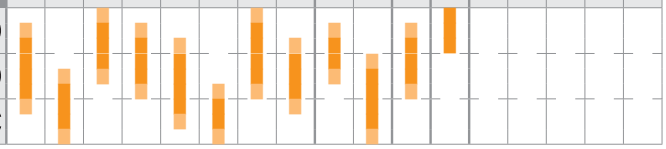


Size	IC	S	D1
1604□□	9.525	4.76	3.81
2204□□	12.70	4.76	5.16

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	Stable machining, continuous cut
main application	General machining, light interruption
applicable	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +



MEDIUM

NMM M

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
TNMG	160404-NMM	RE 0.4	1.00	**2.50**	4.00	0.15	**0.25**	0.35							▲	●	●	●		▽
	160408-NMM	RE 0.8	1.00	**2.50**	4.00	0.20	**0.30**	0.40							▲	●	●	●		▽
	160412-NMM	RE 1.2	1.00	**2.50**	4.00	0.25	**0.35**	0.45							▲	●		○		
TNMG	220408-NMM	RE 0.8	2.00	**4.50**	7.00	0.25	**0.35**	0.45								○		○		
	220412-NMM	RE 1.2	2.00	**4.50**	7.00	0.30	**0.40**	0.50								○		○		
	220416-NMM	RE 1.6	2.00	**4.50**	7.00	0.35	**0.45**	0.55								○		○		

NMK K

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
TNMG	160404-NMK	RE 0.4	0.50	**2.00**	3.50	0.10	**0.20**	0.30	●	○										
	160408-NMK	RE 0.8	0.50	**2.00**	3.50	0.15	**0.25**	0.35	●	○										
	160412-NMK	RE 1.2	0.50	**2.00**	3.50	0.20	**0.30**	0.40	●	○										
	160416-NMK	RE 1.6	0.50	**2.00**	3.50	0.25	**0.35**	0.45	○	○										
TNMG	220408-NMK	RE 0.8	2.00	**4.00**	6.00	0.25	**0.35**	0.45	○	○										
	220412-NMK	RE 1.2	2.00	**4.00**	6.00	0.30	**0.40**	0.50	●	○										
	220416-NMK	RE 1.6	2.00	**4.00**	6.00	0.35	**0.45**	0.55	●	○										

NMN N

polished surface

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
TNGG	160404-NMN	RE 0.4	0.50	**2.00**	3.50	0.10	**0.20**	0.30											●	
	160408-NMN	RE 0.8	0.50	**2.00**	3.50	0.15	**0.25**	0.35											●	
	160412-NMN	RE 1.2	0.50	**2.00**	3.50	0.20	**0.30**	0.40											●	

ROUGHING

NRP P

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
TNMG	160408-NRP	RE 0.8	2.00	**4.00**	6.00	0.25	**0.35**	0.45					●	●						
	160412-NRP	RE 1.2	2.00	**4.00**	6.00	0.30	**0.40**	0.50					●	●						
TNMG	220412-NRP	RE 1.2	4.00	**6.00**	8.00	0.35	**0.50**	0.65					●	●						
	220416-NRP	RE 1.6	4.00	**6.00**	8.00	0.40	**0.55**	0.70					●	●						

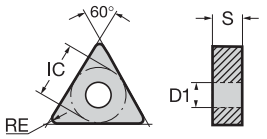
NRK K

			a_p ▸			f_n ▸			JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
TNMG	160408-NRK	RE 0.8	1.50	**4.00**	6.50	0.20	**0.30**	0.40	●	○										
	160412-NRK	RE 1.2	1.50	**4.00**	6.50	0.25	**0.35**	0.45	●	○										
TNMG	220408-NRK	RE 0.8	3.00	**6.00**	9.00	0.35	**0.50**	0.65	○	○										
	220412-NRK	RE 1.2	3.00	**6.00**	9.00	0.40	**0.55**	0.70	○	○										
	220416-NRK	RE 1.6	3.00	**6.00**	9.00	0.45	**0.60**	0.75	○	○										

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TN

CARBIDE
Negative



Size	IC	S	D1
1604□□	9.525	4.76	3.81
2204□□	12.70	4.76	5.16

ISO513	HC-CVD								HC-PVD		HW	HT
	JC7010	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC8035**	**JC9010**	**JC9025**	**JP9015**	**JP9030**	**JU6020**	**JU4015**
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

ROUGHING

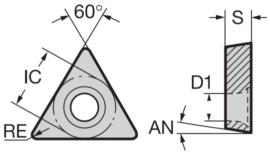
Flat K

				a_p ▸			f_n ▸			P	M	K	N	S	H
TNMA	**160404**	RE 0.4		2.00	**4.00**	6.00	0.15	**0.25**	0.35	○	○				
	160408	RE 0.8		2.00	**4.00**	6.00	0.25	**0.35**	0.45	●	●				
	160412	RE 1.2		2.00	**4.00**	6.00	0.35	**0.45**	0.55	●	○				
	160416	RE 1.6		2.00	**4.00**	6.00	0.45	**0.55**	0.65	●	○				
TNMA	**220408**	RE 0.8		4.00	**7.00**	10.0	0.35	**0.50**	0.65	●	○				
	220412	RE 1.2		4.00	**7.00**	10.0	0.45	**0.60**	0.75	●	○				
	220416	RE 1.6		4.00	**7.00**	10.0	0.50	**0.65**	0.80	○	○				

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TP

CARBIDE
Positive

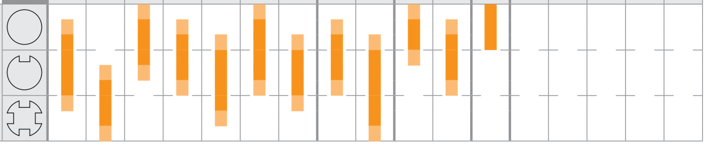


Size	IC	S	D1	AN
0902□□	5.56	2.38	3.00	11°
1103□□	6.35	3.18	3.40	11°

	HC-CVD							HC-PVD		HW		HT
ISO513	**JC7010**	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC9010**	**JC9025**	**JP5015**	**JP5025**	**JU6010**	**JU6020**	**JU4015**
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

GRADE APPLICATION AREA	
🟧 main application	Stable machining, continuous cut
▨ applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness + –
Toughness – +

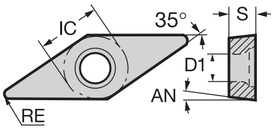


									JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
FINISHING	**PPF** P M ground chipbreaker, picture: right-hand	**TPEH**	**090202R/L-PPF**	RE 0.2	a_p▸ f_n▸	0.10 0.03	**0.30** **0.06**	0.50 0.09									●			●
			090204R/L-PPF	RE 0.4	a_p▸ f_n▸	0.10 0.04	**0.30** **0.07**	0.50 0.10									●			●
		TPEH	**110302R/L-PPF**	RE 0.2	a_p▸ f_n▸	0.10 0.04	**0.40** **0.07**	0.70 0.10									●			●
			110304R/L-PPF	RE 0.4	a_p▸ f_n▸	0.10 0.04	**0.40** **0.08**	0.70 0.12									●			●
MEDIUM	**PPM** P M ground chipbreaker, picture: right-hand	**TPEH**	**110304R/L-PPM**	RE 0.4	a_p▸ f_n▸	0.40 0.03	**1.00** **0.06**	1.60 0.09									●			●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VB

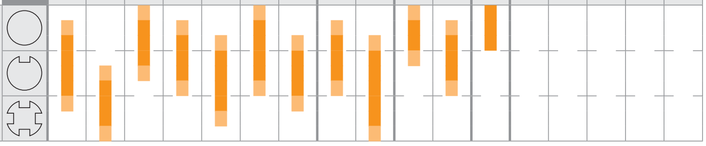
CARBIDE
Positive



Size	IC	S	D1	AN
1103□□	6.35	3.18	2.80	5°
1604□□	9.525	4.76	4.40	5°

ISO513	HC-CVD							HC-PVD		HW		HT					
	JC7010	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC9010**	**JC9025**	**JP5015**	**JP5025**	**JU6010**	**JU6020**	**JU4015**					
P			200 380	180 360	140 300			80 220	60 180			200 380					
M						150 280	120 240	80 160	60 120			160 280					
K	180 380	150 300							80 170			200 400					
N										600 2000	500 1500						
S								40 80									
H																	

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness +	Toughness −
■ main application	General machining, light interruption	Hardness	Toughness
■ applicable	Unstable machining, interrupted cut	−	+

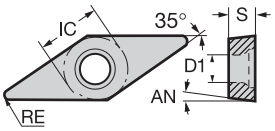


						JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015					
FINISHING	**PPF** P M  ground chipbreaker, picture: right-hand	**VBET**	**110302ᴿ/ʟ-PPF**	RE 0.2	a_p▸ 0.10 **0.40** 0.70 f_n▸ 0.04 **0.07** 0.10									●			●					
			110304ᴿ/ʟ-PPF	RE 0.4	a_p▸ 0.10 **0.40** 0.70 f_n▸ 0.04 **0.08** 0.12									●			●					
	PFU P M S  sharp edge	**VBMT**	**110304-PFU**	RE 0.4	a_p▸ 0.20 **0.80** 1.40 f_n▸ 0.05 **0.11** 0.17								●	●			●					
		VBMT	**160404-PFU**	RE 0.4	a_p▸ 0.30 **1.00** 1.70 f_n▸ 0.06 **0.14** 0.22			▲	●	●		●	●	●			●					
			160408-PFU	RE 0.8	a_p▸ 0.30 **1.00** 1.70 f_n▸ 0.08 **0.16** 0.24			▲	●	●		●	●	●			●					
MEDIUM	**PPM** P M  ground chipbreaker, picture: right-hand	**VBET**	**110302ᴿ/ʟ-PPM**	RE 0.2	a_p▸ 0.40 **1.00** 1.60 f_n▸ 0.03 **0.05** 0.07									●			●					
			110304ᴿ/ʟ-PPM	RE 0.4	a_p▸ 0.40 **1.00** 1.60 f_n▸ 0.03 **0.06** 0.09									●			●					
	PMU P M K  general purpose	**VBMT**	**160404-PMU**	RE 0.4	a_p▸ 0.60 **1.80** 3.00 f_n▸ 0.07 **0.16** 0.25	●			●	●		●		●			●					
			160408-PMU	RE 0.8	a_p▸ 0.60 **1.80** 3.00 f_n▸ 0.08 **0.19** 0.30	●			●	●		●		●			●					
ROUGHING	**PRU** P K  reinforced edge	**VBMT**	**160408-PRU**	RE 0.8	a_p▸ 1.50 **2.50** 3.50 f_n▸ 0.12 **0.22** 0.32	●				●												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VC

CARBIDE
Positive



Size	IC	S	D1	AN
1103□□	6.35	3.18	2.80	7°
1604□□	9.525	4.76	4.40	7°
2205□□	12.70	5.56	5.50	7°

ISO513	HC-CVD							HC-PVD		HW		HT
	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

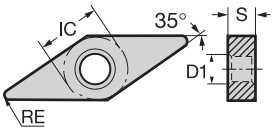
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

								HC-CVD							HC-PVD		HW		HT
								JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
MEDIUM	**PMU** P M K  general purpose	**VCMT**	**110304-PMU**	RE 0.4	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.06 **0.13** 0.20			●			●	●		●					●
		VCMT	**160404-PMU**	RE 0.4	a_p ▸ 0.60 **1.80** 3.00 f_n ▸ 0.07 **0.16** 0.25			●			●	●		●		▽			●
			160408-PMU	RE 0.8	a_p ▸ 0.60 **1.80** 3.00 f_n ▸ 0.08 **0.19** 0.30			●			●	●		●		▽			●
	PMN N  polished surface	**VCGX**	**110302-PMN**	RE 0.2	a_p ▸ 0.30 **1.50** 2.70 f_n ▸ 0.05 **0.10** 0.15												●		
			110304-PMN	RE 0.4	a_p ▸ 0.30 **1.50** 2.70 f_n ▸ 0.06 **0.13** 0.20												○	●	
			110308-PMN	RE 0.8	a_p ▸ 0.30 **1.50** 2.70 f_n ▸ 0.08 **0.16** 0.24												●	●	
		VCGX	**160402-PMN**	RE 0.2	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.06 **0.11** 0.16												●		
			160404-PMN	RE 0.4	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.08 **0.16** 0.24												●	●	
			160408-PMN	RE 0.8	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.10 **0.20** 0.30												○	●	
			160412-PMN	RE 1.2	a_p ▸ 0.50 **2.00** 3.50 f_n ▸ 0.12 **0.24** 0.36													●	
		VCGX	**220516-PMN**	RE 1.6	a_p ▸ 1.00 **3.00** 5.00 f_n ▸ 0.14 **0.30** 0.46													●	
			220530-PMN	RE 3.0	a_p ▸ 1.00 **3.00** 5.00 f_n ▸ 0.20 **0.40** 0.60												●	●	
ROUGHING	**PRU** P K  reinforced edge	**VCMT**	**160404-PRU**	RE 0.4	a_p ▸ 1.50 **2.50** 3.50 f_n ▸ 0.10 **0.19** 0.28			●				●							
			160408-PRU	RE 0.8	a_p ▸ 1.50 **2.50** 3.50 f_n ▸ 0.12 **0.22** 0.32			●				●							

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VN

CARBIDE
Negative



Size	IC	S	D1
1604□□	9.525	4.76	3.81

GRADE APPLICATION AREA	Stable machining, continuous cut
main application	General machining, light interruption
applicable	Unstable machining, interrupted cut

Hardness: − → +
Toughness: + → −

ISO513	HC-CVD								HC-PVD		HW	HT
	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

FINISHING

NSP P		VNMG	160404-NSP	RE 0.4	a_p▸ 0.40 **1.20** 2.00 f_n▸ 0.08 **0.15** 0.22			▲	●	●							●						
			160408-NSP	RE 0.8	a_p▸ 0.40 **1.20** 2.00 f_n▸ 0.10 **0.22** 0.34			▲	●	○							●						
NFP P		VNMG	160408-NFP	RE 0.8	a_p▸ 0.50 **1.50** 2.50 f_n▸ 0.08 **0.17** 0.26				▽	▽													
NFM M		VNMG	160404-NFM	RE 0.4	a_p▸ 0.40 **1.20** 2.00 f_n▸ 0.08 **0.14** 0.20								●										
			160408-NFM	RE 0.8	a_p▸ 0.40 **1.20** 2.00 f_n▸ 0.10 **0.20** 0.30								●										

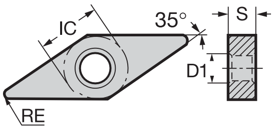
MEDIUM

NMP P		VNMG	160404-NMP	RE 0.4	a_p▸ 1.50 **2.50** 3.50 f_n▸ 0.12 **0.20** 0.28				●	●								▽					
			160408-NMP	RE 0.8	a_p▸ 1.50 **2.50** 3.50 f_n▸ 0.16 **0.25** 0.34				●	●								▽					
			160412-NMP	RE 1.2	a_p▸ 1.50 **2.50** 3.50 f_n▸ 0.20 **0.30** 0.40				●	●													
NUP P		VNMG	160404-NUP	RE 0.4	a_p▸ 1.00 **2.50** 4.00 f_n▸ 0.10 **0.20** 0.30				○	○								●					
			160408-NUP	RE 0.8	a_p▸ 1.00 **2.50** 4.00 f_n▸ 0.15 **0.25** 0.35				●	●								●					
			160412-NUP	RE 1.2	a_p▸ 1.00 **2.50** 4.00 f_n▸ 0.18 **0.30** 0.42				○	○													
NMM M		VNMG	160404-NMM	RE 0.4	a_p▸ 1.00 **2.50** 4.00 f_n▸ 0.15 **0.25** 0.35							●		○				▽					
			160408-NMM	RE 0.8	a_p▸ 1.00 **2.50** 4.00 f_n▸ 0.20 **0.30** 0.40							○		○				▽					
NMK K		VNMG	160404-NMK	RE 0.4	a_p▸ 0.50 **2.00** 3.50 f_n▸ 0.10 **0.20** 0.30	●	○																
			160408-NMK	RE 0.8	a_p▸ 0.50 **2.00** 3.50 f_n▸ 0.15 **0.25** 0.35	●	○																
			160412-NMK	RE 1.2	a_p▸ 0.50 **2.00** 3.50 f_n▸ 0.20 **0.30** 0.40	●	○																

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VN

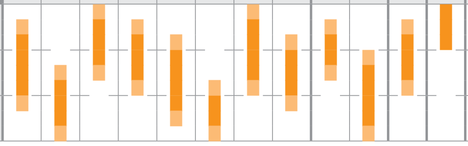
CARBIDE
Negative



Size	IC	S	D1
1604□□	9.525	4.76	3.81

	HC-CVD								HC-PVD		HW	HT					
ISO513	**JC7010**	**JC7020**	**JC8005**	**JC8015**	**JC8025**	**JC8035**	**JC9010**	**JC9025**	**JP9015**	**JP9030**	**JU6020**	**JU4015**					
P			200 380	180 360	140 300	100 240						200 380					
M							150 280	120 240	100 220	80 200		160 280					
K	180 380	150 300										200 400					
N											500 1500						
S																	
H																	

GRADE APPLICATION AREA		Hardness	Toughness
	Stable machining, continuous cut	+	−
🟧 main application	General machining, light interruption		
🟨 applicable	Unstable machining, interrupted cut	−	+

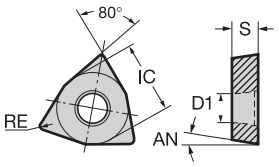


				RE					JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015					
MEDIUM	**NMN** N polished surface	**VNGG**	**160404-NMN**	RE 0.4	a_p▸ f_n▸	0.50 0.10	**2.00** **0.20**	3.50 0.30											●						
			160408-NMN	RE 0.8	a_p▸ f_n▸	0.50 0.15	**2.00** **0.25**	3.50 0.35											●						
ROUGHING	**NRK** K	**VNMG**	**160408-NRK**	RE 0.8	a_p▸ f_n▸	1.50 0.20	**4.00** **0.30**	6.50 0.40	○	○															
			160412-NRK	RE 1.2	a_p▸ f_n▸	1.50 0.25	**4.00** **0.35**	6.50 0.45	○	○															

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WC

CARBIDE
Positive



Size	IC	S	D1	AN
12T3□□	9.525	3.97	4.40	7°

ISO513	HC-CVD							HC-PVD		HW		HT
	JC7010	JC7020	JC8005	JC8015	JC8025	JC9010	JC9025	JP5015	JP5025	JU6010	JU6020	JU4015
P			200 380	180 360	140 300			80 220	60 180			200 380
M						150 280	120 240	80 160	60 120			160 280
K	180 380	150 300							80 170			200 400
N										600 2000	500 1500	
S								40 80				
H												

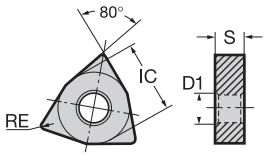
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

MEDIUM	PMU P M K																							
general purpose	WCMT	12T304-PMU	RE 0.4	a_p ▸	0.60	**1.80**	3.00	●			●	●		●					●					
				f_n ▸	0.07	**0.16**	0.25																	
		12T308-PMU	RE 0.8	a_p ▸	0.60	**1.80**	3.00	●			●	●		●					●					
				f_n ▸	0.08	**0.19**	0.30																	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WN

CARBIDE
Negative



Size	IC	S	D1
0604□□	9.525	4.76	3.81
0804□□	12.70	4.76	5.16

ISO513	HC-CVD JC7010	HC-CVD JC7020	HC-CVD JC8005	HC-CVD JC8015	HC-CVD JC8025	HC-CVD JC8035	HC-CVD JC9010	HC-CVD JC9025	HC-PVD JP9015	HC-PVD JP9030	HW JU6020	HT JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	Stable machining, continuous cut
main application	General machining, light interruption
applicable	Unstable machining, interrupted cut

Hardness + / −

Toughness − / +

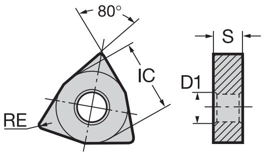
					a_p ▸																			
					f_n ▸																			
FINISHING	NSP P	WNMG	060404-NSP	RE 0.4		0.30	**0.70**	1.10				●	○						●					
						0.06	**0.12**	0.18																
			060408-NSP	RE 0.8		0.30	**0.70**	1.10				●	○						●					
						0.08	**0.16**	0.24																
		WNMG	080404-NSP	RE 0.4		0.40	**1.20**	2.00			▲	●	●						●					
						0.08	**0.15**	0.22																
			080408-NSP	RE 0.8		0.40	**1.20**	2.00			▲	●	●						●					
						0.10	**0.22**	0.34																
	NFP P	WNMG	060404-NFP	RE 0.4		0.50	**1.00**	1.50				▽												
						0.05	**0.10**	0.15																
			060408-NFP	RE 0.8		0.50	**1.00**	1.50				▽	▽											
						0.07	**0.14**	0.21																
		WNMG	080404-NFP	RE 0.4		0.50	**1.50**	2.50				▽												
						0.06	**0.12**	0.18																
			080408-NFP	RE 0.8		0.50	**1.50**	2.50				▽												
						0.08	**0.17**	0.26																
	NFM M	WNMG	060404-NFM	RE 0.4		0.30	**0.70**	1.10										●						
						0.05	**0.10**	0.15																
			060408-NFM	RE 0.8		0.30	**0.70**	1.10										●						
						0.07	**0.15**	0.23																
		WNMG	080404-NFM	RE 0.4		0.40	**1.20**	2.00										●						
						0.08	**0.14**	0.20																
			080408-NFM	RE 0.8		0.40	**1.20**	2.00										●						
						0.10	**0.20**	0.30																
MEDIUM	NMP P	WNMG	060404-NMP	RE 0.4		1.00	**1.50**	2.00				●	●											
						0.10	**0.15**	0.20																
			060408-NMP	RE 0.8		1.00	**1.50**	2.00				●	●											
						0.15	**0.20**	0.25																
		WNMG	080404-NMP	RE 0.4		1.50	**2.50**	3.50				●	●										▽	
						0.12	**0.20**	0.28																
			080408-NMP	RE 0.8		1.50	**2.50**	3.50				●	●										▽	
						0.16	**0.25**	0.34																
			080412-NMP	RE 1.2		1.50	**2.50**	3.50				●	●											
						0.20	**0.30**	0.40																
			080416-NMP	RE 1.6		1.50	**2.50**	3.50				●	●											
						0.25	**0.35**	0.45																
	NUP P M	WNMG	060404-NUP	RE 0.4		0.70	**1.50**	2.30				●	●										●	
						0.08	**0.15**	0.22																
			060408-NUP	RE 0.8		0.70	**1.50**	2.30				●	●										●	
						0.12	**0.20**	0.28																
		WNMG	080404-NUP	RE 0.4		1.00	**2.50**	4.00			●	●	●				●						●	
						0.10	**0.20**	0.30																
			080408-NUP	RE 0.8		1.00	**2.50**	4.00			●	●	●				●						●	
						0.15	**0.25**	0.35																
			080412-NUP	RE 1.2		1.00	**2.50**	4.00			●	●	●				●							
						0.18	**0.30**	0.42																
			080416-NUP	RE 1.6		1.00	**2.50**	4.00			●	●	●											
						0.20	**0.35**	0.50																
	NMM M	WNMG	060404-NMM	RE 0.4		0.70	**1.50**	2.30								▲	●		○					
						0.13	**0.20**	0.27																
			060408-NMM	RE 0.8		0.70	**1.50**	2.30								▲	●		●					
						0.18	**0.25**	0.32																
			060412-NMM	RE 1.2		0.70	**1.50**	2.30									●		●					
						0.20	**0.28**	0.36																

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WN

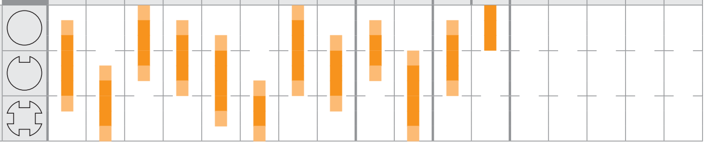
CARBIDE
Negative

ISO513	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
	HC-CVD								HC-PVD		HW	HT
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												



Size	IC	S	D1
0604□□	9.525	4.76	3.81
0804□□	12.70	4.76	5.16

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness +	Toughness –
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut	Hardness –	Toughness +

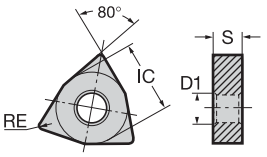


									JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
MEDIUM	**NMM** M 	**WNMG**	**080404-NMM**	RE 0.4	a_p ▸	1.00	**2.50**	4.00							▲	●	●	●		▽
					f_n ▸	0.15	**0.25**	0.35												
			080408-NMM	RE 0.8	a_p ▸	1.00	**2.50**	4.00							▲	●	●	●		▽
					f_n ▸	0.20	**0.30**	0.40												
			080412-NMM	RE 1.2	a_p ▸	1.00	**2.50**	4.00							▲	●	○	●		
					f_n ▸	0.25	**0.35**	0.45												
	NMK K 	**WNMG**	**080404-NMK**	RE 0.4	a_p ▸	0.50	**2.00**	3.50	●	○										
					f_n ▸	0.10	**0.20**	0.30												
			080408-NMK	RE 0.8	a_p ▸	0.50	**2.00**	3.50	●	●										
					f_n ▸	0.15	**0.25**	0.35												
			080412-NMK	RE 1.2	a_p ▸	0.50	**2.00**	3.50	●	●										
					f_n ▸	0.20	**0.30**	0.40												
	NWU P K  wiper edge	**WNMG**	**080408-NWU**	RE 0.8	a_p ▸	0.80	**2.00**	3.20	●				●							●
					f_n ▸	0.20	**0.40**	0.60												
			080412-NWU	RE 1.2	a_p ▸	0.80	**2.00**	3.20	●				●							●
					f_n ▸	0.25	**0.45**	0.65												
	NMN N  polished surface	**WNGG**	**060404-NMN**	RE 0.4	a_p ▸	0.30	**1.00**	1.70											●	
					f_n ▸	0.08	**0.15**	0.22												
			060408-NMN	RE 0.8	a_p ▸	0.30	**1.00**	1.70											●	
					f_n ▸	0.10	**0.20**	0.30												
		WNGG	**080404-NMN**	RE 0.4	a_p ▸	0.50	**2.00**	3.50											●	
					f_n ▸	0.10	**0.20**	0.30												
			080408-NMN	RE 0.8	a_p ▸	0.50	**2.00**	3.50											●	
					f_n ▸	0.15	**0.25**	0.35												
			080412-NMN	RE 1.2	a_p ▸	0.50	**2.00**	3.50											●	
					f_n ▸	0.20	**0.30**	0.40												
ROUGHING	**NRP** P 	**WNMG**	**080408-NRP**	RE 0.8	a_p ▸	2.00	**4.00**	6.00			▲	●	●	●						
					f_n ▸	0.25	**0.35**	0.45												
			080412-NRP	RE 1.2	a_p ▸	2.00	**4.00**	6.00			▲	●	●	●						
					f_n ▸	0.30	**0.40**	0.50												
			080416-NRP	RE 1.6	a_p ▸	2.00	**4.00**	6.00				●	●	●						
					f_n ▸	0.35	**0.45**	0.55												
	NTP P 	**WNMG**	**080408-NTP**	RE 0.8	a_p ▸	3.00	**5.00**	7.00				▽	▽							
					f_n ▸	0.30	**0.40**	0.50												
			080412-NTP	RE 1.2	a_p ▸	3.00	**5.00**	7.00				▽								
					f_n ▸	0.35	**0.45**	0.55												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WN

