M.A. FORD
High Performance Cutting Tools

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

Cermet Inserts
PVD Coated Inserts
CVD Coated Inserts
PVD Coated Threading Inserts

M.A. FORDMAX RANGE

Turning

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High Performance Cutting Tools

*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 carbide turning and threading inserts 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 for all material groups. The FordMAX insert range is the perfect solution for performance, precision and economy.

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ISO Indexable Turning Insert Identification System

1

Symbol	Shape	Corner Angle	Figure
H	Hexagon	120°	
O	Octagon	135°	
P	Pentagon	108°	
S	Square	90°	
T	Triangle	60°	
C	Rhombus	80°	
D		55°	
E		75°	
F		50°	
M		86°	
V		35°	
W	Trigon	80°	
L	Rectangle	90°	
A	Parallelogram	85°	
B		82°	
K		55°	
R	Round	——	

Shape Symbol

2

Symbol	Relief Angle Others
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others

Relief Angle Symbol

3

Symbol	Tolerance(mm)			Tolerance (inch)		
	Corner Height (m)	Thickness	I.C.Dia. (Ød)	Corner Height (m)	Thickness (s)	I.C.Dia. (Ød)
A	±0.005	±0.025	±0.025	±0.0002	±0.001	±0.001
F	±0.005	±0.025	±0.013	±0.0002	±0.001	±0.0005
C	±0.013	±0.025	±0.025	±0.0005	±0.001	±0.001
H	±0.013	±0.025	±0.013	±0.0005	±0.001	±0.0005
E	±0.025	±0.025	±0.025	±0.001	±0.001	±0.001
G	±0.025	±0.13	±0.025	±0.001	±0.005	±0.001
J	±0.005	±0.025	±0.05~ ±0.13	±0.0002	±0.001	±0.002~ ±0.005
K	±0.013	±0.025	±0.05~ ±0.13	±0.0005	±0.001	±0.002~ ±0.005
L	±0.025	±0.025	±0.05~ ±0.13	±0.001	±0.001	±0.002~ ±0.005
M	±0.08~ ±0.18	±0.13	±0.05~ ±0.13	±0.003~ ±0.007	±0.005	±0.002~ ±0.005
N	±0.08~ ±0.18	±0.025	±0.05~ ±0.13	±0.003~ ±0.007	±0.001	±0.002~ ±0.005
U	±0.13~ ±0.38	±0.13	±0.08~ ±0.25	±0.005~ ±0.015	±0.005	±0.003~ ±0.01

Tolerance Symbol

①	②	③	④	⑤
T	N	M	G	22
T	N	M	G	22

4

Hole/Chip-breaker Symbol				
Symbol	Hole	Hole Shape	Chip-breaker	Shape
N	Without	—	Without	
R			Single-sided	
F			Double-sided	
A	With	With Hole	Without	
M			Single-sided	
G			Double-sided	
W		With Hole and one countersink 40°~60°	Without	
T			Single-sided	
Q		With Hole and two countersinks 40°~60°	Without	
U			Double-sided	
B		With Hole and one countersink 70°~90°	Without	
H			Single-sided	
C		With Hole and two countersinks 70°~90°	Without	
J			Double-sided	
X	—	—	—	

5

ISO Edge Length Symbol(mm)

P		S		C		W		T		D		V		K		I.C.Dia. (mm)
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	
		03	3.97	03	4.0			06	6.9	4	4.8					3.97
		04	4.76	04	4.8			08	8.2	5	5.8					4.76
05	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
		05	5.56	05	5.6	03	3.8	09	9.6	6	6.8					5.56
06	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
		06	6.35	06	6.5	04	4.3	11	11	7	7.8	11	11.2			6.35
		07	7.94	08	8.1	05	5.4	13	13.8	9	9.7					7.94
08	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8
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
10	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10
12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1			12.7
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
16	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3					19.05
20	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
		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

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Insert Shape H,O,P,S,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)	
	ClassJ,K, L,M,N	Class U	ClassJ,K, L,M,N	Class U		ClassJ,K, L,M,N	Class U	ClassJ,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

6

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	7	8	
04	08	-	HK
04	08	-	HK

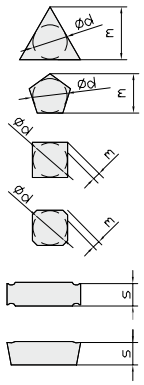
6	7	8

6

Inscribed Circle Size(Ød)

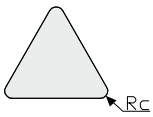
Corner Height(s)

Corner Height(m)



7

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

8

Chipbreaker Symbol

Indicates the cutting properties and chipbreaker

Application Overview Of Turning Grades By Material Group

Material Groups	ISO	Coated Carbide		Uncoated Carbide
		CVD	PVD	
P Steel	01	FP110C NEW		
	10			
	20	FP120C NEW		
	30			
	40	FP130C NEW		
	50			
M Stainless Steel	01			
	10		FM3115	
	20			
	30	FM130C	FM3120	
	40			
	50		FM3125	
K Cast Iron	01			
	10	FK1015		
	20			
	30	FK1020		
	40	FK1025		
N Non Ferrous	01			FN6110
	10		FN120P	
	20			FN6120
	30			
	40			FN6130
S HRSA	01		FS115P NEW	
	10			
	20		FS120P NEW	
	30		FS130P NEW	FS3015
	40			FS3025

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Application Overview Of Turning Grades By Material Group

Material Groups	ISO	Uncoated Cermet	PVD Coated Cermet
P Steel	01		FP30TM
	10	FP90TM	
	20		
	30		
	40		
	50		
M Stainless Steel	01		FP30TM
	10	FP90TM	
	20		
	30		
	40		
	50		
K Cast Iron	01		FP30TM
	10	FP90TM	
	20		
	30		
	40		

Application of Grades

CVD Coated Carbide

Workpiece Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	Continuous Cutting	FP110C	200-380	P01	FP110C NEW
				150-360	P10	
		Interrupted Cutting	FP120C / FP130C	150-360	P20	FP120C NEW
				120-280	P30	
			FP130C	80-180	P40	FP130C NEW
M	Stainless Steel	Continuous Cutting	FM130C	200-300	M01	
					M10	
		Interrupted Cutting	FM130C	180-280	M20	FM130C
					M30	
					M40	
K	Cast Iron	Continuous Cutting	FK1015	200-400	K01	FK1015
			FK1020 / FK1025		K10	
		Interrupted Cutting		150-300	K20	FK1020
					K30	FK1025
			FK1025		K40	

PVD Coated Carbide

Workpiece Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
M	Stainless Steel	Continuous Cutting	FS3015	120-250	M01	FS3015
			FM3115 / FM3120	100-220	M10	
		Interrupted Cutting			M20	FM3115
			FM3125	100-220	M30	FM3120
					M40	FM3125
S	Heat Resistant Super Alloys (HRSA)	Continuous Cutting	FS115P / FS3015	40-70	S01	FS115P NEW
					S10	
		Interrupted Cutting	FS120P / FS130P / FS3025	45-65	S20	FS120P NEW
					S30	FS130P NEW
					S40	FS3015
						FS3025

PVD Coated Carbide

Workpiece Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
N	Nonferrous Metals	Continuous Cutting	FN120P	800-1600	N01	
				700-1500	N10	
		Interrupted Cutting			N20	FN120P NEW
				650-1400	N30	
					N40	

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Application of Grades

Cermet

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

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

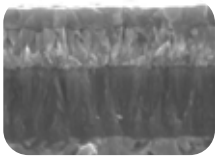
Uncoated Carbide

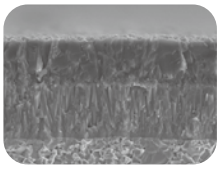
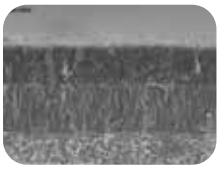
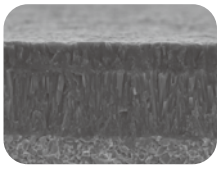
Cemented carbide substrate with special surface treatment suitable for cutting of copper, aluminum alloys and non-metal materials.

Workpiece Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
N	Nonferrous Metals	Continuous Cutting	FN6110	800-1600	N01	FN6110
					N10	FN6110
			FN6120	700-1500	N20	FN6110 / FN6120
		Interrupted Cutting			N30	FN6120 / FN6130
			FN6130	650-1400	N40	FN6130

CVD Coated Carbide

Grade	Application	Microstructure	Advantages
FP110C	Recommended for continuous conditions of carbon steels and alloy steels at high speeds.		• Brand new CVD coating with special post-treatment technology and high hot hardness cemented carbide substrate, provides the grade with superior adhesion resistance and excellent wear resistance.
FP120C	Recommended for carbon steels and alloy steels in wide cutting conditions at medium to high speeds.		• Brand new CVD coating with unique low-stress post-treatment, matching cemented carbide substrate with perfect thermo-plastic deformation resistance, guarantees the high wear resistance and toughness.
FP130C	Recommended for most Intermittent conditions of carbon steels and alloy steels at medium speeds.		• New cemented carbide with special cobalt enrichment controlling technology, combined with new CVD coating and advanced post-treatment, greatly improves the edge breakage.

Grade	Application	Microstructure	Advantages
FM130C	Recommended for continuous and lightly interrupt processing in stainless steel.		• Thiner Al2O3 layer and nano-columarMT-TiCN layer with a gradient substrate. Post-treatment to reduce cutting force and less built-up edge, which in order to enhance the stability.

Grade	Application	Microstructure	Advantages
FK1015	Suitable for finishing to semi-finishing of nodular irons and gray irons in continuous and light interrupted conditions.		• MT-TiCN and thick Al_2O_3 coated on micro-grain carbide substrate, superior wear resistance. Smooth coating surface after special post-processing and shows superior wear resistance and fracture resistance.
FK1020	Suitable for continuous and light interrupted cutting action of nodular cast iron.		• MT-TiCN and thick Al_2O_3 coated on micro-grain carbide substrate. Special post-processing with excellent edge strength and ensure the stability of cutting.
FK1025	Suitable for bad machining conditions which require high toughness.		• Thick MT-TiCN+Al_2O_3 coated on toughness micro-grain carbide substrate, keeping superior wear resistance and greatly improved toughness.

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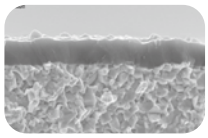
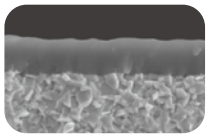
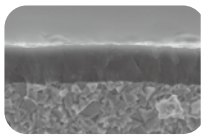
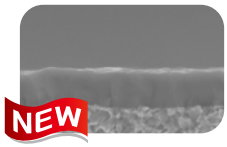
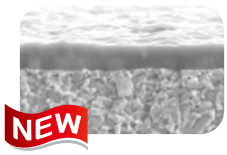
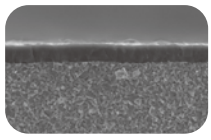
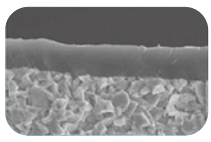
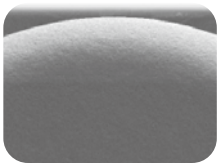
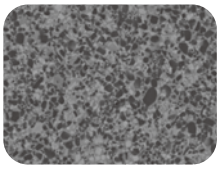
PVD Coated Carbide

Grade	Application	Microstructure	Advantages
FM3115	Recommended for finishing of stainless steels and heat resistant alloys in stable cutting conditions at medium speeds.		• Brand new PVD TiAlN coating combined with submicron grained WC-Co cemented carbide substrate, provides the new grade with excellent wear resistance and heat resistance.
FM3120	Recommended for Continuous and light or medium Intermittent of stainless steels and soft steels at medium to low cutting speeds.		• New nano-structured PVD coating matching high cobalt cemented carbide substrate, gives the grade with excellent wear resistance and high hot hardness.
FM3125	Suitable for semi-finishing of stainless steels and threading of general materials.		• Optimized combination of TiAlN coating and micro-grain carbide substrate with high Co cotent provide superior adhesion resistance and toughness.

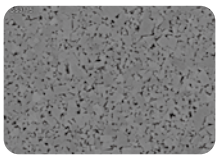
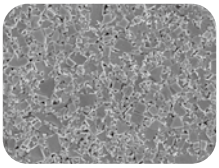
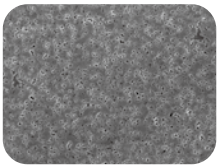
Grade	Application	Microstructure	Advantages
FS115P	Recommended for low and medium speed finishing to semi-finishing processing in nickel based high-temperature alloys, good surface quality.		• New nano structure PVD coating with higher hot hardness and anti-plastic deformation substrate. Special post-treatment, which make excellent high temperature wear resistance and adhesive wear resistance.
FS120P	Recommended for medium and high speed processing in nickel based high-temperature alloys.		• New higher adhesion and wear-resistance PVD coating with submicro grain substrate, which increase grade wear resistance, oxidation resistance, and processing stability.
FS130P	Recommended for low and medium speed roughing in nickel based high-temperature alloys, good surface quality.		• New PVD coating with high Co submicro grain substrate, which have good adhesion, extremely high toughness, and cutting edge strength.
FS3015	Suitable for finishing to semi-finishing of stainless steels and high temperature resistance alloys.		• New TiAlN coating with good adhesion on submicron substrate, superior wear resistance and heat resistance.
FS3025	Suitable for semi-finishing of high-temp alloy in moderate cutting speed, and also suitable for some Titanium Alloy.		• Superior red-hardness and anti-plastic deformation cemented carbide substrate coated new AlTiN coating, has excellent oxidation resistance and adhesive wear resistance.

Grade	Application	Microstructure	Advantages
FN120P	Recommend universal processing of non-ferrous metals such as copper and aluminum alloys.		• The newly upgraded coating has extremely high hardness and excellent adhesion, and has almost no affinity with non-ferrous metals. It is paired with a high wear-resistant hard alloy matrix to achieve efficient processing of non-ferrous metals such as aluminum alloys.

Cermet

Grade	Application	Microstructure	Advantages
FP30TM FP30TM FP30TM	Improved micro-chip-ping resistance lead to better surface roughness, and enhance wear resistance		• Special surface treatment
FP90TM FP90TM FP90TM	Achieving stability and longer tool life with excellent wear resistance and fracture resistance.		• TiCN-based cermet

Uncoated Carbide

Grade	Application	Microstructure	Advantages
FN6110	Recommended for finishing of aluminum alloys and copper alloys at high cutting speeds.		• Uncoated fine-grained grade has great wear resistance.
FN6120	Suitable for cutting of copper, aluminum alloys and non-ferrous materials in high speed conditions.		• Fine grain cemented carbide substrate with special surface treatment have superior wear resistance and adhesion resistance.
FN6130	Suitable for roughing of copper, aluminum alloys And non-metallic material.		• Micro-fine grain cemented carbide substrate have balance between superior wear resistance and toughness.

