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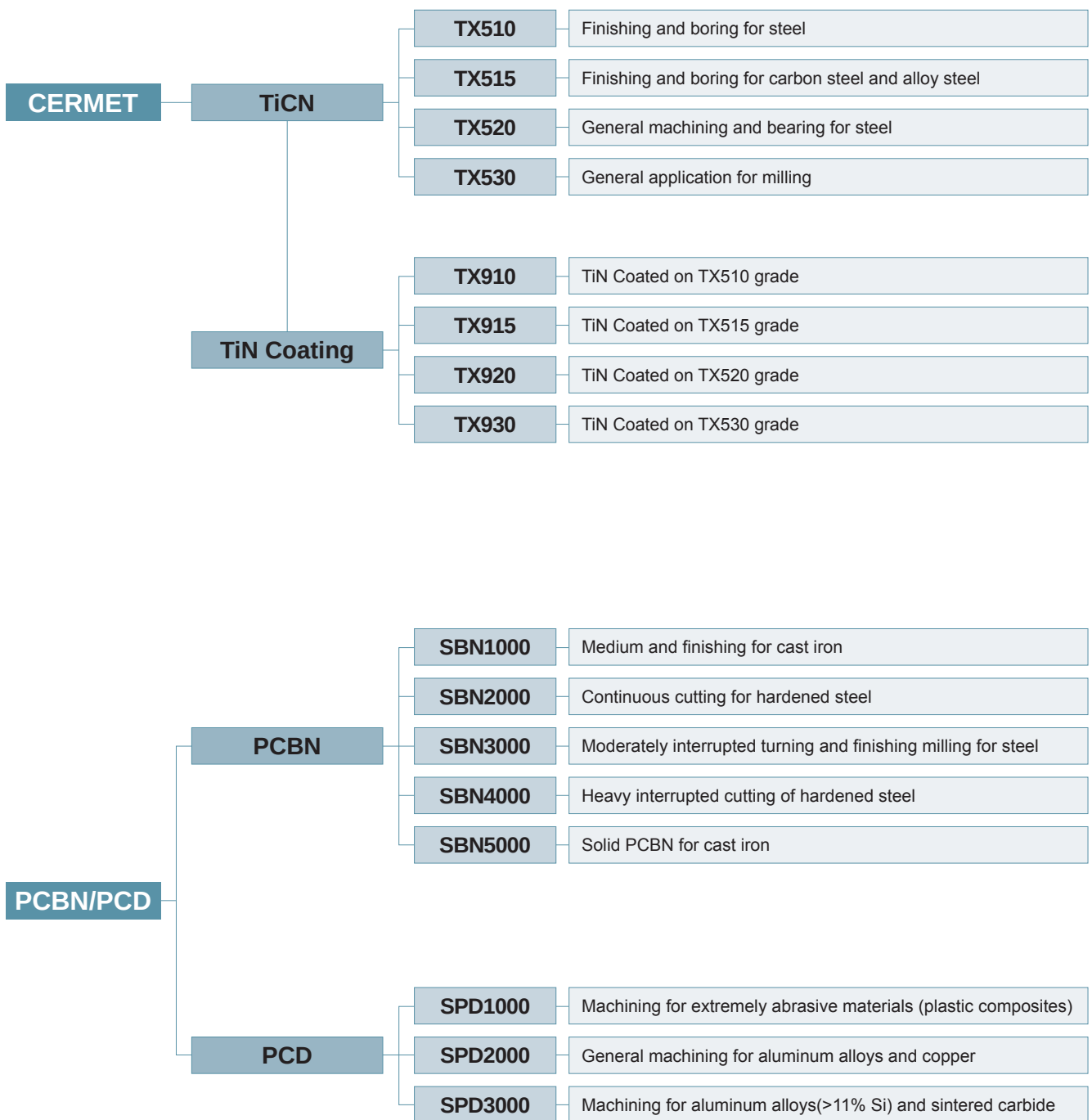
GRADE INFORMATION

Turning & Milling

CERAMIC

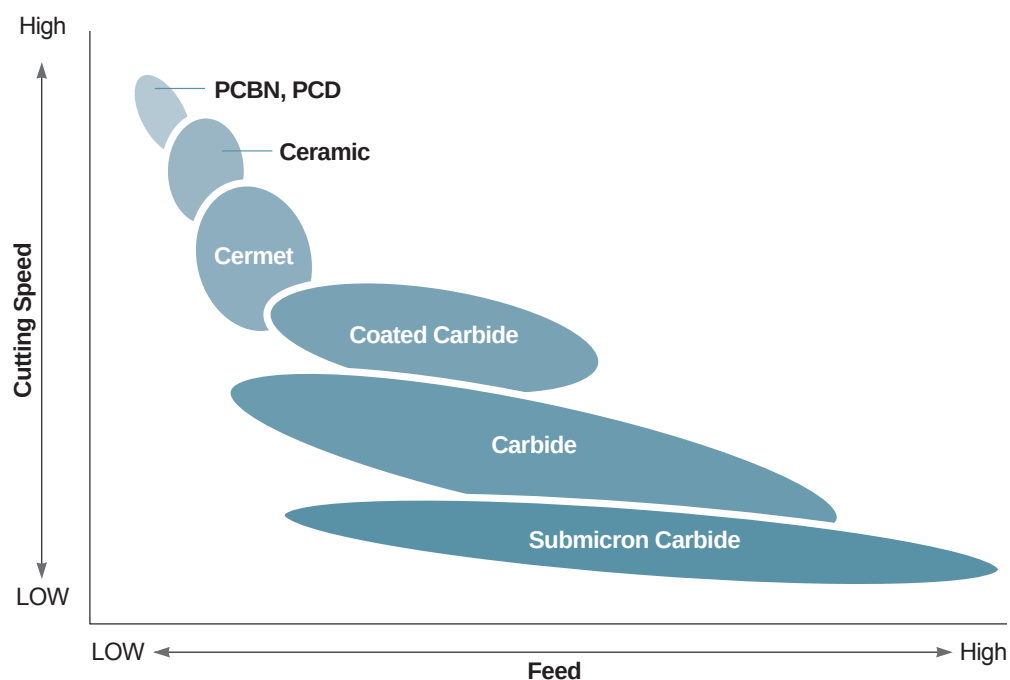
SiC-Whisker	NEW SW400	High Speed Steel, High Chrome Steel in medium or low speed cutting. Roughing and medium cutting with heavy interruption
	NEW SW800	Nickel Base Alloy, Cobalt Base Alloy in high speed cutting. Roughing and finishing with continuous or light interruption
Al ₂ O ₃ +TiC(N)	ST100	Finishing for hardened steel and cast iron
	ST300	General machining for hardened steel and cast iron
	ST500	Fine finishing for hardened steel and cast iron
	ST700	Fine finishing for hardened steel and cast iron in high speed
TiN Coating	TC100	TiN coated on ST100 grade
	TC300	TiN coated on ST300 grade
TiC+Al ₂ O ₃	SD200	Turning & Milling for ductile cast iron in finish
Al ₂ O ₃ +ZrO ₂	SZ200	Medium cutting for cast iron
	SZ300	Medium cutting for high hardness cast iron
Si ₃ N ₄	SN26	Roughing and interrupted cutting for cast iron
	SN300	Roughing and heavy interrupted cutting for cast iron
	SN400	General machining for cast iron
	SN500	Roughing for hard material in high speed
	SN600	Roughing for hard material with interrupted in high speed
	SN800 (SiAlon)	General machining for high temperature alloy and inconel (Dry)
	NEW SN900 (SiAlon)	General machining for high temperature alloy and inconel (Wet)

GRADE INFORMATION

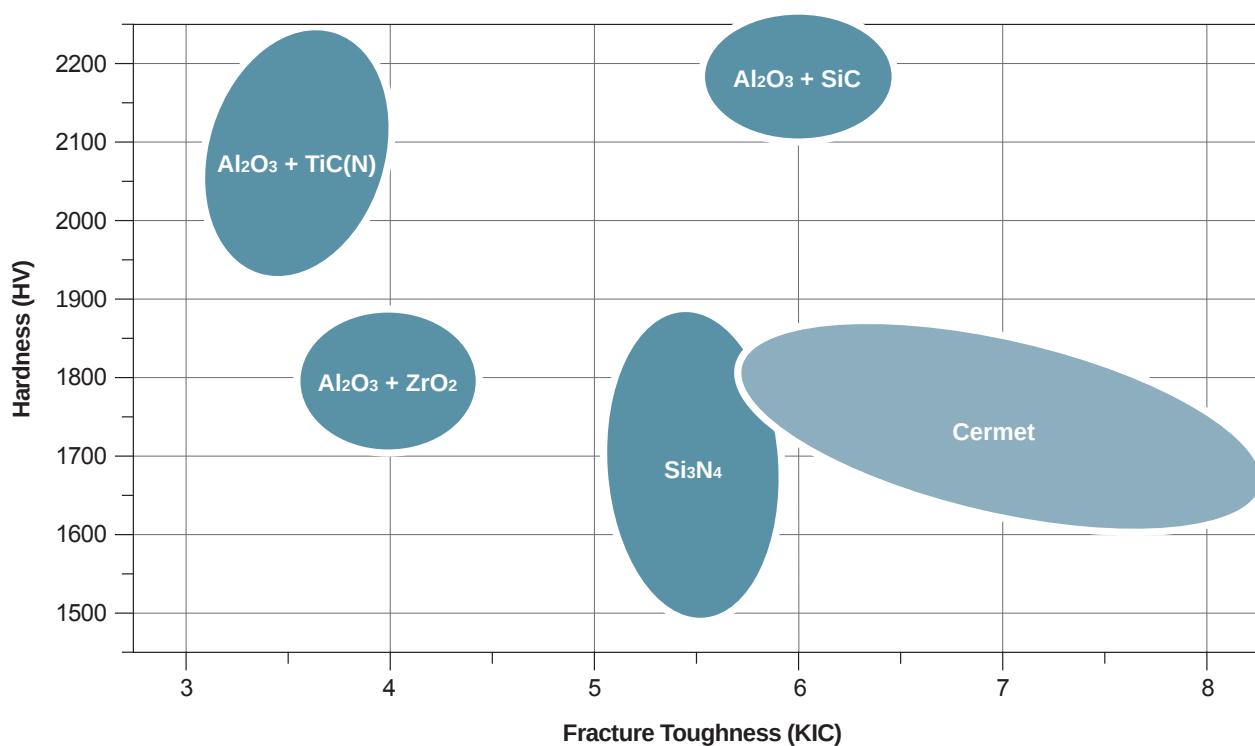


GRADE INFORMATION

Application Range



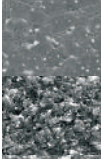
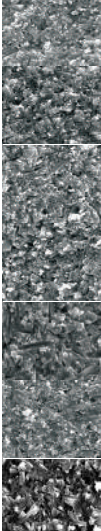
Mechanical Properties



CERAMIC

Ssangyong 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	NEW SW400	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	High Speed Steel, High Crom Steel in medium or low speed cutting Roughing and Medium cutting with heavy interruption	Tougher
		NEW SW800	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	Nickel Base Alloys, Cobalt Base Alloys in High speed cutting Roughing and Finishing with continuous or light interruption	Harder
	Al₂O₃ 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	
		ST700	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	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
	ZrO₂ 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
	Si₃N₄ 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 alloys and inconel	Harder
		NEW SN900	Excellent thermal shock resistance and thermal conductivity SiAlON	Tough machining in heat resistance Super alloy (HRSA)	Tougher

GRADE INFORMATION

Physical Properties

Grade	Composition	Color	Density (g/cm ³)	Hardness (HV)	Toughness (MPa·m ^{1/2})	Thermal Conductivity (cal/cm. sec. °C)
NEW SW400	Al ₂ O ₃ +SiC	Green	3.8	2,100	7.0	-
NEW 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
ST700	Al ₂ O ₃ +TiCN	Black	4.40	2,200	4.50	0.08
TC100	ST100+TiN PVD	Gold	4.20	2,150	4.00	-
TC300	ST300+TiN PVD	Gold	4.40	2,200	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
NEW SN900	Si ₃ N ₄	Gray	3.22	1,600	5.00	0.07

Choice of Ceramic Grade for Workpiece

		ST100/ST300 ST500/ST700 TC100/TC300	SD200	SZ200 SZ300	SN26 SN300/SN400 SN500/SN600	SN800 SN900	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

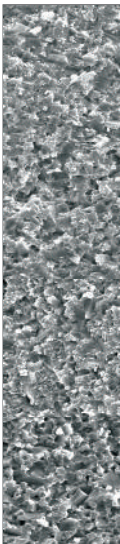
Application	Grade	Workpiece		Machining Type	Speed (V) (m/min)	Feed (f) (mm/rev)	Depth (DOC) (mm)
Turning	ST100 ST300 ST500 ST700 TC100 TC300	Gray Cast Iron	Gray Cast Iron (FC) Malleable (FCMB)	Rough Finish	150 ~ 800 200 ~ 1,200	0.2 ~ 0.5 0.3 ~ 0.5	3 ~ 6 0.1 ~ 0.5
			Chilled Cast Iron	Rough Finish	30 ~ 100 50 ~ 200	0.1 ~ 0.2 0.05 ~ 0.15	0.5 ~ 1.5 0.1 ~ 0.5
		Steel	Carbon Steel Alloy Steel Bearing Steel	Rough Finish	150 ~ 400 200 ~ 800	0.2 ~ 0.5 0.05 ~ 0.2	2 ~ 5 0.1 ~ 0.5
			Hard Steel (HRC 45≥)	Rough Finish	20 ~ 100 40 ~ 200	0.1 ~ 0.2 0.05 ~ 0.5	0.5 ~ 1.5 0.1 ~ 0.5
	SD200	Ductile Cast Iron Nodular Cast Iron		Rough Finish	100 ~ 400 200 ~ 800	0.1 ~ 0.2 0.05 ~ 0.25	1 ~ 2 0.1 ~ 0.5
	SZ200 SZ300	Gray Cast Iron (FC) Steel (HRC 45≤)		Rough Finish	200 ~ 700 300 ~ 1,200	0.2 ~ 0.4 0.05 ~ 0.3	2 ~ 5 0.1 ~ 0.5
	SN26 SN300 SN400 SN500 SN600	Gray Cast Iron	Gray Cast Iron (FC) Malleable (FCMB)	Rough Finish	150 ~ 1,100 250 ~ 1,200	0.3 ~ 0.8 0.15 ~ 0.4	< 5 < 1
			Chilled Cast Iron	Rough Finish	20 ~ 100 60 ~ 200	1.0 ~ 2.0 0.5 ~ 1.0	< 5 < 1
		Ni-Based Alloy Non-Ferrous Metal Inconel		Rough Finish	150 ~ 250 150 ~ 450	0.2 ~ 0.4 0.1 ~ 0.2	< 5 < 1
		High temperature alloys Inconel Stellite		Rough Finish	180 ~ 360 180 ~ 450	0.1 ~ 0.25 0.1 ~ 0.30	1 ~ 3 0.5 ~ 2.0
Milling	SN26 SN300 SN400 SN500 SN600	Gray Cast Iron (FC)		Rough Finish	100 ~ 1,200 150 ~ 1,500	0.3 ~ 0.5 0.3 ~ 0.7	< 5 < 3
		Ductile Cast Iron Alloy Steel		Rough Finish	90 ~ 500 100 ~ 700	0.1 ~ 0.3 0.1 ~ 0.4	< 5 < 3
		High temperature alloys Inconel Stellite		Finish	700 ~ 1,000	0.05 ~ 0.15 / tooth	0.5 ~ 2.5
		High temperature alloys Inconel		Rough	150 ~ 400	0.05 ~ 0.1 / tooth	1 ~ 3
	NEW SN800 NEW SN900	High temperature alloys Inconel Stellite		Finish	700 ~ 1,000	0.05 ~ 0.15 / tooth	0.5 ~ 2.5

GRADE INFORMATION

CERMET

A matrix of TiCN with carbide as a metal binder, Ssangyong 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 (HV)	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

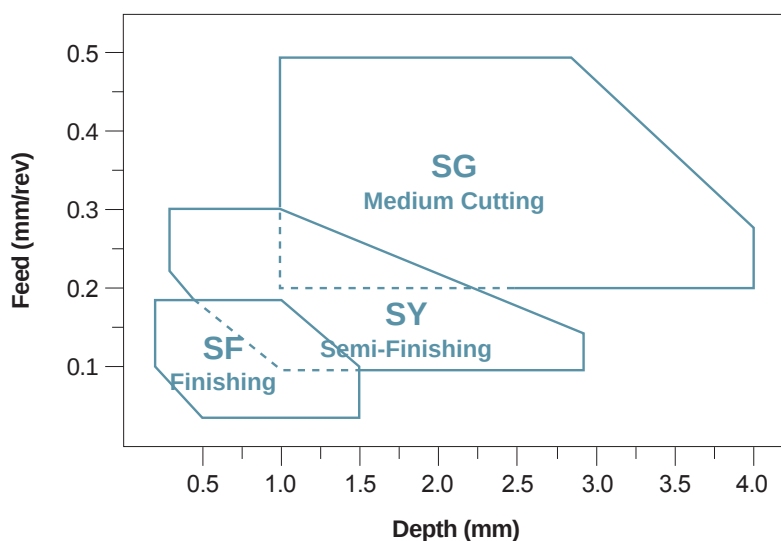
	TX510/TX910	TX515/TX915	TX520/TX920	TX530/TX930
MILD STEEL	◎	◎	◎	○
CARBON STEEL	◎	◎	◎	◎
ALLOY STEEL	○	○	○	○
FORGED STEEL	◎			
HEAT TREATED STEEL	◎			
HEAT RESISTANT STEEL		◎	◎	◎

◎ : 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

GRADE INFORMATION

PCBN / PCD

Ssangyong PCBN is an ultra hard cutting tool consisting of polycrystalline cubic boron nitride with metallic or ceramic binder. It is available both tip brazed and solid CBN.

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

- PCBN is for hardened ferrous material
- PCD is for non-ferrous material, wood and aluminum and copper alloys at extremely high speed
- Extremely hard and wear-resistant
- Dry or wet machining depending on the cutting condition

PCBN	SBN1000	Ultra high hardness Its hardness is up to 3,900 Hv Content of CBN : 95%	Ultra cutting speed for cast iron from roughing to finishing Machining chilled cast irons and high chrome alloy steel	Harder ↑ ↓ Tougher ↑ ↓ Harder
	SBN2000	Machining for continuous cut of hardened steel Its hardness is up to 2,700 Hv Content of CBN : 50%	Precision finishing of hardened steel Recommended to use for hard materials Bearing steel, forged steel and high speed steel	
	SBN3000	Best combination of wear resistance and toughness Its hardness is up to 2,700 Hv Content of CBN : 60%	Light interrupted cut of hardened steel General purpose of turning and milling for hardened steel	
	SBN4000	Good resistance to crater and flank wear Its hardness is up to 2,900 Hv Content of CBN : 65%	Heavy interrupted cut of hardened steel	
	SBN5000	Extreme wear resistance Solid CBN Content of CBN : 93%	Rough machining of cast iron powder metal alloy	
PCD	SPD1000	Machining with fine surface finish Particle Size : 4~5μm	Machining of aluminum and wood Gives fine surface finish in turning operation	Harder ↑ ↓ Tougher ↑ ↓ Harder
	SPD2000	Ultra high hardness Great wear resistance Particle Size : 8~9μm	The first choice of PCD grades Turning operation of aluminum and copper alloy Machining aluminum alloy with lower percentage of Si	
	SPD3000	Machining with interruption Particle Size : 15~22μm	Milling operation of aluminum alloy Machining ultra fine alloy and powder sintered metal cutting of composites	

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
		SBN2000	High hardened steel (finishing, >HrC 45)	100 ~ 140	0.10 ~ 0.20	0.10 ~ 0.75
			Hardened alloy steel (>HrC 35)	100 ~ 240	0.05 ~ 0.30	0.10 ~ 2.50
		SBN3000	Hardened steel	80 ~ 160	0.02 ~ 0.20	<0.5
		SBN3000	Heat resistance sintered steel	50 ~ 100	0.05 ~ 0.20	<0.5
	PCD	SBN4000	Hardened steel	120 ~ 250	0.025 ~ 0.50	0.05 ~ 0.30
		SBN4000	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
		SBN5000	Hard cast iron (HrC 59)	50 ~ 150	0.10 ~ 1.00	<0.5
Milling	PCBN	SPD1000	Plastic alloy	300 ~ 1,000	0.05 ~ 0.25	0.05 ~ 3.00
		SPD1000	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
	PCD	SPD2000, SPD3000	Aluminum alloy (Si 4~8%)	800 ~ 2,500	0.10 ~ 0.30	0.05 ~ 3.00
			(Si 9~14%)	500 ~ 1,290	0.10 ~ 0.30	0.05 ~ 3.00
		SPD3000	(Si 16~18%)	300 ~ 600	0.10 ~ 0.30	0.05 ~ 3.00
Milling	PCBN	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
		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
	PCD	SBN2000	Hardened steel (>HrC 45)	120 ~ 240	0.10 ~ 0.25	0.12 ~ 1.00
		SBN2000	Hardened alloy steel (>HrC 35)	120 ~ 240	0.10 ~ 0.35	0.10 ~ 1.00
Milling	PCBN	SBN3000	Hardened steel (>HrC 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
		SPD3000				

Physical Properties

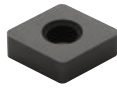
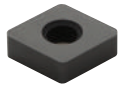
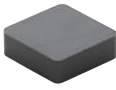
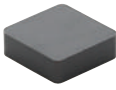
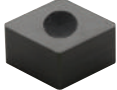
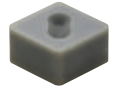
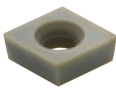
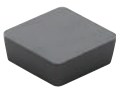
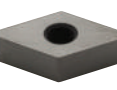
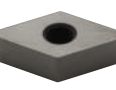
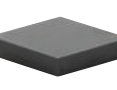
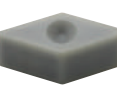
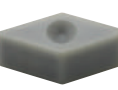
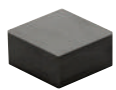
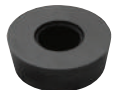
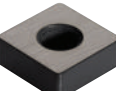
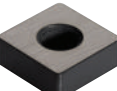
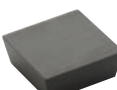
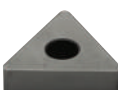
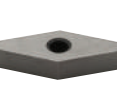
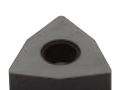
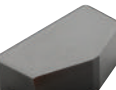
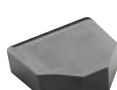
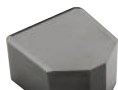
Grade	Contents of pCBN (%)	Particle size (μm)	Hardness (HV)
SBN1000	95	3	3,900
SBN2000	50	1	2,700
SBN3000	60	2	2,700
SBN4000	65	5	2,900
SBN5000	93	10	3,900

