

CERABIT

CUTTING TOOLS

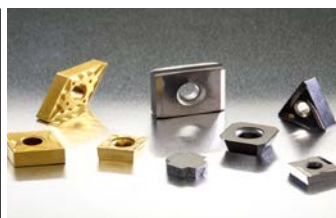
- CERAMIC
- CERMET
- PCBN/PCD
- TOOL HOLDER
- MILLING CUTTER



SPEEDY SOLUTION!!



A22



A82



A106

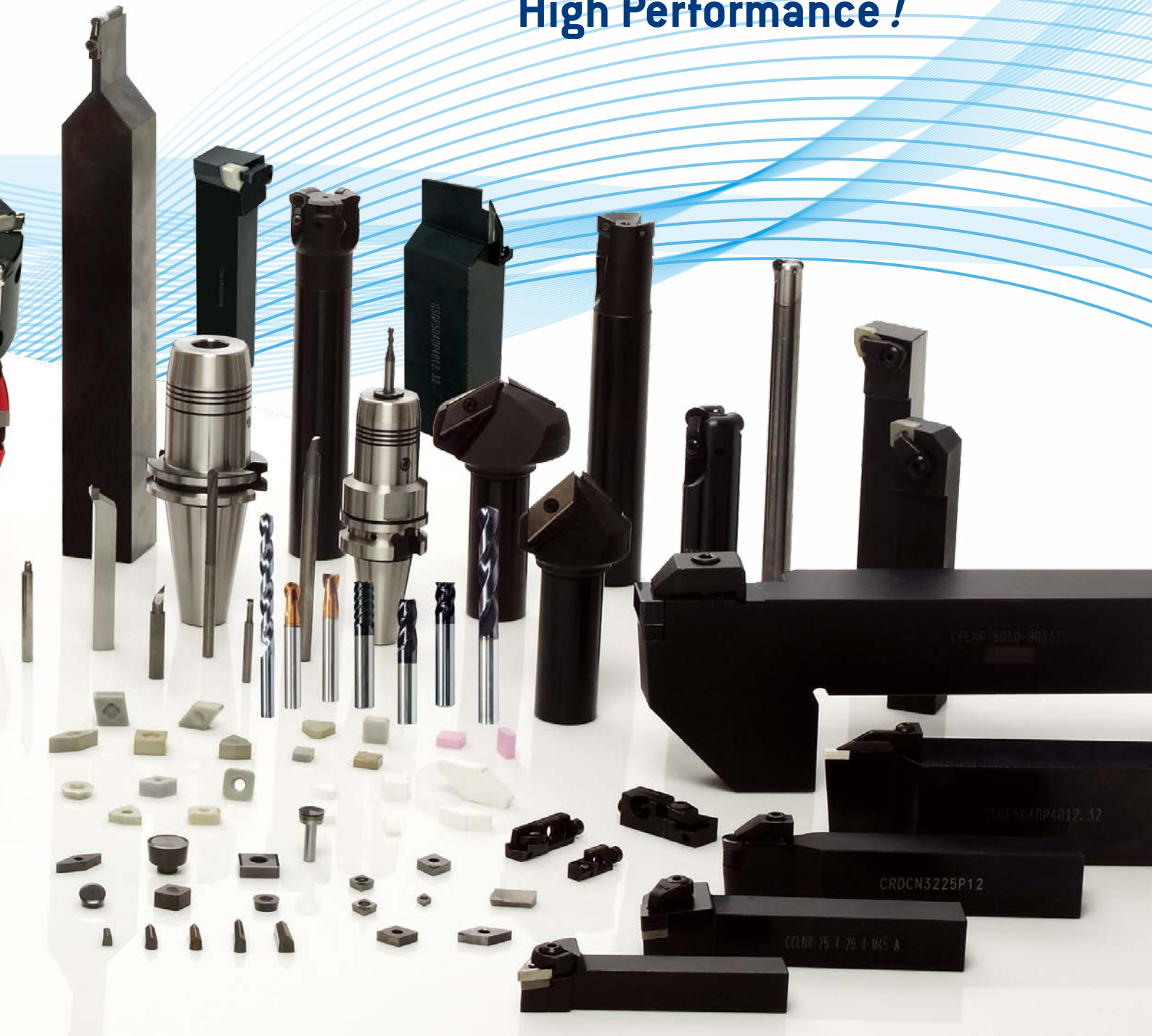


A130

High Speed !

High Quality !

High Performance !



A178



B1



C1



D1

INTRODUCTION

Union Materials Corporation has accumulated technologies and experiences over 40 years through developing and manufacturing various high-tech materials. Including hard ferrite magnets which are awarded Best Supplier from Robert Bosch GmbH for seven times consecutively in last 18 years, Union Materials Corporation manufactures various ceramic-based parts, cutting tools and industrial ceramics for automotive, electrical & electronic engineering and machinery industry.

Union cutting tool products are advanced materials developed with high technologies through long-term experiences, continuous studies and applications to commercialization of new materials. We have attained many great achievements in the field of various cutting tools for automotive, steel mill, aerospace and machinery field.

As of March 14 2017, Union Corporation has been the largest shareholder of Union Materials Corporation. We started new era with new company name, Union Materials Corporation since September 28, 2017 in accordance with the change of major shareholder which was originally Ssangyong Cement to Union Corporation.

Union Materials Corporation firmly promises to engage in its current business activities and will endeavor to support our customers for satisfaction.



Seoul HQ Office



Daegu plant

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UNION MATERIALS

CUTTING TOOLS

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TURNING &

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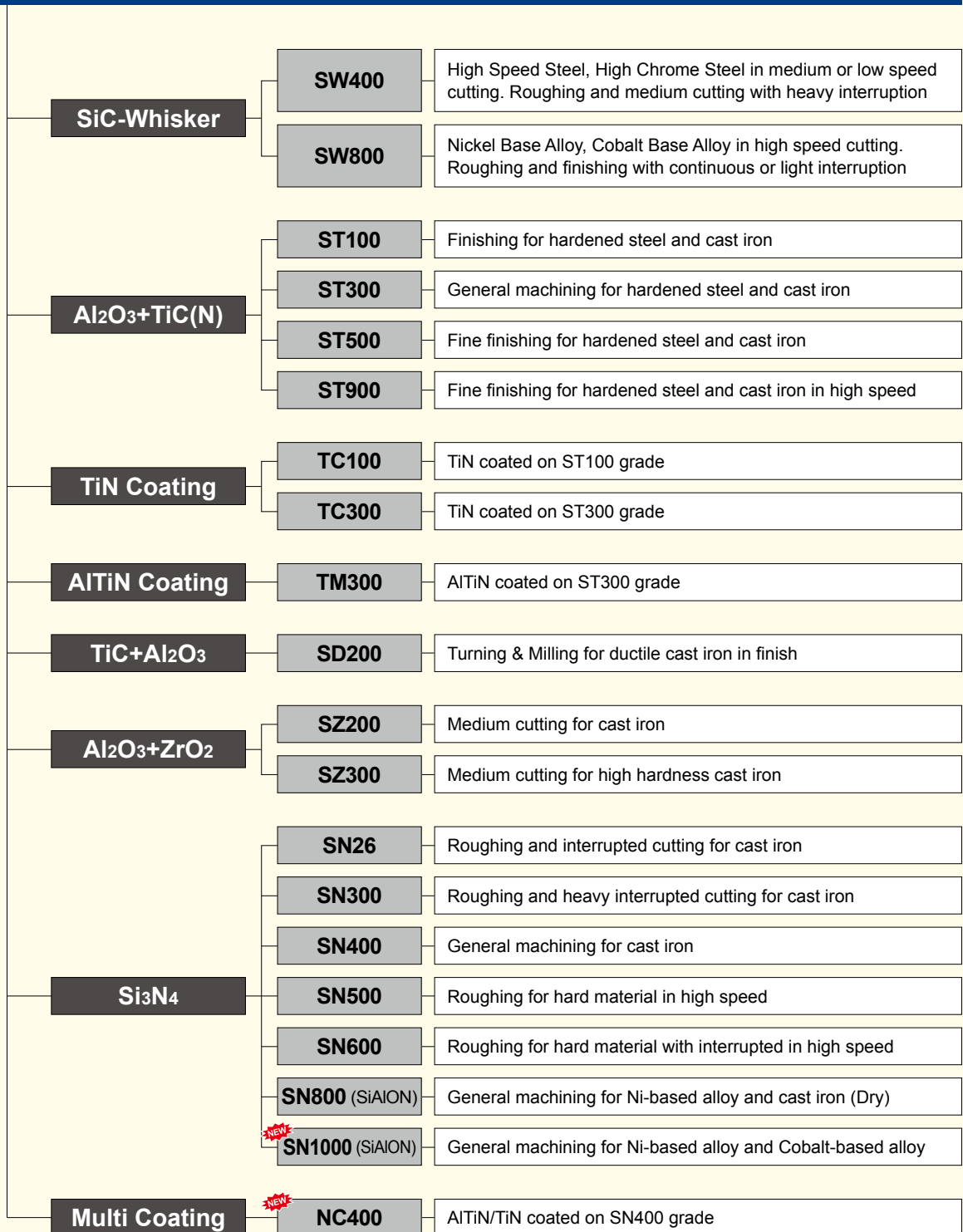
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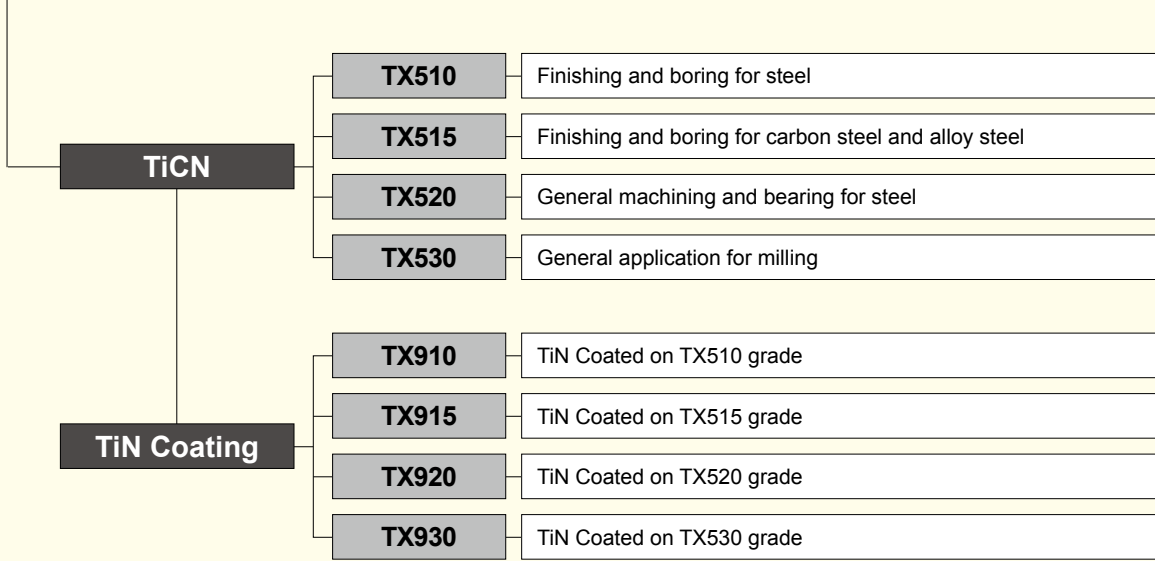
MILLING

GRADE INFORMATION

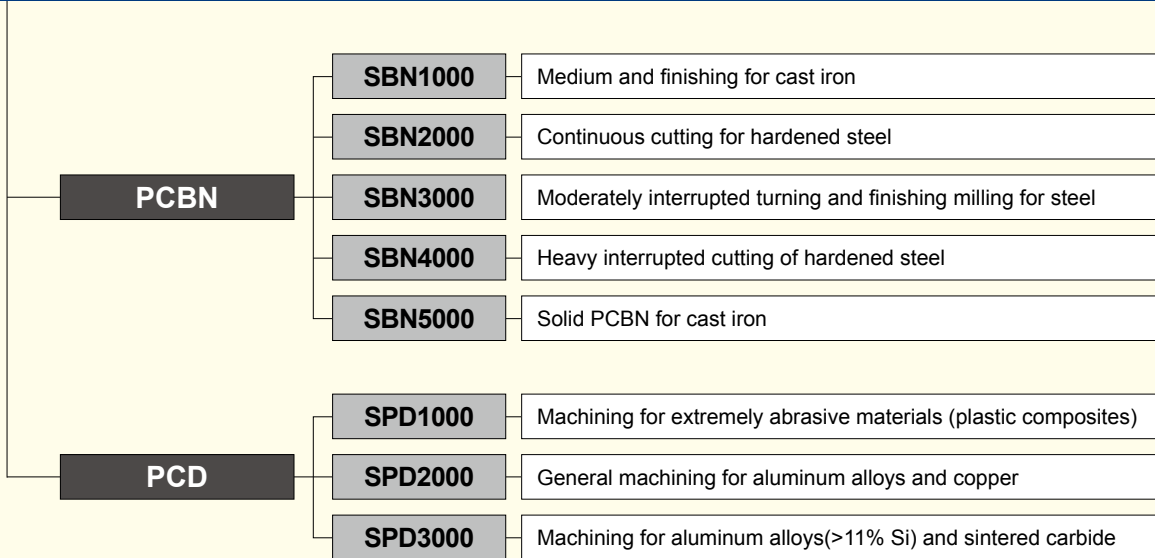
CERAMIC



CERMET

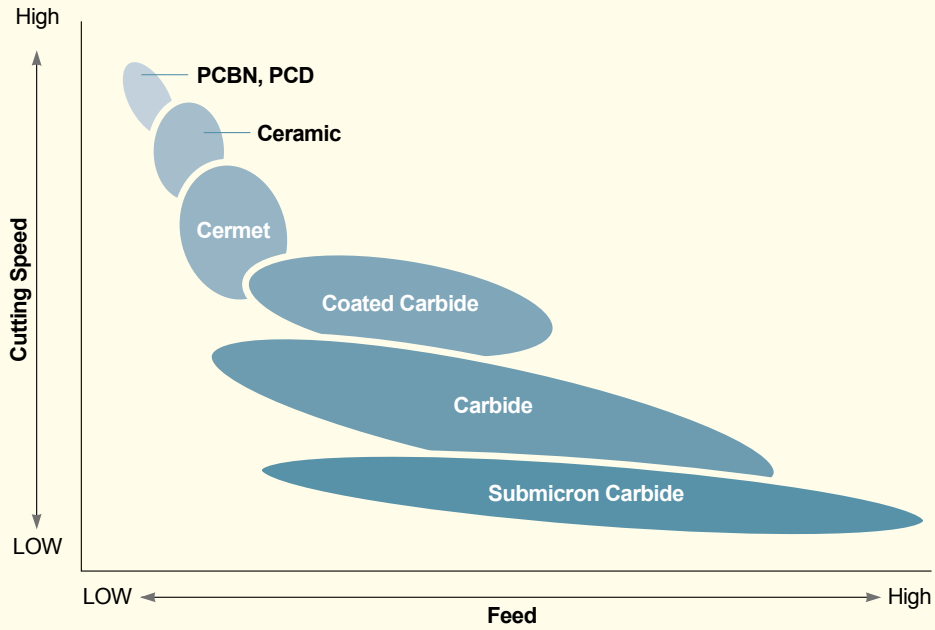


PCBN/PCD

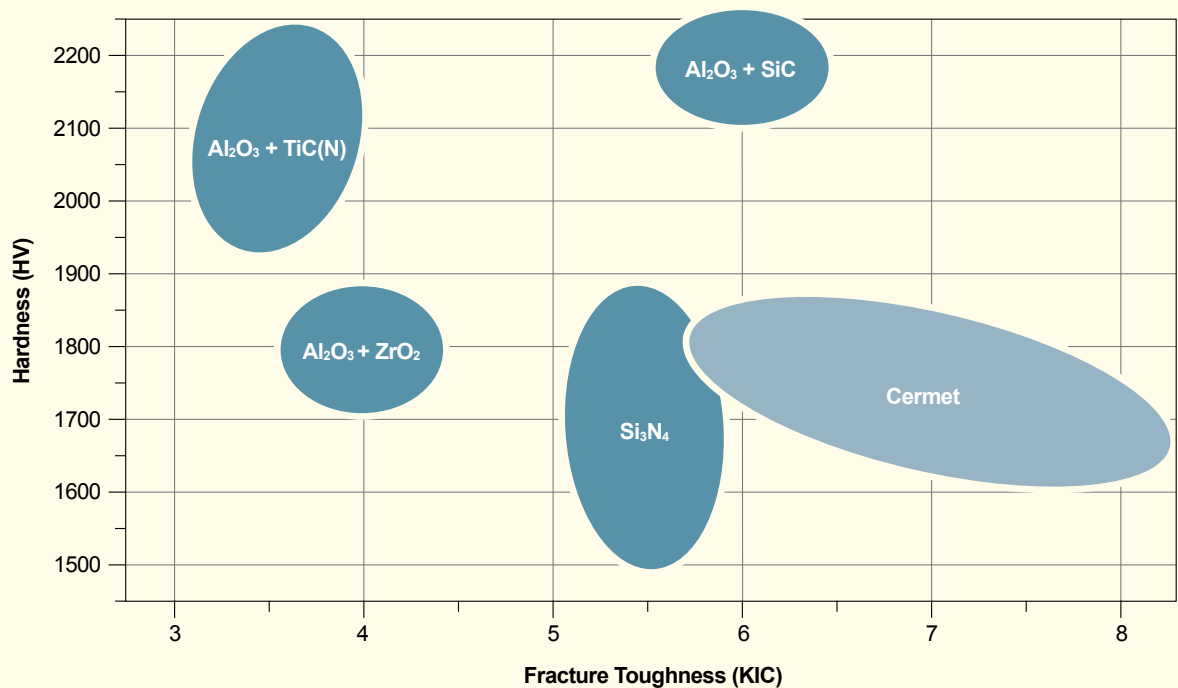


GRADE INFORMATION

Application Range



Mechanical Properties



CERAMIC



Union Ceramics take pride in its outstanding wear resistance and thermal shock resistance with high speed cutting. Pure raw materials give stability and fine microstructure to the products. Through HIP process, shaped bodies are completely condensed so that the finished goods are strong and resistant against fracture and wear.