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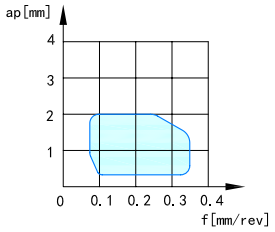
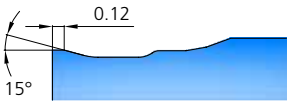
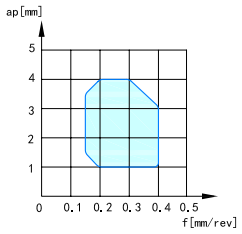
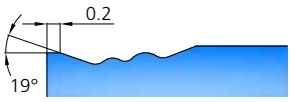
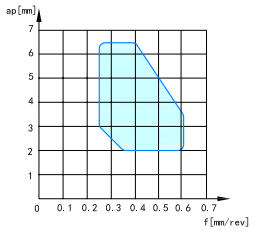
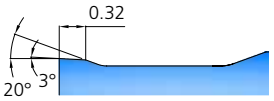
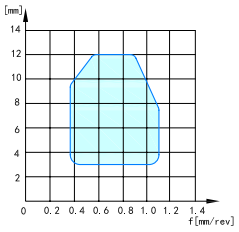
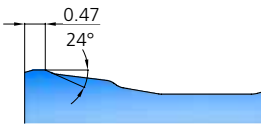
Working Conditions - Recommended Geometry & Grade Selection

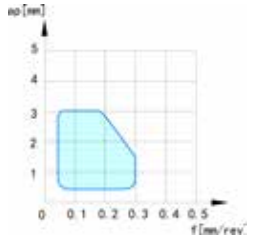
Workpiece Material	Geometry		Working Condition			
			Finishing	Continuous	Light Interrupted	Interrupted
P	Negative	QF	-	FP110C/FP90TM	FP120C/FP90TM	FP120C/FP130C
		QM	-	FP110C/FP90TM	FP120C/FP90TM	FP120C/FP130C
		TP	FP90TM	FP30TM/FP90TM	FP90TM	-
		QR	-	FP110C	FP110C/FP120C	FP120C/FP130C
		QH	-	FP110C	FP120C	FP130C
	Positive	MM	-	FP110C/FP90TM	FP110C/FP120C/FP90TM	FP120C/FP130C
		GP	-	FP110C/FP90TM	FP110C/FP120C/FP90TM	FP120C/FP130C
M	Negative	SF	FS3015	-	-	-
		LM	-	FM3115	FM3120	FM3125
		LR	-	FM3115	FM3120	FM3125
	Positive	MM	-	FM3120	FM3120/FM3125	FM3125
		GP	-	FM3115	FM3120	FM3125
K	Negative	QM	-	FK1015	FK1015/FK1020	FK1025
		UK	-	FK1015	FK1015/FK1020	FK1025
		HK	-	FK1015	FK1015/FK1020	FK1025
	Positive	GP	-	FK1015	FK1015/FK1025	FK1025
N	Negative/ Positive	AL	-	FN120P/FN6110/FN6115	FN120P/FN6115/ FN6120/FN6130	FN120P/FN6115/ FN6120/FN6130
S	Negative	EL	-	FS115P/FS3015	FS120P/FS3025	FS130P
		EM	-	FS115P/FS3015	FS120P/FS3025	FS130P
		SML	-	FS115P/FS3015	FS120P/FS3025	FS130P
		SMM	-	FS115P/FS3015	FS120P/FS3025	FS130P
	Positive	MM	-	FS115P/FS3015	FS120P/FS3025	FS130P

Chipbreaker Geometries - **Negative Inserts**

STEEL

Geometry	Features	Application Range	Cross Section Geometry
QF	• 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	• QM for semi-finishing of general steel and alloy steel. • Gradient and waved hump wide applicable geometry range.		
QR	• 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	• 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.		

CERMET

Geometry	Features	Application Range	Cross Section Geometry
TP **TP** **TP**	• 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		

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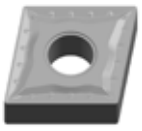
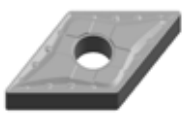
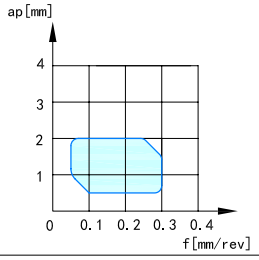
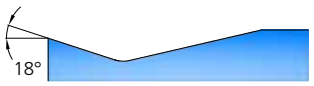
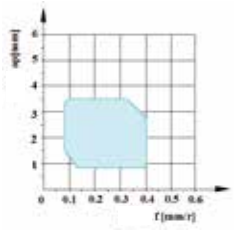
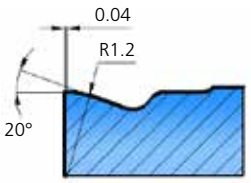
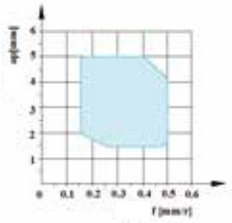
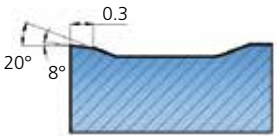
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-QF	DNMG-QF	SNMG-QF	TNMG-QF	VNMG-QF	WNMG-QF
Page 22	Page 25	Page 28	Page 30	Page 32	Page 34
					
CNMG-QM	DNMG-QM	SNMG-QM	TNMG-QM	VNMG-QM	WNMG-QM
Page 22	Page 25	Page 28	Page 30	Page 32	Page 34
				-	
CNMG-QR	DNMG-QR	SNMG-QR	TNMG-QR	-	WNMG-QR
Page 22	Page 25	Page 28	Page 30	-	Page 34
	-		-	-	-
CNMM-QH	-	SNMM-QH	-	-	-
Page 22	-	Page 28	-	-	-

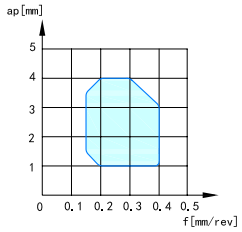
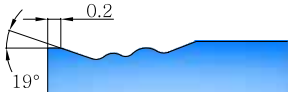
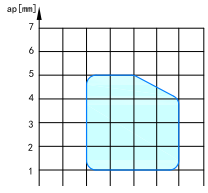
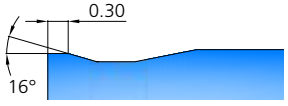
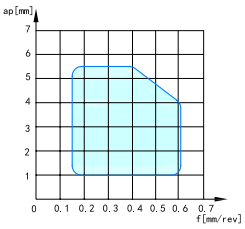
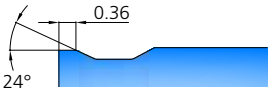
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
		-			
CNMG-TP	DNMG-TP	-	TNMG-TP	VNMG-TP	WNMG-TP
Page 24	Page 25	-	Page 31	Page 32	Page 34

Chipbreaker Geometries - **Negative Inserts**

STAINLESS STEEL

Geometry	Features	Application Range	Cross Section Geometry
SF	• 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	• 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	• 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	• QM for semi-finishing of general steel and alloy steel • Gradient and waved hump wide applicable geometry range		
UK	• UK for machining cast iron • Medium cutting for general conditions		
HK	• HK for cast iron heavy cutting • Strong cutting edge and wide land for improved performance		

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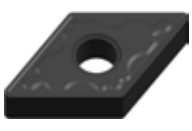
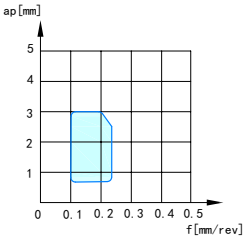
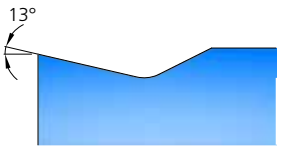
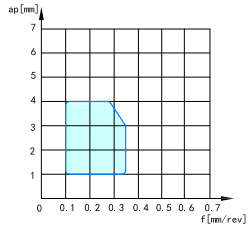
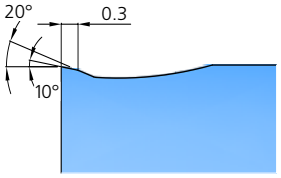
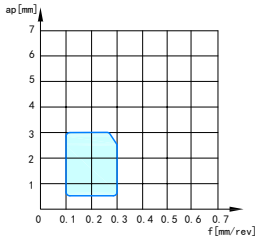
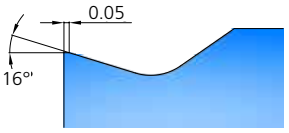
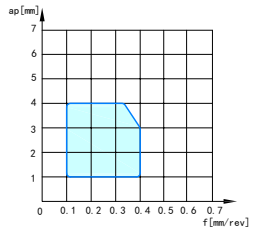
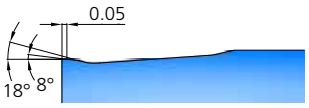
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-SF	DNMG-SF	SNMG-SF	TNMG-SF	VNMG-SF	WNMG-SF
Page 22	Page 25	Page 29	Page 30	Page 32	Page 34
					
CNMG-LM	DNMG-LM	SNMG-LM	TNMG-LM	VNMG-LM	WNMG-LM
Page 22	Page 26	Page 29	Page 30	Page 32	Page 34
				–	
CNMG-LR	DNMG-LR	SNMG-LR	TNMG-LR	-	WNMG-LR
Page 23	Page 26	Page 29	Page 31	-	Page 34

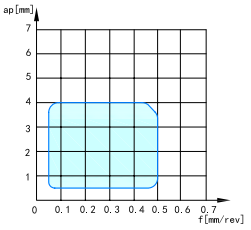
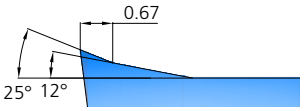
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					
CNMG-QM	DNMG-QM	SNMG-QM	TNMG-QM	VNMG-QM	WNMG-QM
Page 22	Page 25	Page 28	Page 30	Page 32	Page 34
					
CNMG-UK	DNMG-UK	SNMG-UK	TNMG-UK	VNMG-UK	WNMG-UK
Page 23	Page 26	Page 29	Page 31	Page 32	Page 35
					
CNMG-HK	DNMG-HK	SNMG-HK	TNMG-HK	VNMG-HK	WNMG-HK
Page 23	Page 26	Page 29	Page 31	Page 32	Page 35

Chipbreaker Geometries - **Negative Inserts**

HEAT RESISTANT SUPER ALLOY (HRSA)

Chip Breaker	Features	Application Range	Cross Section Geometry
EL	• EL for finishing to semi-finishing of high temperature alloy and titanium alloy. • Suitable for processing long overhanging and thin-walled workpieces. • Low cutting force to avoid vibration.		
EM	• EM for semi-finishing to roughing of high-temperature alloy. • High cutting edge strength, suitable for deep cutting processing.		
SML	• SML for finishing to semi-finishing of stainless steel and high temperature alloy. • Inclination angle design reduces cutting resistance and ensures good chip control.		
SMM	• SMM for semi-finishing to roughing of stainless steel and high-temperature alloy. • Unique chip-breaker design to meet different cutting depth and feed processing, ensuring processing stability.		

NON-FERROUS

Geometry	Features	Application Range	Cross Section Geometry
AL	• AL for aluminum alloy cutting. • Sharp tool nose due to large rake angle.		

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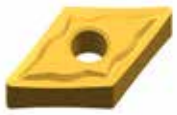
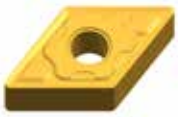
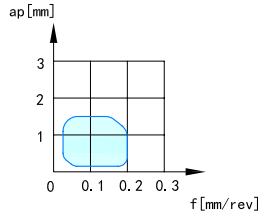
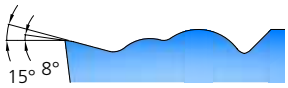
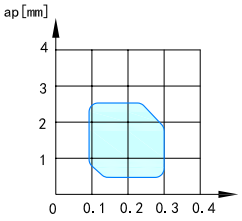
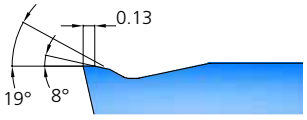
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
		–	–		
CNMG-EL	DNMG-EL	-	-	VNMG-EL	WNMG-EL
Page 23	Page 26	-	-	Page 33	Page 35
					
CNMG-EM	DNMG-EM	SNMG-EM	TNMG-EM	VNMG-EM	WNMG-EM
Page 24	Page 27	Page 29	Page 31	Page 33	Page 35
		–	–		
CNMG-SML	DNMG-SML	-	-	VNMG-SML	WNMG-SML
Page 24	Page 27	-	-	Page 33	Page 35
			–		
CNMM-SMM	DNMG-SMM	SNMM-SMM	-	VNMG-SMM	WNMG-SMM
Page 24	Page 27	Page 29	-	Page 33	Page 35

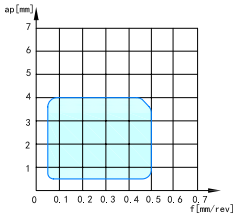
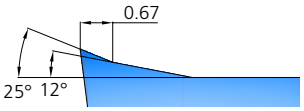
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
		–	–	–	
CNGG-AL	DNGG-AL	-	-	-	WNGG-AL
Page 23	Page 26	-	-	-	Page 35

Chipbreaker Geometries - **Positive Inserts**

STEEL / STAINLESS STEEL

Geometry	Features	Application Range	Cross Section Geometry
MM MM MM	• 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.		
GP GP GP	• 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.		

NON-FERROUS

Geometry	Features	Application Range	Cross Section Geometry
AL	• AL for aluminum alloy cutting. • Sharp tool nose due to large rake angle.		