CARBIDE
Negative



Size	IC	S	D1
0604□□	9.525	4.76	3.81
0804□□	12.70	4.76	5.16

ISO513	HC-CVD								HC-PVD		HW	HT
	JC7010	JC7020	JC8005	JC8015	JC8025	JC8035	JC9010	JC9025	JP9015	JP9030	JU6020	JU4015
P			200 380	180 360	140 300	100 240						200 380
M							150 280	120 240	100 220	80 200		160 280
K	180 380	150 300										200 400
N											500 1500	
S												
H												

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

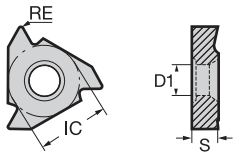
ROUGHING	NRK K		WNMG	060408-NRK	RE 0.8	a_p ▸ 1.00 **2.00** 3.00 f_n ▸ 0.15 **0.25** 0.35	●	●																						
			WNMG	080408-NRK	RE 0.8	a_p ▸ 1.50 **4.00** 6.50 f_n ▸ 0.20 **0.30** 0.40	●	●																						
				080412-NRK	RE 1.2	a_p ▸ 1.50 **4.00** 6.50 f_n ▸ 0.25 **0.35** 0.45	●	●																						
	Flat K		WNMA	080408	RE 0.8	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.25 **0.35** 0.45	●	○																						
				080412	RE 1.2	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.35 **0.45** 0.55	●	○																						
				080416	RE 1.6	a_p ▸ 2.00 **4.00** 6.00 f_n ▸ 0.45 **0.55** 0.65	●	○																						

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

THREADING

TPM

EXTERNAL
Full and Partial profile



Size	IC	S	D1
16	9.525	3.65	4.00

ISO513	HC-PVD JP5125
P	80 180
M	60 140
K	50 120
N	
S	20 40
H	

GRADE APPLICATION AREA	
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

Hardness + / − Toughness − / +

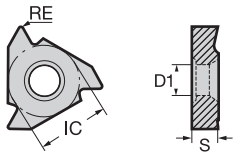
FULL PROFILE

M P M K S  METRIC 60°	16ER	100ISO-TPM	RE 0.14	pitch: 1.00 mm no. of passes 5÷8	●
		125ISO-TPM	RE 0.18	pitch: 1.25 mm no. of passes 6÷9	●
		150ISO-TPM	RE 0.22	pitch: 1.50 mm no. of passes 6÷9	●
		175ISO-TPM	RE 0.25	pitch: 1.75 mm no. of passes 8÷11	●
		200ISO-TPM	RE 0.29	pitch: 2.00 mm no. of passes 8÷11	●
		250ISO-TPM	RE 0.36	pitch: 2.50 mm no. of passes 10÷13	●
		300ISO-TPM	RE 0.43	pitch: 3.00 mm no. of passes 12÷15	●
UN P M K S  UNIFIED 60°	16ER	24UN-TPM	RE 0.15	pitch: 24 TPI no. of passes 5÷8	●
		20UN-TPM	RE 0.18	pitch: 20 TPI no. of passes 6÷9	●
		18UN-TPM	RE 0.20	pitch: 18 TPI no. of passes 6÷9	●
		16UN-TPM	RE 0.23	pitch: 16 TPI no. of passes 7÷10	●
		14UN-TPM	RE 0.26	pitch: 14 TPI no. of passes 8÷11	●
		12UN-TPM	RE 0.31	pitch: 12 TPI no. of passes 8÷11	●
		08UN-TPM	RE 0.46	pitch: 8 TPI no. of passes 12÷15	●
NPT P M K S  NATIONAL PIPE TAPERED 60°	16ER	18NPT-TPM	RE 0.20	pitch: 18 TPI no. of passes 8÷11	●
		14NPT-TPM	RE 0.22	pitch: 14 TPI no. of passes 10÷13	●
		11.5NPT-TPM	RE 0.25	pitch: 11.5 TPI no. of passes 12÷15	●
W P M K S  WHITWORTH 55°	16ER	19W-TPM	RE 0.17	pitch: 19 TPI no. of passes 6÷9	●
		14W-TPM	RE 0.24	pitch: 14 TPI no. of passes 8÷11	●
		11W-TPM	RE 0.30	pitch: 11 TPI no. of passes 9÷12	●
BSPT P M K S  BRITISH STANDARD PIPE TAPERED 55°	16ER	28BSPT-TPM	RE 0.11	pitch: 28 TPI no. of passes 5÷8	●
		19BSPT-TPM	RE 0.17	pitch: 19 TPI no. of passes 6÷9	●
		14BSPT-TPM	RE 0.24	pitch: 14 TPI no. of passes 9÷12	●
		11BSPT-TPM	RE 0.30	pitch: 11 TPI no. of passes 12÷15	●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TPM

EXTERNAL
Full and Partial profile



Size	IC	S	D1
16	9.525	3.65	4.00

ISO513	HC-PVD JP5125
P	80 180
M	60 140
K	50 120
N	
S	20 40
H	

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

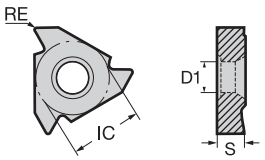
PARTIAL PROFILE

60° P M K S  METRIC AND UNIFIED THREADS	16ER	A60-TPM	RE 0.08	pitch: 0.50÷1.50 mm, 48÷16 TPI	●
		G60-TPM	RE 0.25	pitch: 1.75÷3.00 mm, 14÷8 TPI	●
		AG60-TPM	RE 0.08	pitch: 0.50÷3.00 mm, 48÷8 TPI	●
55° P M K S  WHITWORTH AND GAS THREADS	16ER	A55-TPM	RE 0.08	pitch: 48÷16 TPI	●
		G55-TPM	RE 0.21	pitch: 14÷8 TPI	●
		AG55-TPM	RE 0.08	pitch: 48÷8 TPI	●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TPM

INTERNAL
Full and Partial profile



Size	IC	S	D1
11	6.35	3.18	3.20
16	9.525	3.65	4.00

ISO513	HC-PVD JP5125
P	80 180
M	60 140
K	50 120
N	
S	20 40
H	

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

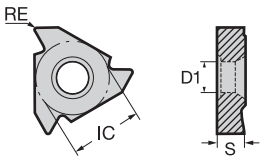
FULL PROFILE

M P M K S  METRIC 60°	11IR	100ISO-TPM	RE 0.07	pitch: 1.00 mm no. of passes 5÷8	●
		125ISO-TPM	RE 0.09	pitch: 1.25 mm no. of passes 6÷9	●
		150ISO-TPM	RE 0.11	pitch: 1.50 mm no. of passes 6÷9	●
		175ISO-TPM	RE 0.13	pitch: 1.75 mm no. of passes 8÷11	●
		200ISO-TPM	RE 0.15	pitch: 2.00 mm no. of passes 8÷11	●
	16IR	100ISO-TPM	RE 0.07	pitch: 1.00 mm no. of passes 5÷8	●
		125ISO-TPM	RE 0.09	pitch: 1.25 mm no. of passes 6÷9	●
		150ISO-TPM	RE 0.11	pitch: 1.50 mm no. of passes 6÷9	●
		175ISO-TPM	RE 0.13	pitch: 1.75 mm no. of passes 8÷11	●
		200ISO-TPM	RE 0.15	pitch: 2.00 mm no. of passes 8÷11	●
		250ISO-TPM	RE 0.18	pitch: 2.50 mm no. of passes 10÷13	●
		300ISO-TPM	RE 0.22	pitch: 3.00 mm no. of passes 12÷15	●
UN P M K S  UNIFIED 60°	16IR	24UN-TPM	RE 0.08	pitch: 24 TPI no. of passes 5÷8	●
		20UN-TPM	RE 0.09	pitch: 20 TPI no. of passes 6÷9	●
		18UN-TPM	RE 0.10	pitch: 18 TPI no. of passes 6÷9	●
		16UN-TPM	RE 0.12	pitch: 16 TPI no. of passes 7÷10	●
		14UN-TPM	RE 0.13	pitch: 14 TPI no. of passes 8÷11	●
		12UN-TPM	RE 0.16	pitch: 12 TPI no. of passes 8÷11	●
		08UN-TPM	RE 0.23	pitch: 8 TPI no. of passes 12÷15	●
NPT P M K S  NATIONAL PIPE TAPERED 60°	16IR	18NPT-TPM	RE 0.20	pitch: 18 TPI no. of passes 8÷11	●
		14NPT-TPM	RE 0.22	pitch: 14 TPI no. of passes 10÷13	●
		11.5NPT-TPM	RE 0.25	pitch: 11.5 TPI no. of passes 12÷15	●
W P M K S  WHITWORTH 55°	16IR	19W-TPM	RE 0.17	pitch: 19 TPI no. of passes 6÷9	●
		14W-TPM	RE 0.24	pitch: 14 TPI no. of passes 8÷11	●
		11W-TPM	RE 0.30	pitch: 11 TPI no. of passes 9÷12	●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TPM

INTERNAL
Full and Partial profile



Size	IC	S	D1
11	6.35	3.18	3.20
16	9.525	3.65	4.00

ISO513	HC-PVD JP5125
P	80 180
M	60 140
K	50 120
N	
S	20 40
H	

GRADE APPLICATION AREA	
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

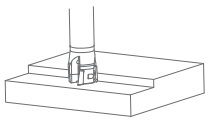
Hardness + / − Toughness − / +

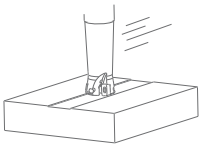
FULL PROFILE	**BSPT** P M K S  BRITISH STANDARD PIPE TAPERED 55°	**16IR**	**28BSPT-TPM**	RE 0.11	pitch: 28 TPI no. of passes 5÷8	●
			19BSPT-TPM	RE 0.17	pitch: 19 TPI no. of passes 6÷9	●
			14BSPT-TPM	RE 0.24	pitch: 14 TPI no. of passes 9÷12	●
			11BSPT-TPM	RE 0.30	pitch: 11 TPI no. of passes 12÷15	●
PARTIAL PROFILE	**60°** P M K S  METRIC AND UNIFIED THREADS	**11IR**	**A60-TPM**	RE 0.08	pitch: 0.50÷1.50 mm, 48÷16 TPI	▲
		16IR	**A60-TPM**	RE 0.08	pitch: 0.50÷1.50 mm, 48÷16 TPI	●
			G60-TPM	RE 0.13	pitch: 1.75÷3.00 mm, 14÷8 TPI	●
			AG60-TPM	RE 0.08	pitch: 0.50÷3.00 mm, 48÷8 TPI	●
	55° P M K S  WHITWORTH AND GAS THREADS	**11IR**	**A55-TPM**	RE 0.08	pitch: 48÷16 TPI	▲
		16IR	**A55-TPM**	RE 0.08	pitch: 48÷16 TPI	●
			G55-TPM	RE 0.21	pitch: 14÷8 TPI	●
			AG55-TPM	RE 0.08	pitch: 48÷8 TPI	●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

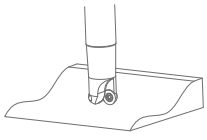
MILLING

SHOULDERING



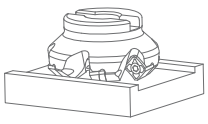


HIGH FEED



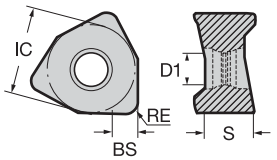
COPYING

FACING



WNEX

DOUBLE3GON
Shouldering 90°



Size	IC	S	D1
04	6.70	3.30	3.10
08	12.70	6.45	4.60

ISO513	HC-PVD						HC-CVD			HW
	JP5530	JP5540	JP7525	JP8525	JP9525	JP9535	JC7515	JC7530	JC8530	JU6520
P	60 230	60 220		80 250					100 320	
M	60 150	60 200			70 220	60 200				
K			100 240				120 350	100 300		
N										200 1000
S		40 100				40 100				
H										

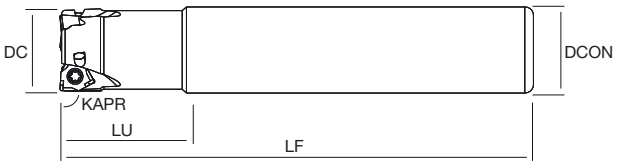
GRADE APPLICATION AREA	Light cut, stable machining	Hardness + / −	Toughness − / +
main application	Variable condition, general machining		
applicable	Heavy cut, unstable machining		

								JP5530	JP5540	JP7525	JP8525	JP9525	JP9535	JC7515	JC7530	JC8530	JU6520
SHARP	SC P M S	WNEX	080604R-SC	RE 0.4 BS 1.8	a_p ▸ 0.50 f_z ▸ 0.08	**4.00** **0.14**	7.00 0.20		●		●						
		WNEX	080608R-SC	RE 0.8 BS 1.5	a_p ▸ 1.00 f_z ▸ 0.10	**4.00** **0.16**	7.00 0.22		●		●						
GENERAL	GP P M K	WNEX	040304R-GP	RE 0.4 BS 0.9	a_p ▸ 0.50 f_z ▸ 0.06	**1.80** **0.12**	3.00 0.18		▲		●	●	▲		●	●	
		WNEX	080608R-GP	RE 0.8 BS 1.5	a_p ▸ 1.00 f_z ▸ 0.14	**4.00** **0.20**	7.00 0.26	▲	●	▲	●	●	▲	▲	●	●	
REINFORCED	TE P K	WNEX	080608R-TE	RE 0.8 BS 1.5	a_p ▸ 1.00 f_z ▸ 0.14	**4.00** **0.22**	7.00 0.30	▲	●	▲	●	▽		▲	●	●	
		WNEX	080612R-TE	RE 1.2 BS 1.1	a_p ▸ 1.00 f_z ▸ 0.14	**4.00** **0.24**	7.00 0.34		●		●				●	●	
ALUMINIUM	AL N polished surface	WNEX	080608R-AL	RE 0.8 BS 1.4	a_p ▸ 1.00 f_z ▸ 0.10	**4.00** **0.17**	7.00 0.24										●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

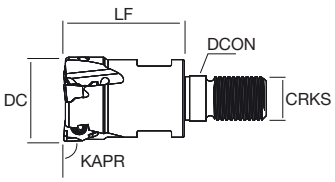
CYLINDRICAL

COOLANT



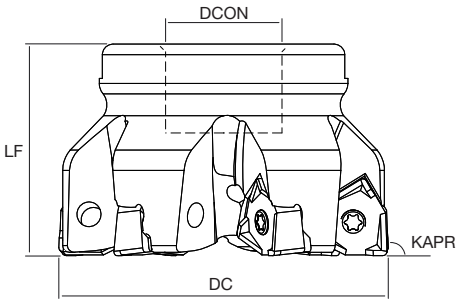
SCREW-IN

COOLANT



ARBOR

COOLANT



DOUBLE3GON
Shouldering (KAPR 90°)

				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
CYLINDRICAL	NT-WX04H	D020-S16-Z3	●	20	3	16	110	20		0.30	WNEX04
		D020-S20-Z3	●		3	20	110	28		0.30	
		D025-S20-Z4	●	25	4	20	120	22		0.50	
		D025-S25-Z4	●		4	25	120	30		0.50	
		D032-S25-Z5	●	32	5	25	130	25		0.80	
		D032-S32-Z5	●		5	32	130	40		0.80	
SCREW-IN	NT-WX04H	D020-M10-Z3	●	20	3	10.5	28		M10	0.10	WNEX04
		D025-M12-Z4	●	25	4	12.5	30		M12	0.15	
		D032-M16-Z5	●	32	5	17	40		M16	0.25	
ARBOR	NT-WX04H	D040-F16-Z7	●	40	7	16	40			0.25	WNEX04
		D050-F22-Z9	●	50	9	22	40			0.50	
	NT-WX08H	D050-F22-Z4	●	50	4	22	40			0.45	WNEX08
		D050-F22-Z5	●		5	22	40			0.45	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

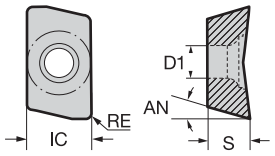
DOUBLE3GON Shouldering (KAPR 90°)				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
ARBOR	NT-WX08H	D063-F22-Z6	●	63	6	22	40			0.70	WNEX08
		D063-F27-Z6	●		6	27	40			0.70	
		D063-F22-Z7	●		7	22	40			0.80	
		D080-F27-Z7	●	80	7	27	50			1.00	
		D080-F27-Z9	●		9	27	50			1.00	
		D100-F32-Z8	●	100	8	32	50			1.60	
		D100-F32-Z11	●		11	32	50			1.60	
		D125-F40-Z11	●	125	11	40	63			2.40	
		D160-F40-Z12	●	160	12	40	63			4.00	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-WX04H	NT-ST018 torque 1.2 Nm	NT-FTB08
NT-WX08H	NT-ST017 torque 3.5 Nm	NT-FTB15

NT-RKP

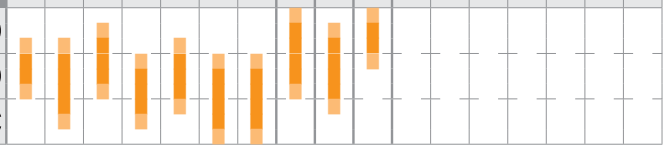
REKPLUS
Shouldering 90°



Size	IC	S	D1	AN
11	6.35	3.50	2.80	11°
16	9.525	4.76	4.50	11°

ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7615	HC-PVD JP7525	HC-PVD JP8625	HC-PVD JP9535	HC-PVD JP9635	HC-CVD JC7515	HW JU6520	HT JU4525
P	80 250	60 230			80 250					160 350
M	60 160	60 150				60 200	60 200			100 240
K			120 250	100 240				120 350		160 380
N									200 1000	
S						40 100	40 100			
H										

GRADE APPLICATION AREA	Light cut, stable machining	Hardness + / −	Toughness − / +
main application	Variable condition, general machining		
applicable	Heavy cut, unstable machining		

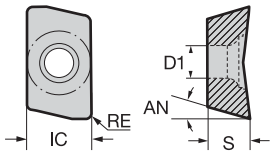


					a_p ▸ / f_z ▸																			
HELICAL TYPE	**HSC** P M S	NT-RKP	11R04M-HSC	RE 0.4	0.50 / 0.05	**4.50** / **0.10**	8.00 / 0.15					●		●										
			11R08M-HSC	RE 0.8	1.00 / 0.05	**4.50** / **0.10**	8.00 / 0.15					●		●										
			11R12M-HSC	RE 1.2	1.00 / 0.05	**4.50** / **0.10**	8.00 / 0.15					●		●										
	low cutting force	NT-RKP	16R08M-HSC	RE 0.8	1.00 / 0.08	**7.00** / **0.14**	13.00 / 0.18					●		●										
			16R12M-HSC	RE 1.2	1.00 / 0.08	**7.00** / **0.14**	13.00 / 0.18					●		●										
	HGP P M K	NT-RKP	11R04M-HGP	RE 0.4	0.50 / 0.08	**4.50** / **0.14**	8.00 / 0.20					●		●										
			11R08M-HGP	RE 0.8	1.00 / 0.08	**4.50** / **0.14**	8.00 / 0.20			●		●		●										
			11R12M-HGP	RE 1.2	1.00 / 0.08	**4.50** / **0.14**	8.00 / 0.20					●		●										
			11R16M-HGP	RE 1.6	1.00 / 0.08	**4.50** / **0.14**	8.00 / 0.20					●		●										
		NT-RKP	16R08M-HGP	RE 0.8	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25			●		●		●										
			16R12M-HGP	RE 1.2	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25					●		●										
			16R16M-HGP	RE 1.6	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25					●		●										
			16R20M-HGP	RE 2.0	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25					●		●										
	1st choice, general purpose		16R31M-HGP	RE 3.1	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25					●		●										
STRAIGHT TYPE	**SC** P M	NT-RKP	11R08M-SC	RE 0.8	1.00 / 0.05	**4.50** / **0.10**	8.00 / 0.15	▽	▽				▽											
	low cutting force	NT-RKP	16R08M-SC	RE 0.8	1.00 / 0.08	**7.00** / **0.14**	13.00 / 0.18	▽	▽				▽											
	GP P M K	NT-RKP	11R08M-GP	RE 0.8	1.00 / 0.08	**4.50** / **0.14**	8.00 / 0.20	●	●		●		●		▽		●								
	general purpose	NT-RKP	16R08M-GP	RE 0.8	1.00 / 0.10	**7.00** / **0.17**	13.00 / 0.25	●	●		○		●		▽		●								
	TE P K	NT-RKP	11R08M-TE	RE 0.8	1.00 / 0.10	**4.50** / **0.16**	8.00 / 0.22	●	●		○														
	reinforced edge	NT-RKP	16R08M-TE	RE 0.8	1.00 / 0.12	**7.00** / **0.20**	13.00 / 0.28	●	●		○														

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

NT-RKP

REKPLUS
Shouldering 90°



Size	IC	S	D1	AN
11	6.35	3.50	2.80	11°
16	9.525	4.76	4.50	11°

ISO513	JP5520	JP5530	JP7615	JP7525	JP8625	JP9535	JP9635	JC7515	JU6520	JU4525
	HC-PVD							HC-CVD	HW	HT
P	80 250	60 230			80 250					160 350
M	60 160	60 150				60 200	60 200			100 240
K			120 250	100 240				120 350		160 380
N									200 1000	
S						40 100	40 100			
H										

GRADE APPLICATION AREA	
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

Light cut, stable machining

Hardness: + / −

Toughness: − / +

STRAIGHT TYPE

AL N

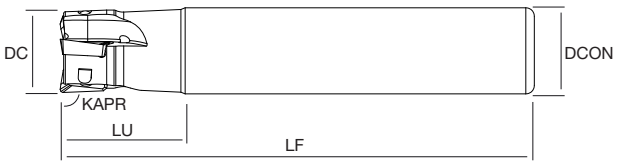
polished surface

		RE	a_p ▸		
			f_z ▸		
NT-RKP	11R04G-AL	RE 0.4	0.50	**4.50**	8.00
			0.10	**0.17**	0.25
	11R08G-AL	RE 0.8	1.00	**4.50**	8.00
			0.10	**0.17**	0.25
NT-RKP	16R08G-AL	RE 0.8	1.00	**7.00**	13.00
			0.10	**0.20**	0.30

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

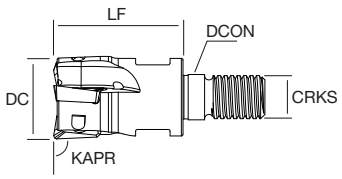
CYLINDRICAL

COOLANT

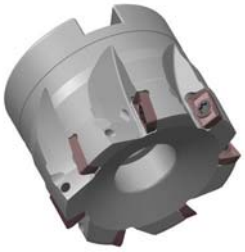


SCREW-IN

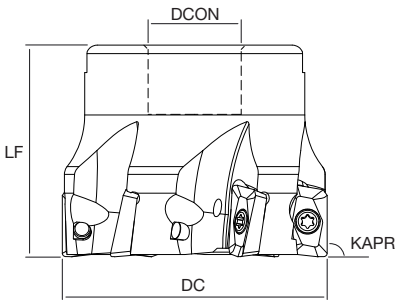
COOLANT



ARBOR



COOLANT



REKPLUS
Shouldering (KAPR 90°)

				DC	Z	DCON	LF	LU	CRKS	WT	MIID
CYLINDRICAL	NT-RKP11	D016-S16-Z2	●	16	2	16	100	28		0.15	NT-RKP11
		D020-S16-Z3	●	20	3	16	110	28		0.25	
		D020-S20-Z3	●		3	20	110	28		0.30	
		D025-S20-Z3	●	25	3	20	120	35		0.40	
		D025-S25-Z3	●		3	25	120	35		0.50	
		D025-S25-Z4	●		4	25	120	35		0.50	
		D032-S25-Z4	●	32	4	25	130	35		0.60	
		D032-S32-Z4	●		4	32	130	35		1.00	
		D032-S32-Z5	●		5	32	130	35		1.00	
	NT-RKP16	D025-S25-Z2	●	25	2	25	120	40		0.45	NT-RKP16
		D032-S32-Z3	●	32	3	32	130	45		0.75	
		D040-S32-Z4	●	40	4	32	150	40		1.00	
CYLINDRICAL LONG	NT-RKP11	D016-S15-Z2-L160	▲	16	2	15	160	28		0.25	NT-RKP11
		D016-S16-Z2-L150	▽		2	16	150	28		0.25	
		D016-S16-Z2-L160	▲		2	16	150	28		0.30	
		D017-S16-Z2-L170	▲	17	2	16	170	28		0.35	
		D020-S19-Z3-L200	▲	20	3	19	200	28		0.50	
		D020-S20-Z3-L200	●		3	20	200	28		0.50	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

REKPLUS Shouldering (KAPR 90°)				DC	Z	DCON	LF	LU	CRKS	WT	MIID
CYLINDRICAL LONG	NT-RKP11	D021-S20-Z3-L210	▲	21	3	20	210	28		0.50	NT-RKP11
		D025-S24-Z3-L250	▲	25	3	24	250	35		1.00	
		D025-S25-Z3-L250	▲		3	25	250	35		1.00	
		D026-S25-Z3-L260	▲	26	3	25	260	35		1.00	
WELDON	NT-RKP11	D016-W16-Z2-L080	●	16	2	16	80	28		0.15	NT-RKP11
		D020-W20-Z3-L090	●	20	3	20	90	28		0.20	
		D025-W25-Z4-L100	●	25	4	25	100	35		0.35	
SCREW-IN	NT-RKP11	D016-M08-Z2	●	16	2	8.5	25		M8	0.05	NT-RKP11
		D020-M10-Z2	●	20	2	10.5	30		M10	0.10	
		D020-M10-Z3	●		3	10.5	30		M10	0.10	
		D025-M12-Z3	●	25	3	12.5	35		M12	0.15	
		D025-M12-Z4	●		4	12.5	35		M12	0.15	
		D032-M16-Z4	●	32	4	17	43		M16	0.25	
		D032-M16-Z5	●		5	17	43		M16	0.25	
ARBOR	NT-RKP11	D040-F16-Z5	●	40	5	16	40			0.25	NT-RKP11
		D040-F16-Z6	●		6	16	40			0.25	
		D050-F22-Z5	●	50	5	22	40			0.45	
		D050-F22-Z7	●		7	22	40			0.45	
		D063-F22-Z6	●	63	6	22	40			0.65	
		D063-F22-Z8	●		8	22	40			0.65	
		D080-F27-Z7	●	80	7	27	50			1.20	
		D080-F27-Z10	●		10	27	50			1.20	
	NT-RKP16	D040-F16-Z4	●	40	4	16	40			0.25	NT-RKP16
		D050-F22-Z4	●	50	4	22	40			0.50	
		D050-F22-Z5	●		5	22	40			0.50	
		D063-F22-Z5	●	63	5	22	40			0.80	
		D063-F22-Z6	●		6	22	40			0.80	
		D080-F27-Z6	●	80	6	27	50			1.20	
		D080-F27-Z8	●		8	27	50			1.20	
		D100-F32-Z8	●	100	8	32	50			1.70	