- Improved work efficiency by increasing cutting speed on extremely higher than carbide inserts.
- Longer tool life through excellent wear resistance
- Precise cutting and superior surface roughness

	Whisker	SW400	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	High Speed Steel, High Chrome Steel in medium or low speed cutting Roughing and medium cutting with heavy interruption	Tougher 	
		SW800	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	Nickel Base Alloy, Cobalt Base Alloy in high speed cutting Roughing and finishing with continuous or light interruption	Harder	
	Al ₂ O ₃ Series	ST100	Tougher alternative to ST300 High thermal shock resistance Al ₂ O ₃ +TiC	Universal grade for machining cast iron and hardened steel	Tougher 	
		ST300	Excellent wear resistance Al ₂ O ₃ +TiCN	A basic choice for machining hardened steel and alloy steel		
		ST500	Alternative to PCBN fine microstructure Al ₂ O ₃ +TiCN	Fine finishing for hardened steel and cast iron		
		ST900	Excellent wear and thermal shock resistance Al ₂ O ₃ +TiCN	Fine finishing for hardened steel and cast iron in high speed		
		TC100	Wear resistance improved TiN coated	Finishing for hardened steel and cast iron		
		TC300	Excellent wear resistance TiN coated	Finishing for hardened steel and cast iron		
		TM300	Excellent wear resistance & thermal shock resistance	Finishing for hardened steel and cast iron		Harder
		SD200	High thermal shock resistance Usable with coolant TiC+Al ₂ O ₃	Machining ductile cast iron Finishing for ductile cast iron and hard materials		Finishing for ductile cast iron
	ZrO ₂ Series	SZ200	Toughened by zirconia High chemical stability Al ₂ O ₃ +ZrO ₂	Finishing, semi-finishing of cast iron and steel	Tougher 	
		SZ300	Harder alternative to SZ200 Al ₂ O ₃ +ZrO ₂	Finishing, semi-finishing of cast iron and steel	Harder	
	Si ₃ N ₄ Series	SN26	Good toughness and thermal shock resistance Well balanced wear resistance and toughness Si ₃ N ₄	First choice for roughing with interrupted cuts Roll turning and milling of cast iron and steel	Roughing in lower speed	
		SN300	Tougher alternative to SN400 Thermal shock resistance and good toughness Si ₃ N ₄	Roughing and high speed cutting with interruption	Tougher 	
		SN400	Excellent wear resistance in high speed cutting Si ₃ N ₄	First choice for roughing of cast iron High speed machining with interrupted cuts		
		SN500	Harder alternative to SN400 Improved wear resistance at high cutting speed Si ₃ N ₄	High speed roughing for cast iron		
		SN600	Excellent wear resistance in interrupted cutting Si ₃ N ₄	Roughing for hard material with interruption and high speed	Harder	
		SN800	Advanced grade with SiAlON contained superior edge strength SiAlON	Great performance against notch wear High speed roughing of high temperature alloy and inconel	Harder 	
		SN900	Excellent thermal shock resistance and thermal conductivity SiAlON	Tough machining in Heat Resistance Super Alloy (HRSA)	Tougher	
			SN1000	Excellent thermal shock resistance and thermal conductivity SiAlON	Ni-based Alloy, Cobalt-based Alloy in medium or low speed cutting Roughing and Medium cutting with heavy interruption	
	NC400	Excellent wear resistance & thermal shock resistance	Cast Iron in roughing and semi-finishing cutting			

GRADE INFORMATION

Physical Properties

Grade	Composition	Color	Density (g/cm ³)	Hardness (HV)	Toughness (MPa·m ^{1/2})	Thermal Conductivity (cal/cm. sec. °C)
SW400	Al ₂ O ₃ +SiC	Green	3.8	2,100	7.0	-
SW800	Al ₂ O ₃ +SiC	Green	3.7	2,100	7.0	-
ST100	Al ₂ O ₃ +TiC	Black	4.20	2,100	4.00	0.08
ST300	Al ₂ O ₃ +TiCN	Black	4.40	2,150	4.50	0.08
ST500	Al ₂ O ₃ +TiCN	Black	4.30	2,200	4.50	0.08
ST900	Al ₂ O ₃ +TiCN	Black	4.30	2,250	4.70	0.08
TC100	ST100+TiN PVD	Gold	4.20	2,150	4.00	-
TC300	ST300+TiN PVD	Gold	4.40	2,200	4.50	-
TM300	ST300+AlTiN PVD	Black	4.40	2,250	4.50	
SD200	TiC+Al ₂ O ₃	Black	4.60	2,200	4.50	0.07
SZ200	Al ₂ O ₃ +ZrO ₂	White	4.00	1,800	4.50	0.07
SZ300	Al ₂ O ₃ +ZrO ₂	Pink	4.10	1,850	4.50	0.07
SN26	Si ₃ N ₄	Black	3.30	1,600	5.00	0.06
SN300	Si ₃ N ₄	Gray	3.20	1,600	6.00	0.05
SN400	Si ₃ N ₄	Gray	3.20	1,650	6.00	0.05
SN500	Si ₃ N ₄	Gray	3.20	1,700	6.00	0.05
SN600	Si ₃ N ₄	Black	3.20	1,700	6.50	0.07
SN800	Si ₃ N ₄	Black	3.20	1,900	6.00	0.04
SN1000 	Si ₃ N ₄ +Al ₂ O ₃	Black	3.3	1,800	7.00	
NC400 	SN400+PVD (AlTiN/TiN)	Gold	3.2	1,650	6.00	

Choice of Ceramic Grade for Workpiece

	ST100/ST300 ST500/ST900 TC100/TC300 TM300	SD200	SZ200 SZ300	SN26 SN300/SN400 SN500/SN600 NC400	SN800 SN1000	SW400	SW800
Cast Iron	Gray Cast Iron	⊙	○	⊙	○		
	Chilled Cast Iron	⊙		⊙	⊙		
	Ductile Cast Iron	○	⊙		○		○
Steel	Mild Steel		○				
	Carbon Steel		○				
	Alloy Steel	⊙		○		⊙	○
	Forged Steel	⊙					
	Heat Treated Steel	⊙					
	High Speed Steel	⊙					⊙
	High Manganese Steel	○			○	○	⊙
	Stainless Steel						
	Heat Resistant Steel	○			○	○	○
	Super Alloy Steel	○			○	⊙	⊙
Inconel					⊙	○	

⊙ : Excellent ○ : Good

Choice of Ceramic Grade for Workpiece

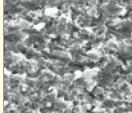
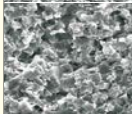

Application	Grade	Workpiece	Machining Type	Speed (V) (m/min)	Feed (f) (mm/rev)	Depth (DOC) (mm)		
Turning	ST100 ST300 ST500 ST900 TC100 TC300 TM300	Gray Cast Iron	Gray Cast Iron (FC)	Rough	150 ~ 800	0.2 ~ 0.5	3 ~ 6	
			Malleable (FCMB)	Finish	200 ~ 1,200	0.3 ~ 0.5	0.1 ~ 0.5	
			Chilled Cast Iron	Rough	30 ~ 100	0.1 ~ 0.2	0.5 ~ 1.5	
				Finish	50 ~ 200	0.05 ~ 0.15	0.1 ~ 0.5	
		Steel	Carbon Steel Alloy Steel Bearing Steel	Rough	150 ~ 400	0.2 ~ 0.5	2 ~ 5	
				Finish	200 ~ 800	0.05 ~ 0.2	0.1 ~ 0.5	
	Hard Steel (HRC 45≥)		Rough	20 ~ 100	0.1 ~ 0.2	0.5 ~ 1.5		
			Finish	40 ~ 200	0.05 ~ 0.5	0.1 ~ 0.5		
	SD200	Ductile Cast Iron Nodular Cast Iron	Rough	100 ~ 400	0.1 ~ 0.2	1 ~ 2		
			Finish	200 ~ 800	0.05 ~ 0.25	0.1 ~ 0.5		
	SZ200 SZ300	Gray Cast Iron (FC) Steel (HRC 45≤)	Rough	200 ~ 700	0.2 ~ 0.4	2 ~ 5		
			Finish	300 ~ 1,200	0.05 ~ 0.3	0.1 ~ 0.5		
	NEW	SN26 SN300 SN400 SN500 SN600 NC400	Gray Cast Iron	Gray Cast Iron (FC)	Rough	150 ~ 1,100	0.3 ~ 0.8	< 5
				Malleable (FCMB)	Finish	250 ~ 1,200	0.15 ~ 0.4	< 1
Chilled Cast Iron			Rough	20 ~ 100	1.0 ~ 2.0	< 5		
			Finish	60 ~ 200	0.5 ~ 1.0	< 1		
SN800 SN1000			Ni-Based Alloy Non-Ferrous Metal Inconel	Rough	150 ~ 250	0.2 ~ 0.4	< 5	
				Finish	150 ~ 450	0.1 ~ 0.2	< 1	
SW400 SW800	High temperature alloys Inconel Stellite	Rough	180 ~ 360	0.1 ~ 0.25	1 ~ 3			
		Finish	180 ~ 450	0.1 ~ 0.30	0.5 ~ 2.0			
Milling	SN26 SN300 SN400	Gray Cast Iron (FC)	Rough	100 ~ 1,200	0.3 ~ 0.5	< 5		
			Finish	150 ~ 1,500	0.3 ~ 0.7	< 3		
	NEW	SN500 SN600 NC400	Ductile Cast Iron Alloy Steel	Rough	90 ~ 500	0.1 ~ 0.3	< 5	
				Finish	100 ~ 700	0.1 ~ 0.4	< 3	
	NEW	SN800 SN1000	High temperature alloys Inconel Stellite	Finish	700 ~ 1,000	0.05 ~ 0.15 / tooth	0.5 ~ 2.5	
	SW400 SW800	High temperature alloys Inconel	Rough	150 ~ 400	0.05 ~ 0.1 / tooth	1 ~ 3		

GRADE INFORMATION

CERMET

A matrix of TiCN with carbide as a metal binder, Union Cermets are tougher than ceramics and harder than tungsten carbides. It shows greater wear resistance than carbide and its cutting speed is also much higher than carbide. Cermet inserts give excellent surface finish and high-speed machining.

- Four different grades for different workpiece and cutting condition.
- Ideal for high-speed finishing and milling of mild steel, carbon steel and alloy steel.
- Excellent performance in turning, grooving, boring, bearing and milling.

	TX510	Excellent wear resistance Outstanding surface finish TiCN	Fine-finishing and boring for steel	Harder ↑ ↓ Tougher	
	TX910	TiN coating			
	TX515	Wear resistance and high mechanical strength TiCN	Finishing and boring for carbon steel and alloy steel		
	TX915	TiN coating			
	TX520	Excellent thermal conductivity and wear resistance TiCN	The first choice for machining steel Turning, grooving, boring and bearing for steel		
	TX920	TiN coating			
	TX530	The toughest cermet grade TiCN			Wide range of milling for steel materials
	TX930	TiN coating			

Physical Properties

Grade	Composition	Color	Density (g/cm ³)	Hardness (HRA)	Toughness (MPa·m ^{1/2})	Thermal Conductivity (cal/cm. sec. °C)
TX510	TiCN	Silver	6.50	93.50	7.00	0.08
TX515	TiCN	Silver	6.48	93.00	7.50	0.08
TX520	TiCN	Silver	6.53	92.50	8.00	0.09
TX530	TiCN	Silver	6.35	91.00	8.40	0.09
TX910	TX510+TiN PVD	Gold	6.50	98.50	7.00	-
TX915	TX515+TiN PVD	Gold	6.48	98.00	7.50	-
TX920	TX520+TiN PVD	Gold	6.53	97.50	8.00	-
TX930	TX530+TiN PVD	Gold	6.35	96.00	8.40	-

Choice of Ceramic Grade for Workpiece

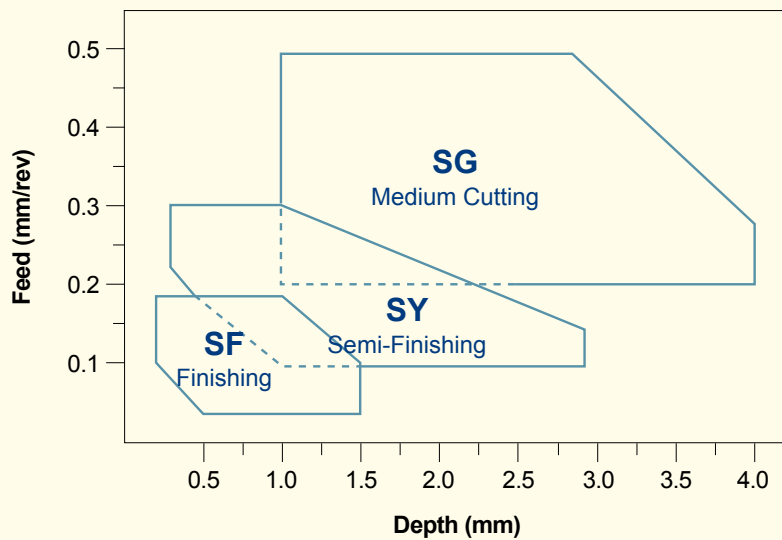
	TX510/TX910	TX515/TX915	TX520/TX920	TX530/TX930
MILD STEEL	◎	◎	◎	○
CARBON STEEL	◎	◎	◎	◎
ALLOY STEEL	○	○	○	○
FORGED STEEL	◎			
HEAT TREATED STEEL	◎			
HEAT RESISTANT STEEL		◎	◎	◎




◎ : Excellent ○ : Good

Choice of Ceramic Grade for Workpiece

Application	Grade	Workpiece	Machining Type	Speed (V) (m/min)	Feed (f) (mm/rev)	Depth (DOC) (mm)
Turning	TX510/TX910	Mild Steel, Carbon Steel, Alloy Steel	Finishing	100 ~ 600	0.03 ~ 0.3	0.1 ~ 1.5
	TX515/TX915	Mild Steel, Carbon Steel, Alloy Steel	Finishing Medium	100 ~ 500	0.03 ~ 0.3	0.1 ~ 2.0
	TX520/TX920	Bearing Steel, General Steel	Finishing Medium	100 ~ 400	0.03 ~ 0.3	0.1 ~ 2.0
Milling	TX530/TX930	Mild Steel, Carbon Steel, Alloy Steel	Medium	100 ~ 400	0.1 ~ 0.3	< 5
			Roughing	100 ~ 500	0.1 ~ 0.5	< 3

Choice of Chipbreaker



Chipbreaker Type	Shape	Machining Type	Characteristics
SF		Finishing	Sharp and narrow C/B Optimum for D=0.10~1.50, f=0.05~0.20 Specialized for shaft machining
SY		Semi-finishing	General performing C/B Optimum for D=0.30~2.50, f=0.10~0.30 Low carbon steel, pipe (STKM) machining
SG		Medium cutting	Wider C/B design Optimum for D=1.00~5.00, f=0.20~0.50 Low carbon steel

Recommended Cutting Conditions


Application	Grade	Workpiece	Speed (V) (m/min)	Feed (f) (mm/rev)	Depth (DOC) (mm)	
Turning	PCBN	SBN1000	Cast iron	400 ~ 1,000	0.15 ~ 0.45	0.10 ~ 2.00
			High hardened cast iron	75 ~ 150	0.15 ~ 0.30	0.10 ~ 1.80
			Nodular cast iron roll	45 ~ 60	0.60 ~ 0.80	2.00 ~ 3.50
			Carbide roll	10 ~ 15	0.15 ~ 0.25	0.50 ~ 2.50
		SBN2000	High hardened steel (roughing)	60 ~ 140	0.15 ~ 0.40	0.70 ~ 2.30
	High hardened steel (finishing, >H _R C 45)		100 ~ 140	0.10 ~ 0.20	0.10 ~ 0.75	
	Hardened alloy steel (>H _R C 35)		100 ~ 240	0.05 ~ 0.30	0.10 ~ 2.50	
	SBN3000	Hardened steel	80 ~ 160	0.02 ~ 0.20	<0.5	
		Heat resistance sintered steel	50 ~ 100	0.05 ~ 0.20	<0.5	
	SBN4000	Hardened steel	120 ~ 250	0.025 ~ 0.50	0.05 ~ 0.30	
		Powder metal & Sintered irons	200 ~ 400	0.025 ~ 0.20	0.05 ~ 0.20	
		superalloys	200 ~ 400	0.10 ~ 0.30	0.20 ~ 2.00	
	SBN5000	Cast iron	500 ~ 2,000	0.10 ~ 0.50	<0.5	
		Ductile cast iron	200 ~ 600	0.10 ~ 0.40	<0.5	
Hard cast iron (H _R C 59)		50 ~ 150	0.10 ~ 1.00	<0.5		
PCD	SPD1000	Plastic alloy	300 ~ 1,000	0.05 ~ 0.25	0.05 ~ 3.00	
		Wood	1,000 ~ 2,500	0.10 ~ 0.50	0.20 ~ 4.50	
	SPD2000	Aluminum / Zinc / Copper	600 ~ 1,000	0.05 ~ 0.25	0.05 ~ 0.30	
	SPD2000	Aluminum alloy (Si 4~8%)	800 ~ 2,500	0.10 ~ 0.30	0.05 ~ 3.00	
			500 ~ 1,290	0.10 ~ 0.30	0.05 ~ 3.00	
	SPD3000	Aluminum alloy (Si 9~14%)	300 ~ 600	0.10 ~ 0.30	0.05 ~ 3.00	
300 ~ 600			0.10 ~ 0.30	0.05 ~ 3.00		
SPD3000	Powdered Carbide Piece	50 ~ 250	0.10 ~ 0.40	0.10 ~ 4.00		
		Sintered Carbide	20 ~ 40	0.05 ~ 0.20	0.02 ~ 0.45	
Milling	PCBN	SBN1000	Cast iron (H _B 180~230)	400 ~ 1,000	0.12 ~ 0.30	0.20 ~ 2.00
			Hardened cast iron (>H _B 400)	120 ~ 240	0.12 ~ 0.30	0.20 ~ 2.00
		SBN2000	Hardened steel (>H _R C 45)	120 ~ 240	0.10 ~ 0.25	0.12 ~ 1.00
			Hardened alloy steel (>H _R C 35)	120 ~ 240	0.10 ~ 0.35	0.10 ~ 1.00
	SBN3000	Hardened steel (>H _R C 45)	100 ~ 200	0.10 ~ 0.15	<0.5	
	SBN4000	Hardened steel	150 ~ 250	0.025 ~ 0.30	0.05 ~ 0.20	
	PCD	SPD3000	Aluminum alloy (<Si 14%)	300 ~ 3,000	0.10 ~ 0.25	0.12 ~ 1.00
(>Si 15%)			100 ~ 240	0.10 ~ 0.35	0.10 ~ 1.00	

Physical Properties

Grade	Contents of pCBN (%)	Particle size (μm)	Hardness (HV)
SBN1000	95	3	3,900
SBN2000	50	1	2,700
SBN3000	60	2	2,700
SBN4000	65	5	2,900
SBN5000	93	10	3,900

Grade	Particle size (μm)	Hardness (HV)
SPD1000	4 ~ 5	6,000 ~ 8,000
SPD2000	8 ~ 9	7,000 ~ 9,000
SPD3000	15 ~ 22	8,000 ~ 10,000

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SPECIAL

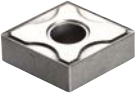


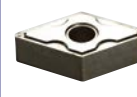




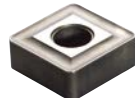


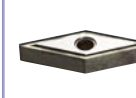




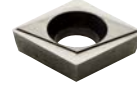



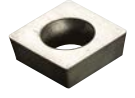
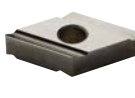


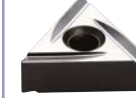


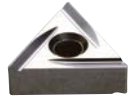

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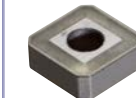