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

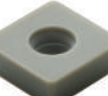
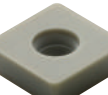
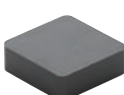
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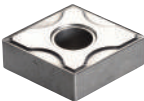
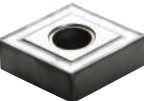
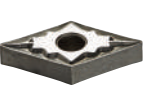
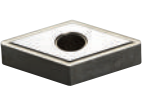
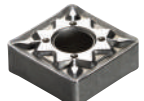
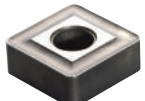
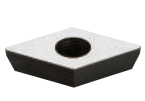
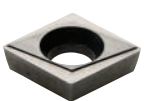
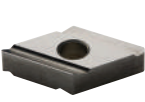
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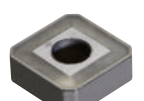
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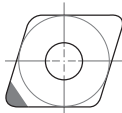
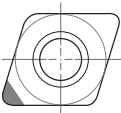
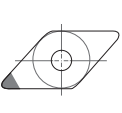
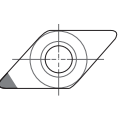
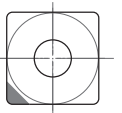
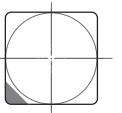
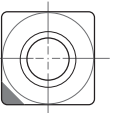
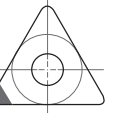
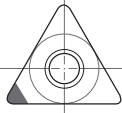
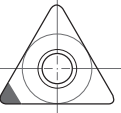
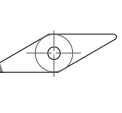
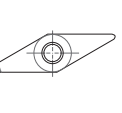
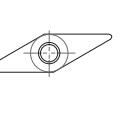
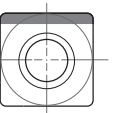
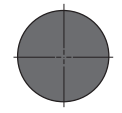
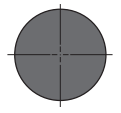
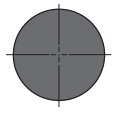
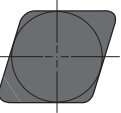
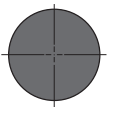
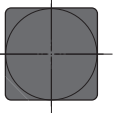
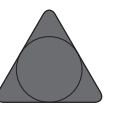
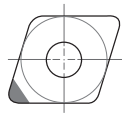
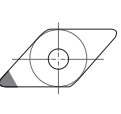
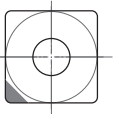
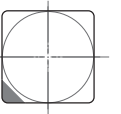
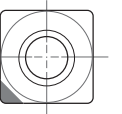
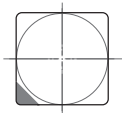
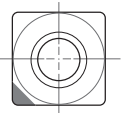
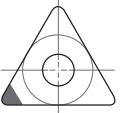
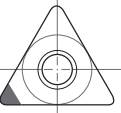
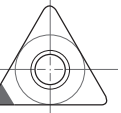
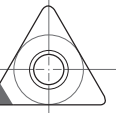
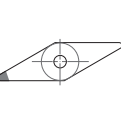
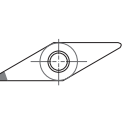
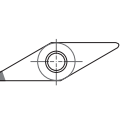
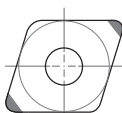
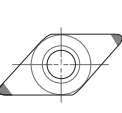
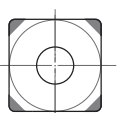
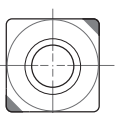
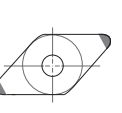
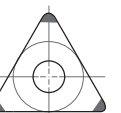
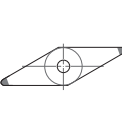
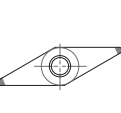
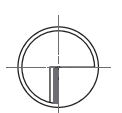
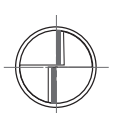
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IDENTIFICATION SYSTEM

ISO
ASA

TURNING

MILLING

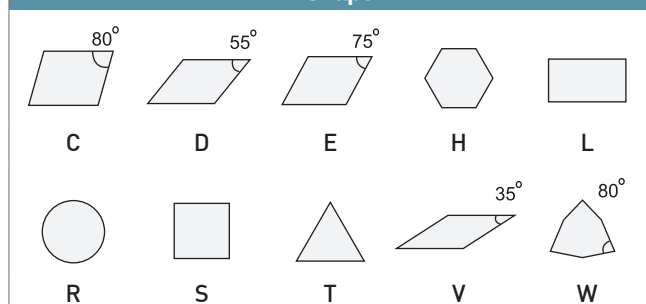
S
S
S
1

N
N
P
2

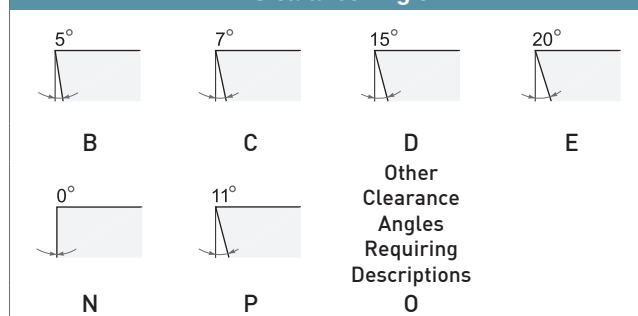
G
G
K
3

N
N
N
4

1 Shape



2 Clearance Angle



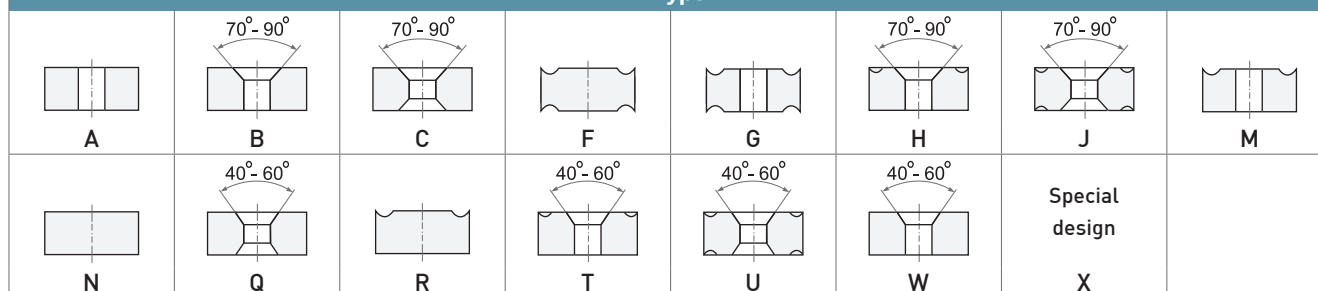
3 Tolerance

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

*See tables below

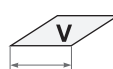
IC (mm)	D		C, E, H, O, S, T, R, W			
	d(mm)	m(mm)	d(mm)		m(mm)	
	M, N	M, N	J, K, L, M, N	U	M, N	U
5.56	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
6.35	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
7.94	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
9.52	±0.05	±0.11	±0.05	±0.08	±0.08	±0.13
12.70	±0.08	±0.15	±0.08	±0.13	±0.13	±0.20
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

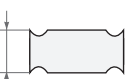
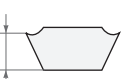
4 Type



IDENTIFICATION SYSTEM

12 04 08 E040
4 3 2
4 3 E D T R
5 6 7 8 9 10 11 12

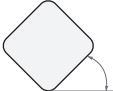
5 Cutting Edge Length									
Diameter of inscribed circle	ASA		ISO						
	over 6.35 (IC)	over 5.56 (IC)							
3.969	-	5	03	02	-	04	03	03	06
4.762	-	6	04	03	-	05	04	04	08
5.556	-	7	05	03	09	06	05	05	09
6.350	2	(8)	06	04	11	07	06	06	11
7.938	-	0	07	05	13	09	08	07	13
9.525	3	-	09	06	16	11	09	09	16
12.700	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

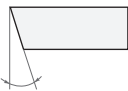
6 Thickness			
			
Thickness (mm)	ISO	ASA	
		Over 6.35(IC)	Over 5.56(IC)
1.59	01	-	2
2.38	02	-	3
3.18	03	2	4
3.97	T3	-	5
4.76	04	3	6
5.56	05	-	-
6.35	06	4	-
7.94	07	5	-
9.52	09	6	-
12.70	12	8	-

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

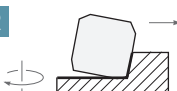
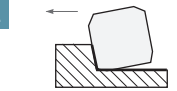
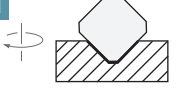
8 Shape and Corner

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°

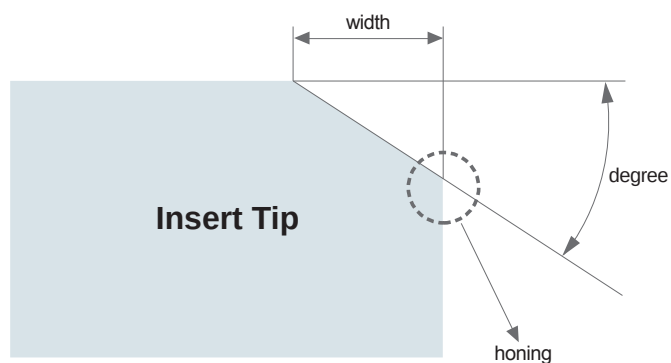
11 Edge	
F	Sharp
E	Honed
T	Chamfered
S	Chamfered + Honed

12 Cutting Direction	
R	
L	
N	

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 (°)

E : 20
G : 30

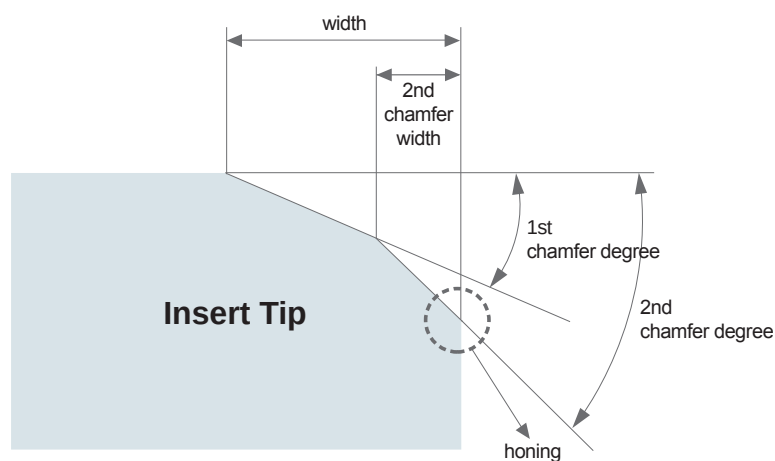
Chamfer Width (mm)

01 : 0.05	20 : 1.00
02 : 0.10	40 : 2.00
03 : 0.15	
04 : 0.20	

Honing (μm)

0 : No Honing
1 : 10
2 : 20
3 : 30

2 Double chamfer



ISO

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

1st Chamfer Degree (°)

W : 10
X : 15

1st Chamfer Width (mm)

4 : 1.20	A : 0.75
5 : 1.50	B : 1.25
6 : 2.00	D : 2.30

2nd Chamfer Width(mm)×Degree

3 : 0.20×25	A : 0.15×30
4 : 0.10×30	B : 0.45×25
5 : 0.20×30	

Honing (μm)

0 : No Honing
1 : 10
2 : 20
3 : 30
5 : 50

Ceramic Insert

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

Since the Ssangyong 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

Ssangyong 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.

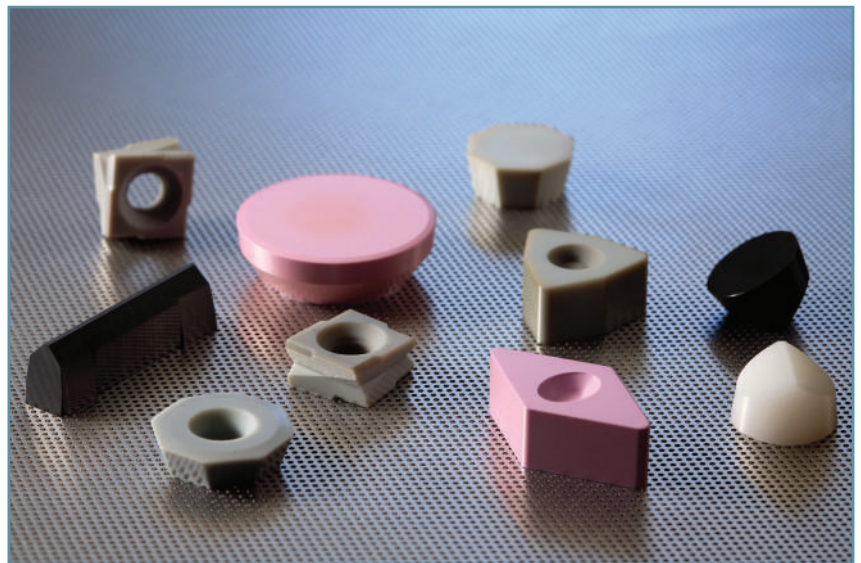
PCBN/PCD Insert

Ssangyong 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.

Ssangyong 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.



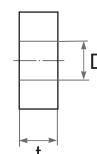
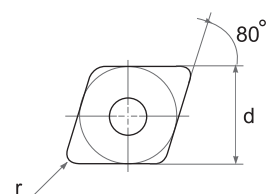
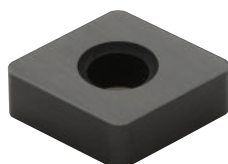


Ceramic

T urning	A 24
R oll Turning	A 52
G rooving	A 58
M illing	A 65
W iper(ZZ)	A 73
S pecial	A 77

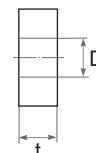
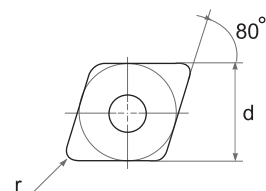
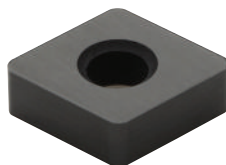
CERAMIC

CNGA



Type		Dimensions (mm)																				NEW	NEW	NEW
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●																		

CNMA



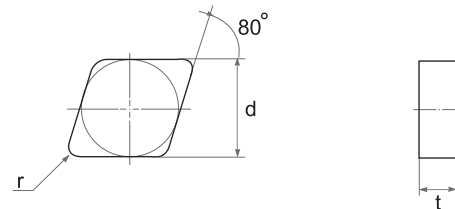
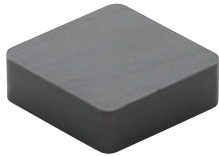
Type		Dimensions (mm)				NEWNEWNEW																	
						ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	r	D											●	●						
CNMA 120408	CNMA 432	12.70	4.76	0.8	5.16											●	●						
CNMA 120412	CNMA 433	12.70	4.76	1.2	5.16											●	●	●	●	●			
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												●		●				

NEW NEW NEW

CERAMIC

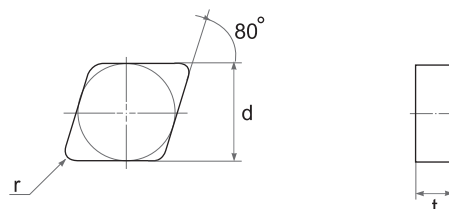
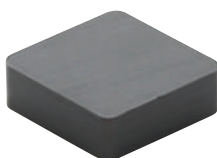
Turning & Milling

CNGN



Type		Dimensions (mm)			NEW NEW NEW																		
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●	●	●							●									

CNMN

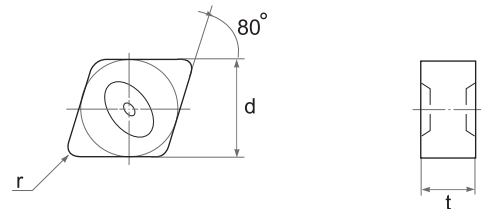
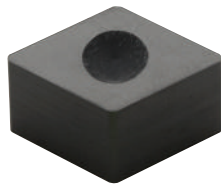


Turning & Milling

Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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												●			●			

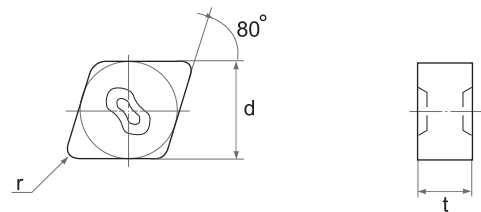
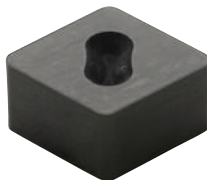
CERAMIC

CNGX



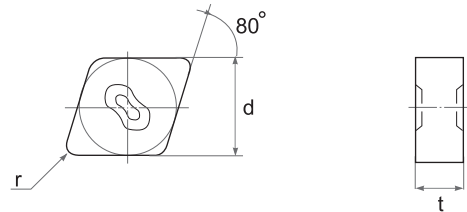
Type		Dimensions (mm)			new new new																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
CNGX 120412	CNGX 433	12.70	4.76	1.2											●	●						
CNGX 120416	CNGX 434	12.70	4.76	1.6												●						
CNGX 120708	CNGX 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



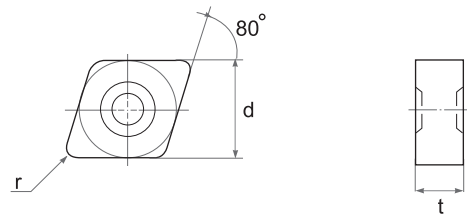
Type		Dimensions (mm)																			NEW	NEW	NEW
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
CNVX 120412	CNVX 433	12.70	4.76	1.2												●							
CNVX 120416	CNVX 434	12.70	4.76	1.6												●							
CNVX 120708	CNVX 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		●		●				●			●	●	●	●	●				
CNVX 160708	CNVX 552	15.87	7.94	0.8																			
CNVX 160712	CNVX 553	15.87	7.94	1.2																			
CNVX 160716	CNVX 554	15.87	7.94	1.6																			

CNMX



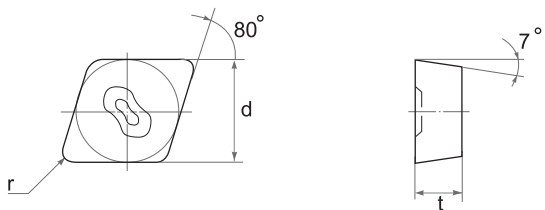
Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	r																		
CNMX 120712	CNMX 453	12.70	7.94	1.2												●	●	●				
CNMX 120716	CNMX 454	12.70	7.94	1.6												●	●	●	●			

CNMX .. RD



Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	r																		
CNMX 120716 RD	CNMX 454 RD	12.7	7.94	1.6											●	●						

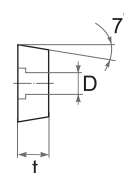
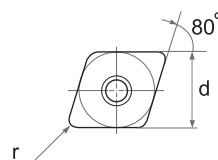
CCGX



Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	r																		
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

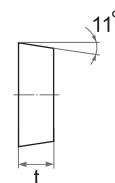
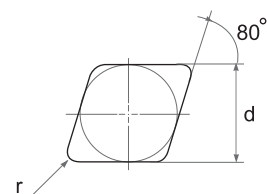
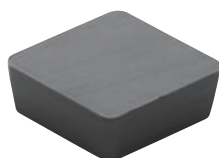
CCGW



Type	Dimensions (mm)																		
	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800
ISO																			
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												●			

NEW NEW NEW

CPGN

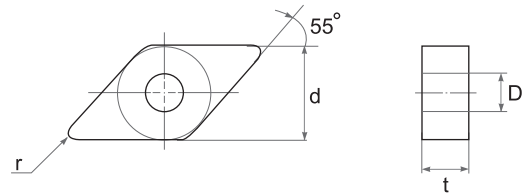
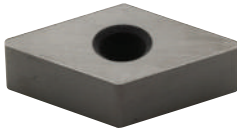


Turning & Milling

Type		Dimensions (mm)			NEWNEWNEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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																		

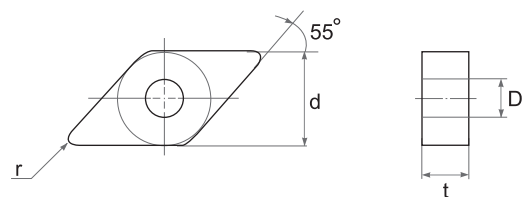
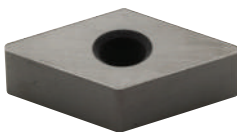
CERAMIC

DNGA



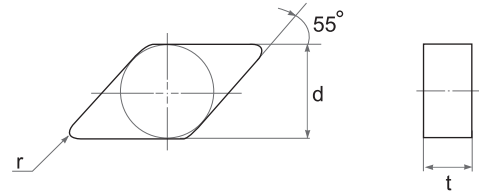
Type		Dimensions (mm)																				New	New	New
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
DNGA 150404	DNGA 431	12.70	4.76	0.4	5.16	●	●		●															
DNGA 150408	DNGA 432	12.70	4.76	0.8	5.16	●	●	●	●		●				●	●	●					●	●	
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	●																		

DNMA



Type		Dimensions (mm)				NEW NEW NEW																	
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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												●						

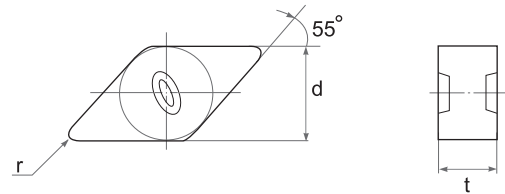
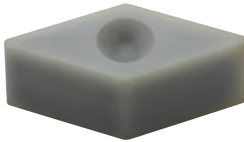
DNGN



