

TURNING TOOLS

CVD Coated Inserts

PVD Coated Inserts

Cermet Inserts

CBN Inserts



Where **high performance**
is the **standard**



Turning Catalogue

M.A. FORD MAX
RANGE

Performance, Precision, Economy



Where **high performance** is the **standard***



Since 1919 M.A. Ford has been at the cutting edge of tooling design and manufacture. During this time we have developed an enviable global reputation for precision and high performance, which has helped countless businesses improve productivity, save manufacturing time and improve production costs.

Our FordMAX range of indexable coated carbide turning tools provide a highly effective affordable solution for batch production and low volume manufacturing, while retaining the productivity and performance benefits that are synonymous with M.A. Ford.

Incorporating a wide range of precision ground inserts available in different geometries and coatings, together with dedicated tool holders; the FordMAX range of turning tools are the perfect solution for performance, precision and economy.

M.A. FORD – Where high performance is the standard.



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ISO Turning Indexable Inserts Identification System

1				2		3						
Symbol	Shape	Corner Angle	Figure	Symbol	Relief Angle Others	Tolerance(mm)			Tolerance (inch)			
						Symbol	Corner Height (m)	Thickness	I.C.Dia. (Od)	Corner Height (m)	Thickness (s)	I.C.Dia. (Od)
H	Hexagon	120°		A	3°	A	±0.005	±0.025	±0.025	±0.0002	±0.001	±0.001
O	Octagon	135°		B	5°	F	±0.005	±0.025	±0.013	±0.0002	±0.001	±0.0005
P	Pentagon	108°		C	7°	C	±0.013	±0.025	±0.025	±0.0005	±0.001	±0.001
S	Square	90°		D	15°	H	±0.013	±0.025	±0.013	±0.0005	±0.001	±0.0005
T	Triangle	60°		E	20°	E	±0.025	±0.025	±0.025	±0.001	±0.001	±0.001
C	Rhombus	80°		F	25°	G	±0.025	±0.13	±0.025	±0.001	±0.005	±0.001
D		55°		G	30°	J	±0.005	±0.025	±0.05-±0.13	±0.0002	±0.001	±0.002-±0.005
E		75°		N	0°	K	±0.013	±0.025	±0.05-±0.13	±0.0005	±0.001	±0.002-±0.005
F		50°		P	11°	L	±0.025	±0.025	±0.05-±0.13	±0.001	±0.001	±0.002-±0.005
M		86°		O	Others	M	±0.08-±0.18	±0.13	±0.05-±0.13	±0.003-±0.007	±0.005	±0.002-±0.005
V		35°				N	±0.08-±0.18	±0.025	±0.05-±0.13	±0.003-±0.007	±0.001	±0.002-±0.005
W	Hexagon	80°		Relief Angle Symbol		U	±0.13-±0.38	±0.13	±0.08-±0.25	±0.005-±0.015	±0.005	±0.003-±0.01
L	Rectangle	90°				Tolerance Symbol						
A	Parallelogram	85°										
B		82°										
K		55°										
R	Round	—										

1 2 3 4 5

T **N** **M** **G** **22**

T **N** **M** **G** **22**

1 2 3 4 5

4					5																		
Hole/Chip-breaker Symbol					ISO Edge Length Symbol(mm)																		
Symbol	Hole	Hole Shape	Chip-breaker	Shape								I.C.Dia. (mm)											
					Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length			
N	Without	—	Without				03	3.97	03	4.0			06	6.9	4	4.8					3.97		
R			Single-sided				04	4.76	04	4.8			08	8.2	5	5.8					4.76		
F			Double-sided				05	5	—	—	—	—	—	—	—	—	—	—	—	—	—	5	
A	With Hole	With Hole	Without				05	5.56	05	5.6	03	3.8	09	9.6	6	6.8					5.56		
M			Single-sided				06	6.35	06	6.5	04	4.3	11	11	7	7.8	11	11.2				6.35	
G			Double-sided				07	7.94	08	8.1	05	5.4	13	13.8	9	9.7							7.94
W			With Hole and one countersink 40°-60°	With Hole and one countersink 40°-60°	Without		08	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
T					Single-sided		09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
Q					Double-sided		10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
U	With Hole and two countersinks 70°-90°	With Hole and two countersinks 70°-90°	Without		12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1				12.7	
B			Double-sided		15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4							15.875
H			Without		16	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16
C	With Hole and one countersink 70°-90°	With Hole and one countersink 70°-90°	Single-sided		19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3						19.05	
J			Without		20	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20
X			Double-sided				22	22.225	22	22.6			38	38.5	27	27.1							22.225
					25	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	
					25	25.4	25	25.4	25	25.8			44	44	31	31						25.4	
					31	31.75	31	31.75	32	32.2			55	55	38	38.8						31.75	
					31	32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32	

Insert Shape H,O,PS,T,C,E,M,W,R									
I.C.Size (mm)	Tolerance of I.C.Size(Ød) (mm)		Tolerance of corner height (m) (mm)		I.C.Size (inch)	Tolerance of I.C.Size(Ød) (mm)		Tolerance of corner height (m) (mm)	
	Class J,K, L,M,N	Class U	Class J,K, L,M,N	Class U		Class J,K, L,M,N	Class U	Class J,K, L,M,N	Class U
6.35	±0.05	±0.08	±0.08	±0.13	0.250	±0.002	±0.003	±0.003	±0.005
9.525					0.375				
12.7	±0.08	±0.13	±0.13	±0.2	0.500	±0.003	±0.005	±0.005	±0.008
15.875	±0.1	±0.18	±0.15	±0.27	0.625	±0.004	±0.007	±0.006	±0.011
19.05					0.750				
25.4	±0.13	±0.25	±0.18	±0.38	1.000	±0.005	±0.010	±0.007	±0.015
31.75	±0.15	±0.25	±0.2	±0.38	1.250	±0.006	±0.010	±0.008	±0.015
32					1.260				

Insert Shape D					
Inscribed Circle Size(Ød)		Tolerance of I.C.Size		Tolerance of corner height	
mm	in	mm	in	mm	in
6.35	0.250	±0.05	±0.002	±0.11	±0.004
9.525	0.375	±0.05	±0.002	±0.11	±0.004
12.7	0.500	±0.08	±0.003	±0.15	±0.006
15.875	0.625	±0.10	±0.004	±0.18	±0.007
19.05	0.750	±0.10	±0.004	±0.18	±0.007

Insert Shape V					
Inscribed Circle Size(Ød)		Tolerance of I.C.Size		Tolerance of corner height	
mm	in	mm	in	mm	in
6.35	0.250	±0.05	±0.002	±0.15	±0.006
9.525	0.375	±0.05	±0.002	±0.15	±0.006
12.7	0.500	±0.08	±0.003	±0.20	±0.008
15.875	0.625	±0.10	±0.004	±0.27	±0.011
19.05	0.750	±0.10	±0.004	±0.27	±0.011

Symbol	Corner Height (mm)
01	1.59
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52
Corner Height Symbol	

6

04

04

6

7

08

08

7

8

HK

HK

8

Inscribed Circle Size(Ød)

Corner Height(s)

Corner Height(m)

Corner Re Symbol

Symbol	Corner-R (mm)
00	0.03
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2

Chipbreaker Symbol

Indicates the cutting properties and chipbreaker

Application Summary of Turning Grades

Workpiece	ISO	Coated		Uncoated
		CVD	PVD	
P Steel	01	FP1005		
	10	FP1015		
	20	FP1020 <small>NEW</small>		
	30	FP1125		
	40	FP1035		
	50			
M Stainless Steel	01	FM1015		
	10			
	20	FM1025		
	30		FS3015	
	40		FM3115 <small>NEW</small>	FS3025 <small>NEW</small>
	50			FM3125 <small>NEW</small>
K Cast Iron	01	FK1015		
	10	FK1020		
	20	FK1025		
	30	FK1030		
	40			
	50			
N Nonferrous Metal	01			FN6115
	10			
	20			FN6120 <small>NEW</small>
	30			FN6130 <small>NEW</small>
	40			
	50			
S HRSA	01			
	10		FS3015	
	20			
	30		FS3025	
	40			
	50			
H Hardened Material	01			
	10			
	20			
	30			
	40			
	50			

Coated Carbide CVD

Fine grain Al₂O₃ coating improve wear-resistance and breakage failure resistance

Workpiece	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	Continuous Cutting	FP1005	200-380	P01	
		FP1015	150-360	P10	
		FP1020	150-360	P20	
	Interrupted Cutting	FP1125	120-280	P30	
		FP1035	80-180	P40	
		FP1025	180-280	M01	
M Stainless Steel	Continuous Cutting	FM1015	200-300	M10	
		FM1025	180-280	M20	
	Interrupted Cutting	FM1015	200-300	M30	
		FM1025	180-280	M40	
		FM1025	180-280	M40	
K Cast Iron	Continuous Cutting	FK1015	200-400	K01	
		FK1020		K10	
		FK1025	150-300	K20	
	Interrupted Cutting	FK1025	150-300	K30	
		FK1030	150-300	K40	
		FK1030	150-300	K40	

Coated Carbide PVD

Exclusive PVD nano-coating improve comprehensive properties of cutting insert.

Workpiece	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	Continuous Cutting	FP3025	100-250	P01	
				P10	
	Interrupted Cutting			P20	
				P30	
M Stainless Steel	Continuous Cutting	FS3015	120-250	M01	
		FM3115	100-220	M10	
		FM3125	100-220	M20	
	Interrupted Cutting	FM3115	100-220	M30	
		FM3125	100-220	M40	
		FM3125	100-220	M40	
S Heat Resistance Alloy	Continuous Cutting	FS3015	40-70	S01	
		FS3025	45-65	S10	
	Interrupted Cutting	FS3015	40-70	S20	
		FS3025	45-65	S30	
		FS3025	45-65	S40	

Cermet

The specially optimized matrix largely improves wear resistance and anti-breakage property. Great surface quality in high speed application.

Workpiece	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	Continuous Cutting	FP30TM	(260) 180-380	P01	FP90TF FP30TM
				P10	
	Interrupted Cutting	FP90TM	(230) 150-350	P20	NEW FP90TM
				P30	
M Stainless Steel	Finishing	FP30TM	(200) 150-280	M01	FP30TM FP90TM
		FP90TM	(180) 130-250	M10	
		M20	NEW FP90TM		
K Cast Iron	Finishing	FP30TM	(230) 130-330	K01	FP30TM FP90TM
		FP90TM	(210) 100-300	K10	
		K20	NEW		

Carbide (Uncoated)

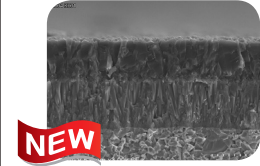
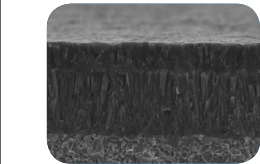
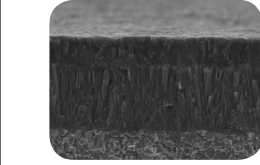
Cemented carbide substrate with special surface treatment suitable for cutting of copper, aluminum alloys and non-metal materials.

Workpiece	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
N Nonferrous Metals	Continuous Cutting	FN6115	800-1600	P01	FN6115 FN6120 FN6130
		FN6120	700-1500	P10	
	Interrupted Cutting	FN6130	650-1400	P20	NEW FN6120 NEW FN6130
				P30	
				P40	

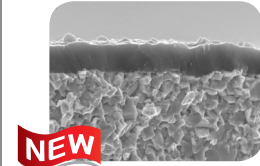
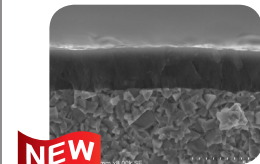
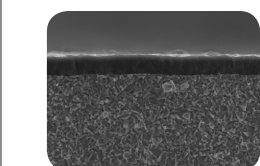
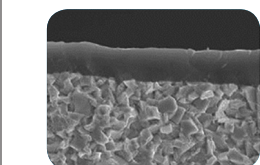
Coated Carbide CVD Grades

Grade	Cutting Range	Microstructure	Advantages
FP1005	Extremely wear-resistance Steel Turning Finishing	 NEW	<ul style="list-style-type: none"> • Superfine Al₂O₃ and MT-TiCN coating on gradient carbide substrate provide excellent wear resistance. • Suitable for finishing of steel & alloy steel under stable condition.
FP1015	Steel Turning CVD Grade Finishing and Semi-Finishing		<ul style="list-style-type: none"> • Super fine MT-TiCN, Al₂O₃ and TiN coating on graded carbide substrate, smooth surface and superior wear resistance. • Application: Suitable for finishing to semi-finishing of steels and alloy steels in continuous conditions.
FP1020	High versatility Steel Turning CVD Grade Finishing and Semi-Finishing	 NEW	<ul style="list-style-type: none"> • Perfect combination with nano columnar MT-TiCN and Al₂O₃, TiN coating. • Special edge treatment technology. • Suitable for continuous to light interrupted cutting of steel & alloy steel.
FP1125	Steel Turning CVD Grade Semi-Finishing to Light Roughing		<ul style="list-style-type: none"> • Super fine MT-TiCN, Al₂O₃ and TiN coating on tough graded carbide substrate, smooth surface and superior wear resistance and improved toughness. • Application: Suitable for semi-finishing to medium roughing of steels and alloy steels in light interrupted conditions.
FP1035	Steel Turning CVD Grade Roughing		<ul style="list-style-type: none"> • Super fine MT-TiCN, Al₂O₃ and TiN coating on high toughness graded carbide substrate, smooth surface and superior fracture resistance. • Application: Suitable for roughing of steels and alloy steels under interrupted conditions.
FM1015	High abrasive wear resistance Stainless Steel Turning CVD Grade Finishing	 NEW	<ul style="list-style-type: none"> • New thinner Al₂O₃ and Nano MT-TiCN coating, including bright yellow TiN coating, on good toughness gradient carbide substrate, with good wear resistance, superior adhesion resistance and longer tool life. • Application: Suitable for machining of stainless steels in high-speed continuous finishing conditions.
FM1025	Stainless Steel Turning CVD Grade Semi-finishing and Roughing		<ul style="list-style-type: none"> • TiCN and TiN coating on good toughness carbide substrate, with good wear resistance, superior adhesion resistance and longer tool life. • Application: Suitable for machining of stainless steels in continuous and light interrupted conditions.
FK1015	Cast Iron Turning CVD Grade Finishing and Semi-Finishing		<ul style="list-style-type: none"> • MT-TiCN and thick Al₂O₃ coated on micro-grain carbide substrate, superior wear resistance. Smooth coating surface after special post-processing and shows superior wear resistance and fracture resistance. • Application: Suitable for finishing to semi-finishing of nodular irons and gray irons in continuous and light interrupted conditions.