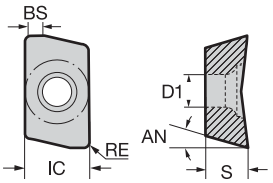
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-RKP11	NT-ST018 torque 1.2 Nm	NT-FTB08
NT-RKP16	NT-ST017* torque 3.5 Nm	NT-FTB15

* for **NT-RKP16 D025-S25-Z2** the insert screw is NT-ST019

APKT

ISO
Shouldering 90°



Size	IC	S	D1	AN
10	6.70	3.18	2.80	11°
16	9.525	4.76	4.40	11°

ISO513	HC-PVD JP8525	HC-PVD JP9525	HC-CVD JC7530	HC-CVD JC8530	HW JU6520
P	80 250			100 320	
M		70 220			
K			100 300		
N					200 1000
S					
H					

GRADE APPLICATION AREA	
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

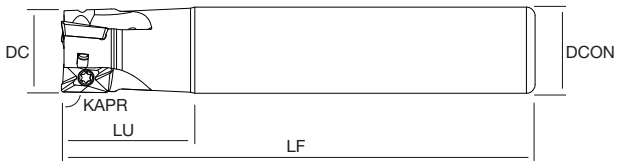
Light cut, stable machining — Hardness + / − — Toughness − / +

GENERAL	GP P M K	**APKT**	**1003PDSR-GP**	RE 0.5 BS 0.9	a_p ▸ f_z ▸	1.00 0.08	**4.00** **0.14**	7.00 0.20	●	●	●	●
		APKT	**1604PDSR-GP**	RE 1.0 BS 1.9	a_p ▸ f_z ▸	1.00 0.10	**7.00** **0.17**	13.00 0.25	●	●	●	●
REINFORCED	TE P K	**APKT**	**1003PDSR-TE**	RE 0.5 BS 0.9	a_p ▸ f_z ▸	1.00 0.10	**4.00** **0.16**	7.00 0.22	●	▽	●	●
		APKT	**1604PDSR-TE**	RE 1.0 BS 1.3	a_p ▸ f_z ▸	1.00 0.12	**7.00** **0.20**	13.00 0.28	●	▽	●	●
ALUMINIUM	AL N polished surface	**APKT**	**1003PDSR-AL**	RE 0.5 BS 1.6	a_p ▸ f_z ▸	1.00 0.10	**4.00** **0.17**	7.00 0.25				●
		APKT	**1604PDSR-AL**	RE 1.0 BS 1.9	a_p ▸ f_z ▸	1.00 0.10	**7.00** **0.20**	13.00 0.30				●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

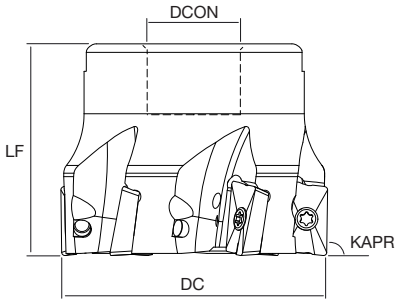
CYLINDRICAL

COOLANT



ARBOR

COOLANT



APKT ISO
Shouldering (KAPR 90°)

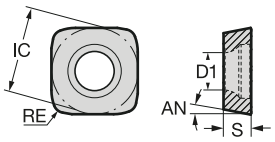
				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
CYLINDRICAL	NT-APK10H	D016-S16-Z2	●	16	2	16	100	28		0.15	APKT10
		D020-S20-Z3	●	20	3	20	110	30		0.25	
		D025-S25-Z3	●	25	3	25	120	30		0.45	
		D032-S32-Z4	●	32	4	32	130	40		0.75	
	NT-APK16H	D025-S25-Z2	●	25	2	25	120	40		0.45	APKT16
		D032-S32-Z3	●	32	3	32	130	45		0.75	
ARBOR	NT-APK10H	D040-F16-Z5	●	40	5	16	40			0.25	APKT10
		D050-F22-Z5	●	50	5	22	50			0.45	
		D050-F22-Z7	●		7	22	50			0.45	
	NT-APK16H	D040-F16-Z4	●	40	4	16	40			0.25	APKT16
		D050-F22-Z4	●	50	4	22	50			0.55	
		D050-F22-Z5	●		5	22	50			0.55	
		D063-F22-Z5	●	63	5	22	40			0.80	
		D063-F22-Z6	●		6	22	40			0.80	
		D080-F27-Z6	●	80	6	27	50			1.20	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-APK10H	NT-ST011 torque 1.2 Nm	NT-FTB09
NT-APK16H	NT-ST019 torque 3.5 Nm	NT-FTB15

SPMT

HF4PLUS
High Feed



Size	IC	S	D1	AN
07	7.80	2.80	3.50	11°

ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7525	HC-PVD JP9535
P	80 250	60 230		
M	60 160	60 150		60 200
K			100 240	
N				
S				40 100
H				

GRADE APPLICATION AREA	
main application	Light cut, stable machining
applicable	Variable condition, general machining
	Heavy cut, unstable machining

Hardness: + / −
Toughness: − / +

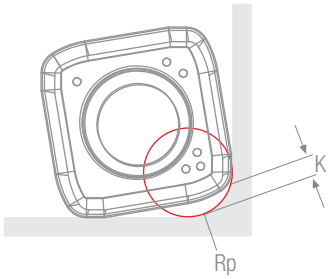
GENERAL

GP P M K

						JP5520	JP5530	JP7525	JP9535
SPMT	**07T210R-GP**	R1.0	a_p ▸	0.20	**0.80**	1.40		●	●	●
			f_z ▸	0.60	**1.00**	1.40				

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

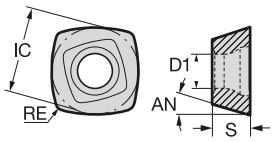
IMPORTANT NOTICE FOR CNC PROGRAMMING



	SPMT07T210
Rp THEORETICAL RADIUS FOR CNC PROGRAMMING	2.00
K UNCUT PORTION	0.60

SDMT

HF4PLUS
High Feed



Size	IC	S	D1	AN
10	10.00	4.76	4.00	15°
12	12.70	5.56	4.40	15°

ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7525	HC-PVD JP9535
P	80 250	60 230		
M	60 160	60 150		60 200
K			100 240	
N				
S				40 100
H				

GRADE APPLICATION AREA	
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

Hardness + / – Toughness – / +

GENERAL

GP P M K

			a_p	f_z	JP5520	JP5530	JP7525	JP9535
SDMT	100410R-GP	R1.0	0.30 **1.00** 1.70	0.60 **1.10** 1.60		●	●	●
SDMT	120512R-GP	R1.2	0.50 **1.20** 2.00	0.80 **1.30** 1.80	●	●	●	●

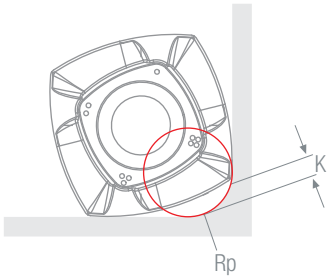
REINFORCED

TE P K

			a_p	f_z	JP5520	JP5530	JP7525	JP9535
SDMT	100410R-TE	R1.0	0.30 **1.00** 1.70	0.70 **1.20** 1.70		▲		▲
SDMT	120512R-TE	R1.2	0.50 **1.20** 2.00	1.00 **1.50** 2.00	●	●		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

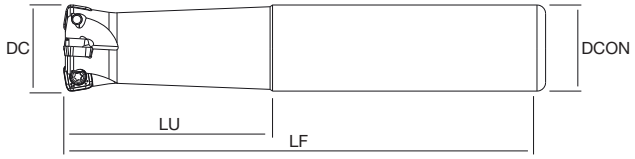
IMPORTANT NOTICE FOR CNC PROGRAMMING



	SDMT100410	SDMT120512
Rp THEORETICAL RADIUS FOR CNC PROGRAMMING	2.50	3.50
K UNCUT PORTION	1.00	1.15

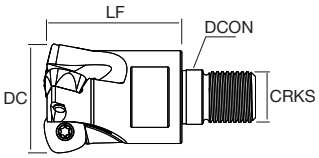
CYLINDRICAL

COOLANT

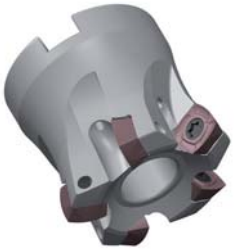


SCREW-IN

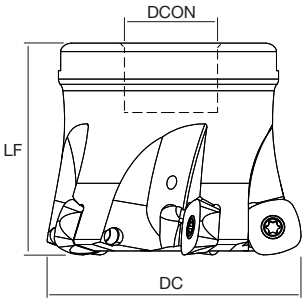
COOLANT



ARBOR



COOLANT



HF4PLUS
High Feed

				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
CYLINDRICAL	NT-SP07HF	D020-S20-Z3	●	20	3	20	130	50		0.30	SPMT07
		D025-S25-Z4	●	25	4	25	140	60		0.50	
		D032-S32-Z5	●	32	5	32	150	70		1.00	
SCREW-IN	NT-SP07HF	D020-M10-Z2	●	20	2	10.5	30		M10	0.10	SPMT07
		D020-M10-Z3	●		3	10.5	30		M10	0.10	
		D025-M12-Z3	●	25	3	12.5	35		M12	0.15	
		D025-M12-Z4	●		4	12.5	35		M12	0.15	
		D032-M16-Z4	●	32	4	17	40		M16	0.30	
		D032-M16-Z5	●		5	17	40		M16	0.30	
		D035-M16-Z5	●	35	5	17	40		M16	0.30	
	NT-SD10HF	D035-M16-Z4	●	35	4	17	40		M16	0.30	SDMT10
		D042-M16-Z5	●	42	5	17	40		M16	0.35	
	NT-SD12HF	D032-M16-Z2	●	32	2	17	43		M16	0.25	SDMT12
		D035-M16-Z3	●	35	3	17	43		M16	0.25	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
HF4PLUS High Feed											
SCREW-IN	NT-SD12HF	D040-M16-Z4	●	40	4	17	43		M16	0.25	SDMT12
		D042-M16-Z4	●	42	4	17	43		M16	0.25	
ARBOR	NT-SP07HF	D040-F16-Z5	●	40	5	16	40			0.25	SPMT07
		D040-F16-Z6	●		6	16	40			0.25	
		D042-F16-Z5	●	42	5	16	40			0.25	
		D042-F16-Z6	●		6	16	40			0.25	
		D050-F22-Z7	●	50	7	22	50			0.55	
		D052-F22-Z7	●	52	7	22	50			0.55	
	NT-SD10HF	D050-F22-Z6	●	50	6	22	50			0.55	SDMT10
		D052-F22-Z6	●	52	6	22	50			0.55	
		D063-F27-Z7	●	63	7	27	50			0.75	
		D066-F27-Z7	●	66	7	27	50			0.80	
	NT-SD12HF	D042-F16-Z4	●	42	4	16	40			0.25	SDMT12
		D050-F22-Z4	●	50	4	22	50			0.45	
		D050-F22-Z5	●		5	22	50			0.45	
		D052-F22-Z4	●	52	4	22	50			0.45	
		D052-F22-Z5	●		5	22	50			0.45	
		D063-F22-Z4	●	63	4	22	50			0.70	
		D063-F27-Z4	●		4	27	50			0.70	
		D063-F22-Z5	●		5	22	50			0.70	
		D063-F27-Z5	●		5	27	50			0.70	
		D066-F27-Z6	●	66	6	27	50			0.70	
		D080-F27-Z6	●	80	6	27	50			1.10	
		D080-F27-Z7	●		7	27	50			1.10	

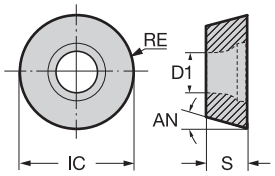
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-SP07HF	NT-ST033* torque 1.4 Nm	NT-FTB10
NT-SD10HF	NT-ST035 torque 3.5 Nm	NT-FTB15
NT-SD12HF	NT-ST024 torque 3.5 Nm	NT-FTB15

* for **NT-SP07HF D020** the insert screw is NT-ST034

RD□□

ROUNDPLUS
Copying



Size	IC	S	D1	AN
05	5.00	1.51	2.20	15°
07	7.00	2.38	2.80	15°
10	10.00	3.18	3.80	15°
12	12.00	4.76	4.40	15°
16	16.00	4.76	5.00	15°

GRADE APPLICATION AREA
■ main application
■ applicable

Light cut, stable machining
Variable condition, general machining
Heavy cut, unstable machining

Hardness + / −
Toughness − / +

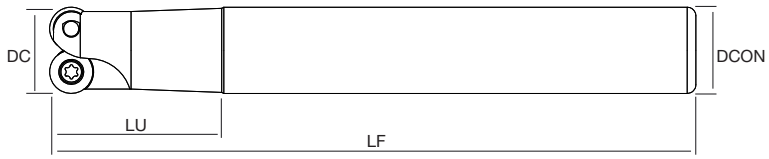
ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7525	HC-PVD JP9535	HT JU4525
P	80 250	60 230			160 350
M	60 160	60 150		60 200	100 240
K			100 240		160 380
N					
S				40 100	
H					

SHARP	SC P M	20~22°	RDET	1003M0-SC	RE 5.0	a_p ▸ 0.50 **2.00** 3.50 f_z ▸ 0.10 **0.22** 0.34	▽	▽				
				1204M0-SC	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.15 **0.30** 0.45	●	●				
				1604M0-SC	RE 8.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.22 **0.44** 0.62	●	●				
GENERAL	GP P M S	14~18°	RDET	1003M0-GP	RE 5.0	a_p ▸ 0.50 **2.00** 3.50 f_z ▸ 0.12 **0.25** 0.38	●	●		●		
				1204M0-GP	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.18 **0.35** 0.52	●	●		●		
				1604M0-GP	RE 8.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.25 **0.45** 0.65	●	●		●		
			RDMT	1204M0-GP	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.18 **0.35** 0.52	●	●				
REINFORCED	TES P K		RDEW	0501M0-TES	RE 2.5	a_p ▸ 0.30 **1.00** 1.70 f_z ▸ 0.08 **0.15** 0.22	●	●	●	○		
				0702M0-TES	RE 3.5	a_p ▸ 0.30 **1.50** 2.70 f_z ▸ 0.08 **0.16** 0.24	●			○	▽	
	TE P K		RDEW	0702M0-TE	RE 3.5	a_p ▸ 0.30 **1.50** 2.70 f_z ▸ 0.08 **0.19** 0.30	●	●	●			
				1003M0-TE	RE 5.0	a_p ▸ 0.50 **2.00** 3.50 f_z ▸ 0.14 **0.27** 0.40	●	●	●			
				1204M0-TE	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.20 **0.40** 0.60	●	●	●			
				1604M0-TE	RE 8.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.30 **0.50** 0.70	●	●	●			
			RDMW	1604M0-TE	RE 8.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.30 **0.50** 0.70	●	●				
	TE-D6 P with **6 dots**		RDEW	1204M0-TE-D6	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.20 **0.40** 0.60	●	●				
			RDMW	1204M0-TE-D6	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.20 **0.40** 0.60	●					
	TE-D8 P with **8 dots**		RDEW	1204M0-TE-D8	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.20 **0.40** 0.60	●	●				
			RDMW	1204M0-TE-D8	RE 6.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.20 **0.40** 0.60	○	●				

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

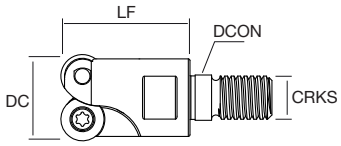
CYLINDRICAL

COOLANT



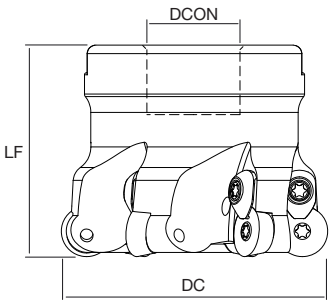
SCREW-IN

COOLANT



ARBOR

COOLANT



ROUNDPLUS - RD
Copying

					DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
CYLINDRICAL	NT-RD05H	D009-S08-Z2-L100	●		9	2	8	100	12		0.10	
		D010-S10-Z2-L100	●		10	2	10	100	18		0.10	
		D011-S10-Z2-L100	●		11	2	10	100	15		0.10	
		D012-S12-Z3-L100	●		12	3	12	100	22		0.10	RDEW05
		D013-S12-Z3-L100	●		13	3	12	100	18		0.10	
		D016-S16-Z4-L150	●		16	4	16	150	30		0.25	
		D017-S16-Z4-L150	●		17	4	16	150	20		0.25	
	NT-RD07H	D016-S16-Z2-L150	●		16	2	16	150	25		0.25	
		D017-S16-Z2-L150	●		17	2	16	150	20		0.25	
		D020-S20-Z3-L150	●		20	3	20	150	35		0.40	
		D021-S20-Z3-L150	●		21	3	20	150	25		0.40	RDEW07
		D025-S25-Z5-L150	●		25	5	25	150	40		0.60	
		D026-S25-Z5-L150	●		26	5	25	150	25		0.60	
		D035-S32-Z6-L150	●		35	6	32	150	30		1.00	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

ROUNDPLUS - RD Copying				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
CYLINDRICAL	NT-RD10H	D020-S20-Z2-L150	●	20	2	20	150	40		0.35	RDET10 RDEW10
		D021-S20-Z2-L150	●	21	2	20	150	25		0.35	
		D025-S25-Z3-L150	●	25	3	25	150	40		0.55	
		D026-S25-Z3-L150	●	26	3	25	150	25		0.55	
		D030-S25-Z3-L150	●	30	3	25	150	25		0.60	
		D032-S32-Z3-L150	●	32	3	32	150	40		0.90	
		D035-S32-Z4-L150	●	35	4	32	150	35		0.90	
SCREW-IN	NT-RD05H	D012-M06-Z2	●	12	2	6.5	18		M6	0.10	RDEW05
		D012-M06-Z3	●		3	6.5	18		M6	0.10	
		D013-M06-Z2	●	13	2	6.5	18		M6	0.10	
		D013-M06-Z3	●		3	6.5	18		M6	0.10	
		D016-M08-Z4	●	16	4	8.5	23		M8	0.10	
		D017-M08-Z4	●	17	4	8.5	23		M8	0.10	
	NT-RD07H	D016-M08-Z2	●	16	2	8.5	23		M8	0.10	RDEW07
		D016-M08-Z3	●		3	8.5	23		M8	0.10	
		D017-M08-Z2	●	17	2	8.5	23		M8	0.10	
		D017-M08-Z3	●		3	8.5	23		M8	0.10	
		D020-M10-Z3	●	20	3	10.5	30		M10	0.10	
		D021-M10-Z2	●	21	2	10.5	30		M10	0.10	
		D021-M10-Z3	●		3	10.5	30		M10	0.10	
		D025-M12-Z4	●	25	4	12.5	35		M12	0.15	
		D025-M12-Z5	●		5	12.5	35		M12	0.15	
		D026-M12-Z4	●	26	4	12.5	35		M12	0.15	
		D026-M12-Z5	●		5	12.5	35		M12	0.15	
		D035-M16-Z5	●	35	5	17	43		M16	0.25	
		D035-M16-Z6	●		6	17	43		M16	0.25	
	NT-RD10H	D020-M10-Z2	●	20	2	10.5	30		M10	0.10	RDET10 RDEW10
		D021-M10-Z2	●	21	2	10.5	30		M12	0.10	
		D025-M12-Z3	●	25	3	12.5	35		M12	0.15	
		D026-M12-Z3	●	26	3	12.5	35		M12	0.15	
		D030-M12-Z3	●	30	3	12.5	35		M12	0.20	
		D032-M16-Z3	●	32	3	17	43		M16	0.20	
		D035-M16-Z3	●	35	3	17	43		M16	0.25	
		D035-M16-Z4	●		4	17	43		M16	0.25	
		D040-M16-Z4	●	40	4	17	43		M16	0.30	
ARBOR	NT-RD10H	D042-F16-Z5	●	42	5	16	40			0.25	RDET10 RDEW10
		D052-F22-Z6	●	52	6	22	40			0.45	
	NT-RD12H	D042-F16-Z4	●	42	4	16	50			0.30	RDET12 RDEW12 RDMT12 RDMW12
		D050-F22-Z4	●	50	4	22	50			0.40	
		D050-F22-Z5	●		5	22	50			0.40	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

ROUNDPLUS - RD Copying				DC	Z	DCON	LF	LU	CRKS	WT (Kg)	MIID
ARBOR	NT-RD12H	D052-F22-Z4	●	52	4	22	50			0.45	RDET12 RDEW12 RDMT12 RDMW12
		D052-F22-Z5	●		5	22	50			0.45	
		D063-F22-Z5	●	63	5	22	50			0.65	
		D063-F22-Z6	●		6	22	50			0.65	
		D066-F22-Z6	●	66	6	22	50			0.80	
		D080-F27-Z6	●	80	6	27	50			1.00	
		D080-F27-Z7	●		7	27	50			1.00	
	NT-RD16H	D063-F22-Z5	●	63	5	22	50			0.60	RDET16 RDEW16 RDMW16
		D066-F22-Z5	●	66	5	22	50			0.60	
		D066-F27-Z5	●		5	27	50			0.60	
		D080-F27-Z5	●	80	5	27	50			0.90	
		D080-F27-Z6	●		6	27	50			0.90	
		D100-F32-Z6	●	100	6	32	50			1.60	
		D100-F32-Z7	●		7	32	50			1.60	
		D125-F40-Z8	●	125	8	40	63			2.90	

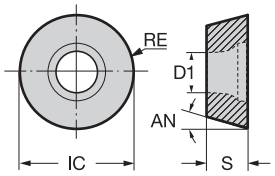
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	CLAMP	CLAMP SCREW	INSERT SCREW	WRENCH
				
NT-RD05H			NT-ST009* torque 0.5 Nm	NT-FTB06
NT-RD07H			NT-ST011 torque 1.2 Nm	NT-FTB09
NT-RD10H	NT-CS013	NT-ST013 torque 3.5 Nm	NT-ST013 torque 3.5 Nm	NT-FTB15
NT-RD12H	NT-CS014	NT-ST013 torque 3.5 Nm	NT-ST017 torque 3.5 Nm	NT-FTB15
NT-RD16H	NT-CS021	NT-ST021 torque 4.5 Nm	NT-ST023 torque 4.5 Nm	NT-FTB20

* for **NT-RD05H D009-S08-Z2-L100** and **NT-RD05H D010-S10-Z2-L100** the insert screw is NT-ST026

RP□□

ROUNDPLUS
Copying



Size	IC	S	D1	AN
12	12.00	4.76	4.40	11°

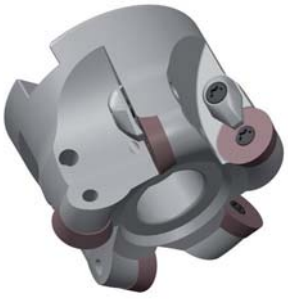
ISO513	JP5520 (HC-PVD)	JP5530 (HC-PVD)	JP9535 (HC-PVD)
P	80 250	60 230	
M	60 160	60 150	60 200
K			
N			
S			40 100
H			

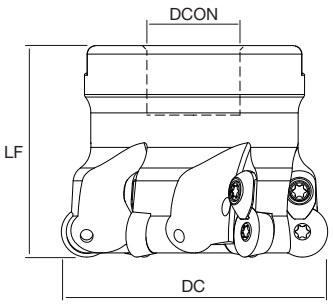
GRADE APPLICATION AREA	
■ main application	Variable condition, general machining
■ applicable	Heavy cut, unstable machining

Light cut, stable machining — Hardness + / − — Toughness − / +

						JP5520	JP5530	JP9535
SHARP	SC P M	20–22°	RPET	1204M0-SC	RE 6.0	a_p 0.50 **2.50** 4.50 f_z 0.15 **0.30** 0.45	●	●	
GENERAL	GP P M S	14–18°	RPET	1204M0-GP	RE 6.0	a_p 0.50 **2.50** 4.50 f_z 0.18 **0.35** 0.52	●	●	●
			RPMT	1204M0-GP	RE 6.0	a_p 0.50 **2.50** 4.50 f_z 0.18 **0.35** 0.52	●	●	
REINFORCED	TE P		RPEW	1204M0-TE	RE 6.0	a_p 0.50 **2.50** 4.50 f_z 0.20 **0.40** 0.60	○	●	
			RPMW	1204M0-TE	RE 6.0	a_p 0.50 **2.50** 4.50 f_z 0.20 **0.40** 0.60	●	●	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion





COOLANT

ROUNDPLUS - RP
Copying

				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-RP12H	D042-F16-Z4	●	42	4	16	50	0.30	RPET12 RPEW12 RPMT12 RPMW12		
		D050-F22-Z5	●	50	5	22	50	0.45			
		D052-F22-Z5	●	52	5	22	50	0.50			
		D063-F22-Z6	●	63	6	22	50	0.70			
		D066-F22-Z6	●	66	6	22	50	0.80			
		D080-F27-Z7	●	80	7	27	50	1.00			

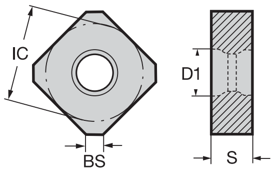
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	CLAMP	CLAMP SCREW	INSERT SCREW	WRENCH
				
NT-RP12H	NT-CS013	NT-ST013 torque 3.5 Nm	NT-ST017 torque 3.5 Nm	NT-FTB15

SN□X

DOUBLE4FACE

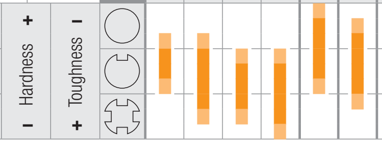
Facing 45°



Size	IC	S	D1
12	12.70	6.35	5.90

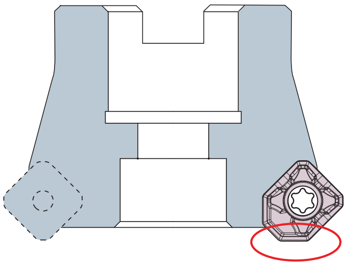
ISO513	JP5520	JP5530	JP7525	JP9535	JC7515	JU6520
	HC-PVD				HC-CVD	HW
P	80 250	60 230				
M	60 160	60 150		60 200		
K			100 240		120 350	
N						200 1000
S				40 100		
H						

GRADE APPLICATION AREA	
	Light cut, stable machining
■ main application	Variable condition, general machining
■ applicable	Heavy cut, unstable machining

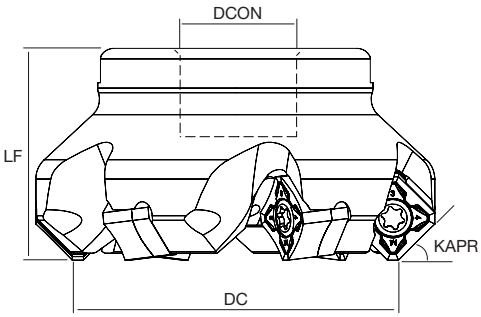


Type	Insert	Designation		BS		min	rec	max	JP5520	JP5530	JP7525	JP9535	JC7515	JU6520
SHARP	SC P M S 	SNEX	1205ANEN-SC	BS 2.2	a_p f_z	0.50 0.08	**2.00** **0.16**	3.50 0.24	●	●	●	●	●	
GENERAL	GP P M K 	SNEX	1205ANEN-GP	BS 2.2	a_p f_z	1.00 0.10	**2.50** **0.23**	4.00 0.36	●	●	●	●	●	
		SNMX	1205ANEN-GP	BS 2.2	a_p f_z	1.00 0.10	**2.50** **0.23**	4.00 0.36	●	●	●	●	●	
REINFORCED	TE P K 	SNEX	1205ANSN-TE	BS 2.2	a_p f_z	1.50 0.14	**3.00** **0.27**	4.50 0.40	●	●	●		●	
		SNMX	1205ANSN-TE	BS 2.2	a_p f_z	1.50 0.14	**3.00** **0.27**	4.50 0.40	●	●	●		●	
WIPER	WU P K  **2 edges**	SNEX	1205-WU	BS 5.6	a_p f_z	0.50 0.08	**1.00** **0.16**	1.50 0.24	●	●	●		●	
ALUMINIUM	AL N  polished surface	SNEX	1205ANFN-AL	BS 2.2	a_p f_z	0.50 0.10	**2.50** **0.22**	4.50 0.35						●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



⚠ The wiper insert must be mounted face towards the centre of the holder. Only 1 wiper insert per setup.