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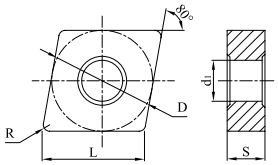
80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle		35° Rhombic		80° Trigon
							–
CCMT-MM	DCMT-MM	SCMT-MM	TCMT-MM	TPMT-MM	VBMT-MM	VCMT-MM	-
Page 36	Page 37	Page 38	Page 39	Page 40	Page 40	Page 41	-
				–			
CCMT-GP	DCMT-GP	SCMT-GP	TCMT-GP	-	VBMT-GP	VCGT/VCMT-GP	WCMT-GP
Page 36	Page 37	Page 38	Page 39	-	Page 40	Page 41	Page 42

80° Rhombic	55° Rhombic	90° Square	60° Regular Triangle	35° Rhombic	80° Trigon
					–
CCGX-AL	DCGX-AL	SCGX-AL	TCGX-AL	VCGX-AL	-
Page 36	Page 37	Page 38	Page 39	Page 41	-

Turning Inserts - **Negative**

CN

Rhombic 80° with Hole



Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
																										
	CNMG120404-QF	12.9	12.7	4.76	5.16	0.4	●	●	●										○							●	
	CNMG120408-QF	12.9	12.7	4.76	5.16	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	○	○	○																		
	CNMG120404-SF	12.9	12.7	4.76	5.16	0.4						○					●										
	CNMG120408-SF	12.9	12.7	4.76	5.16	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					●	●	●														

● Stock ○ Check availability

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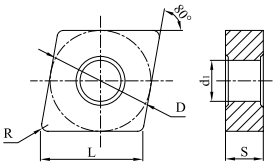
Turning Inserts - **Negative**

CN

Rhombic 80° with Hole



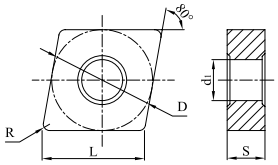
Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	CNMG120408-LR	12.9	12.7	4.76	5.16	0.8					●	●	●														
	CNMG120412-LR	12.9	12.7	4.76	5.16	1.2				●	●	●	●														
	CNMG120416-LR	12.9	12.7	4.76	5.16	1.6					●	●	●														
	CNMG160608-LR	16.1	15.875	6.35	6.35	0.8					●		●														
	CNMG160612-LR	16.1	15.875	6.35	6.35	1.2					●		●														
	CNMG190612-LR	19.3	19.05	6.35	7.94	1.2					●		●														
	CNMG190616-LR	19.3	19.05	6.35	7.94	1.6					●		●														
	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													○		○						
	CNMG190616-UK	19.3	19.05	6.35	7.94	1.6													○		○						
	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													○		○						
	CNGG120404-AL	12.9	12.7	4.76	5.16	0.4																					
	CNGG120408-AL	12.9	12.7	4.76	5.16	0.8																					
	CNGG Grade Reference is FN6115																										
	CNMG120404-EL	12.9	12.7	4.76	5.16	0.4								●		○											
	CNMG120408-EL	12.9	12.7	4.76	5.16	0.8								●	○	○											
	CNMG120412-EL	12.9	12.7	4.76	5.16	1.2								○	○												
	CNMG160608-EL	16.1	15.875	6.35	6.35	0.8								○	○												
	CNMG160612-EL	16.1	15.875	6.35	6.35	1.2								○	○												
	CNMG190608-EL	19.3	19.05	6.35	7.94	0.8								○		○											
	CNMG190612-EL	19.3	19.05	6.35	7.94	1.2								○		○											

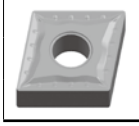
● Stock ○ Check availability

Turning Inserts - **Negative**

CN

Rhombic 80° with Hole



Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	CNMG120404-EM	12.9	12.7	4.76	5.16	0.4								●	○	○											
	CNMG120408-EM	12.9	12.7	4.76	5.16	0.8								●	●	●											
	CNMG120412-EM	12.9	12.7	4.76	5.16	1.2								●	●	●											
	CNMG160608-EM	16.1	15.875	6.35	6.35	0.8								●	○	●											
	CNMG160612-EM	16.1	15.875	6.35	6.35	1.2								●	●	●											
	CNMG190608-EM	19.3	19.05	6.35	7.94	0.8								●	○	○											
	CNMG190612-EM	19.3	19.05	6.35	7.94	1.2								●	○	○											
	CNMG190616-EM	19.3	19.05	6.35	7.94	1.6								○													
	CNMG120404-SML	12.9	12.7	4.76	5.16	0.4								○		○											
	CNMG120408-SML	12.9	12.7	4.76	5.16	0.8								○	○	○											
	CNMG120412-SML	12.9	12.7	4.76	5.16	1.2								○	○												
	CNMG160608-SML	16.1	15.875	6.35	6.35	0.8								○	○												
	CNMG160612-SML	16.1	15.875	6.35	6.35	1.2								○	○												
	CNMG120404-SMM	12.9	12.7	4.76	5.16	0.4								○	○	○											
	CNMG120408-SMM	12.9	12.7	4.76	5.16	0.8								○	○	○											
	CNMG120412-SMM	12.9	12.7	4.76	5.16	1.2								○	○	○											
	CNMG160608-SMM	16.1	15.875	6.35	6.35	0.8								○	○	○											
	CNMG160612-SMM	16.1	15.875	6.35	6.35	1.2								○	○	○											
	CNMG120404-TP	12.9	12.7	4.76	5.16	0.4																				●	●
	CNMG120408-TP	12.9	12.7	4.76	5.16	0.8																				●	●

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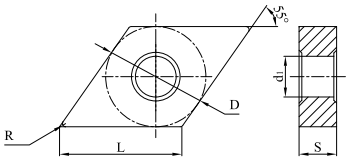
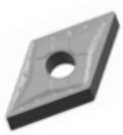
Turning Inserts - **Negative**

DN

Rhombic 55° with Hole



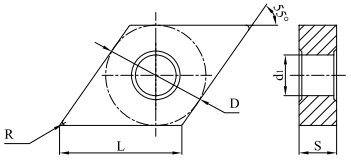
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	DNMG110404-QF	11.6	9.525	4.76	3.81	0.4	o	●	o																		
	DNMG110408-QF	11.6	9.525	4.76	3.81	0.8	o	●	o																		
	DNMG150404-QF	15.5	12.7	4.76	5.16	0.4	o	●	o																	o	o
	DNMG150408-QF	15.5	12.7	4.76	5.16	0.8	o	●	o																	o	o
	DNMG150604-QF	15.5	12.7	6.35	5.16	0.4	●	●	●																	o	
	DNMG150608-QF	15.5	12.7	6.35	5.16	0.8	o	●	o																		
	DNMG110404-QM	11.6	9.525	4.76	3.81	0.4	o	●	o																		o
	DNMG110408-QM	11.6	9.525	4.76	3.81	0.8	o	●	o										o								
	DNMG110412-QM	11.6	9.525	4.76	3.81	1.2														o							
	DNMG150404-QM	15.5	12.7	4.76	5.16	0.4	●	●	●										o							o	
	DNMG150408-QM	15.5	12.7	4.76	5.16	0.8	●	●	●										o								
	DNMG150412-QM	15.5	12.7	4.76	5.16	1.2	o	●	o																		
	DNMG150604-QM	15.5	12.7	6.35	5.16	0.4	●	●	●																	o	
	DNMG150608-QM	15.5	12.7	6.35	5.16	0.8	●	●	●										o								
	DNMG150612-QM	15.5	12.7	6.35	5.16	1.2	●	●	●										o								
	DNMG150408-QR	15.5	12.7	4.76	5.16	0.8	o	●	o																		
	DNMG150412-QR	15.5	12.7	4.76	5.16	1.2	o	●	o																		
	DNMG150608-QR	15.5	12.7	6.35	6.35	0.8	●	●	●																		
	DNMG150612-QR	15.5	12.7	6.35	6.35	1.2	o	●	o																		
	DNMG150616-QR	15.5	12.7	6.35	6.35	1.6		●	o																		
	DNMG110404-SF	11.6	9.525	4.76	3.81	0.4						o					o										
	DNMG110408-SF	11.6	9.525	4.76	3.81	0.8						o					o										
	DNMG150404-SF	15.5	12.7	4.76	5.16	0.4						o					●										
	DNMG150408-SF	15.5	12.7	4.76	5.16	0.8						o					●										
	DNMG150604-SF	15.5	12.7	6.35	5.16	0.4						o					●										
	DNMG150608-SF	15.5	12.7	6.35	5.16	0.8						o					●										
	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																				●	o
	DNMG150608-TP	15.5	12.7	6.35	5.16	0.8																				o	●

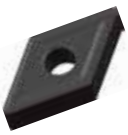
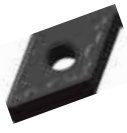
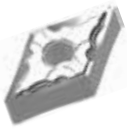
● Stock ○ Check availability

Turning Inserts - **Negative**

DN

Rhombic 55° with Hole



Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	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					●	●	●														
	DNMG150612-LM	15.5	12.7	6.35	5.16	1.2					●	○	●														
	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													○	○	○						
	DNGG150604-AL	15.5	12.7	6.35	5.16	0.4																					
	DNGG150608-AL	15.5	12.7	6.35	5.16	0.8																					
	DNGG Grade Reference is FN6115																										
	DNMG150404-EL	15.5	12.7	4.76	5.16	0.4								●	○												
	DNMG150408-EL	15.5	12.7	4.76	5.16	0.8								○	○												
	DNMG150412-EL	15.5	12.7	4.76	5.16	1.2								●	○												
	DNMG150604-EL	15.5	12.7	6.35	5.16	0.4								●	○												
	DNMG150608-EL	15.5	12.7	6.35	5.16	0.8								○	○												
	DNMG150612-EL	15.5	12.7	6.35	5.16	1.2								○	○												

● Stock ○ Check availability

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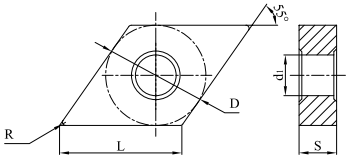
Turning Inserts - **Negative**

DN

Rhombic 55° with Hole



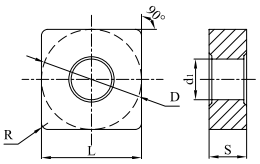
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	DNMG150408-EM	15.5	12.7	4.76	5.16	0.8								●	●	●											
	DNMG150412-EM	15.5	12.7	4.76	5.16	1.2								●	●	●											
	DNMG150608-EM	15.5	12.7	6.35	5.16	0.8								●	●	●											
	DNMG150612-EM	15.5	12.7	6.35	5.16	1.2								●	○	○											
	DNMG150404-SML	15.5	12.7	4.76	5.16	0.4								○													
	DNMG150408-SML	15.5	12.7	4.76	5.16	0.8								○	○												
	DNMG150412-SML	15.5	12.7	4.76	5.16	1.2								○	○												
	DNMG150604-SML	15.5	12.7	6.35	5.16	0.4								○													
	DNMG150608-SML	15.5	12.7	6.35	5.16	0.8								○	○												
	DNMG150612-SML	15.5	12.7	6.35	5.16	1.2								○	○												
	DNMG150408-SMM	15.5	12.7	4.76	5.16	0.8								○	○	○											
	DNMG150412-SMM	15.5	12.7	4.76	5.16	1.2								○	○	○											
	DNMG150608-SMM	15.5	12.7	6.35	5.16	0.8								○	○	○											
	DNMG150612-SMM	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 Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	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

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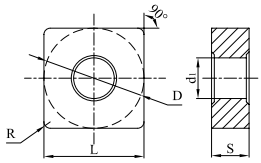
Turning Inserts - **Negative**

SN

Square 90° with Hole



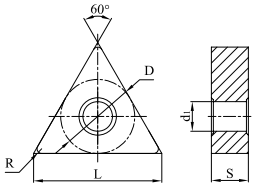
Part Number		Dimensions (mm)					Coated Carbides																	Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	SNMG120404-SF	12.7	12.7	4.76	5.16	0.4											○										
	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					●	○	●														
	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					●		●														
	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													○	○	○						
	SNMG120404-EM	12.7	12.7	4.76	5.16	0.4								○	○												
	SNMG120408-EM	12.7	12.7	4.76	5.16	0.8								●	○	○											
	SNMG120412-EM	12.7	12.7	4.76	5.16	1.2								●	●	●											
	SNMG120404-SMM	12.7	12.7	4.76	5.16	0.4								○	○												
	SNMG120408-SMM	12.7	12.7	4.76	5.16	0.8								○	○	○											
	SNMG120412-SMM	12.7	12.7	4.76	5.16	1.2								○	○	○											

● Stock ○ Check availability

Turning Inserts - **Negative**

TN

Triangle 60° with Hole



Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	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

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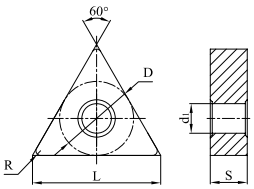
Turning Inserts - **Negative**

TN

Triangle 60° with Hole



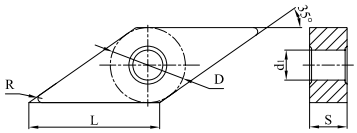
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	TNMG160408-LR	16.5	9.525	4.76	3.81	0.8						○	●														
	TNMG160412-LR	16.5	9.525	4.76	3.81	1.2					●	○	●														
	TNMG220408-LR	22	12.7	4.76	5.16	0.8							○														
	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																				●	●
	TNMG160408-EM	16.5	9.525	4.76	3.81	0.8								●													
	TNMG160412-EM	16.5	9.525	4.76	3.81	1.2								○													

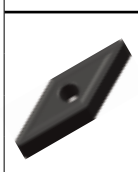
● Stock ○ Check availability

Turning Inserts - **Negative**

VN

Rhombic 35° with Hole



	Part Number	Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	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	16.6	9.525	4.76	3.81	0.4				○	●	○	●														
	VNMG160408-LM	16.6	9.525	4.76	3.81	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	16.6	9.525	4.76	3.81	0.4																				●	●
	VNMG160408-TP	16.6	9.525	4.76	3.81	0.8																				●	●

● Stock ○ Check availability

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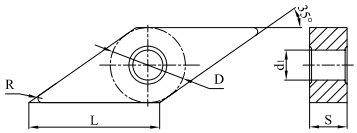
Turning Inserts - **Negative**

VN

Rhombic 35° with Hole



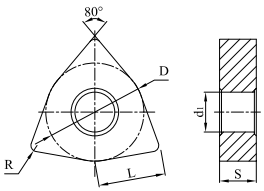
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	VNMG160404-EL	16.6	9.525	4.76	3.81	0.4								o	o												
	VNMG160408-EL	16.6	9.525	4.76	3.81	0.8								o	o												
	VNMG160412-EL	16.6	9.525	4.76	3.81	1.2								o	o												
	VNMG160408-EM	16.6	9.525	4.76	3.81	0.8								o	o	o											
	VNMG160412-EM	16.6	9.525	4.76	3.81	1.2								o	o	o											
	VNMG160404-SML	16.6	9.525	4.76	3.81	0.4								o													
	VNMG160408-SML	16.6	9.525	4.76	3.81	0.8								o	o												
	VNMG160412-SML	16.6	9.525	4.76	3.81	1.2								o	o												
	VNMG160408-SMM	16.6	9.525	4.76	3.81	0.8								o	o	o											
	VNMG160412-SMM	16.6	9.525	4.76	3.81	1.2								o	o	o											

● Stock ○ Check availability

Turning Inserts - **Negative**

WN

Trigon 80° with Hole



Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	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				○	●		●														
	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

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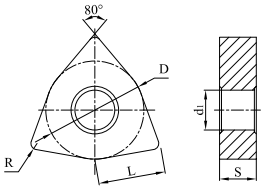
Turning Inserts - **Negative**