Coated Carbide CVD Grades

Grade	Cutting Range	Microstructure	Advantages
FK1020	High versatility Cast Iron Turning CVD Grade Finishing and Semi-Finishing		<ul style="list-style-type: none"> • MT-TiCN and thick Al₂O₃ coated on micro-grain carbide substrate. Special post-processing with excellent edge strength and ensure the stability of cutting. • Application: Suitable for continuous and light interrupted cutting action of nodular cast iron.
FK1025	Cast Iron Turning CVD Grade Semi-Finishing and Roughing		<ul style="list-style-type: none"> • Thick MT-TiCN+Al₂O₃ coated on toughness micro-grain carbide substrate, keeping superior wear resistance and greatly improved toughness. • Application: Suitable for bad machining conditions which require high toughness.
FK1030	Cast Iron Turning CVD Grade Semi-Finishing and Roughing		<ul style="list-style-type: none"> • Thick MT-TiCN+Al₂O₃ coated on toughness micro-grain carbide substrate, keeping greatly improved toughness and excellent edge strength. • Application: Suitable for interrupted rough cutting action of nodular cast iron.

Coated Carbide PVD Grades

Grade	Cutting Range	Microstructure	Advantages
FM3115	High abrasive wear resistance Stainless Steel Turning PVD Grade Finishing		<ul style="list-style-type: none"> • New TiAlN coating on submicron substrate with strong adhesion, superior wear resistance and good heat resistance. • Application: Suitable for finishing stainless steel and high-temperature alloy on stable conditions.
FM3125	High versatility Stainless Steel Turning PVD Grade Semi-Finishing		<ul style="list-style-type: none"> • Optimized combination of TiAlN coating and micro-grain carbide substrate with high Co content provide superior adhesion resistance and toughness. • Application: Suitable for semi-finishing of stainless steels and threading of general materials.
FS3015 FS3015	Heat Resistance Alloy Turning PVD Grade Finishing and Semi-Finishing		<ul style="list-style-type: none"> • New TiAlN coating with good adhesion on submicron substrate, superior wear resistance and heat resistance. • Application: Suitable for finishing to semi-finishing of stainless steels and high temperature resistance alloys.
FS3025 FS3025	Heat Resistance Alloy Turning PVD Grade Semi-Finishing		<ul style="list-style-type: none"> • Superior red-hardness and anti-plastic deformation cemented carbide substrate coated new AlTiN coating, has excellent oxidation resistance and adhesive wear resistance. • Application: Suitable for semi-finishing of high-temp alloy in moderate cutting speed, and also suitable for some Titanium Alloy.

Cermet Grades

Grade	Cutting Range	Microstructure	Advantages
FP90TF	Finish Machining		<ul style="list-style-type: none"> • Cermet grade with high wear resistance • Application: For turning of steels, cast irons and stainless steels in continuous conditions
FP90TF			
FP90TF			
FP30TM	Finish Machining	 NEW	<ul style="list-style-type: none"> • Special surface treatment • Improved micro-chipping resistance lead to better surface roughness, and enhance wear resistance
FP30TM			
FP30TM			
FP90TM	Finish to Medium Machining	 NEW	<ul style="list-style-type: none"> • TiCN-based cermet • Achieving stability and longer tool life with excellent wear resistance and fracture resistance.
FP90TM			
FP90TM			

Carbide Grades (Uncoated)

Grade	Cutting Range	Microstructure	Advantages
FN6120	High versatility aluminum alloys Turning Grade Finish and Semi-Finishing	 NEW	<ul style="list-style-type: none"> • Fine grain cemented carbide substrate with special surface treatment have superior wear resistance and adhesion resistance. • Application: Suitable for cutting of copper, aluminum alloys and non-ferrous materials in high speed conditions.
FN6130	High toughness aluminum alloys Turning Grade Semi-Finish and Roughing	 NEW	<ul style="list-style-type: none"> • Micro-fine grain cemented carbide substrate have balance between superior wear resistance and toughness. • Application: Suitable for roughing of copper, aluminum alloys And non-metallic material.

Geometry / Grade Selection Recommended Conditions

Workpiece material	Geometry		Working Condition				
				●	⦿	⚙	
			Finishing	Continuous	Light Interrupted	Interrupted	
P	Negative	PS	-	FP90TF	-	-	
		GF	-	FP1015/FP90TF	FP1015/FP1125	FP1125	
		QF	-	FP1005/FP1015/ FP90TF/FP90TM	FP1015/FP1020/ FP1125/FP90TM	FP1020/FP1125	
		GM	-	FP1015	FP1015/FP1125	FP1125	
		QM	-	FP1005/FP1015/ FP90TF/FP90TM	FP1015/FP1020/ FP1125/FP90TM	FP1020/FP1125	
		TP	FP90TF	FP30TM/FP90TM	FP90TM	-	
		SV	-	FP1015/FP90TF/ FP90TM	FP1015/FP1020/ FP1125/FP90TM	FP1020/FP1125	
		QR	-	FP1005/FP1015	FP1125	FP1035	
		QH	-	FP1005/FP1015	FP1125	FP1035	
	Positive	PS	-	FP90TF	-	-	
		GS	-	FP90TF	-	-	
		MM	-	FP1005/FP90TF/ FP90TM	FP1015/FP90TM	FP1125/FP3025	
		GP	-	FP1015/FP90TF/ FP90TM	FP1015/FP1020/FP1125/ FP3025/FP90TM	FP1020/FP1125/FP3025	
		KM	-	FP1015	FP1015/FP1125	FP1125	
	M	Negative	SF	FS3015	-	-	-
			PS	-	FS3015/FS3025	-	-
LM			-	-	-	-	
LR			-	FM1015	FM1025/FM3115	FM3125	
Positive		PS	-	FS3025	FM3115/FM3125	FM3125	
		GS	-	FS3025	-	-	
		MM	-	FM1015/FM1025	FM3115/FM3125	FM3125	
		GP	-	FM1015/FM1025	FM3115/FM3125	FM3125	
K	Negative	UK	-	FK1015	FK1015/FK1020	FK1025/FK1030	
		HK	-	FK1015	FK1015/FK1020	FK1025/FK1030	
		Flat	-	FK1015	FK1015/FK1020	FK1025/FK1030	
	Positive	GP	-	FK1015	FK1015/FK1025	FK1025	
		KM	-	FK1015	FK1015/FK1025	FK1025	
N	Positive	AL	-	FN6115	FN6120/FN6130	FN6120/FN6130	

Bold = Primary Geometry

Features of Turning Inserts - **Negative**

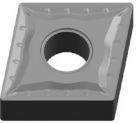
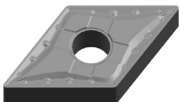

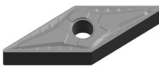
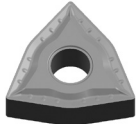
STEEL

Geometry	Features	Application Range	Cross Section Geometry
QF	<ul style="list-style-type: none"> • QF for finishing of general steel and alloy steel • Variable rake angle provides enough edge strength at different depths of cut • Curved edge, sharp cutting edge, good chip control and fine surface finish due to curved edge 		
QM	<ul style="list-style-type: none"> • QM for semi-finishing of general steel and alloy steel. • Gradient and waved hump wide applicable geometry range. 		
QR	<ul style="list-style-type: none"> • QR for rough cutting action of carbon steel, cast steel and alloy steel. • Variable rake angle and land provides enough edge sharpness and strength at different depths of cut. 		
QH	<ul style="list-style-type: none"> • QH for heavy cutting action of carbon steel, cast steel and alloy steel. • Single-sided Chip breaker. • Variable land and progressive chip breaker space, generating lower cutting force. • Straight edgeline with reinforcement balances strength and cutting action. 		

COATED CERMET

Geometry	Features	Application Range	Cross Section Geometry
TP	<ul style="list-style-type: none"> • TP for finish to medium machining • Arrowhead chip-breaker for excellent chip control under bigger cutting depths • Double-rake angle + smooth chip breaker with strong flat cutting edge 		
TP			
TP			

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-QF	DNMG-QF	SNMG-QF	TNMG-QF	VNMG-QF	WNMG-QF
Page 20	Page 22	Page 24	Page 26	Page 28	Page 29
					
CNMG-QM	DNMG-QM	SNMG-QM	TNMG-QM	VNMG-QM	WNMG-QM
Page 20	Page 22	Page 24	Page 26	Page 28	Page 29
				-	
CNMG-QR	DNMG-QR	SNMG-QR	TNMG-QR	-	WNMG-QR
Page 20	Page 22	Page 24	Page 26	-	Page 29
	-		-	-	-
CNMM-QH	-	SNMM-QH	-	-	-
Page 20	-	Page 24	-	-	-

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
		-			
CNMG-TP	DNMG-TP	-	TNMG-TP	VNMG-TP	WNMG-TP
Page 21	Page 22	-	Page 27	Page 28	Page 29


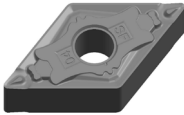

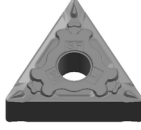
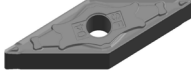
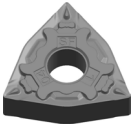
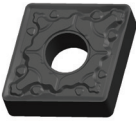


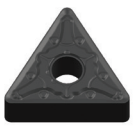
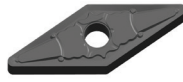
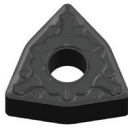
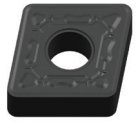
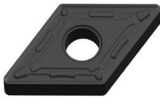

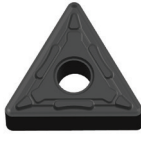
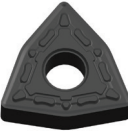
Features of Turning Inserts - Negative

STAINLESS STEEL

Geometry	Features	Application Range	Cross Section Geometry
SF	<ul style="list-style-type: none"> SF for stainless steel and Heat Resistance Super Alloy (HRSA) Sharp edge due to results in low cutting forces particularly for thin wall structures and extended shafts 		
LM	<ul style="list-style-type: none"> For semi-finishing of stainless steel and HRSA Variable rake angle & variable edge width design, guarantee for both edge sharpness and intensity Heart-shaped chip breaker, with wide applicable range 		
LR	<ul style="list-style-type: none"> For roughing of stainless steel Small rake angle & large edge width design, improved the strength of the tip Wide groove width & shallow groove depth design, smooth chip evacuation 		

CAST IRON

Geometry	Features	Application Range	Cross Section Geometry
QM	<ul style="list-style-type: none"> QM for semi-finishing of general steel and alloy steel Gradient and waved hump wide applicable geometry range 		
UK	<ul style="list-style-type: none"> UK for machining cast iron Medium cutting for general conditions 		
HK	<ul style="list-style-type: none"> HK for cast iron heavy cutting Strong cutting edge and wide land for improved performance 		

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-SF	DNMG-SF	SNMG-SF	TNMG-SF	VNMG-SF	WNMG-SF
Page 21	Page 22	Page 25	Page 26	Page 28	Page 29
					
CNMG-LM	DNMG-LM	SNMG-LM	TNMG-LM	VNMG-LM	WNMG-LM
Page 21	Page 23	Page 25	Page 26	Page 28	Page 29
				-	
CNMG-LR	DNMG-LR	SNMG-LR	TNMG-LR	-	WNMG-LR
Page 21	Page 23	Page 25	Page 27	-	Page 29

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-QM	DNMG-QM	SNMG-QM	TNMG-QM	VNMG-QM	WNMG-QM
Page 20	Page 22	Page 24	Page 26	Page 28	Page 29
					
CNMG-UK	DNMG-UK	SNMG-UK	TNMG-UK	VNMG-UK	WNMG-UK
Page 21	Page 23	Page 25	Page 27	Page 28	Page 30
					
CNMG-HK	DNMG-HK	SNMG-HK	TNMG-HK	VNMG-HK	WNMG-HK
Page 21	Page 23	Page 25	Page 27	Page 28	Page 30


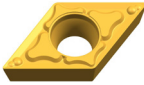











Features of Turning Inserts - **Positive** 7° Clearance Angle

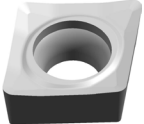
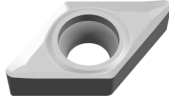
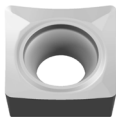
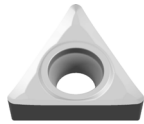
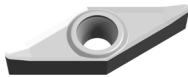
STEEL / STAINLESS STEEL

Geometry	Features	Application Range	Cross Section Geometry
MM	<ul style="list-style-type: none"> • MM for light cutting of general steel, alloy steel and stainless steel. • Sharp cutting edge, enables high surface quality. • Double rake angle, ensure sharp cutting edge and enough strength. 		
MM			
GP	<ul style="list-style-type: none"> • GP for light cutting of general steel, alloy steel, stainless steel and cast iron. • Strong tool nose due to flat cutting edge and sharp cutting edge due to double rake angle. • Steady chip control when the depth of cut is less than 1mm due to Peninsula-shaped chip breaker. 		
GP			

NON-FERROUS METALS

Geometry	Features	Application Range	Cross Section Geometry
AL	<ul style="list-style-type: none"> • AL for aluminum alloy cutting. • Sharp tool nose due to large rake angle. 		