Type		Dimensions (mm)																			NEW	NEW	NEW
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●	●						●		●	●	●			●				

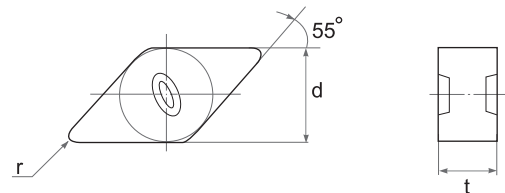
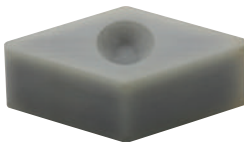
CERAMIC

DNGX



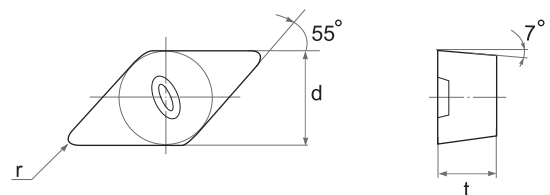
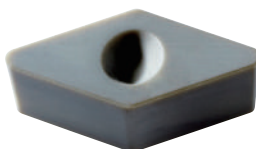
Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
DNGX 120708	DNGX 352	10.00	7.94	0.8								●				●						
DNGX 120712	DNGX 353	10.00	7.94	1.2								●			●	●	●	●	●			
DNGX 120716	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



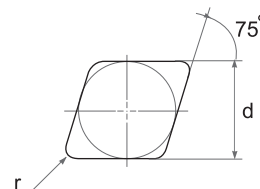
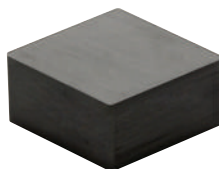
Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
DNMX 120708	DNMX 352	10.00	7.94	0.8													●					
DNMX 120712	DNMX 353	10.00	7.94	1.2												●	●					
DNMX 120716	DNMX 354	10.00	7.94	1.6												●	●	●				

DCGX



Type		Dimensions (mm)																		
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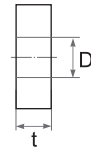
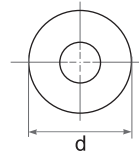
ENGN



Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
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	●	●					●			●	●	●						

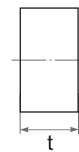
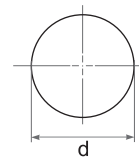
CERAMIC

RNGA



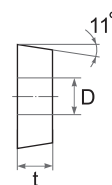
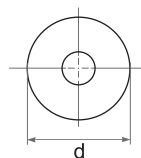
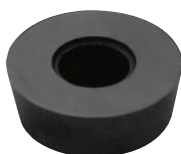
Type		Dimensions (mm)			NEW																	
ISO	ASA	d	t	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	NEW	NEW
RNGA 120400	RNGA 430	12.70	4.76	5.16	●	●																
RNGA 120700	RNGA 450	12.70	7.94	5.16	●	●															●	●

RNGN



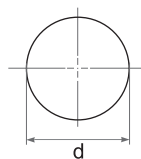
Type		Dimensions (mm)																			
ISO	ASA	d	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
RNGN 060300	RNGN 220	6.35	3.18		●																
RNGN 060400	RNGN 230	6.35	4.76	●		●															
RNGN 090300	RNGN 320	9.52	3.18	●		●							●	●							
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 0807MO		8.00	7.94	●																	
RNGN 1007MO		10.00	7.94	●																	
RNGN 1207MO		12.00	7.94	●																	

RPGA



Type		Dimensions (mm)			new new new																	
ISO	ASA	d	t	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
RPGA 120400	RPGA 430	12.70	4.76	5.16	●																	
RPGA 120700	RPGA 450	12.70	7.94	5.16	●																	

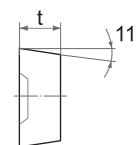
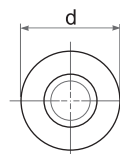
RPGN



Type		Dimensions (mm)																			
ISO	ASA	d	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
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		●																

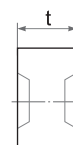
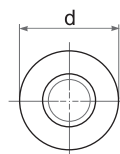
CERAMIC

RPGX .. DP



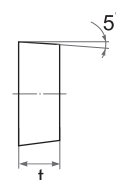
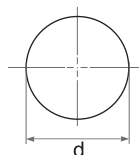
Type		Dimensions (mm)		ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t																		
RPGX 1204 DP	RPGX 43 DP	12.70	4.76															●			
RPGX 1207 DP	RPGX 45 DP	12.70	7.94															●			

RNGX .. DP



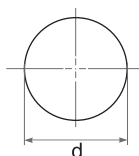
Type		Dimensions (mm)		ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t																		
RNGX 1207 DP	RNGX 45 DP	12.70	7.94														●	●			

RBGN



Type		Dimensions (mm)		NEW NEW NEW																	
ISO	ASA	d	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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																		

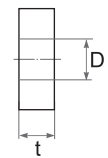
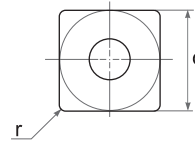
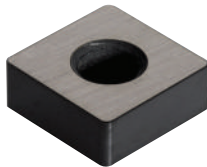
RCGN



Type		Dimensions (mm)		NEW NEW NEW																
ISO	d	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●	●	●					●		●					●			

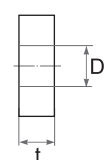
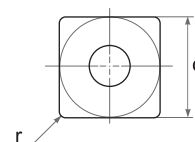
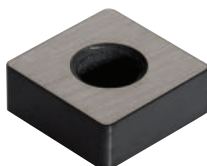
CERAMIC

SNGA



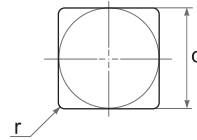
Type		Dimensions (mm)				newnewnew																	
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
SNGA 090304	SNGA 321	9.52	3.18	0.4	3.81	●	●																
SNGA 090308	SNGA 322	9.52	3.18	0.8	3.81	●	●																
SNGA 090312	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																		

SNMA



Type		Dimensions (mm)				NEW NEW NEW																	
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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											●	●						

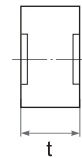
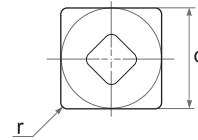
SNGN



Type		Dimensions (mm)																					NEW	NEW	NEW
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800			
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	●		●	●				●		●	●	●			●						

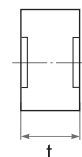
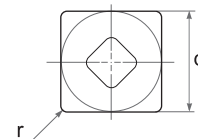
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SNGX



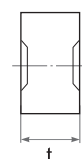
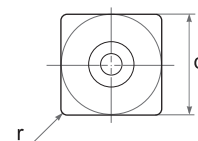
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SNMX



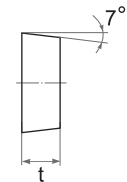
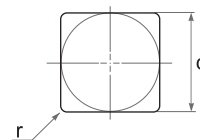
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SNMX..RD



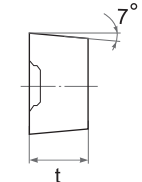
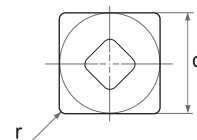
Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
SNMX 120716 RD	SNMX 454 RD	12.70	7.94	1.6											●			●				

SCGN



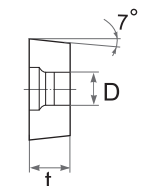
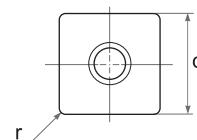
Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
SCGN 090412	SCGN 333	9.52	4.76	1.2	●											●						
SCGN 090416	SCGN 334	9.52	4.76	1.6	●																	
SCGN 120404	SCGN 431	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)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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																		

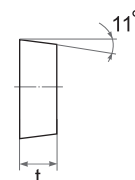
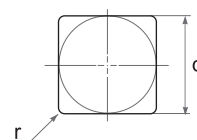
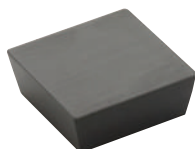
SCGW



Type	Dimensions (mm)				<															
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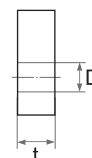
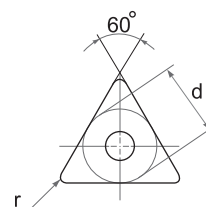
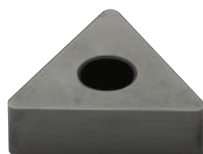
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SPGN



Type		Dimensions (mm)			NEW NEW NEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●	●										●	●					

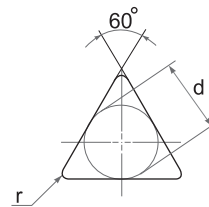
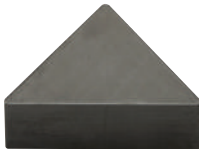
TNGA



Type		Dimensions (mm)				NEWNEWNEW																	
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
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		●																

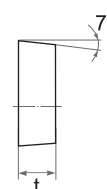
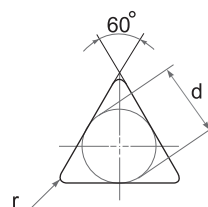
CERAMIC

TNGN



Type		Dimensions (mm)			new new new																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●	●								●								

TCUN

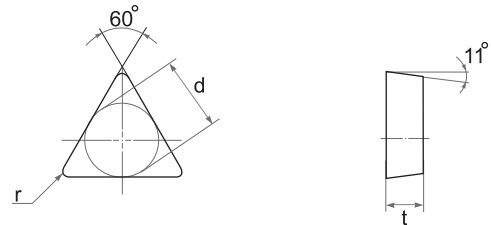
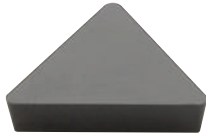


Turning & Milling

Type		Dimensions (mm)																				
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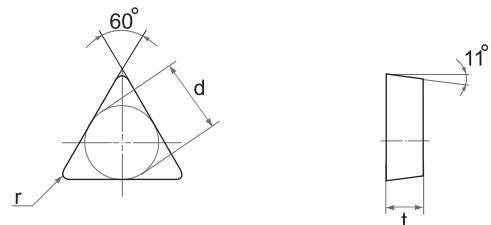
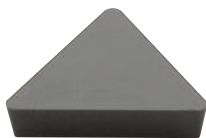
CERAMIC

TPGN



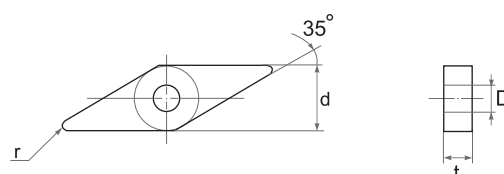
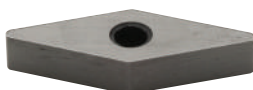
Type		Dimensions (mm)			new new new																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
TPGN 090204	TPGN 731	5.56	2.38	0.4		●																
TPGN 090208	TPGN 732	5.56	2.38	0.8		●																
TPGN 110304	TPGN 221	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		●																

TPUN



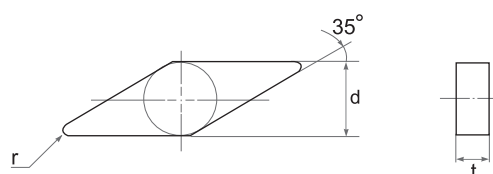
Type		Dimensions (mm)																		
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VNGA



Type		Dimensions (mm)				new new new																	
ISO	ASA	d	t	r	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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																	●	●

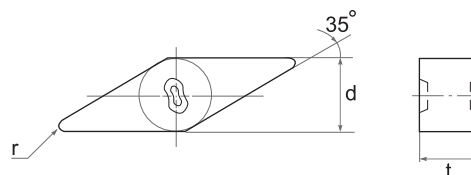
VNGN



Type		Dimensions (mm)			NEWNEWNEW																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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

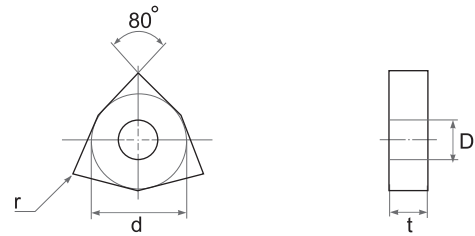
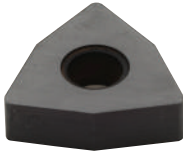
VNGX



Type		Dimensions (mm)																			NEW	NEW	NEW
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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												●							

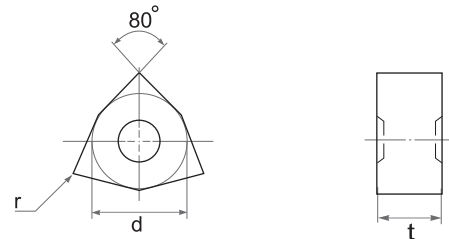
NEW **NEW** **NEW**

WNGA



Type		Dimensions (mm)																				
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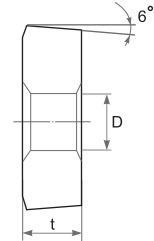
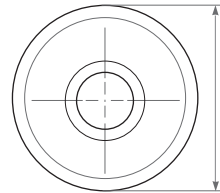
WNGX



Type		Dimensions (mm)			<																	
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CERAMIC

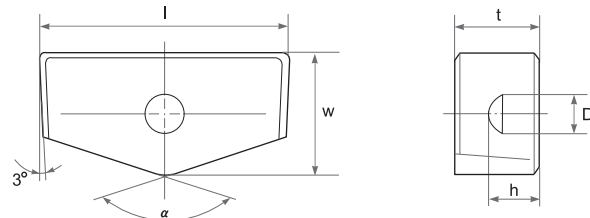
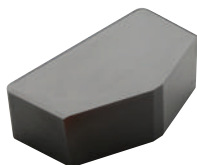
CDH



Type		Dimensions (mm)																				
ISO	ASA	d	t	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●																	

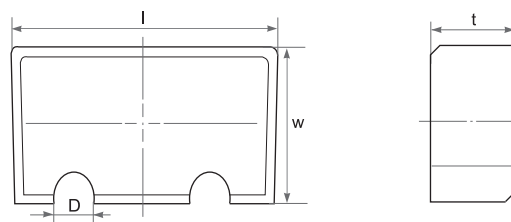
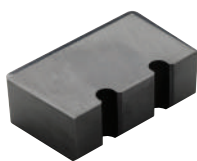
NEW NEW NEW

F-Series



Type	Dimensions (mm)						</															
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F-Series

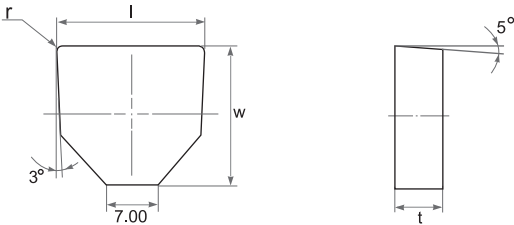
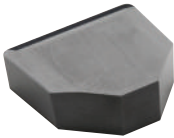


Type	Dimensions (mm)																						NEW	NEW	NEW
ISO	l	w	t	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800			
F 10537 V	44.00	26.00	15.00	5.00	●	●						●													

CERAMIC

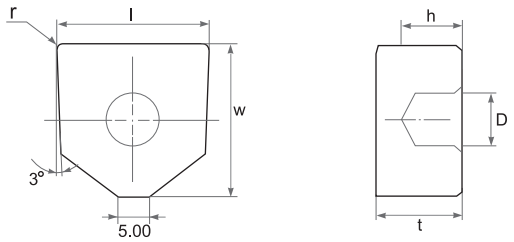
Turning & Milling

F-Series



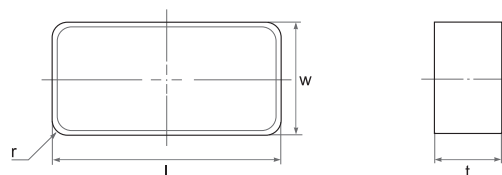
Type	Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	l	t	r	w																		
F 250723	25.00	7.94	1.20	23.00		●																

F-Series



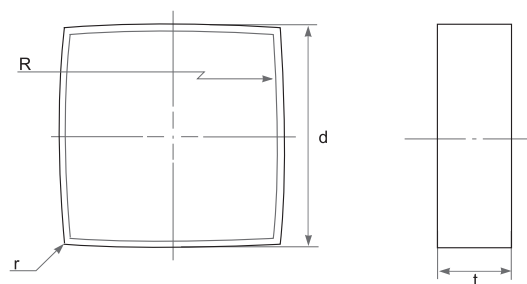
Type	Dimensions (mm)						ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	l	t	r	w	D	h																		
F 251425	25.00	14.40	2.40	25.40	9.17	10.00										●								
F251425 H65	25.40	14.40	2.40	25.40	6.50	10.00										●								

LNJ



Type	Dimensions (mm)				NEW NEW																	
					ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	l	w	t	r																		
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										●								

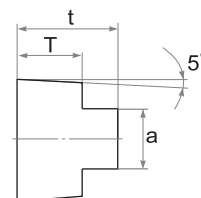
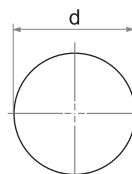
SNGN3812R



Type	Dimensions (mm)																					
	d	t	r	R	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO																						
SNGN 3812R	38.10	12.70	0.4	114	●	●	●															

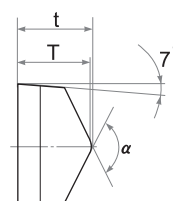
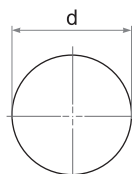
CERAMIC

RBGX



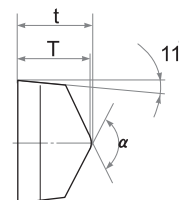
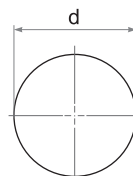
Type	Dimensions (mm)																							
	ISO	d	t	T	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
RBGX 06T	6.00	5.00	3.00	3.00	●	●																		
RBGX 08T	8.00	6.50	4.00	4.00	●	●																		
RBGX 10T	10.00	9.00	6.00	6.00		●																		
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)																					
ISO	ASA	d	t	T	α	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
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°	●	●	●	●						●					●			

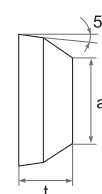
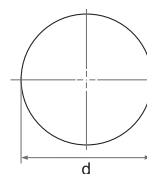
RPGX



Turning & Milling

Type	Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	t	T	α																		
RPGX 060400	6.35	4.76	4.57	120°																		
RPGX 090700	9.52	7.94	7.70	120°																		
RPGX 120700	12.70	7.94	7.70	120°																		

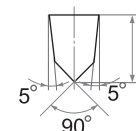
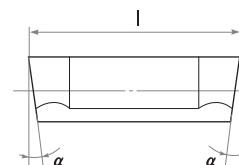
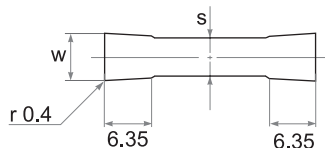
RXGX



Type	Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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	●							●										

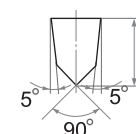
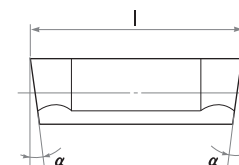
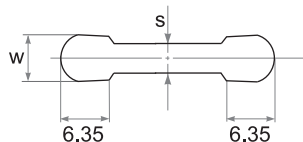
CERAMIC

SYBF



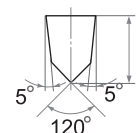
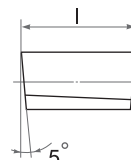
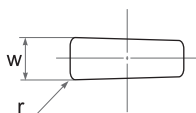
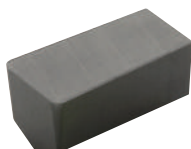
Type	Dimensions (mm)																					NEW	NEW	NEW
	l	w	t	s	α	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
ISO																								
SYBF 3228	28.58	3.18	6.35	2.69	5.0°	●	●																	
SYBF 4828	28.58	4.78	6.35	3.66	5.0°	●	●																	
SYBF 5528	28.58	5.54	6.35	3.66	5.0°																			
SYBF 6428	28.58	6.35	8.56	5.13	7.0°	●	●																	
SYBF 7928	28.58	7.93	8.56	5.13	7.0°	●	●																	
SYBF 9528	28.58	9.53	8.56	6.99	7.0°																			

SYBR



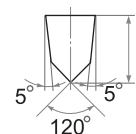
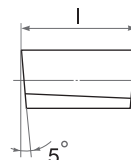
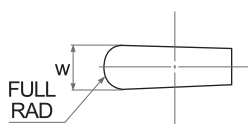
Type	Dimensions (mm)																							NEW	NEW	NEW
	l	w	t	s	α	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800			
ISO																										
SYBR 3228	28.58	3.18	6.35	2.69	5.0°	●	●																			
SYBR 4828	28.58	4.78	6.35	3.66	5.0°	●	●																			
SYBR 5528	28.58	5.54	6.35	3.66	5.0°																					
SYBR 6428	28.58	6.35	8.56	5.13	7.0°	●	●																			
SYBR 7928	28.58	7.93	8.56	5.13	7.0°	●	●																			
SYBR 9528	28.58	9.53	8.56	6.99	7.0°																					

SGF



Type	Dimensions (mm)				NEW NEW NEW																	
	l	w	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO																						
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	●	●						●										

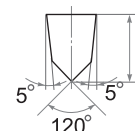
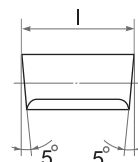
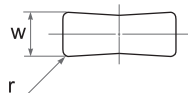
SGR



Type	Dimensions (mm)			NEWNEWNEW																	
	l	w	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO																					
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	●	●						●										

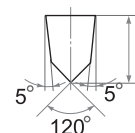
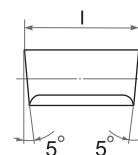
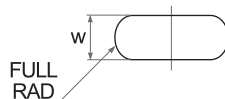
CERAMIC

SSF



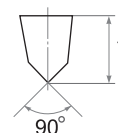
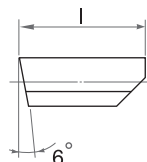
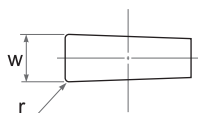
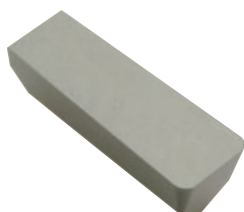
Type	Dimensions (mm)																		
	l	w	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800
ISO																			
SSF 4012	12.00	4.00	5.00	0.80	●	●						●							
SSF 5012	12.00	5.00	5.00	0.80	●	●						●							
SSF 6015	15.00	6.00	7.50	0.80	●	●						●							
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)																		
	l	w	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900
ISO																			
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	●	●						●								

WFC

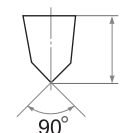
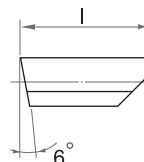
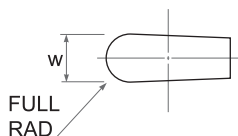


Type	Dimensions (mm)																				new	new	new
	l	w	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
ISO																							
WFC 094050-A	12.70	2.388	4.75	0.40																			
WFC 094050-B	12.70	2.388	4.75	0.80																			
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.