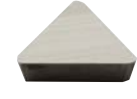



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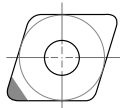
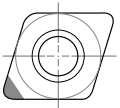
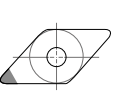
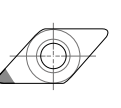
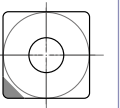
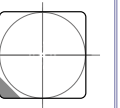
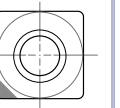
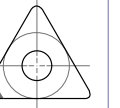
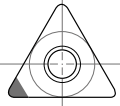
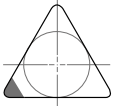
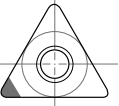
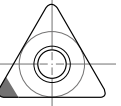
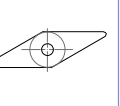
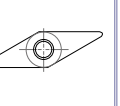
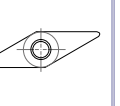
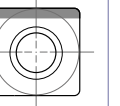
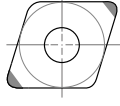
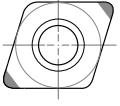
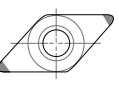
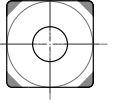
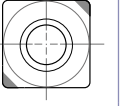
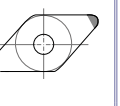
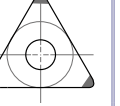
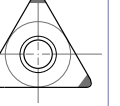
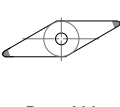
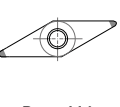
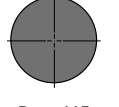
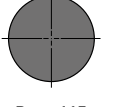
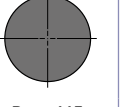
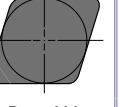
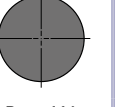
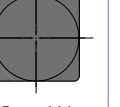

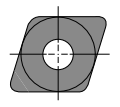
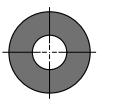
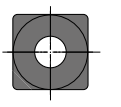
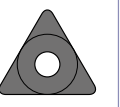
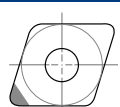
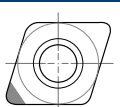



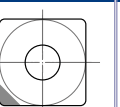
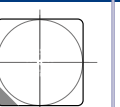
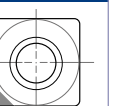
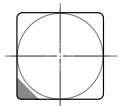
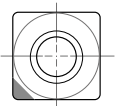
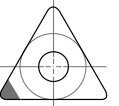
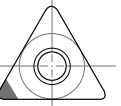

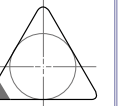
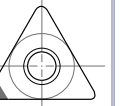
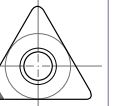
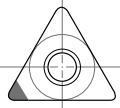
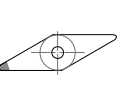
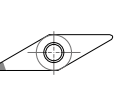
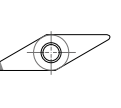
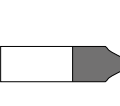
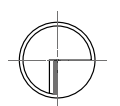
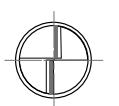

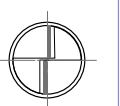
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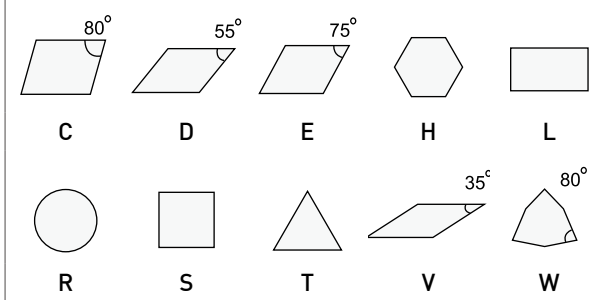
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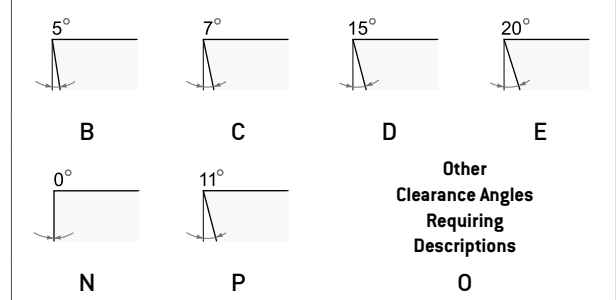
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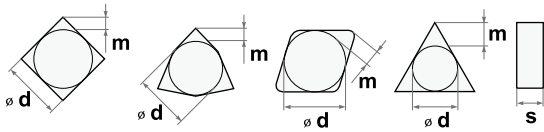
1 Shape



2 Clearance Angle



3 Tolerance

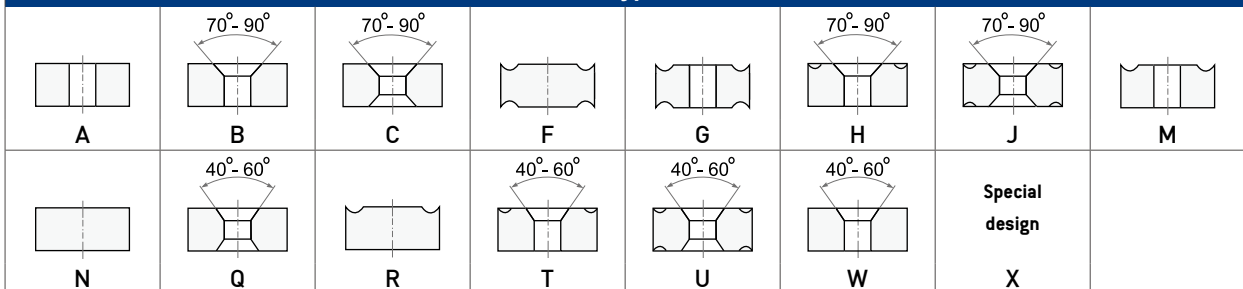


*See tables below

Symbol	d(mm)	m(mm)	s(mm)
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
E	±0.025	±0.025	±0.025
F	±0.013	±0.005	±0.025
G	±0.025	±0.025	±0.130
H	±0.013	±0.013	±0.025
J	*	±0.005	±0.025
K	*	±0.013	±0.025
L	*	±0.025	±0.025
M	*	*	±0.127
U	*	*	±0.127
N	*	*	±0.025

IC (mm)	D		C, E, H, O, S, T, R, W			
	d(mm)	m(mm)	d(mm)		m(mm)	
	M, N	M, N	J, K, L, M, N	U	M, N	U
5.56	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
6.35	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
7.94	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
9.52	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
12.70	±0.08	±0.15	±0.08	±0.13	±0.13	±0.20
15.87	±0.10	±0.18	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.10	±0.18	±0.15	±0.27
25.40	-	-	±0.13	±0.25	±0.18	±0.38

4 Type



12 04 08 E040

4 3 2

4 3 E D T R
5 6 7 8 9 10 11 12

Diameter of inscribed circle	5 Cutting Edge Length								
	ASA		ISO						
	over 6.35 (IC)	over 5.56 (IC)	R	W	V	D	C	S	T
3.969	-	5	03	02	-	04	03	03	06
4.762	-	6	04	03	-	05	04	04	08
5.556	-	7	05	03	09	06	05	05	09
6.350	2	(8)	06	04	11	07	06	06	11
7.938	-	0	07	05	13	09	08	07	13
9.525	3	-	09	06	16	11	09	09	16
12.700	4	-	12	08	22	15	12	12	22
15.875	5	-	15	10	27	19	16	15	27
19.050	6	-	19	13	33	23	19	19	33
22.225	7	-	22	-	38	27	22	22	38
25.400	8	-	25	-	44	31	25	25	44
31.750	0	-	31	-	54	38	32	31	55

6 Thickness			
Thickness(mm)	ISO	ASA	
		Over 6.35(IC)	Over 5.56(IC)
1.59	01	-	2
2.38	02	-	3
3.18	03	2	4
3.97	T3	-	5
4.76	04	3	6
5.56	05	-	-
6.35	06	4	-
7.94	07	5	-
9.52	09	6	-
12.70	12	8	-

7 Nose-Radius		
(mm)	ISO	ASA
Sharp	00	O
0.2	02	Y
0.4	04	1
0.8	08	2
1.2	12	3
1.6	16	4
2.0	20	5
2.4	24	6
2.8	28	7
3.2	32	8

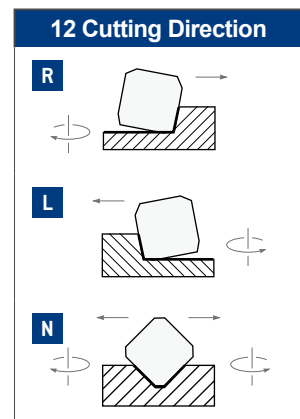
8 Shape and Corner

Detailed edge preparations refer to the next page.

9 Land Angle	
A	45°
D	60°
E	75°
F	85°
P	90°

10 Relief Angle for Land	
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

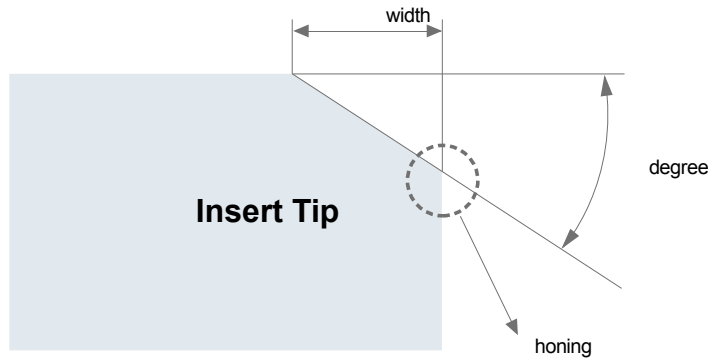
11 Edge	
F	Sharp
E	Honed
T	Chamfered
S	Chamfered + Honed



IDENTIFICATION SYSTEM

8 Chamfer Specification

1 Mono chamfer

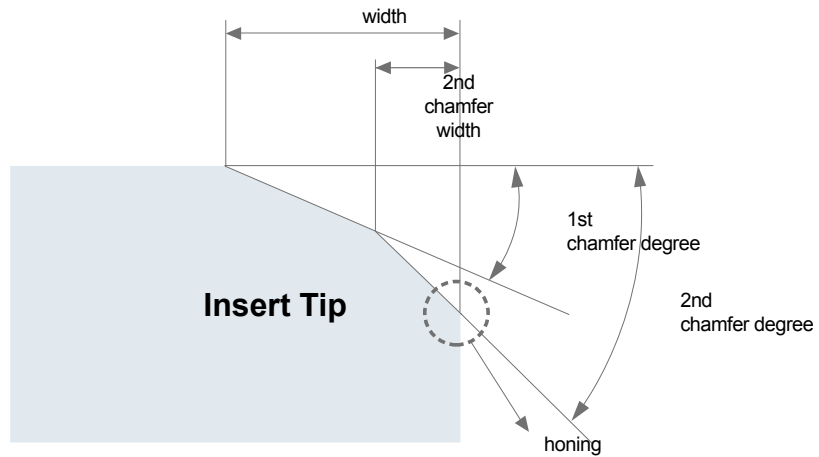


ISO

S N G N 1 2 0 4 0 8 E 0 4 0

Chamfer Degree (°)	Chamfer Width (mm)		Honing (µm)
E : 20	01 : 0.05	10 : 0.50	0 : No Honing
F : 25	02 : 0.10	20 : 1.00	1 : 10
G : 30	03 : 0.15	40 : 2.00	2 : 20
	04 : 0.20		3 : 30

2 Double chamfer



ISO

S N G N 1 9 0 7 1 6 X 5 4 2

1st Chamfer Degree (°)	1st Chamfer Width (mm)		2nd Chamfer Width(mm)×Degree		Honing (µm)
W : 10 X : 15	3 : 1.00	A : 0.75	3 : 0.20×25	A : 0.15×30	0 : No Honing
	4 : 1.20	B : 1.25	4 : 0.10×30	B : 0.45×25	1 : 10
	5 : 1.50	D : 2.30	5 : 0.20×30		2 : 20
	6 : 2.00				3 : 30
					5 : 50

CERAMIC INSERT

Union Ceramic Cutting Tool is an inorganic material, die-pressed and sintered using very fine and pure raw materials with fine microstructure.

Since the Union ceramic inserts are prepared by HIP process to condense completely, it has high thermal shock resistance, excellent fracture toughness and distinguished wear resistance through HIP.

CERMET INSERT

Union Cermet Cutting Tool is a composite between titanium carbide or titanium nitride with carbide-metal binder. Since the toughness of the cermet is higher than that of ceramic and the hardness of the cermet is harder than that of the tungsten carbide, cermet cutting tool shows high wear resistance and excellent surface finish under high speed cutting.

PCBN/PCD INSERT

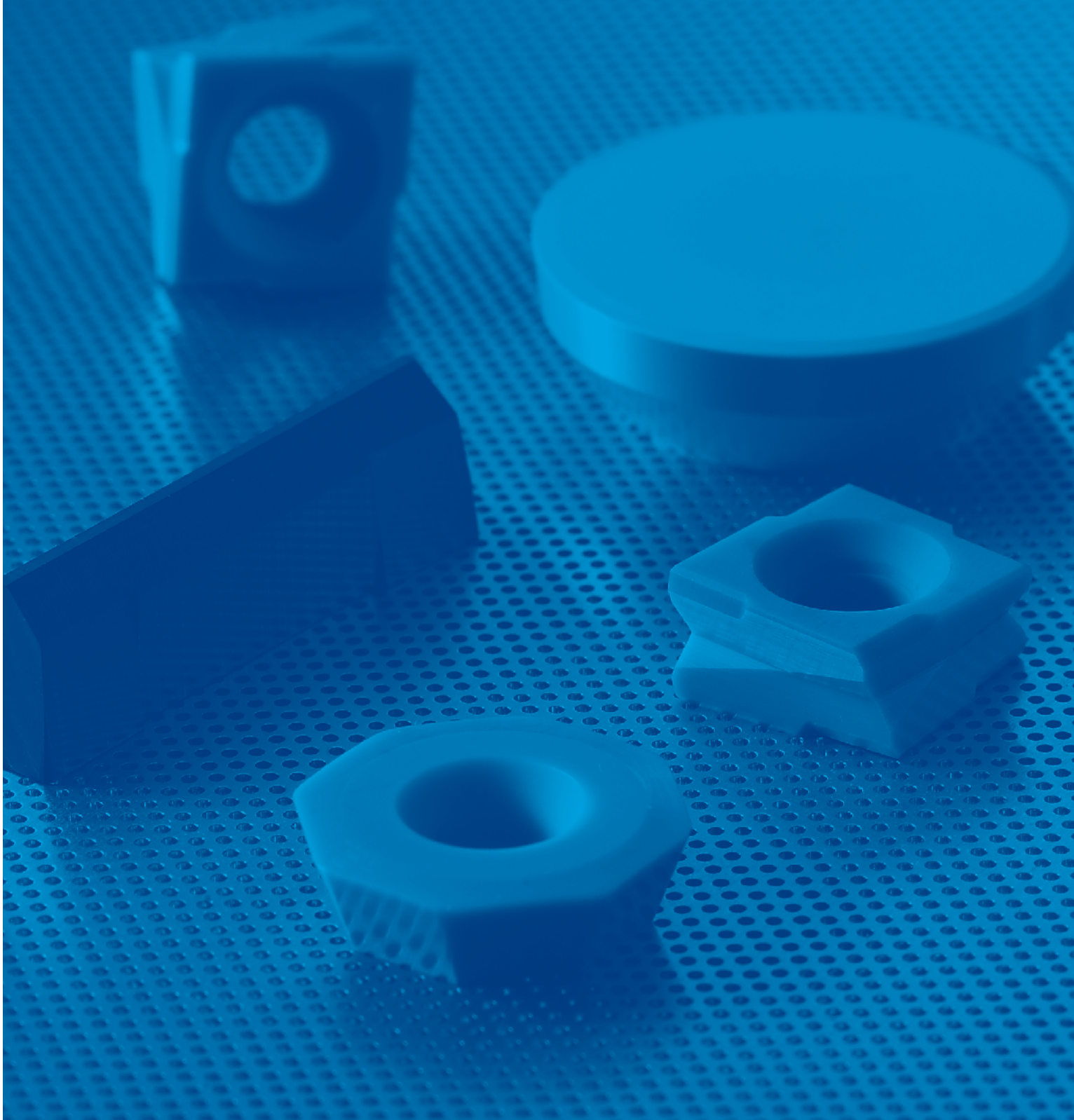
Union PCBN is an ultra hard cutting tool material consisting of polycrystalline cubicboron nitride with metallic or ceramic binder.

It is available both tip brazed and solid PCBN. Primarily used to machine hardened ferrous materials.

Union PCD is an ultra hard cutting tool material consisting of polycrystalline diamond which is tip brazed to a carbide insert according to the various applications.

It is used for non-ferrous material, wood, aluminum and copper alloys at extremely high speed.

CERAMIC



TURNING A 24

Roll Turning A 52

Grooving A 58

Milling A 65

Wiper A 73

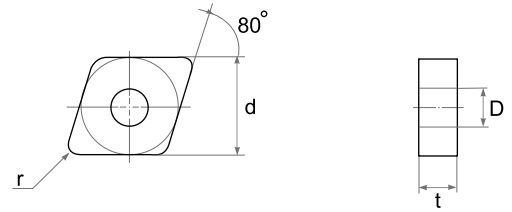
Special A 77



TURNING INSERT

TURNING
&
MILLING

CNGA



Type		Dimensions (mm)																							
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CNGA 120404	CNGA 431	12.70	4.76	0.4	5.16	•	•	•	•		•	•			•					•	•				
CNGA 120408	CNGA 432	12.70	4.76	0.8	5.16	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CNGA 120412	CNGA 433	12.70	4.76	1.2	5.16	•	•				•	•	•		•	•	•	•	•	•	•	•	•	•	•
CNGA 120416	CNGA 434	12.70	4.76	1.6	5.16	•	•					•			•	•	•			•	•	•	•	•	•
CNGA 120704	CNGA 451	12.70	7.94	0.4	5.16																				
CNGA 120708	CNGA 452	12.70	7.94	0.8	5.16	•	•						•		•	•									
CNGA 120712	CNGA 453	12.70	7.94	1.2	5.16	•	•	•					•		•	•				•	•		•	•	•
CNGA 120716	CNGA 454	12.70	7.94	1.6	5.16	•							•		•	•				•	•				
CNGA 160608	CNGA 542	15.87	6.35	0.8	6.35										•										
CNGA 160612	CNGA 543	15.87	6.35	1.2	6.35										•	•	•					•	•	•	•
CNGA 160616	CNGA 544	15.87	6.35	1.6	6.35	•											•					•			
CNGA 160708	CNGA 552	15.87	7.94	0.8	6.35	•	•																		
CNGA 160712	CNGA 553	15.87	7.94	1.2	6.35	•	•									•									
CNGA 160716	CNGA 554	15.87	7.94	1.6	6.35											•									
CNGA 190608	CNGA 642	19.05	6.35	0.8	7.93	•									•	•				•	•				
CNGA 190612	CNGA 643	19.05	6.35	1.2	7.93										•								•	•	•
CNGA 190616	CNGA 644	19.05	6.35	1.6	7.93	•	•																		
CNGA 190712	CNGA 653	19.05	7.94	1.2	7.93																				
CNGA 190716	CNGA 654	19.05	7.94	1.6	7.93	•																			

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

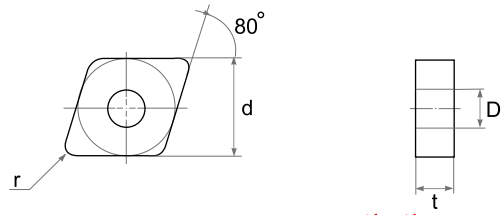
MILLING
CUTTER

TURNING INSERT

PART.