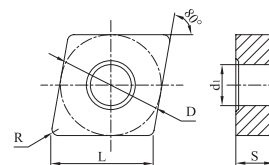
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle		35° Rhombic		80° Trigon
						-	-
CCMT-MM	DCMT-MM	SCMT-MM	TCMT-MM	TPMT-MM	VBMT-MM	-	-
Page 31	Page 32	Page 33	Page 34	Page 35	Page 35	-	-
				-			
CCMT-GP	DCMT-GP	SCMT-GP	TCMT-GP	-	VBMT-GP	VCMT-GP	WCMT-GP
Page 31	Page 32	Page 33	Page 34	-	Page 35	Page 36	Page 36

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					-
CCGX-AL	DCGX-AL	SCGX-AL	TCGX-AL	VCGX-AL	-
Page 31	Page 32	Page 33	Page 34	Page 36	-

Turning Inserts - **Negative**

CN

Rhombic 80° with Hole



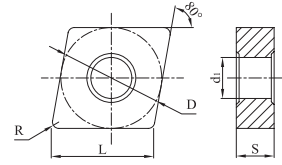
Part Number	Dimensions (mm)					Coated													Uncoated			Cermets						
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	CNMG090304-QF	9.7	9.525	3.18	3.81	0.4	○	○																		○	○	
	CNMG090308-QF	9.7	9.525	3.18	3.81	0.8	○	○																		○	○	
	CNMG120404-QF	12.9	12.7	4.76	5.16	0.4	○	●	○	○									○							●	●	
	CNMG120408-QF	12.9	12.7	4.76	5.16	0.8	○	●	○	○									○							○	●	
	CNMG090304-QM	9.7	9.525	3.18	3.81	0.4	○	○																		○	○	
	CNMG090308-QM	9.7	9.525	3.18	3.81	0.8	○	○																		○	○	
	CNMG120404-QM	12.9	12.7	4.76	5.16	0.4	○	●	○	●			○													●	●	
	CNMG120408-QM	12.9	12.7	4.76	5.16	0.8	○	●	●	●			○						○							●	●	
	CNMG120412-QM	12.9	12.7	4.76	5.16	1.2	○	●	●	●			○						○							●	●	
	CNMG120416-QM	12.9	12.7	4.76	5.16	1.6	○	○	○																			
	CNMG160608-QM	16.1	15.875	6.35	6.35	0.8	○	●		●																		
	CNMG160612-QM	16.1	15.875	6.35	6.35	1.2	○	●	○	●			○															
	CNMG190608-QM	19.3	19.05	6.35	7.94	0.8		●		●																		
	CNMG190612-QM	19.3	19.05	6.35	7.94	1.2	○	○		●																		
	CNMG190616-QM	19.3	19.05	6.35	7.94	1.6		○	○																			
		CNMG120408-QR	12.9	12.7	4.76	5.16	0.8	○	●		●	●																
CNMG120412-QR		12.9	12.7	4.76	5.16	1.2	○	●		●	●																	
CNMG120416-QR		12.9	12.7	4.76	5.16	1.6				●																		
CNMG160608-QR		16.1	15.875	6.35	6.35	0.8				●																		
CNMG160612-QR		16.1	15.875	6.35	6.35	1.2	○	●		●	●																	
CNMG160616-QR		16.1	15.875	6.35	6.35	1.6	○			●	●																	
CNMG190608-QR		19.3	19.3	6.35	7.94	0.8				●	●																	
CNMG190612-QR		19.3	19.3	6.35	7.94	1.2				●	●																	
CNMG190616-QR		19.3	19.3	6.35	7.94	1.6				●	●																	
CNMG190624-QR		19.3	19.3	6.35	7.94	2.4		○	○	○																		
CNMG250924-QR		25.8	25.4	9.52	9.21	2.4				○																		
		CNMM190616-QH	19.3	19.05	6.35	7.94	1.6	●			●	●																
	CNMM190624-QH	19.3	19.05	6.35	7.94	2.4				●	●																	
	CNMM250924-QH	25.8	25.4	9.52	9.12	2.4	○	○		○	○																	

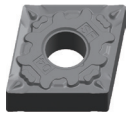
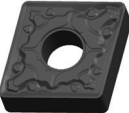
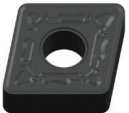

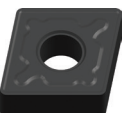
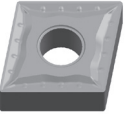
● Stock ○ Check availability

Turning Inserts - **Negative**

CN

Rhombic 80° with Hole



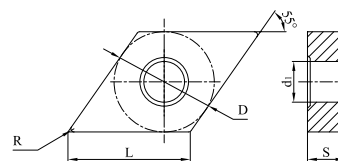
Part Number	Dimensions (mm)					Coated												Uncoated			Cermets							
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	CNMG120404-SF	12.9	12.7	4.76	5.16	0.4										●												
	CNMG120408-SF	12.9	12.7	4.76	5.16	0.8										●												
	CNMG090304-LM	9.7	9.525	3.18	3.81	0.4						○	○	○	○													
	CNMG090308-LM	9.7	9.525	3.18	3.81	0.8						○	○	○	○													
	CNMG120404-LM	12.9	12.7	4.76	5.16	0.4						○	●	●	●													
	CNMG120408-LM	12.9	12.7	4.76	5.16	0.8						○	●	●	●													
	CNMG120412-LM	12.9	12.7	4.76	5.16	1.2						○	○	●	●													
	CNMG120416-LM	12.9	12.7	4.76	5.16	1.6						○	○	○	○													
	CNMG120408-LR	12.9	12.7	4.76	5.16	0.8						○	●	●	●													
	CNMG120412-LR	12.9	12.7	4.76	5.16	1.2						○	○	●	●													
	CNMG160608-LR	16.1	15.875	6.35	6.35	0.8						○	○	●	●													
	CNMG160612-LR	16.1	15.875	6.35	6.35	1.2						○	○	●	●													
	CNMG160616-LR	16.1	15.875	6.35	6.35	1.6						○	○	○	○													
	CNMG190608-LR	19.3	19.05	6.35	7.94	0.8						○	○	○	○													
	CNMG120404-UK	12.9	12.7	4.76	5.16	0.4												○	○	○								
	CNMG120408-UK	12.9	12.7	4.76	5.16	0.8												○	○	○	○							
	CNMG120412-UK	12.9	12.7	4.76	5.16	1.2												○	○	○	○							
	CNMG120416-UK	12.9	12.7	4.76	5.16	1.6												○	○	○	○							
	CNMG160608-UK	16.1	15.875	6.35	6.35	0.8												○	○	○	○							
	CNMG160612-UK	16.1	15.875	6.35	6.35	1.2												○	○	○	○							
	CNMG160616-UK	16.1	15.875	6.35	6.35	1.6												○	○	○	○							
	CNMG190612-UK	19.3	19.05	6.35	7.94	1.2												○	○	○	○							
	CNMG120408-HK	12.9	12.7	4.76	5.16	0.8												○	○	○	○							
	CNMG120412-HK	12.9	12.7	4.76	5.16	1.2												○	○	○	○							
	CNMG120416-HK	12.9	12.7	4.76	5.16	1.6												○	○	○	○							
	CNMG160612-HK	16.1	15.875	6.35	6.35	1.2												○	○	○	○							
	CNMG160616-HK	16.1	15.875	6.35	6.35	1.6												○	○	○	○							
	CNMG190612-HK	19.3	19.05	6.35	7.94	1.2												○	○	○	○							
	CNMG190616-HK	19.3	19.05	6.35	7.94	1.6												○	○	○	○							
		CNMG120404-TP	12.9	12.7	4.76	5.16	0.4																			●	●	
CNMG120408-TP		12.9	12.7	4.76	5.16	0.8																			●	●		

● Stock ○ Check availability

Turning Inserts - **Negative**

DN

Rhombic 55° with Hole



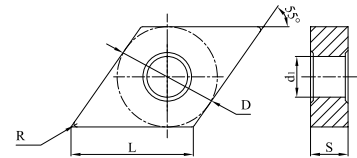
Part Number	Dimensions (mm)					Coated											Uncoated			Cermet								
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	DNMG110404-QF	11.6	9.525	4.76	3.81	0.4	●	●																		○	○	
	DNMG110408-QF	11.6	9.525	4.76	3.81	0.8	●	●																		○	○	
	DNMG150404-QF	15.5	12.7	4.76	5.16	0.4	●	●																		●	●	
	DNMG150408-QF	15.5	12.7	4.76	5.16	0.8	○	●	●										○							○	●	
	DNMG150604-QF	15.5	12.7	6.35	5.16	0.4	●	●																		○	●	
	DNMG150608-QF	15.5	12.7	6.35	5.16	0.8	●	●	●										○							○	○	
	DNMG110404-QM	11.6	9.525	4.76	3.81	0.4	○	●																		○	○	
	DNMG110408-QM	11.6	9.525	4.76	3.81	0.8	●	●	●																	○	○	
	DNMG110412-QM	11.6	9.525	4.76	3.81	1.2	●	○																				
	DNMG150404-QM	15.5	12.7	4.76	5.16	0.4			●																	●	●	
	DNMG150408-QM	15.5	12.7	4.76	5.16	0.8	○	●	●	●									○							●	●	
	DNMG150412-QM	15.5	12.7	4.76	5.16	1.2	●	●	●																			
	DNMG150604-QM	15.5	12.7	6.35	5.16	0.4	○	○	○			○														○	●	
	DNMG150608-QM	15.5	12.7	6.35	5.16	0.8	○	●	●	●			○						○							○	○	
DNMG150612-QM	15.5	12.7	6.35	5.16	1.2	○	○	○	●			○						○										
	DNMG150408-QR	15.5	12.7	4.76	5.16	0.8			●																			
	DNMG150412-QR	15.5	12.7	4.76	5.16	1.2			●																			
	DNMG150608-QR	15.5	12.7	6.35	6.35	0.8	●	●	●																			
	DNMG150612-QR	15.5	12.7	6.35	6.35	1.2	○	●	○	●																		
	DNMG150616-QR	15.5	12.7	6.35	6.35	1.6	○	○	○																			
	DNMG110404-SF	11.6	9.525	4.76	3.81	0.4												○										
	DNMG110408-SF	11.6	9.525	4.76	3.81	0.8												○										
	DNMG150404-SF	15.5	12.7	4.76	5.16	0.4												●										
	DNMG150408-SF	15.5	12.7	4.76	5.16	0.8													●									
	DNMG150604-SF	15.5	12.7	6.35	5.16	0.4													●									
	DNMG150608-SF	15.5	12.7	6.35	5.16	0.8													○									
	DNMG150404-TP	15.5	12.7	4.76	5.16	0.4																				●	●	
	DNMG150408-TP	15.5	12.7	4.76	5.16	0.8																				●	●	
	DNMG150604-TP	15.5	12.7	6.35	5.16	0.4																					●	


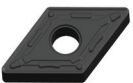
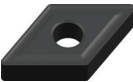
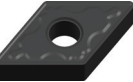
● Stock ○ Check availability

Turning Inserts - **Negative**

DN

Rhombic 55° with Hole



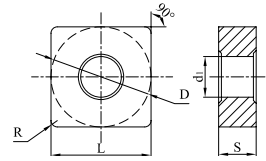
Part Number	Dimensions (mm)					Coated										Uncoated			Cermet								
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM
	DNMG110404-LM	11.6	9.525	4.76	3.81	0.4						○	○	●	●												
	DNMG110408-LM	11.6	9.525	4.76	3.81	0.8						○	○	●	●												
	DNMG150404-LM	15.5	12.7	4.76	5.16	0.4						○	○	●	●												
	DNMG150408-LM	15.5	12.7	4.76	5.16	0.8						○	○	●	●												
	DNMG150412-LM	15.5	12.7	4.76	5.16	1.2						○	○	●	●												
	DNMG150604-LM	15.5	12.7	6.35	5.16	0.4						○	○	●	●												
	DNMG150608-LM	15.5	12.7	6.35	5.16	0.8						○	○	●	●												
	DNMG150408-LR	15.5	12.7	4.76	5.16	0.8						○	○	●	●												
	DNMG150412-LR	15.5	12.7	4.76	5.16	1.2						○	○	●	●												
	DNMG150608-LR	15.5	12.7	6.35	5.16	0.8						○	○	●	●												
	DNMG150612-LR	15.5	12.7	6.35	5.16	1.2						○	○	●	●												
	DNMG150404-UK	15.5	12.7	4.76	5.16	0.4												○	○								
	DNMG150408-UK	15.5	12.7	4.76	5.16	0.8												○	○	○							
	DNMG150412-UK	15.5	12.7	4.76	5.16	1.2												○	○	○							
	DNMG150604-UK	15.5	12.7	6.35	5.16	0.4												○	○	○							
	DNMG150608-UK	15.5	12.7	6.35	5.16	0.8												○	○	○							
	DNMG150612-UK	15.5	12.7	6.35	5.16	1.2												○	○	○							
	DNMG150616-UK	15.5	12.7	6.35	5.16	1.6												○	○								
	DNMG150408-HK	15.5	12.7	4.76	5.16	0.8												○	○	○	○						
	DNMG150412-HK	15.5	12.7	4.76	5.16	1.2												○	○	○	○						
	DNMG150608-HK	15.5	12.7	6.35	5.16	0.8												○	○	○	○						
	DNMG150612-HK	15.5	12.7	6.35	5.16	1.2												○	○	○	○						

● Stock ○ Check availability

Turning Inserts - **Negative**

SN

Square 90° with Hole



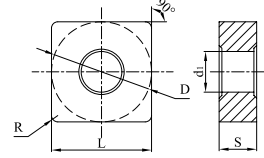
Part Number	Dimensions (mm)					Coated										Uncoated		Cermet											
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM		
	SNMG090304-QF	9.525	9.525	3.18	3.81	0.4	○	○																					
	SNMG090308-QF	9.525	9.525	3.18	3.81	0.8	○	○																					
	SNMG120404-QF	12.7	12.7	4.76	5.16	0.4	○	○																					
	SNMG120408-QF	12.7	12.7	4.76	5.16	0.8	○	○	○																				
	SNMG090304-QM	9.525	9.525	3.18	3.81	0.4	○	○																					
	SNMG090308-QM	9.525	9.525	3.18	3.81	0.8	○	○																					
	SNMG120404-QM	12.7	12.7	4.76	5.16	0.4	○	○	○																				
	SNMG120408-QM	12.7	12.7	4.76	5.16	0.8	○	○	●	●																			
	SNMG120412-QM	12.7	12.7	4.76	5.16	1.2	●	●																					
	SNMG120416-QM	12.7	12.7	4.76	5.16	1.6	○		●																				
	SNMG150608-QM	15.875	15.875	6.35	6.35	0.8	●	●																					
	SNMG150612-QM	15.875	15.875	6.35	6.35	1.2	●	○																					
	SNMG190612-QM	19.05	19.05	6.35	7.94	1.2	●	○																					
	SNMG120408-QR	12.7	12.7	4.76	5.16	0.8			●	●																			
	SNMG120412-QR	12.7	12.7	4.76	5.16	1.2			●	●																			
	SNMG120416-QR	12.7	12.7	4.76	5.16	1.6			●																				
	SNMG150608-QR	15.875	15.875	6.35	6.35	0.8			●																				
	SNMG150612-QR	15.875	15.875	6.35	6.35	1.2			●	●																			
	SNMG150616-QR	15.875	15.875	6.35	6.35	1.6	●	●	●																				
	SNMG150624-QR	15.875	15.875	6.35	6.35	2.4			●																				
	SNMG190608-QR	19.05	19.05	6.35	7.94	0.8			●																				
	SNMG190612-QR	19.05	19.05	6.35	7.94	1.2			●	●																			
	SNMG190616-QR	19.05	19.05	6.35	7.94	1.6			●																				
	SNMG190624-QR	19.05	19.05	6.35	7.94	2.4	○		●																				
	SNMG250724-QR	25.4	25.4	7.94	9.21	2.4	○	○																					
	SNMG250924-QR	25.4	25.4	9.52	9.21	2.4	○	○																					
	SNMM150616-QH	15.875	19.05	6.35	7.94	1.6	○	○	○																				
	SNMM190612-QH	19.05	19.05	6.35	7.94	1.2			○																				
	SNMM190616-QH	19.05	19.05	6.35	7.94	1.6			○																				
	SNMM190624-QH	19.05	19.05	6.35	7.94	2.4			○	○																			
	SNMM250724-QH	25.4	25.4	7.94	9.12	2.4	○	○	○	○																			
	SNMM250732-QH	25.4	25.4	7.94	9.12	3.2			○																				
	SNMM250924-QH	25.4	25.4	9.52	9.12	2.4	○	○	○	○																			
	SNMM250932-QH	25.4	25.4	9.52	9.12	3.2			○	○																			