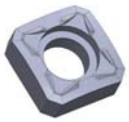


COOLANT

DOUBLE4FACE
Facing (KAPR 45°)

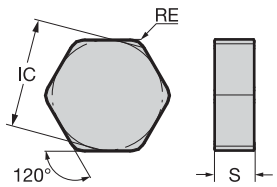
				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-SX12H	D050-F22-Z4	●	50	4	22	40	0.60	SNEX12 SNMX12		
		D050-F22-Z5	●		5	22	40	0.60			
		D063-F22-Z5	●	63	5	22	50	0.80			
		D063-F22-Z6	●		6	22	50	0.80			
		D080-F27-Z6	●	80	6	27	50	1.40			
		D080-F27-Z7	●		7	27	50	1.40			
		D080-F27-Z8	●		8	27	50	1.40			
		D100-F32-Z7	●	100	7	32	50	1.80			
		D100-F32-Z8	●		8	32	50	1.80			
		D100-F32-Z9	●		9	32	50	1.80			
		D125-F40-Z10	●	125	10	40	63	3.10			
		D160-F40-Z12	●	160	12	40	63	4.60			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SHIM	SHIM SCREW	SHIM WRENCH	INSERT SCREW	WRENCH
					
NT-SX12H	NT-SH009	NT-SR009 torque 7.0 Nm	NT-WR040	NT-ST029 torque 3.5 Nm	NT-FTB15

HN□□

DOUBLEHEX
Facing 60°



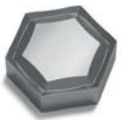
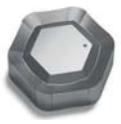
Size	IC	S
09	16.20	5.56

ISO513	HC-PVD JP7525	HC-CVD JC7515	CN NSN400	BH NBH550U
P				
M				
K	100 240	120 350	400 1000	800 1500
N				
S				
H				100 300

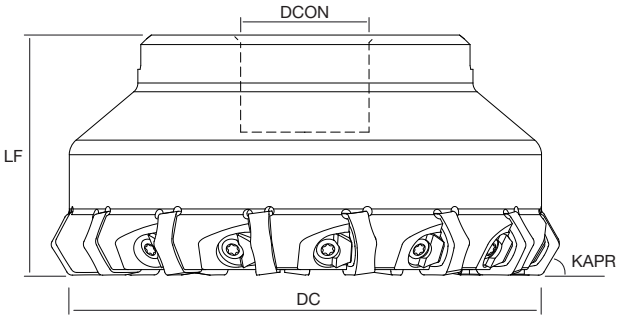
GRADE APPLICATION AREA
■ main application
■ applicable

Light cut, stable machining
Variable condition, general machining
Heavy cut, unstable machining

Hardness + / −
Toughness − / +

CARBIDE	GL K  low cutting force	HNEX	090510-GL	RE 1.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.08 **0.15** 0.22	●	●																			
			090520-GL	RE 2.0	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.10 **0.18** 0.26	●	●																			
	GG K  general purpose	HNEX	090520-GG	RE 2.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.12 **0.23** 0.34	●	●																			
		HNMX	090520-GG	RE 2.0	a_p ▸ 1.00 **3.00** 5.00 f_z ▸ 0.12 **0.23** 0.34	●	●																			
	GH K  reinforced edge	HNEX	090516-GH	RE 1.6	a_p ▸ 1.00 **3.50** 6.00 f_z ▸ 0.14 **0.25** 0.36	●	●																			
			090530-GH	RE 3.0	a_p ▸ 1.00 **3.50** 6.00 f_z ▸ 0.16 **0.28** 0.40	●	●																			
		HNMX	090516-GH	RE 1.6	a_p ▸ 1.00 **3.50** 6.00 f_z ▸ 0.14 **0.25** 0.36	●	●																			
PCBN SOLID	S02020 K H  RE 2.0	HNEN	090520S02020	ISO K	a_p ▸ 1.00 **2.00** 3.00 f_z ▸ 0.10 **0.20** 0.30				●																	
				ISO H	a_p ▸ 0.50 **1.00** 1.50 f_z ▸ 0.05 **0.10** 0.15																					
CERAMIC	T02020 K 	HNEN	090520T02020	RE 2.0	a_p ▸ 1.00 **2.50** 4.00 f_z ▸ 0.08 **0.16** 0.24			●																		
			090530T02020	RE 3.0	a_p ▸ 1.00 **2.50** 4.00 f_z ▸ 0.08 **0.16** 0.24			●																		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



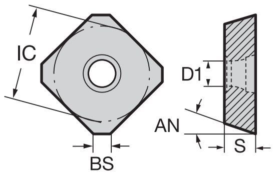
				DOUBLEHEX Facing (KAPR 60°)	DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-HN09	D080-F27-Z8	●	80	8	27	50	1.40	HNEX09 HNMX09		
		D080-F27-Z10	●		10	27	50	1.40			
		D100-F32-Z10	●	100	10	32	50	2.00			
		D100-F32-Z14	●		14	32	50	2.00			
		D125-F40-Z12	●	125	12	40	63	3.80			
		D125-F40-Z15	●		15	40	63	3.80			
		D160-F40-Z15	●	160	15	40	63	5.30			
		D160-F40-Z20	●		20	40	63	5.30			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	WEDGE	WEDGE SCREW	WRENCH
			
NT-HN09	NT-WD090	NT-SC090 torque 7.0 Nm	NT-WR030

SE□□

4FACEPLUS
Facing 45°



Size	IC	S	D1	AN
13	13.40	3.97	4.40	20°

ISO513	JP5520	JP5530	JP7525	JP9535	JC7515	JC7530	JC8530	JU6520	JU4525
	HC-PVD				HC-CVD			HW	HT
P	80 250	60 230					100 320		160 350
M	60 160	60 150		60 200					100 240
K			100 240		120 350	100 300			160 380
N								200 1000	
S				40 100					
H									

GRADE APPLICATION AREA		Hardness	Toughness
🟧 main application	Light cut, stable machining	+	–
🟧 applicable	Variable condition, general machining	Hardness	Toughness
	Heavy cut, unstable machining	–	+

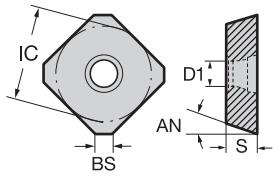
	Chipbreaker		Code	BS					JP5520	JP5530	JP7525	JP9535	JC7515	JC7530	JC8530	JU6520	JU4525
SHARP	SC P M S 	SEET	13T3AGEN-SC	BS 1.7	a_p▸ f_z▸	0.50 0.08	**2.00** **0.14**	3.50 0.20	●	●		●					
GENERAL	GP P M 	SEET	13T3AGEN-GP	BS 1.2	a_p▸ f_z▸	1.00 0.10	**2.50** **0.20**	4.00 0.30	●	●		●			▽		●
GENERAL		SEMT	13T3AGEN-GP	BS 1.2	a_p▸ f_z▸	1.00 0.10	**2.50** **0.20**	4.00 0.30	●	●		●					
GENERAL	GG K 	SEET	13T3AGSN-GG	BS 1.3	a_p▸ f_z▸	1.00 0.12	**2.50** **0.22**	4.00 0.32			●		▽				
GENERAL		SEMT	13T3AGSN-GG	BS 1.3	a_p▸ f_z▸	1.00 0.12	**2.50** **0.22**	4.00 0.32			▲		▲				
REINFORCED	TE P 	SEET	13T3AGSN-TE	BS 1.2	a_p▸ f_z▸	1.50 0.14	**3.00** **0.25**	4.50 0.36	●	●							
REINFORCED		SEMT	13T3AGSN-TE	BS 1.2	a_p▸ f_z▸	1.50 0.14	**3.00** **0.25**	4.50 0.36	●	●							
REINFORCED	GH K 	SEET	13T3AGSN-GH	BS 1.3	a_p▸ f_z▸	1.50 0.16	**3.00** **0.28**	4.50 0.40			●						
REINFORCED		SEMT	13T3AGSN-GH	BS 1.3	a_p▸ f_z▸	1.50 0.16	**3.00** **0.28**	4.50 0.40			▲		▲				
REINFORCED	Flat K 	SEEW	13T3AGSN	BS 2.0	a_p▸ f_z▸	1.50 0.20	**3.00** **0.30**	4.50 0.40						●			
WIPER	WU P  **1 edge**	SEET	13T3-WU	BS 7.5	a_p▸ f_z▸	0.50 0.08	**1.00** **0.16**	1.50 0.24	●								

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

▸

SE□□

4FACEPLUS
Facing 45°



Size	IC	S	D1	AN
13	13.40	3.97	4.40	20°

ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7525	HC-PVD JP9535	HC-CVD JC7515	HC-CVD JC7530	HC-CVD JC8530	HW JU6520	HT JU4525
P	80 250	60 230					100 320		160 350
M	60 160	60 150		60 200					100 240
K			100 240		120 350	100 300			160 380
N								200 1000	
S				40 100					
H									

GRADE APPLICATION AREA	
■ main application	Variable condition, general machining
■ applicable	Heavy cut, unstable machining
	Light cut, stable machining

Hardness: + / −
Toughness: − / +

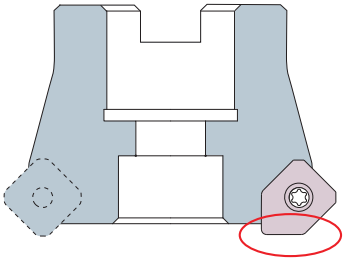
ALUMINIUM

AL N

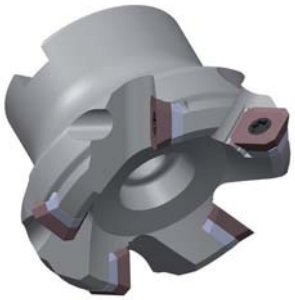
polished surface

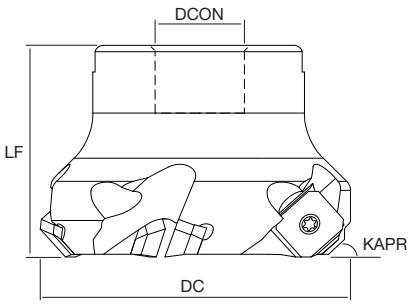
SEET	13T3AGFN-AL	BS 2.2				
			a_p ▸	0.50	**2.50**	4.50
			f_z ▸	0.10	**0.22**	0.35

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



The wiper insert must be mounted face towards the centre of the holder.
Only 1 wiper insert per setup.



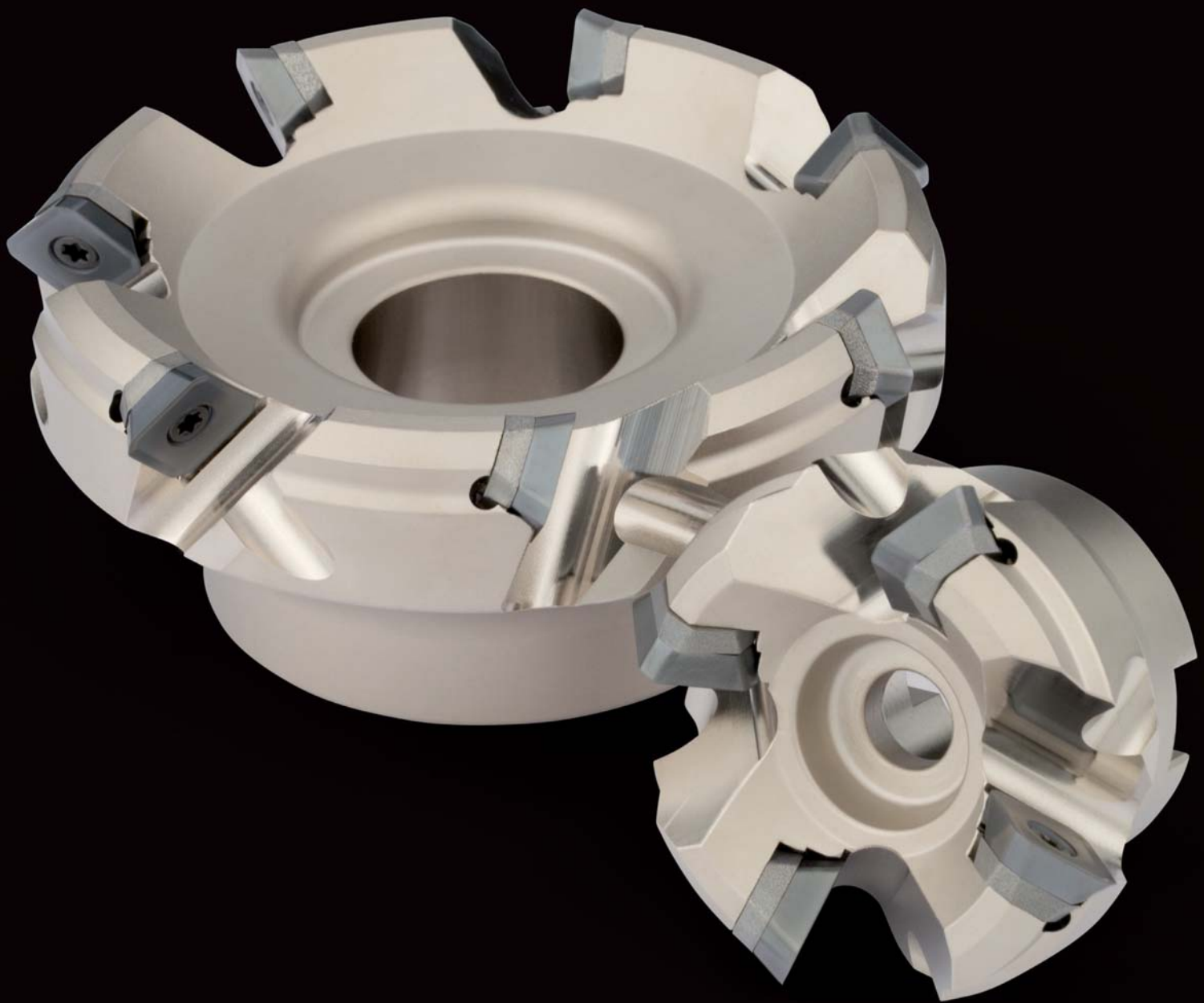


4FACEPLUS
Facing (KAPR 45°)

				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-SE13	D050-F22-Z4	●	50	4	22	40	0.50	SEET13 SEMT13		
		D050-F22-Z5	●		5	22	40	0.50			
		D063-F22-Z5	●	63	5	22	50	0.70			
		D063-F22-Z6	●		6	22	50	0.70			
		D080-F27-Z6	●	80	6	27	50	1.20			
		D080-F27-Z8	●		8	27	50	1.20			
		D100-F32-Z7	●	100	7	32	50	1.80			
		D100-F32-Z10	●		10	32	50	1.80			
		D125-F40-Z8	●	125	8	40	63	3.00			
		D125-F40-Z12	●		12	40	63	3.00			
		D160-F40-Z10	●	160	10	40	63	5.00			
		D200-F60-Z12	●	200	12	60	63	8.00			

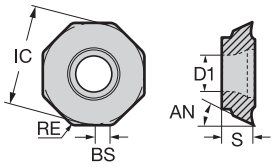
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SHIM	SHIM SCREW	SHIM WRENCH	INSERT SCREW	INSERT WRENCH
					
NT-SE13	NT-SH004	NT-SR002 torque 5.0 Nm	NT-WR035	NT-ST040 torque 3.5 Nm	NT-FTB15



OFKT

OKTOPLUS
Facing 43°



Size	IC	S	D1	AN
05	12.70	3.97	4.40	26°

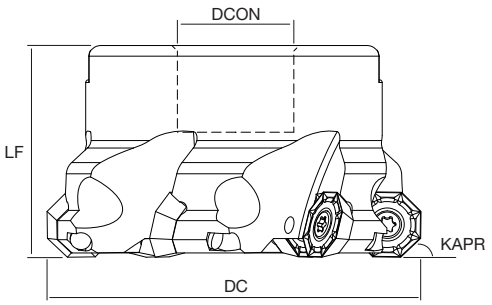
ISO513	HC-PVD JP8525	HC-PVD JP9525	HC-CVD JC7530	HC-CVD JC8530	HW JU6520
P	80 250			100 320	
M		70 220			
K			100 300		
N					200 1000
S					
H					

GRADE APPLICATION AREA	
	Light cut, stable machining
■ main application	Variable condition, general machining
■ applicable	Heavy cut, unstable machining

Hardness + / – Toughness – / +

GENERAL	GP P M K 	OFKT	05T305-GP	RE 0.5 BS 1.1	a_p ▸ f_z ▸	1.00 0.07	**2.00** **0.16**	3.00 0.25	●	●	●	●	
ALUMINIUM	AL N  polished surface	OFKT	05T305-AL	RE 0.5 BS 1.1	a_p ▸ f_z ▸	0.50 0.10	**1.50** **0.15**	2.50 0.20					●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



COOLANT

OKTOPLUS - OF
Facing (KAPR 43°)

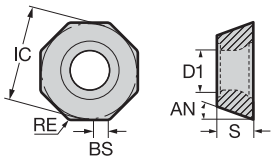
				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-OF05H	D050-F22-Z5	●	50	5	22	40	0.45	OFKT05		
		D063-F22-Z6	●	63	6	22	40	0.65			
		D080-F27-Z7	●	80	7	27	50	1.00			
		D100-F32-Z8	●	100	8	32	50	1.60			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-OF05H	NT-ST024 torque 3.5 Nm	NT-FTB15

ODT

OKTOPLUS
Facing 43°

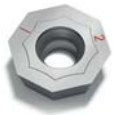


Size	IC	S	D1	AN
06	15.875	5.56	5.50	15°

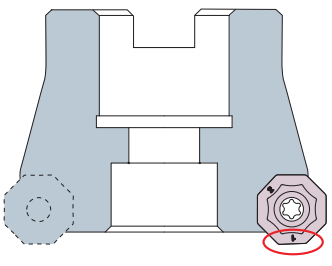
ISO513	HC-PVD JP5520	HC-PVD JP5530	HC-PVD JP7525	HC-PVD JP9535	HC-CVD JC7515	HW JU6520
P	80 250	60 230				
M	60 160	60 150		60 200		
K			100 240		120 350	
N						200 1000
S				40 100		
H						

GRADE APPLICATION AREA	
	Light cut, stable machining
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

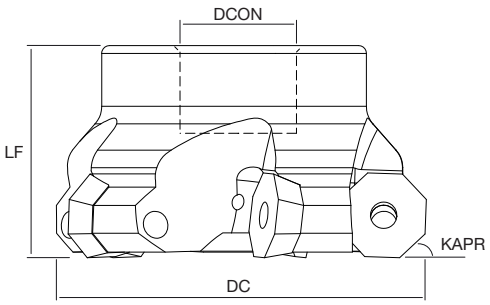
Hardness: + / −
Toughness: − / +

SHARP	SC P M S		ODKT	060508-SC	RE 0.8 BS 1.8	a_p ▸ 0.50	**1.50**	2.50	●	●		●	
						f_z ▸ 0.08	**0.15**	0.22					
GENERAL	GP P M K		ODKT	060508-GP	RE 0.8 BS 1.8	a_p ▸ 1.00	**2.00**	3.00	●	●	●	●	
						f_z ▸ 0.10	**0.21**	0.32					
			ODMT	060508-GP	RE 0.8 BS 1.8	a_p ▸ 1.00	**2.00**	3.00	●	●	●	●	●
						f_z ▸ 0.10	**0.21**	0.32					
REINFORCED	TE P K		ODKT	060508-TE	RE 0.8 BS 1.8	a_p ▸ 1.50	**2.50**	3.50	●	●			
						f_z ▸ 0.14	**0.26**	0.38					
			ODMT	060508-TE	RE 0.8 BS 1.8	a_p ▸ 1.50	**2.50**	3.50	●	●	●		●
						f_z ▸ 0.14	**0.26**	0.38					
WIPER	WU P	 2 edges	ODKT	060508-WU	RE 0.8 BS 6.4	a_p ▸ 0.50	**1.00**	1.50	●	●			
						f_z ▸ 0.08	**0.16**	0.24					
ALUMINIUM	AL N	 polished surface	ODKT	060508-AL	RE 0.8 BS 1.8	a_p ▸ 0.50	**2.00**	3.50					
						f_z ▸ 0.10	**0.22**	0.35					

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



Please follow the clamping procedure shown in the picture.
Only 1 wiper insert per setup.



COOLANT

OKTOPLUS - OD
Facing (KAPR 43°)

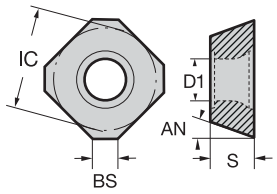
				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-OD06H	D050-F22-Z4	●	50	4	22	40	0.40	ODKT06 ODMT06		
		D063-F22-Z5	●	63	5	22	40	0.60			
		D080-F27-Z6	●	80	6	27	50	1.10			
		D100-F32-Z7	●	100	7	32	50	1.60			
		D125-F40-Z8	●	125	8	40	63	2.70			
		D160-F40-Z10	●	160	10	40	63	4.20			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	SCREW	WRENCH
		
NT-OD06H	NT-ST021 torque 4.5 Nm	NT-FTB20

SEHX

ISO
Facing 45°



Size	IC	S	D1	AN
12	12.70	4.76	5.50	20°

ISO513	JP5520 (HC-PVD)	JP8525 (HC-PVD)	JP9525 (HC-PVD)	JC7530 (HC-CVD)	JC8530 (HC-CVD)	JU6520 (HW)	JU4525 (HT)
P	80 250	80 250			100 320		160 350
M	60 160		70 220				100 240
K				100 300			160 380
N						200 1000	
S							
H							

GRADE APPLICATION AREA	Light cut, stable machining	Hardness + / −	Toughness − / +
main application	Variable condition, general machining		
applicable	Heavy cut, unstable machining		

						JP5520	JP8525	JP9525	JC7530	JC8530	JU6520	JU4525
SHARP	SC P M	SEHX	1204AFEN-SC	BS 2.5	a_p ▸ 0.50 **2.00** 3.50 f_z ▸ 0.08 **0.15** 0.22	●						●
GENERAL	GP P M	SEHX	1204AFSN-GP	BS 1.8	a_p ▸ 1.00 **2.50** 4.00 f_z ▸ 0.10 **0.20** 0.30		●	●		●		
REINFORCED	Flat K	SEHX	1204AFSN	BS 1.8	a_p ▸ 1.50 **3.00** 4.50 f_z ▸ 0.20 **0.30** 0.40				●			
ALUMINIUM	AL N	SEHX	1204AFFN-AL	BS 2.5	a_p ▸ 0.50 **2.50** 4.50 f_z ▸ 0.10 **0.22** 0.35						●	

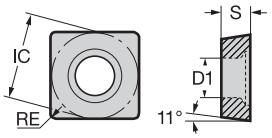
polished surface

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DRILLING

SP□X

DRS
4 edges drilling inserts



Size	IC	S	D1	RE
05	5.00	2.38	2.50	0.40
06	6.00	2.38	2.80	0.40
07	7.94	3.97	2.80	0.80
09	9.80	4.30	4.10	0.80
11	11.50	4.76	4.40	0.80
14	14.30	5.20	5.50	1.20

ISO513	HC-PVD JP5625	HC-PVD JP5530	HC-PVD JP9635	HW JU6520
P	100 220	60 200		
M	80 150	60 140	80 220	
K	60 180			
N				200 500
S			40 100	
H				

GRADE APPLICATION AREA	
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

Hardness: − Stable machining, continuous cut +
Toughness: + Unstable machining, interrupted cut −

GENERAL

GP P M K S

SPMX	050204-GP	2xD	f_n	0.04	**0.08**	0.12	●	▲	●		
		3xD	f_n	0.04	**0.07**	0.10					
		4xD	f_n	0.04	**0.06**	0.08					
		5xD	f_n	0.04	**0.05**	0.06					
SPMX	060204-GP	2xD	f_n	0.06	**0.10**	0.14	●	▲	●		
		3xD	f_n	0.06	**0.09**	0.12					
		4xD	f_n	0.05	**0.07**	0.10					
		5xD	f_n	0.04	**0.06**	0.08					
SPMX	07T308-GP	2xD	f_n	0.06	**0.11**	0.16	●	▲	●		
		3xD	f_n	0.06	**0.10**	0.14					
		4xD	f_n	0.06	**0.09**	0.12					
		5xD	f_n	0.05	**0.07**	0.09					
SPMX	090408-GP	2xD	f_n	0.08	**0.14**	0.20	●	▲	●		
		3xD	f_n	0.08	**0.13**	0.18					
		4xD	f_n	0.06	**0.11**	0.16					
		5xD	f_n	0.06	**0.09**	0.12					
SPMX	110408-GP	2xD	f_n	0.08	**0.15**	0.22	●	▲	●		
		3xD	f_n	0.08	**0.14**	0.20					
		4xD	f_n	0.07	**0.12**	0.18					
		5xD	f_n	0.06	**0.12**	0.16					
SPMX	140512-GP	2xD	f_n	0.10	**0.17**	0.24	●	▲	●		
		3xD	f_n	0.10	**0.16**	0.22					
		4xD	f_n	0.08	**0.14**	0.20					