A

CNMA



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r	D																			
CNMA 120408	CNMA 432	12.70	4.76	0.8	5.16											•	•					•		
CNMA 120412	CNMA 433	12.70	4.76	1.2	5.16											•	•	•	•	•	•	•		
CNMA 120416	CNMA 434	12.70	4.76	1.6	5.16											•	•	•	•	•	•	•		
CNMA 160612	CNMA 543	15.87	6.35	1.2	6.35												•		•			•		
CNMA 160616	CNMA 544	15.87	6.35	1.6	6.35												•		•			•		

CERAMIC

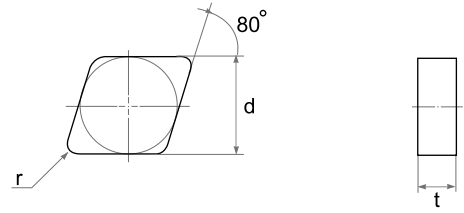
CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

CNGN



Type		Dimensions (mm)			Material																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CNGN 090304	CNGN 321	9.52	3.18	0.4		•																		
CNGN 090308	CNGN 322	9.52	3.18	0.8			•											•	•	•				
CNGN 090312	CNGN 323	9.52	3.18	1.2														•	•	•				
CNGN 120304	CNGN 421	12.70	3.18	0.4	•																			
CNGN 120308	CNGN 422	12.70	3.18	0.8	•																			
CNGN 120312	CNGN 423	12.70	3.18	1.2	•																			
CNGN 120404	CNGN 431	12.70	4.76	0.4	•	•					•	•												
CNGN 120408	CNGN 432	12.70	4.76	0.8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CNGN 120412	CNGN 433	12.70	4.76	1.2	•	•	•	•			•	•		•		•	•	•	•	•	•	•	•	•
CNGN 120416	CNGN 434	12.70	4.76	1.6	•	•	•				•			•		•	•	•	•	•	•	•	•	•
CNGN 120704	CNGN 451	12.70	7.94	0.4																		•	•	
CNGN 120708	CNGN 452	12.70	7.94	0.8										•	•				•	•				
CNGN 120712	CNGN 453	12.70	7.94	1.2	•	•					•	•		•		•	•		•	•	•	•	•	•
CNGN 120716	CNGN 454	12.70	7.94	1.6	•	•					•	•		•		•	•		•	•	•	•	•	•
CNGN 160608	CNGN 542	15.87	6.35	0.8																				
CNGN 160612	CNGN 543	15.87	6.35	1.2	•											•						•	•	•
CNGN 160616	CNGN 544	15.87	6.35	1.6	•																			
CNGN 160708	CNGN 552	15.87	7.94	0.8	•							•												
CNGN 160712	CNGN 553	15.87	7.94	1.2	•	•	•							•		•	•					•		
CNGN 160716	CNGN 554	15.87	7.94	1.6	•	•	•				•		•	•	•	•						•		
CNGN 160720	CNGN 555	15.87	7.94	2.0	•									•	•									
CNGN 190612	CNGN 643	19.05	6.35	1.2	•	•																		
CNGN 190616	CNGN 644	19.05	6.35	1.6	•	•																		
CNGN 190712	CNGN 653	19.05	7.94	1.2	•	•																		
CNGN 190716	CNGN 654	19.05	7.94	1.6	•	•																		
CNGN 190720	CNGN 655	19.05	7.94	2.0	•																			
CNGN 250724	CNGN 856	25.40	7.94	2.4	•																			
CNGN 250924	CNGN 866	25.40	9.52	2.4	•	•	•							•										

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

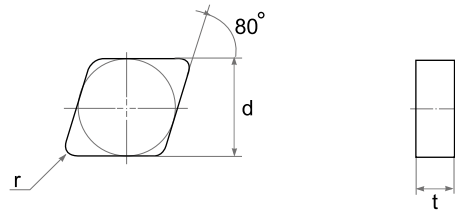
MILLING
CUTTER

TURNING INSERT

PART.

A

CNMN



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO	ASA	d	t	r																				
CNMN 120412	CNMN 433	12.70	4.76	1.2												•			•	•	•			
CNMN 120416	CNMN 434	12.70	4.76	1.6												•			•	•	•			

CERAMIC

CERMET

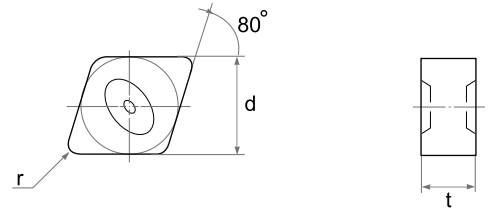
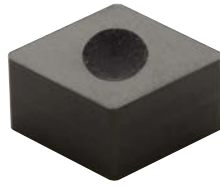
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

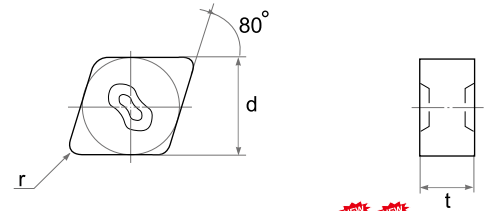
TURNING INSERT

CNGX



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CNGX 120412	CNGX 433	12.70	4.76	1.2											•	•						•		
CNGX 120416	CNGX 434	12.70	4.76	1.6												•						•		
CNGX 120708	CNGX 452	12.70	7.94	0.8	•	•									•									
CNGX 120712	CNGX 453	12.70	7.94	1.2	•	•									•	•	•					•		
CNGX 120716	CNGX 454	12.70	7.94	1.6	•	•									•	•	•	•				•		
CNGX 160708	CNGX 552	15.87	7.94	0.8											•									
CNGX 160712	CNGX 553	15.87	7.94	1.2											•	•	•					•		
CNGX 160716	CNGX 554	15.87	7.94	1.6											•	•						•		

CNVX



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CNVX 120412	CNVX 433	12.70	4.76	1.2												•						•		
CNVX 120416	CNVX 434	12.70	4.76	1.6												•						•		
CNVX 120708	CNVX 452	12.70	7.94	0.8	•							•			•									
CNVX 120712	CNVX 453	12.70	7.94	1.2	•	•						•			•	•	•	•	•	•	•	•		
CNVX 120716	CNVX 454	12.70	7.94	1.6		•		•				•			•	•	•	•	•	•	•	•		

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

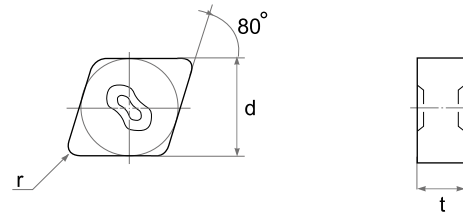
MILLING
CUTTER

TURNING INSERT

PART.
A

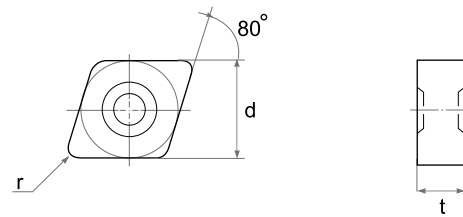
TURNING
&
MILLING

CNMX



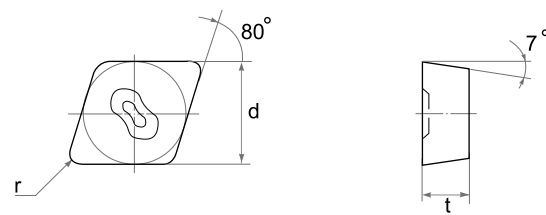
Type		Dimensions (mm)																						
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CNMX 120712	CNMX 453	12.70	7.94	1.2												•	•	•				•		
CNMX 120716	CNMX 454	12.70	7.94	1.6												•	•	•	•	•	•	•		

CNMX .. RD



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CNMX 120716 RD	CNMX 454 RD	12.7	7.94	1.6												•	•					•		

CCGX



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CCGX 120608	CCGX 442	12.70	6.35	0.8												•						•		
CCGX 120612	CCGX 443	12.70	6.35	1.2												•	•	•	•	•	•	•		
CCGX 120616	CCGX 444	12.70	6.35	1.6												•						•		

CERAMIC

CERMET

PCBN
/
PCD

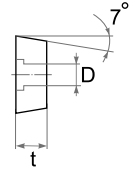
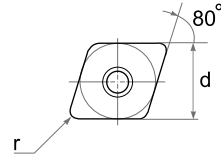
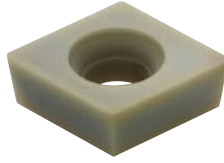
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

TURNING
&
MILLING

CCGW



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
	ISO	d	t	r																			
CCGW 09T304	9.52	3.97	0.4	4.40							•				•	•					•		
CCGW 09T308	9.52	3.97	0.8	4.40							•				•	•		•			•		
CCGW 09T312	9.52	3.97	1.2	4.40											•	•		•			•		
CCGW 120408	12.70	4.76	0.8	5.50												•					•		
CCGW 120412	12.70	4.76	1.2	5.50												•					•		

CERAMIC

CERMET

PCBN
/
PCD

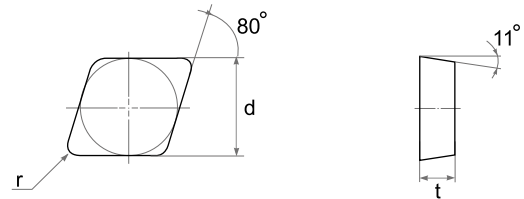
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

PART.
A

CPGN



Type		Dimensions (mm)			Material																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CPGN 090304	CPGN 321	9.52	3.18	0.4																			•	•
CPGN 090308	CPGN 322	9.52	3.18	0.8																			•	•
CPGN 120408	CPGN 432	12.70	4.76	0.8	•																		•	•
CPGN 120412	CPGN 433	12.70	4.76	1.2																				
CPGN 120416	CPGN 434	12.70	4.76	1.6																				

CERAMIC

CERMET

PCBN
/
PCD

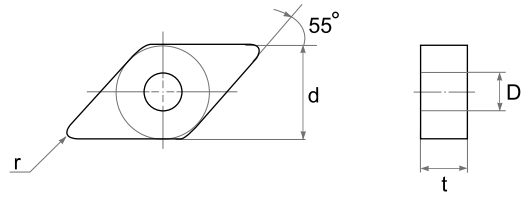
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

TURNING
&
MILLING

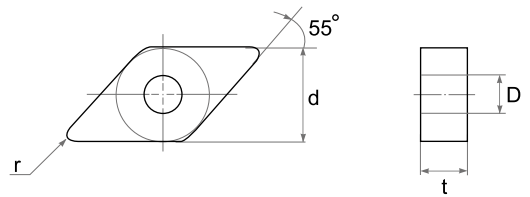
DNGA



Type		Dimensions (mm)				NEW NEW																			
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
DNGA 150404	DNGA 431	12.70	4.76	0.4	5.16	•	•		•		•					•	•	•					•	•	•
DNGA 150408	DNGA 432	12.70	4.76	0.8	5.16	•	•	•	•	•	•				•	•	•					•	•	•	
DNGA 150412	DNGA 433	12.70	4.76	1.2	5.16	•	•	•	•							•	•	•		•	•	•	•	•	
DNGA 150416	DNGA 434	12.70	4.76	1.6	5.16	•									•								•	•	
DNGA 150604	DNGA 441	12.70	6.35	0.4	5.16	•	•	•	•			•		•											
DNGA 150608	DNGA 442	12.70	6.35	0.8	5.16	•	•	•	•			•			•		•					•			
DNGA 150612	DNGA 443	12.70	6.35	1.2	5.16	•	•	•	•						•		•	•		•	•	•			
DNGA 150616	DNGA 444	12.70	6.35	1.6	5.16	•	•	•																	
DNGA 150704	DNGA 451	12.70	7.94	0.4	5.16	•	•																		
DNGA 150708	DNGA 452	12.70	7.94	0.8	5.16	•	•							•	•	•	•					•			
DNGA 150712	DNGA 453	12.70	7.94	1.2	5.16	•	•							•		•	•	•		•	•	•			
DNGA 150716	DNGA 454	12.70	7.94	1.6	5.16																				
DNGA 190608	DNGA 542	15.87	6.35	0.8	6.35	•	•																		
DNGA 190612	DNGA 543	15.87	6.35	1.2	6.35	•	•							•	•		•		•	•	•				
DNGA 190616	DNGA 544	15.87	6.35	1.6	6.35	•														•	•	•			

CERAMIC

DNMA



Type		Dimensions (mm)				NEW NEW																		
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
DNMA 150612	DNMA 443	12.70	6.35	1.2	5.16											•	•					•		
DNMA 150616	DNMA 444	12.70	6.35	1.6	5.16												•					•		

CERMET

PCBN
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PCD

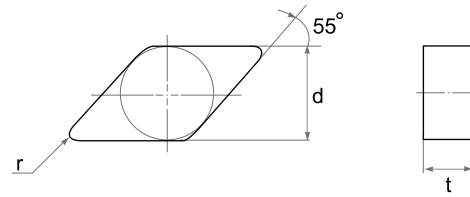
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

PART.
A

DNGN



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
DNGN 150404	DNGN 431	12.70	4.76	0.4																				
DNGN 150408	DNGN 432	12.70	4.76	0.8	•					•						•						•	•	•
DNGN 150412	DNGN 433	12.70	4.76	1.2	•						•			•		•						•	•	•
DNGN 150416	DNGN 434	12.70	4.76	1.6																			•	•
DNGN 150604	DNGN 441	12.70	6.35	0.4																				
DNGN 150608	DNGN 442	12.70	6.35	0.8	•			•								•			•	•	•			
DNGN 150612	DNGN 443	12.70	6.35	1.2	•	•		•								•			•	•	•			
DNGN 150616	DNGN 444	12.70	6.35	1.6																				
DNGN 150704	DNGN 451	12.70	7.94	0.4	•	•																		
DNGN 150708	DNGN 452	12.70	7.94	0.8	•	•	•	•				•	•	•	•				•	•				
DNGN 150712	DNGN 453	12.70	7.94	1.2	•	•	•	•				•	•	•	•	•			•	•	•			
DNGN 150716	DNGN 454	12.70	7.94	1.6	•	•						•		•	•	•			•	•	•			

CERAMIC

CERMET

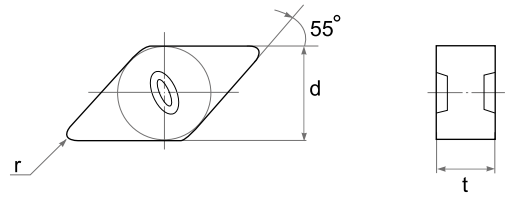
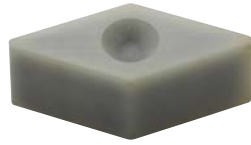
PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

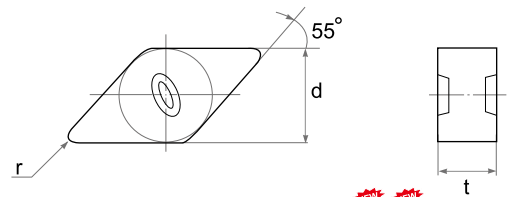
TURNING INSERT

DNGX



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
DNGX 120708	DNGX 352	10.00	7.94	0.8								•				•						•		
DNGX 120712	DNGX 353	10.00	7.94	1.2								•			•	•	•	•	•	•	•			
DNGX 120716	DNGX 354	10.00	7.94	1.6								•			•	•	•					•		
DNGX 150708	DNGX 452	12.70	7.94	0.8																				
DNGX 150712	DNGX 453	12.70	7.94	1.2								•			•	•						•		
DNGX 150716	DNGX 454	12.70	7.94	1.6											•	•	•	•	•	•	•			

DNMX



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
DNMX 120708	DNMX 352	10.00	7.94	0.8													•							
DNMX 120712	DNMX 353	10.00	7.94	1.2												•	•					•		
DNMX 120716	DNMX 354	10.00	7.94	1.6												•	•	•				•		

CERAMIC

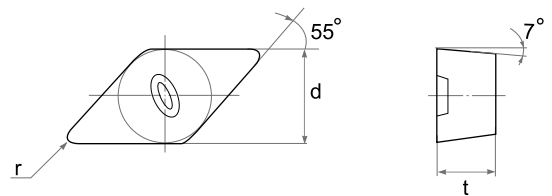
CERMET

PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

DCGX

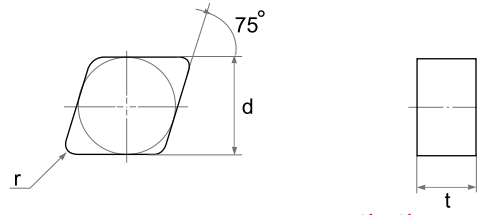


Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
DCGX 150612	DCGX 443	12.70	6.35	1.2												•		•				•		
DCGX 150616	DCGX 444	12.70	6.35	1.6												•		•				•		

TURNING INSERT

PART.
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ENGN



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO	ASA	d	t	r																				
ENGN 130404	ENGN 431	12.70	4.76	0.4																				
ENGN 130408	ENGN 432	12.70	4.76	0.8		•								•		•						•		
ENGN 130412	ENGN 433	12.70	4.76	1.2		•								•		•						•		
ENGN 130704	ENGN 451	12.70	7.94	0.4	•	•																		
ENGN 130708	ENGN 452	12.70	7.94	0.8	•	•	•	•			•	•	•	•	•	•						•		
ENGN 130712	ENGN 453	12.70	7.94	1.2	•	•	•	•						•	•	•			•	•	•	•	•	•
ENGN 130716	ENGN 454	12.70	7.94	1.6	•	•					•			•	•	•						•		

CERAMIC

CERMET

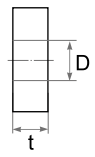
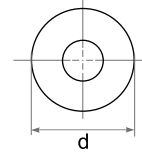
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TOOL
HOLDER

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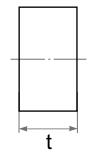
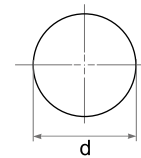
TURNING INSERT

RNGA



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RNGA 120400	RNGA 430	12.70	4.76	5.16	•	•																		
RNGA 120700	RNGA 450	12.70	7.94	5.16	•	•																•	•	

RNGN



Type		Dimensions (mm)		NEW NEW																			
ISO	ASA	d	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RNGN 060300	RNGN 220	6.35	3.18		•																		
RNGN 060400	RNGN 230	6.35	4.76	•		•																	
RNGN 090300	RNGN 320	9.52	3.18	•		•							•	•									
RNGN 090400	RNGN 330	9.52	4.76	•	•	•				•			•					•	•		•	•	
RNGN 120300	RNGN 420	12.70	3.18										•					•	•				
RNGN 120400	RNGN 430	12.70	4.76	•	•	•			•	•	•		•	•	•	•	•	•	•	•	•	•	•
RNGN 120600	RNGN 440	12.70	6.35																				
RNGN 120700	RNGN 450	12.70	7.94	•	•	•	•	•	•				•	•	•			•	•	•	•	•	•
RNGN 150700	RNGN 550	15.87	7.94	•									•	•									
RNGN 190600	RNGN 640	19.05	6.35	•	•								•					•	•				
RNGN 190700	RNGN 650	19.05	7.94	•	•	•					•			•				•	•		•	•	
RNGN 250700	RNGN 850	25.40	7.94	•		•	•				•	•	•	•									
RNGN 250900	RNGN 860	25.40	9.52																				
RNGN 320900	RNGN 106	31.75	9.52	•																			
RNGN 0807M0		8.00	7.94	•																			
RNGN 1007M0		10.00	7.94	•																			
RNGN 1207M0		12.00	7.94	•																			