● Stock ○ Check availability

Turning Inserts - **Negative**

SN

Square 90° with Hole



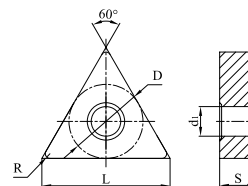
Part Number	Dimensions (mm)					Coated										Uncoated		Cermets											
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM		
	SNMG120404-SF	12.7	12.7	4.76	5.16	0.4										○													
	SNMG120408-SF	12.7	12.7	4.76	5.16	0.8										●													
	SNMG120404-LM	12.7	12.7	4.76	5.16	0.4						○	●	●	●														
	SNMG120408-LM	12.7	12.7	4.76	5.16	0.8						○	○	●	●														
	SNMG120412-LM	12.7	12.7	4.76	5.16	1.2						○	○	●	●														
	SNMG120416-LM	12.7	12.7	4.76	5.16	1.6						○	○	○	○														
	SNMG120408-LR	12.7	12.7	4.76	5.16	0.8						○	○	●	●														
	SNMG120412-LR	12.7	12.7	4.76	5.16	1.2						○	○	●	●														
	SNMG150608-LR	15.875	15.875	6.35	6.35	0.8						○	○	●	●														
	SNMG150612-LR	15.875	15.875	6.35	6.35	1.2						○	○	●	●														
	SNMG150616-LR	15.875	15.875	6.35	6.35	1.6						○	○	○	○														
	SNMG190608-LR	19.05	19.05	6.35	7.94	0.8						○	○	○	○														
	SNMG190612-LR	19.05	19.05	6.35	7.94	1.2						○	○	●	●														
	SNMG190616-LR	19.05	19.05	6.35	7.94	1.6						○	○	●	●														
	SNMG120408-UK	12.7	12.7	4.76	5.16	0.8											○	○	○	○									
	SNMG120412-UK	12.7	12.7	4.76	5.16	1.2											○	○	○	○									
	SNMG150412-UK	15.875	15.875	4.76	6.35	1.2											○	○	○	○									
	SNMG150612-UK	15.875	15.875	6.35	6.35	1.2											○	○	○	○									
	SNMG150616-UK	15.875	15.875	6.35	6.35	1.6											○	○	○	○									
	SNMG190612-UK	19.05	19.05	6.35	7.94	1.2											○	○	○	○									
	SNMG190616-UK	19.05	19.05	6.35	7.94	1.6											○	○	○	○									
	SNMG120408-HK	12.7	12.7	4.76	5.16	0.8											○	○	○	○									
	SNMG120412-HK	12.7	12.7	4.76	5.16	1.2											○	○	○	○									
	SNMG120416-HK	12.7	12.7	4.76	5.16	1.6											○	○	○	○									
	SNMG150612-HK	15.875	15.875	6.35	6.35	1.2											○	○	○	○									
	SNMG150616-HK	15.875	15.875	6.35	6.35	1.6											○	○	○	○									
	SNMG190612-HK	19.05	19.05	6.35	7.94	1.2											○	○	○	○									
	SNMG190616-HK	19.05	19.05	6.35	7.94	1.6											○	○	○	○									

● Stock ○ Check availability

Turning Inserts - **Negative**

TN

Triangle 60° with Hole



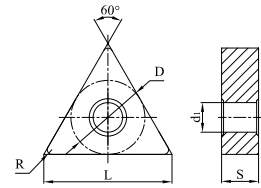
Part Number	Dimensions (mm)					Coated												Uncoated			Cermet											
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM					
	TNMG160404-QF	16.5	9.525	4.76	3.81	0.4	●	●	●	●																●	●					
	TNMG160408-QF	16.5	9.525	4.76	3.81	0.8	●	●	●	●									○							○	●					
	TNMG220404-QF	22	12.7	4.76	5.16	0.4		●		●																						
	TNMG220408-QF	22	12.7	4.76	5.16	0.8		●		●																						
	TNMG110304-QM	11	6.35	3.18	2.26	0.4		●		●			○													○						
	TNMG110308-QM	11	6.35	3.18	2.26	0.8		●		●																○						
	TNMG160404-QM	16.5	9.525	4.76	3.81	0.4	●	●	●	●			○						○							●	●					
	TNMG160408-QM	16.5	9.525	4.76	3.81	0.8	●	●	●	●			○						○							●	●					
	TNMG160412-QM	16.5	9.525	4.76	3.81	1.2	●	●	●	●			○						○													
	TNMG220408-QM	22	12.7	4.76	5.16	0.8		●		●																						
	TNMG220412-QM	22	12.7	4.76	5.16	1.2		●	○	●																						
	TNMG220416-QM	22	12.7	4.76	5.16	1.6		●		●																						
	TNMG160408-QR	16.5	9.525	4.76	3.81	0.8				●	●																					
	TNMG160412-QR	16.5	9.525	4.76	3.81	1.2				●	●																					
	TNMG220408-QR	22	12.7	4.76	5.16	0.8				●																						
	TNMG220412-QR	22	12.7	4.76	5.16	1.2				●	●																					
	TNMG220416-QR	22	12.7	4.76	5.16	1.6				●																						
	TNMG270608-QR	27.5	15.875	6.35	6.35	0.8				●																						
	TNMG270612-QR	27.5	15.875	6.35	6.35	1.2				○	●																					
	TNMG270616-QR	27.5	15.875	6.35	6.35	1.6				○																						
	TNMG330716-QR	33	19.05	7.94	7.94	1.6				●																						
TNMG330924-QR	33	19.05	9.52	7.94	2.4				●																							
	TNMG160404-SF	16.5	9.525	4.76	3.81	0.4												●														
	TNMG160408-SF	16.5	9.525	4.76	3.81	0.8													●													
	TNMG160404-LM	16.5	9.525	4.76	3.81	0.4						○	●	●	●																	
	TNMG160408-LM	16.5	9.525	4.76	3.81	0.8						○	●	●	●																	
	TNMG160412-LM	16.5	9.525	4.76	3.81	1.2						○	○	●	●																	

● Stock ○ Check availability

Turning Inserts - **Negative**

TN

Triangle 60° with Hole



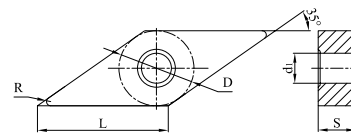
Part Number	Dimensions (mm)					Coated										Uncoated			Cermet									
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	TNMG160408-LR	16.5	9.525	4.76	3.81	0.8						○	●	●	●													
	TNMG160412-LR	16.5	9.525	4.76	3.81	1.2						○	○	●	●													
	TNMG220408-LR	22	12.7	4.76	5.16	0.8						○	○	○	○													
	TNMG220412-LR	22	12.7	4.76	5.16	1.2						○	○	○	○													
	TNMG220416-LR	22	12.7	4.76	5.16	1.6						○	○	○	○													
	TNMG160404-UK	16.5	9.525	4.76	3.81	0.4												○	○									
	TNMG160408-UK	16.5	9.525	4.76	3.81	0.8												○	○	○								
	TNMG160412-UK	16.5	9.525	4.76	3.81	1.2												○	○	○								
	TNMG160416-UK	16.5	9.525	4.76	3.81	1.6												○	○	○								
	TNMG220408-UK	22	12.7	4.76	5.16	0.8													○	○	○	○						
	TNMG220412-UK	22	12.7	4.76	5.16	1.2													○	○	○	○						
	TNMG220416-UK	22	12.7	4.76	5.16	1.6												○	○	○	○							
	TNMG160408-HK	16.5	9.525	4.76	3.81	0.8												○	○	○								
	TNMG160412-HK	16.5	9.525	4.76	3.81	1.2												○	○	○								
	TNMG220408-HK	22	12.7	4.76	5.16	0.8													○	○	○	○						
	TNMG220412-HK	22	12.7	4.76	5.16	1.2													○	○	○	○						
	TNMG220416-HK	22	12.7	4.76	5.16	1.6													○	○	○	○						
	TNMG270612-HK	27.5	15.875	6.35	6.35	1.2													○	○	○	○						
TNMG270616-HK	27.5	15.875	6.35	6.35	1.6													○	○	○	○							
	TNMG160404-TP	16.5	9.525	4.76	3.81	0.4																			●	●		
	TNMG160408-TP	16.5	9.525	4.76	3.81	0.8																			●	●		

● Stock ○ Check availability

Turning Inserts - **Negative**

VN

Rhombic 35° with Hole



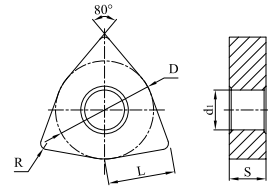
Part Number	Dimensions (mm)					Coated										Uncoated			Cermets											
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM			
	VNMG160404-QF	16.6	9.525	4.76	3.81	0.4	○	●	●	○																				
	VNMG160408-QF	16.6	9.525	4.76	3.81	0.8	○	●	●	○																○		○		
	VNMG220404-QF	22.1	12.7	4.76	5.16	0.4	○		○																					
	VNMG220408-QF	22.1	12.7	4.76	5.16	0.8		○		○																				
	VNMG160404-QM	16.6	9.525	4.76	3.81	0.4		●	●	○																	●		●	
	VNMG160408-QM	16.6	9.525	4.76	3.81	0.8	○	●	●	○																○		○		
	VNMG160412-QM	16.6	9.525	4.76	3.81	1.2		●	○	●																				
	VNMG160404-SF	16.6	9.525	4.76	3.81	0.4										●														
	VNMG160408-SF	16.6	9.525	4.76	3.81	0.8											●													
	VNMG160404-LM	12.7	12.7	4.76	5.16	0.4						○	○	●	●															
	VNMG160408-LM	12.7	12.7	4.76	5.16	0.8						○	○	●	●															
	VNMG160404-UK	16.6	9.525	4.76	3.81	0.4													○	○	○									
	VNMG160408-UK	16.6	9.525	4.76	3.81	0.8													○	○	○	○								
	VNMG160412-UK	16.6	9.525	4.76	3.81	1.2													○	○	○	○								
	VNMG160408-HK	16.6	9.525	4.76	3.81	0.8													○	○	○	○								
	VNMG160412-HK	16.6	9.525	4.76	3.81	1.2													○	○	○	○								
	VNMG160404-TP	12.7	12.7	4.76	5.16	0.4																					●		●	
	VNMG160408-TP	12.7	12.7	4.76	5.16	0.8																					●		●	

● Stock ○ Check availability

Turning Inserts - **Negative**

WN

Triangle 80° with Hole



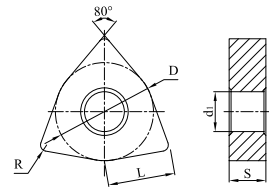
Part Number	Dimensions (mm)					Coated												Uncoated			Cermet								
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM		
	WNMG060404-QF	6.5	9.525	4.76	3.81	0.4	●	●																				○	○
	WNMG060408-QF	6.5	9.525	4.76	3.81	0.8	●	●																				○	○
	WNMG080404-QF	8.7	12.7	4.76	5.16	0.4	○	●	●	●									○									●	●
	WNMG080408-QF	8.7	12.7	4.76	5.16	0.8	○	●	●	●									○									●	●
	WNMG060404-QM	6.5	9.525	4.76	3.81	0.4	●	●											○									○	○
	WNMG060408-QM	6.5	9.525	4.76	3.81	0.8	●	●																			○	○	
	WNMG060412-QM	6.5	9.525	4.76	3.81	1.2	●	○																					
	WNMG080404-QM	8.7	12.7	4.76	5.16	0.4	○	●	○	●			○						○									●	●
	WNMG080408-QM	8.7	12.7	4.76	5.16	0.8	○	●	●	●			○						○									●	●
	WNMG080412-QM	8.7	12.7	4.76	5.16	1.2	○	●	●	●			○						○										
	WNMG080416-QM	8.7	12.7	4.76	5.16	1.6	○		●																				
	WNMG080408-QR	8.7	12.7	4.76	5.16	0.8	○	●	●	●																			
	WNMG080412-QR	8.7	12.7	4.76	5.16	1.2	○	○	●	●																			
	WNMG080416-QR	8.7	12.7	4.76	5.16	1.6	●	●	○																				
	WNMG060404-SF	6.5	9.525	4.76	3.81	0.4											●												
	WNMG060408-SF	6.5	9.525	4.76	3.81	0.8											●												
	WNMG080404-SF	8.7	12.7	4.76	5.16	0.4											●												
	WNMG080408-SF	8.7	12.7	4.76	5.16	0.8											●												
	WNMG06T304-LM	6.5	9.525	3.97	3.81	0.4						○	○	○	○		○												
	WNMG06T308-LM	6.5	9.525	3.97	3.81	0.8						○	○	○	○		○												
	WNMG06T312-LM	6.5	9.525	3.97	3.81	1.2						○	○	○	○		○												
	WNMG060404-LM	6.5	9.525	4.76	3.81	0.4						○	○	●	●		○												
	WNMG060408-LM	6.5	9.525	4.76	3.81	0.8						○	○	●	●		○												
	WNMG060412-LM	6.5	9.525	4.76	3.81	1.2						○	○	●	●		○												
	WNMG080404-LM	8.7	12.7	4.76	5.16	0.4						○	○	●	●		○												
	WNMG080408-LM	8.7	12.7	4.76	5.16	0.8						○	○	●	●		○												
	WNMG080412-LM	8.7	12.7	4.76	5.16	1.2						○	○	●	●		○												
	WNMG080408-LR	8.7	12.7	4.76	5.16	0.8						○	●	●	●														
	WNMG080412-LR	8.7	12.7	4.76	5.16	1.2						○	○	●	●														
	WNMG080404-TP	8.7	12.7	4.76	5.16	0.4																					●	●	
	WNMG080408-TP	8.7	12.7	4.76	5.16	0.8																					●	●	

● Stock ○ Check availability

Turning Inserts - **Negative**

WN

Triangle 80° with Hole



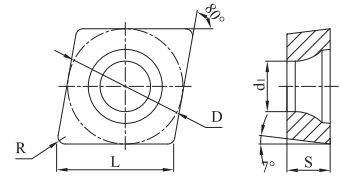
Part Number	Dimensions (mm)					Coated												Uncoated			Cermet								
	L	D	S	d ₁	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM		
	WNMG080404-UK	8.7	12.7	4.76	5.16	0.4												○	○	○									
	WNMG080408-UK	8.7	12.7	4.76	5.16	0.8												○	○	○	○								
	WNMG080412-UK	8.7	12.7	4.76	5.16	1.2												○	○	○	○								
	WNMG06T308-HK	6.5	9.525	3.97	3.81	0.8												○	○	○									
	WNMG060408-HK	6.5	9.525	4.76	3.81	0.8												○	○	○									
	WNMG080408-HK	8.7	12.7	4.76	5.16	0.8												○	○	○	○								
	WNMG080412-HK	8.7	12.7	4.76	5.16	1.2												○	○	○	○								