CERAMIC

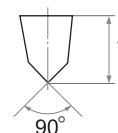
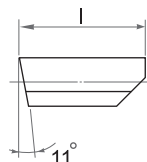
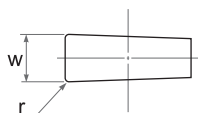
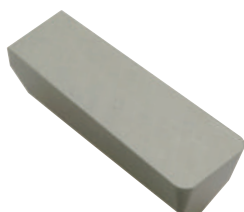
WRC



Type	Dimensions (mm)																			new	new	new
	ISO	l	w	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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.

WFP

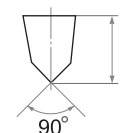
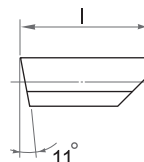
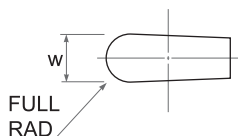


Type	Dimensions (mm)																						NEW	NEW	NEW
	l	w	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800			
ISO																									
WFP 094050-A	12.70	2.388	4.75	0.40																			●		
WFP 094050-B	12.70	2.388	4.75	0.80																					
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.

CERAMIC

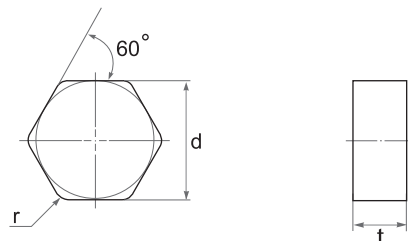
WRP



Type	Dimensions (mm)																			new	new	new
	ISO	l	w	t	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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																			●

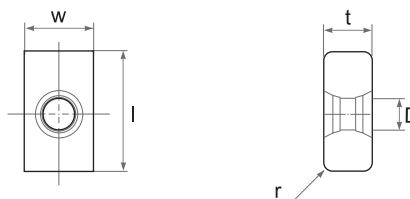
*The above inserts WRP Series are available only Whisker grade.

HNEN



Type	Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	t	r																		
HNEN 090520	16.20	5.56	2.0											●	●						
HNEN 090530	16.20	5.56	3.0											●	●						
HNEN 090508 ANSN	15.87	5.64	0.8											●	●		●				

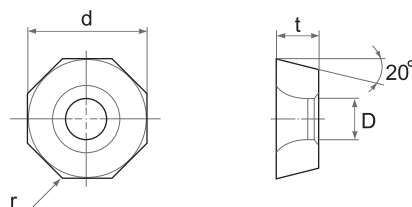
LNE



Type	Dimensions (mm)					ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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											●	●						

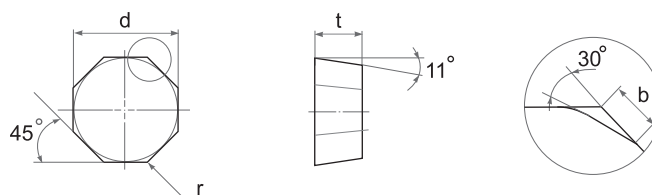
CERAMIC

OEGB



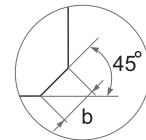
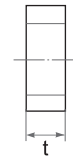
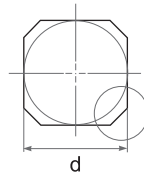
Type	Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	t	D	r																		
OEGB 070408	15.87	4.76	5.18	0.8												●						
OEGB 070416	15.87	4.76	5.18	1.6											●	●		●				
OEGB 070516	15.87	5.13	5.18	1.6											●	●						

OPEN



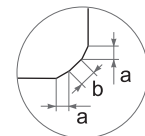
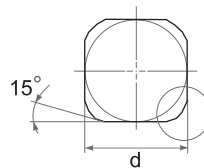
Type	Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	t	r	b																		
OPEN 050408 TR	13.97	4.76	0.80	2.10												●						
OPEN 050608 TR	13.97	6.35	0.80	2.10												●		●				

SNCN



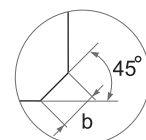
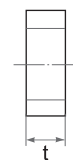
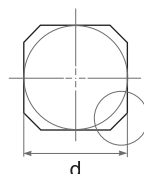
Type		Dimensions (mm)																		
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SNCN .. ENTN



Type		Dimensions (mm)				NEW NEW NEW																	
ISO	ASA	d	t	a	b	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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										●	●	●						

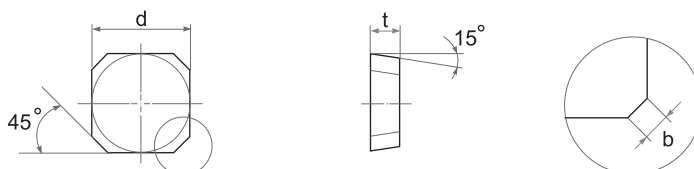
SNGN .. ING



Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	b																		
SNGN 1204 ING	SNGN 43 ING	12.70	4.76	1.50											●	●						
SNGN 1904 ING	SNGN 63 ING	19.05	4.76	2.50											●	●						

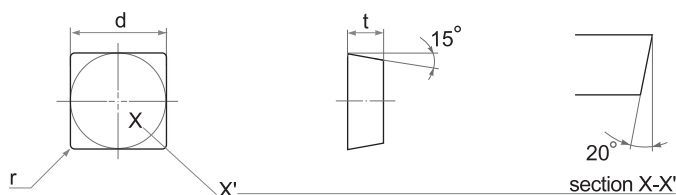
CERAMIC

SDCN



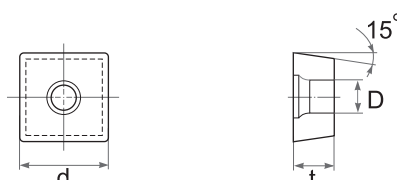
Type		Dimensions (mm)																			NEW	NEW	NEW
ISO	ASA	d	t	b	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
SDCN 1203 AETN 12	SDCN 42 AETN 12	12.70	3.18	1.2												●							
SDCN 1203 AETN	SDCN 42 AETN	12.70	3.18	2.0												●							
SDCN 1504 AETN	SDCN 53 AETN	15.87	4.76	2.0												●							

SDCN .. T



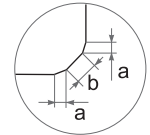
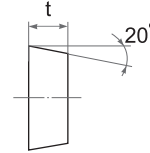
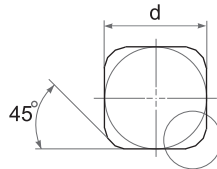
Type		Dimensions (mm)																			new	new	new
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
SDCN 120408 T20	SDCN 432 T20	12.70	4.76	0.8												●							
SDCN 120412 T20	SDCN 433 T20	12.70	4.76	1.2												●							

SDCW



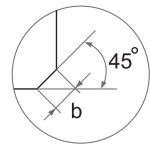
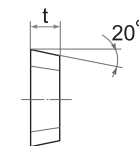
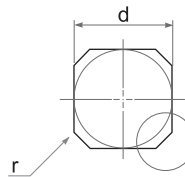
Type		Dimensions (mm)																			NEW	NEW	NEW
ISO	ASA	d	t	D	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
SDCW 1204 PDSR	SDCW 43 PDSR	12.70	4.76	4.40												●		●					

SEAN



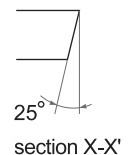
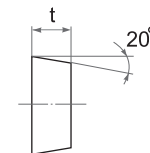
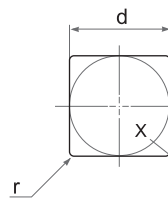
Type		Dimensions (mm)				</															
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SEAN .. NW



Type		Dimensions (mm)				NEWNEWNEW																	
ISO	ASA	d	t	b	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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												●						

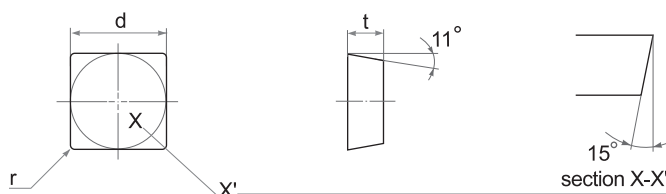
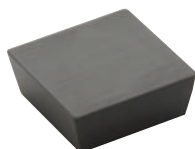
SEAN .. T



Type		Dimensions (mm)			new new new																	
ISO	ASA	d	t	r	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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												●			●			

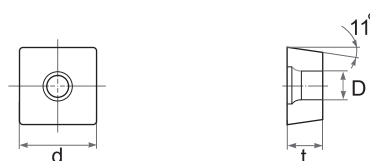
CERAMIC

SPCN .. T



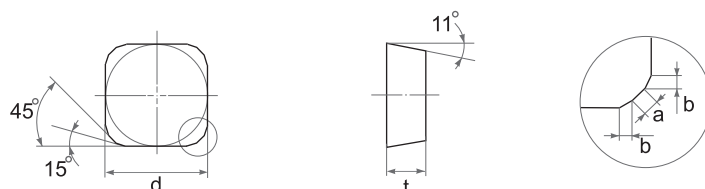
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ISO	ASA	d	t	r																		
SPCN 120412 T15	SPCN 433 T15	12.70	4.76	1.2												●						
SPCN 120416 T15	SPCN 434 T15	12.70	4.76	1.6												●						

SPCW



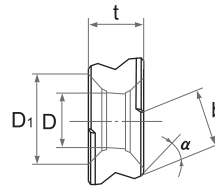
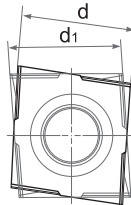
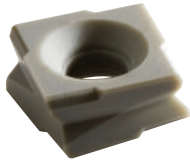
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ISO	ASA	d	t	D																		
SPCW 10T3ZX	SPCW 10T3ZX	10.00	3.97	3.52												●						

SPEN



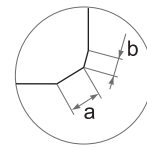
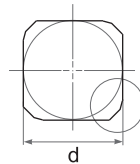
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ISO	ASA	d	t	a	b																		
SPEN 1206 APTN	SPEN 44 APTN	12.70	6.35	1.20	1.20												●		●				

SPHX



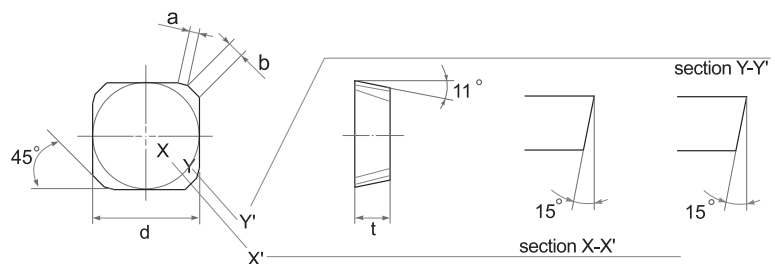
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SPKN



Type		Dimensions (mm)				</																	
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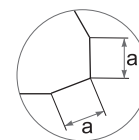
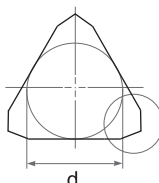
SPKN .. SP



Type		Dimensions (mm)																	
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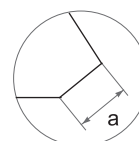
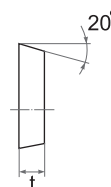
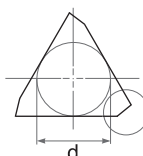
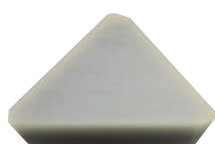
CERAMIC

TNCN



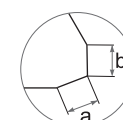
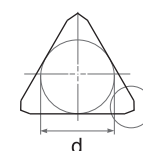
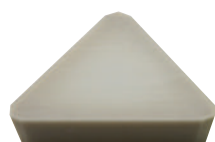
Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	a																		
TNCN 2204 ANT	TNCN 43 ANT	12.70	4.76	2.60											●	●						

TEKN



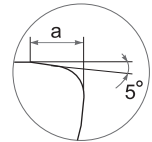
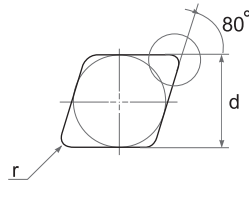
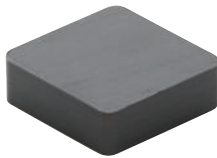
Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	a																		
TEKN 1603 PFTR	TEKN 32 PFTR	9.52	3.18	1.40											●	●						
TEKN 2204 PFTR	TEKN 43 PFTR	12.70	4.76	2.10											●	●						

TPKN



Type		Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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										●	●	●						

CNGN .. AZ

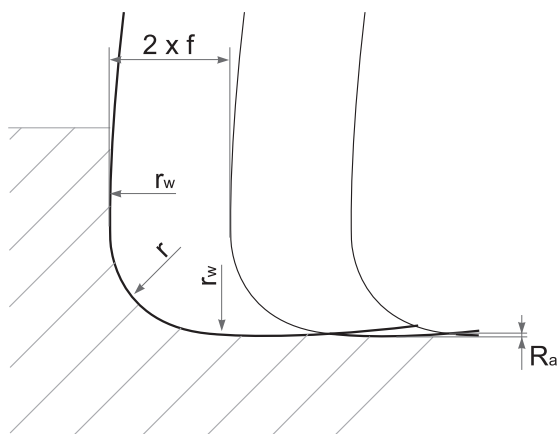


Turning & Milling

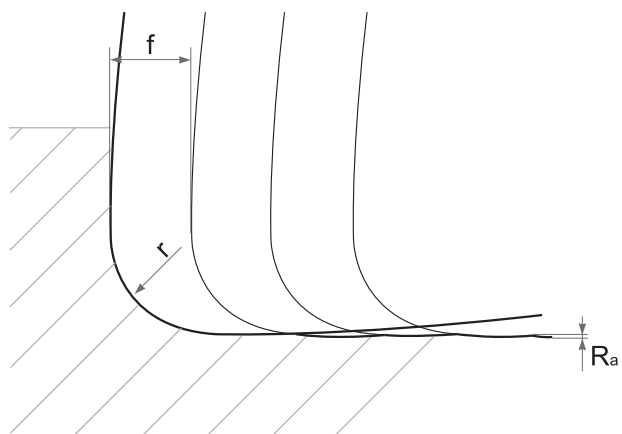
Type		Dimensions (mm)				NEW NEW NEW																	
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
CNGN 1204 AZ	CNGN 43 AZ	12.70	4.76	1.0	1.60		●										●						

Advantage of Wiper Insert

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

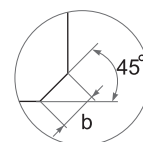
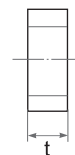
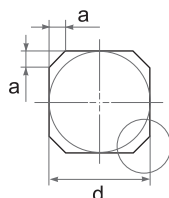


Wiper Insert



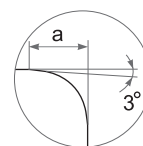
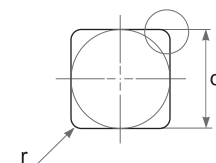
Standard Insert

SNCN .. ZZT



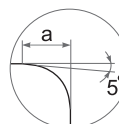
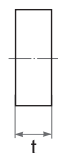
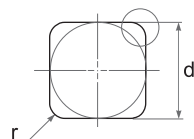
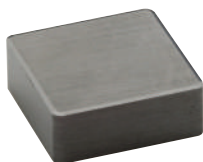
Type		Dimensions (mm)				NEW NEW NEW																	
ISO	ASA	d	t	a	b	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
SNCN 0904 ZZT	SNCN 33 ZZT	9.52	4.76	1.30	1.10												●	●					
SNCN 1204 ZZT	SNCN 43 ZZT	12.70	4.76	3.25	1.10		●										●	●					

SNCN .. GZ



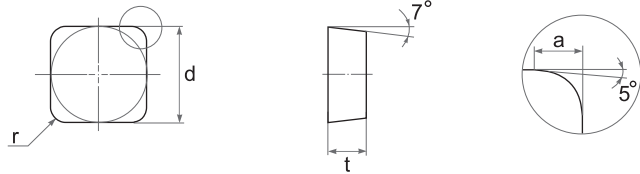
Type		Dimensions (mm)																				NEW	NEW	NEW
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
SNCN 0904 GZ	SNCN 33 GZ	9.52	4.76	0.8	1.00												●							

SNCN .. KZ



Type		Dimensions (mm)																				NEW	NEW	NEW
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800	
SNCN 1204 KZ	SNCN 43 KZ	12.70	4.76	1.2	1.80												●							

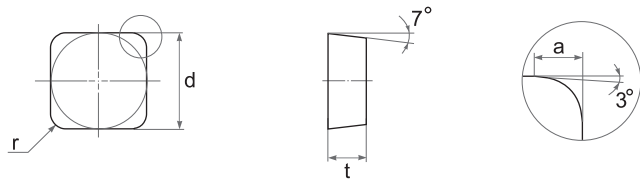
SCGN .. WZ



Type		Dimensions (mm)																	
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600
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												●		

NEW NEW NEW

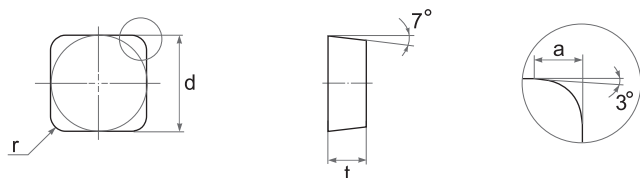
SCGN .. XZ



Type		Dimensions (mm)																	
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600
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												●		

NEW NEW NEW

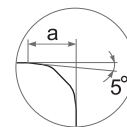
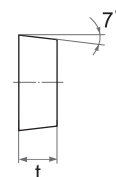
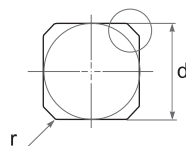
SCGN .. ZZ



Type		Dimensions (mm)																	
ISO	ASA	d	t	r	a	ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600
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												●		

NEW NEW NEW

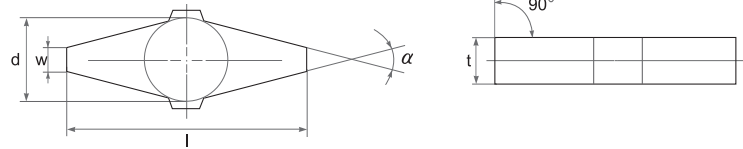
SCGN .. MZ



Type		Dimensions (mm)																			
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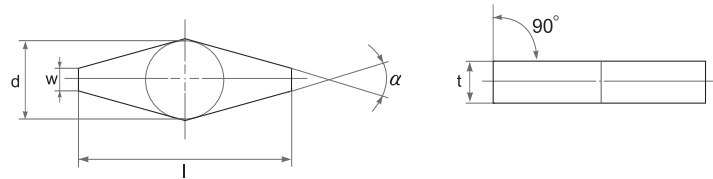
NEW NEW NEW

SVW



Type	Dimensions (mm)					ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	l	α	d	t	w																		
SVW 38260	26.00	38°	9.88	7.94	2.23								●										
SVW 38320	32.00	38°	12.93	7.94	3.22								●										
SVW 34400	40.00	34°	16.14	7.94	5.07								●										

GVGN

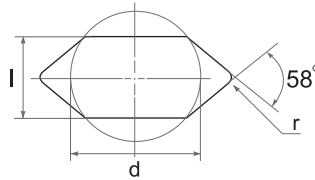


Type	Dimensions (mm)					ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	l	α	d	t	w																		
GVGN 38320	32.00	38°	13.46	7.94	3.22								●										
GVGN 38335	33.50	38°	13.28	8.00	3.06								●										
GVGN 36340	34.00	36°	13.59	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

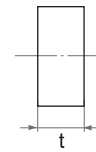
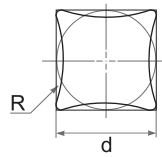
Turning & Milling

SZT 5810



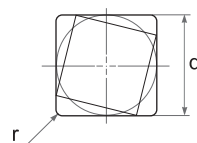
Type	Dimensions (mm)				ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	l	t	r																		
SZT 581004	14.70	10.00	7.94	0.4	●	●																
SZT 581008	14.70	10.00	7.94	0.8	●	●																
SZT 581012	14.70	10.00	7.94	1.2	●	●																

SNMX



Type	Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	d	t	R																		
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								●										

SNGF

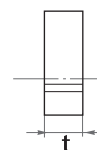
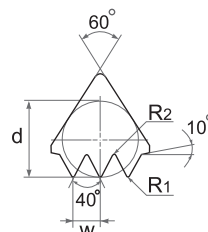


Turning & Milling

Type		Dimensions (mm)			ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	SW400	SW800
ISO	ASA	d	t	r																		
SNGF 120412	SNGF 433	12.70	4.76	1.2												●						