CERAMIC

CERMET

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TOOL
HOLDER

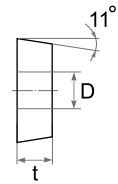
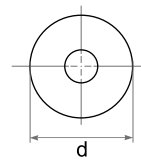
MILLING
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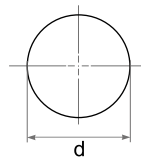
TURNING
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MILLING

RPGA



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO	ASA	d	t	D																				
RNGA 120400	RNGA 430	12.70	4.76	5.16	•																			
RNGA 120700	RNGA 450	12.70	7.94	5.16	•																			

RPGN



Type		Dimensions (mm)		ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO	ASA	d	t																				
RPGN 090300	RPGN 320	9.52	3.18	•	•														•	•			
RPGN 090400	RPGN 330	9.52	4.76	•	•	•																	
RPGN 120300	RPGN 420	12.70	3.18																				
RPGN 120400	RPGN 430	12.70	4.76	•	•										•				•	•	•	•	•
RPGN 120700	RPGN 450	12.70	7.94	•	•														•	•			
RPGN 150700	RPGN 550	15.87	7.94																				
RPGN 190700	RPGN 650	19.05	7.94		•																		

CERAMIC

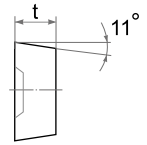
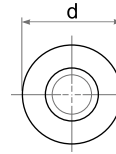
CERMET

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TOOL
HOLDER

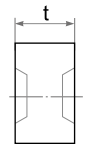
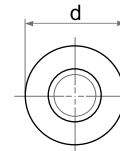
MILLING
CUTTER

RPGX .. DP



Type		Dimensions (mm)																					
ISO	ASA	d	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RPGX 1204 DP	RPGX 43 DP	12.70	4.76																•	•			
RPGX 1207 DP	RPGX 45 DP	12.70	7.94																•	•			

RNGX .. DP



Type		Dimensions (mm)																					
ISO	ASA	d	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RNGX 1207 DP	RNGX 45 DP	12.70	7.94															•	•	•			

CERAMIC

CERMET

PCBN
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TOOL
HOLDER

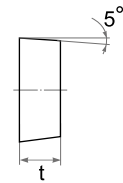
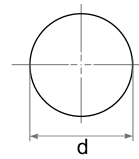
MILLING
CUTTER

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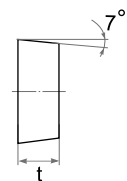
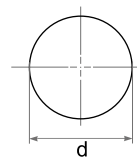
TURNING
&
MILLING

RBGN



Type		Dimensions (mm)		NEW NEW																			
ISO	ASA	d	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RBGN 060300	RBGN 220	6.35	3.18		•																		
RBGN 060400	RBGN 230	6.35	4.76		•																		
RBGN 090300	RBGN 320	9.52	3.18	•																			
RBGN 090400	RBGN 330	9.52	4.76	•																			
RBGN 120400	RBGN 430	12.70	4.76	•	•	•									•						•		
RBGN 120600	RBGN 440	12.70	6.35	•																			
RBGN 120700	RBGN 450	12.70	7.94	•	•									•	•			•	•	•			
RBGN 0604MO		6.00	4.76		•																		
RBGN 0804MO		8.00	4.76		•																		
RBGN 1007MO		10.00	7.94	•												•							
RBGN 1207MO		12.00	7.94																				
RBGN 1607MO		16.00	7.94																				

RCGN



Type		Dimensions (mm)		NEW NEW																			
ISO		d	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
RCGN 060400		6.35	4.76	•	•								•					•	•				
RCGN 060600		6.35	6.35	•	•	•							•					•	•				
RCGN 060700		6.35	7.94	•	•	•					•							•	•				
RCGN 070400		7.94	4.76		•																		
RCGN 090700		9.52	7.94	•	•	•							•					•	•				
RCGN 120700		12.70	7.94	•	•	•					•		•					•	•				
RCGN 151000		15.87	10.00	•	•	•					•		•					•	•				
RCGN 191000		19.05	10.00	•	•	•					•		•					•	•				
RCGN 251200		25.40	12.70	•	•	•					•		•					•	•				

CERAMIC

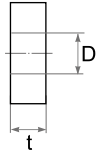
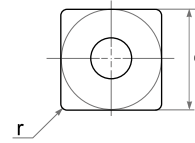
CERMET

PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

SNGA

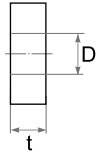
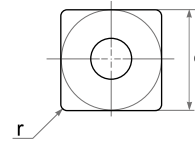


Type		Dimensions (mm)				NEW NEW																			
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNGA 090304	SNGA 321	9.52	3.18	0.4	3.81	•	•																		
SNGA 090308	SNGA 322	9.52	3.18	0.8	3.81	•	•																		
SNGA 090312	SNGA 323	9.52	3.18	1.2	3.81	•	•																		
SNGA 090404	SNGA 331	9.52	4.76	0.4	3.81																				
SNGA 090408	SNGA 332	9.52	4.76	0.8	3.81																				
SNGA 090412	SNGA 333	9.52	4.76	1.2	3.81																				
SNGA 090416	SNGA 334	9.52	4.76	1.6	3.81												•					•			
SNGA 120404	SNGA 431	12.70	4.76	0.4	5.16	•		•				•			•										
SNGA 120408	SNGA 432	12.70	4.76	0.8	5.16	•	•	•			•	•			•	•		•		•	•		•	•	
SNGA 120412	SNGA 433	12.70	4.76	1.2	5.16	•	•	•				•	•		•	•	•		•	•	•	•			
SNGA 120416	SNGA 434	12.70	4.76	1.6	5.16	•						•			•				•	•	•				
SNGA 120708	SNGA 452	12.70	7.94	0.8	5.16	•																			
SNGA 120712	SNGA 453	12.70	7.94	1.2	5.16	•									•	•									
SNGA 120716	SNGA 454	12.70	7.94	1.6	5.16	•							•		•	•				•	•				
SNGA 150608	SNGA 542	15.87	6.35	0.8	6.35		•																		
SNGA 150612	SNGA 543	15.87	6.35	1.2	6.35	•	•																		
SNGA 150616	SNGA 544	15.87	6.35	1.6	6.35		•																		
SNGA 190612	SNGA 643	19.05	6.35	1.2	7.94	•									•	•									
SNGA 190616	SNGA 644	19.05	6.35	1.6	7.94																				

CERAMIC

CERMET

SNMA



Type		Dimensions (mm)				NEW NEW																			
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNMA 120408	SNMA 432	12.70	4.76	0.8	5.16												•		•			•			
SNMA 120412	SNMA 433	12.70	4.76	1.2	5.16											•	•		•	•	•	•			
SNMA 120416	SNMA 434	12.70	4.76	1.6	5.16											•	•					•			
SNMA 150616	SNMA 544	15.87	6.35	1.6	6.35											•	•					•			

PCBN
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PCD

TOOL
HOLDER

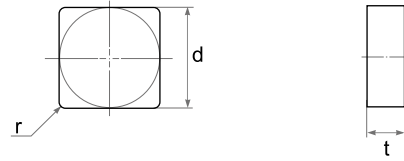
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PART.

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SNGN



NEW **NEW**

Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r																			
SNGN 090304	SNGN 321	9.52	3.18	0.4	•	•																	
SNGN 090308	SNGN 322	9.52	3.18	0.8	•	•	•			•			•		•						•		
SNGN 090312	SNGN 323	9.52	3.18	1.2	•	•																	
SNGN 090404	SNGN 331	9.52	4.76	0.4																			
SNGN 090408	SNGN 332	9.52	4.76	0.8	•										•						•		
SNGN 090412	SNGN 333	9.52	4.76	1.2							•				•						•		
SNGN 120404	SNGN 431	12.70	4.76	0.4	•									•									
SNGN 120408	SNGN 432	12.70	4.76	0.8	•	•	•	•	•	•	•			•	•	•			•	•	•	•	•
SNGN 120412	SNGN 433	12.70	4.76	1.2	•	•	•	•	•	•			•	•	•	•		•	•	•	•	•	•
SNGN 120416	SNGN 434	12.70	4.76	1.6	•	•			•	•			•	•	•	•	•		•	•	•	•	•
SNGN 120420	SNGN 435	12.70	4.76	2.0	•									•	•	•	•				•		
SNGN 120604	SNGN 441	12.70	6.35	0.4																			
SNGN 120608	SNGN 442	12.70	6.35	0.8	•																		
SNGN 120612	SNGN 443	12.70	6.35	1.2	•																		
SNGN 120616	SNGN 444	12.70	6.35	1.6	•																		
SNGN 120704	SNGN 451	12.70	7.94	0.4		•									•						•		
SNGN 120708	SNGN 452	12.70	7.94	0.8	•	•	•	•			•			•	•	•			•	•	•	•	•
SNGN 120712	SNGN 453	12.70	7.94	1.2	•	•	•	•			•	•		•	•	•	•	•	•	•	•	•	•
SNGN 120716	SNGN 454	12.70	7.94	1.6	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•
SNGN 120720	SNGN 455	12.70	7.94	2.0	•	•	•				•	•		•	•	•					•		
SNGN 150404	SNGN 531	15.87	4.76	0.4		•																	
SNGN 150408	SNGN 532	15.87	4.76	0.8		•																	
SNGN 150412	SNGN 533	15.87	4.76	1.2	•						•			•	•						•		
SNGN 150416	SNGN 534	15.87	4.76	1.6	•										•								
SNGN 150708	SNGN 552	15.87	7.94	0.8	•																		
SNGN 150712	SNGN 553	15.87	7.94	1.2	•	•					•	•		•	•	•					•		
SNGN 150716	SNGN 554	15.87	7.94	1.6	•						•	•	•	•	•	•	•	•			•		
SNGN 190608	SNGN 642	19.05	6.35	0.8																			
SNGN 190612	SNGN 643	19.05	6.35	1.2	•										•		•		•	•	•		
SNGN 190616	SNGN 644	19.05	6.35	1.6	•										•			•	•	•		•	•
SNGN 190712	SNGN 653	19.05	7.94	1.2	•																		
SNGN 190716	SNGN 654	19.05	7.94	1.6	•	•	•	•			•	•		•	•			•	•	•			
SNGN 190720	SNGN 655	19.05	7.94	2.0	•						•		•										
SNGN 250720	SNGN 854	25.40	7.94	2.0	•										•								
SNGN 250724	SNGN 856	25.40	7.94	2.4	•	•									•	•							
SNGN 250924	SNGN 866	25.40	9.52	2.4	•		•	•			•			•	•	•			•	•	•		

CERAMIC

CERMET

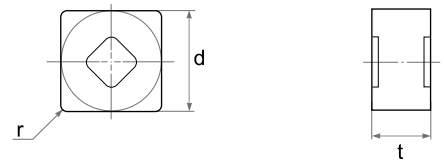
PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

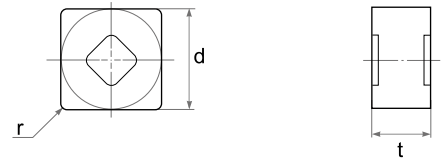
TURNING INSERT

SNGX



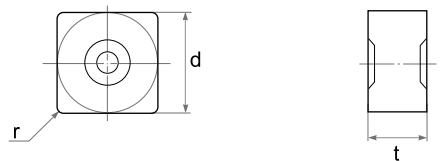
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ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNGX 120408	SNGX 432	12.70	4.76	0.8												•						•		
SNGX 120412	SNGX 433	12.70	4.76	1.2												•						•		
SNGX 120416	SNGX 434	12.70	4.76	1.6												•						•		
SNGX 120708	SNGX 452	12.70	7.94	0.8	•										•		•							
SNGX 120712	SNGX 453	12.70	7.94	1.2	•	•									•	•	•		•	•	•			
SNGX 120716	SNGX 454	12.70	7.94	1.6											•	•	•	•	•	•	•			
SNGX 150708	SNGX 552	15.87	7.94	0.8	•	•									•		•							
SNGX 150712	SNGX 553	15.87	7.94	1.2	•	•									•		•		•	•	•			
SNGX 150716	SNGX 554	15.87	7.94	1.6											•	•	•					•		

SNMX



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNMX 120712	SNMX 453	12.70	7.94	1.2											•	•	•	•	•	•	•			
SNMX 120716	SNMX 454	12.70	7.94	1.6												•						•		

SNMX .. RD



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNMX 120716 RD	SNMX 454 RD	12.70	7.94	1.6											•			•						

CERAMIC

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TOOL
HOLDER

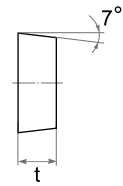
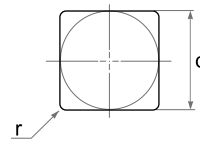
MILLING
CUTTER

TURNING INSERT

PART.
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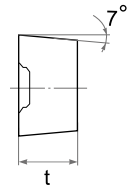
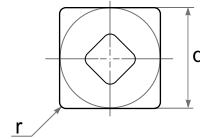
TURNING
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MILLING

SCGN



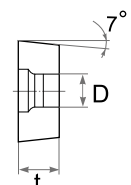
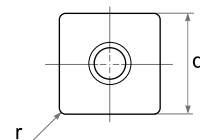
Type		Dimensions (mm)			Material																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SCGN 090412	SCGN 333	9.52	4.76	1.2	•											•						•		
SCGN 090416	SCGN 334	9.52	4.76	1.6	•																			
SCGN 120404	SCGN 431	12.70	4.76	0.4		•																		
SCGN 120408	SCGN 432	12.70	4.76	0.8	•	•																		
SCGN 120412	SCGN 433	12.70	4.76	1.2									•		•	•		•	•	•	•	•		
SCGN 120416	SCGN 434	12.70	4.76	1.6	•	•																		

SCGX



Type		Dimensions (mm)			Material																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SCGX 120408	SCGX 432	12.70	4.76	0.8																				
SCGX 120616	SCGX 444	12.70	6.35	1.6														•						
SCGX 120716	SCGX 454	12.70	7.94	1.6																				

SCGW



Type		Dimensions (mm)				Material																		
ISO	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SCGW 09T304	9.52	3.97	0.4	4.40												•						•		
SCGW 09T308	9.52	3.97	0.8	4.40												•						•		
SCGW 120408	12.70	4.76	0.8	5.50												•						•		

CERAMIC

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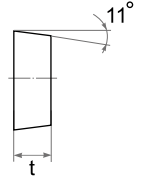
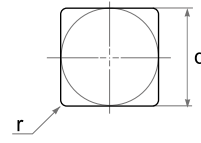
TOOL
HOLDER

MILLING
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MILLING

SPGN



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SPGN 090304	SPGN 321	9.52	3.18	0.4	•	•								•										
SPGN 090308	SPGN 322	9.52	3.18	0.8	•	•					•				•	•	•					•	•	•
SPGN 090312	SPGN 323	9.52	3.18	1.2	•																			
SPGN 120304	SPGN 421	12.70	3.18	0.4	•	•																		
SPGN 120308	SPGN 422	12.70	3.18	0.8	•	•				•		•		•		•						•		
SPGN 120312	SPGN 423	12.70	3.18	1.2	•	•					•			•		•		•				•		
SPGN 120404	SPGN 431	12.70	4.76	0.4																				
SPGN 120408	SPGN 432	12.70	4.76	0.8	•	•	•							•		•						•	•	•
SPGN 120412	SPGN 433	12.70	4.76	1.2	•	•					•			•	•	•	•	•	•	•	•	•	•	•
SPGN 120416	SPGN 434	12.70	4.76	1.6	•	•					•				•	•	•					•	•	•
SPGN 150408	SPGN 532	15.87	4.76	0.8																				
SPGN 150412	SPGN 533	15.87	4.76	1.2		•									•									
SPGN 190412	SPGN 633	19.05	4.76	1.2	•																			
SPGN 190416	SPGN 634	19.05	4.76	1.6	•	•										•	•					•		

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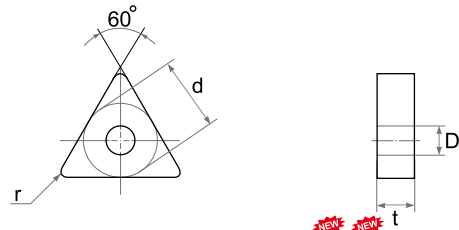
TOOL
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TNGA



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r	D																			
TNGA 110304	TNGA 221	6.35	3.18	0.4	2.26	•	•																	
TNGA 110308	TNGA 222	6.35	3.18	0.8	2.26	•	•																	
TNGA 160304	TNGA 321	9.52	3.18	0.4	3.81	•	•																	
TNGA 160308	TNGA 322	9.52	3.18	0.8	3.81	•	•					•		•										
TNGA 160312	TNGA 323	9.52	3.18	1.2	3.81	•	•																	
TNGA 160404	TNGA 331	9.52	4.76	0.4	3.81	•	•	•	•		•	•		•	•	•	•		•	•	•			
TNGA 160408	TNGA 332	9.52	4.76	0.8	3.81	•	•	•	•		•	•	•	•	•	•	•	•		•	•	•	•	•
TNGA 160412	TNGA 333	9.52	4.76	1.2	3.81	•	•	•	•		•	•	•	•	•	•	•	•		•	•	•		
TNGA 160416	TNGA 334	9.52	4.76	1.6	3.81	•	•	•				•		•	•	•	•	•		•	•	•		
TNGA 220404	TNGA 431	12.70	4.76	0.4	5.16	•	•								•									
TNGA 220408	TNGA 432	12.70	4.76	0.8	5.16	•	•								•		•			•	•	•		
TNGA 220412	TNGA 433	12.70	4.76	1.2	5.16	•	•								•		•			•	•	•		
TNGA 220416	TNGA 434	12.70	4.76	1.6	5.16	•	•					•		•		•						•		
TNGA 220708	TNGA 452	12.70	7.94	0.8	5.16	•	•																	
TNGA 220712	TNGA 453	12.70	7.94	1.2	5.16	•																		
TNGA 270608	TNGA 542	15.87	6.35	0.8	6.35		•																	
TNGA 270612	TNGA 543	15.87	6.35	1.2	6.35		•																	
TNGA 330924	TNGA 666	19.05	9.52	2.4	7.94		•																	

CERAMIC

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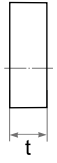
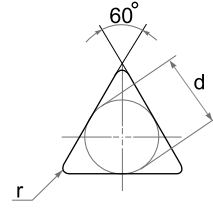
TOOL
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MILLING
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TURNING
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MILLING