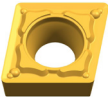


● Stock ○ Check availability

Turning Inserts - **Positive**

CC

Rhombic 80° with Hole



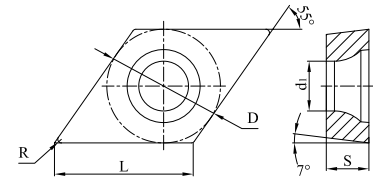
Part Number	Dimensions (mm)					Coated												Uncoated			Cermets							
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	CCMT060202-MM	6.5	6.35	2.38	2.8	0.2	●	●	○	○	○	○	○	○	○	○												
	CCMT060204-MM	6.5	6.35	2.38	2.8	0.4	○	●	●	○	○	○	○	○	○	○										○	○	
	CCMT09T302-MM	9.7	9.525	3.97	4.4	0.2	●	●	○	○	○	○	○	○	○	○										○	○	
	CCMT09T304-MM	9.7	9.525	3.97	4.4	0.4	○	●	●	○	○	○	○	○	○	○										○	○	
	CCMT09T308-MM	9.7	9.525	3.97	4.4	0.8	●	●	○	○	○	○	○	○	○	○										○	○	
	CCMT060202-GP	6.5	6.35	2.38	2.8	0.2	●	○			○	○						○							○	○		
	CCMT060204-GP	6.5	6.35	2.38	2.8	0.4	●	○	●	○	○	○	○	○	○	○		○	○						○	○		
	CCMT060208-GP	6.5	6.35	2.38	2.8	0.8	○	●			○	○						○							○	○		
	CCMT09T302-GP	9.7	9.525	3.97	4.4	0.2	●	●			○	○						○							○	○		
	CCMT09T304-GP	9.7	9.525	3.97	4.4	0.4	●	○	●	○	○	○	○	○	○	○		○							○	○		
	CCMT09T308-GP	9.7	9.525	3.97	4.4	0.8	●	○	●	○	○	○	○	○	○	○		○	○						○	○		
	CCMT120404-GP	12.9	12.7	4.76	5.56	0.4	○	○			○	○						○							○	○		
	CCMT120408-GP	12.9	12.7	4.76	5.56	0.8	○	○			○	○						○	○						○	○		
CCMT120412-GP	12.9	12.7	4.76	5.56	1.2	○	○			○	○						○											
	CCGX060202-AL	6.5	6.35	2.38	2.8	0.2																		○				
	CCGX060204-AL	6.5	6.35	2.38	2.8	0.4																		○	○	○		
	CCGX060208-AL	6.5	6.35	2.38	2.8	0.8																		○	○	○		
	CCGX09T302-AL	9.7	9.525	3.97	4.4	0.2																			○	○	○	
	CCGX09T304-AL	9.7	9.525	3.97	4.4	0.4																			○	●	○	
	CCGX09T308-AL	9.7	9.525	3.97	4.4	0.8																			○	●	○	
	CCGX120402-AL	12.9	12.7	4.76	5.5	0.2																			●	○		
	CCGX120404-AL	12.9	12.7	4.76	5.5	0.4																			○	●	○	
CCGX 120408-AL	12.9	12.7	4.76	5.5	0.8																				●			

● Stock ○ Check availability

Turning Inserts - **Positive**

DC

Rhombic 55° with Hole



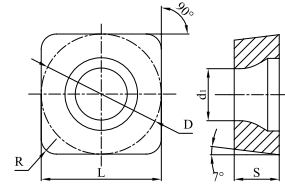
Part Number	Dimensions (mm)					Coated										Uncoated			Cermet									
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	DCMT070202-MM	7.8	6.35	2.38	2.8	0.2	●	●				○	○	○	●	○											○	○
	DCMT070204-MM	7.8	6.35	2.38	2.8	0.4	●	●				○	○	○	●	○										○	○	
	DCMT11T302-MM	11.6	9.525	3.97	4.4	0.2	●	●				○	○	○	●	○										○	○	
	DCMT11T304-MM	11.6	9.525	3.97	4.4	0.4	○	●	●			○	○	○	●	○										○	○	
	DCMT11T308-MM	11.6	9.525	3.97	4.4	0.8	○	●	●			○	○	○	●	○										○	○	
	DCMT070202-GP	7.8	6.35	2.38	2.8	0.2	○	○				○	○					○							○	○		
	DCMT070204-GP	7.8	6.35	2.38	2.8	0.4	○	●		○	○	○	○	●			○								○	○		
	DCMT070208-GP	7.8	6.35	2.38	2.8	0.8	○	●			○	○					○								○	○		
	DCMT11T302-GP	11.6	9.525	3.97	4.4	0.2	○	○				○	○					○							○	○		
	DCMT11T304-GP	11.6	9.525	3.97	4.4	0.4	●	●			○	○	○	○	●			○	○						○	○		
	DCMT11T308-GP	11.6	9.525	3.97	4.4	0.8	●	●			○	○	○	○	●			○	○						○	○		
	DCMT150404-GP	15.5	12.7	4.76	5.56	0.4	○	○				○	○					●										
	DCMT150408-GP	15.5	12.7	4.76	5.56	0.8	○	○				○	○			○		●										
	DCMT150412-GP	15.5	12.7	4.76	5.56	1.2	○	○				○	○					●										
	DCGX070202-AL	7.8	6.35	2.38	2.8	0.2																	○					
	DCGX070204-AL	7.8	6.35	2.38	2.8	0.4																	○	●	○			
	DCGX070208-AL	7.8	6.35	2.38	2.8	0.8																	○	○	○			
	DCGX11T302-AL	11.6	9.525	3.97	4.4	0.2																	○	●	○			
	DCGX11T304-AL	11.6	9.525	3.97	4.4	0.4																	○	●	○			
	DCGX11T308-AL	11.6	9.525	3.97	4.4	0.8																	○	○	○			



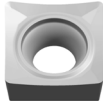
● Stock ○ Check availability

Turning Inserts - **Positive**

SC

Square 90° with Hole



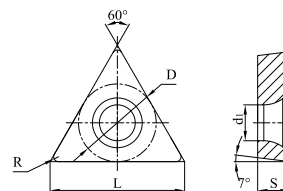
Part Number	Dimensions (mm)					Coated												Uncoated			Cermets									
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	F53015	F53025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM			
 SCMT09T308-MM	9.525	9.525	3.97	4.4	0.8	●	●					○	○	○	●	○														
 SCMT09T304-GP SCMT09T308-GP SCMT120404-GP SCMT120408-GP	9.525	9.525	3.97	4.4	0.4	○	●					○	●					○								○	○			
	9.525	9.525	3.97	4.4	0.8	○	●				●	○						○								○	○			
	12.7	12.7	4.76	5.56	0.4	○	●					○	○					○								○	○			
	12.7	12.7	4.76	5.56	0.8	○	●					○	○					○								○	○			
 SCGX09T304-AL SCGX09T308-AL SCGX120404-AL SCGX120408-AL	9.525	9.525	3.97	4.4	0.4																	○	●	○						
	9.525	9.525	3.97	4.4	0.8																	○	●	○						
	12.7	12.7	4.76	5.5	0.4																	○	●	○						
	12.7	12.7	4.76	5.5	0.8																	○	●	○						

● Stock ○ Check availability

Turning Inserts - **Positive**

TC

Triangle 60° with Hole



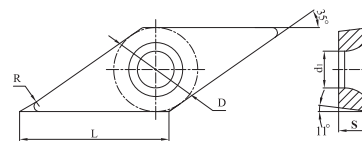
Part Number	Dimensions (mm)					Coated										Uncoated			Cermet															
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM							
	TCMT110202-MM	11	6.35	2.38	2.8	0.2	●	●																										
	TCMT110204-MM	11	6.35	2.38	2.8	0.4	●	●																										
	TCMT090204-GP	9.6	5.56	2.38	2.5	0.4	●	●																										
	TCMT110202-GP	11	6.35	2.38	2.8	0.2	○	●																										
	TCMT110204-GP	11	6.35	2.38	2.8	0.4	●	●																										
	TCMT110208-GP	11	6.35	2.38	2.8	0.8	○	●																										
	TCMT16T304-GP	16.5	9.525	3.97	4.4	0.4	○	●																										
	TCMT16T308-GP	16.5	9.525	3.97	4.4	0.8	●	●																										
	TCMT16T312-GP	16.5	9.525	3.97	4.4	1.2			○																									
	TCMT220408-GP	22	12.7	4.76	5.56	0.8	○	○																										
	TCGX090204-AL	9.6	5.56	2.38	2.5	0.4																	○	●	○									
	TCGX110202-AL	11	6.35	2.38	2.8	0.2																		○	○									
	TCGX110204-AL	11	6.35	2.38	2.8	0.4																		○	○	○								
	TCGX110208-AL	11	6.35	2.38	2.8	0.8																			○	●	○							
	TCGX16T302-AL	16.5	9.525	3.97	4.4	0.2																			○	○								
	TCGX16T304-AL	16.5	9.525	3.97	4.4	0.4																			○	●	○							
	TCGX16T308-AL	16.5	9.525	3.97	4.4	0.8																			○	●	○							

● Stock ○ Check availability

Turning Inserts - **Positive**

VC

Rhombic 35° with Hole

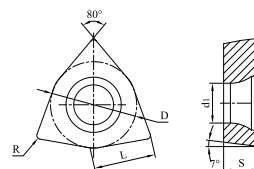


Part Number	Dimensions (mm)					Coated												Uncoated			Cermet							
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM	
	VCMT110304-GP	11.2	6.35	3.18	2.8	0.4	○	●				○	○					○							○		○	
	VCMT110308-GP	11.2	6.35	3.18	2.8	0.8		○				○	○					○							○		○	
	VCMT160404-GP	16.6	9.525	4.76	4.4	0.4	●	●				○	●					○							○		○	
	VCMT160408-GP	16.6	9.525	4.76	4.4	0.8	●	●				○	●					○							○		○	
	VCGT110304-GP	11.2	6.35	3.18	2.8	0.4					○			○	○													
	VCGT160404-GP	16.6	9.525	4.76	4.4	0.4					○			○	○													
	VCGT160408-GP	16.6	9.525	4.76	4.4	0.8					○			○	○													
	VCGX110302-AL	11.2	6.35	3.18	2.8	0.2																	○					
	VCGX110304-AL	11.2	6.35	3.18	2.8	0.4																	○	●	○			
	VCGX110308-AL	11.2	6.35	3.18	2.8	0.8																	○	●	○			
	VCGX160402-AL	16.6	9.525	4.76	4.4	0.2																	○	○				
	VCGX160404-AL	16.6	9.525	4.76	4.4	0.4																	○	●	○			
	VCGX160408-AL	16.6	9.525	4.76	4.4	0.8																	○	●	○			
	VCGX160412-AL	16.6	9.525	4.76	4.4	1.2																	○	●	○			
	VCGX220512-AL	22.1	12.7	5.56	5.6	1.2																	○	●	○			
	VCGX220516-AL	22.1	12.7	5.56	5.6	1.6																	○	●	○			
	VCGX220530-AL	22.1	12.7	5.56	5.6	3																	○	●	○			

● Stock ○ Check availability

WC

Trigon 60° with Hole



Part Number	Dimensions (mm)					Coated												Uncoated			Cermet						
	L	D	S	d1	R	FP1005	FP1015	FP1020	FP1125	FP1035	FP3025	FM1015	FM1025	FM3115	FM3125	FS3015	FS3025	FK1015	FK1020	FK1025	FK1030	FN6115	FN6120	FN6130	FP90TF	FP30TM	FP90TM
	WCMT06T304-GP	6.5	9.525	3.97	4.4	0.4	○	○				○	○					○							○		○
	WCMT06T308-GP	6.5	9.525	3.97	4.4	0.8	○	○				○	○					○							○		○

● Stock ○ Check availability

Recommended Cutting Data - Negative

ISO	Workpiece Material	Hardness	Cutting Type	Machining Conditions	Geometry	Grade	Min-Optimum-Max		
							Cutting Speed Vc(m/min)	Depth of Cut ap(mm)	Feed rate f(mm/rev)
P	Low Carbon Steel	≤HB180	Superfinishing & Finishing	Continuous	PS	FP90TF	220-300-380	0.08-0.15-0.30	0.03-0.08-0.15
			Finishing	Continuous	QF	FP90TF	220-300-380	0.40-0.80-1.50	0.04-0.12-0.22
						FP90TM	200-280-350	0.40-1.00-2.00	0.08-0.15-0.30
						FP1005	220-280-380	0.40-0.80-2.00	0.08-0.15-0.35
						FP1015	200-260-360	0.40-0.80-2.00	0.08-0.15-0.35
						FP1020	200-260-360	0.40-0.80-2.00	0.08-0.15-0.35
						FP1125	180-240-320	0.40-0.80-2.00	0.08-0.15-0.35
			Semi-finishing	Continuous	QM	FP90TF	200-280-350	0.50-1.20-3.00	0.15-0.15-0.30
						FP90TM	200-260-330	0.50-1.50-3.00	0.15-0.20-0.35
						FP1005	200-260-360	0.80-2.00-4.00	0.15-0.20-0.40
						FP1015	180-230-320	0.80-2.00-4.00	0.15-0.20-0.40
				Interrupted	TP	FP90TF	180-240-330	1.00-1.50-3.50	0.18-0.15-0.35
						FP90TM	180-230-320	1.00-1.50-3.50	0.18-0.20-0.40
						FP1020	180-220-320	1.00-2.50-4.50	0.18-0.25-0.45
						FP1125	160-200-300	1.00-2.50-4.50	0.18-0.25-0.45
			Roughing	Continuous	QR	FP1005	130-190-270	1.50-3.50-6.00	0.20-0.30-0.60
						FP1125	120-170-250	1.50-3.50-6.00	0.20-0.30-0.60
				Interrupted	FP1035	110-150-230	1.50-3.50-6.00	0.20-0.30-0.60	
					Heavy Cutting	QH	FP1005	100-150-240	3.00-6.00-12.00
			FP1125	90-140-210			3.00-6.00-12.00	0.35-0.60-1.10	
	Carbon Steel & Alloy Steel	HB180-280	Superfinishing & Finishing	Continuous	PS	FP90TF	200-270-350	0.08-0.15-0.30	0.03-0.08-0.15
			Finishing	Interrupted	QF	FP90TF	200-270-350	0.40-0.80-1.50	0.04-0.12-0.22
						FP90TM	180-250-330	0.40-1.00-2.00	0.08-0.15-0.30
						FP1005	200-250-340	0.40-0.80-2.00	0.08-0.15-0.35
						FP1015	180-230-320	0.40-0.80-2.00	0.08-0.15-0.35
						FP1020	180-230-320	0.40-0.80-2.00	0.08-0.15-0.35
						FP1125	160-200-300	0.40-0.80-2.00	0.08-0.15-0.35
			Finishing & Semi-finishing	Continuous	QM	FP90TF	180-250-330	0.50-1.20-3.00	0.15-0.12-0.30
						FP90TM	180-230-310	0.50-1.50-3.00	0.15-0.15-0.35
						FP1005	160-230-320	0.80-2.00-4.00	0.15-0.22-0.40
				Interrupted	TP	FP1015	140-210-300	0.80-2.00-4.00	0.15-0.20-0.40
						FP1020	140-210-300	0.80-2.00-4.00	0.15-0.20-0.40
FP1125	120-190-280	0.80-2.00-4.00				0.15-0.20-0.40			
Continuous	SV	FP90TF	160-220-310	1.00-1.50-3.50	0.18-0.15-0.35				
		FP90TM	160-210-300	1.00-1.50-3.50	0.18-0.20-0.40				
		FP1020	140-200-300	1.00-2.50-4.50	0.18-0.25-0.45				
	Interrupted	FP1125	120-180-280	1.00-2.50-4.50	0.18-0.25-0.45				