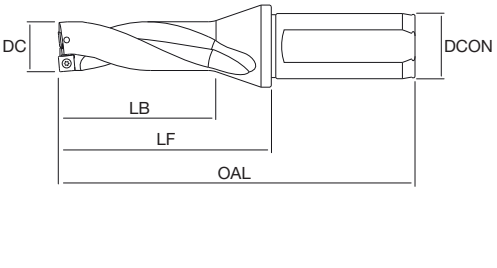
ALUMINIUM

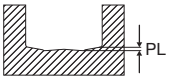
AL N

polished surface

SPGX	050204-AL	2xD	f_n	0.06	**0.09**	0.12				●	
		3xD	f_n	0.06	**0.09**	0.12					
		4xD	f_n	0.04	**0.07**	0.10					
		5xD	f_n	0.04	**0.06**	0.08					
SPGX	060204-AL	2xD	f_n	0.08	**0.12**	0.16				●	
		3xD	f_n	0.08	**0.12**	0.16					
		4xD	f_n	0.06	**0.09**	0.12					
		5xD	f_n	0.06	**0.08**	0.10					
SPGX	07T308-AL	2xD	f_n	0.10	**0.14**	0.18				●	
		3xD	f_n	0.10	**0.14**	0.18					
		4xD	f_n	0.08	**0.11**	0.14					
		5xD	f_n	0.08	**0.10**	0.12					
SPGX	090408-AL	2xD	f_n	0.10	**0.15**	0.20				●	
		3xD	f_n	0.10	**0.15**	0.20					
		4xD	f_n	0.09	**0.12**	0.15					
		5xD	f_n	0.09	**0.11**	0.13					
SPGX	110408-AL	2xD	f_n	0.11	**0.16**	0.21				●	
		3xD	f_n	0.11	**0.16**	0.21					
		4xD	f_n	0.10	**0.14**	0.18					
		5xD	f_n	0.10	**0.13**	0.16					
SPGX	140512-AL	2xD	f_n	0.12	**0.17**	0.22				●	
		3xD	f_n	0.12	**0.17**	0.22					
		4xD	f_n	0.10	**0.15**	0.20					

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion





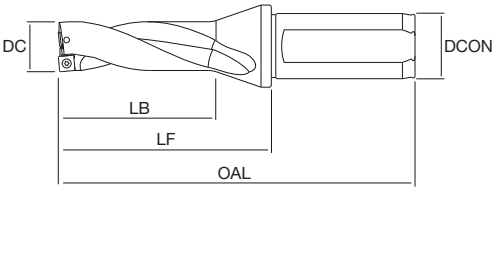
		DRS 2XD		DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
05	NT-DRS-2D	D13.00-S20-05	●	13	20	94	44	26	0.50	0.40	SPMX05 SPGX05
		D14.00-S20-05	●	14	20	96	46	28	0.50	0.40	
		D15.00-S20-05	●	15	20	99	49	30	0.50	0.40	
06	NT-DRS-2D	D16.00-S25-06	●	16	25	108	52	32	0.50	0.50	SPMX06 SPGX06
		D17.00-S25-06	●	17	25	110	54	34	0.50	0.50	
		D18.00-S25-06	●	18	25	113	57	36	0.50	0.50	
		D19.00-S25-06	●	19	25	115	59	38	0.50	0.50	
		D20.00-S25-06	●	20	25	119	63	40	0.50	0.50	
		D21.00-S25-06	●	21	25	121	65	42	0.25	0.50	
07	NT-DRS-2D	D22.00-S25-07	●	22	25	123	67	44	0.50	0.50	SPMX07 SPGX07
		D23.00-S32-07	●	23	32	131	71	46	0.50	0.50	
		D24.00-S32-07	●	24	32	134	74	48	0.50	0.50	
		D25.00-S32-07	●	25	32	137	77	50	0.50	0.50	
		D26.00-S32-07	●	26	32	139	79	52	0.25	0.60	
		D27.00-S32-07	●	27	32	141	81	54	0.25	0.60	
09	NT-DRS-2D	D28.00-S32-09	●	28	32	144	84	56	0.50	0.80	SPMX09 SPGX09
		D29.00-S32-09	●	29	32	146	86	58	0.50	0.80	
		D30.00-S32-09	●	30	32	151	91	60	0.50	0.80	
		D31.00-S32-09	●	31	32	154	94	62	0.25	0.80	
		D32.00-S32-09	●	32	32	156	96	64	0.25	0.80	
		D33.00-S32-09	●	33	32	159	99	66	0.25	0.80	
11	NT-DRS-2D	D34.00-S40-11	●	34	40	171	101	68	0.50	0.90	SPMX11 SPGX11
		D35.00-S40-11	●	35	40	174	104	70	0.50	0.90	
		D36.00-S40-11	●	36	40	177	107	72	0.50	0.90	
		D37.00-S40-11	●	37	40	180	110	74	0.50	0.90	
		D38.00-S40-11	●	38	40	183	113	76	0.50	0.90	
		D39.00-S40-11	●	39	40	185	115	78	0.50	0.90	
		D40.00-S40-11	●	40	40	188	118	80	0.25	0.90	
		D41.00-S40-11	●	41	40	191	121	82	0.25	0.90	

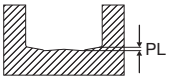
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DRS 2XD				DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
14	NT-DRS-2D	D42.00-S40-14	●	42	40	193	123	84	0.50	1.00	SPMX14 SPGX14
		D43.00-S40-14	●	43	40	196	126	86	0.50	1.00	
		D44.00-S40-14	●	44	40	198	128	88	0.50	1.00	
		D45.00-S40-14	●	45	40	202	132	90	0.50	1.00	
		D46.00-S40-14	●	46	40	205	135	92	0.50	1.00	
		D47.00-S40-14	●	47	40	207	137	94	0.50	1.00	
		D48.00-S40-14	●	48	40	210	140	96	0.25	1.00	
		D49.00-S40-14	●	49	40	212	142	98	0.25	1.00	
		D50.00-S40-14	●	50	40	215	145	100	0.25	1.00	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

INSERT SIZE	SCREW 	WRENCH 
05	NT-ST059 torque 0.5 Nm	NT-FTB06
06	NT-ST061 torque 0.5 Nm	NT-FTB06
07	NT-ST062 torque 0.8 Nm	NT-FTB07
09	NT-ST063 torque 3.5 Nm	NT-FTB15
11	NT-ST064 torque 3.5 Nm	NT-FTB15
14	NT-ST066 torque 4.5 Nm	NT-FTB20





		DRS 3XD		DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
05	NT-DRS-3D	D12.50-S20-05	●	12.5	20	107	57	39	0.50	0.40	SPMX05 SPGX05
		D13.00-S20-05	●	13	20	107	57	39	0.50	0.40	
		D13.50-S20-05	●	13.5	20	110	60	42	0.50	0.40	
		D14.00-S20-05	●	14	20	110	60	42	0.50	0.40	
		D14.50-S20-05	●	14.5	20	114	64	45	0.50	0.40	
		D15.00-S20-05	●	15	20	114	64	45	0.50	0.40	
06	NT-DRS-3D	D15.50-S20-06	●	15.5	20	124	68	48	0.50	0.50	SPMX06 SPGX06
		D16.00-S25-06	●	16	25	124	68	48	0.50	0.50	
		D16.50-S25-06	●	16.5	25	127	71	51	0.50	0.50	
		D17.00-S25-06	●	17	25	127	71	51	0.50	0.50	
		D17.50-S25-06	●	17.5	25	131	75	54	0.50	0.50	
		D18.00-S25-06	●	18	25	131	75	54	0.50	0.50	
		D18.50-S25-06	●	18.5	25	134	78	57	0.50	0.50	
		D19.00-S25-06	●	19	25	134	78	57	0.50	0.50	
		D19.50-S25-06	●	19.5	25	139	83	60	0.50	0.50	
		D20.00-S25-06	●	20	25	139	83	60	0.50	0.50	
		D20.50-S25-06	●	20.5	25	142	86	63	0.25	0.50	
		D21.00-S25-06	●	21	25	142	86	63	0.25	0.50	
		D21.50-S25-06	●	21.5	25	145	89	66	0.25	0.50	
07	NT-DRS-3D	D22.00-S25-07	●	22	25	145	89	66	0.50	0.50	SPMX07 SPGX07
		D22.50-S32-07	●	22.5	32	154	94	69	0.50	0.50	
		D23.00-S32-07	●	23	32	154	94	69	0.50	0.50	
		D23.50-S32-07	●	23.5	32	158	98	72	0.50	0.50	
		D24.00-S32-07	●	24	32	158	98	72	0.50	0.50	
		D24.50-S32-07	●	24.5	32	162	102	75	0.50	0.50	
		D25.00-S32-07	●	25	32	162	102	75	0.50	0.50	
		D25.50-S32-07	●	25.5	32	165	105	78	0.50	0.60	
		D26.00-S32-07	●	26	32	165	105	78	0.25	0.60	
		D26.50-S32-07	●	26.5	32	168	108	81	0.25	0.60	

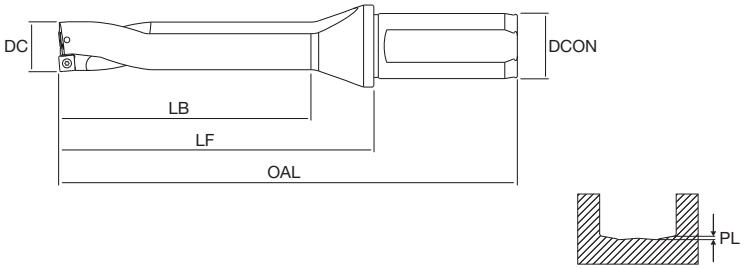
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

		DRS 3XD		DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
07	NT-DRS-3D	D27.00-S32-07	●	27	32	168	108	81	0.25	0.60	SPMX07 SPGX07
		D27.50-S32-07	●	27.5	32	172	112	84	0.25	0.60	
09	NT-DRS-3D	D28.00-S32-09	●	28	32	172	112	84	0.50	0.80	SPMX09 SPGX09
		D28.50-S32-09	●	28.5	32	175	115	87	0.50	0.80	
		D29.00-S32-09	●	29	32	175	115	87	0.50	0.80	
		D29.50-S32-09	●	29.5	32	181	121	90	0.50	0.80	
		D30.00-S32-09	●	30	32	181	121	90	0.50	0.80	
		D31.00-S32-09	●	31	32	185	125	93	0.25	0.80	
		D32.00-S32-09	●	32	32	188	128	96	0.25	0.80	
		D33.00-S32-09	●	33	32	192	132	99	0.25	0.80	
11	NT-DRS-3D	D34.00-S40-11	●	34	40	205	135	102	0.50	0.90	SPMX11 SPGX11
		D35.00-S40-11	●	35	40	209	139	105	0.50	0.90	
		D36.00-S40-11	●	36	40	213	143	108	0.50	0.90	
		D37.00-S40-11	●	37	40	217	147	111	0.50	0.90	
		D38.00-S40-11	●	38	40	221	151	114	0.50	0.90	
		D39.00-S40-11	●	39	40	224	154	117	0.50	0.90	
		D40.00-S40-11	●	40	40	228	158	120	0.25	0.90	
		D41.00-S40-11	●	41	40	232	162	123	0.25	0.90	
14	NT-DRS-3D	D42.00-S40-14	●	42	40	235	165	126	0.50	1.00	SPMX14 SPGX14
		D43.00-S40-14	●	43	40	239	169	129	0.50	1.00	
		D44.00-S40-14	●	44	40	242	172	132	0.50	1.00	
		D45.00-S40-14	●	45	40	247	177	135	0.50	1.00	
		D46.00-S40-14	●	46	40	251	181	138	0.50	1.00	
		D47.00-S40-14	●	47	40	254	184	141	0.50	1.00	
		D48.00-S40-14	●	48	40	258	188	144	0.25	1.00	
		D49.00-S40-14	●	49	40	261	191	147	0.25	1.00	
		D50.00-S40-14	●	50	40	265	195	150	0.25	1.00	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

INSERT SIZE	SCREW	WRENCH
		
05	NT-ST059 torque 0.5 Nm	NT-FTB06
06	NT-ST061 torque 0.5 Nm	NT-FTB06
07	NT-ST062 torque 0.8 Nm	NT-FTB07

INSERT SIZE	SCREW	WRENCH
		
09	NT-ST063 torque 3.5 Nm	NT-FTB15
11	NT-ST064 torque 3.5 Nm	NT-FTB15
14	NT-ST066 torque 4.5 Nm	NT-FTB20



DRS 4XD

				DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
05	NT-DRS-4D	D12.50-S20-05	●	12.5	20	120	70	52	0.50	0.40	SPMX05 SPGX05
		D13.00-S20-05	●	13	20	120	70	52	0.50	0.40	
		D13.50-S20-05	●	13.5	20	124	74	56	0.50	0.40	
		D14.00-S20-05	●	14	20	124	74	56	0.50	0.40	
		D14.50-S20-05	●	14.5	20	129	79	60	0.50	0.40	
		D15.00-S20-05	●	15	20	129	79	60	0.50	0.40	
06	NT-DRS-4D	D15.50-S20-06	●	15.5	20	140	84	64	0.50	0.50	SPMX06 SPGX06
		D16.00-S25-06	●	16	25	140	84	64	0.50	0.50	
		D16.50-S25-06	●	16.5	25	144	88	68	0.50	0.50	
		D17.00-S25-06	●	17	25	144	88	68	0.50	0.50	
		D17.50-S25-06	●	17.5	25	149	93	72	0.50	0.50	
		D18.00-S25-06	●	18	25	149	93	72	0.50	0.50	
		D18.50-S25-06	●	18.5	25	153	97	76	0.50	0.50	
		D19.00-S25-06	●	19	25	153	97	76	0.50	0.50	
		D19.50-S25-06	●	19.5	25	159	103	80	0.50	0.50	
		D20.00-S25-06	●	20	25	159	103	80	0.50	0.50	
		D20.50-S25-06	●	20.5	25	163	107	84	0.25	0.50	
		D21.00-S25-06	●	21	25	163	107	84	0.25	0.50	
		D21.50-S25-06	●	21.5	25	167	111	88	0.25	0.50	
07	NT-DRS-4D	D22.00-S25-07	●	22	25	167	111	88	0.50	0.50	SPMX07 SPGX07
		D22.50-S32-07	●	22.5	32	177	117	92	0.50	0.50	
		D23.00-S32-07	●	23	32	177	117	92	0.50	0.50	
		D23.50-S32-07	●	23.5	32	182	122	96	0.50	0.50	
		D24.00-S32-07	●	24	32	182	122	96	0.50	0.50	
		D24.50-S32-07	●	24.5	32	187	127	100	0.50	0.50	
		D25.00-S32-07	●	25	32	187	127	100	0.50	0.50	
		D25.50-S32-07	●	25.5	32	191	131	104	0.50	0.60	
		D26.00-S32-07	●	26	32	191	131	104	0.25	0.60	
		D26.50-S32-07	●	26.5	32	195	135	108	0.25	0.60	

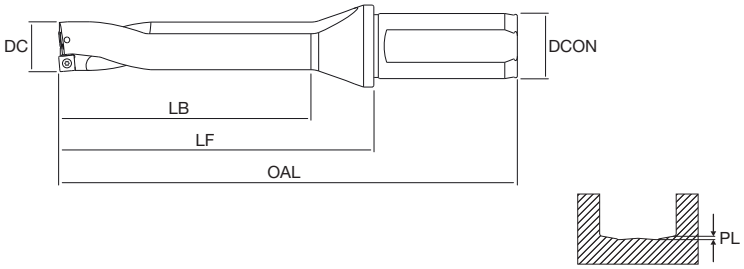
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

		DRS 4XD		DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
07	NT-DRS-4D	D27.00-S32-07	●	27	32	195	135	108	0.25	0.60	SPMX07 SPGX07
		D27.50-S32-07	●	27.5	32	200	140	112	0.25	0.60	
09	NT-DRS-4D	D28.00-S32-09	●	28	32	200	140	112	0.50	0.80	SPMX09 SPGX09
		D28.50-S32-09	●	28.5	32	204	144	116	0.50	0.80	
		D29.00-S32-09	●	29	32	204	144	116	0.50	0.80	
		D29.50-S32-09	●	29.5	32	211	151	120	0.50	0.80	
		D30.00-S32-09	●	30	32	211	151	120	0.50	0.80	
		D31.00-S32-09	●	31	32	216	156	124	0.25	0.80	
		D32.00-S32-09	●	32	32	220	160	128	0.25	0.80	
		D33.00-S32-09	●	33	32	225	165	132	0.25	0.80	
11	NT-DRS-4D	D34.00-S40-11	●	34	40	239	169	136	0.50	0.90	SPMX11 SPGX11
		D35.00-S40-11	●	35	40	244	174	140	0.50	0.90	
		D36.00-S40-11	●	36	40	249	179	144	0.50	0.90	
		D37.00-S40-11	●	37	40	254	184	148	0.50	0.90	
		D38.00-S40-11	●	38	40	259	189	152	0.50	0.90	
		D39.00-S40-11	●	39	40	263	193	156	0.50	0.90	
		D40.00-S40-11	●	40	40	268	198	160	0.25	0.90	
		D41.00-S40-11	●	41	40	273	203	164	0.25	0.90	
14	NT-DRS-4D	D42.00-S40-14	●	42	40	277	207	168	0.50	1.00	SPMX14 SPGX14
		D43.00-S40-14	●	43	40	282	212	172	0.50	1.00	
		D44.00-S40-14	●	44	40	286	216	176	0.50	1.00	
		D45.00-S40-14	●	45	40	292	222	180	0.50	1.00	
		D46.00-S40-14	●	46	40	297	227	184	0.50	1.00	
		D47.00-S40-14	●	47	40	301	231	188	0.50	1.00	
		D48.00-S40-14	●	48	40	306	236	192	0.25	1.00	
		D49.00-S40-14	●	49	40	310	240	196	0.25	1.00	
		D50.00-S40-14	●	50	40	315	245	200	0.25	1.00	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

INSERT SIZE	SCREW	WRENCH
		
05	NT-ST059 torque 0.5 Nm	NT-FTB06
06	NT-ST061 torque 0.5 Nm	NT-FTB06
07	NT-ST062 torque 0.8 Nm	NT-FTB07

INSERT SIZE	SCREW	WRENCH
		
09	NT-ST063 torque 3.5 Nm	NT-FTB15
11	NT-ST064 torque 3.5 Nm	NT-FTB15
14	NT-ST066 torque 4.5 Nm	NT-FTB20



	DRS 5XD			DC	DCON	OAL	LF	LB	ADJLX max. radial offset	PL hole bottom shape	MIID
05	NT-DRS-5D	D13.00-S20-05	●	13	20	133	83	65	0.50	0.40	SPMX05 SPGX05
		D14.00-S20-05	●	14	20	138	88	70	0.50	0.40	
		D15.00-S20-05	●	15	20	144	94	75	0.50	0.40	
06	NT-DRS-5D	D16.00-S25-06	●	16	25	156	100	80	0.50	0.50	SPMX06 SPGX06
		D17.00-S25-06	●	17	25	161	105	85	0.50	0.50	
		D18.00-S25-06	●	18	25	167	111	90	0.50	0.50	
		D19.00-S25-06	●	19	25	172	116	95	0.50	0.50	
		D20.00-S25-06	●	20	25	179	123	100	0.50	0.50	
		D21.00-S25-06	●	21	25	184	128	105	0.25	0.50	
07	NT-DRS-5D	D22.00-S25-07	●	22	25	189	133	110	0.50	0.50	SPMX07 SPGX07
		D23.00-S32-07	●	23	32	200	140	115	0.50	0.50	
		D24.00-S32-07	●	24	32	206	146	120	0.50	0.50	
		D25.00-S32-07	●	25	32	212	152	125	0.50	0.50	
		D26.00-S32-07	●	26	32	217	157	130	0.25	0.60	
		D27.00-S32-07	●	27	32	222	162	135	0.25	0.60	
09	NT-DRS-5D	D28.00-S32-09	●	28	32	228	168	140	0.50	0.80	SPMX09 SPGX09
		D29.00-S32-09	●	29	32	233	173	145	0.50	0.80	
		D30.00-S32-09	●	30	32	241	181	150	0.50	0.80	
		D31.00-S32-09	●	31	32	247	187	155	0.25	0.80	
		D32.00-S32-09	●	32	32	252	192	160	0.25	0.80	
		D33.00-S32-09	●	33	32	258	198	165	0.25	0.80	
11	NT-DRS-5D	D34.00-S40-11	●	34	40	273	203	170	0.50	0.90	SPMX11 SPGX11
		D35.00-S40-11	●	35	40	279	209	175	0.50	0.90	
		D36.00-S40-11	●	36	40	285	215	180	0.50	0.90	
		D37.00-S40-11	●	37	40	291	221	185	0.50	0.90	
		D38.00-S40-11	●	38	40	297	227	190	0.50	0.90	
		D39.00-S40-11	●	39	40	302	232	195	0.50	0.90	
		D40.00-S40-11	●	40	40	308	238	200	0.25	0.90	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

INSERT SIZE	SCREW	WRENCH
		
05	NT-ST059 torque 0.5 Nm	NT-FTB06
06	NT-ST061 torque 0.5 Nm	NT-FTB06
07	NT-ST062 torque 0.8 Nm	NT-FTB07

INSERT SIZE	SCREW	WRENCH
		
09	NT-ST063 torque 3.5 Nm	NT-FTB15
11	NT-ST064 torque 3.5 Nm	NT-FTB15

ADVANCED MATERIALS

QUICK SELECTION FOR TURNING OPERATION

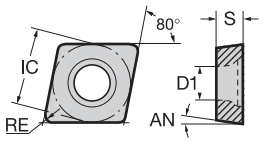
	MATERIAL	OPERATION	CONDITION	GRADES	EDGE PREP.	new GRADES	new EDGE PREP.	Vc (m/min)	fn (mm/rev)	COOLANT
H	Hardened steel	finishing ap < 0.5 mm	○	NB150	CC/CS	NBL050C	SE	140 **220** 280	0.05 **0.14** 0.23	
				NB200						
			◠	NB250	GP/GS	NBL150C	UE	100 **170** 250	0.06 **0.16** 0.26	
				NB300		NBL250C				
			⇳	NB350	HI	NBL350U	RE	80 **130** 180	0.06 **0.16** 0.26	
	Bearing steel	finishing ap < 0.5 mm	○	NB150	CC/CS	NBL050C	SE	120 **170** 220	0.05 **0.10** 0.15	
				NB200						
			◠	NB250	GP/GS	NBL150C	UE	80 **140** 200	0.05 **0.12** 0.20	
				NB300		NBL250C				
			⇳	NB350	HI	NBL350U	RE	60 **110** 160	0.05 **0.12** 0.20	
		roughing ap > 0.5 mm **SOLID PCBN**	○◠	NBS9000	GP	NBH900U	UE	100 **140** 180	0.15 **0.30** 0.45	
			⇳	NBS9050	GP	NBH950U	UE	70 **110** 150	0.10 **0.25** 0.40	
	Tool steel	finishing ap < 0.5 mm	○	NB150	CC/CS	NBL150C	SE	80 **140** 180	0.03 **0.08** 0.15	
				NB200						
			◠	NB250	GP/GS	NBL250C	UE	80 **120** 160	0.03 **0.12** 0.20	
				NB300						
			⇳	NB350	HI	NBL350U	RE	70 **110** 150	0.03 **0.12** 0.20	
		roughing ap > 0.5 mm **SOLID PCBN**	○◠	NBS9000	GP	NBH900U	UE	60 **100** 140	0.10 **0.30** 0.50	
			⇳	NBS9050	GP	NBH950U	UE	50 **90** 130	0.10 **0.25** 0.40	
	High speed steel	finishing ap < 0.5 mm	○	NB150	GP	NBL150C	UE	100 **120** 150	0.03 **0.08** 0.15	
	White cast iron	finishing ap < 0.5 mm	○◠	NBS450	GP	NBH500C	UE	50 **90** 120	0.10 **0.30** 0.50	
			⇳	NBS9000	GP	NBH900U	UE	50 **80** 100	0.10 **0.25** 0.40	
		roughing ap > 0.5 mm **SOLID PCBN**	○◠	NBS450	GP	NBH500C	UE	40 **70** 100	0.20 **0.40** 0.60	
			⇳	NBS9050	GP	NBH950U	UE	40 **60** 80	0.20 **0.35** 0.50	
K	Gray cast iron	finishing ap < 0.5 mm	○◠	NB450	GP	NBH450C	UE	600 **800** 1000	0.10 **0.25** 0.40	
			⇳	NBS9000	GP	NBH500C	UE	600 **1000** 1500	0.10 **0.20** 0.30	
		roughing ap > 0.5 mm **SOLID PCBN**	○◠	NBS450	GP	NBH500C	UE	600 **1000** 1500	0.20 **0.40** 0.60	
			⇳	NBS9000	GP	NBH900U	UE	500 **1000** 1400	0.20 **0.35** 0.50	
	ADI cast iron	finishing ap < 0.5 mm	○◠	NB150	GP	NBL150C	UE	500 **600** 700	0.05 **0.15** 0.25	
				NB200						
			⇳	NB250	GP	NBL250C	UE	400 **500** 600	0.05 **0.15** 0.25	
				NB300						
		roughing ap > 0.5 mm **SOLID PCBN**	○◠	NBS450	GP	NBH500C	UE	300 **400** 500	0.10 **0.25** 0.40	
			⇳	NBS9000	GP	NBH900U	UE	200 **250** 300	0.10 **0.25** 0.40	
Pm	Powder metal, high alloyed	finishing ap < 0.5 mm	○	NB150	GP	NBL150C	UE	100 **160** 250	0.05 **0.10** 0.15	
				NB200						
	Powder metal, low alloyed	finishing ap < 0.5 mm	○	NB450	GP	NBH450C	UE	50 **100** 150	0.10 **0.20** 0.30	

new grades and edge preparation will be available from September 2018

○ Stable machining, continuous cut ◠ General machining, light interruption ⇳ Unstable machining, interrupted cut