WN

Trigon 80° with Hole



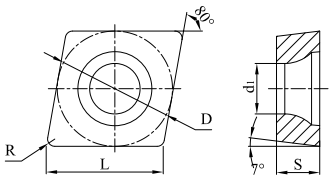
Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	WNMG080404-UK	8.7	12.7	4.76	5.16	0.4													○	○	○						
	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													○	○	○						
	WNGG080404-AL	8.7	12.7	4.76	5.16	0.4																					
	WNGG080408-AL	8.7	12.7	4.76	5.16	0.8																					
	WNGG Grade Reference is FN6115																										
	WNMG080404-EL	8.7	12.7	4.76	5.16	0.4									●	○											
	WNMG080408-EL	8.7	12.7	4.76	5.16	0.8									●	○											
	WNMG080412-EL	8.7	12.7	4.76	5.16	1.2									●	○											
	WNMG080408-EM	8.7	12.7	4.76	5.16	0.8								●	●	●											
	WNMG080412-EM	8.7	12.7	4.76	5.16	1.2								●	●	●											
	WNMG080404-SML	8.7	12.7	4.76	5.16	0.4								○													
	WNMG080408-SML	8.7	12.7	4.76	5.16	0.8								○	○												
	WNMG080412-SML	8.7	12.7	4.76	5.16	1.2								○	○												
	WNMG080408-SMM	8.7	12.7	4.76	5.16	0.8								○	○												
	WNMG080412-SMM	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 Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	CCMT060202-MM	6.5	6.35	2.38	2.8	0.2	●	●	○			○	●	○												○	○
	CCMT060204-MM	6.5	6.35	2.38	2.8	0.4	○	●	○			○	●	○												○	○
	CCMT060208-MM	6.5	6.35	2.38	2.8	0.8	○	●	○			○	○													○	○
	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

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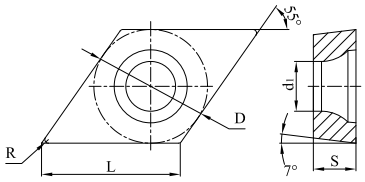
Turning Inserts - **Positive**

DC

Rhombic 55° with Hole



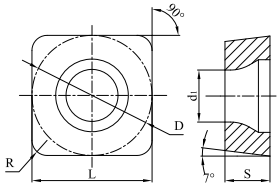
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	DCMT070202-MM	7.8	6.35	2.38	2.8	0.2	○	●	○			○	●													○	○
	DCMT070204-MM	7.8	6.35	2.38	2.8	0.4	○	●	○			○	●													○	○
	DCMT070208-MM	7.8	6.35	2.38	2.8	0.8						○	○														
	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	○	○	○	○	○	○	●						○		○						○
	DCMT11T312-GP	11.6	9.525	3.97	4.4	1.2							○														
	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 Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	SCMT09T304-MM	9.525	9.525	3.97	4.4	0.4	○	●	○			○	○														
	SCMT09T308-MM	9.525	9.525	3.97	4.4	0.8	●	●	●			○	●														
	SCMT09T304-GP	9.525	9.525	3.97	4.4	0.4	○		○	○			○						○	○	○					○	○
	SCMT09T308-GP	9.525	9.525	3.97	4.4	0.8	○	○	○	○		○							○	○	○						
	SCMT120404-GP	12.7	12.7	4.76	5.56	0.4	○		○	○		○							○		○					○	
	SCMT120408-GP	12.7	12.7	4.76	5.56	0.8	○	○	○	○	○	○							○	○	○					○	
	SCGX09T304-AL	9.525	9.525	3.97	4.4	0.4																○	○	●			
	SCGX09T308-AL	9.525	9.525	3.97	4.4	0.8																○	○	●			
	SCGX120404-AL	12.7	12.7	4.76	5.5	0.4																○	○	●			
	SCGX120408-AL	12.7	12.7	4.76	5.5	0.8																○	○	●			

● Stock ○ Check availability

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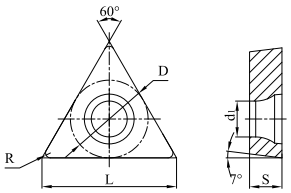
Turning Inserts - **Positive**

TC

Triangle 60° with Hole



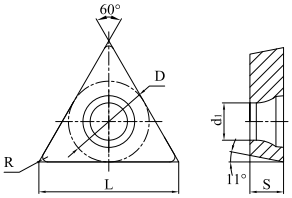
Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	TCMT110202-MM	11	6.35	2.38	2.8	0.2	○	●	○			○	●													○	○
	TCMT110204-MM	11	6.35	2.38	2.8	0.4	○	●	○			○	●													○	○
	TCMT110208-MM	11	6.35	2.38	2.8	0.8						○	○														
	TCMT16T304-MM	16.5	9.525	3.97	4.4	0.4	○	●	○			○	○														
	TCMT16T308-MM	16.5	9.525	3.97	4.4	0.8	●	●	●			○	○														
	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**

TP

Triangle 60° with Hole

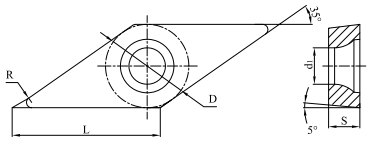


Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	TPMT110202-MM	11	6.35	2.38	2.8	0.2	○	○	○				●														
	TPMT110204-MM	11	6.35	2.38	2.8	0.4	○	○	○				●														
	TPMT110304-MM	11	6.35	3.18	3.4	0.4	○	○	○																	○	○

● Stock ○ Check availability

VB

Rhombic 35° with Hole



Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	VBMT110304-MM	11.2	6.35	3.18	2.8	0.4	○	●	○			○	●													○	○
	VBMT110308-MM	11.2	6.35	3.18	2.8	0.8							○														
	VBMT160402-MM	16.6	9.525	4.76	4.4	0.2						○	●	○													
	VBMT160404-MM	16.6	9.525	4.76	4.4	0.4	●	●	●			○	●	○		○										○	○
	VBMT160408-MM	16.6	9.525	4.76	4.4	0.8	●	●	●			○	●	●	○	○										○	○
	VBMT160404-GP	16.6	9.525	4.76	4.4	0.4	○	○	○	●	○	○	●						○		○					○	○
	VBMT160408-GP	16.6	9.525	4.76	4.4	0.8	○	○	○	○		○	●						○		○					○	○
	VBMT160412-GP	16.6	9.525	4.76	4.4	1.2	○		○										○								

● Stock ○ Check availability

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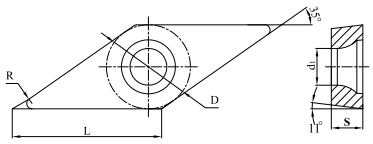
Turning Inserts - **Positive**

VC

Rhombic 35° with Hole



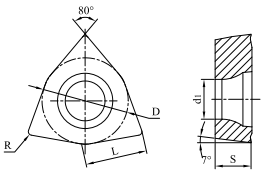
Part Number		Dimensions (mm)					Coated Carbides															Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	VCMT160404-MM	16.6	9.525	4.76	4.4	0.4	o	o	o																	
	VCMT160408-MM	16.6	9.525	4.76	4.4	0.8	o	o	o																	
	VCMT110304-GP	11.2	6.35	3.18	2.8	0.4	o		o	o									o						o	o
	VCMT110308-GP	11.2	6.35	3.18	2.8	0.8			o	o									o						●	o
	VCMT160404-GP	16.6	9.525	4.76	4.4	0.4	o		o	o		o	o						o							o	o
	VCMT160408-GP	16.6	9.525	4.76	4.4	0.8	o		o	o		o	o						o							o	
	VCGT110304-GP	11.2	6.35	3.18	2.8	0.4							o														
	VCGT160404-GP	16.6	9.525	4.76	4.4	0.4							o														
	VCGT160408-GP	16.6	9.525	4.76	4.4	0.8							o														
	VCGX110302-AL	11.2	6.35	3.18	2.8	0.2																o		●			
	VCGX110304-AL	11.2	6.35	3.18	2.8	0.4																o	o	●			
	VCGX110308-AL	11.2	6.35	3.18	2.8	0.8																o	o	●			
	VCGX160402-AL	16.6	9.525	4.76	4.4	0.2																o	o				
	VCGX160404-AL	16.6	9.525	4.76	4.4	0.4																o	o	●	o		
	VCGX160408-AL	16.6	9.525	4.76	4.4	0.8																o	o	●	o		
	VCGX160412-AL	16.6	9.525	4.76	4.4	1.2																o		o			
	VCGX220512-AL	22.1	12.7	5.56	5.6	1.2																o		●			
	VCGX220516-AL	22.1	12.7	5.56	5.6	1.6																o		●			
	VCGX220530-AL	22.1	12.7	5.56	5.6	3																o		●			

● Stock ○ Check availability

Turning Inserts - **Positive**

WC

Trigon 60° with Hole



Part Number		Dimensions (mm)					Coated Carbides																Uncoated Carbides			Cermets	
		L	D	S	d_1	R	FP110C	FP120C	FP130C	FM130C	FM3115	FM3120	FM3125	FS115P	FS120P	FS130P	FS3015	FS3025	FK1015	FK1020	FK1025	FN120P	FN6110	FN6120	FN6130	FP90TM	FP30TM(C)
	WCMT06T304-GP	6.5	9.525	3.97	4.4	0.4	o		o										o							o	o
	WCMT06T308-GP	6.5	9.525	3.97	4.4	0.8	o		o										o							o	

● Stock ○ Check availability

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Recommended Cutting Data - **Negative Inserts**

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	Finishing	Continuous	TP QF	FP30TM	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
						FP110C	200-260-360	0.40-0.80-2.00	0.08-0.15-0.35
						FP120C	200-260-360	0.40-0.80-2.00	0.08-0.15-0.35
				Interrupted		FP130C	180-240-320	0.40-0.80-2.00	0.08-0.15-0.35
			Semi-finishing	Continuous	QM	FP30TM	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
						FP110C	180-230-320	0.80-2.00-4.00	0.15-0.20-0.40
						FP120C	180-230-320	0.80-2.00-4.00	0.15-0.20-0.40
				Interrupted		FP130C	160-210-300	0.80-2.00-4.00	0.15-0.20-0.40
				Continuous	TP	FP90TM	200-260-330	0.50-1.20-3.00	0.10-0.20-0.35
			Roughing	Continuous	QR	FP110C	130-190-270	1.50-3.50-6.00	0.20-0.30-0.60
						FP120C	120-170-250	1.50-3.50-6.00	0.20-0.30-0.60
				Interrupted		FP130C	110-150-230	1.50-3.50-6.00	0.20-0.30-0.60
			Heavy Cutting	Continuous	QH	FP110C	100-150-240	3.00-6.00-12.00	0.35-0.60-1.10
						FP120C	90-140-210	3.00-6.00-12.00	0.35-0.60-1.10
				Interrupted		FP130C	80-130-190	3.00-6.00-12.00	0.35-0.60-1.10
	Carbon Steel & Alloy Steel	HB180-280	Finishing	Continuous	QF	FP30TM	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
						FP110C	180-230-320	0.40-0.80-2.00	0.08-0.15-0.35
						FP120C	180-230-320	0.40-0.80-2.00	0.08-0.15-0.35
				Interrupted		FP130C	160-200-300	0.40-0.80-2.00	0.08-0.15-0.35
			Semi-finishing	Continuous	QM	FP30TM	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
						FP110C	140-210-300	0.80-2.00-4.00	0.15-0.20-0.40
						FP120C	140-210-300	0.80-2.00-4.00	0.15-0.20-0.40
				Interrupted		FP130C	120-190-280	0.80-2.00-4.00	0.15-0.20-0.40
				Continuous	TP	FP90TM	180-230-310	0.50-1.20-3.00	0.10-0.20-0.35
	Carbon Steel & Alloy Steel	HB180-280	Roughing	Continuous	QR	FP110C	120-180-260	1.50-3.50-6.00	0.20-0.30-0.60
						FP120C	110-160-240	1.50-3.50-6.00	0.20-0.30-0.60
				Interrupted		FP130C	100-140-220	1.50-3.50-6.00	0.20-0.30-0.60
			Heavy Cutting	Continuous	QH	FP110C	90-140-230	3.00-6.00-12.00	0.35-0.60-1.10
						FP120C	80-130-200	3.00-6.00-12.00	0.35-0.60-1.10
				Interrupted		FP130C	70-120-180	3.00-6.00-12.00	0.35-0.60-1.10
	Carbon Steel & Alloy Steel	HB280-350	Finishing	Continuous	QF	FP30TM	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
						FP110C	150-180-250	0.40-0.80-2.00	0.08-0.15-0.35
						FP120C	150-180-250	0.40-0.80-2.00	0.08-0.15-0.35
				Interrupted		FP130C	130-150-230	0.40-0.80-2.00	0.08-0.15-0.35
			Semi-finishing	Continuous	QM	FP30TM	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
						FP110C	110-170-240	0.80-2.00-4.00	0.15-0.20-0.40
						FP120C	110-170-240	0.80-2.00-4.00	0.15-0.20-0.40
				Interrupted		FP130C	100-150-220	0.80-2.00-4.00	0.15-0.20-0.40
				Continuous	TP	FP90TM	150-210-280	0.50-1.20-3.00	0.10-0.15-0.35
			Roughing	Continuous	QR	FP110C	100-150-210	2.00-3.50-6.50	0.20-0.30-0.60
						FP120C	90-140-200	2.00-3.50-6.50	0.20-0.30-0.60
				Interrupted		FP130C	80-120-180	2.00-3.50-6.50	0.20-0.30-0.60
			Heavy Cutting	Continuous	QH	FP110C	80-110-190	3.00-6.00-12.00	0.35-0.60-1.10
						FP120C	70-100-170	3.00-6.00-12.00	0.35-0.60-1.10
				Interrupted		FP130C	60-90-150	3.00-6.00-12.00	0.35-0.60-1.10