TNGN



Type		Dimensions (mm)			Material																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
TNGN 110304	TNGN 221	6.35	3.18	0.4	•	•								•										
TNGN 110308	TNGN 222	6.35	3.18	0.8	•	•						•		•	•									
TNGN 160404	TNGN 331	9.52	4.76	0.4	•	•					•	•		•										
TNGN 160408	TNGN 332	9.52	4.76	0.8	•	•	•	•	•	•	•	•		•	•	•		•			•			
TNGN 160412	TNGN 333	9.52	4.76	1.2	•	•	•	•	•					•	•	•					•	•	•	•
TNGN 160416	TNGN 334	9.52	4.76	1.6	•	•	•	•			•			•	•	•					•			
TNGN 160704	TNGN 351	9.52	7.94	0.4	•																			
TNGN 160708	TNGN 352	9.52	7.94	0.8	•	•					•				•									
TNGN 160712	TNGN 353	9.52	7.94	1.2	•	•						•		•	•									
TNGN 160716	TNGN 354	9.52	7.94	1.6	•	•								•										
TNGN 220404	TNGN 431	12.70	4.76	0.4	•																			
TNGN 220408	TNGN 432	12.70	4.76	0.8	•	•								•		•		•			•	•	•	•
TNGN 220412	TNGN 433	12.70	4.76	1.2	•	•								•		•		•			•	•	•	•
TNGN 220416	TNGN 434	12.70	4.76	1.6		•								•		•					•	•	•	•
TNGN 220708	TNGN 452	12.70	7.94	0.8	•																			
TNGN 220712	TNGN 453	12.70	7.94	1.2		•																		
TNGN 220716	TNGN 454	12.70	7.94	1.6		•																		
TNGN 270608	TNGN 542	15.87	6.35	0.8	•	•																		
TNGN 270612	TNGN 543	15.87	6.35	1.2	•	•																		
TNGN 270616	TNGN 544	15.87	6.35	1.6		•												•						
TNGN 330924	TNGN 666	19.05	9.52	2.4		•																		
TNGN 440932	TNGN 868	25.40	9.52	3.2	•	•								•										

CERAMIC

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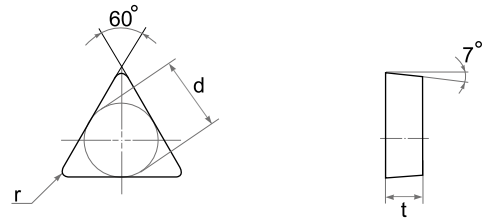
TOOL
HOLDER

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TCUN



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r																			
TCUN 160408	TCUN 332	9.52	4.76	0.8		•									•	•					•		
TCUN 160412	TCUN 333	9.52	4.76	1.2		•									•	•					•		
TCUN 160416	TCUN 334	9.52	4.76	1.6		•									•								

CERAMIC

CERMET

PCBN
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PCD

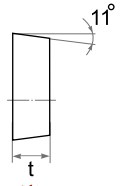
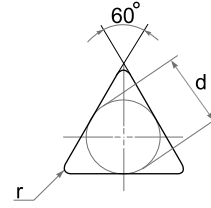
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

TURNING
&
MILLING

TPGN



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
TPGN 090204	TPGN 731	5.56	2.38	0.4		•																		
TPGN 090208	TPGN 732	5.56	2.38	0.8		•																		
TPGN 110304	TPGN 221	6.35	3.18	0.4	•	•				•	•			•		•						•		
TPGN 110308	TPGN 222	6.35	3.18	0.8	•	•					•			•	•	•			•	•	•	•	•	•
TPGN 160304	TPGN 321	9.52	3.18	0.4	•	•	•			•	•	•		•		•						•		
TPGN 160308	TPGN 322	9.52	3.18	0.8	•	•				•	•	•		•	•	•	•		•	•	•	•	•	•
TPGN 160312	TPGN 323	9.52	3.18	1.2	•	•										•	•					•	•	•
TPGN 160404	TPGN 331	9.52	4.76	0.4	•		•																	
TPGN 160408	TPGN 332	9.52	4.76	0.8	•	•													•	•				
TPGN 160412	TPGN 333	9.52	4.76	1.2	•														•	•				
TPGN 160416	TPGN 334	9.52	4.76	1.6	•																			
TPGN 220404	TPGN 431	12.70	4.76	0.4	•	•																		
TPGN 220408	TPGN 432	12.70	4.76	0.8	•	•								•									•	•
TPGN 220412	TPGN 433	12.70	4.76	1.2	•	•									•	•						•		
TPGN 220416	TPGN 434	12.70	4.76	1.6	•	•	•																	
TPGN 220712	TPGN 453	12.70	7.94	1.2																				
TPGN 220716	TPGN 454	12.70	7.94	1.6																				
TPGN 271232	TPGN 588	15.87	12.70	3.2		•																		

CERAMIC

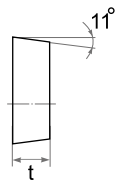
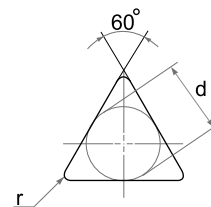
CERMET

PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

TPUN



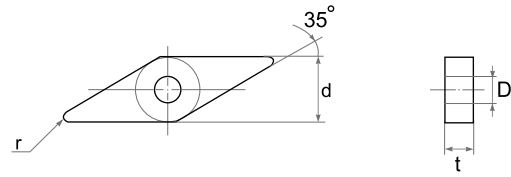
Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
TPUN 110308	TPUN 222	6.35	3.18	0.8												•						•		
TPUN 110312	TPUN 223	6.35	3.18	1.2												•						•		

TURNING INSERT

PART.

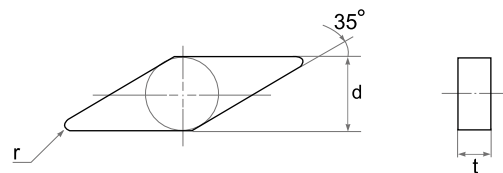
A

VNGA



Type		Dimensions (mm)				NEW NEW																			
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
VNGA 160404	VNGA 331	9.52	4.76	0.4	3.81	•	•	•			•				•										
VNGA 160408	VNGA 332	9.52	4.76	0.8	3.81	•	•	•	•	•	•			•	•	•	•	•		•	•	•			
VNGA 160412	VNGA 333	9.52	4.76	1.2	3.81	•	•	•	•					•	•	•	•	•				•			
VNGA 160604	VNGA 341	9.52	6.35	0.4	3.81	•	•																		
VNGA 160608	VNGA 342	9.52	6.35	0.8	3.81	•	•																		
VNGA 160612	VNGA 343	9.52	6.35	1.2	3.81	•	•																		
VNGA 220404	VNGA 431	12.70	4.76	0.4	5.16	•	•																		
VNGA 220408	VNGA 432	12.70	4.76	0.8	5.16	•	•										•						•		
VNGA 220412	VNGA 433	12.70	4.76	1.2	5.16	•	•										•						•		
VNGA 220424	VNGA 436	12.70	4.76	2.4	5.16																		•	•	

VNGN



Type		Dimensions (mm)				NEW NEW																			
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
VNGN 160404	VNGN 331	9.52	4.76	0.4			•																		
VNGN 160408	VNGN 332	9.52	4.76	0.8			•																		
VNGN 160704	VNGN 351	9.52	7.94	0.4			•																		
VNGN 160708	VNGN 352	9.52	7.94	0.8			•																		
VNGN 160712	VNGN 353	9.52	7.94	1.2																					
VNGN 160716	VNGN 354	9.52	7.94	1.6																					

CERAMIC

CERMET

PCBN
/
PCD

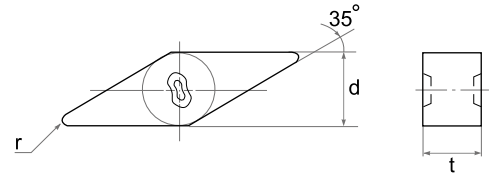
TOOL
HOLDER

MILLING
CUTTER

TURNING INSERT

TURNING
&
MILLING

VNGX



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
VNGX 160708	VNGX 352	9.52	7.94	0.8		•						•				•						•		
VNGX 160712	VNGX 353	9.52	7.94	1.2		•						•				•		•				•		
VNGX 160716	VNGX 354	9.52	7.94	1.6												•						•		

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

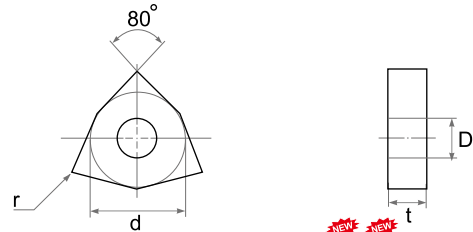
MILLING
CUTTER

TURNING INSERT

PART.
A

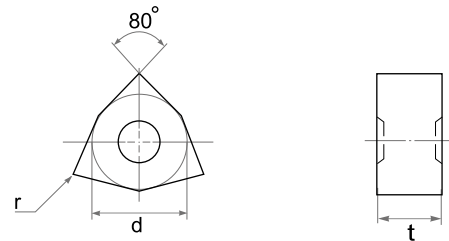
TURNING
&
MILLING

WNGA



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r	D																			
WNGA 080404	WNGA 431	12.70	4.76	0.4	5.16	•	•	•																
WNGA 080408	WNGA 432	12.70	4.76	0.8	5.16	•	•	•						•	•	•	•	•	•	•	•	•	•	•
WNGA 080412	WNGA 433	12.70	4.76	1.2	5.16	•	•	•						•	•	•	•	•	•	•	•	•		

WNGX



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r	D																			
WNGX 080708	WNGX 452	12.70	7.94	0.8												•						•		
WNGX 080712	WNGX 453	12.70	7.94	1.2										•		•	•	•	•	•	•	•		
WNGX 080716	WNGX 454	12.70	7.94	1.6												•						•		

CERAMIC

CERMET

PCBN
/
PCD

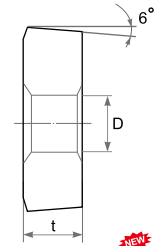
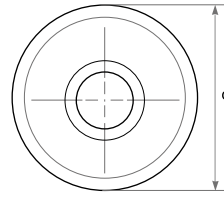
TOOL
HOLDER

MILLING
CUTTER

ROLL TURNING INSERT

TURNING
&
MILLING

CDH



Type		Dimensions (mm)																						
ISO	ASA	d	t	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
CDH 120600	CDH 22	12.70	6.35	3.18	•	•	•																	
CDH 120900	CDH 23	12.70	9.52	3.18	•																			
CDH 190900	CDH 33	19.05	9.52	6.35	•	•	•	•						•										
CDH 191200	CDH 34	19.05	12.70	6.35	•																			
CDH 251200	CDH 42	25.40	12.70	6.75	•	•	•					•		•										
CDH 251900	CDH 43	25.40	19.05	6.75	•							•		•										
CDH 320900	CDH 515	31.75	9.52	10.00	•	•						•		•	•									
CDH 321900	CDH 53	31.75	19.05	10.00	•	•	•	•				•		•	•									
CDH 381100		38.10	11.11	9.93	•																			

CERAMIC

CERMET

PCBN
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PCD

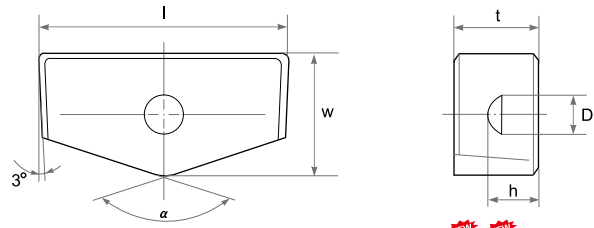
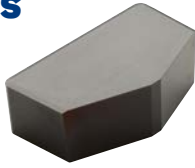
TOOL
HOLDER

MILLING
CUTTER

ROLL TURNING INSERT

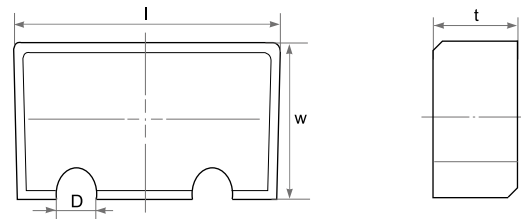
PART.
A

F-Series



Type	Dimensions (mm)																									
	l	w	t	D	h	α	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
F 13941	32.00	19.05	12.00	6.50	6.00	120°	•	•						•		•	•									
F 10537	44.50	25.40	14.20	6.50	7.00	120°	•	•						•		•	•									

F-Series



Type	Dimensions (mm)																								
	l	w	t	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800		
F 10537 V	44.00	26.00	15.00	5.00	•	•						•													

CERAMIC

CERMET

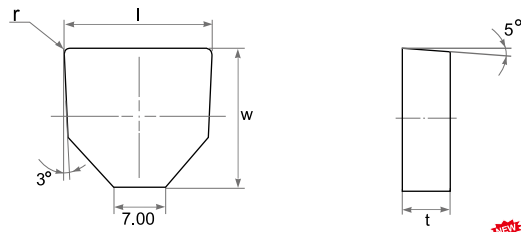
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

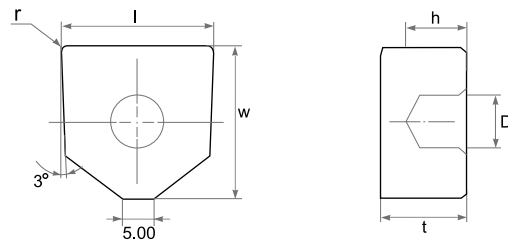
ROLL TURNING INSERT

F-Series



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	l	t	r	w																			
F 250723	25.00	7.94	1.20	23.00		•																	

F-Series



Type	Dimensions (mm)							ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	l	t	r	w	D	h																				
F 251425	25.00	14.40	2.40	25.40	9.17	10.00											•									
F251425 H65	25.40	14.40	2.40	25.40	6.50	10.00											•									

CERAMIC

CERMET

PCBN
/
PCD

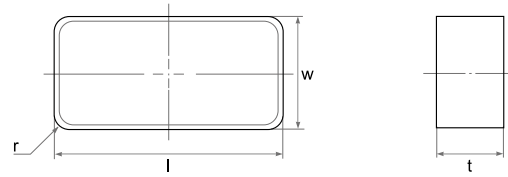
TOOL
HOLDER

MILLING
CUTTER

ROLL TURNING INSERT

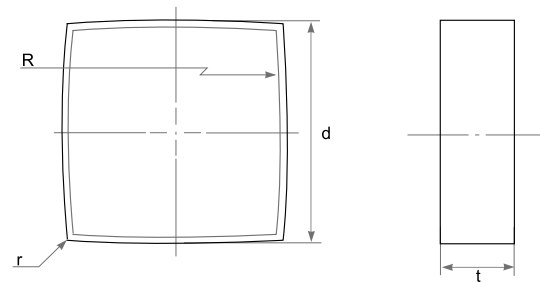
PART.
A

LNJ



Type	Dimensions (mm)				NEW NEW																				
	ISO	l	w	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
LNJ 5464	25.40	15.87	9.52	1.6	•	•																			
LNJ 5568	31.75	15.87	9.52	3.2											•										
LNJ 6588	31.75	19.05	12.70	3.2	•	•	•	•				•		•	•										
LNJ 6688	38.10	19.05	12.70	3.2	•	•	•	•				•		•	•					•	•		•		
LNJ 6898	48.10	21.05	12.70	3.2											•										

SNGN3812R



Type	Dimensions (mm)				NEW NEW																				
	ISO	d	t	r	R	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNGN 3812R	38.10	12.70	0.4	114	•	•	•																		

CERAMIC

CERMET

PCBN
/
PCD

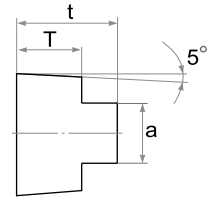
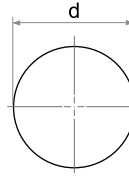
TOOL
HOLDER

MILLING
CUTTER

ROLL TURNING INSERT

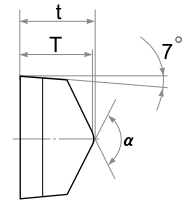
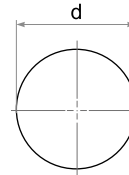
TURNING
&
MILLING

RBGX



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
	ISO	d	t	T																			
RBGX 06T	6.00	5.00	3.00	3.00	•	•																	
RBGX 08T	8.00	6.50	4.00	4.00	•	•																	
RBGX 10T	10.00	9.00	6.00	6.00		•																	
RBGX 12T	12.00	9.00	6.00	6.00	•	•																	
RBGX 16T	16.00	13.00	8.00	8.00	•	•																	
RBGX 20T	20.00	15.00	10.00	10.00	•	•	•	•															
RBGX 26T	26.00	15.00	10.00	14.00	•	•																	

RCGX



Type	Dimensions (mm)					ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
	ISO	ASA	d	t	T																			
RCGX 060400	RCGX 102	6.35	4.76	4.57	120°	•	•													•	•		•	•
RCGX 060600	RCGX 102	6.35	6.35	6.20	120°	•	•	•	•											•	•			
RCGX 060700	RCGX 102	6.35	7.94	7.70	120°	•	•	•	•						•					•	•			
RCGX 090700	RCGX 103	9.52	7.94	7.70	120°	•	•	•	•		•				•					•	•		•	•
RCGX 120700	RCGX 104	12.70	7.94	7.70	120°	•	•	•	•		•				•					•	•		•	•
RCGX 151000	RCGX 105	15.87	10.00	9.77	120°	•	•	•	•						•					•	•			
RCGX 191000	RCGX 106	19.05	10.00	9.77	120°	•	•	•	•						•					•	•			
RCGX 251200	RCGX 108	25.40	12.00	11.85	140°	•	•	•	•						•					•	•			

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

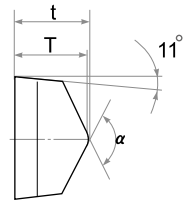
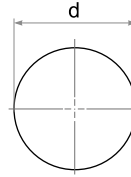
MILLING
CUTTER

ROLL TURNING INSERT

PART.
A

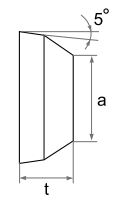
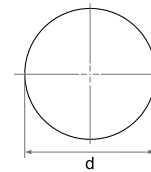
TURNING
&
MILLING

RPGX



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	T	α																			
RPGX 060400	RPGX 102	6.35	4.76	4.57	120°																			
RPGX 090700	RPGX 103	9.52	7.94	7.70	120°																			
RPGX 120700	RPGX 104	12.70	7.94	7.70	120°																			

RXGX



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO		d	t	a																				
RXGX 1207MO		12.00	7.94	6.90																				
RXGX 1608MO		16.00	8.00	9.50																				
RXGX 2508MO		25.00	8.00	18.20																				