CC

TURNING
PCBN - Positive



Size	IC	S	D1	AN
0602□□	6.35	2.38	2.80	7°
09T3□□	9.525	3.97	4.40	7°
1204□□	12.70	4.76	5.50	7°

GRADE APPLICATION AREA
- main application
- applicable

Stable machining, continuous cut
General machining, light interruption
Unstable machining, interrupted cut

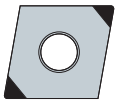
Hardness + / − ; Toughness − / +

ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL05OC	BL new grades NBL15OC	BL new grades NBL25OC	BL new grades NBL35OU	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH45OC	BH new grades NBH50OC	BH new grades NBH90OU	BH new grades NBH95OU
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

					a_p ▸				
					f_n ▸				

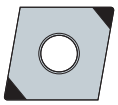
SHARP EDGE

CC K H



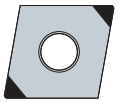
CCGW	060202-2E-CC	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10	●									●											
	060204-2E-CC	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15	●									●											
	060208-2E-CC	RE 0.8	0.05	**0.10**	0.15	0.05	**0.12**	0.20	●		●							●											
CCGW	09T302-2E-CC	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10																					
	09T304-2E-CC	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15	●		●																		
	09T308-2E-CC	RE 0.8	0.05	**0.10**	0.15	0.05	**0.12**	0.20	○		●							●											

CS H



CCGW	060202-2E-CS	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10	●	●																			
	060204-2E-CS	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15	○	●																			
CCGW	09T302-2E-CS	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10	○	●																			
	09T304-2E-CS	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15	●	●																			

SE H

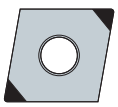


CCGW	060202S-SE-2E	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10						▲	▲														
	060204S-SE-2E	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15						▲	▲														
	060208S-SE-2E	RE 0.8	0.05	**0.10**	0.15	0.05	**0.12**	0.20							▲														
CCGW	09T302S-SE-2E	RE 0.2	0.05	**0.10**	0.15	0.05	**0.07**	0.10						▲	▲														
	09T304S-SE-2E	RE 0.4	0.05	**0.10**	0.15	0.05	**0.10**	0.15						▲	▲														
	09T308S-SE-2E	RE 0.8	0.05	**0.10**	0.15	0.05	**0.12**	0.20							▲														

new edge preparation

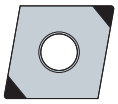
UNIVERSAL EDGE

GP K H



CCGW	060202-2E-GP	RE 0.2	0.06	**0.13**	0.20	0.07	**0.11**	0.15			○		●																
	060204-2E-GP	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20			●		●					●											
	060208-2E-GP	RE 0.8	0.06	**0.13**	0.20	0.07	**0.16**	0.25			●		●					●											
CCGW	09T302-2E-GP	RE 0.2	0.06	**0.13**	0.20	0.07	**0.11**	0.15			●		●																
	09T304-2E-GP	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20			●							●											
	09T308-2E-GP	RE 0.8	0.06	**0.13**	0.20	0.07	**0.16**	0.25	●		●		●					●											
CCGW	120404-2E-GP	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20			●																		
	120408-2E-GP	RE 0.8	0.06	**0.13**	0.20	0.07	**0.16**	0.25			●							●											

GS H

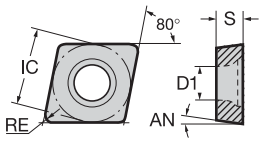


CCGW	060204-2E-GS	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20		●		●																	
CCGW	09T304-2E-GS	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20				●																	
	09T308-2E-GS	RE 0.8	0.06	**0.13**	0.20	0.07	**0.16**	0.25		●	●	●																	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CC

TURNING
PCBN - Positive



Size	IC	S	D1	AN
0602□□	6.35	2.38	2.80	7°
09T3□□	9.525	3.97	4.40	7°
1204□□	12.70	4.76	5.50	7°

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

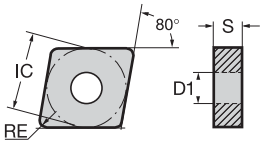
ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL050C	BL new grades NBL150C	BL new grades NBL250C	BL new grades NBL350U	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH450C	BH new grades NBH500C	BH new grades NBH900U	BH new grades NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

UNIVERSAL EDGE	UE K H	CCGW	060202S-UE-2E	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15			▲	▲											
			060204S-UE-2E	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20			▲	▲	▲							▲			
			060208S-UE-2E	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.16** 0.25				▲	▲							▲			
		CCGW	09T302S-UE-2E	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15			▲	▲											
			09T304S-UE-2E	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20			▲	▲	▲							▲			
	new edge preparation		09T308S-UE-2E	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.16** 0.25				▲	▲							▲			
REINFORCED EDGE	HI H	CCGW	060204-2E-HI	RE 0.4	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22					●										
		CCGW	09T304-2E-HI	RE 0.4	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22					●										
			09T308-2E-HI	RE 0.8	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.18** 0.28															
	RE H	CCGW	060204S-RE-2E	RE 0.4	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22								▲							
			060208S-RE-2E	RE 0.8	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.18** 0.28								▲							
		CCGW	09T304S-RE-2E	RE 0.4	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22								▲							
	new edge preparation		09T308S-RE-2E	RE 0.8	a_p ▸ 0.08 **0.16** 0.25 f_n ▸ 0.08 **0.18** 0.28								▲							
WIPER EDGE	WH H	CCGW	09T304-2E-WH	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.10 **0.15** 0.20	●														
	WE H	CCGW	09T304S-WE-2E	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.10 **0.15** 0.20								▲							
	new edge preparation		09T308S-WE-2E	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.10 **0.17** 0.25								▲							

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

TURNING
PCBN - Negative



Size	IC	S	D1
0903□□	9.525	3.18	-
1204□□	12.70	4.76	5.16

ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL050C	BL new grades NBL150C	BL new grades NBL250C	BL new grades NBL350U	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH450C	BH new grades NBH500C	BH new grades NBH900U	BH new grades NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

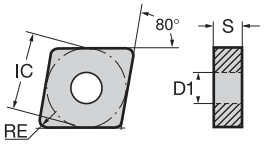
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

SHARP EDGE	CC K H	2	CNGA	120404-2E-CC	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.12** 0.18	○		●							●							
				120408-2E-CC	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.14** 0.22	○															
				120412-2E-CC	RE 1.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.16** 0.26	●		●							●							
	SE H	4	CNGA	120404S-SE-4EV	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.12** 0.18						▲	▲										
				120408S-SE-4EV	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.14** 0.22						▲	▲										
	new edge preparation, vertical			120412S-SE-4EV	RE 1.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.16** 0.26						▲	▲										
UNIVERSAL EDGE	GP K H	2		120404-2E-GP	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22	●		●							●							
				120408-2E-GP	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.17** 0.26	●		●		●					●							
				120412-2E-GP	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.19** 0.30	●		●		●					●							
	GP K H	4	CNGA	120404-4EV-GP	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22		●	●								●						
				120408-4EV-GP	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.17** 0.26	●	●	●							●	●						
	vertical			120412-4EV-GP	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.19** 0.30	●	●	●								●						
	GP K H		CNGN	090308-GP	RE 0.8	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.20** 0.30										▽	●	●					
				090312-GP	RE 1.2	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.22** 0.35											●	●					
				090316-GP	RE 1.6	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.25** 0.40											▽	▽					
			CNGN	120408-GP	RE 0.8	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.20** 0.30											●	●					
				120412-GP	RE 1.2	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.22** 0.35											●	●					
	solid, no hole			120416-GP	RE 1.6	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.25** 0.40											▽	▽					
	UE K H	4	CNGA	120404S-UE-4EV	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22						▲	▲	▲									
				120408S-UE-4EV	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.17** 0.26						▲	▲	▲						▲			
	new edge preparation, vertical			120412S-UE-4EV	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.19** 0.30						▲	▲	▲						▲			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

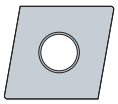
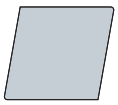
TURNING
PCBN - Negative



Size	IC	S	D1
0903□□	9.525	3.18	-
1204□□	12.70	4.76	5.16

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

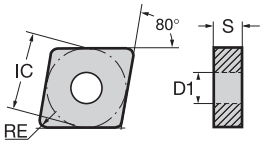
ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

UNIVERSAL EDGE	UE K H  new edge preparation, solid	CNGA	120412S-UE	RE 1.2	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.22** 0.35												▲	▲		
	UE K H  new edge preparation, solid, no hole	CNGN	090308S-UE	RE 0.8	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.20** 0.30													▲		
			090312S-UE	RE 1.2	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.22** 0.35													▲		
			090316S-UE	RE 1.6	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.25** 0.40													▲		
		CNGN	120408S-UE	RE 0.8	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.20** 0.30													▲		
			120412S-UE	RE 1.2	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.22** 0.35													▲		
			120416S-UE	RE 1.6	a_p ▸ 0.50 **1.50** 2.50 f_n ▸ 0.10 **0.25** 0.40													▲		
REINFORCED EDGE	HI H 2 	CNGA	120404-2E-HI	RE 0.4	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.19** 0.28					●												
			120408-2E-HI	RE 0.8	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.20** 0.30			●		●												
			120412-2E-HI	RE 1.2	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.21** 0.32			●		●												
	HI K H 4  vertical	CNGA	120404-4EV-HI	RE 0.4	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.19** 0.28							●										
			120408-4EV-HI	RE 0.8	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.20** 0.30				●	●		●										
			120412-4EV-HI	RE 1.2	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.21** 0.32				●	●		●										
	RE K H 4  new edge preparation, vertical	CNGA	120404S-RE-4EV	RE 0.4	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.19** 0.28								▲					▲				
			120408S-RE-4EV	RE 0.8	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.20** 0.30								▲					▲				
			120412S-RE-4EV	RE 1.2	a_p ▸ 0.10 **0.20** 0.30 f_n ▸ 0.10 **0.21** 0.32								▲					▲				
WIPER EDGE	WH H 2 	CNGA	120404-2E-WH	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.10 **0.17** 0.25	●				●												
			120408-2E-WH	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.10 **0.19** 0.28	●				●												
			120412-2E-WH	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.10 **0.20** 0.30	○				●												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

CN

TURNING
PCBN - Negative



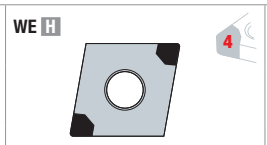
Size	IC	S	D1
0903□□	9.525	3.18	-
1204□□	12.70	4.76	5.16

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +

WIPER EDGE



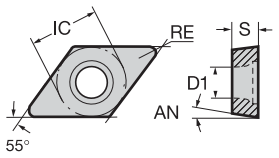
new edge preparation, vertical

CNGA	120404S-WE-4EV	RE 0.4	a_p ▸	0.07	**0.16**	0.25				▲	▲	▲					
			f_n ▸	0.10	**0.17**	0.25											
	120408S-WE-4EV	RE 0.8	a_p ▸	0.07	**0.16**	0.25				▲	▲	▲					
			f_n ▸	0.10	**0.19**	0.28											
	120412S-WE-4EV	RE 1.2	a_p ▸	0.07	**0.16**	0.25				▲	▲	▲					
			f_n ▸	0.10	**0.20**	0.30											

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DC

TURNING
PCBN - Positive



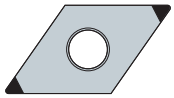
Size	IC	S	D1	AN
0702□□	6.35	2.38	2.80	7°
11T3□□	9.525	3.97	4.40	7°

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

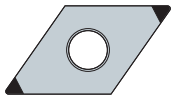
SHARP EDGE

CC K H



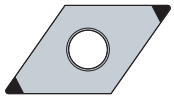
DCGW	070204-2E-CC	RE 0.4	a_p	0.05	**0.10**	0.15	●																
			f_n	0.05	**0.10**	0.15																	
DCGW	11T302-2E-CC	RE 0.2	a_p	0.05	**0.10**	0.15	●																
			f_n	0.05	**0.07**	0.10																	
	11T304-2E-CC	RE 0.4	a_p	0.05	**0.10**	0.15	●		●														
			f_n	0.05	**0.10**	0.15																	
	11T308-2E-CC	RE 0.8	a_p	0.05	**0.10**	0.15	●									●							
			f_n	0.05	**0.12**	0.20																	

CS H



DCGW	070202-2E-CS	RE 0.2	a_p	0.05	**0.10**	0.15	●	●															
			f_n	0.05	**0.07**	0.10																	
	070204-2E-CS	RE 0.4	a_p	0.05	**0.10**	0.15	●	●															
			f_n	0.05	**0.10**	0.15																	
DCGW	11T302-2E-CS	RE 0.2	a_p	0.05	**0.10**	0.15	●	●															
			f_n	0.05	**0.07**	0.10																	
	11T304-2E-CS	RE 0.4	a_p	0.05	**0.10**	0.15	●	●															
			f_n	0.05	**0.10**	0.15																	
	11T308-2E-CS	RE 0.8	a_p	0.05	**0.10**	0.15	●																
			f_n	0.05	**0.12**	0.20																	

SE H

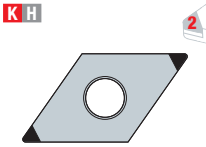


DCGW	070202S-SE-2E	RE 0.2	a_p	0.05	**0.10**	0.15						▲	▲										
			f_n	0.05	**0.07**	0.10																	
	070204S-SE-2E	RE 0.4	a_p	0.05	**0.10**	0.15						▲	▲										
			f_n	0.05	**0.10**	0.15																	
	070208S-SE-2E	RE 0.8	a_p	0.05	**0.10**	0.15							▲										
			f_n	0.05	**0.12**	0.20																	
DCGW	11T302S-SE-2E	RE 0.2	a_p	0.05	**0.10**	0.15						▲	▲										
			f_n	0.05	**0.07**	0.10																	
	11T304S-SE-2E	RE 0.4	a_p	0.05	**0.10**	0.15						▲	▲										
			f_n	0.05	**0.10**	0.15																	
	11T308S-SE-2E	RE 0.8	a_p	0.05	**0.10**	0.15							▲										
			f_n	0.05	**0.12**	0.20																	

new edge preparation

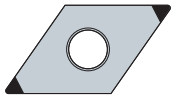
UNIVERSAL EDGE

GP K H



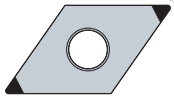
DCGW	070204-2E-GP	RE 0.4	a_p	0.06	**0.13**	0.20	●		●		●												
			f_n	0.07	**0.13**	0.20																	
DCGW	11T302-2E-GP	RE 0.2	a_p	0.06	**0.13**	0.20	●		●														
			f_n	0.07	**0.11**	0.15																	
	11T304-2E-GP	RE 0.4	a_p	0.06	**0.13**	0.20	●		●		●					●							
			f_n	0.07	**0.13**	0.20																	
	11T308-2E-GP	RE 0.8	a_p	0.06	**0.13**	0.20	○		●		●					●							
			f_n	0.07	**0.16**	0.25																	

GS H



DCGW	070204-2E-GS	RE 0.4	a_p	0.06	**0.13**	0.20		●		●													
			f_n	0.07	**0.13**	0.20																	
DCGW	11T304-2E-GS	RE 0.4	a_p	0.06	**0.13**	0.20		●		●													
			f_n	0.07	**0.13**	0.20																	
	11T308-2E-GS	RE 0.8	a_p	0.06	**0.13**	0.20		●		●													
			f_n	0.07	**0.16**	0.25																	

UE H



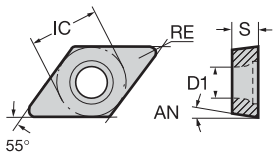
DCGW	070202S-UE-2E	RE 0.2	a_p	0.06	**0.13**	0.20						▲	▲										
			f_n	0.07	**0.11**	0.15																	
	070204S-UE-2E	RE 0.4	a_p	0.06	**0.13**	0.20						▲	▲	▲									
			f_n	0.07	**0.13**	0.20																	
	070208S-UE-2E	RE 0.8	a_p	0.06	**0.13**	0.20							▲	▲									
			f_n	0.07	**0.16**	0.25																	

new edge preparation

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DC

TURNING
PCBN - Positive



Size	IC	S	D1	AN
0702□□	6.35	2.38	2.80	7°
11T3□□	9.525	3.97	4.40	7°

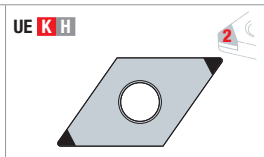
ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +

UNIVERSAL EDGE

UE K H

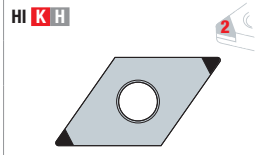


new edge preparation

			a_p ▸			f_n ▸		
DCGW	11T302S-UE-2E	RE 0.2	0.06	**0.13**	0.20	0.07	**0.11**	0.15
	11T304S-UE-2E	RE 0.4	0.06	**0.13**	0.20	0.07	**0.13**	0.20
	11T308S-UE-2E	RE 0.8	0.06	**0.13**	0.20	0.07	**0.16**	0.25

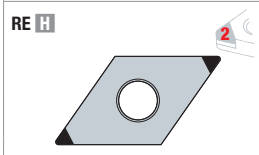
REINFORCED EDGE

HI K H



			a_p ▸			f_n ▸		
DCGW	070204-2E-HI	RE 0.4	0.08	**0.16**	0.25	0.08	**0.15**	0.22
	070208-2E-HI	RE 0.8	0.08	**0.16**	0.25	0.08	**0.18**	0.28
DCGW	11T308-2E-HI	RE 0.8	0.08	**0.16**	0.25	0.08	**0.18**	0.28
	11T312-2E-HI	RE 1.2	0.08	**0.16**	0.25	0.08	**0.20**	0.32

RE H



new edge preparation

			a_p ▸			f_n ▸		
DCGW	070204S-RE-2E	RE 0.4	0.08	**0.16**	0.25	0.08	**0.15**	0.22
	070208S-RE-2E	RE 0.8	0.08	**0.16**	0.25	0.08	**0.18**	0.28
DCGW	11T304S-RE-2E	RE 0.4	0.08	**0.16**	0.25	0.08	**0.15**	0.22
	11T308S-RE-2E	RE 0.8	0.08	**0.16**	0.25	0.08	**0.18**	0.28

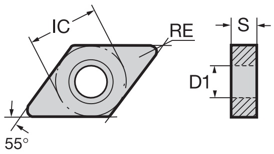
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

DN

TURNING

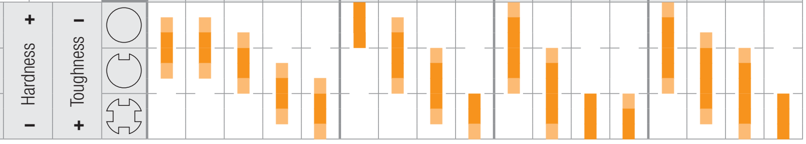
PCBN - Negative

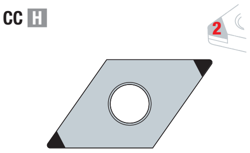
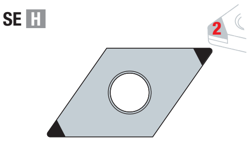
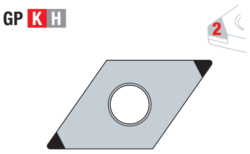
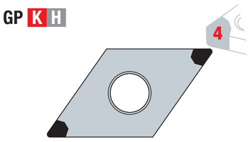
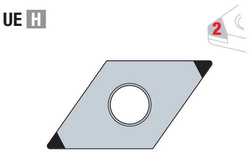
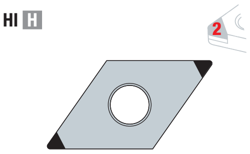
ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	**NB200**	**NB250**	**NB300**	**NB350**	**NBL050C**	**NBL150C**	**NBL250C**	**NBL350U**	**NB450**	**NBS9000**	**NBS9050**	**NBS9090**	**NBH450C**	**NBH500C**	**NBH900U**	**NBH950U**
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180



Size	IC	S	D1
1504□□	12.70	4.76	5.16
1506□□	12.70	6.35	5.16

GRADE APPLICATION AREA	Stable machining, continuous cut
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut



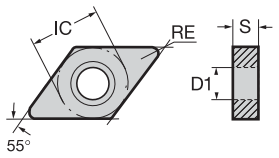
		Type	Code	RE					NB150	NB200	NB250	NB300	NB350	NBL050C	NBL150C	NBL250C	NBL350U	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
SHARP EDGE	**CC** H 	**DNGA**	**150404-2E-CC**	RE 0.4	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.12**	0.20 0.18	●																
			150408-2E-CC	RE 0.8	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.14**	0.20 0.22	●																
		DNGA	**150604-2E-CC**	RE 0.4	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.12**	0.20 0.18	●		●														
			150608-2E-CC	RE 0.8	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.14**	0.20 0.22	○																
			150612-2E-CC	RE 1.2	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.16**	0.20 0.26	●		●														
	SE H  **new** edge preparation	**DNGA**	**150404S-SE-2E**	RE 0.4	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.12**	0.20 0.18						▲	▲										
			150408S-SE-2E	RE 0.8	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.14**	0.20 0.22						▲	▲										
		DNGA	**150604S-SE-2E**	RE 0.4	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.12**	0.20 0.18						▲	▲										
			150608S-SE-2E	RE 0.8	a_p ▸ f_n ▸	0.06 0.06	**0.13** **0.14**	0.20 0.22						▲	▲										
UNIVERSAL EDGE	**GP** K H 	**DNGA**	**150404-2E-GP**	RE 0.4	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.15**	0.25 0.22			●														
			150408-2E-GP	RE 0.8	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.17**	0.25 0.26			●														
		DNGA	**150604-2E-GP**	RE 0.4	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.15**	0.25 0.22	●	●	○		●												
			150608-2E-GP	RE 0.8	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.17**	0.25 0.26	●		●		●					●							
			150612-2E-GP	RE 1.2	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.19**	0.25 0.30	●		●		●												
	GP K H  vertical	**DNGA**	**150604-4EV-GP**	RE 0.4	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.15**	0.25 0.22											▽						
			150608-4EV-GP	RE 0.8	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.17**	0.25 0.26											▽						
			150612-4EV-GP	RE 1.2	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.19**	0.25 0.30											▽						
	UE H  **new** edge preparation	**DNGA**	**150404S-UE-2E**	RE 0.4	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.15**	0.25 0.22							▲	▲									
			150408S-UE-2E	RE 0.8	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.17**	0.25 0.26							▲	▲									
		DNGA	**150604S-UE-2E**	RE 0.4	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.15**	0.25 0.22						▲	▲	▲									
			150608S-UE-2E	RE 0.8	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.17**	0.25 0.26						▲	▲	▲									
			150612S-UE-2E	RE 1.2	a_p ▸ f_n ▸	0.07 0.08	**0.16** **0.19**	0.25 0.30						▲	▲	▲									
REINFORCED EDGE	**HI** H 	**DNGA**	**150608-2E-HI**	RE 0.8	a_p ▸ f_n ▸	0.10 0.10	**0.20** **0.20**	0.30 0.30					○												
			150612-2E-HI	RE 1.2	a_p ▸ f_n ▸	0.10 0.10	**0.20** **0.21**	0.30 0.32					●												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

▸

DN

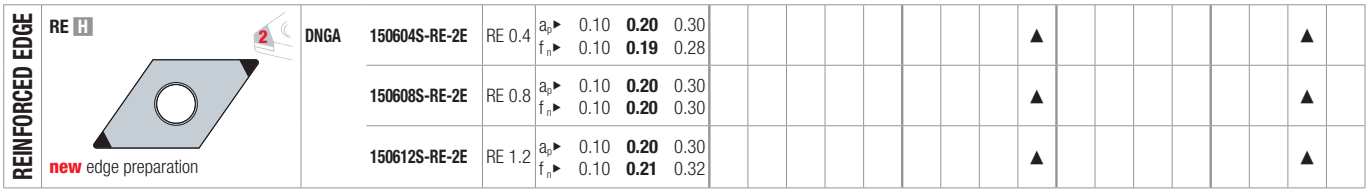
TURNING
PCBN - Negative



Size	IC	S	D1
1504□□	12.70	4.76	5.16
1506□□	12.70	6.35	5.16

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	**NB200**	**NB250**	**NB300**	**NB350**	**NBL05OC**	**NBL15OC**	**NBL25OC**	**NBL35OU**	**NB450**	**NBS9000**	**NBS9050**	**NBS9090**	**NBH450C**	**NBH500C**	**NBH900U**	**NBH950U**
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		



REINFORCED EDGE

RE H

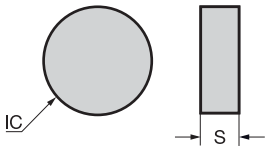
new edge preparation

			a_p ▸	f_n ▸			
DNGA	**150604S-RE-2E**	RE 0.4	0.10	0.10	**0.20**	**0.19**	0.30	0.28
	150608S-RE-2E	RE 0.8	0.10	0.10	**0.20**	**0.20**	0.30	0.30
	150612S-RE-2E	RE 1.2	0.10	0.10	**0.20**	**0.21**	0.30	0.32

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

RN

TURNING
PCBN - Negative



Size	IC	S		Ød
0603□□	6.35	3.18		
0903□□	9.525	3.18		
0904□□	9.525	4.76		
1203□□	12.70	3.18		
1204□□	12.70	4.76		

GRADE APPLICATION AREA
- main application
- applicable

Stable machining, continuous cut
General machining, light interruption
Unstable machining, interrupted cut

Hardness + / − Toughness − / +

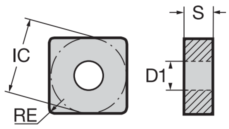
ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL050C	BL new grades NBL150C	BL new grades NBL250C	BL new grades NBL350U	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH450C	BH new grades NBH500C	BH new grades NBH900U	BH new grades NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

					a_p ▸			
					f_n ▸			
SHARP EDGE	CC K H solid	RNGN	090300-CC	-		0.20 0.10	**1.50** **0.20**	3.00 0.40
	SE K H **new** edge preparation, solid	RNGN	090300T-SE	-		0.20 0.10	**1.50** **0.20**	3.00 0.40
UNIVERSAL EDGE	GP K H solid	RNGN	060304-GP	-		0.50 0.10	**1.50** **0.20**	2.50 0.35
		RNGN	090300-GP	-		0.50 0.10	**2.00** **0.30**	3.50 0.50
		RNGN	120300-GP	-		0.50 0.10	**2.50** **0.40**	4.50 0.70
		RNGN	120400-GP	-		0.50 0.10	**2.50** **0.40**	4.50 0.70
	UE K H **new** edge preparation, solid	RNGN	060304S-UE	-		0.50 0.10	**1.50** **0.20**	2.50 0.30
		RNGN	090300S-UE	-		0.50 0.10	**2.00** **0.30**	3.50 0.50
		RNGN	090400S-UE	-		0.50 0.10	**2.00** **0.30**	3.50 0.50
		RNGN	120300S-UE	-		0.50 0.10	**2.50** **0.40**	4.50 0.70
		RNGN	120400S-UE	-		0.50 0.10	**2.50** **0.40**	4.50 0.70
REINFORCED EDGE	HI K H solid	RNGN	120400-HI	-		1.00 0.10	**3.00** **0.45**	5.00 0.80
	RE K H **new** edge preparation, solid	RNGN	120400S-RE	-		1.00 0.10	**3.00** **0.45**	5.00 0.80