Recommended Cutting Data - **Negative Inserts**

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	Martensitic Ferrite SUS410 SUS430etc.	≤HB230	Finishing	General	SF	FS3015	120-190-250	0.10-0.80-1.50	0.08-0.10-0.30
						FM3120	100-150-200	0.10-0.80-1.50	0.08-0.12-0.25
			Semi-Finishing	Continuous	LM	FM3115	120-160-200	0.80-1.80-3.50	0.08-0.18-0.30
				General		FM3120	60-130-180	0.80-1.80-3.50	0.08-0.20-0.40
				Interrupted		FM130C	180-230-280	0.80-1.80-3.50	0.08-0.18-0.40
						FM3125	60-130-180	0.80-1.80-3.50	0.08-0.20-0.40
			Roughing	Continuous	LR	FM3115	200-250-300	1.50-3.00-5.00	0.15-0.30-0.50
				General		FM3120	60-130-180	1.50-3.00-5.00	0.15-0.30-0.50
				Interrupted		FM3125	60-130-180	1.50-3.00-5.00	0.15-0.30-0.50
	Austenite SUS201 SUS304 SUS316etc.	≤HB250	Finishing	General	SF	FS3015	120-190-250	0.10-0.80-1.50	0.08-0.10-0.30
						FM3120	80-130-180	0.10-0.80-1.50	0.08-0.12-0.25
			Semi-Finishing	Continuous	LM	FM3115	100-130-160	0.80-1.80-3.50	0.08-0.18-0.30
				General		FM3120	60-110-150	0.80-1.80-3.50	0.08-0.20-0.40
				Interrupted		FM130C	160-200-240	0.80-1.80-3.50	0.08-0.18-0.40
						FM3125	60-110-150	0.80-1.80-3.50	0.08-0.20-0.40
			Rough Finishing	Continuous	LR	FM3115	180-230-280	1.50-3.00-5.00	0.15-0.30-0.50
				General		FM3120	60-110-150	1.50-3.00-5.00	0.15-0.30-0.50
				Interrupted		FM3125	60-110-150	1.50-3.00-5.00	0.15-0.30-0.50

Recommended Cutting Data - **Negative Inserts**

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)
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		FK1025	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		FK1025	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		FK1025	160-200-330	1.00-2.50-6.00	0.20-0.30-0.60
S	Heat Resistant Super Alloy (HRSA) Titanium Alloy	≤HRC45	Finishing to Semi-Finishing	Continuous	EL	FS115P	20-40-70	0.50-1.50-3.00	0.10-0.15-0.22
				General		FS120P	20-40-70	0.50-1.50-3.00	0.10-0.15-0.22
				Interrupted		FS130P	20-30-40	0.50-1.50-3.00	0.10-0.15-0.22
				Continuous	SML	FS115P	20-40-70	0.50-1.50-3.00	0.10-0.20-0.30
				General		FS120P	20-40-70	0.50-1.50-3.00	0.10-0.20-0.30
				Interrupted		FS130P	20-30-40	0.50-1.50-3.00	0.10-0.20-0.30
			Semi-Finishing	Continuous	EM	FS115P	20-40-70	1.00-2.50-4.00	0.10-0.20-0.35
				General		FS120P	20-40-70	1.00-2.50-4.00	0.10-0.20-0.35
				Interrupted		FS130P	20-30-40	1.00-2.50-4.00	0.10-0.20-0.35
				Continuous	SMM	FS115P	20-40-70	1.00-2.50-4.00	0.10-0.25-0.40
				General		FS120P	20-40-70	1.00-2.50-4.00	0.10-0.25-0.40
				Interrupted		FS130P	20-30-40	1.00-2.50-4.00	0.10-0.25-0.40

Recommended Cutting Data - **Positive Inserts**

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	Finishing	Continuous	MM	FP30TM	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
						FP110C	180-220-300	0.10-0.60-1.50	0.05-0.10-0.20
				Interrupted		FP120C	160-200-260	0.10-0.60-1.50	0.05-0.10-0.20
						FP130C	170-200-280	0.10-0.60-1.50	0.05-0.10-0.20
			Finishing & Semi-finishing	Continuous	GP	FP30TM	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
						FP110C	170-200-280	0.40-1.00-2.50	0.07-0.12-0.30
				Interrupted		FP120C	140-180-230	0.40-1.00-2.50	0.07-0.12-0.30
						FP130C	150-180-260	0.40-1.00-2.50	0.07-0.12-0.30
	Carbon Steel & Alloy Steel	HB180-280	Finishing	Continuous	MM	FP30TM	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
						FP110C	150-180-260	0.10-0.60-1.50	0.05-0.10-0.20
				Interrupted		FP120C	130-160-220	0.10-0.60-1.50	0.05-0.10-0.20
						FP130C	140-160-240	0.10-0.60-1.50	0.05-0.10-0.20
			Finishing & Semi-finishing	Continuous	GP	FP30TM	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
						FP110C	140-160-240	0.40-1.00-2.50	0.07-0.12-0.30
				Interrupted		FP120C	110-140-210	0.40-1.00-2.50	0.07-0.12-0.30
						FP130C	120-140-220	0.40-1.00-2.50	0.07-0.12-0.30
		HB280-350	Finishing	Continuous	MM	FP30TM	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
						FP110C	130-160-230	0.10-0.60-1.50	0.05-0.10-0.20
				Interrupted		FP120C	110-140-200	0.10-0.60-1.50	0.05-0.10-0.20
						FP130C	120-140-210	0.10-0.60-1.50	0.05-0.10-0.20
			Finishing & Semi-finishing	Continuous	GP	FP30TM	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
						FP110C	120-160-210	0.40-1.00-2.50	0.07-0.12-0.30
			Finishing & Semi-finishing	Interrupted	GP	FP120C	90-140-210	0.40-1.00-2.50	0.07-0.12-0.30
						FP130C	100-140-220	0.40-1.00-2.50	0.07-0.12-0.30

Recommended Cutting Data - **Positive Inserts**

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	Martensitic Ferrite SUS410 SUS430	≤HB300	Finishing to Semi-Finishing	Continuous	MM	FM3115	200-250-300	0.50-0.70-1.50	0.05-0.10-0.20
				General		FM3120	40-80-140	0.50-0.70-1.50	0.05-0.10-0.20
				Interrupted		FM3125	40-80-140	0.50-0.70-1.50	0.05-0.10-0.20
			Semi-Finishing to Rough-Finish	Continuous	GP	FM3115	60-100-160	0.40-1.00-2.50	0.07-0.12-0.25
				General		FM3120	40-80-140	0.40-1.00-2.50	0.07-0.12-0.30
				Interrupted		FM130C	120-150-180	0.40-1.00-2.50	0.07-0.12-0.30
						FM3125	40-80-140	0.40-1.00-2.50	0.07-0.12-0.30
	Austenite SUS201 SUS304 SUS316	≤HB250	Finishing to Semi-Finishing	Continuous	MM	FM3115	200-240-300	0.50-0.70-1.50	0.05-0.10-0.20
				General		FM3120	40-70-140	0.50-0.70-1.50	0.05-0.10-0.20
				Interrupted		FM3125	40-70-140	0.50-0.70-1.50	0.05-0.10-0.20
			Semi-Finishing to Rough-Finish	Continuous	GP	FM3115	50-90-150	0.40-1.00-2.50	0.07-0.12-0.25
				General		FM3120	40-70-140	0.40-1.00-2.50	0.07-0.12-0.30
				Interrupted		FM130C	120-140-180	0.40-1.00-2.50	0.07-0.12-0.30
						FM3125	40-70-140	0.40-1.00-2.50	0.07-0.12-0.30
K	Ferrosteel FC200 FC250 FC300etc.	≤HB250	Finishing to Semi-Finishing	Continuous	GP	FK1015	180-280-380	0.30-0.80-2.00	0.05-0.12-0.25
				General		FK1020	180-260-380	0.30-0.80-2.00	0.05-0.12-0.25
				Interrupted		FK1025	160-250-350	0.30-0.80-2.00	0.05-0.12-0.25
	Nodular Cast Iron FCD450 FCD500 FCD600etc.	≤HB270	Finishing to Semi-Finishing	Continuous	GP	FK1015	160-250-350	0.30-0.80-2.00	0.05-0.12-0.25
				General		FK1020	160-220-350	0.30-0.80-2.00	0.05-0.12-0.25
				Interrupted		FK1025	140-230-330	0.30-0.80-2.00	0.05-0.12-0.25
N	Aluminum	Harden HB90-100	Finishing to Semi-Finishing	General	AL	FN6110	250-700-970	0.50-1.20-3.00	0.05-0.10-0.30
		Untreated HB60-90				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
						FN120P	950-1300-2000	0.50-1.20-3.50	0.05-0.10-0.30

Appendix

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Cross Reference of Grades by Manufacturer

ISO	Coating	Code	FORDMAX	Sandvik	Seco	Iscar	KennaMetal	Walter	Mitsubishi	Sumitomo	Tungaloy	Kyocera	Taegutec	Korloy
P	CVD	P01	FP110C	GC4205 GC4305	TP0500 TP0501 TP1000	IC9150 IC8150	KCP05B KC9105	WPP05S WPP05	UE6105 UE6005	AC810P	T9205 T9115 T9015	CA510 CA5505	TT8105 TT8115	NC3010
		P10	FP110C	GC4215 GC4315 GC4415	TP0500 TP0501 TP1500 TP1501	IC9150 IC8150	KCP10B KC9110 KC9315	WPP10S WPP10	UE6010 UE6110 MC6015	AC810P AC8025P AC820P	T9215 T9115 T9015	CA515 CA5515	TT8105 TT8115	NC3010 NC3215
		P20	FP120C FP130C	GC4225 GC4325 GC4425	TP1500 TP1501 TP2500 TP2501 TP2000	IC9250 IC8250	KCP25B KC9125 KC9225 KC9325	WPP20S WPP20	UE6120 UE6020 MC6025	AC820P	T9225 T9125 T9025	CA525 CA5525	TT8125 TT8115 TT5100	NC3225 NC3120
		P30	FP120C FP130C	GC4235 GC4335	TP2500 TP2501 TP3501 TP3500	IC635 IC9350 IC8350	KCP30B KC9140 KC9240	WPP30S WPP30	MC6035 UE6035	AC830P AC630M	T9235 T9135	CA530 CA5535	TT8125 TT5100 TT8135 TT7100	NC3030 NC5330
		P40	FP130C	GC4240 GC4335	TP3500 TP40	IC635	KCP40B KC9240	WPP30S WPP30	MC6035 UH6400	AC830P AC630M	T9235 T9135	CA530 CA5535	TT5100 TT8135 TT7100	NC3030 NC5330
	PVD	P01										PR1005		
		P10		GC1525 GC1025	CP200 TH1000 TS2000	IC250 IC507 IC570	KCU10 KC5010 KC5510		MS6015 VP10MF		AH710	PR1005 PR1115 PR1215		PC8110
		P20	FM3125	GC1525 GC1020 GC1125 GC1025	CP250 TS2500	IC908 IC928 IC1008 IC1028 IC3028	KCU25 KC5025 KC5525		VP15TF VP20MF	AC520U	AH710 AH330	PR930 PR1025 PR1115 PR1215 PR1425 PR1225	TT9020 TT7010 TT7220	PC5300 PC8115
		P30	FM3125	GC1125 GC1025	CP500	IC928 IC1008 IC1028 IC3028	KC5525		VP15TF VP20MF	AC530U	GH330 GH730 AH120 AH330 AH740	PR1025 RR1225 PR1535	TT8020 TT9020 TT7220	
		P40	FM3125	GC1145 GC2145	CP500	IC928 IC1008 IC1028	KC5525		VP15TF VP20MF		AH140		TT8020	

Cross Reference of Cermet Grades by Manufacturer

ISO	Coating	Code	FORDMAX	Sandvik	Seco	Iscar	KennaMetal	Walter	Mitsubishi	Sumitomo	Tungaloy	Kyocera	Taegutec	Korloy
P	None	P01				IC20N	KT1120		NX1010	T110A T1000A	NS520	TN610		CN20
		P10	FP90TM	CT5015	TP1020	IC20N IC75T	KT1120 KT175		NX2525	T1200A T1500A	NS520 NS9530	TN610 TN60	CT3000	CN20 CN1000 CN1500
		P20	FP90TM	CT5015	TP1020	IC20N IC75T IC30N	KT125		NX2525 NX3035	T1200A T1500A	NS9530 NS530 NS730	TN620 TN90	CT3000	CN1000 CN1500 CN2000
		P30				IC75T IC30N			NX3035 NX4545	T250A	NS740			CN2500
	PVD	P01- P20	FP30TM	GC1525	TP1030	IC520N IC530N	KT315 KTP10		AP25N VP25N MP3025 VP45N	T1500Z T2000Z T3000Z	J530 GT9530 GT530 GT730	PV710 PV720	PV3010	CC1500 CC2500

Cross Reference of Grades by Manufacturer

ISO	Coating	Code	FORDMAX	Sandvik	Seco	Iscar	KennaMetal	Walter	Mitsubishi	Sumitomo	Tungaloy	Kyocera	Taegutec	Korloy
M	PVD	M10	FM3115	GC1105 GC1115 GC1525		IC520	KCS10	WXM10	VP10RT	AC510U	AH110 AH8005	PR1025 PR1215	TT5080	PC8105
		M20	FM3120	GC1025 GC1115 GC1125 GC1525	TS2000 TS2500 CP200	IC520 IC507 IC807 IC907	KC5010 KC5510 KCU10	WSM10 WSM10S	VP10RT VP15TF VP20MF VP20RT UP20M	AC520U	AH120 AH630 AH8015 SH725 GH330	PR930 PR1025 PR1125 PR1215 PR1425 PR1225	TT9030 TT8010	PC8110 PC8115
		M30	FM3120 FM3125	GC1125 GC2035	TS2500 CP200 CP500	IC520 IC507 IC807 IC907 IC308 IC3028	KC5025 KC5525 KCU25	WSM20 WSM21 WSM20S	VP15TF VP20MF VP20RT UP20M MP7035	AC530U AC6040M	AH630 AH725 SH725 SH730 GH730	PR1125 PR1225 PR1535	TT9080 TT8020	PC5300 PC9030
		M40	FM3125	GC1125 GC2035	CP500 CP600	IC3028 IC308 IC908 IC928	KC5025 KC5525 KCU25	WSM30 WSM30S	MP7035	AC6040M	AH645			PC5400
	CVD	M10	FM130C	GC2015 GC2220		IC9250 IC520M	KCM15B	WAM10	MC7015	AC610M		CA6515	TT9215	NC9115
		M20	FM130C	GC1515 GC2015 GC2025 GC2220	TM2000 TP200	IC9025 IC9350 IC4050	KCM15B KCM25B	WAM20	MC7015 US7020 MC7025	AC6020M AC630M	T6120	CA6525	TT9215 TT9225	NC9125 NC9025 NC5330
		M30	FM130C	GC2040 GC235	TM2000 TM4000 TP40	IC9350 IC4050 IC635	KCM25B KCM35B	WAM20	MC7025 US735	AC6030M AC630M AC830P	T6130		TT9225 TT9235	NC9135
		M40	FM130C	GC235	TM4000	IC635	KCM35B KCP40B		US735				TT9235	
K	CVD	K01	FK1015	GC3205	TK1001 TH1500 TK1000	IC5005 IC8150	KCP05B KCP10B KCL05B	WKK10S WAK10	UC5105 MC5005	AC4010K AC405K	T5105	CA310 CA4010 CA4505 CA5505	TT7005	NC6205 NC6210
		K10	FK1015 FK1020	GC3205 GC3210 GC3215	TK1001 TK2001 TK2000 TP0500 TP1500	IC5005 IC5010	KCK15B TN5015B	WKK10S WAK10	UC5105 UC5115 MC5005 MC5015	AC4015K AC405K AC415K	T515 T5105 T5115	CA315 CA4515 CA4010 CA4115 CA4120	TT7005 TT7015	NC6205 NC6210 NC315K
		K20	FK1015 FK1020 FK1025	GC4325 GC3215 GC3220 GC3225	TK2001 TP2500	IC5010	KCK20B KCP25B	WKK10S WKK20S WAK10 WAK20	UC5115 MC5015	AC4015K AC415K AC420K	T5115 T5125	CA315 CA4515 CA4115 CA4120 CA4515	TT7015 TT7310	NC6215 NC315K NC5330 PC5300
		K30	FK1025	GC3040 GC4335	TK2001 TP2500 TP200			WAK30 WKP30S	UC5115 MC5015	AC420K AC820P	T5125	CA320 CA4120		NC5330 PC5300
N	PVD	N01	FN6110 FN120P	H10 H13A			K605			H1 H2	KS05F	KW10		H01
		N10	FN6110 FN120P		890 H15	IC20	K313 K110M THM	WK10	HTi10	EH10 EH510	TH10 H10T	KW10 GW15	K10	
		N20	FN6120 FN120P		HX KX 883 H15 H25	IC20	K715 KMF K600			G10E EH20 EH520	KS15F		K20	
		N30	FN6130 FN120P		H25 883		G13 THR							
S	PVD	S10/ S20	FS115P FS120P FS3015	GC1105	TS2000 TS2500	IC807 IC907	KCU10 KC5010	WSM10S	VP10RT MP9015	AC510U AC5015S	AH8015 AH905 SH730 AH110	PR005S PR015S	TT8010	AH8005 AH8015
		S20/ S30	FS130P FS3025	GC1115 GC1125	CP500	IC808 IC908	KCU25 KC5025	WSM20S	MP9015	AC510U AC520U AC5025S	AH8015 AH120 AH725	PR015S PR1535	TT8020	AH8015 AH7025