Recommended Cutting Data - Negative

ISO	Workpiece Material	Hardness	Cutting Type	Machining Conditions	Geometry	Grade	Min-Optimum-Max					
							Cutting Speed Vc(m/min)	Depth of Cut ap(mm)	Feed rate f(mm/rev)			
P	Carbon Steel & Alloy Steel	HB180-280	Roughing	Continuous	QR	FP1005	120-180-260	1.50-3.50-6.00	0.20-0.30-0.60			
				Interrupted		FP1125	110-160-240	1.50-3.50-6.00	0.20-0.30-0.60			
			Heavy Cutting	Continuous	QH	FP1005	90-140-230	3.00-6.00-12.00	0.35-0.60-1.10			
				Interrupted		FP1125	80-130-200	3.00-6.00-12.00	0.35-0.60-1.10			
			Carbon Steel & Alloy Steel	HB280-350	Finishing	Continuous	QF	FP1035	100-140-220	1.50-3.50-6.00	0.20-0.30-0.60	
								FP90TF	180-250-320	0.40-0.80-1.50	0.04-0.12-0.22	
	FP90TM	170-230-300						0.40-1.00-2.00	0.08-0.15-0.30			
	FP1005	160-200-270						0.40-0.80-2.00	0.08-0.15-0.35			
	FP1015	150-180-250						0.40-0.80-2.00	0.08-0.15-0.35			
	FP1020	150-180-250						0.40-0.80-2.00	0.08-0.15-0.35			
	Semi-finishing	Continuous			QM	FP1125	130-150-230	0.40-0.80-2.00	0.08-0.15-0.35			
						FP90TF	160-230-310	0.50-1.20-3.00	0.15-0.15-0.30			
						FP90TM	160-210-300	0.50-1.50-3.00	0.15-0.20-0.35			
						FP1005	120-180-250	0.80-2.00-4.00	0.15-0.20-0.40			
						FP1015	110-170-240	0.80-2.00-4.00	0.15-0.20-0.40			
						FP1020	110-170-240	0.80-2.00-4.00	0.15-0.20-0.40			
						Continuous	TP	FP90TM	FP1125	100-150-220	0.80-2.00-4.00	0.15-0.20-0.40
									FP90TF	150-210-280	0.50-1.20-3.00	0.10-0.15-0.35
									FP90TM	140-190-270	1.00-1.50-3.50	0.18-0.15-0.35
									FP90TM	140-180-260	1.00-1.50-3.50	0.18-0.20-0.40
						Continuous	SV	FP1020	FP1020	110-160-240	1.00-2.50-4.50	0.18-0.25-0.45
									FP1125	100-140-220	1.00-2.50-4.50	0.18-0.25-0.45
	Interrupted	QR			FP1005	FP1005	100-150-210	2.00-3.50-6.50	0.20-0.30-0.60			
						FP1125	90-140-200	2.00-3.50-6.50	0.20-0.30-0.60			
						FP1035	80-120-180	2.00-3.50-6.50	0.20-0.30-0.60			
	Heavy Cutting	Continuous			QH	FP1005	80-110-190	3.00-6.00-12.00	0.35-0.60-1.10			
			FP1125	70-100-170		3.00-6.00-12.00	0.35-0.60-1.10					
			FP1035	60-90-150		3.00-6.00-12.00	0.35-0.60-1.10					
Interrupted	QH	FP1035	FP1035	60-90-150	3.00-6.00-12.00	0.35-0.60-1.10						

Recommended Cutting Data - Negative

ISO	Workpiece Material	Hardness	Cutting Type	Machining Conditions	Geometry	Grade	Min-Optimum-Max		
							Cutting Speed Vc(m/min)	Depth of Cut ap(mm)	Feed rate f(mm/rev)
M	stainless steel 304 and 316, etc.	≤HB300	Super finishing & Finishing	Continuous	PS	FS3015	120-190-250	0.08-0.15-0.30	0.03-0.08-0.15
				Interrupted		FS3025	100-170-230	0.08-0.15-0.30	0.03-0.08-0.15
			Finishing	Continuous	SF	FS3015	120-190-250	0.10-0.80-1.50	0.08-0.10-0.30
				Interrupted		FS3015	120-190-250	0.10-0.80-1.50	0.08-0.10-0.30
			Semi-Finishing	Continuous	SM	FM1015	200-250-300	0.50-1.20-2.00	0.10-0.20-0.40
						FM1025	180-230-280	0.50-1.80-3.00	0.10-0.20-0.40
Interrupted	Continuous	SM	FM3115	100-160-220	1.00-2.50-4.00	0.10-0.20-0.40			
			FM3125	100-160-220	1.00-2.50-4.00	0.10-0.20-0.40			
K	Gray cast iron FC200 FC250 etc.	≤HB250	Finishing & Semi-finishing	Continuous	UK	FK1015	230-350-500	0.50-1.50-3.00	0.10-0.20-0.40
				Interrupted		FK1025	220-320-480	0.50-1.50-3.00	0.10-0.20-0.40
			Roughing	Continuous	HK	FK1015	220-320-480	0.50-2.00-4.00	0.10-0.25-0.50
				Interrupted		FK1025	210-300-450	0.50-2.00-4.00	0.10-0.25-0.50
			Heavy Cutting	Continuous	Flat	FK1015	210-300-450	1.00-2.50-6.00	0.20-0.30-0.60
				Interrupted		FK1025	200-280-430	1.00-2.50-6.00	0.20-0.30-0.60
	Ductile cast iron FCD450, FCD600 etc.	≤HB270	Finishing & Semi-Finishing	Continuous	UK	FK1020	180-260-380	0.50-1.50-3.00	0.10-0.20-0.40
				Interrupted		FK1030	160-230-350	0.50-1.50-3.00	0.10-0.20-0.40
			Roughing	Continuous	HK	FK1020	180-240-360	0.50-2.00-4.00	0.10-0.25-0.50
				Interrupted		FK1030	160-210-340	0.50-2.00-4.00	0.10-0.25-0.50
			Heavy Cutting	Continuous	Flat	FK1020	180-220-350	1.00-2.50-6.00	0.20-0.30-0.60
				Interrupted		FK1030	160-200-330	1.00-2.50-6.00	0.20-0.30-0.60
S	Heat Resistant Alloys	≤HB250	Finishing	LM	FM3115	35-45-60	0.12-0.20-0.30	0.5-1.2-2.0	
			Semi-Finishing		FS3025	35-45-60	0.12-0.20-0.30	0.5-1.2-2.0	
	Titanium	≤HB330	Finishing		FM3115	50-70-100	0.12-0.20-0.30	0.5-1.5-2.5	
			Semi-Finishing		FS3025	40-60-80	0.12-0.20-0.30	0.5-1.5-2.5	

Recommended Cutting Data - Positive

ISO	Workpiece Material	Hardness	Cutting Type	Machining Conditions	Geometry	Grade	Min-Optimum-Max		
							Cutting Speed Vc(m/min)	Depth of Cut ap(mm)	Feed rate f(mm/rev)
P	Low Carbon Steel	≤HB180	Superfinishing & Finishing	Continuous	PS	FP90TF	220-300-380	0.08-0.15-0.30	0.03-0.08-0.15
				Continuous	GS	FP90TF	220-300-380	0.20-0.30-1.50	0.02-0.05-0.08
			Finishing	Continuous	MM	FP90TF	220-280-340	0.10-0.50-1.00	0.03-0.10-0.20
						FP90TM	200-250-310	0.10-0.60-1.50	0.03-0.10-0.20
						FP1005	190-240-320	0.10-0.60-1.50	0.05-0.10-0.20
						FP1015	180-220-300	0.10-0.60-1.50	0.05-0.10-0.20
						FP3025	160-200-260	0.10-0.60-1.50	0.05-0.10-0.20
						FP1125	170-200-280	0.10-0.60-1.50	0.05-0.10-0.20
			Finishing & Semi-finishing	Continuous	GP	FP90TF	200-250-300	0.30-0.80-1.50	0.05-0.10-0.22
						FP90TM	180-230-300	0.30-1.00-1.80	0.05-0.12-0.22
						FP1015	170-200-280	0.40-1.00-2.50	0.07-0.12-0.30
						FP1020	170-200-280	0.40-1.00-2.50	0.07-0.12-0.30
						FP3025	140-180-230	0.40-1.00-2.50	0.07-0.12-0.30
						FP1125	150-180-260	0.40-1.00-2.50	0.07-0.12-0.30
	Roughing	Continuous	KM	FP1125	140-160-240	1.00-2.00-3.50	0.13-0.20-0.40		
		Interrupted		FP1125	130-150-230	1.00-2.00-3.50	0.13-0.20-0.40		
	Carbon Steel & Alloy Steel	HB180-280	Superfinishing & Finishing	Continuous	PS	FP90TF	200-250-330	0.08-0.15-0.30	0.03-0.08-0.15
				Continuous	GS	FP90TF	200-250-330	0.20-0.30-1.50	0.02-0.05-0.08
			Finishing	Continuous	MM	FP90TF	200-250-330	0.10-0.50-1.00	0.03-0.08-0.20
						FP90TM	180-230-300	0.10-0.60-1.50	0.03-0.10-0.20
						FP1005	160-200-270	0.10-0.60-1.50	0.05-0.10-0.20
						FP1015	150-180-260	0.10-0.60-1.50	0.05-0.10-0.20
						FP3025	130-160-220	0.10-0.60-1.50	0.05-0.10-0.20
						FP1125	140-160-240	0.10-0.60-1.50	0.05-0.10-0.20
			Finishing & Semi-finishing	Continuous	GP	FP90TF	180-210-280	0.30-0.80-1.50	0.05-0.10-0.22
						FP90TM	160-190-270	0.30-1.00-1.80	0.05-0.12-0.22
						FP1015	140-160-240	0.40-1.00-2.50	0.07-0.12-0.30
						FP1020	140-160-240	0.40-1.00-2.50	0.07-0.12-0.30
FP3025						110-140-210	0.40-1.00-2.50	0.07-0.12-0.30	
FP1125						120-140-220	0.40-1.00-2.50	0.07-0.12-0.30	
Roughing		Continuous	KM	FP1125	110-130-200	1.00-2.00-3.50	0.13-0.20-0.40		
		Interrupted		FP1125	100-120-190	1.00-2.00-3.50	0.13-0.20-0.40		
HB280-350		Finishing	Continuous	MM	FP90TF	160-220-300	0.10-0.50-1.00	0.03-0.08-0.20	
					FP90TM	140-200-280	0.10-0.60-1.50	0.03-0.10-0.20	
					FP1005	140-180-240	0.10-0.60-1.50	0.05-0.10-0.20	
					FP1015	130-160-230	0.10-0.60-1.50	0.05-0.10-0.20	
					FP3025	110-140-200	0.10-0.60-1.50	0.05-0.10-0.20	
					FP1125	120-140-210	0.10-0.60-1.50	0.05-0.10-0.20	
	Finishing & Semi-finishing	Continuous	GP	FP90TF	160-200-270	0.30-0.80-1.50	0.05-0.10-0.22		
				FP90TM	130-160-250	0.30-1.00-1.80	0.05-0.12-0.22		
				FP1015	120-160-210	0.40-1.00-2.50	0.07-0.12-0.30		
				FP1020	120-160-210	0.40-1.00-2.50	0.07-0.12-0.30		

Recommended Cutting Data - Positive

ISO	Workpiece Material	Hardness	Cutting Type	Machining Conditions	Geometry	Grade	Min-Optimum-Max		
							Cutting Speed Vc(m/min)	Depth of Cut ap(mm)	Feed rate f(mm/rev)
P	Carbon Steel & Alloy Steel	HB280-350	Finishing & Semi-finishing	Interrupted	GP	FP3025	90-140-210	0.40-1.00-2.50	0.07-0.12-0.30
						FP1125	100-140-220	0.40-1.00-2.50	0.07-0.12-0.30
			Roughing	Continuous	KM	FP1125	90-110-180	1.00-2.00-3.50	0.13-0.20-0.40
						FP1125	80-100-170	1.00-2.00-3.50	0.13-0.20-0.40
M	stainless steel 304 and 316, etc.	≤HB300	Superfinishing & Finishing	Continuous	PS	FS3025	100-170-230	0.08-0.15-0.30	0.03-0.08-0.15
						FS3025	100-170-230	0.20-0.30-1.50	0.02-0.05-0.08
			Finishing	Continuous	MM	FS3015	150-200-270	0.50-0.70-1.50	0.05-0.10-0.20
						FM1015	200-250-300	0.50-0.70-1.50	0.05-0.10-0.20
						FM1025	180-230-280	0.50-0.70-1.50	0.05-0.10-0.20
						FM3115	100-160-220	0.50-0.70-1.50	0.05-0.10-0.20
			Semi-finishing	Continuous	GP	FM3125	100-160-220	0.50-0.70-1.50	0.05-0.10-0.20
						FM1015	200-250-300	0.40-1.00-2.50	0.07-0.12-0.30
						FM1025	180-230-280	0.40-1.00-2.50	0.07-0.12-0.30
						FM3115	100-160-220	0.40-1.00-2.50	0.07-0.12-0.30
			Semi-finishing	Interrupted	GP	FM3125	100-160-220	0.40-1.00-2.5	0.07-0.12-0.30
						FK1015	180-280-380	0.30-0.80-2.00	0.05-0.12-0.25
FK1025	160-250-350	0.30-0.80-2.00				0.05-0.12-0.25			
FK1015	180-260-360	1.00-2.00-4.00				0.13-0.20-0.40			
K	Gray cast iron FC200 FC250 etc.	≤HB250	Finishing & Semi-finishing	Continuous	GP	FK1015	180-280-380	0.30-0.80-2.00	0.05-0.12-0.25
						FK1025	160-250-350	0.30-0.80-2.00	0.05-0.12-0.25
			Roughing	Continuous	KM	FK1015	180-260-360	1.00-2.00-4.00	0.13-0.20-0.40
						FK1025	160-230-340	1.00-2.00-4.00	0.13-0.20-0.40
K	Ductile cast iron FCD450, FCD600 etc.	≤HB270	Finishing & Semi-finishing	Continuous	GP	FK1015	160-250-350	0.30-0.80-2.00	0.05-0.12-0.25
						FK1025	140-230-330	0.30-0.80-2.00	0.05-0.12-0.25
			Roughing	Continuous	KM	FK1015	160-230-330	1.00-2.00-4.00	0.13-0.20-0.40
						FK1025	140-200-310	1.00-2.00-4.00	0.13-0.20-0.40
N	Non Ferrous	HB90-100	Finishing & Semi-finishing	Continuous	AL	FN6115	250-700-970	0.50-1.20-3.00	0.05-0.10-0.30
						FN6120	250-680-960	0.50-1.20-3.50	0.05-0.10-0.30
						FN6130	250-650-950	0.50-1.20-4.00	0.05-0.10-0.30
		Interrupted		FN6115		1000-1400-2100	0.50-1.20-3.00	0.05-0.10-0.30	
				FN6120		950-1300-2000	0.50-1.20-3.50	0.05-0.10-0.30	
				FN6130		950-1200-1950	0.50-1.20-4.00	0.05-0.10-0.30	
HB60-90	Continuous	AL	FN6115	1000-1400-2100	0.50-1.20-3.00	0.05-0.10-0.30			
			FN6120	950-1300-2000	0.50-1.20-3.50	0.05-0.10-0.30			
			FN6130	950-1200-1950	0.50-1.20-4.00	0.05-0.10-0.30			