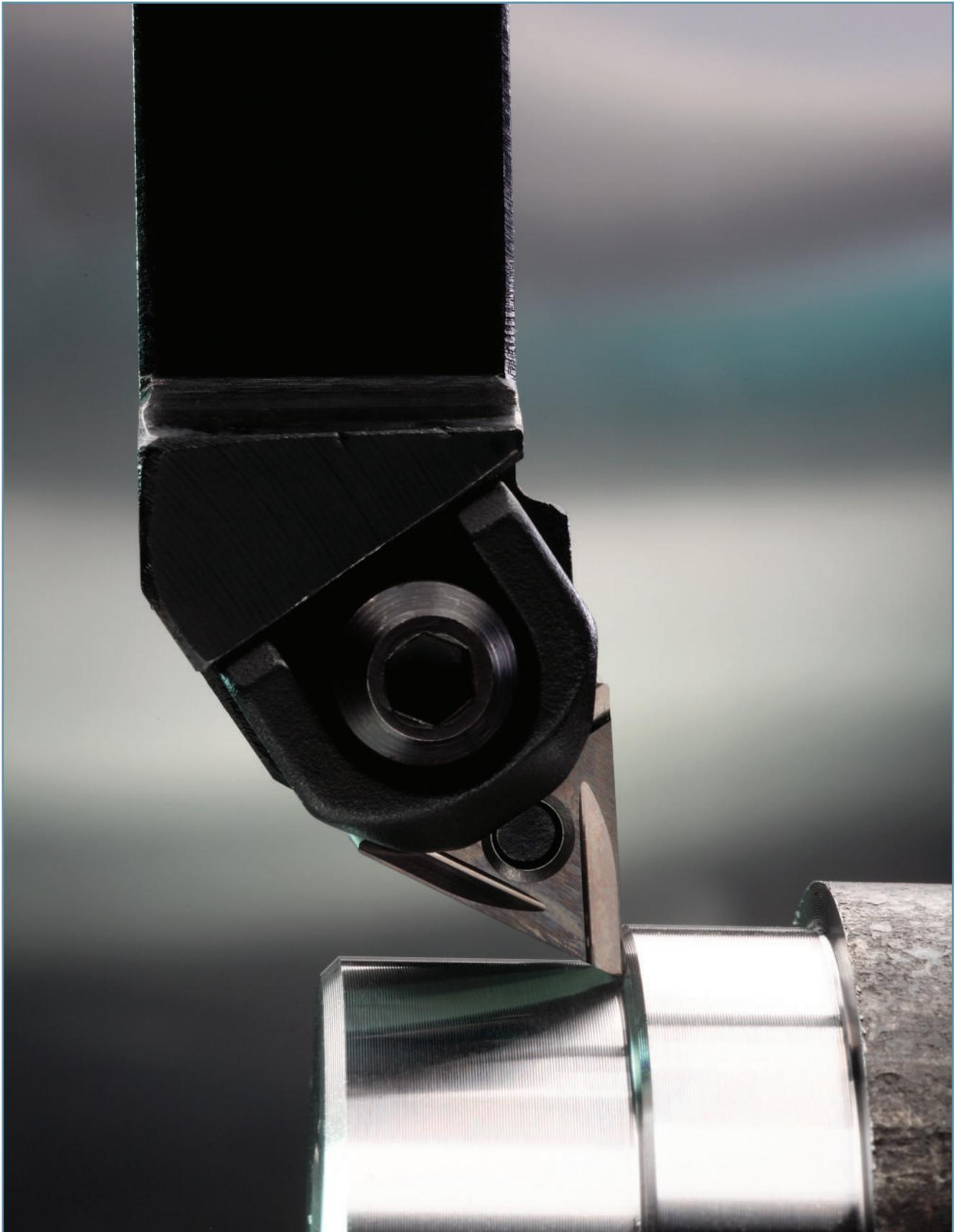
NEW NEW NEW

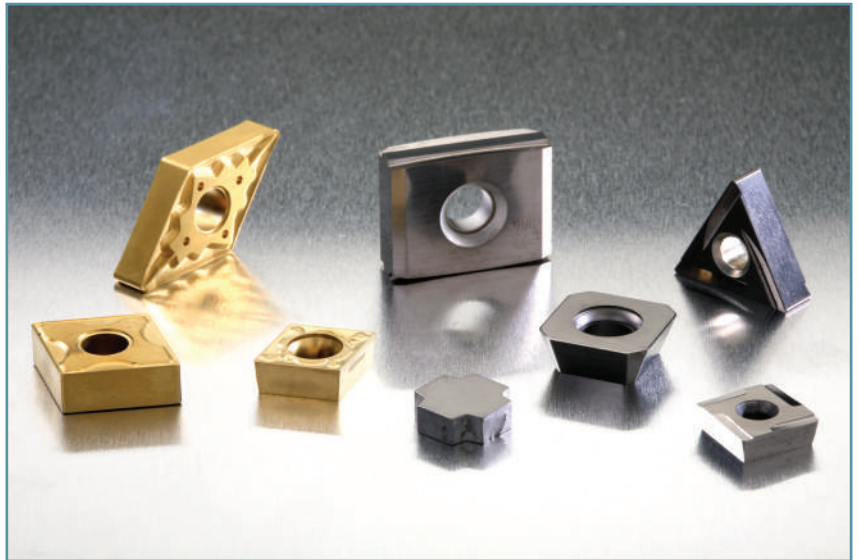
INGN



Type		Dimensions (mm)					ST100	ST300	ST500	ST700	TC100	TC300	SD200	SZ200	SZ300	SN26	SN300	SN400	SN500	SN600	SN800	SN900	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								●										

NEW NEW NEW



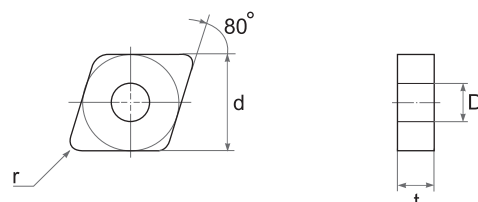
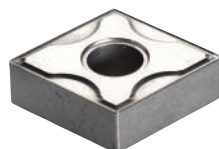


Cermet

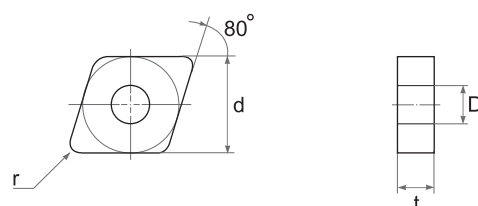
Turning	A 82
Milling	A 93
Special	A 98

CERMET

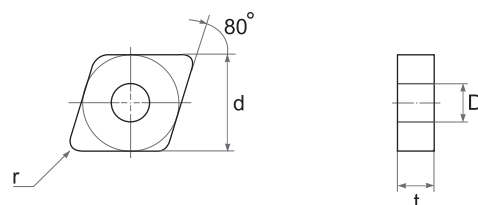
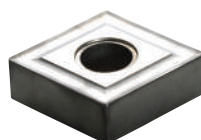
CNMG



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
CNMG 120404SF	CNMG 431SF	12.70	4.76	0.4	5.16	●	●	●					
CNMG 120408SF	CNMG 432SF	12.70	4.76	0.8	5.16	●	●	●					
CNMG 120412SF	CNMG 433SF	12.70	4.76	1.2	5.16								

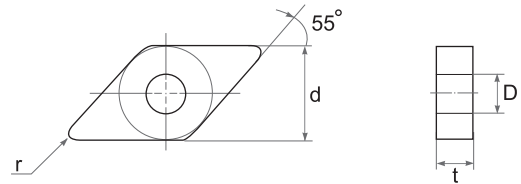


Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
CNMG 120404SY	CNMG 431SY	12.70	4.76	0.4	5.16	●	●	●					
CNMG 120408SY	CNMG 432SY	12.70	4.76	0.8	5.16		●	●					
CNMG 120412SY	CNMG 433SY	12.70	4.76	1.2	5.16		●	●					



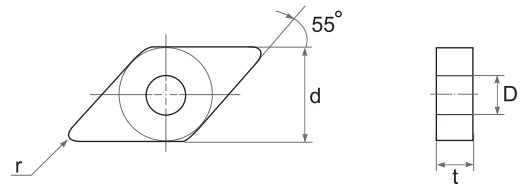
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
CNMG 120404SG	CNMG 431SG	12.70	4.76	0.4	5.16	●	●	●					
CNMG 120408SG	CNMG 432SG	12.70	4.76	0.8	5.16	●	●	●					
CNMG 120412SG	CNMG 433SG	12.70	4.76	1.2	5.16			●					

DNMG

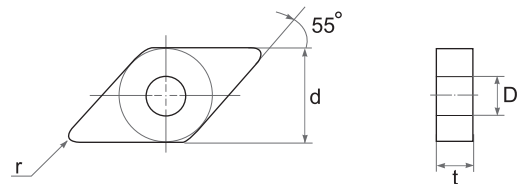
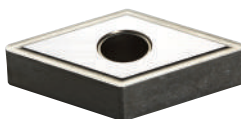


Turning & Milling

Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
DNMG 150404SF	DNMG 431SF	12.70	4.76	0.4	5.16		●	●					
DNMG 150408SF	DNMG 432SF	12.70	4.76	0.8	5.16		●	●					
DNMG 150412SF	DNMG 433SF	12.70	4.76	1.2	5.16		●	●					
DNMG 150604SF	DNMG 441SF	12.70	6.35	0.4	5.16		●	●					
DNMG 150608SF	DNMG 442SF	12.70	6.35	0.8	5.16		●	●					
DNMG 150612SF	DNMG 443SF	12.70	6.35	1.2	5.16		●						



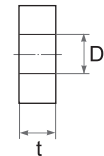
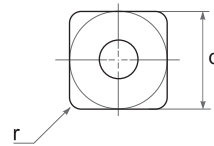
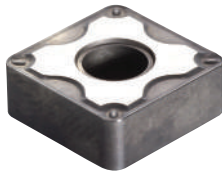
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
DNMG 150404SY	DNMG 431SY	12.70	4.76	0.4	5.16		●	●					
DNMG 150408SY	DNMG 432SY	12.70	4.76	0.8	5.16		●	●					
DNMG 150412SY	DNMG 433SY	12.70	4.76	1.2	5.16		●	●					
DNMG 150604SY	DNMG 441SY	12.70	6.35	0.4	5.16		●	●					
DNMG 150608SY	DNMG 442SY	12.70	6.35	0.8	5.16		●	●					
DNMG 150612SY	DNMG 443SY	12.70	6.35	1.2	5.16		●	●					



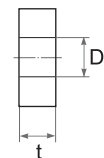
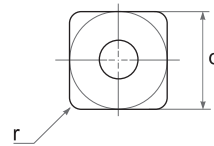
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
DNMG 150404SG	DNMG 431SG	12.70	4.76	0.4	5.16		●	●					
DNMG 150408SG	DNMG 432SG	12.70	4.76	0.8	5.16		●	●					
DNMG 150412SG	DNMG 433SG	12.70	4.76	1.2	5.16		●	●					
DNMG 150604SG	DNMG 441SG	12.70	6.35	0.4	5.16		●	●					
DNMG 150608SG	DNMG 442SG	12.70	6.35	0.8	5.16		●	●					
DNMG 150612SG	DNMG 443SG	12.70	6.35	1.2	5.16		●						

CERMET

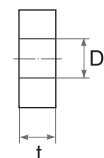
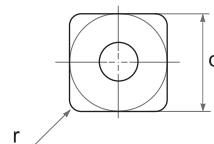
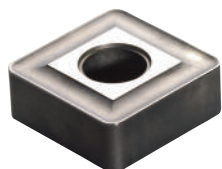
SNMG



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNMG 120404SF	SNMG 431SF	12.70	4.76	0.4	5.16		●	●					
SNMG 120408SF	SNMG 432SF	12.70	4.76	0.8	5.16		●	●					
SNMG 120412SF	SNMG 433SF	12.70	4.76	1.2	5.16		●	●					

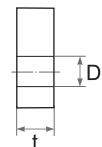
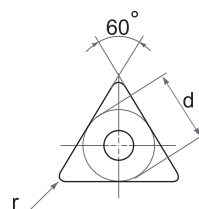


Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNMG 120404SY	SNMG 431SY	12.70	4.76	0.4	5.16		●	●					
SNMG 120408SY	SNMG 432SY	12.70	4.76	0.8	5.16		●	●					
SNMG 120412SY	SNMG 433SY	12.70	4.76	1.2	5.16		●	●					

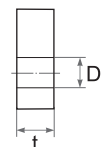
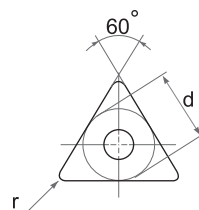


Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNMG 120404SG	SNMG 431SG	12.70	4.76	0.4	5.16		●	●					
SNMG 120408SG	SNMG 432SG	12.70	4.76	0.8	5.16		●	●					
SNMG 120412SG	SNMG 433SG	12.70	4.76	1.2	5.16		●	●					

TNMG

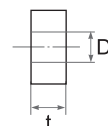
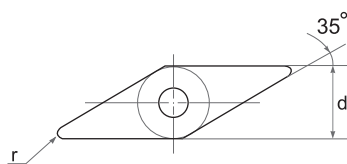


Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNMG 160404SY	TNMG 331SY	9.52	4.76	0.4	3.81		●	●					
TNMG 160408SY	TNMG 332SY	9.52	4.76	0.8	3.81		●	●					
TNMG 160412SY	TNMG 333SY	9.52	4.76	1.2	3.81		●	●					



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNMG 160404SG	TNMG 331SG	9.52	4.76	0.4	3.81		●	●					
TNMG 160408SG	TNMG 332SG	9.52	4.76	0.8	3.81		●	●					
TNMG 160412SG	TNMG 333SG	9.52	4.76	1.2	3.81		●	●					

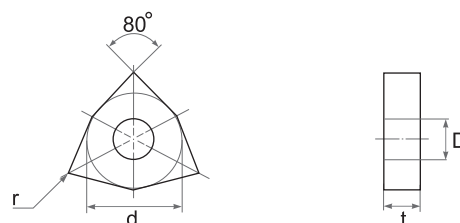
VNMG



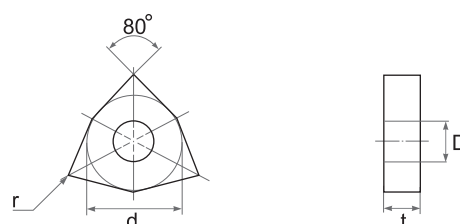
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
VNMG 160404SG	VNMG 331SG	9.52	4.76	0.4	3.81		●	●					
VNMG 160408SG	VNMG 332SG	9.52	4.76	0.8	3.81		●	●					

CERMET

WNMG

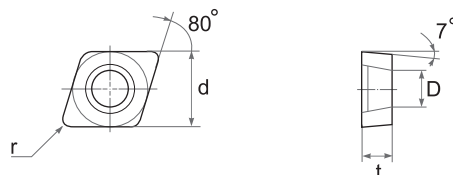


Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
WNMG 080404SY	WNMG 431SY	12.70	4.76	0.4	5.16		●	●					
WNMG 080408SY	WNMG 432SY	12.70	4.76	0.8	5.16		●	●					
WNMG 080412SY	WNMG 433SY	12.70	4.76	1.2	5.16								



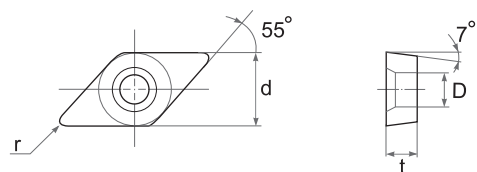
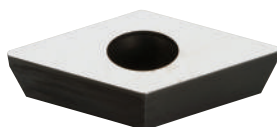
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
WNMG 080404SG	WNMG 431SG	12.70	4.76	0.4	5.16		●	●					
WNMG 080408SG	WNMG 432SG	12.70	4.76	0.8	5.16		●	●					
WNMG 080412SG	WNMG 433SG	12.70	4.76	1.2	5.16		●	●					

CCMT



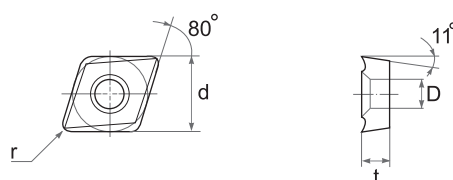
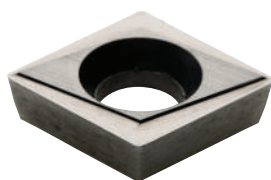
Type	Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
CCMT 09T304	9.52	3.97	0.4	4.40	●	●	●					
CCMT 09T308	9.52	3.97	0.8	4.40	●	●	●					

DCGW



Type	Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
DCGW 090304	8.50	3.18	0.4	3.60			●					
DCGW 11T304	9.52	3.97	0.4	4.40			●					

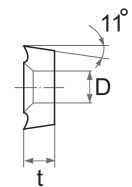
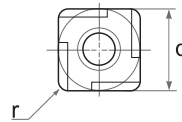
CPGT



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
CPGT 090304	CPGT 321	9.52	3.18	0.4	4.50	●	●						
CPGT 090308	CPGT 322	9.52	3.18	0.8	4.50	●	●						

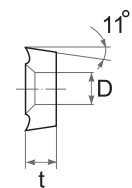
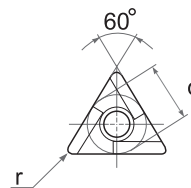
CERMET

SPGT



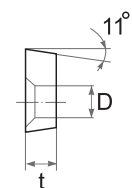
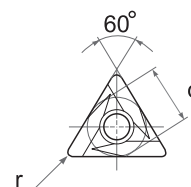
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SPGT 090304R/L	SPGT 321R/L	9.52	3.18	0.4	3.40	●	●						
SPGT 090308R/L	SPGT 322R/L	9.52	3.18	0.8	3.40	●	●						

TPGT



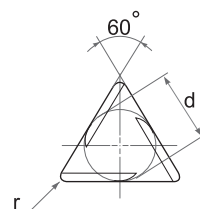
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TPGT 110304R/L	TPGT 221R/L	6.35	3.18	0.4	3.56	●	●						
TPGT 110308R/L	TPGT 222R/L	6.35	3.18	0.8	3.56	●	●						
TPGT 160304R/L	TPGT 321R/L	9.52	3.18	0.4	4.46	●	●						
TPGT 160308R/L	TPGT 322R/L	9.52	3.18	0.8	4.46	●	●						
TPGT 160404R/L	TPGT 331R/L	9.52	4.76	0.4	4.40	●	●						
TPGT 160408R/L	TPGT 332R/L	9.52	4.76	0.8	4.40	●	●						

TPGT .. KC



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO		d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TPGT 110304KC		6.35	3.18	0.4	3.56			●					

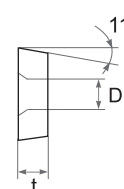
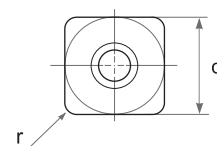
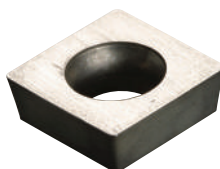
TPGR



Turning & Milling

Type	Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
	d	t	r	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
ISO											
TPGR 110302R/L	6.35	3.18	0.2		●						
TPGR 110304R/L	6.35	3.18	0.4		●						
TPGR 110308R/L	6.35	3.18	0.8		●						
TPGR 160302R/L	9.52	3.18	0.2		●						
TPGR 160304R/L	9.52	3.18	0.4		●						
TPGR 160308R/L	9.52	3.18	0.8		●						
TPGR 220404K-R/L	12.70	4.76	0.4		●						
TPGR 220408K-R/L	12.70	4.76	0.8		●						
TPGR 220412K-R/L	12.70	4.76	1.2		●						

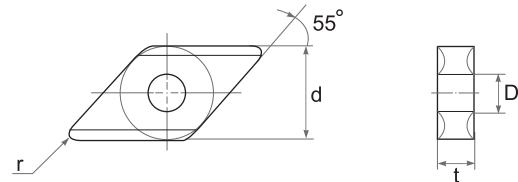
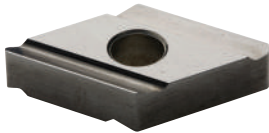
SPMW



Type	Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
ISO												
SPMW 090304HS	9.52	3.18	0.4	3.4		●	●					
SPMW 090308HS	9.52	3.18	0.8	3.4		●	●					
SPMW 090304HL	9.52	3.18	0.4	4.6		●	●					
SPMW 090308HL	9.52	3.18	0.8	4.6		●	●					

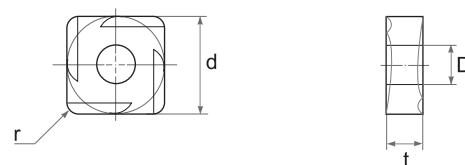
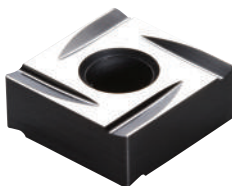
CERMET

DNGG



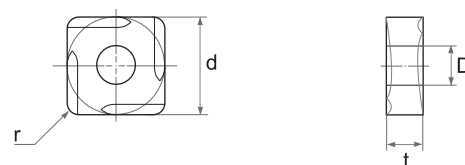
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
DNGG 150404R/L	DNGG 431R/L	12.70	4.76	0.4	5.16		●	●					
DNGG 150408R/L	DNGG 432R/L	12.70	4.76	0.8	5.16		●	●					
DNGG 150604R/L	DNGG 441R/L	12.70	6.35	0.4	5.16		●	●					
DNGG 150608R/L	DNGG 442R/L	12.70	6.35	0.8	5.16		●	●					

SNGG



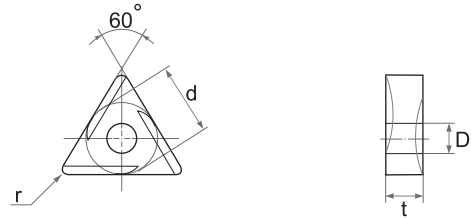
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNGG 120404R/L	SNGG 431R/L	12.70	4.76	0.4	5.16			●					
SNGG 120408R/L	SNGG 432R/L	12.70	4.76	0.8	5.16		●	●					
SNGG 120412R/L	SNGG 433R/L	12.70	4.76	1.2	5.16								

SNGL



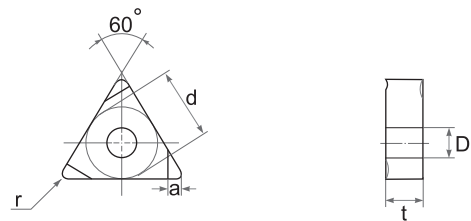
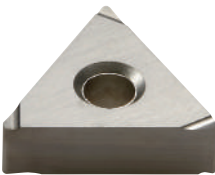
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO		d	t	r		TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNGL 070204R/L		7.14	2.38	0.4		●							