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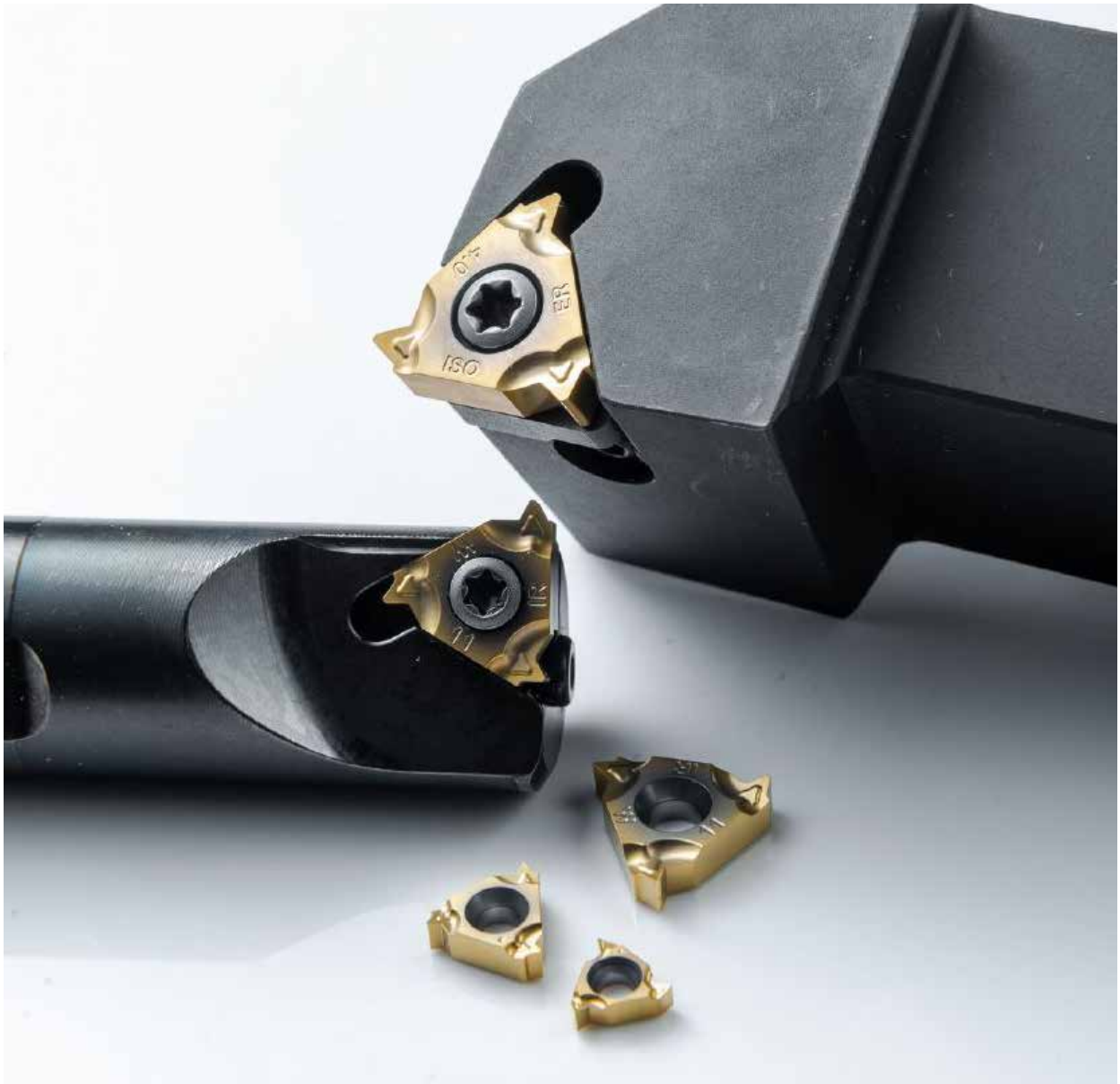
Cross Reference of Chip Breakers by Manufacturer

ISO	Coating	Code	FORDMAX	Sandvik	Seco	Iscar	KennaMetal	Walter	Mitsubishi	Sumitomo	Tungaloy	Kyocera	Taegutec	Korloy
P	Negative	Finishing	QF TP	PF QF LC	FF1 FF2 MF2	NF F3P	FP FN	FP5	LP SA SY SH	LU SU SE	TS TSF ZF	PP HQ CQ XQ	FA FG	VL VF VB
		Semi-finishing	QM TP	PM QM	M3 MF5	TF GN M3P	MP MN	MP3 MP5	MA MP	GU GE UX	TM DM AM	PQ PG PS GS PT	MC MP PC MT	VM LP MP GM
		Rough-finish	QR	PR	M5 M6 MR6 MR7	NR T3P	RP RN	RP5 RP7	RP GH	MU ME MX	TH THS	GT PH	RT	GR
		Heavy Turning	QH	HR	RR9	R3P	RH	NRR	HX HV	HU HW HF	TU TUS		HT HY HD HZ	VT VH
	Positive	Finishing	MM	PF UF	MF2 F1	PF F3P	FP LF	FP4	FP FV LP	LU LB SU	PSF PS PSS	PP XQ	FA FG	VF VL
		Semi-finishing	GP	PM UM	M3 F2	PP SM 14	MP	MP4	MP MV	SF MU	PM	HQ	PC MT	HMP MP C25
M	Negative	Finishing	SF	MF	MF1	VL SF F3M	FP FS LF	NF4 NMS	FH SH LM	SU EF	SF	MQ GU	EA	HA VP2
		Semi-finishing	LM	23 MM QM	M1 MF3 MF4	TF PP M3M	MS MP	NM4	MM MS MA	EX GU	SM	MS MU HU	FG SF EM MP	GS HS MM
		Rough-finish	LR	MR	M5 MF5	NM R3M	RP	NR4 NR5	RM RK GH	EM MU	SH	TK ST	ET	VM RM
	Positive	Finishing	MM	UF MF	F1	PF	LF	PM	FM LM	SU	PSF	GQ	FG	HFP VP1
		Semi-finishing-Roughing	MM GP	UM MM	MF2	SM	MF	PM5	MM MV	MU	PS PM	MQ	SA	HMP C25

Cross Reference of Chip Breakers by Manufacturer

ISO	Coating	Code	FORDMAX	Sandvik	Seco	Iscar	KennaMetal	Walter	Mitsubishi	Sumitomo	Tungaloy	Kyocera	Taegutec	Korloy
K	Negative	Semi-finishing	UK	KF KM	M4	GN	FN UN	MK5	LK MK GK	UZ UX	CF CM	KQ KG C	KT	MK GR VR
		Rough-finish	HK	KR	M5 M6	NR	UN RP	RK5 RK7	GH RK	GZ	CH	KH GC ZS	RT	RK
	Positive	Finishing-Semi-Finishing	MM GP	KF KM		14 19	MF	FK6 MK4	MK	MU	CM	GK		HMP
N	Positive	General Machining	AL	AL	AL	AS	HP	PM2	AZ	AG	AL	AH	FL	AK
S	Negative	Finishing-Semi-Finishing	EL SML	SGF	MF1	PP	MS	MS3	MJ	EX	HRF	TK	ML	VP2
	Negative	Semi-finishing	EM SMM	SM	M1	TF	UP	NMS	MS	EG	HRM	MS	MGS	VP3

THREADING INSERTS



Threading Inserts Identification System

16 E R 1.50 ISO

① ② ③ ④ ⑤

① Insert Size	
Size	IC(mm)
11	6.35
16	9.525
22	12.7

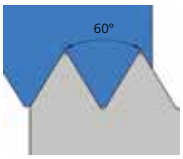
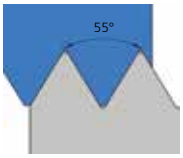
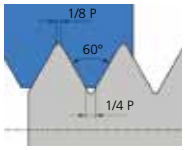
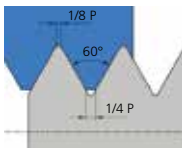
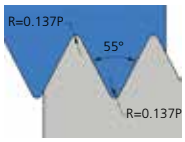
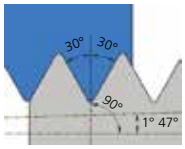
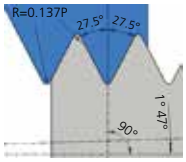
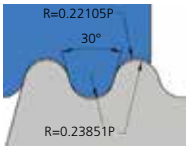
② Thread Style
E=External
I=Internal

③ Hand of Insert
R=Right
L=Left

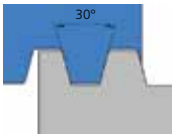
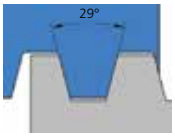
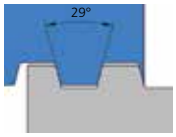
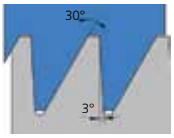
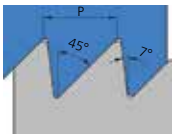
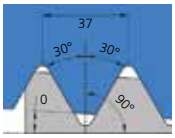
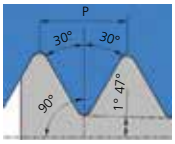
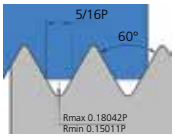
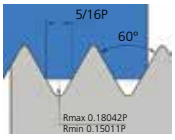
④ Pitch		
Full Profile		
mm	TPI	
0.35-5.0	72-5	
Partial Profile		
Size	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5

⑤ Thread Standard
60=Partial Profile 60°
55=Partial Profile 55°
ISO=ISO Metric
UN=American UN
W=Whitworth
NPT=National Pipe Thread
BSPT=British BSPT
ACME=American ACME
STACME=American Stub ACME
ABUT=American ABUT
API=API Thread
UNJ=American Aerospace Thread

Overview of Threading Inserts

Application	Thread Type	Thread Sketch	Thread Code	Pitch	Page
General Industry	Partial Profile 60° Thread		60°	0.5-5.0 (mm)	P58
	Partial Profile 55° Thread		55°	48-5 (TPI)	P59
	ISO Metric Thread		ISO	0.5-6.0 (mm)	P60 - P61
	American UN Thread		UN	24-8 (TPI)	P62 - P63
Thread fir pipe fittings and couplings for gas, water and sewage	Whitworth Thread		W	19-8 (TPI)	P64
	NPT Thread		NPT	27-8 (TPI)	P65
Thread for pipe fittings and couplings for gas, steam and water lines	Britsh Standard Pipe Thread		BSPT	28-11 (TPI)	P66
Thread for pipe couplings in food and Fire Fighting	Round D405 Thread		RD	8-4 (TPI)	P67

Overview of Threading Inserts

Application	Thread Type	Thread Sketch	Thread Code	Pitch	Page
Mechanical Transmission	Trapezoidal Thread		TR	1.5-6.0 (mm)	P68
	American ACME Thread		ACME	12-4 (TPI)	P69
	American Stub ACME Thread		STACME	8-4 (TPI)	P70
	Metric Buttress Thread		SAGE	4 (mm)	P71
	American Buttress Thread		ABUT	16 (TPI)	P71
Petroleum Standard thread	API Thread		API	4 (TPI)	P72
Petroleum, gas, casing pipe and oil pipe	API Round thread for piping and casing		APIRD	10-8 (TPI)	P73
Aviation	Metric Aerospace Thread		MJ	1.0-2.0 (mm)	P74
	American Aerospace Thread		UNJ	32-16 (TPI)	P75

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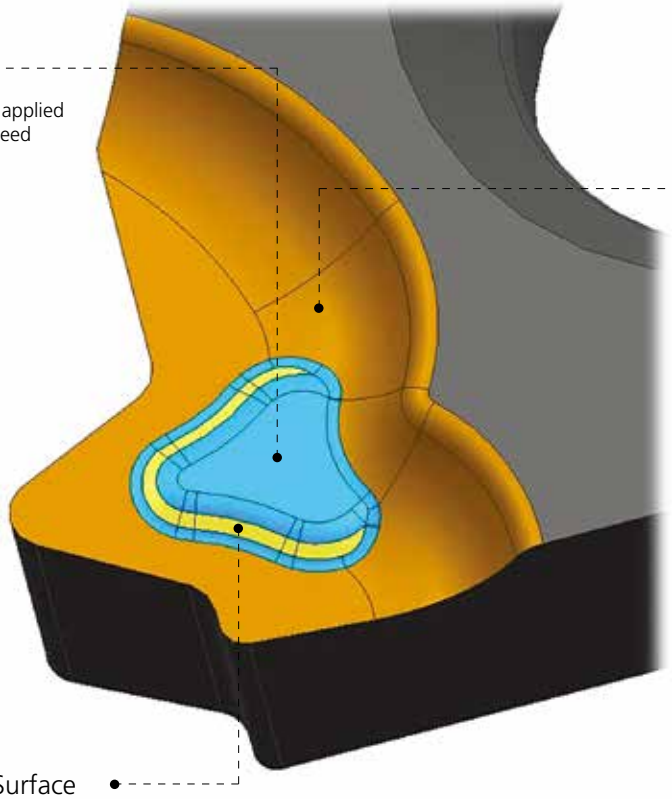
Advanced Geometry



Raised Platform

Excellent chip control, when applied to the radial infeed, flank infeed and incremental infeed

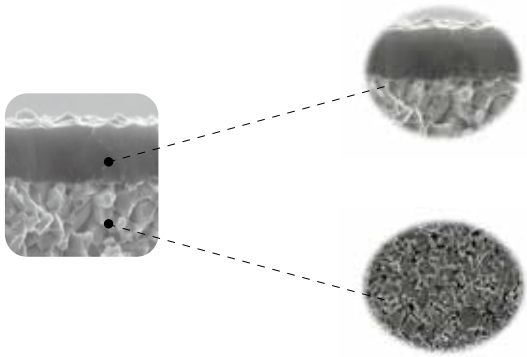
Wide Chip Area

Smooth chip discharge due to wide chip space

Curved Surface

Increased cooling area to reduce crater wear

FT325M - Universal Grade for Thread Turning



New TiAlN nano-structure coating

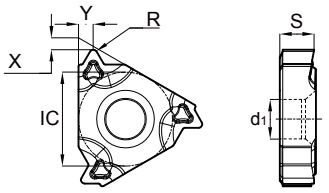
New TiAlN nano-structure coating with excellent heat resistance and bonding resistance

Micro-grain carbide substrate

Micro-grain carbide substrate with high wear resistance and good toughness, suitable for thread turning a wide range of materials.