CERAMIC

CERMET

PCBN
/
PCD

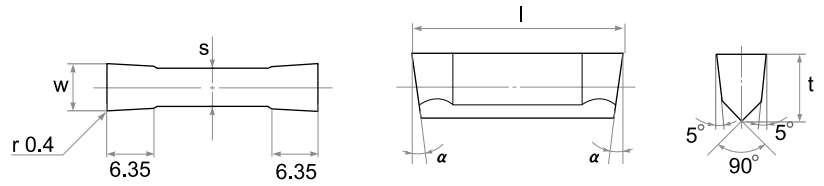
TOOL
HOLDER

MILLING
CUTTER

GROOVING INSERT

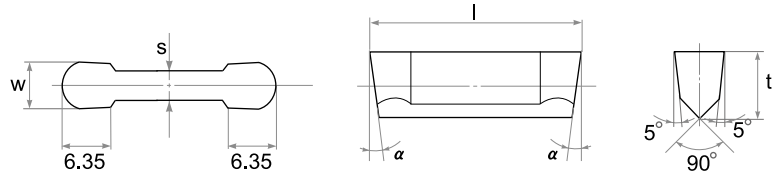
TURNING
&
MILLING

SYBF



Type	Dimensions (mm)					NEW NEW																				
	ISO	l	w	t	s	α	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SYBF 3228	28.58	3.18	6.35	2.69	2.69	5.0°	•	•																		
SYBF 4828	28.58	4.78	6.35	3.66	3.66	5.0°	•	•																		
SYBF 5528	28.58	5.54	6.35	3.66	3.66	5.0°																				
SYBF 6428	28.58	6.35	8.56	5.13	5.13	7.0°	•	•																		
SYBF 7928	28.58	7.93	8.56	5.13	5.13	7.0°	•	•																		
SYBF 9528	28.58	9.53	8.56	6.99	6.99	7.0°																				

SYBR



Type	Dimensions (mm)					NEW NEW																				
	ISO	l	w	t	s	α	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SYBR 3228	28.58	3.18	6.35	2.69	2.69	5.0°	•	•																		
SYBR 4828	28.58	4.78	6.35	3.66	3.66	5.0°	•	•																		
SYBR 5528	28.58	5.54	6.35	3.66	3.66	5.0°																				
SYBR 6428	28.58	6.35	8.56	5.13	5.13	7.0°	•	•																		
SYBR 7928	28.58	7.93	8.56	5.13	5.13	7.0°	•	•																		
SYBR 9528	28.58	9.53	8.56	6.99	6.99	7.0°																				

CERAMIC

CERMET

PCBN
/
PCD

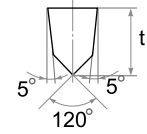
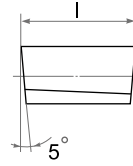
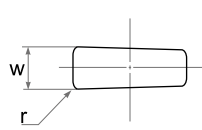
TOOL
HOLDER

MILLING
CUTTER

GROOVING INSERT

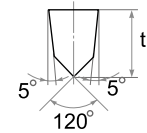
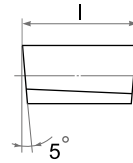
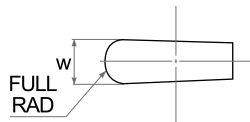
PART.
A

SGF



Type	Dimensions (mm)																								
	ISO	l	w	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SGF 4012	12.00	4.00	5.00	0.50	•	•							•				•						•		
SGF 5012	12.00	5.00	5.00	0.80	•	•							•				•						•		
SGF 6015	15.00	6.00	7.50	0.80	•	•							•												
SGF 7015	15.00	7.00	7.50	0.80	•	•							•												
SGF 8015	15.00	8.00	7.50	0.80	•	•							•												
SGF 1015	15.00	10.00	7.50	0.80	•	•							•												

SGR



Type	Dimensions (mm)																							
	ISO	l	w	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SGR 4012	12.00	4.00	5.00	•	•							•				•						•		
SGR 5012	12.00	5.00	5.00	•	•							•				•						•		
SGR 6015	15.00	6.00	7.50	•	•							•												
SGR 7015	15.00	7.00	7.50	•	•							•												
SGR 8015	15.00	8.00	7.50	•	•							•												
SGR 1015	15.00	10.00	7.50	•	•							•												

CERAMIC

CERMET

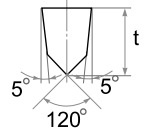
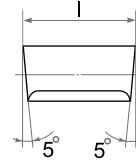
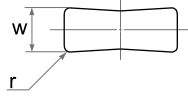
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

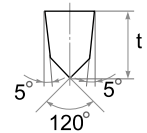
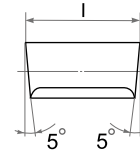
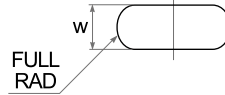
GROOVING INSERT

SSF



Type	Dimensions (mm)																								
	ISO	l	w	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SSF 4012	12.00	4.00	5.00	0.80	•	•							•												
SSF 5012	12.00	5.00	5.00	0.80	•	•							•												
SSF 6015	15.00	6.00	7.50	0.80	•	•							•												
SSF 7015	15.00	7.00	7.50	0.80	•	•																			
SSF 8015	15.00	8.00	7.50	0.80	•	•																			
SSF 1015	15.00	10.00	7.50	0.80	•	•																			

SSR



Type	Dimensions (mm)																							
	ISO	l	w	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SSR 4012	12.00	4.00	5.00	•	•							•				•						•		
SSR 5012	12.00	5.00	5.00	•	•							•				•						•		
SSR 6015	15.00	6.00	7.50	•	•							•												
SSR 7015	15.00	7.00	7.50	•	•							•												
SSR 8015	15.00	8.00	7.50	•	•							•												
SSR 1015	15.00	10.00	7.50	•	•							•												

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

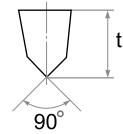
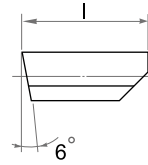
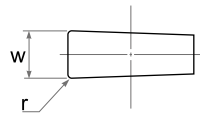
MILLING
CUTTER

GROOVING INSERT

PART.

A

WFC



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
	ISO	l	w	t																			
WFC 094050-A	12.70	2.388	4.75	0.40																			
WFC 094050-B	12.70	2.388	4.75	0.80																			
WFC 125050-A	12.70	3.175	4.75	0.40																			
WFC 125050-B	12.70	3.175	4.75	0.80																			
WFC 156050-A	12.70	3.962	4.75	0.40																			
WFC 156050-B	12.70	3.962	4.75	0.80																			
WFC 187050-A	12.70	4.750	4.75	0.40																			
WFC 187050-B	12.70	4.750	4.75	0.80																			
WFC 218075-A	19.05	5.537	6.35	0.40																			
WFC 218075-B	19.05	5.537	6.35	0.80																			
WFC 250075-A	19.05	6.350	6.35	0.40																			
WFC 250075-B	19.05	6.350	6.35	0.80																			
WFC 250075-C	19.05	6.350	6.35	1.20																			
WFC 281075-A	19.05	7.137	6.35	0.40																			
WFC 281075-B	19.05	7.137	6.35	0.80																			
WFC 281075-C	19.05	7.137	6.35	1.20																			
WFC 312100-A	25.40	7.925	8.56	0.40																			
WFC 312100-B	25.40	7.925	8.56	0.80																			
WFC 312100-C	25.40	7.925	8.56	1.20																			
WFC 312100-D	25.40	7.925	8.56	1.60																			
WFC 344100-A	25.40	8.738	8.56	0.40																			•
WFC 344100-B	25.40	8.738	8.56	0.80																			
WFC 344100-C	25.40	8.738	8.56	1.20																			
WFC 344100-D	25.40	8.738	8.56	1.60																			
WFC 375100-A	25.40	9.525	8.56	0.40																			
WFC 375100-B	25.40	9.525	8.56	0.80																			
WFC 375100-C	25.40	9.525	8.56	1.20																			
WFC 375100-D	25.40	9.525	8.56	1.60																			•

*The above inserts WFC Series are available only Whisker grade.

TURNING
&
MILLING

CERAMIC

CERMET

PCBN
/
PCD

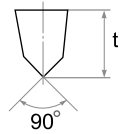
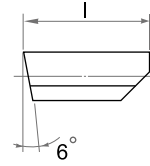
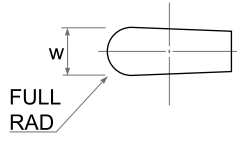
TOOL
HOLDER

MILLING
CUTTER

GROOVING INSERT

TURNING
&
MILLING

WRC



Type	Dimensions (mm)																								
	ISO	l	w	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800		
WRC 094050	12.70	2.388	4.75																						
WRC 125050	12.70	3.175	4.75																						•
WRC 156050	12.70	3.962	4.75																						
WRC 187050	12.70	4.750	4.75																						
WRC 218075	19.05	5.537	6.35																						
WRC 250075	19.05	6.350	6.35																						
WRC 281075	19.05	7.137	6.35																						
WRC 312100	25.40	7.925	8.56																						
WRC 344100	25.40	8.738	8.56																						
WRC 375100	25.40	9.525	8.56																						

*The above inserts WRC Series are available only Whisker grade.

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

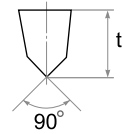
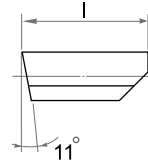
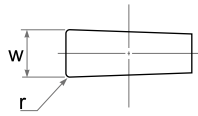
MILLING
CUTTER

GROOVING INSERT

PART.

A

WFP



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800		
	ISO	l	w	t																				r	
WFP 094050-A	12.70	2.388	4.75	0.40																				•	
WFP 094050-B	12.70	2.388	4.75	0.80																					
WFP 125050-A	12.70	3.175	4.75	0.40																					•
WFP 125050-B	12.70	3.175	4.75	0.80																					•
WFP 156050-A	12.70	3.962	4.75	0.40																					•
WFP 156050-B	12.70	3.962	4.75	0.80																					•
WFP 187050-A	12.70	4.750	4.75	0.40																			•	•	
WFP 187050-B	12.70	4.750	4.75	0.80																			•	•	
WFP 218075-A	19.05	5.537	6.35	0.40																			•	•	
WFP 218075-B	19.05	5.537	6.35	0.80																					
WFP 250075-A	19.05	6.350	6.35	0.40																			•	•	
WFP 250075-B	19.05	6.350	6.35	0.80																			•	•	
WFP 250075-C	19.05	6.350	6.35	1.20																			•	•	
WFP 281075-A	19.05	7.137	6.35	0.40																			•	•	
WFP 281075-B	19.05	7.137	6.35	0.80																					
WFP 281075-C	19.05	7.137	6.35	1.20																					
WFP 312100-A	25.40	7.925	8.56	0.40																					•
WFP 312100-B	25.40	7.925	8.56	0.80																					•
WFP 312100-C	25.40	7.925	8.56	1.20																					•
WFP 312100-D	25.40	7.925	8.56	1.60																					
WFP 344100-A	25.40	8.738	8.56	0.40																					
WFP 344100-B	25.40	8.738	8.56	0.80																					
WFP 344100-C	25.40	8.738	8.56	1.20																					
WFP 344100-D	25.40	8.738	8.56	1.60																					
WFP 375100-A	25.40	9.525	8.56	0.40																					
WFP 375100-B	25.40	9.525	8.56	0.80																					•
WFP 375100-C	25.40	9.525	8.56	1.20																					
WFP 375100-D	25.40	9.525	8.56	1.60																					•

*The above inserts WFP Series are available only Whisker grade.

TURNING
&
MILLING

CERAMIC

CERMET

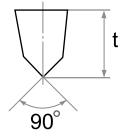
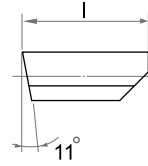
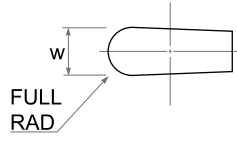
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

GROOVING INSERT

WRP



Type	Dimensions (mm)																							
	l	w	t	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800		
WRP 094050	12.70	2.388	4.75																					
WRP 125050	12.70	3.175	4.75																					•
WRP 156050	12.70	3.962	4.75																					•
WRP 187050	12.70	4.750	4.75																					•
WRP 218075	19.05	5.537	6.35																			•	•	
WRP 250075	19.05	6.350	6.35																			•	•	
WRP 281075	19.05	7.137	6.35																			•	•	
WRP 312100	25.40	7.925	8.56																			•	•	
WRP 344100	25.40	8.738	8.56																					
WRP 375100	25.40	9.525	8.56																					•

*The above inserts WRP Series are available only Whisker grade.

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

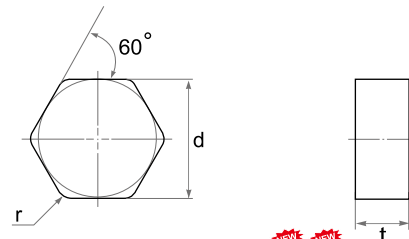
MILLING INSERT

PART.

A

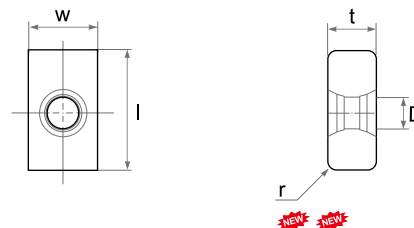
TURNING
&
MILLING

HNEN



Type	Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
	ISO	d	t																				r
HNEN 090520	16.20	5.56	2.0											•	•					•			
HNEN 090530	16.20	5.56	3.0											•	•					•			
HNEN 0905 ANSN	15.87	5.64	0.8											•	•		•			•			

LNE



Type	Dimensions (mm)					ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
	ISO	l	w	t	D																				r
LNE 040904	15.87	9.52	4.76	4.41	0.4											•	•					•			
LNE 040908	15.87	9.52	4.76	4.41	0.8											•	•					•			
LNE 040912	15.87	9.52	4.76	4.41	1.2											•	•					•			
LNE 1007	15.67	9.52	6.35	4.10	1.2											•	•					•			

CERAMIC

CERMET

PCBN
/
PCD

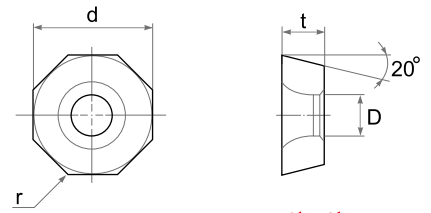
TOOL
HOLDER

MILLING
CUTTER

MILLING INSERT

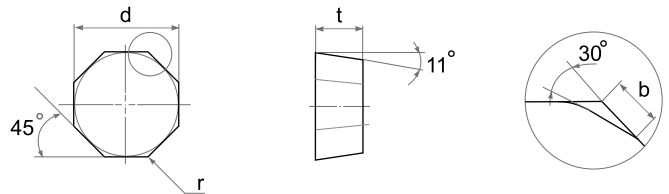
TURNING
&
MILLING

OEGB



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
	ISO	d	t	D																				r
OEGB 070408	15.87	4.76	5.18	0.8												•					•			
OEGB 070416	15.87	4.76	5.18	1.6											•	•		•				•		
OEGB 070516	15.87	5.13	5.18	1.6											•	•						•		

OPEN



Type	Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
	ISO	d	t	r																				b
OPEN 050408 TR	13.97	4.76	0.80	2.10												•						•		
OPEN 050608 TR	13.97	6.35	0.80	2.10												•		•				•		

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

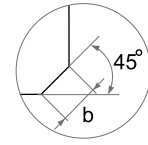
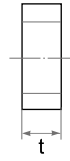
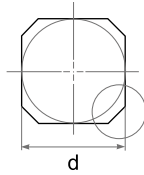
MILLING INSERT

PART.

A

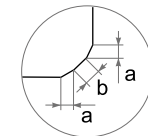
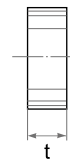
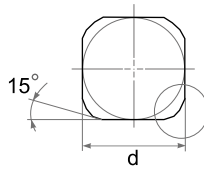
TURNING
&
MILLING

SNCN



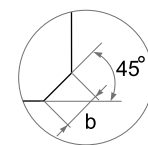
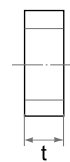
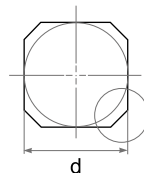
Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNCN 1204 AN	SNCN 43 AN	12.70	4.76	2.50												•						•		
SNCN 1204 ZN	SNCN 43 ZN	12.70	4.76	1.10												•						•		

SNCN .. ENTN



Type		Dimensions (mm)				NEW NEW																		
ISO	ASA	d	t	a	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SNCN 1204 ENTN	SNCN 43 ENTN	12.70	4.76	1.40	1.00										•	•	•					•		
SNCN 1504 ENTN	SNCN 53 ENTN	15.87	4.76	1.40	1.00										•	•	•					•		

SNGN .. ING



Type		Dimensions (mm)			NEW NEW																		
ISO	ASA	d	t	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SNGN 1204 ING	SNGN 43 ING	12.70	4.76	1.50											•	•					•		
SNGN 1904 ING	SNGN 63 ING	19.05	4.76	2.50											•	•					•		

CERAMIC

CERMET

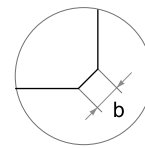
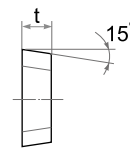
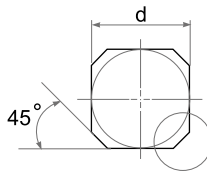
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

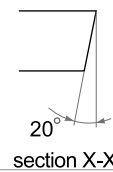
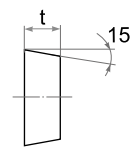
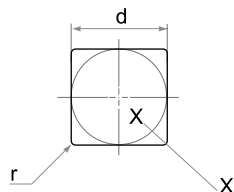
MILLING INSERT

SDCN



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SDCN 1203 AETN 12	SDCN 42 AETN 12	12.70	3.18	1.2												•						•		
SDCN 1203 AETN	SDCN 42 AETN	12.70	3.18	2.0												•						•		
SDCN 1504 AETN	SDCN 53 AETN	15.87	4.76	2.0												•						•		

SDCN .. T



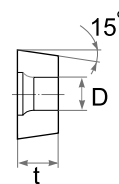
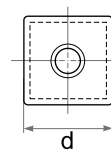
Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SDCN 120408 T20	SDCN 432 T20	12.70	4.76	0.8												•						•		
SDCN 120412 T20	SDCN 433 T20	12.70	4.76	1.2												•						•		

CERAMIC

CERMET

PCBN
/
PCD

SDCW



Type		Dimensions (mm)			NEW NEW																			
ISO	ASA	d	t	D	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SDCW 1204 PDSR	SDCW 43 PDSR	12.70	4.76	4.40												•		•				•		

TOOL
HOLDER

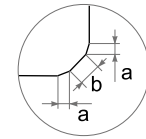
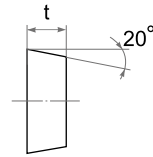
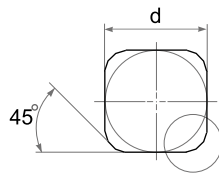
MILLING
CUTTER

MILLING INSERT

PART.
A

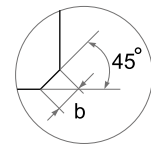
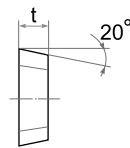
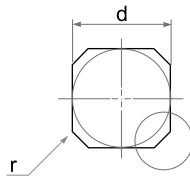
TURNING
&
MILLING

SEAN



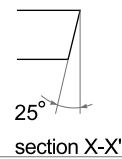
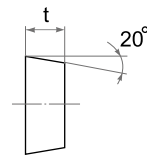
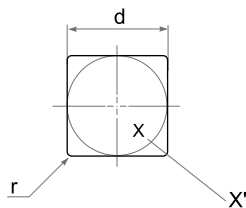
Type		Dimensions (mm)																							
ISO	ASA	d	t	a	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SEAN 1203 AFTN	SEAN 42 AFTN	12.70	3.18	0.50	1.80											•	•	•					•		
SEAN 1504 AFTN	SEAN 53 AFTN	12.70	4.76	0.70	2.00											•	•	•					•		