TNGG



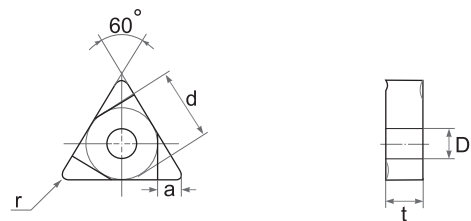
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNGG 160402R/L	TNGG 3302R/L	9.52	4.76	0.2	3.81		●	●					
TNGG 160404R/L	TNGG 331R/L	9.52	4.76	0.4	3.81		●	●					
TNGG 160408R/L	TNGG 332R/L	9.52	4.76	0.8	3.81		●	●					
TNGG 220404R/L	TNGG 431R/L	12.70	4.76	0.4	5.16		●	●					
TNGG 220408R/L	TNGG 432R/L	12.70	4.76	0.8	5.16		●	●					

TNGG .. FS



Type		Dimensions (mm)					Cermet (TiCN)				Cermet (PVD)			
ISO		d	t	r	D	a	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNGG 160402R/L-FS		9.52	4.76	0.2	3.81	1.28		●	●					
TNGG 160404R/L-FS		9.52	4.76	0.4	3.81	1.28		●	●					
TNGG 160408R/L-FS		9.52	4.76	0.8	3.81	1.28		●	●					

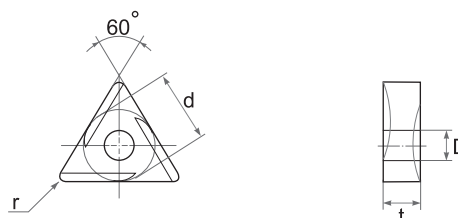
TNGG .. F



Type		Dimensions (mm)					Cermet (TiCN)				Cermet (PVD)			
ISO		d	t	r	D	a	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNGG 160402R/L-F		9.52	4.76	0.2	3.81	2.50		●	●					
TNGG 160404R/L-F		9.52	4.76	0.4	3.81	2.50		●	●					
TNGG 160408R/L-F		9.52	4.76	0.8	3.81	2.50		●	●					

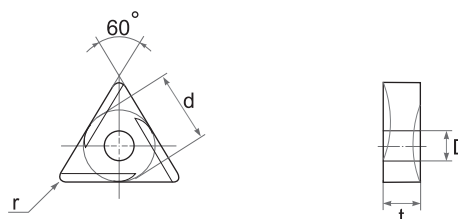
CERMET

TNMG .. 2G



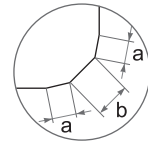
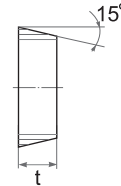
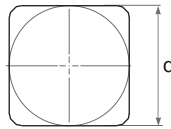
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNMG 160404R/L 2G	TNMG 331R/L 2G	9.52	4.76	0.4	3.81		●	●					
TNMG 160408R/L 2G	TNMG 332R/L 2G	9.52	4.76	0.8	3.81		●	●					

TNMG .. RM



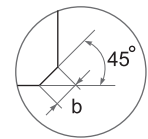
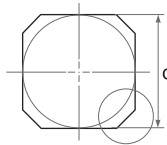
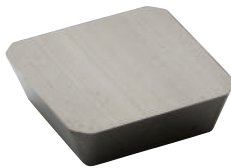
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	r	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TNMG 160404 RM	TNMG 331 RM	9.52	4.76	0.4	3.81		●	●					

SDCN



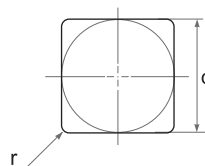
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	a	b	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SDCN 1203MT	SDCN 42MT	12.70	3.18	0.50	1.40			○	●				
SDCN 1504MT	SDCN 53MT	15.87	4.76	0.50	1.40								

SDKN



Type		Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	b	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SDKN 1203AETN	SDKN 42AETN	12.70	3.18	2.00			○	●				
SDKN 1504AETN	SDKN 53AETN	15.87	4.76	2.00			○	●				

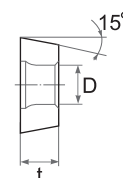
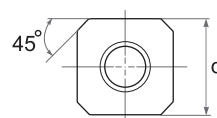
SDEN



Type		Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO		d	t	r	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SDEN 150404FN		15.87	4.76	0.4			●	●				

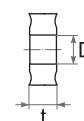
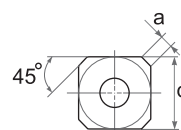
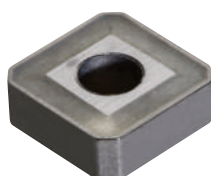
CERMET

SDEW



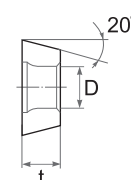
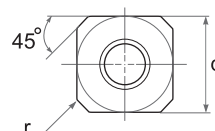
Type		Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SDEW 1204AZT	SDEW 43AZT	12.70	4.76	5.20			○	●				

SNK



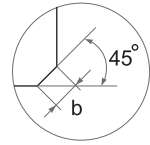
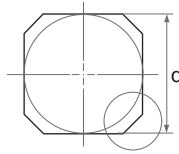
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	D	a	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SNK 0903AEN	SNK 32AEN	9.52	3.18	3.81	1.40		●						

SEHW



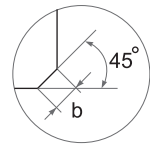
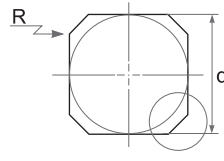
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	D	r	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SEHW 120408AE	SEHW 432AE	12.70	4.76	5.50	0.8				●				

SEKN



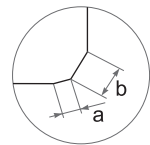
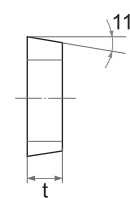
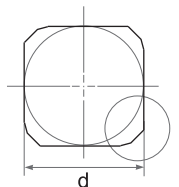
Type		Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	b	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SEKN 1203 AFTN	SEKN 42 AFTN	12.70	3.18	2.00			○	●				
SEKN 1504 AFTN	SEKN 53 AFTN	15.87	4.76	2.00			○	●				

SEKN .. R



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	b	R	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SEKN 120308 AFTN	SEKN 432 AFTN	12.70	3.18	2.00	0.8				●				
SEKN 150408 AFTN	SEKN 532 AFTN	15.87	4.76	2.00	0.8								

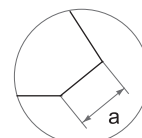
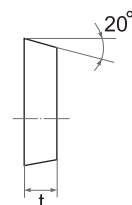
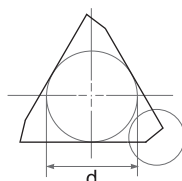
SPKN



Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	a	b	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SPKN 1203EDTR/L	SPKN 42EDTR/L	12.70	3.18	1.00	1.40			○	●				
SPKN 1504EDTR/L	SPKN 53EDTR/L	15.87	4.76	1.00	1.40			○	●				

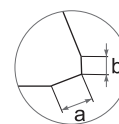
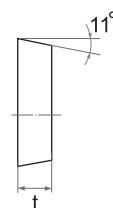
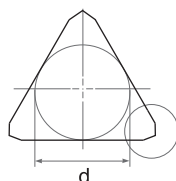
CERMET

TEKN



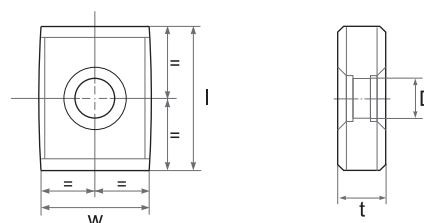
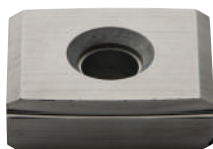
Type		Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	a	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TEKN 1603PETR/L	TEKN 32PETR/L	9.52	3.18	1.40			○	●				
TEKN 2204PETR/L	TEKN 43PETR/L	12.70	4.76	2.00			○	●				
TEKN 1603PEER/L	TEKN 32PEER/L	9.52	3.18	1.40			○	●				
TEKN 2204PEER/L	TEKN 43PEER/L	12.70	4.76	2.00			○	●				

TPKN



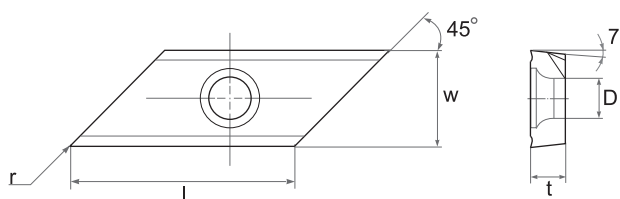
Type		Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	ASA	d	t	a	b	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
TPKN 1603PDTR/L	TPKN 32PDTR/L	9.52	3.18	1.20	1.00			○	●				
TPKN 2204PDTR/L	TPKN 43PDTR/L	12.70	4.76	1.40	0.70			○	●				

YCE



Type	Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	l	w	t	D	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
YCE 434-01	19.05	14.29	6.35	5.25		●	●					

XCET

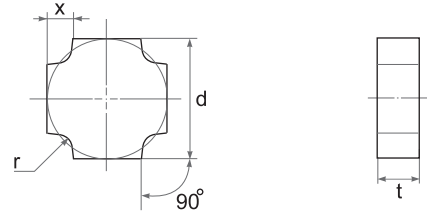
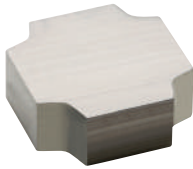


Type	Dimensions (mm)					Cermet (TiCN)				Cermet (PVD)			
ISO	l	w	t	D	r	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
XCET 310404 ER	22.00	12.70	4.50	5.60	0.4			●					

CERMET

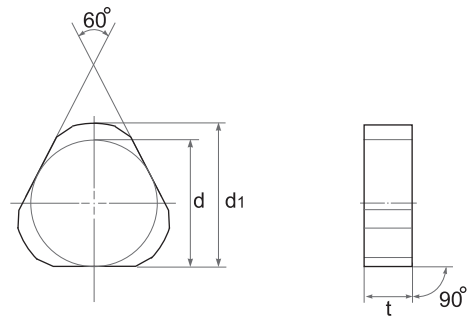
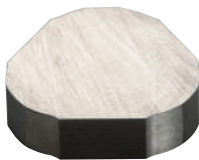
Turning & Milling

BSN



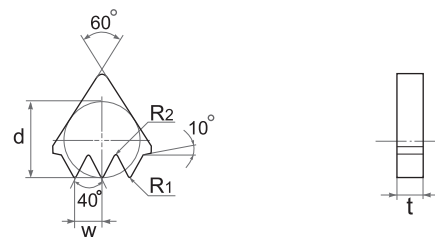
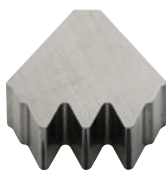
Type	Dimensions (mm)				Cermet (TiCN)				Cermet (PVD)			
ISO	d	x	t	r	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
BSN 090306	9.52	2.00	3.18	0.6			●					
BSN 090310	9.52	2.57	3.18	1.0			●					
BSN 120406	12.70	2.14	4.76	0.6			●					
BSN 120410	12.70	2.40	4.76	1.0			●					
BSN 120415	12.70	3.00	4.76	1.5			●					
BSN 120420	12.70	3.45	4.76	2.0			●					
BSN 150525	15.87	4.00	5.56	2.5			●					
BSN 150530	15.87	4.70	5.56	3.0			●					

BTN



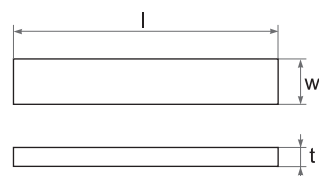
Type	Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
ISO	d	d1	t	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
BTN 1464	12.70	14.60	4.76			●					
BTN 1714	15.87	17.10	4.76			●					
BTN 2116	19.05	21.10	6.00			●					
BTN 2416	22.22	24.10	6.00			●					
BTN 2718	25.40	27.10	8.80			●					

INGN



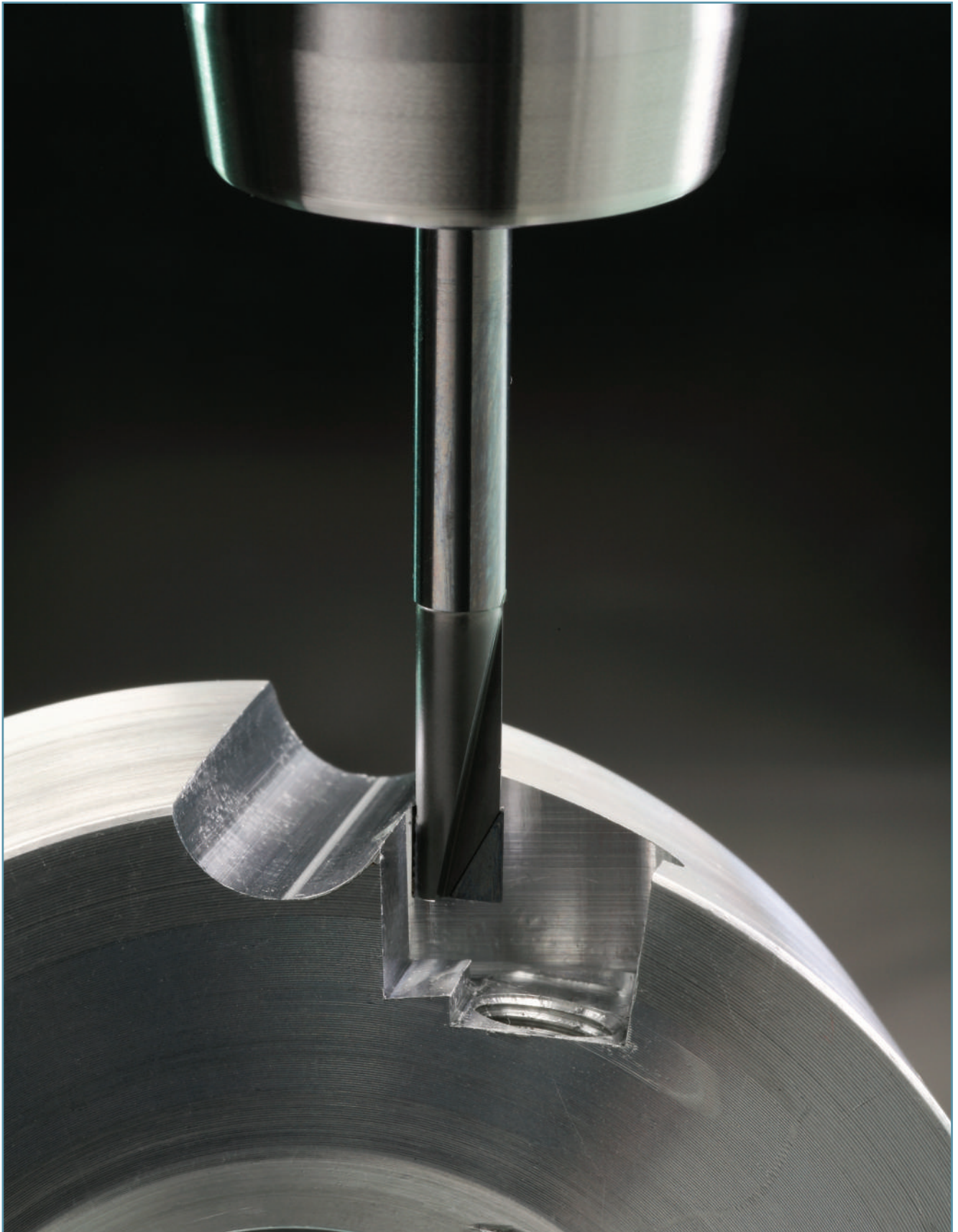
Type	Dimensions (mm)					Cermet (TiCN)				Cermet (PVD)			
ISO	d	t	w	R1	R2	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
INGN 160435 F303	9.52	4.76	3.56	0.5	0.3			●					
INGN 160435 F304	9.52	4.76	3.56	0.5	0.4			●					
INGN 220435 F403	12.70	4.76	3.56	0.5	0.3								
INGN 220435 F404	12.70	4.76	3.56	0.5	0.4								

SBAR



Turning & Milling

Type	Dimensions (mm)			Cermet (TiCN)				Cermet (PVD)			
	l	w	t	TX510	TX515	TX520	TX530	TX910	TX915	TX920	TX930
SBAR 040825	26.11	8.89	5.30			●					
SBAR 041608	16.67	4.75	8.10			●					
SBAR 050518	18.01	5.15	5.00			●					
SBAR 050620	22.35	4.95	6.30			●					
SBAR 056440	47.31	6.78	5.50			●					
SBAR 060331	34.75	5.94	6.35			●					
SBAR 121985	19.10	12.67	8.50			●					
SBAR 122025	25.50	1.40	2.20			●					
SBAR 122525	25.50	1.40	2.70			●					
SBAR 1295632	12.90	5.60	3.20			●					
SBAR 151985	19.10	15.30	8.50			●					
SBAR 163025	29.82	3.47	1.60			●					
SBAR 163315	15.62	3.41	1.60			●					
SBAR 163815	16.67	4.75	1.60			●					
SBAR 173815	15.06	3.69	1.70			●					
SBAR 203530	29.59	3.44	2.00			●					
SBAR 204035	34.53	3.94	2.00			●					
SBAR 704035	34.78	3.97	7.00			●					
SBAR 224816	16.67	4.72	2.20			●					
SBAR 255022	22.18	4.92	2.50			●					
SBAR 256035	34.49	5.89	2.50			●					
SBAR 306035	34.75	6.00	3.00			●					
SBAR 324850	3.60	5.10	50.00			●					
SBAR 326650	3.60	7.00	50.00			●					
SBAR 345022	22.35	4.95	3.40			●					
SBAR 327025	24.44	7.09	3.35			●					
SBAR 325075	71.94	14.39	3.20			●					
SBAR 327050	50.00	7.00	3.20			●					
SBAR 368950	50.40	8.92	3.60			●					
SBAR 328550	50.03	8.85	3.20			●					
SBAR 607050	50.40	8.92	6.50			●					
SBAR 638232	32.72	8.99	6.30			●					
SBAR 202525	25.40	2.70	2.20			●					
SBAR 224035	34.53	3.94	2.20			●					
SBAR 368232	32.72	8.99	3.60			●					





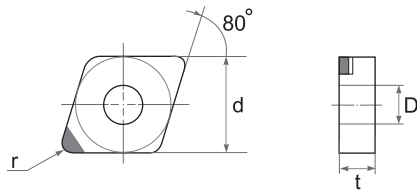
PCBN / PCD

PCBN	A 102
STANDARD	A 102
Full Face	A 106
Solid	A 107
PCD	A 108
STANDARD	A 108
Mini Tip	A 114
Special	A 117

PCBN

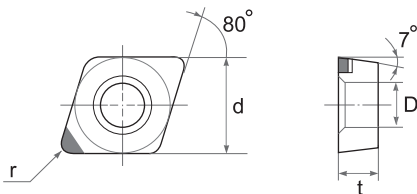
STANDARD

CNGA



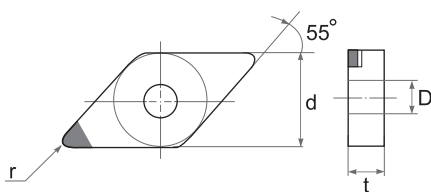
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
CNGA 120402 R1	CNGA 4302 R1	12.70	4.76	0.2	5.16				
CNGA 120404 R1	CNGA 431 R1	12.70	4.76	0.4	5.16	●	●		
CNGA 120408 R1	CNGA 432 R1	12.70	4.76	0.8	5.16	●	●	●	●
CNGA 120412 R1	CNGA 433 R1	12.70	4.76	1.2	5.16	●	●	●	●

CCGW



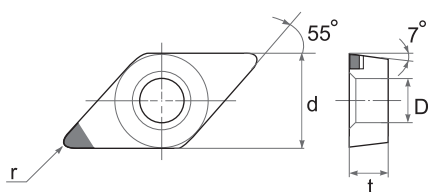
Type	Dimensions (mm)							
ISO	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
CCGW 060202 R1	6.35	2.38	0.2	2.80		●		
CCGW 060204 R1	6.35	2.38	0.4	2.80	●	●		
CCGW 060208 R1	6.35	2.38	0.8	2.80				
CCGW 09T304 R1	9.52	3.97	0.4	4.40	●	●	●	●
CCGW 09T308 R1	9.52	3.97	0.8	4.40	●	●	●	●

DNGA



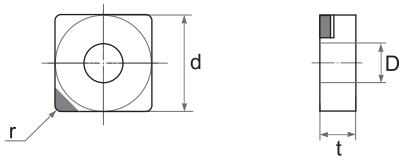
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
DNGA 150404 R1	DNGA 431 R1	12.70	4.76	0.4	5.16	●	●	●	
DNGA 150408 R1	DNGA 432 R1	12.70	4.76	0.8	5.16	●	●	●	●
DNGA 150412 R1	DNGA 433 R1	12.70	4.76	1.2	5.16	●	●	●	●
DNGA 150604 R1	DNGA 441 R1	12.70	6.35	0.4	5.16	●	●	●	
DNGA 150608 R1	DNGA 442 R1	12.70	6.35	0.8	5.16	●	●	●	●
DNGA 150612 R1	DNGA 443 R1	12.70	6.35	1.2	5.16	●	●	●	●

DCGW



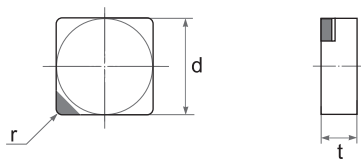
Type	Dimensions (mm)							
ISO	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
DCGW 070202 R1	6.35	2.38	0.2	2.80		●		
DCGW 070204 R1	6.35	2.38	0.4	2.80	●	●	●	
DCGW 070208 R1	6.35	2.38	0.8	2.80	●	●	●	●
DCGW 11T302 R1	9.52	3.97	0.2	4.40		●		
DCGW 11T304 R1	9.52	3.97	0.4	4.40	●	●	●	
DCGW 11T308 R1	9.52	3.97	0.8	4.40	●	●	●	●