Partial Profile 60°

▶ External

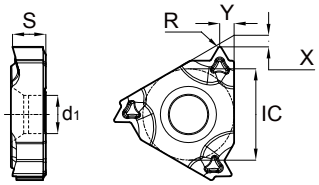


Ordering Code		Pitch (mm)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER A60	0.5-1.5	0.8	0.9	0.08	9.525	3.47	4	●
	16ER AG60	0.5-3.0	1.1	1.5	0.08	9.525	3.47	4	●
	16ER G60	1.75-3.0	1.2	1.7	0.25	9.525	3.47	4	●
	22ER N60	3.5-5.0	1.7	2.5	0.51	12.7	4.71	5	●

● Stock ○ Available on request

Partial Profile 60°

▶ Internal



Ordering Code		Pitch (mm)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	08IR A60	0.5–1.5	0.6	0.7	0.08	5	2.25	2.68	●
	11IR A60	0.5–1.5	0.8	0.9	0.08	6.35	3	3.2	●
	16IR A60	0.5–1.5	0.8	0.9	0.08	9.525	3.47	4	●
	16IR AG60	0.5–3.0	1.1	1.5	0.08	9.525	3.47	4	●
	16IR G60	1.75–3.0	1.2	1.7	0.13	9.525	3.47	4	●
	22IR N60	3.5–5.0	1.7	2.5	0.25	12.7	4.71	5	●
									FA225P
	22IRG N60	3.5–5.0	1.8	2.5	0.36	12.7	4.71	5	○

● Stock ○ Available on request

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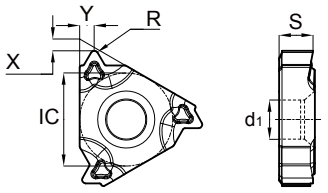
Partial Profile 55°

▶ External

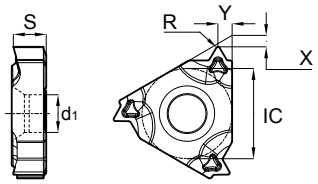


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER A55	48-16	0.8	0.9	0.08	9.525	3.47	4	●
	16ER AG55	48-8	1.1	1.5	0.08	9.525	3.47	4	●
	16ER G55	14-8	1.2	1.7	0.21	9.525	3.47	4	●
	22ER N55	7-5	1.7	2.5	0.44	12.7	4.71	5	●

● Stock ○ Available on request

Partial Profile 55°

▶ Internal

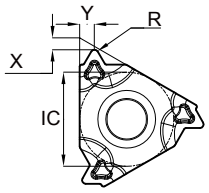


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR A55	48-16	0.8	0.9	0.08	6.35	3	3.2	●
	16IR A55	48-16	0.8	0.9	0.08	9.525	3.47	4	●
	16IR AG55	48-8	1.1	1.5	0.08	9.525	3.47	4	●
	16IR G55	14-8	1.2	1.7	0.21	9.525	3.47	4	●
	22IR N55	7-5	1.7	2.5	0.44	12.7	4.71	5	●
									FA225P
	08IRG A55	48-16	0.6	0.7	0.08	5	2.25	2.68	○

● Stock ○ Available on request

Metric 60°

▶ External



Ordering Code		Pitch (mm)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 1.00ISO	1.00	0.8	0.7	0.14	9.525	3.47	4	●
	16ER 1.25ISO	1.25	0.8	0.9	0.18	9.525	3.47	4	●
	16ER 1.50ISO	1.50	0.8	1.0	0.22	9.525	3.47	4	●
	16ER 1.75ISO	1.75	1.2	1.2	0.25	9.525	3.47	4	●
	16ER 2.00ISO	2.00	1.2	1.3	0.29	9.525	3.47	4	●
	16ER 2.50ISO	2.50	1.2	1.5	0.36	9.525	3.47	4	●
	16ER 3.00ISO	3.00	1.2	1.5	0.43	9.525	3.47	4	●
	22ER 3.50ISO	3.50	1.6	2.3	0.45	12.7	4.71	5	●
	22ER 4.00ISO	4.00	1.6	2.3	0.52	12.7	4.71	5	●
	22ER 4.50ISO	4.50	1.7	2.4	0.58	12.7	4.71	5	●
	22ER 5.00ISO	5.00	1.7	2.5	0.63	12.7	4.71	5	●
	22ER 5.50ISO	5.50	1.9	2.7	0.72	12.7	4.71	5	●
	22ER 6.00ISO	6.00	1.9	2.7	0.78	12.7	4.71	5	○
									FA225P
	16ELG 1.50ISO	1.50	0.8	1.0	0.22	9.525	3.47	4	○
	16ELG 2.00ISO	2.00	1.2	1.3	0.29	9.525	3.47	4	○
	16ERG 0.40ISO	0.40	0.6	0.5	0.06	9.525	3.47	4	●
	16ERG 0.50ISO	0.50	0.6	0.5	0.1	9.525	3.47	4	●
	16ERG 0.70ISO	0.70	0.8	0.7	0.1	9.525	3.47	4	●
	16ERG 0.75ISO	0.75	0.8	0.7	0.10	9.525	3.47	4	●
	16ERG 0.80ISO	0.80	0.6	0.6	0.10	9.525	3.47	4	●
	16ERG 1.00ISO	1.00	0.7	0.6	0.11	9.525	3.47	4	●

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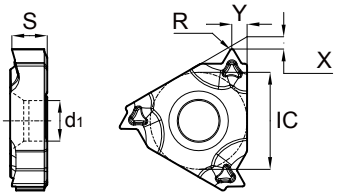
Metric 60°

▶ Internal

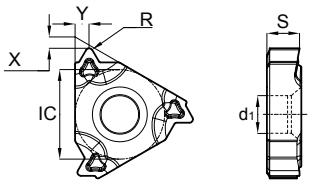


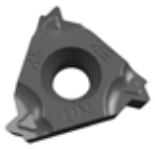
Ordering Code		Pitch (mm)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR 1.00ISO	1.00	0.8	0.7	0.07	6.35	3	3.2	●
	11IR 1.25ISO	1.25	0.8	0.9	0.09	6.35	3	3.2	●
	11IR 1.50ISO	1.50	0.8	1.0	0.11	6.35	3	3.2	●
	11IR 1.75ISO	1.75	0.9	1.1	0.13	6.35	3	3.2	●
	11IR 2.00ISO	2.00	0.9	1.1	0.15	6.35	3	3.2	●
	16IR 1.00ISO	1.00	0.8	0.7	0.07	9.525	3.47	4	●
	16IR 1.25ISO	1.25	0.8	0.9	0.09	9.525	3.47	4	●
	16IR 1.50ISO	1.50	0.8	1.0	0.11	9.525	3.47	4	●
	16IR 1.75ISO	1.75	1.2	1.2	0.13	9.525	3.47	4	●
	16IR 2.00ISO	2.00	1.2	1.3	0.15	9.525	3.47	4	●
	16IR 2.50ISO	2.50	1.2	1.5	0.18	9.525	3.47	4	●
	16IR 3.00ISO	3.00	1.2	1.5	0.22	9.525	3.47	4	●
	22IR 3.50ISO	3.50	1.6	2.3	0.22	12.7	4.71	5	●
	22IR 4.00ISO	4.00	1.6	2.3	0.25	12.7	4.71	5	●
	22IR 4.50ISO	4.50	1.6	2.4	0.28	12.7	4.71	5	●
	22IR 5.00ISO	5.00	1.6	2.3	0.32	12.7	4.71	5	●
	22IR 5.50ISO	5.50	1.6	2.3	0.36	12.7	4.71	5	●
	22IR 6.00ISO	6.00	1.6	2.4	0.39	12.7	4.71	5	●
									FA225P
	11IRG 1.50ISO	1.50	0.8	1.0	0.109	6.35	3.00	3.2	○
	16ILG 1.50ISO	1.50	0.8	1.0	0.11	9.525	3.47	4	○

● Stock ○ Available on request

UN 60°

▶ External



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 24UN	24	0.8	0.8	0.15	9.525	3.47	4	●
	16ER 20UN	20	0.8	0.9	0.18	9.525	3.47	4	●
	16ER 18UN	18	0.8	1.0	0.20	9.525	3.47	4	●
	16ER 16UN	16	0.9	1.1	0.23	9.525	3.47	4	●
	16ER 14UN	14	1.2	1.5	0.26	9.525	3.47	4	●
	16ER 12UN	12	1.2	1.5	0.31	9.525	3.47	4	●
	16ER 9UN	9	1.2	1.7	0.42	9.525	3.47	4	●
	16ER 8UN	8	1.3	1.7	0.46	9.525	3.47	4	●
									FA225P
	16ERG 10UN	10	1.2	1.6	0.41	9.525	3.47	4	○

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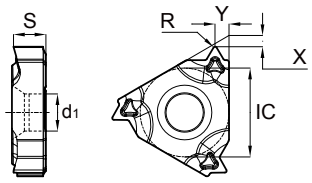
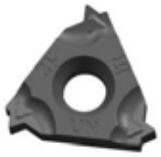
UN 60°

▶ Internal

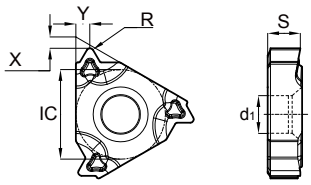


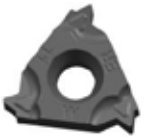
Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR 20UN	20	0.8	0.9	0.09	6.35	3.00	3.2	●
	11IR 18UN	18	0.8	1.0	0.10	6.35	3.00	3.2	●
	16IR 24UN	24	0.8	0.8	0.08	9.525	3.47	4	●
	16IR 20UN	20	0.8	0.9	0.09	9.525	3.47	4	●
	16IR 18UN	18	0.8	1.0	0.10	9.525	3.47	4	●
	16IR 16UN	16	0.9	1.1	0.12	9.525	3.47	4	●
	16IR 14UN	14	1.2	1.5	0.13	9.525	3.47	4	●
	16IR 12UN	12	1.2	1.5	0.16	9.525	3.47	4	●
	16IR 8UN	8	1.3	1.7	0.23	9.525	3.47	4	●
									FA225P
	16IRG 10UN	10	1.1	1.5	0.183	9.525	3.47	4	○

● Stock ○ Available on request

Whitworth 55°

▶ External

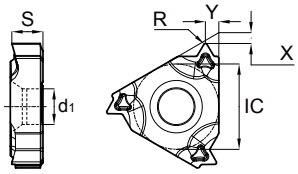


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 19W	19	0.8	1.0	0.17	9.525	3.47	4	●
	16ER 18W	18	0.8	1.0	0.18	9.525	3.47	4	○
	16ER 16W	16	0.9	1.1	0.20	9.525	3.47	4	●
	16ER 14W	14	1.2	1.5	0.24	9.525	3.47	4	●
	16ER 12W	12	1.2	1.5	0.28	9.525	3.47	4	●
	16ER 11W	11	1.2	1.5	0.30	9.525	3.47	4	●
	16ER 10W	10	1.1	1.5	0.34	9.525	3.47	4	●

● Stock ○ Available on request

Whitworth 55°

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR 19W	19	0.9	1.1	0.19	6.35	3.00	3.2	●
	11IR 14W	14	0.9	1.1	0.27	6.35	3.00	3.2	●
	16IR 19W	19	0.8	1.0	0.17	9.525	3.47	4	●
	16IR 18W	18	0.8	1.0	0.18	9.525	3.47	4	●
	16IR 16W	16	0.9	1.1	0.2	9.525	3.47	4	●
	16IR 14W	14	1.2	1.5	0.24	9.525	3.47	4	●
	16IR 12W	12	1.2	1.5	0.28	9.525	3.47	4	●
	16IR 11W	11	1.2	1.5	0.30	9.525	3.47	4	●
	16IR 8W	8	1.2	1.5	0.41	9.525	3.47	4	●

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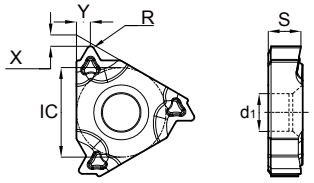
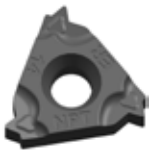
NPT 60°

▶ External

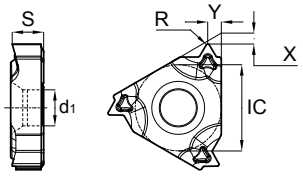


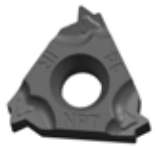
Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 27NPT	27	0.7	0.8	0.13	9.525	3.47	4	●
	16ER 18NPT	18	0.8	1.0	0.20	9.525	3.47	4	●
	16ER 14NPT	14	1.2	1.5	0.22	9.525	3.47	4	●
	16ER 11.5NPT	11.5	1.2	1.5	0.25	9.525	3.47	4	●
	16ER 8NPT	8	1.3	1.8	0.30	9.525	3.47	4	●
									FA225P
	16ERG 11.5NPT	11.5	1.2	1.5	0.091	9.525	3.47	4	●
	16ERG 14NPT	14	1.2	1.5	0.08	9.525	3.47	4	●
	16ERG 18NPT	18	0.8	1.0	0.08	9.525	3.47	4	●
	16ERG 27NPT	27	0.7	0.7	0.08	9.525	3.47	4	●