SEAN .. NW



Type		Dimensions (mm)																							
ISO	ASA	d	t	b	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SEAN 1203 NWAFTN	SEAN 42 NWAFTN	12.70	3.18	2.40	0.4											•									
SEAN 1204 AFTNW25	SEAN 43 AFTNW25	12.70	4.76	2.50	1.2													•					•		

SEAN .. T



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SEAN 120412 T25	SEAN 433 T25	12.70	4.76	1.2													•			•		•		
SEAN 120416 T25	SEAN 434 T25	12.70	4.76	1.6													•			•		•		

CERAMIC

CERMET

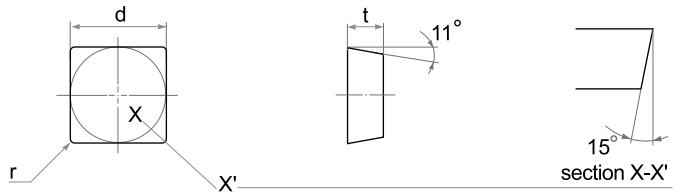
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

MILLING INSERT

SPCN .. T



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	NEW	NEW	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r																					
SPCN 120412 T15	SPCN 433 T15	12.70	4.76	1.2												•						•			
SPCN 120416 T15	SPCN 434 T15	12.70	4.76	1.6												•						•			

SPCW



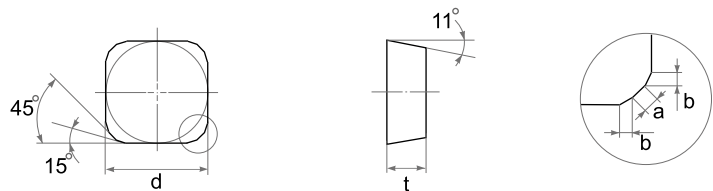
Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	NEW	NEW	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	D																					
SPCW 10T3ZX	SPCW 10T3ZX	10.00	3.97	3.52												•						•			

CERAMIC

CERMET

PCBN
/
PCD

SPEN



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	NEW	NEW	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	a	b																					
SPEN 1206 APTN	SPEN 44 APTN	12.70	6.35	1.20	1.20												•		•				•			

TOOL
HOLDER

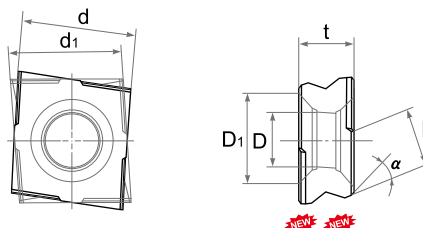
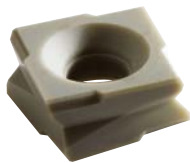
MILLING
CUTTER

MILLING INSERT

PART.
A

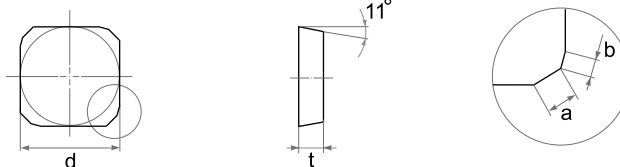
TURNING
&
MILLING

SPHX



Type		Dimensions (mm)						ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO		d	d ₁	t	D	D ₁	α	b																		
SPHX 1205NR 480T		11.67	11.33	5.50	5.10	8.41	45	8.0											•		•			•		
SPHX 1205NL 480T		11.67	11.33	5.50	5.10	8.41	45	8.0																		
SPHX 1205ER 855T		12.09	11.33	5.50	5.10	8.41	35	5.50											•		•			•		
SPHX 1205EL 855T		12.09	11.33	5.50	5.10	8.41	35	5.50											•					•		
SPHX 15T6NR 880T		14.58	14.33	6.60	6.10	10.18	45	8.80											•		•			•		
SPHX 15T6ER 865T		15.50	14.33	6.60	6.10	10.18	35	6.50											•		•			•		

SPKN



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
ISO	ASA	d	t	a	b																				
SPKN 1203 EDTR	SPKN 42 EDTR	12.70	3.18	1.40	1.00												•	•						•	•
SPKN 1504 EDTR	SPKN 53 EDTR	15.87	4.76	1.40	1.00												•	•						•	•

CERAMIC

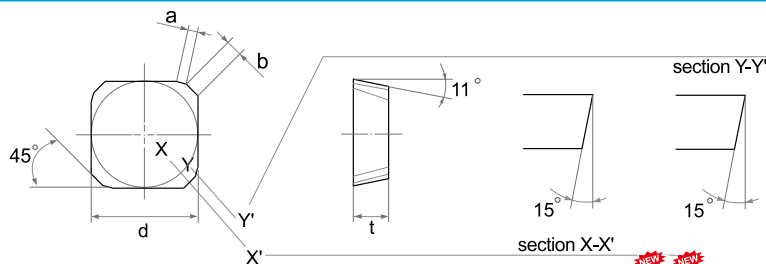
CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

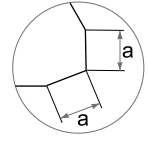
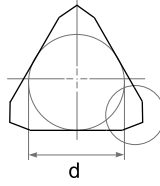
SPKN .. SP



Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	a	b																			
SPKN 1204SP EDTR	SPKN 43SP EDTR	12.70	4.76	1.10	1.30												•						•	

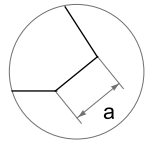
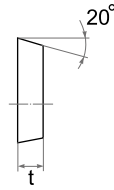
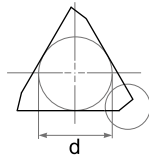
MILLING INSERT

TNCN



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	a																			
TNCN 2204 ANT	TNCN 43 ANT	12.70	4.76	2.60											•	•					•		

TEKN



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	a																			
TEKN 1603 PFTR	TEKN 32 PFTR	9.52	3.18	1.40											•	•					•		
TEKN 2204 PFTR	TEKN 43 PFTR	12.70	4.76	2.10											•	•					•		

CERAMIC

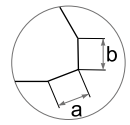
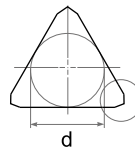
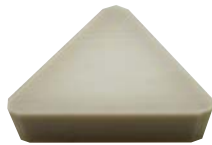
CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

TPKN

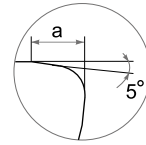
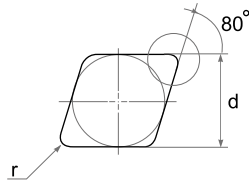


Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	a	b																			
TPKN 1603 PDTR	TPKN 32 PDTR	9.52	3.18	1.20	1.00										•	•	•					•		
TPKN 2204 PDTR	TPKN 43 PDTR	12.70	4.76	1.40	0.70										•	•	•					•		

WIPER(ZZ) INSERT

PART.
A

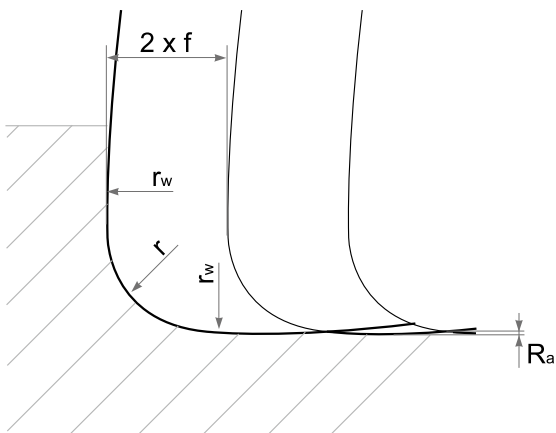
CNGN .. AZ



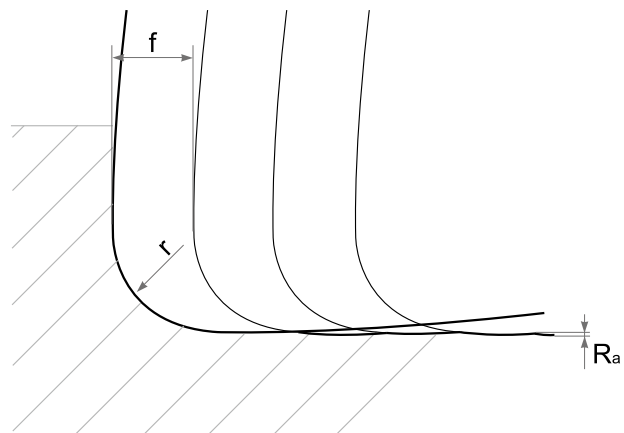
Type		Dimensions (mm)				ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r	a																			
CNGN 1204 AZ	CNGN 43 AZ	12.70	4.76	1.0	1.60		•										•					•		

ADVANTAGE OF WIPER INSERT

f : feed (mm)
 r : corner radius
 r_w : wiper radius (large radius)
 R_a : surface finish



Wiper Insert



Standard Insert

CERAMIC

CERMET

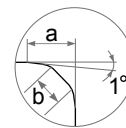
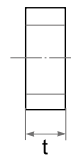
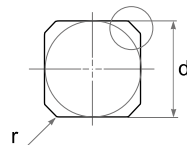
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

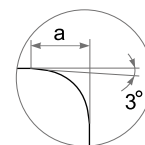
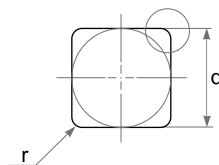
WIPER INSERT

SNCN .. ZZT



Type		Dimensions (mm)																							
ISO	ASA	d	t	a	b	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNCN 0904 ZZT	SNCN 33 ZZT	9.52	4.76	1.30	1.10												•	•					•		
SNCN 1204 ZZT	SNCN 43 ZZT	12.70	4.76	3.25	1.10		•										•	•					•		

SNCN .. GZ



Type		Dimensions (mm)																							
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNCN 0904 GZ	SNCN 33 GZ	9.52	4.76	0.8	1.00												•						•		

CERAMIC

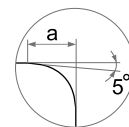
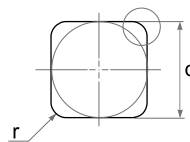
CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

SNCN .. KZ



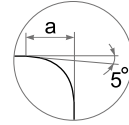
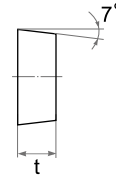
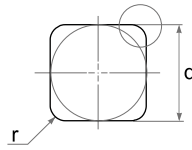
Type		Dimensions (mm)																							
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SNCN 1204 KZ	SNCN 43 KZ	12.70	4.76	1.2	1.80												•						•		

WIPER INSERT

PART.
A

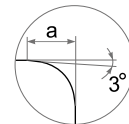
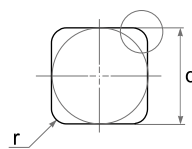
TURNING
&
MILLING

SCGN .. WZ



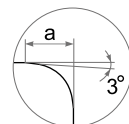
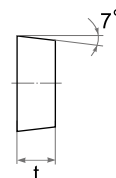
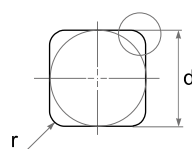
Type		Dimensions (mm)																						
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SCGN 0904 WZ	SCGN 33 WZ	9.52	4.76	0.8	1.60												•					•		
SCGN 1204 WZ	SCGN 43 WZ	12.70	4.76	0.8	1.60												•					•		

SCGN .. XZ



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SCGN 0904 XZ	SCGN 33 XZ	9.52	4.76	0.8	1.20												•					•		
SCGN 1204 XZ	SCGN 43 XZ	12.70	4.76	0.8	1.20												•					•		

SCGN .. ZZ



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SCGN 0904 ZZ	SCGN 33 ZZ	9.52	4.76	0.8	1.00												•					•		
SCGN 1204 ZZ	SCGN 43 ZZ	12.70	4.76	0.8	1.00												•					•		

CERAMIC

CERMET

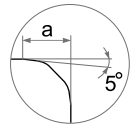
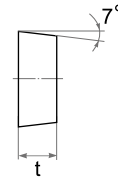
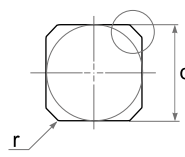
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

WIPER INSERT

SCGN .. MZ



Type		Dimensions (mm)																						
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
SCGN 0904 MZ	SCGN 33 MZ	9.52	4.76	0.8	1.80												•					•		
SCGN 1204 MZ	SCGN 43 MZ	12.70	4.76	0.8	1.80												•					•		

NEW NEW

CERAMIC

CERMET

PCBN
/
PCD

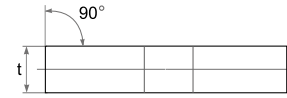
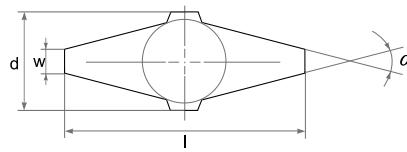
TOOL
HOLDER

MILLING
CUTTER

SPECIAL INSERT

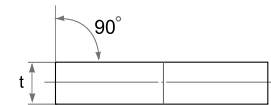
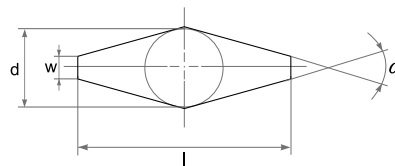
PART.
A

SVW



Type		Dimensions (mm)					NEW NEW																		
ISO	l	α	d	t	w	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SVW 38260	26.00	38°	11.5	7.94	2.23								•												
SVW 38320	32.00	38°	14.5	7.94	3.22								•												
SVW 34400	40.00	34°	18.5	7.94	5.07								•												

GVGN



Type		Dimensions (mm)					NEW NEW																		
ISO	l	α	d	t	w	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
GVGN 38320	32.00	38°	13.46	7.94	3.22								•												
GVGN 38335	33.50	38°	13.28	8.00	3.06								•												
GVGN 36340	34.00	36°	13.59	7.94	3.25								•												
GVGN 38360	36.00	38°	17.38	7.94	5.98								•												
GVGN 34360	36.00	34°	17.42	7.94	7.22								•												

CERAMIC

CERMET

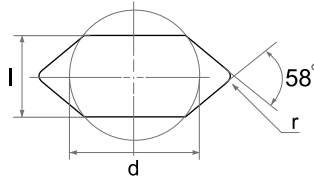
PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER

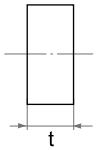
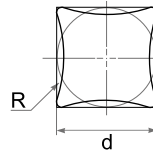
SPECIAL INSERT

SZT 5810



Type	Dimensions (mm)																								
	ISO	d	l	t	r	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800	
SZT 581004	14.70	10.00	7.94	0.4	•	•																			
SZT 581008	14.70	10.00	7.94	0.8	•	•																			
SZT 581012	14.70	10.00	7.94	1.2	•	•																			

SNMX



Type	Dimensions (mm)																								
	ISO	d	t	R	ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800		
SNMX 121007	12.70	10.00	7.0									•													
SNMX 121009	12.70	10.00	9.0									•													
SNMX 121012	12.70	10.00	12.0									•													
SNMX 121015	12.70	10.00	15.0									•													
SNMX 121020	12.70	10.00	20.0									•													
SNMX 121025	12.70	10.00	25.0									•													
SNMX 121030	12.70	10.00	30.0									•													
SNMX 121040	12.70	10.00	40.0									•													
SNMX 121050	12.70	10.00	50.0									•													

CERAMIC

CERMET

PCBN
/
PCD

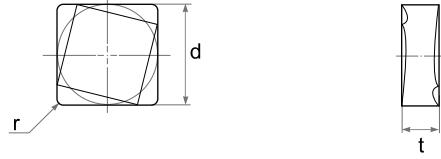
TOOL
HOLDER

MILLING
CUTTER

SPECIAL INSERT

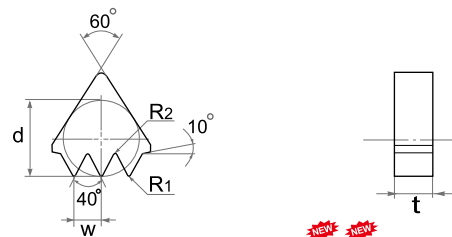
PART.
A

SNGF



Type		Dimensions (mm)			ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO	ASA	d	t	r																			
SNGF 120412	SNGF 433	12.70	4.76	1.2												•					•		

INGN



Type		Dimensions (mm)					ST100	ST300	ST500	ST900	TC300	TM300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN1000	NC400	SW400	SW800
ISO		d	t	w	R ₁	R ₂																			
INGN 160435 F303		9.52	4.76	3.56	0.5	0.3								•											
INGN 160435 F304		9.52	4.76	3.56	0.5	0.4								•											
INGN 220435 F403		12.70	4.76	3.56	0.5	0.3								•											
INGN 220435 F404		12.70	4.76	3.56	0.5	0.4								•											

CERAMIC

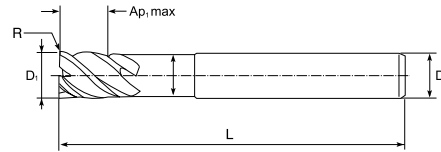
CERMET

PCBN
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PCD

TOOL
HOLDER

MILLING
CUTTER

ENDMILL (FINISHED)



Type	Flute F	Mill Diameter x Corner R $\phi D_1 \times R$	Length of Cut L_1	Effective Length L_2	Neck Diameter ϕd_2	Overall Length L	Shank Diameter ϕD	NEW	
								SN1000	SW800
SYC 6040 R0.5	4	$\phi 6 \times R 0.5$	4.5	12	5.8	60	$\phi 6$		•
SYC 8040 R1.0	4	$\phi 8 \times R 1.0$	6	16	7.7	60	$\phi 8$		•
SYC 10040 R1.25	4	$\phi 10 \times R 1.25$	7.5	20	9.7	65	$\phi 10$	•	•
SYC 12040 R1.5	4	$\phi 12 \times R 1.5$	9	24	11.7	70	$\phi 12$		•
SYC 6060 R0.5	6	$\phi 6 \times R 0.5$	4.5	12	5.8	60	$\phi 6$		•
SYC 8060 R1.0	6	$\phi 8 \times R 1.0$	6	16	7.7	60	$\phi 8$		•
SYC 10060 R1.25	6	$\phi 10 \times R 1.25$	7.5	20	9.7	65	$\phi 10$	•	•
SYC 12060 R1.5	6	$\phi 12 \times R 1.5$	9	24	11.7	70	$\phi 12$		•

CERAMIC

CERMET

PCBN
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PCD

TOOL
HOLDER

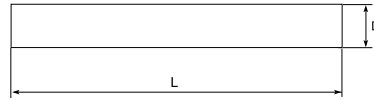
MILLING
CUTTER

SPECIAL INSERT

PART.

A

ENDMILL (BLANK)



TURNING
&
MILLING

Type	Dimensions (mm)		NEW	
	D	L	SN1000	SW800
ROD 060-600S	6	60		
ROD 080-600S	8	60		
ROD 100-650S	10	65		
ROD 100-720S	10	72	•	•
ROD 120-700S	12	70		
ROD 140-850S	14	85		
ROD 160-900S	16	90		
ROD 180-1000S	18	100		
ROD 200-1050S	20	105		

* Remarks : Available upon customer request

CERAMIC

CERMET

PCBN
/
PCD

TOOL
HOLDER

MILLING
CUTTER