SNGA



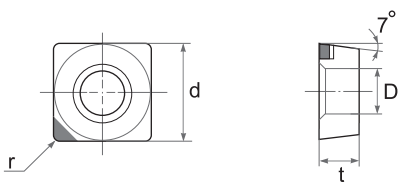
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SNGA 090304 R1	SNGA 321 R1	9.52	3.18	0.4	3.81				
SNGA 120404 R1	SNGA 431 R1	12.70	4.76	0.4	5.16	●	●		
SNGA 120408 R1	SNGA 432 R1	12.70	4.76	0.8	5.16	●	●	●	●
SNGA 120412 R1	SNGA 433 R1	12.70	4.76	1.2	5.16	●	●	●	●

SNGN



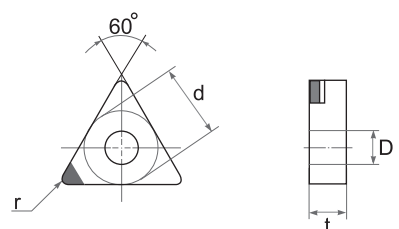
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SNGN 090304 R1	SNGN 321 R1	9.52	3.18	0.4					
SNGN 090308 R1	SNGN 322 R1	9.52	3.18	0.8					
SNGN 090312 R1	SNGN 323 R1	9.52	3.18	1.2					
SNGN 120404 R1	SNGN 431 R1	12.70	4.76	0.4		●	●		
SNGN 120408 R1	SNGN 432 R1	12.70	4.76	0.8		●	●	●	●
SNGN 120412 R1	SNGN 433 R1	12.70	4.76	1.2		●	●	●	●

SCGW



Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SCGW 09T304 R1		9.52	3.97	0.4	4.40	●	●		
SCGW 09T308 R1		9.52	3.97	0.8	4.40	●	●	●	●

TNGA

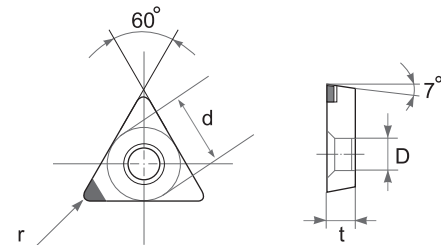


Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
TNGA 160402 R1	TNGA 3302 R1	9.52	4.76	0.2	3.81	●	●		
TNGA 160404 R1	TNGA 331 R1	9.52	4.76	0.4	3.81	●	●		
TNGA 160408 R1	TNGA 332 R1	9.52	4.76	0.8	3.81	●	●	●	●
TNGA 160412 R1	TNGA 333 R1	9.52	4.76	1.2	3.81	●	●		

PCBN

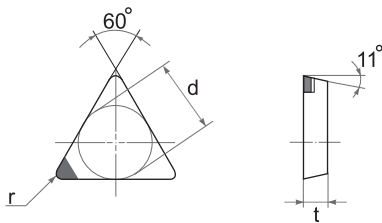
STANDARD

TCGW



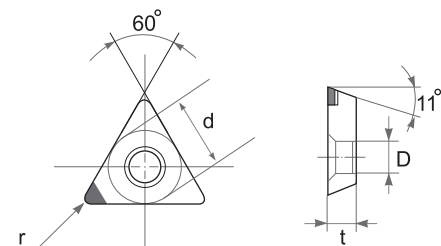
Type	Dimensions (mm)				SBN 1000	SBN 2000	SBN 3000	SBN 4000
ISO	d	t	r	D				
TCGW 090204 R1	5.56	2.38	0.4	2.50	●	●		
TCGW 090208 R1	5.56	2.38	0.8	2.50	●	●	●	●
TCGW 110202 R1	6.35	2.38	0.2	2.80		●		
TCGW 110204 R1	6.35	2.38	0.4	2.80	●	●		
TCGW 110208 R1	6.35	2.38	0.8	2.80	●	●	●	●
TCGW 16T304 R1	9.52	3.97	0.4	4.40	●	●		
TCGW 16T308 R1	9.52	3.97	0.8	4.40	●	●	●	●

TPGN



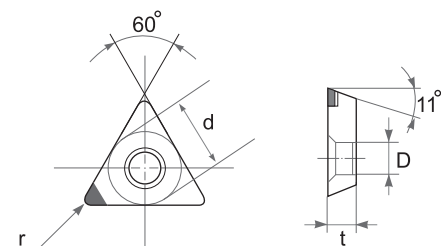
Type	Dimensions (mm)				SBN 1000	SBN 2000	SBN 3000	SBN 4000
ISO	ASA	d	t	r				
TPGN 110304 R1	TPGN 221 R1	6.35	3.18	0.4	●	●		
TPGN 110308 R1	TPGN 222 R1	6.35	3.18	0.8	●	●	●	●
TPGN 110312 R1	TPGN 223 R1	6.35	3.18	1.2				
TPGN 160304 R1	TPGN 321 R1	9.52	3.18	0.4	●	●		
TPGN 160308 R1	TPGN 322 R1	9.52	3.18	0.8	●	●	●	●
TPGN 160312 R1	TPGN 323 R1	9.52	3.18	1.2				

TPGB



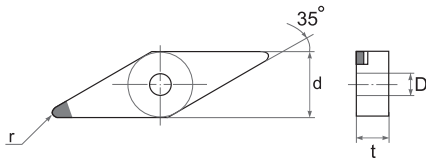
Type	Dimensions (mm)				SBN 1000	SBN 2000	SBN 3000	SBN 4000
ISO	ASA	d	t	r	D			
TPGB 080202 R1	TPGB 6302 R1	4.76	2.38	0.2	2.40			
TPGB 090204 R1	TPGB 731 R1	5.56	2.38	0.4	2.50	●	●	
TPGB 110302 R1	TPGB 2202 R1	6.35	3.18	0.2	3.30			
TPGB 110304 R1	TPGB 221 R1	6.35	3.18	0.4	3.30			
TPGB 110308 R1	TPGB 222 R1	6.35	3.18	0.8	3.30			

TPGW



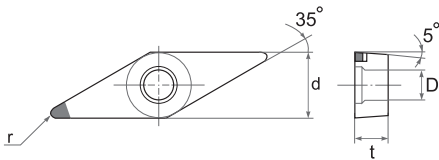
Type	Dimensions (mm)				SBN 1000	SBN 2000	SBN 3000	SBN 4000
ISO	ASA	d	t	r	D			
TPGW 160304 R1	TPGW 321 R1	9.52	3.18	0.4	4.40			
TPGW 160308 R1	TPGW 322 R1	9.52	3.18	0.8	4.40			

VNGA



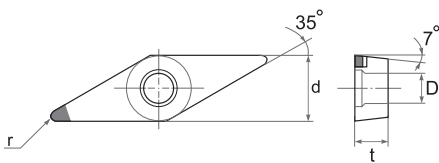
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
VNGA 160404 R1	VNGA 331 R1	9.52	4.76	0.4	3.18	●	●		
VNGA 160408 R1	VNGA 332 R1	9.52	4.76	0.8	3.18	●	●	●	●

VBGW



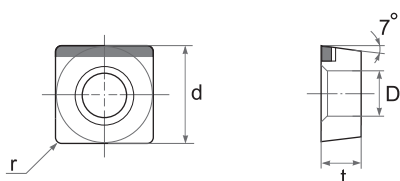
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
VBGW 110302 R1	VBGW 2202 R1	6.35	3.18	0.2	2.80				
VBGW 110304 R1	VBGW 221 R1	6.35	3.18	0.4	2.80				
VBGW 160404 R1	VBGW 331 R1	9.52	4.76	0.4	4.40	●	●		
VBGW 160408 R1	VBGW 332 R1	9.52	4.76	0.8	4.40	●	●	●	●

VCGW



Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
VCGW 110302 R1	VCGW 2202 R1	6.35	3.18	0.2	2.80				
VCGW 110304 R1	VCGW 221 R1	6.35	3.18	0.4	2.80				
VCGW 160404 R1	VCGW 331 R1	9.52	4.76	0.4	4.40	●	●		
VCGW 160408 R1	VCGW 332 R1	9.52	4.76	0.8	4.40	●	●	●	●

SCGW .. FS



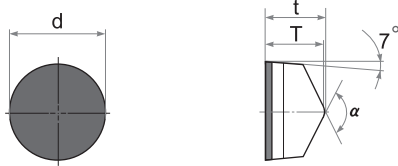
Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SCGW 09T304 FS		9.52	3.97	0.4	4.40	●			
SCGW 09T308 FS		9.52	3.97	0.8	4.40				
SCGW 12T404 FS		12.70	4.76	0.4	5.60				
SCGW 12T408 FS		12.70	4.76	0.8	5.60	●			

PCBN

FULL FACE

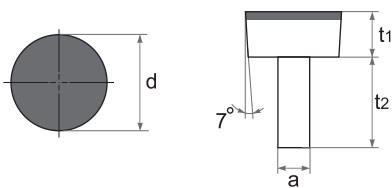
Turning & Milling

RCGX



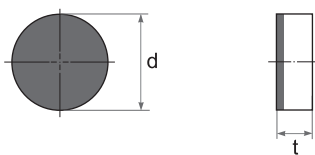
Type		Dimensions (mm)							
ISO	ASA	d	t	T	α	SBN 1000	SBN 2000	SBN 3000	SBN 4000
RCGX 060600 F	RCGX 102 F	6.35	6.35	6.20	120°	●			
RCGX 090700 F	RCGX 103 F	9.52	7.94	7.70	120°	●			
RCGX 120700 F	RCGX 104 F	12.70	7.94	7.70	120°	●			

RCGX



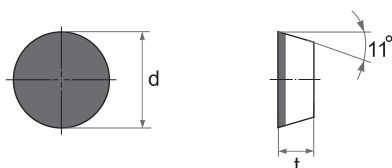
Type		Dimensions (mm)							
ISO		d	t ₁	t ₂	a	SBN 1000	SBN 2000	SBN 3000	SBN 4000
RCGX 060D F		6.35	5.00	8.35	3.00	●			
RCGX 090D F		9.52	6.00	20.00	4.00	●			
RCGX 120D F		12.70	6.00	20.00	5.88	●			

RNGN



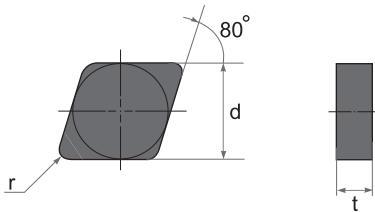
Type		Dimensions (mm)					
ISO	ASA	d	t	SBN 1000	SBN 2000	SBN 3000	SBN 4000
RNGN 090300 F	RNGN 320 F	9.52	3.18	●			
RNGN 120400 F	RNGN 430 F	12.70	4.76	●			

RPGN



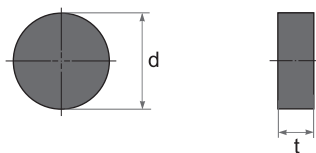
Type		Dimensions (mm)					
ISO	ASA	d	t	SBN 1000	SBN 2000	SBN 3000	SBN 4000
RPGN 090300 F	RPGN 320 F	9.52	3.18	●			
RPGN 120300 F	RPGN 420 F	12.70	3.18	●			
RPGN 120400 F	RPGN 430 F	12.70	4.76	●			

CNGN



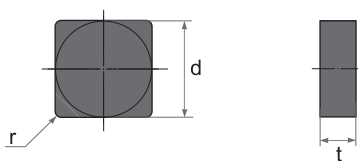
Type		Dimensions (mm)			SBN 5000
ISO	ASA	d	t	r	
CNGN 090308S	CNGN 322S	9.52	3.18	0.8	
CNGN 090312S	CNGN 323S	9.52	3.18	1.2	
CNGN 090316S	CNGN 324S	9.52	3.18	1.6	
CNGN 120408S	CNGN 432S	12.70	4.76	0.8	●
CNGN 120412S	CNGN 433S	12.70	4.76	1.2	●
CNGN 120416S	CNGN 434S	12.70	4.76	1.6	●

RNGN



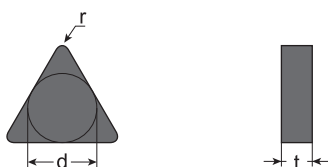
Type		Dimensions (mm)		SBN 5000
ISO	ASA	d	t	
RNGN 090300S	RNGN 320S	9.52	3.18	●
RNGN 120300S	RNGN 420S	12.70	3.18	●
RNGN 120400S	RNGN 430S	12.70	4.76	●

SNGN



Type		Dimensions (mm)			SBN 5000
ISO	ASA	d	t	r	
SNGN 090308S	SNGN 322S	9.52	3.18	0.8	●
SNGN 090312S	SNGN 323S	9.52	3.18	1.2	●
SNGN 090316S	SNGN 324S	9.52	3.18	1.6	
SNGN 120308S	SNGN 422S	12.70	3.18	0.8	
SNGN 120312S	SNGN 423S	12.70	3.18	1.2	
SNGN 120316S	SNGN 424S	12.70	3.18	1.6	
SNGN 120408S	SNGN 432S	12.70	4.76	0.8	●
SNGN 120412S	SNGN 433S	12.70	4.76	1.2	●
SNGN 120416S	SNGN 434S	12.70	4.76	1.6	●

TNGN

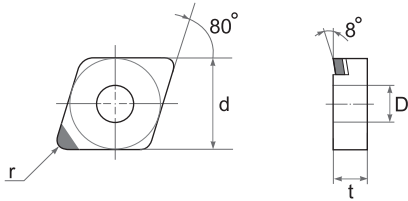


Type		Dimensions (mm)			SBN 5000
ISO	ASA	d	t	r	
TNGN 110308S	TNGN 222S	6.35	3.18	0.8	●
TNGN 110312S	TNGN 223S	6.35	3.18	1.2	●
TNGN 160408S	TNGN 332S	9.52	4.76	0.8	●
TNGN 160412S	TNGN 333S	9.52	4.76	1.2	●
TNGN 160416S	TNGN 334S	9.52	4.76	1.6	

PCD

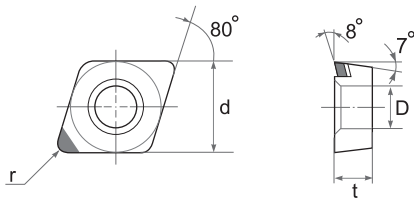
STANDARD

CNGA



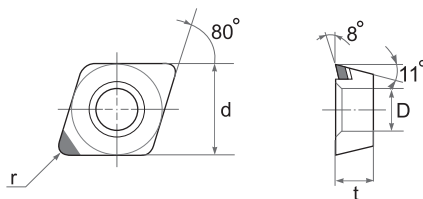
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D			
CNGA 120404 R1	CNGA 431 R1	12.70	4.76	0.4	5.16		●	
CNGA 120408 R1	CNGA 432 R1	12.70	4.76	0.8	5.16	●	●	
CNGA 120412 R1	CNGA 433 R1	12.70	4.76	1.2	5.16			

CCGW



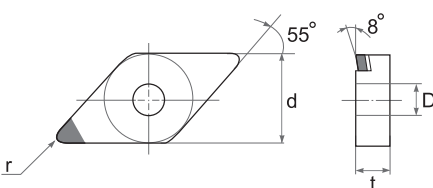
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO		d	t	r	D			
CCGW 060202 R1		6.35	2.38	0.2	2.80			
CCGW 060204 R1		6.35	2.38	0.4	2.80		●	
CCGW 060208 R1		6.35	2.38	0.8	2.80		●	
CCGW 09T302 R1		9.52	3.97	0.2	4.40			
CCGW 09T304 R1		9.52	3.97	0.4	4.40	●		
CCGW 09T308 R1		9.52	3.97	0.8	4.40		●	
CCGW 120404 R1		12.70	4.76	0.4	5.50		●	
CCGW 120408 R1		12.70	4.76	0.8	5.50		●	
CCGW 120412 R1		12.70	4.76	1.2	5.50			

CPGW



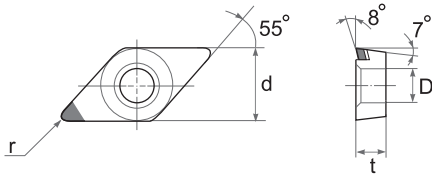
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO		d	t	r	D			
CPGW 080204 R1		7.94	2.38	0.4	3.40			
CPGW 080208 R1		7.94	2.38	0.8	3.40			
CPGW 080212 R1		7.94	2.38	1.2	3.40			
CPGW 090304 R1		9.525	3.18	0.4	4.40			
CPGW 090308 R1		9.525	3.18	0.8	4.40			
CPGW 090312 R1		9.525	3.18	1.2	4.40			

DNGA



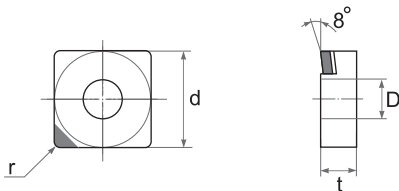
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D			
DNGA 150404 R1	DNGA 431 R1	12.70	4.76	0.4	5.16	●	●	
DNGA 150408 R1	DNGA 432 R1	12.70	4.76	0.8	5.16	●	●	
DNGA 150412 R1	DNGA 433 R1	12.70	4.76	1.2	5.16		●	
DNGA 150604 R1	DNGA 441 R1	12.70	6.35	0.4	5.16	●	●	
DNGA 150608 R1	DNGA 442 R1	12.70	6.35	0.8	5.16	●	●	
DNGA 150612 R1	DNGA 443 R1	12.70	6.35	1.2	5.16		●	

DCGW



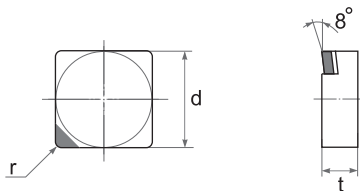
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
DCGW 070202 R1	6.35	2.38	0.2	2.80			
DCGW 070204 R1	6.35	2.38	0.4	2.80	●	●	
DCGW 070208 R1	6.35	2.38	0.8	2.80		●	
DCGW 11T302 R1	9.52	3.97	0.2	4.40			
DCGW 11T304 R1	9.52	3.97	0.4	4.40	●	●	
DCGW 11T308 R1	9.52	3.97	0.8	4.40		●	

SNGA



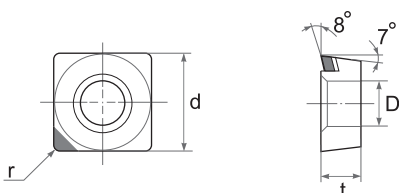
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D		
SNGA 120404 R1	SNGA 431 R1	12.70	4.76	0.4	5.16	●	●
SNGA 120408 R1	SNGA 432 R1	12.70	4.76	0.8	5.16		●
SNGA 120412 R1	SNGA 433 R1	12.70	4.76	1.2	5.16		

SNGN



Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r			
SNGN 120404 R1	SNGN 431 R1	12.70	4.76	0.4	●	●	
SNGN 120408 R1	SNGN 432 R1	12.70	4.76	0.8		●	
SNGN 120412 R1	SNGN 433 R1	12.70	4.76	1.2			

SCGW

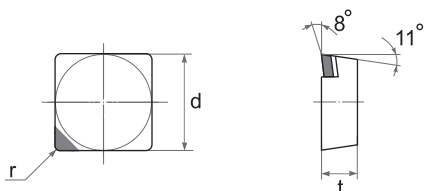


Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
SCGW 09T304 R1	9.52	3.97	0.4	4.40	●	●	
SCGW 09T308 R1	9.52	3.97	0.8	4.40		●	
SCGW 09T312 R1	9.52	3.97	1.2	4.40			
SCGW 120402 R1	12.70	4.76	0.2	5.50			
SCGW 120404 R1	12.70	4.76	0.4	5.50	●	●	
SCGW 120408 R1	12.70	4.76	0.8	5.50		●	

PCD

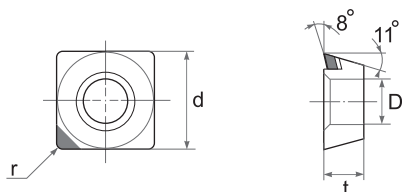
STANDARD

SPGN



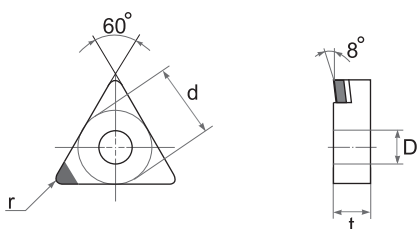
Type		Dimensions (mm)			SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r			
SPGN 090304 R1	SPGN 321 R1	9.52	3.18	0.4			
SPGN 090308 R1	SPGN 322 R1	9.52	3.18	0.8		●	
SPGN 120304 R1	SPGN 421 R1	12.70	3.18	0.4			
SPGN 120308 R1	SPGN 422 R1	12.70	3.18	0.8		●	

SPGW



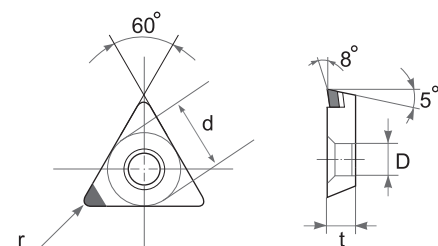
Type		Dimensions (mm)			SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r			
SPGW 090302 R1	SPGW 3202 R1	9.52	3.18	0.2			
SPGW 090304 R1	SPGW 321 R1	9.52	3.18	0.4			
SPGW 090308 R1	SPGW 322 R1	9.52	3.18	0.8			

TNGA



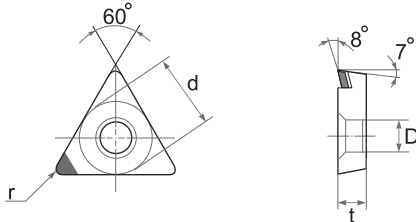
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D			
TNGA 160402 R1	TNGA 3302 R1	9.52	4.76	0.2	3.81		●	
TNGA 160404 R1	TNGA 331 R1	9.52	4.76	0.4	3.81	●	●	
TNGA 160408 R1	TNGA 332 R1	9.52	4.76	0.8	3.81		●	
TNGA 160412 R1	TNGA 333 R1	9.52	4.76	1.2	3.81			