Cross Reference of Grades by Manufacturer

Application		FORDMAX	SANDVIK	ISCAR	KENNAMETAL	TAEGUTEC	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	KORLOY	SECO	ZCC.CT	
P	CVD	P01	FP1005	GC4305	IC9150 IC8150	KCP05B KC9105	TT8105 TT8115	WPP05	UE6105 UE6005	AC810P	T9115 T9015	CA510 CA5505	NC3010	TP0500 TP0501	-
		P10	FP1015	GC4315	IC9150 IC8150	KCP10B KC9110 KC9315	TT8105 TT8115	WPP10S WPP10	UE6010 MC6015	AC810P AC820P	T9115 T9015	CA515 CA5515	NC3010	TP0500 TP0501 TP1500 TP1501	YBC151 YBC152
		P20	FP1020 FP1125	GC4325	IC9250 IC8250	KCP25B KC9125 KC9225	TT8125 TT8115 TT5100	WPP20S WPP20	UE6120 UE6020 MC6025	AC820P	T9125 T9025	CA525 CA5525	NC3020 NC3120	TP1500 TP1501 TP2500 TP2501	YBC251 YBC252
		P30	FP1125 FP1035	GC4325 GC4335	IC9350 IC8350	KCP30B KC9140 KC9240	TT8125 TT5100 TT8135 TT7100	WPP30S WPP30	UE6035	AC830P	T9135	CA530 CA5530	NC3030 NC5330	TP2500 TP2501 TP3500	YBC252 YBC351
		P40	FP1035	GC4335	IC9350 IC8350	KCP40B KC9240	TT5100 TT8135 TT7100	WPP30S WPP30	UE6035	AC830P	T9135	CA530 CA5530	NC3030 NC5330	TP3500	YBC351
	PVD	P01	-	-	-	-	-	-	-	-	-	PR915 PR1005	-	-	-
		P10	-	GC1525 GC1025	IC250 IC507 IC570	KCU10 KC5010 KC5510	TT7010	-	VP10MF	-	AH710	PR915 PR930 PR1025 RR1115	-	CP200 TS2000	YBG102
		P20	FP3025	GC1525 GC1020 GC1125 GC1025	C908 IC928 IC1008 IC1028 IC3028	KCU25 KC5025 KC5525	TT9020 TT7010 TT7220	-	VP15TF VP20MF	-	AH710 AH330	PR630 PR915 PR930 PR660 PR1025 RR1225	-	CP250 TS2500	YBG202
		P30	-	GC1125 GC1025	IC928 IC1008 IC1028 IC3028	KC5525	TT8020 TT9020 TT7220	-	VP15TF VP20MF	-	GH330 GH730 AH120 AH330 AH740	PR630 PR660	-	CP500	YBG202
		P40	-	GC1020 GC2145	IC928 IC1008 IC1028	KC5525	TT8020	-	VP15TF VP20MF	-	AH120	PR660	-	CP500	YBG302
M	PVD	M01	FM3115		IC520		WXM10								
		M10	FM3015 FM3115	GC1105 GC1115 GC1525	IC520 IC507 IC807 IC907	KC5010 KC5510 KCU10	TT5080	WSM10 WSM10S	VP10RT	EH10Z AC510U	AH630	PR1025 PR1215	PC8110	TS2000 TS2500 CP200	YBG202
		M20	FM3125	GC1115 GC1125 GC1525	IC520 IC507 IC807 IC907 IC308 IC3028	KC5025 KC5525 KCU25	TT9030 TT8010	WSM20 WSM21 WSM20S	VP10RT VP15TF VP20MF VP20RT UP20M	AC520U	AH630 AH120 AH725 SH725 SH730	PR930 PR1025 PR1125 PR1215 PR1425 PR1225	PC5300 PC9030	TS2500 CP200 CP500	YBG205 YB9320
		M30	FM3125	GC1125 GC2035	IC3028 IC308 IC908 IC928	KC5025 KC5525 KCU25	TT9080 TT8020	WSM30 WSM30S	VP15TF VP20MF VP20RT UP20M MP7035	AC530U AC6040M	AH645 AH120 AH725 SH725 SH730 J740	PR1125 PR1225	PC9030	CP500 CP600	YBG205 YB9320
	CVD	M01	FM1015	GC2015	IC9250 IC520M	KCM15	TT9215	WAM10	MC7015	AC610M	T9115	CA6515	NC9020		YBM153 YBM153F
		M10	FM1125 FM1025	GC2015 GC2025	IC9025 IC9350 IC4050	KCM15 KCM25	TT9215 TT9225	WAM20	MC7015 US7020 MC7025	AC6030M	T6120 T9125	CA6525	NC9025 NC5330	TM2000	YBM25 YBM253 YBM253F
		M20	FM1025	GC2025 GC235	IC9350 IC4050 IC635	KCM25 KCM35	TT9225 TT9235	WAM20	MC7025 US735	AC6030M AC630M	T6130			TM2000 TM4000	
		M30		GC235	IC635	KCM35 KCP40	TT9235		US735					TM4000	
K	CVD	K01	FK1005	GC3205	IC5005 IC8150	KCP05 KCP10 KCL05	TT7005	WKK10S WAK10	UC5105 MC5005	AC4010K AC405K	T5105	CA310 CA4010 CA4505	NC6205 NC6210	TK1001 TH1500 TK1000	YBD052
		K10	FK1005 FK1015 FK1020	GC3205 GC3210 GC3215	IC5005 IC5010	KCK15 TN5015	TT7005 TT7015	WKK10S WAK10	UC5105 UC5115 MC5005 MC5015	AC4015K AC405K AC415K	T5105 T5115	CA315 CA4515 CA4010 CA4115 CA4120	NC6205 NC6210 NC315K	TK1001 TK2001 TK2000 TP0500 TP1500	YBD102 YBD151
		K20	FK1015 FK1020 FK1025	GC3210 GC3215	IC5010	KCK20 KCP25	TT7015 TT7310	WKK10S WKK20S WAK10 WAK20	UC5115 MC5015	AC4015K AC405K AC420K	T5115 T5125	CA315 CA4515 CA4115 CA4120	NC6210 NC315K NC5330 PC5300	TK2001 TP2500	YBD152 YBD252
		K30	FK1025					WAK30 WKP30S	UC5115 MC5015	AC420K AC820P	T5125	CA320 CA4120	NC5330 PC5300	TK2001 TP2500 TP200	
S	PVD	S10	FS3015 FM3115	GC1105	IC808 IC907 IC908	KC5010 KCU10	TT5080	WSM10 WSM10S	VP10RT MP9015	AC510U	AH8005 AH8015	PR1205 PR1310	PC8110	TS2000 TS2500 CP200 CP500	YBG102 YBG105
		S20	FS3025	GC1115 GC1125	IC808 IC907 IC908	KC5025 KC5525 KUC25	TT8020	WSM20 WSM20S	VP15TF MP9015 VP20RT	AC520U	AH8015	PR1310	PC5300 PC5400	TS2000 TS2500 CP200 CP500	YBG105 YBG202
N	NONE/ PVD	N01		H10 H13A		K605				H1 H2	KS05F	KW10	H01		
		N10	FN6110/ FN3015		IC20	K313 K110M THM	K10	WK10	HTi10	EH10 EH510	TH10 H10T	KW10 GW15		890 H15	YD101
		N20	FN6120/ FN3025		IC20	K715 KMF K600	K20			G10E EH20 EH520	KS15F			HX KX 883 H15 H25	YD201
		N30	FN6130/ FN3035			G13 THR								H25 883	

Cross Reference of Geometries by Manufacturer

Application		FORDMAX	SANDVIK	ISCAR	KENAMETAL	TAEGUTEC	WALTER	MITSUBISHI	SUMITOMO	TUNGALOY	KYOCERA	KORLOY	SECO	ZCC.CT	
P	Negative	Finishing	GF QF	PF LC	NF F3P	FN -K	FC FG	NF3	SA SY SH	LU SU SE	TS TSF ZF	XQ CQ PP HQ	VF VB	FF2 MF2	DF ZF
		Semi-finishing	GM QM	PM QM	TF M3P	MN -P C	MC MP ML EM PC MG MT	MP5 NM4 NM6	MA MV MH MP	GU GE UX UG	TM DM AM	PQ CS GS PT HS PS	VL VM HC HS GM	M3 MF5	DM PM ZM
		Roughing	HK QR	PR	NR R3P	RP RN	RT	RP5 NM7 NM9	RP GH	MU ME MX HM	TH THS	HT GT PH	HR GR	M5 M6 MR6 MR7	DR ZR
		Heavy	QH	PR QR HR	-	RM RP RH	RH HD HT	NR8 NRR	HA HZ HX HBS HH HCD HV HDS HCS	HG HP HU HW HF MP	TU TUS	PX HX	VH VT GH	R4 R5 R57 R68 R7 RR6 RR9	DR LR HDR HPR
	Positive	Finishing	MM	PF UF	PF	FP LF	FA FG	PF4	FP FV LP SV	LU LB SU	PSF PS PSS	GP XP GF PP HQ CK	VF HFP	MF2 F1	HF
		Semi-finishing	GP	PM UM	SM	MP MF	MT	MP4	MP MV	MU	PM	GQ GK G	HMP C25	M3 F2	HM
		Roughing	KM	PR UR	-	-	-	RP4	-	-	-	-	-	M5	HR
M	Negative	Finishing	SF LF	MF	VL SF F3M	FP FS LF	EA	NF4 NMS	FH SH LM	SU EF	SF	MQ GU	HA VP2	MF1	EF
		Semi-finishing	SM LM LV	23 MM QM	TF PP M3M	MS MP	FG SF EM MP	NM4	MM MS MA	EX GU	SM	MS MU HU	GS HS	MF4	EM
		Roughing	LR	MR	NM R3M	RP	ET	NR4 NR5	RM RK GH	EM MU	SH TH	TK ST	VM	MF5 MR6	ER
	Positive	Finishing	MM	UF MF	PF	LF	FG	PM	FM LM	SU	PSF	CF GF GQ	HFP VP1	F1	EF
		Semi-finishing	MM GP	UM MM	SM	MF	SA	PM5	MM MV	MU	PS PM	MQ	HMP C25	MF2	EM
K	Negative	Finishing	QM MK	QM KM	-	FN MT	MT	-	MA MK	GU	CF CM	KG	B25	-	-
		Semi-finishing	MK UK	KM	GN	UN RP	KT	MK5	MK	UZ GZ	CM	KG GC	VK GR	M4	TC
		Roughing	HK Flat	KR	NR	MA Flat	RT Flat	RK5 RK7	GH RK GK	GZ	CH	KH Flat	MA	M5 M6	TK Flat
	Positive	Semi-finishing	MM GP	KF KM	14 19	MF	-	FK6 MK4	MK	MU	CM	GK	HMP	-	HM
		Roughing	KM	KM KR	-	MP	MT	RK4 RK6	Flat	US	Flat	-	C25	M5	HR Flat
S	Negative	Finishing	EF	SF 01	PP	FS LS MS	SF	NF4 NFT	FJ	EF EX	HRF	MQ	VP1	M1 MF1	NF
		Semi-finishing	EM	MM SMR	TF	MS MP	SU	NMS NRS	MJ MS	EG MU	HRM HMM SA	TK MU MS	VP2 VP3 VM	MF4 MR4	NM
	Positive	Finishing	ES	MF UF	PF	LF FP	-	PF2	FJ MJ	FC	PSF	MQ	VP1	F1	NGF SF
		Semi-finishing	MM	MM UM MR	SM	MF	FG SA	PF2 PF4	-	SI	PSS PS	-	-	MF2	NGF
N	Positive	General	AL	AL	AS	HP	FL	PM2	AZ	AG	AL	AH	AK	AL	LH

Application of PCBN Grades

Workpiece Material	Cutting Type	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
K Cast Iron	Continuous Cutting	FBK15BU	400-1500	K01	
		FBK15SN	100-800	K10	
	Interrupted Cutting	FBK25SN	400-1000	K20	
		FBK35SU	400-1000	K30	
H Hardened Material	Continuous Cutting	FBH05SU	120-200	H01	
		FBH15BU/FBH15SU	120-220	H10	
	Interrupted Cutting	FBH25BU/FBH25SU/FBH25BC	100-200	H20	
		FBH35BU/ FBH35BC	50-130	H30	

PCBN Grades

Grade	Cutting Range	Microstructure	Advantages
FBH25BC	General-purpose Coated PCBN Grade		<ul style="list-style-type: none"> • Suitable for general hardened steel machining. • A latest ALTiN+ layer with Excellent heat and oxidation resistance. • Multi-modal grained CBN substrate with superior toughness and greatly improved wear resistance.
FBH35BC	Heavy Interrupted Machining Coated PCBN Grade		<ul style="list-style-type: none"> • Applicable to heavy interrupted machining for hardened steel. • A latest ALTiN+ layer with Excellent heat and oxidation resistance. • High-content CBN substrate with excellent impact resistance and chemical stability.