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

SN

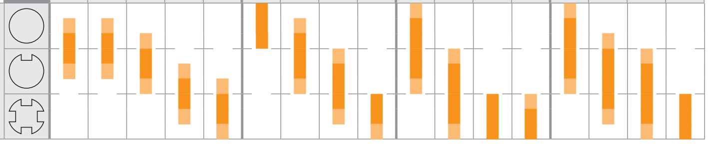
TURNING
PCBN - Negative



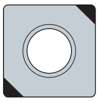
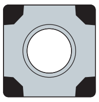
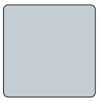
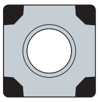
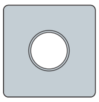
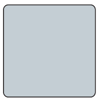
Size	IC	S	D1
0903□□	9.525	3.18	-
0903□□	9.525	4.76	-
1204□□	12.70	4.76	5.16

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	**NB200**	**NB250**	**NB300**	**NB350**	**NBL050C**	**NBL150C**	**NBL250C**	**NBL350U**	**NB450**	**NBS9000**	**NBS9050**	**NBS9090**	**NBH450C**	**NBH500C**	**NBH900U**	**NBH950U**
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA		Hardness	Toughness
	Stable machining, continuous cut	+	−
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut	−	+



UNIVERSAL EDGE

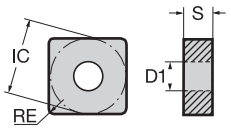
								NB150	NB200	NB250	NB300	NB350	NBL050C	NBL150C	NBL250C	NBL350U	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
GP H 2 	SNGA	120408-2E-GP	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26			●														
GP K H 8  vertical	SNGA	120404-8EV-GP	RE 0.4	a_p▸ f_n▸	0.07 0.08	**0.16** **0.15**	0.25 0.22											●						
		120408-8EV-GP	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26											●						
		120412-8EV-GP	RE 1.2	a_p▸ f_n▸	0.07 0.08	**0.16** **0.19**	0.25 0.30											●						
GP K H  solid, no hole	SNGN	090308-GP	RE 0.8	a_p▸ f_n▸	0.50 0.10	**1.50** **0.20**	2.50 0.30											●						
		090312-GP	RE 1.2	a_p▸ f_n▸	0.50 0.10	**1.50** **0.22**	2.50 0.35											●	●					
		090316-GP	RE 1.6	a_p▸ f_n▸	0.50 0.10	**1.50** **0.25**	2.50 0.40											●						
	SNGN	090412-GP	RE 1.2	a_p▸ f_n▸	0.50 0.10	**1.50** **0.22**	2.50 0.35											●						
	SNGN	120408-GP	RE 0.8	a_p▸ f_n▸	0.50 0.10	**1.50** **0.20**	2.50 0.30											●						
		120412-GP	RE 1.2	a_p▸ f_n▸	0.50 0.10	**1.50** **0.22**	2.50 0.35											●	●					
		120416-GP	RE 1.6	a_p▸ f_n▸	0.50 0.10	**1.50** **0.25**	2.50 0.40											▽						
UE K H 8  **new** edge preparation, vertical	SNGA	120404S-UE-8EV	RE 0.4	a_p▸ f_n▸	0.07 0.08	**0.16** **0.15**	0.25 0.22																▲	
		120408S-UE-8EV	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26							▲	▲								▲	
		120412S-UE-8EV	RE 1.2	a_p▸ f_n▸	0.07 0.08	**0.16** **0.19**	0.25 0.30																▲	
UE K H  **new** edge preparation, solid	SNGA	120412S-UE	RE 1.2	a_p▸ f_n▸	0.50 0.10	**1.50** **0.22**	2.50 0.35															▲	▲	
UE K H  **new** edge preparation, solid, no hole	SNGN	090308S-UE	RE 0.8	a_p▸ f_n▸	0.50 0.10	**1.50** **0.20**	2.50 0.30																▲	
		090312S-UE	RE 1.2	a_p▸ f_n▸	0.50 0.10	**1.50** **0.22**	2.50 0.35																▲	
		090316S-UE	RE 1.6	a_p▸ f_n▸	0.50 0.10	**1.50** **0.25**	2.50 0.40																▲	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

▸

SN

TURNING
PCBN - Negative



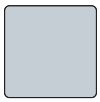
Size	IC	S	D1
0903□□	9.525	3.18	-
0903□□	9.525	4.76	-
1204□□	12.70	4.76	5.16

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	**NB200**	**NB250**	**NB300**	**NB350**	**NBL050C**	**NBL150C**	**NBL250C**	**NBL350U**	**NB450**	**NBS9000**	**NBS9050**	**NBS9090**	**NBH450C**	**NBH500C**	**NBH900U**	**NBH950U**
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

UNIVERSAL EDGE

UE K H



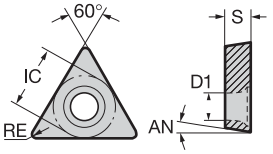
new edge preparation, solid, no hole

		RE	a_p ▸	f_n ▸			
SNGN	**120408S-UE**	RE 0.8	0.50 0.10	**1.50** **0.20**	2.50 0.30		▲
	120412S-UE	RE 1.2	0.50 0.10	**1.50** **0.22**	2.50 0.35		▲
	120416S-UE	RE 1.6	0.50 0.10	**1.50** **0.25**	2.50 0.40		▲

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TC

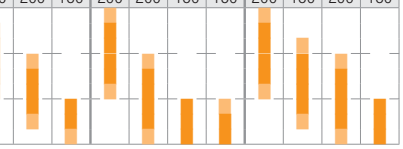
TURNING
PCBN - Positive



Size	IC	S	D1	AN
0902□□	5.56	2.38	2.50	7°
1102□□	6.35	2.38	2.80	7°
16T3□□	9.525	3.97	4.40	7°

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

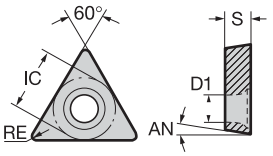


					a_p / f_n																	
SHARP EDGE	CC K H	TCGW	090204-3E-CC	RE 0.4	▸	0.05	**0.10**	0.15	●													
					▸	0.05	**0.10**	0.15														
		TCGW	110202-3E-CC	RE 0.2	▸	0.05	**0.10**	0.15	●													
					▸	0.05	**0.07**	0.10														
			110204-3E-CC	RE 0.4	▸	0.05	**0.10**	0.15	○								●					
					▸	0.05	**0.10**	0.15														
			110208-3E-CC	RE 0.8	▸	0.05	**0.10**	0.15									●					
					▸	0.05	**0.12**	0.20														
		TCGW	16T304-3E-CC	RE 0.4	▸	0.05	**0.10**	0.15	●													
					▸	0.05	**0.10**	0.15														
			16T308-3E-CC	RE 0.8	▸	0.05	**0.10**	0.15	●		●											
					▸	0.05	**0.12**	0.20														
	CS H	TCGW	110204-3E-CS	RE 0.4	▸	0.05	**0.10**	0.15	●	●												
					▸	0.05	**0.10**	0.15														
		TCGW	16T304-3E-CS	RE 0.4	▸	0.05	**0.10**	0.15	●	●												
					▸	0.05	**0.10**	0.15														
	SE H	TCGW	110204S-SE-3E	RE 0.4	▸	0.05	**0.10**	0.15						▲	▲							
					▸	0.05	**0.10**	0.15														
			110208S-SE-3E	RE 0.8	▸	0.05	**0.10**	0.15							▲							
					▸	0.05	**0.12**	0.20														
		TCGW	16T304S-SE-3E	RE 0.4	▸	0.05	**0.10**	0.15						▲	▲							
					▸	0.05	**0.10**	0.15														
			16T308S-SE-3E	RE 0.8	▸	0.05	**0.10**	0.15							▲							
					▸	0.05	**0.12**	0.20														
	new edge preparation																					
UNIVERSAL EDGE	GP K H	TCGW	090204-3E-GP	RE 0.4	▸	0.06	**0.13**	0.20									●					
					▸	0.07	**0.13**	0.20														
		TCGW	110202-3E-GP	RE 0.2	▸	0.06	**0.13**	0.20			●											
					▸	0.07	**0.11**	0.15														
			110204-3E-GP	RE 0.4	▸	0.06	**0.13**	0.20	●		●		●				●					
					▸	0.07	**0.13**	0.20														
			110208-3E-GP	RE 0.8	▸	0.06	**0.13**	0.20	●								●					
					▸	0.07	**0.16**	0.25														
		TCGW	16T304-3E-GP	RE 0.4	▸	0.06	**0.13**	0.20	●								●					
					▸	0.07	**0.13**	0.20														
			16T308-3E-GP	RE 0.8	▸	0.06	**0.13**	0.20	●		●		●				●					
					▸	0.07	**0.16**	0.25														
	GS H	TCGW	110204-3E-GS	RE 0.4	▸	0.06	**0.13**	0.20		●		●										
					▸	0.07	**0.13**	0.20														
		TCGW	16T304-3E-GS	RE 0.4	▸	0.06	**0.13**	0.20		●		●										
					▸	0.07	**0.13**	0.20														
			16T308-3E-GS	RE 0.8	▸	0.06	**0.13**	0.20		●		●										
					▸	0.07	**0.16**	0.25														
	UE K H	TCGW	110204S-UE-3E	RE 0.4	▸	0.06	**0.13**	0.20						▲	▲	▲					▲	▲
					▸	0.07	**0.13**	0.20														
			110208S-UE-3E	RE 0.8	▸	0.06	**0.13**	0.20							▲	▲					▲	▲
					▸	0.07	**0.16**	0.25														
		TCGW	16T304S-UE-3E	RE 0.4	▸	0.06	**0.13**	0.20						▲	▲	▲						
					▸	0.07	**0.13**	0.20														
			16T308S-UE-3E	RE 0.8	▸	0.06	**0.13**	0.20							▲	▲					▲	▲
	new edge preparation																					

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TC

TURNING
PCBN - Positive



Size	IC	S	D1	AN
0902□□	5.56	2.38	2.50	7°
1102□□	6.35	2.38	2.80	7°
16T3□□	9.525	3.97	4.40	7°

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

REINFORCED EDGE

HI K H

RE H

new edge preparation

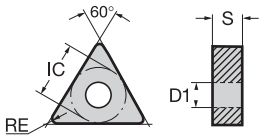
		RE	a_p ▸	f_n ▸			
TCGW	110204-3E-HI	RE 0.4	0.08	0.08	**0.16**	**0.15**	0.25	0.22
	110208-3E-HI	RE 0.8	0.08	0.08	**0.16**	**0.18**	0.25	0.28
TCGW	16T304-3E-HI	RE 0.4	0.08	0.08	**0.16**	**0.15**	0.25	0.22
TCGW	110204S-RE-3E	RE 0.4	0.08	0.08	**0.16**	**0.15**	0.25	0.22
	110208S-RE-3E	RE 0.8	0.08	0.08	**0.16**	**0.18**	0.25	0.28
TCGW	16T304S-RE-3E	RE 0.4	0.08	0.08	**0.16**	**0.15**	0.25	0.22
	16T308S-RE-3E	RE 0.8	0.08	0.08	**0.16**	**0.18**	0.25	0.28

	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
TCGW 110204-3E-HI					●					●							
TCGW 110208-3E-HI					●					●							
TCGW 16T304-3E-HI					●												
TCGW 110204S-RE-3E									▲								
TCGW 110208S-RE-3E									▲					▲	▲		
TCGW 16T304S-RE-3E									▲								
TCGW 16T308S-RE-3E									▲					▲	▲		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TN

TURNING
PCBN - Negative



Size	IC	S	D1
1103□□	6.35	3.18	-
1604□□	9.525	4.76	3.81

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL050C	NBL150C	NBL250C	NBL350U	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

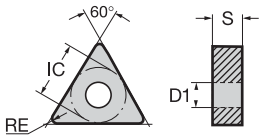
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

SHARP EDGE	CC K H	3	TNGA	160404-3E-CC	RE 0.4	a_p	0.06	**0.13**	0.20	●													
						f_n	0.06	**0.12**	0.18														
				160408-3E-CC	RE 0.8	a_p	0.06	**0.13**	0.20	●													
						f_n	0.06	**0.14**	0.22														
				160412-3E-CC	RE 1.2	a_p	0.06	**0.13**	0.20	●							●						
						f_n	0.06	**0.16**	0.26														
	CC H	6	TNGA	160404-6EV-CC	RE 0.4	a_p	0.06	**0.13**	0.20	●													
	vertical					f_n	0.06	**0.12**	0.18														
				160408-6EV-CC	RE 0.8	a_p	0.06	**0.13**	0.20	●													
						f_n	0.06	**0.14**	0.22														
	SE H	6	TNGA	160404S-SE-6EV	RE 0.4	a_p	0.06	**0.13**	0.20						▲	▲							
						f_n	0.06	**0.12**	0.18														
				160408S-SE-6EV	RE 0.8	a_p	0.06	**0.13**	0.20						▲	▲							
						f_n	0.06	**0.14**	0.22														
				160412S-SE-6EV	RE 1.2	a_p	0.06	**0.13**	0.20						▲	▲							
	new edge preparation, vertical					f_n	0.06	**0.16**	0.26														
UNIVERSAL EDGE	GP K H	3	TNGA	160404-3E-GP	RE 0.4	a_p	0.07	**0.16**	0.25	●		●					▽						
						f_n	0.08	**0.15**	0.22														
				160408-3E-GP	RE 0.8	a_p	0.07	**0.16**	0.25	●		●		●			●						
						f_n	0.08	**0.17**	0.26														
				160412-3E-GP	RE 1.2	a_p	0.07	**0.16**	0.25	●		●											
						f_n	0.08	**0.19**	0.30														
	GP K H	6	TNGA	160404-6EV-GP	RE 0.4	a_p	0.07	**0.16**	0.25	●	●	●					●	●					
						f_n	0.08	**0.15**	0.22														
				160408-6EV-GP	RE 0.8	a_p	0.07	**0.16**	0.25	●	●	●						●					
						f_n	0.08	**0.17**	0.26														
				160412-6EV-GP	RE 1.2	a_p	0.07	**0.16**	0.25	●	●	●						●					
	vertical					f_n	0.08	**0.19**	0.30														
	GP K H		TNGN	110308-GP	RE 0.8	a_p	0.50	**1.50**	2.50									▽					
						f_n	0.10	**0.20**	0.30														
	solid, no hole		TNGN	160408-GP	RE 0.8	a_p	0.50	**1.50**	2.50									▽					
						f_n	0.10	**0.20**	0.30														
	UE K H	6	TNGA	160404S-UE-6EV	RE 0.4	a_p	0.07	**0.16**	0.25						▲	▲	▲					▲	
						f_n	0.08	**0.15**	0.22														
				160408S-UE-6EV	RE 0.8	a_p	0.07	**0.16**	0.25						▲	▲	▲					▲	
						f_n	0.08	**0.17**	0.26														
				160412S-UE-6EV	RE 1.2	a_p	0.07	**0.16**	0.25						▲	▲	▲					▲	
	new edge preparation, vertical					f_n	0.08	**0.19**	0.30														

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TN

TURNING
PCBN - Negative



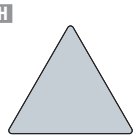
Size	IC	S	D1
1103□□	6.35	3.18	-
1604□□	9.525	4.76	3.81

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS9000	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

UNIVERSAL EDGE

UE K H



new edge preparation, solid, no hole

		RE	a_p ▸			f_n ▸		
TNGN	110308S-UE	RE 0.8	0.50	**1.50**	2.50	0.10	**0.20**	0.30
TNGN	160408S-UE	RE 0.8	0.50	**1.50**	2.50	0.10	**0.20**	0.30

REINFORCED EDGE

RE H

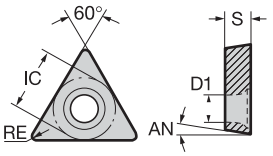
new edge preparation, vertical

		RE	a_p ▸			f_n ▸		
TNGA	160404S-RE-6EV	RE 0.4	0.10	**0.20**	0.30	0.10	**0.19**	0.28
	160408S-RE-6EV	RE 0.8	0.10	**0.20**	0.30	0.10	**0.20**	0.30
	160412S-RE-6EV	RE 1.2	0.10	**0.20**	0.30	0.10	**0.21**	0.32

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

TP

TURNING
PCBN - Positive



Size	IC	S	D1	AN
0802□□	4.76	2.38	2.30	11°
0902□□	5.56	2.38	3.00	11°
1103□□	6.35	3.18	3.30	11°

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

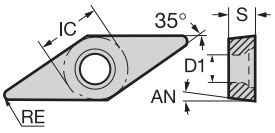
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

SHARP EDGE	CC K H	TPGW	090202-3E-CC	RE 0.2	a_p ▸	0.05	**0.10**	0.15			●										
					f_n ▸	0.05	**0.07**	0.10													
			090204-3E-CC	RE 0.4	a_p ▸	0.05	**0.10**	0.15	●												
					f_n ▸	0.05	**0.10**	0.15													
		TPGW	110304-3E-CC	RE 0.4	a_p ▸	0.05	**0.10**	0.15	●								●				
					f_n ▸	0.05	**0.10**	0.15													
			110308-3E-CC	RE 0.8	a_p ▸	0.05	**0.10**	0.15	●												
					f_n ▸	0.05	**0.12**	0.20													
	SE H	TPGW	110304S-SE-3E	RE 0.4	a_p ▸	0.05	**0.10**	0.15					▲								
					f_n ▸	0.05	**0.10**	0.15													
	new edge preparation		110308S-SE-3E	RE 0.8	a_p ▸	0.05	**0.10**	0.15					▲								
					f_n ▸	0.05	**0.12**	0.20													
UNIVERSAL EDGE	GP K H	TPGW	080202-3E-GP	RE 0.2	a_p ▸	0.06	**0.13**	0.20			●										
					f_n ▸	0.07	**0.11**	0.15													
			080204-3E-GP	RE 0.4	a_p ▸	0.06	**0.13**	0.20									●				
					f_n ▸	0.07	**0.13**	0.20													
		TPGW	090204-3E-GP	RE 0.4	a_p ▸	0.06	**0.13**	0.20			●						●				
					f_n ▸	0.07	**0.13**	0.20													
		TPGW	110302-3E-GP	RE 0.2	a_p ▸	0.06	**0.13**	0.20			●										
					f_n ▸	0.07	**0.11**	0.15													
			110304-3E-GP	RE 0.4	a_p ▸	0.06	**0.13**	0.20			●										
					f_n ▸	0.07	**0.13**	0.20													
			110308-3E-GP	RE 0.8	a_p ▸	0.06	**0.13**	0.20	●		●						●				
					f_n ▸	0.07	**0.16**	0.25													
	UE H	TPGW	110304S-UE-3E	RE 0.4	a_p ▸	0.06	**0.13**	0.20						▲							
					f_n ▸	0.07	**0.13**	0.20													
	new edge preparation		110308S-UE-3E	RE 0.8	a_p ▸	0.06	**0.13**	0.20						▲							
					f_n ▸	0.07	**0.16**	0.25													
REINFORCED EDGE	HI H	TPGW	110308-3E-HI	RE 0.8	a_p ▸	0.08	**0.16**	0.25									●				
					f_n ▸	0.08	**0.18**	0.28													

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VB

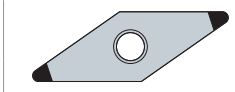
TURNING
PCBN - Positive



Size	IC	S	D1	AN
1103□□	6.35	3.18	2.80	5°
1604□□	9.525	4.76	4.40	5°

ISO513	BL					BL new grades				BH				BH new grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

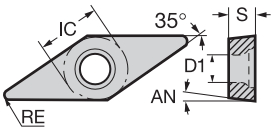
GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

SHARP EDGE	CC H		VBGW	110302-2E-CC	RE 0.2	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.07** 0.10	●															
			VBGW	160404-2E-CC	RE 0.4	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.10** 0.15	●															
				160408-2E-CC	RE 0.8	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.12** 0.20	●		●													
	CS H		VBGW	110304-2E-CS	RE 0.4	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.10** 0.15	●	●														
			VBGW	160402-2E-CS	RE 0.2	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.07** 0.10	●															
				160404-2E-CS	RE 0.4	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.10** 0.15	●	●														
				160408-2E-CS	RE 0.8	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.12** 0.20	●															
	SE H		VBGW	110302S-SE-2E	RE 0.2	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.07** 0.10							▲									
				110304S-SE-2E	RE 0.4	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.10** 0.15						▲	▲									
			VBGW	160402S-SE-2E	RE 0.2	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.07** 0.10							▲									
				160404S-SE-2E	RE 0.4	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.10** 0.15						▲	▲									
				160408S-SE-2E	RE 0.8	a_p ▸ 0.05 **0.10** 0.15 f_n ▸ 0.05 **0.12** 0.20							▲									
	new edge preparation																				
UNIVERSAL EDGE	GP K H		VBGW	110302-2E-GP	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15	○		●													
				110304-2E-GP	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20	○				●											
			VBGW	160402-2E-GP	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15	●		●													
				160404-2E-GP	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20	●		●		●					●						
				160408-2E-GP	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.16** 0.25	●		●		●					●						
	GS H		VBGW	110304-2E-GS	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20		●		●												
			VBGW	160404-2E-GS	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20				●												
				160408-2E-GS	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.16** 0.25		●		●												
	UE K H		VBGW	110302S-UE-2E	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15							▲									
				110304S-UE-2E	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20						▲	▲	▲								
			VBGW	160402S-UE-2E	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.11** 0.15							▲									
				160404S-UE-2E	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.13** 0.20						▲	▲	▲					▲			
				160408S-UE-2E	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.07 **0.16** 0.25						▲	▲	▲					▲			
	new edge preparation																				

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VB

TURNING
PCBN - Positive



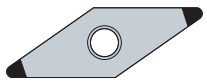
Size	IC	S	D1	AN
1103□□	6.35	3.18	2.80	5°
1604□□	9.525	4.76	4.40	5°

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / −	Toughness − / +
main application	General machining, light interruption		
applicable	Unstable machining, interrupted cut		

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	**NB200**	**NB250**	**NB300**	**NB350**	**NBL05OC**	**NBL15OC**	**NBL25OC**	**NBL35OU**	**NB450**	**NBS9000**	**NBS9050**	**NBS9090**	**NBH450C**	**NBH500C**	**NBH900U**	**NBH950U**
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

REINFORCED EDGE

HI H



VBGW	**160404-2E-HI**	RE 0.4	a_p ▸	0.08	**0.16**	0.25				●								
			f_n ▸	0.08	**0.15**	0.22												
	160408-2E-HI	RE 0.8	a_p ▸	0.08	**0.16**	0.25				●								
			f_n ▸	0.08	**0.18**	0.28												

RE H

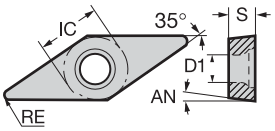
VBGW	**160404S-RE-2E**	RE 0.4	a_p ▸	0.08	**0.16**	0.25							▲					
			f_n ▸	0.08	**0.15**	0.22												
	160408S-RE-2E	RE 0.8	a_p ▸	0.08	**0.16**	0.25							▲					
			f_n ▸	0.08	**0.18**	0.28												

new edge preparation

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VC

TURNING
PCBN - Positive



Size	IC	S	D1	AN
1103□□	6.35	3.18	2.80	7°
1604□□	9.525	4.76	4.40	7°

ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL050C	BL new grades NBL150C	BL new grades NBL250C	BL new grades NBL350U	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH450C	BH new grades NBH500C	BH new grades NBH900U	BH new grades NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

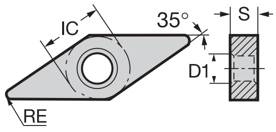
Hardness: + / −
Toughness: − / +

					a_p / f_n															
SHARP EDGE	CC H	VCGW	110304-2E-CC	RE 0.4	▸	0.05	**0.10**	0.15	●											
					▸	0.05	**0.10**	0.15												
		VCGW	160404-2E-CC	RE 0.4	▸	0.05	**0.10**	0.15			●									
					▸	0.05	**0.10**	0.15												
	SE H	VCGW	110304S-SE-2E	RE 0.4	▸	0.05	**0.10**	0.15							▲					
					▸	0.05	**0.10**	0.15												
		VCGW	160404S-SE-2E	RE 0.4	▸	0.05	**0.10**	0.15							▲					
					▸	0.05	**0.10**	0.15												
	new edge preparation		160408S-SE-2E	RE 0.8	▸	0.05	**0.10**	0.15							▲					
					▸	0.05	**0.12**	0.20												
UNIVERSAL EDGE	UE H	VCGW	110304S-UE-2E	RE 0.4	▸	0.06	**0.13**	0.20								▲				
					▸	0.07	**0.13**	0.20												
		VCGW	160404S-UE-2E	RE 0.4	▸	0.06	**0.13**	0.20								▲				
					▸	0.07	**0.13**	0.20												
	new edge preparation		160408S-UE-2E	RE 0.8	▸	0.06	**0.13**	0.20								▲				
					▸	0.07	**0.16**	0.25												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

VN

TURNING
PCBN - Negative

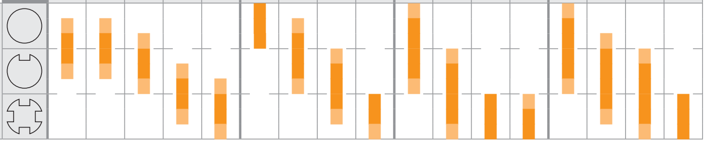


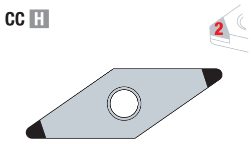
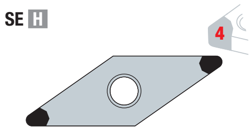
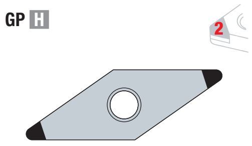
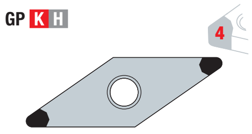
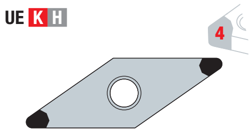
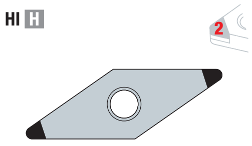
Size	IC	S	D1
1604□□	9.525	4.76	3.81

ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	NB200	NB250	NB300	NB350	NBL050C	NBL150C	NBL250C	NBL350U	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	Stable machining, continuous cut
■ main application	General machining, light interruption
■ applicable	Unstable machining, interrupted cut