TBGW



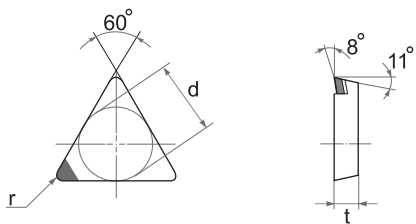
Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO		d	t	r	D			
TBGW 060102 R1		3.97	1.59	0.2	2.80			
TBGW 060104 R1		3.97	1.59	0.4	2.80			

TCGW



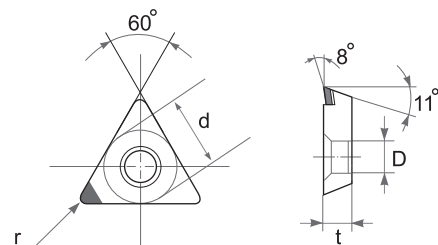
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
TCGW 090202 R1	5.56	2.38	0.2	2.5			
TCGW 090204 R1	5.56	2.38	0.4	2.5	●	●	
TCGW 090208 R1	5.56	2.38	0.8	2.5		●	
TCGW 110202 R1	6.35	2.38	0.2	2.8			
TCGW 110204 R1	6.35	2.38	0.4	2.8	●	●	
TCGW 110208 R1	6.35	2.38	0.8	2.8		●	
TCGW 16T302 R1	9.52	3.97	0.2	4.4			
TCGW 16T304 R1	9.52	3.97	0.4	4.4	●	●	
TCGW 16T308 R1	9.52	3.97	0.8	4.4		●	

TPGN



Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r			
TPGN 090204 R1	TPGN 721 R1	5.56	2.38	0.4			
TPGN 090208 R1	TPGN 732 R1	5.56	2.38	0.8			
TPGN 110302 R1	TPGN 2202 R1	6.35	3.18	0.2	●	●	●
TPGN 110304 R1	TPGN 221 R1	6.35	3.18	0.4	●	●	●
TPGN 110308 R1	TPGN 222 R1	6.35	3.18	0.8	●	●	●
TPGN 160302 R1	TPGN 3202 R1	9.52	3.18	0.2	●	●	●
TPGN 160304 R1	TPGN 321 R1	9.52	3.18	0.4	●	●	●
TPGN 160308 R1	TPGN 322 R1	9.52	3.18	0.8	●	●	●

TPGB

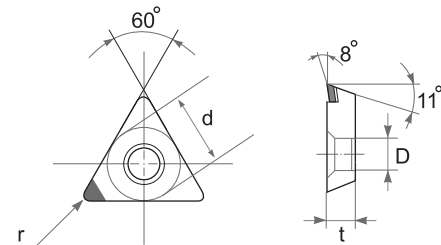


Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
TPGB 080204 R1	4.76	2.38	0.4	2.40			
TPGB 080208 R1	4.76	2.38	0.8	2.40			
TPGB 090204 R1	5.56	2.38	0.4	2.50			
TPGB 090208 R1	5.56	2.38	0.8	2.50			
TPGB 110304 R1	6.35	3.18	0.4	3.30		●	
TPGB 110308 R1	6.35	3.18	0.8	3.30		●	

PCD

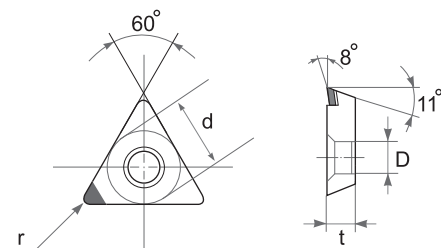
STANDARD

TPGW



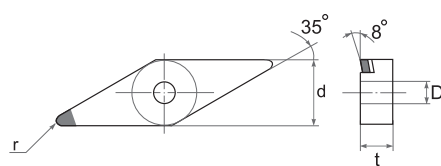
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
TPGW 080202 R1	4.76	2.38	0.2	2.40		●	
TPGW 080204 R1	4.76	2.38	0.4	2.40		●	
TPGW 110302 R1	6.35	3.18	0.2	3.30			
TPGW 110304 R1	6.35	3.18	0.4	3.30		●	
TPGW 110308 R1	6.35	3.18	0.8	3.30			
TPGW 160404 R1	9.52	4.76	0.4	3.81			
TPGW 160408 R1	9.52	4.76	0.8	3.81			

TPGT



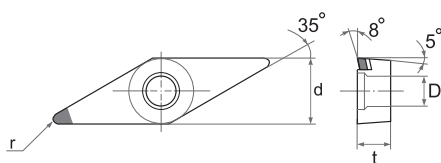
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	d	t	r	D			
TPGT 110302 R1	6.35	3.18	0.2	3.40			
TPGT 110304 R1	6.35	3.18	0.4	3.40			

VNGA



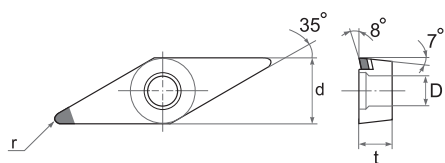
Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D		
VNGA 160404 R1	VNGA 331 R1	9.52	4.76	0.4	3.18	●	●
VNGA 160408 R1	VNGA 332 R1	9.52	4.76	0.8	3.18		●

VBGW



Type	Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D		
VBGW 110302 R1	VBGW 2202 R1	6.35	3.18	0.2	3.40		
VBGW 110304 R1	VBGW 221 R1	6.35	3.18	0.4	3.40		
VBGW 110308 R1	VBGW 222 R1	6.35	3.18	0.8	3.40		
VBGW 160402 R1	VBGW 3302 R1	9.52	4.76	0.2	4.40		
VBGW 160404 R1	VBGW 331 R1	9.52	4.76	0.4	4.40	●	●
VBGW 160408 R1	VBGW 332 R1	9.52	4.76	0.8	4.40		●
VBGW 160412 R1	VBGW 333 R1	9.52	4.76	1.2	4.40		

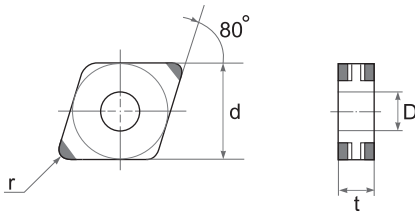
VCGW



Type		Dimensions (mm)				SPD 1000	SPD 2000	SPD 3000
ISO	ASA	d	t	r	D			
VCGW 110302 R1	VCGW 2202 R1	6.35	3.18	0.2	3.40	●		
VCGW 110304 R1	VCGW 221 R1	6.35	3.18	0.4	3.40	●		
VCGW 110308 R1	VCGW 222 R1	6.35	3.18	0.8	3.40			
VCGW 160404 R1	VCGW 331 R1	9.52	4.76	0.4	4.40			
VCGW 160408 R1	VCGW 332 R1	9.52	4.76	0.8	4.40			
VCGW 160412 R1	VCGW 333 R1	9.52	4.76	1.2	4.40			

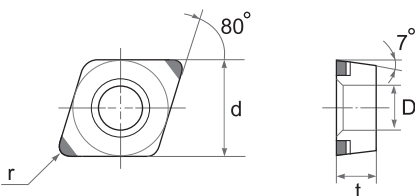
MINI TIP

CNGA



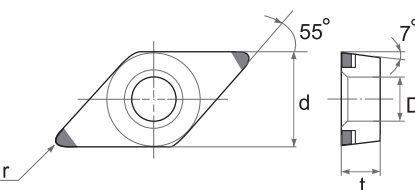
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
CNGA 120404 M1	CNGA 431 M1	12.70	4.76	0.4	5.16				
CNGA 120404 M2	CNGA 431 M2	12.70	4.76	0.4	5.16			●	●
CNGA 120404 M4	CNGA 431 M4	12.70	4.76	0.4	5.16				
CNGA 120408 M1	CNGA 432 M1	12.70	4.76	0.8	5.16				
CNGA 120408 M2	CNGA 432 M2	12.70	4.76	0.8	5.16			●	●
CNGA 120408 M4	CNGA 432 M4	12.70	4.76	0.8	5.16				

CCGW



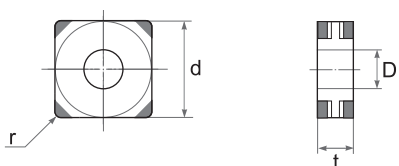
Type	Dimensions (mm)							
ISO	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
CCGW 09T304 M1	9.52	3.97	0.4	4.40				
CCGW 09T304 M2	9.52	3.97	0.4	4.40			●	●
CCGW 09T308 M1	9.52	3.97	0.8	4.40				
CCGW 09T308 M2	9.52	3.97	0.8	4.40			●	●

DCGW



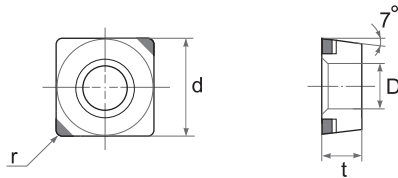
Type	Dimensions (mm)							
ISO	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
DCGW 11T302 M1	9.52	3.97	0.2	4.40				
DCGW 11T302 M2	9.52	3.97	0.2	4.40				
DCGW 11T304 M1	9.52	3.97	0.4	4.40				
DCGW 11T304 M2	9.52	3.97	0.4	4.40			●	●
DCGW 11T308 M1	9.52	3.97	0.8	4.40				
DCGW 11T308 M2	9.52	3.97	0.8	4.40			●	●

SNGA



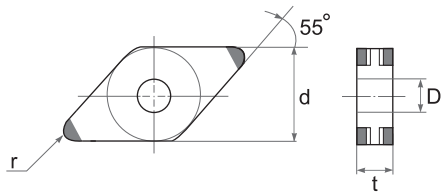
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SNGA 120404 M1	SNGA 431 M1	12.70	4.76	0.4	5.16				
SNGA 120404 M2	SNGA 431 M2	12.70	4.76	0.4	5.16				
SNGA 120404 M4	SNGA 431 M4	12.70	4.76	0.4	5.16				
SNGA 120408 M1	SNGA 432 M1	12.70	4.76	0.8	5.16				
SNGA 120408 M2	SNGA 432 M2	12.70	4.76	0.8	5.16			●	●
SNGA 120408 M4	SNGA 432 M4	12.70	4.76	0.8	5.16			●	●

SCGW



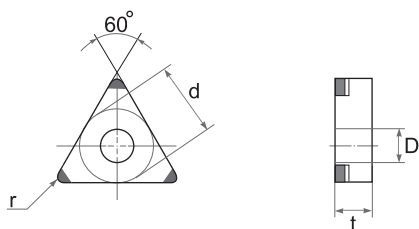
Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
SCGW 09T304 M1		9.52	3.97	0.4	4.40				
SCGW 09T304 M2		9.52	3.97	0.4	4.40				
SCGW 09T308 M1		9.52	3.97	0.8	4.40				
SCGW 09T308 M2		9.52	3.97	0.8	4.40				

DNGA



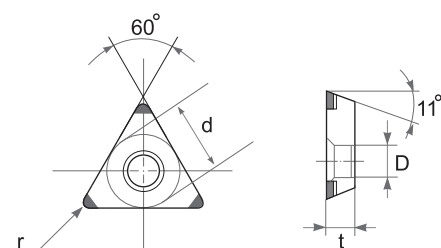
Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
DNGA 150404 M1	DNGA 431 M1	12.70	4.76	0.4	5.16				
DNGA 150404 M2	DNGA 431 M2	12.70	4.76	0.4	5.16				
DNGA 150404 M4	DNGA 431 M4	12.70	4.76	0.4	5.16				
DNGA 150408 M1	DNGA 432 M1	12.70	4.76	0.8	5.16				
DNGA 150408 M2	DNGA 432 M2	12.70	4.76	0.8	5.16			●	●
DNGA 150408 M4	DNGA 432 M4	12.70	4.76	0.8	5.16			●	●
DNGA 150604 M1	DNGA 441 M1	12.70	6.35	0.4	5.16				
DNGA 150604 M2	DNGA 441 M2	12.70	6.35	0.4	5.16				
DNGA 150604 M4	DNGA 441 M4	12.70	6.35	0.4	5.16				
DNGA 150608 M1	DNGA 442 M1	12.70	6.35	0.8	5.16				
DNGA 150608 M2	DNGA 442 M2	12.70	6.35	0.8	5.16				
DNGA 150608 M4	DNGA 442 M4	12.70	6.35	0.8	5.16				

TNGA



Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
TNGA 160404 M1	TNGA 331 M1	9.52	4.76	0.4	3.81				
TNGA 160404 M3	TNGA 331 M3	9.52	4.76	0.4	3.81				
TNGA 160408 M1	TNGA 332 M1	9.52	4.76	0.8	3.81				
TNGA 160408 M3	TNGA 332 M3	9.52	4.76	0.8	3.81			●	●

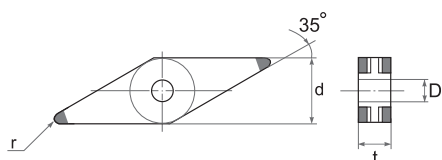
TPGW



Type		Dimensions (mm)							
ISO		d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
TPGW 160304 M1	TPGW 321 M1	9.52	3.18	0.4	4.40				
TPGW 160304 M3	TPGW 321 M3	9.52	3.18	0.4	4.40				
TPGW 160308 M1	TPGW 322 M1	9.52	3.18	0.8	4.40				
TPGW 160308 M3	TPGW 322 M3	9.52	3.18	0.8	4.40			●	●

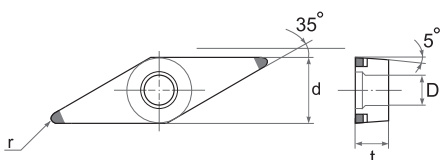
MINI TIP

VNGA



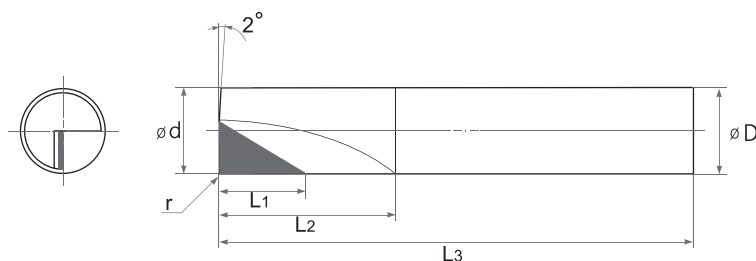
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
VNGA 160404 M1	VNGA 331 M1	9.52	4.76	0.4	3.18				
VNGA 160404 M2	VNGA 331 M2	9.52	4.76	0.4	3.18				
VNGA 160404 M4	VNGA 331 M4	9.52	4.76	0.4	3.18				
VNGA 160408 M1	VNGA 332 M1	9.52	4.76	0.8	3.18				
VNGA 160408 M2	VNGA 332 M2	9.52	4.76	0.8	3.18			●	●
VNGA 160408 M4	VNGA 332 M4	9.52	4.76	0.8	3.18			●	●

VBGW



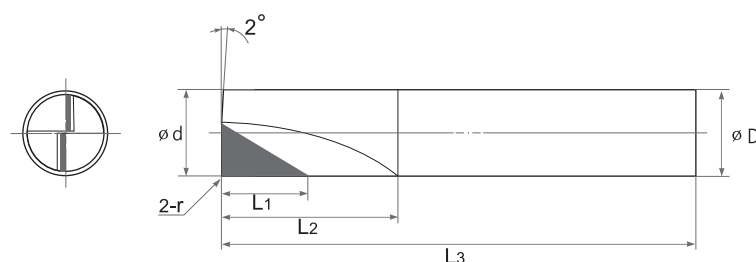
Type		Dimensions (mm)							
ISO	ASA	d	t	r	D	SBN 1000	SBN 2000	SBN 3000	SBN 4000
VBGW 160404 M1	VBGW 331 M1	9.52	4.76	0.4	4.40				
VBGW 160404 M2	VBGW 331 M2	9.52	4.76	0.4	4.40			●	●
VBGW 160408 M1	VBGW 332 M1	9.52	4.76	0.8	4.40				
VBGW 160408 M2	VBGW 332 M2	9.52	4.76	0.8	4.40			●	●

SFE .. 1C



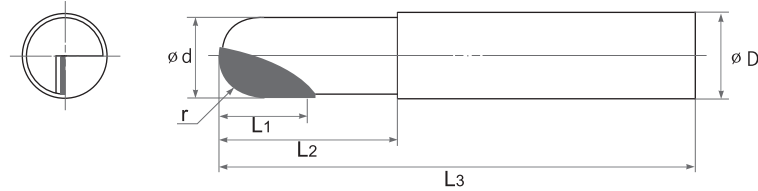
Type	Dimensions (mm)						PCBN				PCD		
ISO	d	D	L1	L2	L3	r	SBN1000	SBN2000	SBN3000	SBN4000	SPD1000	SPD2000	SPD3000
SFE 250-1C	2.0	4.0	4.0	10.0	50.0	0.15						●	
SFE 280-1C	2.0	4.0	4.0	10.0	80.0	0.15						●	
SFE 350-1C	3.0	4.0	4.0	10.0	50.0	0.15						●	
SFE 380-1C	3.0	4.0	4.0	10.0	80.0	0.15						●	
SFE 450-1C	4.0	4.0	6.0	12.0	50.0	0.20						●	
SFE 480-1C	4.0	4.0	6.0	12.0	80.0	0.20						●	
SFE 650-1C	6.0	6.0	6.0	16.0	50.0	0.20						●	
SFE 6100-1C	6.0	6.0	6.0	16.0	100.0	0.20						●	
SFE 860-1C	8.0	8.0	7.0	16.0	60.0	0.40						●	
SFE 8120-1C	8.0	8.0	7.0	16.0	120.0	0.40						●	
SFE 1070-1C	10.0	10.0	7.0	16.0	70.0	0.40						●	
SFE 10120-1C	10.0	10.0	7.0	16.0	120.0	0.40						●	

SFE .. 2C



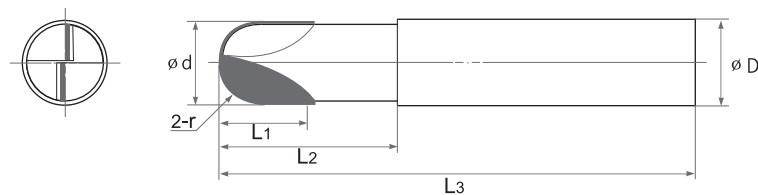
Type	Dimensions (mm)						PCBN				PCD		
ISO	d	D	L1	L2	L3	r	SBN1000	SBN2000	SBN3000	SBN4000	SPD1000	SPD2000	SPD3000
SFE 650-2C	6.0	6.0	4.0	12.0	50.0	0.20						●	
SFE 680-2C	6.0	6.0	6.0	16.0	80.0	0.20						●	
SFE 860-2C	8.0	8.0	7.0	16.0	60.0	0.20						●	
SFE 8120-2C	8.0	8.0	9.0	20.0	120.0	0.40						●	
SFE 1070-2C	10.0	10.0	9.0	20.0	70.0	0.40						●	
SFE 10120-2C	10.0	10.0	12.0	25.0	120.0	0.80						●	
SFE 1270-2C	12.0	12.0	12.0	25.0	70.0	0.80						●	
SFE 12120-2C	12.0	12.0	16.0	30.0	120.0	1.00						●	
SFE 16100-2C	16.0	16.0	16.0	25.0	100.0	0.80						●	
SFE 16150-2C	16.0	16.0	20.0	30.0	150.0	1.00						●	
SFE 18100-2C	18.0	18.0	20.0	30.0	100.0	0.80						●	
SFE 18200-2C	18.0	18.0	24.0	35.0	200.0	1.20						●	
SFE 20100-2C	20.0	20.0	24.0	35.0	100.0	0.80						●	
SFE 20200-2C	20.0	20.0	28.0	40.0	200.0	1.20						●	

SBE .. 1C



Type	Dimensions (mm)						PCBN				PCD		
ISO	d	D	L ₁	L ₂	L ₃	r	SBN1000	SBN2000	SBN3000	SBN4000	SPD1000	SPD2000	SPD3000
SBE 250-1C	2.0	4.0	4.0	12.0	50.0	1.0							
SBE 280-1C	2.0	4.0	4.0	16.0	80.0	1.0							
SBE 350-1C	3.0	4.0	4.0	16.0	50.0	1.5						●	
SBE 380-1C	3.0	4.0	6.0	30.0	80.0	1.5						●	
SBE 450-1C	4.0	4.0	4.0	16.0	50.0	2.0						●	
SBE 480-1C	4.0	4.0	6.0	40.0	80.0	2.0						●	
SBE 650-1C	6.0	6.0	6.0	20.0	50.0	3.0						●	
SBE 6100-1C	6.0	6.0	8.0	50.0	100.0	3.0						●	
SBE 860-1C	8.0	8.0	8.0	30.0	60.0	4.0						●	
SBE 8120-1C	8.0	8.0	10.0	60.0	120.0	4.0						●	
SBE 1080-1C	10.0	10.0	10.0	30.0	80.0	5.0						●	
SBE 10160-1C	10.0	10.0	12.0	60.0	160.0	5.0							
SBE 12100-1C	12.0	12.0	12.0	40.0	100.0	6.0							
SBE 12200-1C	12.0	12.0	16.0	80.0	200.0	6.0							
SBE 16160-1C	16.0	16.0	16.0	60.0	160.0	8.0							
SBE 16250-1C	16.0	16.0	20.0	100.0	250.0	8.0							

SBE .. 2C



Type	Dimensions (mm)						PCBN				PCD		
ISO	d	D	L ₁	L ₂	L ₃	r	SBN1000	SBN2000	SBN3000	SBN4000	SPD1000	SPD2000	SPD3000
SBE 650-2C	6.0	6.0	6.0	20.0	50.0	3.0							
SBE 6100-2C	6.0	6.0	8.0	50.0	100.0	3.0							
SBE 860-2C	8.0	8.0	8.0	30.0	60.0	4.0						●	
SBE 8120-2C	8.0	8.0	10.0	60.0	120.0	4.0						●	
SBE 1080-2C	10.0	10.0	10.0	30.0	80.0	5.0							
SBE 10160-2C	10.0	10.0	12.0	60.0	160.0	5.0							
SBE 12100-2C	12.0	12.0	12.0	40.0	100.0	6.0							
SBE 12200-2C	12.0	12.0	16.0	80.0	200.0	6.0							



PCD ENDMILL

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