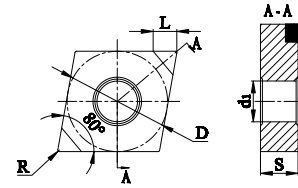
Edge Treatment


G	General Type for continuous cutting (Low Resistance)	
S	Standard Type	
H	Strong Edge Type (Interrupted Cutting)	

PCBN Turning Inserts - **Negative**

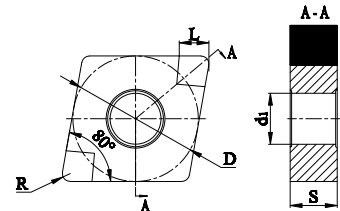
CNGA


Rhombic 80° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH15BC	FBH25BC	FBH35BC		
	CNGA120404G2	2	2.5	12.7	4.76	5.16	0.4	○	○	○			○		
	CNGA120404S2	2	2.5	12.7	4.76	5.16	0.4						○		
	CNGA120408G2	2	2.5	12.7	4.76	5.16	0.8					○	●		
	CNGA120408S2	2	2.5	12.7	4.76	5.16	0.8	○				○	○	○	
	CNGA120412H2	2	2.5	12.7	4.76	5.16	1.2	○	○	○	○	○	○	●	○
	CNGA120412S2	2	2.5	12.7	4.76	5.16	1.2			○		○	○	○	○

● Stock ○ Check availability



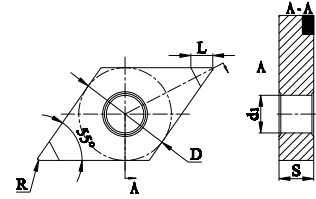
Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d ₁	R	FBK15SU	FBK25SU	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	FBH20SC	
	CNGA120408S4	4	2.2	12.7	4.76	5.16	0.8	○	○		○	○	○	○	○
	CNGA120412S4	4	2.2	12.7	4.76	5.16	1.2	○	○		○	○	○	○	○
	CNGA120416S4	4	2.2	12.7	4.76	5.16	1.6	○	○						

● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

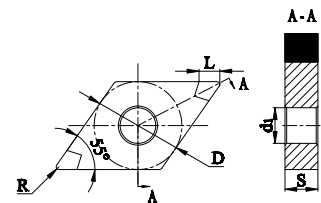
DNGA

Rhombic 55° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH15BC	FBH25BC	FBH35BC		
	DNGA150404G2	2	2.5	12.7	4.76	5.16	0.4	○	○	○					
	DNGA150404S2	2	2.5	12.7	4.76	5.16	0.4						○		
	DNGA150408G2	2	2.5	12.7	4.76	5.16	0.8					●			
	DNGA150408S2	2	2.5	12.7	4.76	5.16	0.8						○		

● Stock ○ Check availability



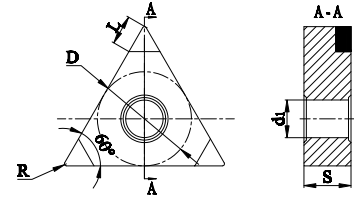
Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d ₁	R	FBK15SU	FBK25SU	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	FBH20SC	
	DNGA150408S4	4	2.2	12.7	4.76	5.16	0.8	○	○		○	○	○	○	○
	DNGA150412S4	4	2.2	12.7	4.76	5.16	1.2	○	○		○	○	○	○	○


● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

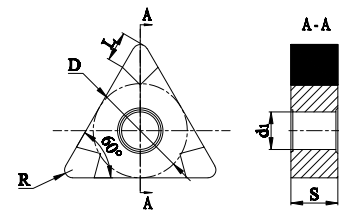
TNGA


Triangle 90° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d1	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH15BC	FBH25BC	FBH35BC		
	TNGA160402G3	3	2.5	9.525	4.76	3.81	0.2							○	
	TNGA160404S3	3	2.5	9.525	4.76	3.81	0.4					●	●	○	
	TNGA160408S3	3	2.5	9.525	4.76	3.81	0.8				○	○	●	○	
	TNGA160412S3	3	2.2	9.525	4.76	3.81	1.2				○	○	○	○	
	TNGA160416S3	3	2.2	9.525	4.76	3.81	1.6					○	○	○	

● Stock ○ Check availability



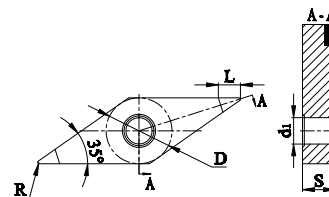
Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d1	R	FBK15SU	FBK25SU	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	FBH20SC	
	TNGA160404S6	6	2.2	9.525	4.76	3.81	0.4	○	○		○	○	○	○	○
	TNGA160408S6	6	2.2	9.525	4.76	3.81	0.8				○	○	○	○	
	TNGA160412S6	6	2.2	9.525	4.76	3.81	1.2				○	○	○	○	
	TNGA160416S6	6	2.2	9.525	4.76	3.81	1.6	○	○						

● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

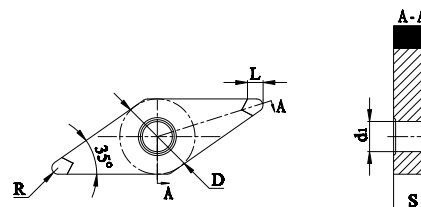
VNGA

Rhombic 35° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades							
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH15BC	FBH25BC	FBH35BC	
	VNGA160404G2	2	2.5	9.525	4.76	3.81	0.4	○	○	○			○	○
	VNGA160404S2	2	2.5	9.525	4.76	3.81	0.4						○	
	VNGA160408S2	2	2.2	9.525	4.76	3.81	0.8					○	○	○
	VNGA160412S2	2	2	9.525	4.76	3.81	1.2		○				○	○

● Stock ○ Check availability



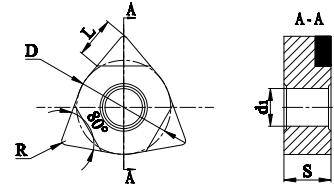
Part Number	Edge	Dimensions (mm)					PCBN Grades							
		L	D	S	d ₁	R	FBK15SU	FBK25SU	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	FBH20SC
	VNGA160404S4	4	2.2	9.525	4.76	3.81	0.4	○	○		○	○		
	VNGA160408S4	4	2.2	9.525	4.76	3.81	0.8	○	○		○	○	○	
	VNGA160412S4	4	2.2	9.525	4.76	3.81	1.2	○	○		○	○	○	


● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

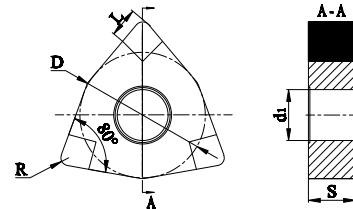
WNGA


Trigon 80° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades							
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH15BC	FBH25BC	FBH35BC	
	WNGA080408S3	3	2.5	12.7	4.76	3.81	0.8			○			●	
	WNGA080416S3	3	2.2	12.7	4.76	3.81	1.6	○		○			○	

● Stock ○ Check availability



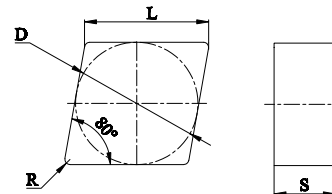
Part Number	Edge	Dimensions (mm)					PCBN Grades								
		L	D	S	d ₁	R	FBK15SU	FBK25SU	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	FBH20SC	
	WNGA080404S6	6	2.2	12.7	4.76	3.81	0.4		○		○	○	○	○	○
	WNGA080408S6	6	2.2	12.7	4.76	3.81	0.8	○	○		○	○	○	○	○
	WNGA080412S6	6	2.2	12.7	4.76	3.81	1.2	○	○		○	○	○	○	○

● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

CNGN

Rhombic 80° without Hole

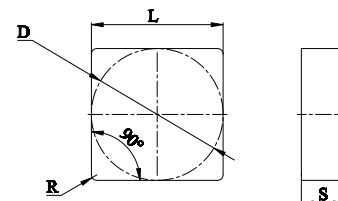


Part Number	Edge	Dimensions (mm)				PCBN Grades							
		L	D	S	R	FBK15SN	FBK25SN	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	
	CNGN120408S4	4	12.7	12.7	4.76	0.8	○	○	○			○	
	CNGN120412S4	4	12.7	12.7	4.76	1.2	○	○	○				
	CNGN120416S4	4	12.7	12.7	4.76	1.6	○	○	○				
	CNGN120712S4	4	12.7	12.7	7.94	1.2	○	○	○		○	○	
	CNGN120716S4	4	12.7	12.7	7.94	1.6	○	○	○				

● Stock ○ Check availability

SNGN

Square 90° without Hole



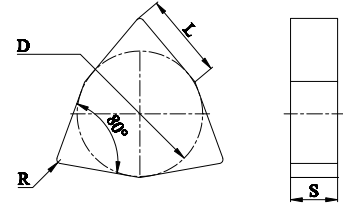
Part Number	Edge	Dimensions (mm)				PCBN Grades							
		L	D	S	R	FBK15SN	FBK25SN	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	
	SNGN120408S8	8	12.7	12.7	4.76	0.8	○	○	○				
	SNGN120412S8	8	12.7	12.7	4.76	1.2	○	○	○				
	SNGN120708S8	8	12.7	12.7	7.94	0.8	○	○	○				
	SNGN120712S8	8	12.7	12.7	7.94	1.2	○	○	○				
	SNGN120716S8	8	12.7	12.7	7.94	1.6	○	○	○				


● Stock ○ Check availability

PCBN Turning Inserts - **Negative**

WNGN

Trigon 80° without Hole

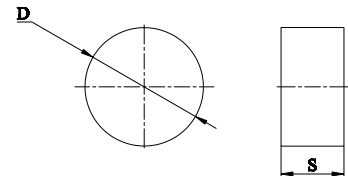



Part Number	Edge	Dimensions (mm)				PCBN Grades							
		L	D	S	R	FBK15SN	FBK25SN	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	
	WNGN080600S6	6	8.72	12.7	6.35	1.2	○	○	○				
	WNGN080600S6	6	8.72	12.7	6.35	1.6	○	○	○				

● Stock ○ Check availability

RNGN

Round 360° without Hole



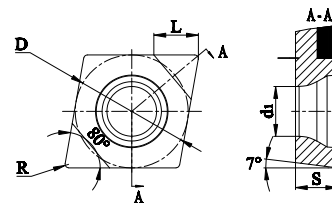
Part Number	Edge	Dimensions (mm)		PCBN Grades							
		D	S	FBK15SN	FBK25SN	FBK35SU	FBH05SU	FBH15SU	FBH25SU	FBH35SU	
	RNGN060300M	/	6	3.18				○	○	○	
	RNGN090300M		9.525	3.18	○	○	○	○	○	○	
	RNGN120400M		12.7	4.76	○	○	○	○	○	○	

● Stock ○ Check availability

PCBN Turning Inserts - **Positive**

CCGW

Rhombic 80° with Hole

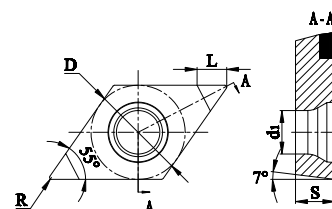


Part Number	Edge	Dimensions (mm)					PCBN Grades						
		L	D	S	d1	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH25BC	FBH35BC	
	CCGW060204S2	2	2.5	6.35	2.38	2.8	0.4		○	○		●	
	CCGW060208S2	2	2.5	6.35	2.38	2.8	0.8	○	○	○		○	
	CCGW09T302S2	2	2.5	9.525	3.97	4.4	0.2	○	○	○		○	
	CCGW09T304S2	2	2.5	9.525	3.97	4.4	0.4	○	○	○		○	
	CCGW09T308S2	2	2.5	9.525	3.97	4.4	0.8	○	○	○		○	

● Stock ○ Check availability

DCGW

Rhombic 55° with Hole



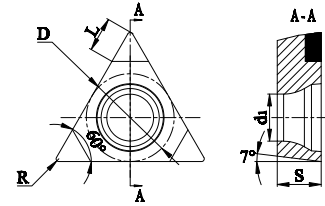
Part Number	Edge	Dimensions (mm)					PCBN Grades						
		L	D	S	d1	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH25BC	FBH35BC	
	DCGW070208L2	2	2.5	6.35	2.38	2.8	0.8	○	○	○		○	
	DCGW11T302S2	2	2.5	9.525	3.97	4.4	0.2	○	○	○		○	
	DCGW11T304S2	2	2.5	9.525	3.97	4.4	0.4	○	○	○		●	
	DCGW11T308S2	2	2.2	9.525	3.97	4.4	0.8	○	○	○		●	

● Stock ○ Check availability

PCBN Turning Inserts - **Positive**

TCGW

Triangle 60° with Hole

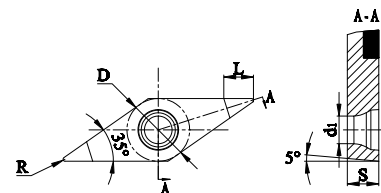


Part Number	Edge	Dimensions (mm)					PCBN Grades						
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH25BC	FBH35BC	
	TCGW110202S3	3	2.5	6.35	2.38	3.4	0.2	○	○	○		○	
	TCGW110204S3	3	2.5	6.35	2.38	3.4	0.4	○	○	○		●	
	TCGW110208S3	3	2.2	6.35	2.38	3.4	0.8	○	○	○		●	

● Stock ○ Check availability

VBGW

Rhombic 35° with Hole



Part Number	Edge	Dimensions (mm)					PCBN Grades						
		L	D	S	d ₁	R	FBK15BU	FBH15BU	FBH25BU	FBH35BU	FBH25BC	FBH35BC	
	VBGW160402S2	2	3.0	9.525	4.76	4.4	0.2	○	○	○		○	
	VBGW160404S2	2	2.5	9.525	4.76	4.4	0.4	○	○	○		●	
	VBGW160408S2	2	2.2	9.525	4.76	4.4	0.8	○	○	○		●	

● Stock ○ Check availability

PCBN Recommended Cutting Data

ISO	Workpiece material	Hardness	Cutting Type	Machining Conditions	Grade	Min-Optimum-Max		
						Cutting Speed Vc(m/min)	Depth of cut ap(mm)	Feed rate f(mm/rev)
K	Gray Cast Iron	≥HB200	Superfinishing & Finishing	General	FBK15BU	600-800-1500	0.05-0.20-0.50	0.05-0.10-0.50
				General	FBK15BU	400-600-1200	0.05-0.20-0.50	0.05-0.10-0.50
			Finishing	Continuous	FBK15SU	100-600-1200	0.05-0.20-0.50	0.10-0.20-5.00
				Interrupted	FBK25SU	400-500-1200	0.05-0.10-1.00	0.10-0.20-5.00
			Semi-finishing	Interrupted	FBK25SU	400-600-1000	0.05-0.40-1.00	0.10-0.50-5.00
	Roughing	Continuous	FBK35SU	400-500-800	0.10-0.30-0.50	0.10-0.50-5.00		
	Alloy Cast Iron	≥HRC40	Finishing & Semi-Finishing	Interrupted	FBK35SU	10-50-100	0.10-0.30-2.00	0.10-0.50-10.0
Power metallurgy	≥HB200	Finishing	Continual	FBK15BU	80-120-200	0.05-0.10-0.20	0.05-0.10-1.00	
H	Hardened Material	≥HRC50	Superfinishing & Finishing	General	FBH25BC	100-180-200	0.05-0.10-0.20	0.05-0.08-0.20
				Continual	FBH15BU	120-180-220	0.05-0.10-0.20	0.05-0.08-0.20
			Finishing	General	FBH25BC	100-150-200	0.05-0.10-0.20	0.05-0.10-0.50
				Continual	FBH05SU	100-120-200	0.05-0.10-0.20	0.05-0.10-0.50
				Interrupted	FBH25BU	90-140-180	0.05-0.10-0.20	0.05-0.10-0.50
			Semi-finishing	General	FBH25BC	100-150-200	0.05-0.20-0.20	0.05-0.20-0.50
				General	FBH15SU	100-150-220	0.10-0.20-0.50	0.05-0.20-1.00
				Interrupted	FBH35BU	60-120-130	0.05-0.20-0.40	0.05-0.20-0.40
				Interrupted	FBH25SU	50-100-160	0.10-0.20-0.50	0.05-0.20-1.00
				Interrupted	FBH35SU	50-100-150	0.10-0.20-0.50	0.05-0.20-1.00
			Roughing	Interrupted	FBH35BC	80-100-150	0.05-0.20-0.20	0.05-0.20-0.40
				General	FBH25BC	100-150-200	0.05-0.5-0.20	0.05-0.20-0.50
				General	FBH15SU	100-150-220	0.10-0.5-0.50	0.05-0.20-1.00
				Interrupted	FBH25SU	50-100-160	0.10-0.5-0.50	0.05-0.20-1.00
				Interrupted	FBH35SU	50-100-150	0.10-0.5-0.50	0.05-0.20-1.00



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