Hardness + −
Toughness − +

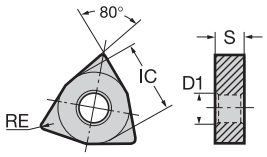


Edge	Geometry	ISO	Code	RE					NB150	NB200	NB250	NB300	NB350	NBL050C	NBL150C	NBL250C	NBL350U	NB450	NBS9000	NBS9050	NBS9090	NBH450C	NBH500C	NBH900U	NBH950U
SHARP EDGE	**CC** H  2	VNGA	160404-2E-CC	RE 0.4	a_p▸ f_n▸	0.06 0.06	**0.13** **0.12**	0.20 0.18	●		●														
			160408-2E-CC	RE 0.8	a_p▸ f_n▸	0.06 0.06	**0.13** **0.14**	0.20 0.22	●																
	SE H  4 **new** edge preparation, vertical	VNGA	160404S-SE-4EV	RE 0.4	a_p▸ f_n▸	0.06 0.06	**0.13** **0.12**	0.20 0.18							▲										
			160408S-SE-4EV	RE 0.8	a_p▸ f_n▸	0.06 0.06	**0.13** **0.14**	0.20 0.22							▲										
UNIVERSAL EDGE	**GP** H  2	VNGA	160404-2E-GP	RE 0.4	a_p▸ f_n▸	0.07 0.08	**0.16** **0.15**	0.25 0.22	●				●												
			160408-2E-GP	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26			●		●												
	GP K H  4 vertical	VNGA	160404-4EV-GP	RE 0.4	a_p▸ f_n▸	0.07 0.08	**0.16** **0.15**	0.25 0.22											●						
			160408-4EV-GP	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26											●						
	UE K H  4 **new** edge preparation, vertical	VNGA	160404S-UE-4EV	RE 0.4	a_p▸ f_n▸	0.07 0.08	**0.16** **0.15**	0.25 0.22								▲							▲		
			160408S-UE-4EV	RE 0.8	a_p▸ f_n▸	0.07 0.08	**0.16** **0.17**	0.25 0.26								▲							▲		
REINFORCED EDGE	**HI** H  2	VNGA	160404-2E-HI	RE 0.4	a_p▸ f_n▸	0.10 0.10	**0.20** **0.19**	0.30 0.28					▽												

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WN

TURNING
PCBN - Negative



Size	IC	S	D1
0804□□	12.70	4.76	5.16

GRADE APPLICATION AREA
- main application
- applicable

Stable machining, continuous cut
General machining, light interruption
Unstable machining, interrupted cut

Hardness + / − ; Toughness − / +

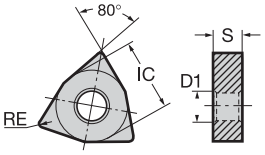
ISO513	BL NB150	BL NB200	BL NB250	BL NB300	BL NB350	BL new grades NBL050C	BL new grades NBL150C	BL new grades NBL250C	BL new grades NBL350U	BH NB450	BH NBS9000	BH NBS9050	BH NBS9090	BH new grades NBH450C	BH new grades NBH500C	BH new grades NBH900U	BH new grades NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

						a_p ▸ / f_n ▸			
SHARP EDGE	CC H	3	WNGA	080408-3E-CC	RE 0.8		0.06 0.06	**0.13** **0.14**	0.20 0.22
	SE H	6	WNGA	080404S-SE-6EV	RE 0.4		0.06 0.06	**0.13** **0.12**	0.20 0.18
	new edge preparation, vertical			080408S-SE-6EV	RE 0.8		0.06 0.06	**0.13** **0.14**	0.20 0.22
UNIVERSAL EDGE	GP K H	3	WNGA	080408-3E-GP	RE 0.8		0.07 0.08	**0.16** **0.17**	0.25 0.26
	GP K H	6	WNGA	080404-6EV-GP	RE 0.4		0.07 0.08	**0.16** **0.15**	0.25 0.22
	vertical			080408-6EV-GP	RE 0.8		0.07 0.08	**0.16** **0.17**	0.25 0.26
				080412-6EV-GP	RE 1.2		0.07 0.08	**0.16** **0.19**	0.25 0.30
	UE H	6	WNGA	080404S-UE-6EV	RE 0.4		0.07 0.08	**0.16** **0.15**	0.25 0.22
	new edge preparation, vertical			080408S-UE-6EV	RE 0.8		0.07 0.08	**0.16** **0.17**	0.25 0.26
				080412S-UE-6EV	RE 1.2		0.07 0.08	**0.16** **0.19**	0.25 0.30
REINFORCED EDGE	HI H	3	WNGA	080404-3E-HI	RE 0.4		0.10 0.10	**0.20** **0.19**	0.30 0.28
				080408-3E-HI	RE 0.8		0.10 0.10	**0.20** **0.20**	0.30 0.30
				080412-3E-HI	RE 1.2		0.10 0.10	**0.20** **0.21**	0.30 0.32
	HI K H	6	WNGA	080404-6EV-HI	RE 0.4		0.10 0.10	**0.20** **0.19**	0.30 0.28
	vertical			080408-6EV-HI	RE 0.8		0.10 0.10	**0.20** **0.20**	0.30 0.30
				080412-6EV-HI	RE 1.2		0.10 0.10	**0.20** **0.21**	0.30 0.32

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

WN

TURNING
PCBN - Negative



Size	IC	S	D1
0804□□	12.70	4.76	5.16

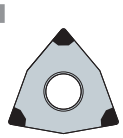
ISO513	BL					BL **new** grades				BH				BH **new** grades			
	NB150	NB200	NB250	NB300	NB350	NBL05OC	NBL15OC	NBL25OC	NBL35OU	NB450	NBS900O	NBS905O	NBS909O	NBH450C	NBH500C	NBH900U	NBH950U
Pm							100 250							50 150			
M																	
K										600 1000	500 1400	400 1200	400 1000	600 1000	600 1500	500 1400	400 1200
N																	
S																	
H	100 250	100 230	80 200	80 180	60 180	120 280	100 250	80 200	60 180	80 200	80 200	60 180	50 150	80 200	60 180	80 200	60 180

GRADE APPLICATION AREA	
main application	Stable machining, continuous cut
applicable	General machining, light interruption
	Unstable machining, interrupted cut

Hardness: + / −
Toughness: − / +

REINFORCED EDGE

RE K H



6

new edge preparation, vertical

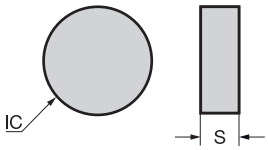
WNGA	080404S-RE-6EV	RE 0.4	a_p ▸	0.10	**0.20**	0.30
			f_n ▸	0.10	**0.19**	0.28
	080408S-RE-6EV	RE 0.8	a_p ▸	0.10	**0.20**	0.30
			f_n ▸	0.10	**0.20**	0.30
	080412S-RE-6EV	RE 1.2	a_p ▸	0.10	**0.20**	0.30
			f_n ▸	0.10	**0.21**	0.32

▲ (NBH900U)

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

RNGN

MILLING
Difficult to cut materials



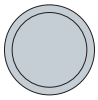
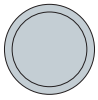
Size	IC	S
120400	12.70	4.76
120700	12.70	7.94

ISO513	CN NSA600	CN NSA650	CN new NSA6000	BH NBS9000	BH NBS9050	BH new NBH9000	BH new NBH9500
P							
M							
K							
N							
S	700 1000	600 800	800 1200				
H				100 300	80 250	100 300	80 250

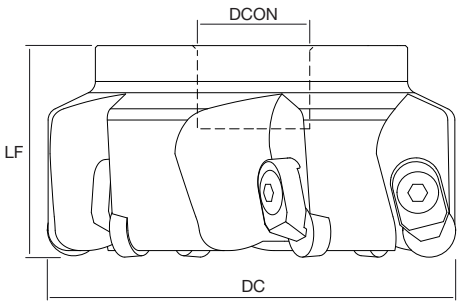
GRADE APPLICATION AREA	
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

Light cut, stable machining

Hardness: + / −
Toughness: − / +

					CN NSA600	CN NSA650	CN new NSA6000	BH NBS9000	BH NBS9050	BH new NBH9000	BH new NBH9500
CERAMIC	T01020 S 	RNGN	120400-CC	-	a_p ▸ 0.50 **1.50** 2.50 f_z ▸ 0.06 **0.15** 0.24			●				
			120700-CC	-	a_p ▸ 0.50 **1.50** 2.50 f_z ▸ 0.06 **0.15** 0.24			●				
	T02020 S 	RNGN	120700-GP	-	a_p ▸ 0.50 **1.50** 2.50 f_z ▸ 0.06 **0.15** 0.24	▽	▽					
PCBN SOLID	S02020 H 	RNGN	120400-GP	-	a_p ▸ 0.20 **0.50** 1.00 f_z ▸ 0.05 **0.10** 0.15				●	●	▲	▲

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



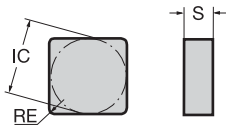
				MILLING Facing	DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-RN12	D050-F22-Z4	●		50	4	22	50	0.50	RNGN1204		
		D063-F22-Z4	●		63	4	22	50	0.70			
		D080-F27-Z5	●		80	5	27	50	1.20			
		D100-F32-Z6	●		100	6	32	50	1.60			
	NT-RN12X	D050-F22-Z4	●		50	4	22	50	0.50	RNGN1207		
		D063-F22-Z4	●		63	4	22	50	0.70			
		D080-F27-Z5	●		80	5	27	50	1.20			
		D100-F32-Z6	●		100	6	32	50	1.60			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	CLAMP	CLAMP SCREW	SPRING	WRENCH
				
NT-RN	NT-CS028	NT-ST028 torque 7.0 Nm	NT-SG028	NT-WR030

SN□□

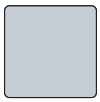
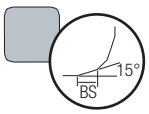
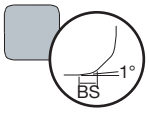
MILLING
Cast iron machining



Size	IC	S
12	12.70	4.76

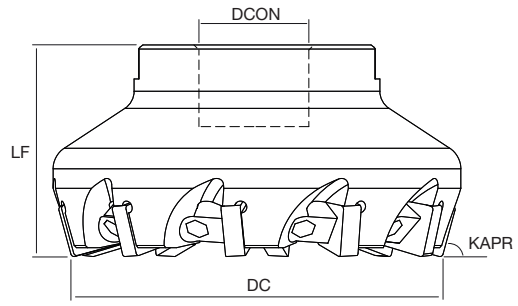
ISO513	CM	CN		BH	BH new		
	NAC200	NSN400	NSN450	NBS9000	NBH5500	NBH9000	
P							
M							
K	300 600	600 1200	500 1000	800 1500	800 1800	800 1500	
N							
S							
H							

GRADE APPLICATION AREA	Light cut, stable machining	Hardness + / −	Toughness − / +
■ main application	Variable condition, general machining		
■ applicable	Heavy cut, unstable machining		

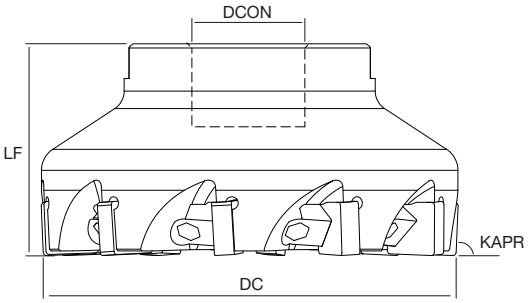
ROUGHING	GP K  general purpose	SNGN	120412-GP	RE 1.2	Roughing a_p▸ **>1.00** f_z▸ 0.15 **0.20** 0.25		●	●	●		▲		
		SNMN	120416-GP	RE 1.6	Roughing a_p▸ **>1.00** f_z▸ 0.15 **0.20** 0.25		●						
	GS K  low cutting force	SNGX	120412-GS	RE 1.2	Roughing a_p▸ **>1.00** f_z▸ 0.10 **0.15** 0.20		●						
ALL-AROUND	EN K  **only for 75°** milling cutter	SNXN	1204EN	BS 1.3	Finishing a_p▸ **<1.00** f_z▸ 0.05 **0.10** 0.15	▲				▲			
					Roughing a_p▸ **>1.00** f_z▸ 0.15 **0.20** 0.25		●			▲			
	HN K  **only for 88°** milling cutter	SNXN	1204HN	BS 1.8	Finishing a_p▸ **<1.00** f_z▸ 0.05 **0.10** 0.15	▲				▲			
					Roughing a_p▸ **>1.00** f_z▸ 0.15 **0.20** 0.25		●			▲			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

75°



88°



MILLING
Facing (KAPR 75° and 88°)

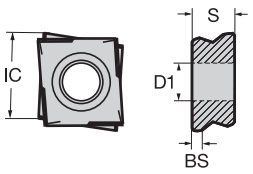
				DC	Z	DCON	LF	WT (Kg)	MIID		
75°	NT-SN12-75°	D050-F22-Z5	●	50	5	22	40	0.50	SNGN12 SNGX12 SNMN12 SNXN12		
		D063-F22-Z6	●	63	6	22	40	0.70			
		D080-F27-Z8	●	80	8	27	50	1.40			
		D100-F32-Z10	●	100	10	32	50	1.80			
		D125-F40-Z12	●	125	12	40	63	4.00			
88°	NT-SN12-88°	D063-F22-Z6	●	63	6	22	40	0.70			
		D080-F27-Z8	●	80	8	27	50	1.40			
		D100-F32-Z10	●	100	10	32	50	1.80			
		D125-F40-Z12	●	125	12	40	63	4.00			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

	WEDGE	WEDGE SCREW	WRENCH
			
NT-SN	NT-WD070	NT-SC060 torque 7.0 Nm	NT-WR030

SPHX

MILLING
Cast iron machining



Size	IC	S	D1
12	11.70	5.50	5.10

ISO513	CN NSN350	CN NSN400
P		
M		
K	600 1200	600 1200
N		
S		
H		

GRADE APPLICATION AREA	
main application	Variable condition, general machining
applicable	Heavy cut, unstable machining

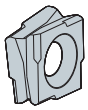
Light cut, stable machining

Hardness: + / −

Toughness: − / +

CERAMIC

GP K

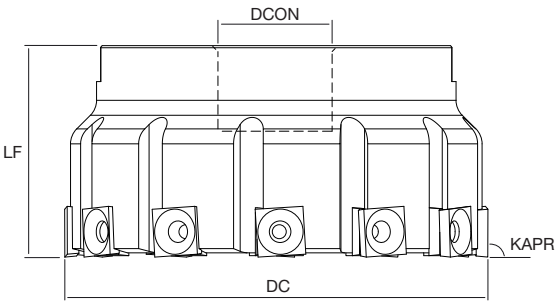


general purpose

			Finishing	Roughing
SPHX	1205PCTR-GP	BS 0.7	a_p ▸ **<1.00**	a_p ▸ **>1.00**
			f_z ▸ 0.08 **0.15** 0.22	f_z ▸ 0.10 **0.20** 0.30

NSN350	NSN400
●	●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



MILLING
Tangential (KAPR 90°)

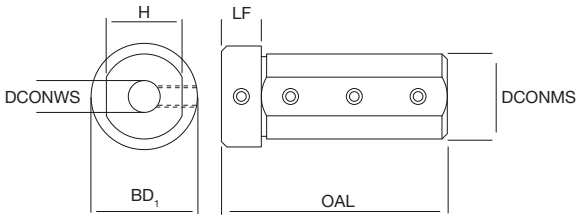
				DC	Z	DCON	LF	WT (Kg)	MIID		
ARBOR	NT-SP12-TAN	D050-F22-Z5	●	50	5	22	50	0.40	SPHX12		
		D063-F22-Z7	●	63	7	22	50	0.60			
		D080-F27-Z8	●	80	8	27	50	1.20			
		D100-F32-Z12	●	100	12	32	50	2.00			
		D125-F40-Z15	●	125	15	40	50	3.40			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

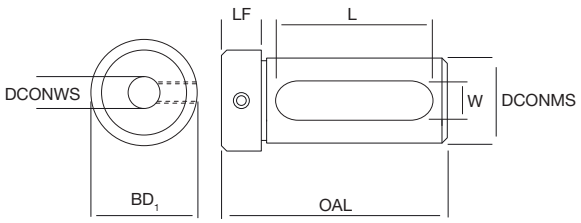
	SCREW	WRENCH
		
NT-SP	NT-ST027 torque 3.5 Nm	NT-FTB15

ACCESSORIES

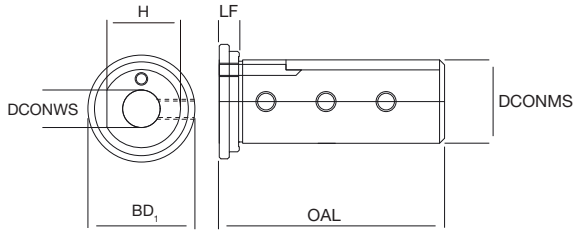
SCREWS



THROUGH HOLE



SCREWS + COOLANT



NT-SLB
Sleeves for boring bars

				DCONWS	DCONMS	OAL	LF	BD_1	H	L	W
SCREWS	NT-SLB S03	D16-L62	●	3	16	62	7	20	14.5		
	NT-SLB S04	D16-L62	●	4	16	62	7	20	14.5		
		D20-L67	▲	4	20	67	7	27	17.5		
		D32-L80	●	4	32	80	15	38	29.5		
	NT-SLB S05	D16-L62	▲	5	16	62	7	20	14.5		
		D20-L67	▲	5	20	67	7	27	17.5		
		D32-L80	●	5	32	80	15	38	29.5		
		D40-L100	▲	5	40	100	15	46	38.0		
	NT-SLB S06	D16-L62	●	6	16	62	7	20	14.5		
		D20-L52	●	6	20	52	7	25	17.5		
		D20-L67	●	6	20	67	7	27	17.5		
		D32-L85	●	6	32	85	15	38	29.5		
		D40-L100	●	6	40	100	15	46	38.0		
	NT-SLB S07	D20-L67	●	7	20	67	7	27	17.5		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

NT-SLB
Sleeves for boring bars

				DCONWS	DCONMS	OAL	LF	BD_1	H	L	W
SCREWS	NT-SLB S07	D32-L85	●	7	32	85	15	38	29.5		
		D40-L100	●	7	40	100	15	46	38.0		
	NT-SLB S08	D16-L62	●	8	16	62	7	20	14.5		
		D20-L52	●	8	20	52	7	25	17.5		
		D20-L67	●	8	20	67	7	27	17.5		
		D32-L85	●	8	32	85	15	38	29.5		
		D40-L100	●	8	40	100	15	46	38.0		
		D50-L100	●	8	50	100	15	58	48.0		
	NT-SLB S10	D20-L52	●	10	20	52	7	25	17.5		
		D20-L67	●	10	20	67	7	27	17.5		
		D32-L100	●	10	32	100	15	38	29.5		
		D40-L100	●	10	40	100	15	46	38.0		
		D50-L100	●	10	50	100	15	58	48.0		
	NT-SLB S12	D20-L52	●	12	20	52	7	25	17.5		
		D20-L67	●	12	20	67	7	27	17.5		
		D32-L100	●	12	32	100	15	38	29.5		
		D40-L100	▲	12	40	100	15	46	38.0		
		D50-L100	●	12	50	100	15	58	48.0		
	NT-SLB S14	D32-L100	●	14	32	100	15	38	29.5		
		D40-L100	●	14	40	100	15	46	38.0		
		D50-L100	▲	14	50	100	15	58	48.0		
	NT-SLB S15	D32-L100	●	15	32	100	15	38	29.5		
		D40-L100	●	15	40	100	15	46	38.0		
	NT-SLB S16	D32-L100	●	16	32	100	15	38	29.5		
		D40-L100	●	16	40	100	15	46	38.0		
		D50-L100	●	16	50	100	15	58	48.0		
	NT-SLB S18	D32-L100	●	18	32	100	15	38	29.5		
		D40-L100	●	18	40	100	15	46	38.0		
		D50-L100	▲	18	50	100	15	58	48.0		
	NT-SLB S20	D50-L100	●	20	50	100	15	58	48.0		
	NT-SLB S25	D50-L100	●	25	50	100	15	58	48.0		
THROUGH HOLE	NT-SLB S10	D16-L62	●	10	16	62	7	20		50	11
	NT-SLB S12	D16-L62	●	12	16	62	7	20		50	11
	NT-SLB S14	D20-L67	●	14	20	67	7	27		55	13
		D25-L64	●	14	25	64	6	35		51	12
	NT-SLB S15	D20-L67	●	15	20	67	7	27		55	13
		D25-L64	●	15	25	64	6	35		51	12

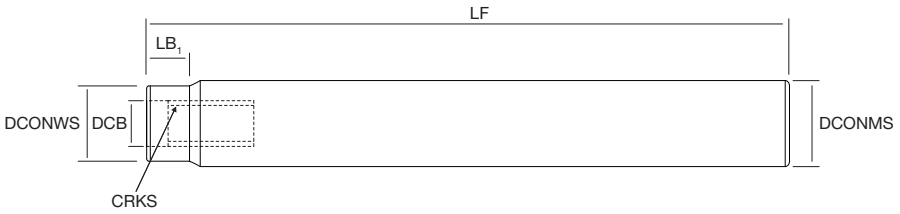
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

NT-SLB
Sleeves for boring bars

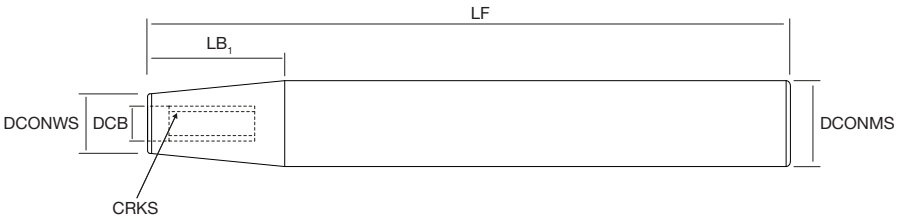
				DCONWS	DCONMS	OAL	LF	BD_1	H	L	W
THROUGH HOLE	NT-SLB S16	D20-L52	●	16	20	52	7	25		40	11
		D20-L67	●	16	20	67	7	27		55	13
		D25-L64	●	16	25	64	6	35		51	12
	NT-SLB S17	D25-L64	▲	17	25	64	6	35		51	12
	NT-SLB S18	D25-L64	●	18	25	64	6	35		51	12
	NT-SLB S20	D25-L64	●	20	25	64	6	35		51	12
		D32-L100	●	20	32	100	15	38		77	14
		D40-L100	●	20	40	100	15	46		77	14
	NT-SLB S22	D25-L64	●	22	25	64	6	35		51	12
		D32-L100	●	22	32	100	15	38		77	14
		D40-L100	●	22	40	100	15	46		77	14
	NT-SLB S25	D32-L100	●	25	32	100	15	38		77	14
		D40-L100	●	25	40	100	15	46		77	14
	NT-SLB S32	D40-L100	●	32	40	100	15	46		77	14
		D50-L100	●	32	50	100	15	58		77	14
	NT-SLB S40	D50-L100	●	40	50	100	15	58		77	14
SCREWS + COOLANT	NT-SLB S04	D25-L64	▲	4	25	64	6	35	23.5		
	NT-SLB S05	D25-L64	▲	5	25	64	6	35	23.5		
	NT-SLB S06	D25-L64	●	6	25	64	6	35	23.5		
	NT-SLB S07	D25-L64	●	7	25	64	6	35	23.5		
	NT-SLB S08	D25-L64	●	8	25	64	6	35	23.5		
	NT-SLB S09	D25-L64	▲	9	25	64	6	35	23.5		
	NT-SLB S10	D25-L64	●	10	25	64	6	35	23.5		
	NT-SLB S11	D25-L64	▲	11	25	64	6	35	23.5		
	NT-SLB S12	D25-L64	●	12	25	64	6	35	23.5		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

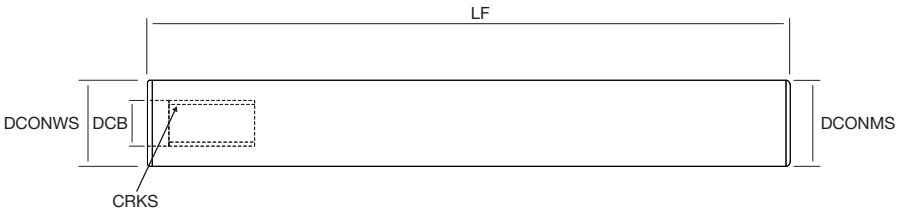
STEEL CYLINDRICAL



STEEL TAPERED



CARBIDE CYLINDRICAL



NT-ARB

Arbor for screw-in milling cutters

				DCONMS	CRKS	DCONWS	DCB	LF	LB1		
STEEL CYLINDRICAL	NT-ARB	D12-M06-120	●	12	M6	11	6.5	120	10		
		D16-M08-150	●	16	M8	14	8.5	150	10		
		D16-M08-200	●	16	M8	14	8.5	200	10		
		D20-M10-150	●	20	M10	18	10.5	150	12		
		D20-M10-250	●	20	M10	18	10.5	250	12		
		D25-M12-200	●	25	M12	23	12.5	200	15		
		D25-M12-300	●	25	M12	23	12.5	300	15		
		D32-M16-200	●	32	M16	29	17	200	18		
		D32-M16-350	●	32	M16	29	17	350	18		
STEEL TAPERED	NT-ARB	D16-M06-150T	●	16	M6	11	6.5	150	32		
		D16-M06-200T	●	16	M6	11	6.5	200	32		
		D20-M08-200T	●	20	M8	14	8.5	200	50		
		D20-M08-250T	●	20	M8	14	8.5	250	50		
		D25-M10-200T	●	25	M10	18	10.5	200	60		
		D25-M10-250T	●	25	M10	18	10.5	250	60		
		D32-M12-250T	●	32	M12	23	12.5	250	70		
		D32-M12-350T	●	32	M12	23	12.5	350	70		

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				NT-ARB Arbor for screw-in milling cutters	DCONMS	CRKS	DCONWS	DCB	LF	LB1		
CARBIDE CYLINDRICAL	NT-ARB-HM	D12-M06-100	●		12	M6		6.5	100			
		D12-M06-150	●		12	M6		6.5	150			
		D12-M06-200	●		12	M6		6.5	200			
		D16-M08-100	●		16	M8		8.5	100			
		D16-M08-150	●		16	M8		8.5	150			
		D16-M08-200	●		16	M8		8.5	200			
		D20-M10-100	●		20	M10		10.5	100			
		D20-M10-150	●		20	M10		10.5	150			
		D20-M10-200	●		20	M10		10.5	200			
		D20-M10-300	●		20	M10		10.5	300			
		D25-M12-100	●		25	M12		12.5	100			
		D25-M12-150	●		25	M12		12.5	150			
		D25-M12-200	●		25	M12		12.5	200			
		D25-M12-300	●		25	M12		12.5	300			

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