● Stock ○ Available on request

NPT 60°

▶ Internal

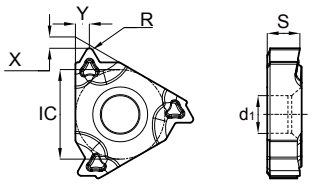


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR 18NPT	18	0.8	1.0	0.20	6.35	3.00	3.2	●
	16IR 27NPT	27	0.7	0.8	0.13	9.525	3.47	4	○
	16IR 18NPT	18	0.8	1.0	0.20	9.525	3.47	4	●
	16IR 14NPT	14	1.2	1.5	0.22	9.525	3.47	4	●
	16IR 11.5NPT	11.5	1.2	1.5	0.25	9.525	3.47	4	●
	16IR 8NPT	8	1.3	1.8	0.30	9.525	3.47	4	●
	11IRG 18NPT	18	0.8	1.1	0.081	6.35	3.00	3.2	●
	16IRG 11.5NPT	11.5	1.2	1.5	0.107	9.525	3.47	4	●
	16IRG 14NPT	14	1.2	1.5	0.08	9.525	3.47	4	●

● Stock ○ Available on request

BSPT 55°

▶ External

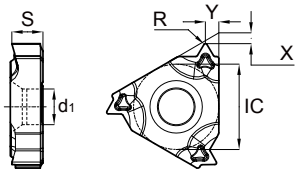


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 28BSPT	28	0.7	0.8	0.11	9.525	3.47	4	●
	16ER 19BSPT	19	0.8	1.0	0.17	9.525	3.47	4	●
	16ER 14BSPT	14	1.2	1.5	0.24	9.525	3.47	4	●
	16ER 11BSPT	11	1.2	1.5	0.30	9.525	3.47	4	●

● Stock ○ Available on request

BSPT 55°

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	11IR 19BSPT	19	0.8	1.0	0.18	6.35	3.00	3.2	●
	11IR 14BSPT	14	0.9	1.1	0.24	6.35	3.00	3.2	●
	16IR 28BSPT	28	0.7	0.8	0.11	9.525	3.47	4	○
	16IR 19BSPT	19	0.8	1.0	0.17	9.525	3.47	4	●
	16IR 14BSPT	14	1.2	1.5	0.24	9.525	3.47	4	●
	16IR 11BSPT	11	1.2	1.5	0.30	9.525	3.47	4	●
									FA225P
	16IRG 11BSPT	11	1.2	1.5	0.32	9.525	3.47	4	○

● Stock ○ Available on request

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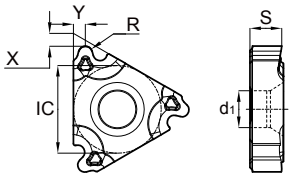
Round 30°

▶ External

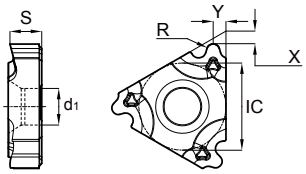


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16ER 8RD	8	1.4	1.3	0.75	9.525	3.47	4	●
	16ER 6RD	6	1.4	1.5	1.00	9.525	3.47	4	●
									FA225P
	22ERG 4RD	4	2.2	2.3	1.52	12.7	4.71	5	○

● Stock ○ Available on request

Round 30°

▶ Internal

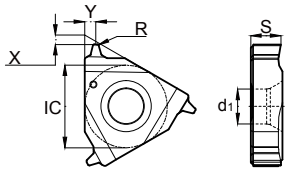


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FT325M
	16IR 8RD	8	1.4	1.3	0.70	9.525	3.47	4	●
	16IR 6RD	6	1.4	1.5	0.936	9.525	3.47	4	●
									FA225P
	22IRG 4RD	4	2.2	2.3	1.44	12.7	4.71	5	○

● Stock ○ Available on request

TR

▶ External

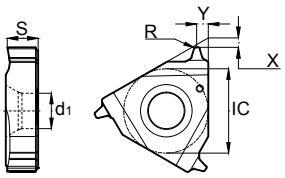


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 1.5TR	1.50	1.0	1.1	0.1	9.525	3.47	4	○
	16ERG 2.0TR	2.00	1.1	1.3	0.18	9.525	3.47	4	○
	16ERG 3.0TR	3.00	1.2	1.5	0.11	9.525	3.47	4	○
	22ERG 4.0TR	4.00	1.7	1.9	0.25	12.7	4.71	5	○
	22ERG 5.0TR	5.00	1.9	2.1	0.25	12.7	4.71	5	○
	22ERG 6.0TR	6.00	1.9	2.1	0.25	12.7	4.71	5	○

● Stock ○ Available on request

TR

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 1.5TR	1.50	1.0	1.1	0.1	9.525	3.47	4	○
	16IRG 2.0TR	2.00	1.0	1.3	0.18	9.525	3.47	4	○
	16IRG 3.0TR	3.00	1.1	1.3	0.15	9.525	3.47	4	○
	22IRG 4.0TR	4.00	1.6	1.9	0.25	12.7	4.71	5	○
	22IRG 5.0TR	5.00	1.84	2.2	0.25	12.7	4.71	5	○
	22IRG 6.0TR	6.00	1.9	2.2	0.25	12.7	4.71	5	○

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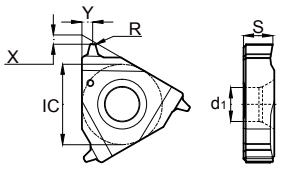
ACME

▶ External

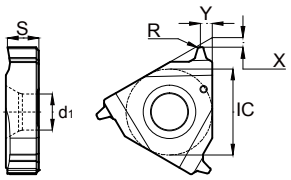


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 8ACME	8	1.3	1.5	0.15	9.525	3.47	4	○
	16ERG 10ACME	10	1.1	1	0.1	9.525	3.47	4	○
	16ERG 12ACME	12	1.1	1.3	0.12	9.525	3.47	4	○
	22ERG 5ACME	5	2	2.2	0.12	12.7	4.71	5	○
	22ERG 6ACME	6	1.65	1.75	0.08	12.7	4.71	5	○
	27ERG 4ACME	4	2.4	2.7	0.15	15.875	6.15	6.16	○

● Stock ○ Available on request

ACME

▶ Internal

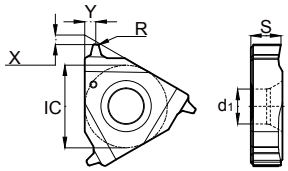


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 6ACME	6	1.6	1.8	0.11	9.525	3.47	4	○
	16IRG 12ACME	12	1.1	1.3	0.08	9.525	3.47	4	○
	22IRG 5ACME	5	2	2.2	0.12	12.7	4.71	5	○
	22IRG 6ACME	6	1.65	1.8	0.11	12.7	4.71	5	○
	27IRG 4ACME	4	2.4	2.7	0.15	15.875	6.15	6.16	○

● Stock ○ Available on request

STACME

▶ External

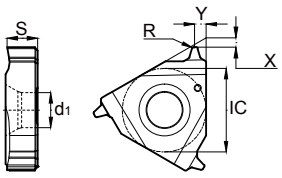


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 6STACME	6	1.5	1.5	0.11	9.525	3.47	4	○
	16ERG 8STACME	8	1.4	1.4	0.1	9.525	3.47	4	○

● Stock ○ Available on request

STACME

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 6STACME	6	1.8	1.8	0.12	9.525	3.47	4	○
	16IRG 8STACME	8	1.2	1.1	0.1	9.525	3.47	4	○
	22IRG 4STACME	4	2.3	2.4	0.27	12.7	4.71	5	○
	22IRG 6STACME	6	1.7	1.8	0.12	12.7	4.71	5	○

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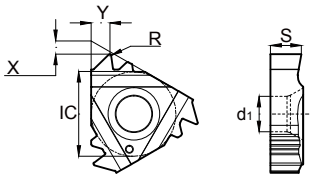
SAGE

▶ External

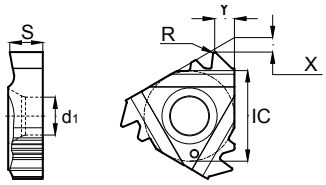


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	22ERG 4.0SAGE	4.00	1.8	2.7	0.46	12.7	4.71	5	○

● Stock ○ Available on request

ABUT

▶ Internal

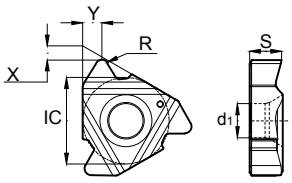


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 16ABUT	16	1.3	1.8	0.08	9.525	3.47	4	○

● Stock ○ Available on request

API

▶ External

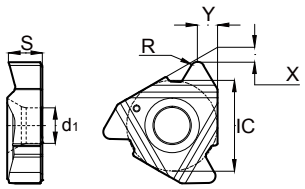


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	22ERG 4API382	4	2.1	2.8	0.971	12.7	4.71	5	○
	22ERG 4API502	4	1.9	2.8	0.639	12.7	4.71	5	○

● Stock ○ Available on request

API

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	22IRG 4API382	4	2.1	2.8	0.979	12.7	4.71	5	○
	22IRG 4API502	4	2.0	2.7	0.644	12.7	4.71	5	○

● Stock ○ Available on request

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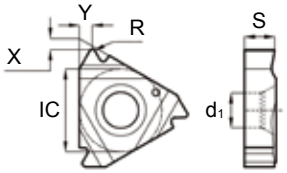
APIRD

▶ External

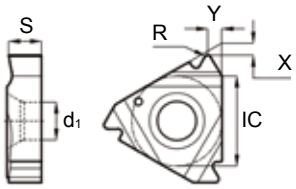


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 8APIRD	8	1.3	1.5	0.359	9.525	3.47	4	○
	16ERG 10APIRD	10	1.48	1.5	0.435	9.525	3.47	4	○

● Stock ○ Available on request

APIRD

▶ Internal

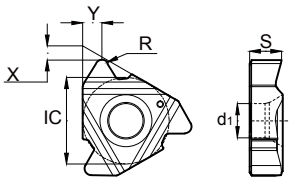


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 10APIRD	10	1.5	1.3	0.361	9.525	3.47	4	○
	16IRG 8APIRD	8	1.5	1.3	0.438	9.525	3.47	4	○

● Stock ○ Available on request

MJ

▶ External

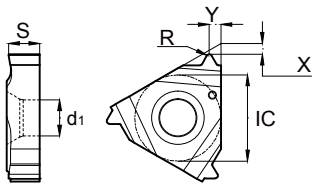


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 1.00MJ	1.00	0.6	0.7	0.165	9.525	3.47	4	○
	16ERG 1.25MJ	1.25	0.8	0.9	0.207	9.525	3.47	4	○
	16ERG 1.50MJ	1.50	0.8	1.1	0.24	9.525	3.47	4	○
	16ERG 2.00MJ	2.00	1	1.3	0.33	9.525	3.47	4	○

● Stock ○ Available on request

MJ

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 1.00MJ	1.00	0.6	0.7	0.07	9.525	3.47	4	○

● Stock ○ Available on request

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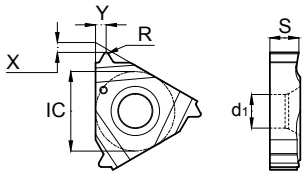
UNJ

▶ External

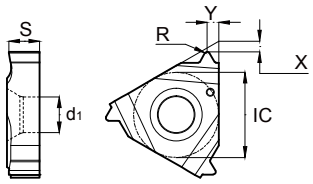


Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16ERG 18UNJ	18	0.8	1.0	0.23	9.525	3.47	4	○
	16ERG 28UNJ	28	0.6	0.7	0.15	9.525	3.47	4	○
	16ERG 32UNJ	32	0.6	0.7	0.13	9.525	3.47	4	○

● Stock ○ Available on request

UNJ

▶ Internal



Ordering Code		Pitch (TPI)	Dimensions (mm)						Stock
			X	Y	R	IC	S	d1	FA225P
	16IRG 16UNJ	16	0.8	1.0	0.07	9.525	3.47	4	○

● Stock ○ Available on request

Recommended Cutting Conditions

Workpiece Material				Material Hardness	Cutting Speed Vc(m/min)
					Grade
					FT325M
P	Carbon Steel	Low-carbon (C=0.1-0.25%)		HB125	160 (120-230)
		Medium-carbon (C=0.25-0.55%)		HB150	150 (100-195)
		High-carbon (C=0.55-0.80%)		HB170	140 (90-180)
	Low-alloy Steel	Non-hardened		HB180	130 (100-180)
		Hardened and tempered		HB275	100(75-140)
		Hardened and tempered		HB350	80 (60-130)
	High-alloy Steel	Annealed		HB200	110 (80-140)
		Hardened and tempered		HB325	90 (70-115)
	Cast Steel	Unalloyed		HB180	200 (180-220)
		Low-alloy		HB200	110 (70-150)
		High-alloy		HB225	100 (60-120)
		Manganese steel (12-14% Mn)		HB250	40 (40-50)
M	Stainless Steel	Austenitic		HB180	120 (90-140)
		Ferrite/Martensite		HB200	140 (70-170)
		Duplex stainless steel		HB230	90 (60-120)
K	Malleable Cast Iron	Ferrite		HB130	130 (110-170)
		Pearlite		HB230	100 (85-145)
	Gray Cast Iron	Low tensile strength		HB180	120 (100-160)
		High tensile strength		HB260	100 (80-140)
	Nodular Cast Iron	Ferrite		HB160	125 (110-160)
		Pearlite		HB250	100 (80-120)
N	Wrought Aluminum Alloys	Non aging		HB60	500 (350-700)
		Aged		HB100	400 (300-500)
	Cast Aluminum Alloys	Non aging		HB75	450 (300-500)
		Aged		HB90	290 (200-400)
		Containing silicon (13-22% Si)		HB130	200 (100-300)
	Copper and Copper Alloys	Brass		HB90	220 (100-300)
		Bronze and non-leaded copper		HB100	180 (80-255)
S	Heat-resistant Alloys	Iron base	Annealed	HB200	45 (35-60)
			Aged	HB280	35 (25-50)
		Nickel base and cobalt base	Annealed	HB250	25 (15-30)
			Aged	HB350	15 (10-25)
			Cast	HB320	13 (10-20)
	Titanium Alloys	Commercial pure (99.5% Ti)		400Rm	150 (140-170)
		(+) alloys		1050Rm	60 (50-70)
H	High Hardness Materials	Hardened steel		HRC55	45 (40-50)
		Chilled cast iron		HB400	40 (30-50)

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Cutting Passes and Radial Infeed Recommendation Table

▶ ISO Metric / External

Pitch (mm)	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Total infeed(mm)	0.65	0.79	0.95	1.11	1.26	1.56	1.88	2.18	2.49	2.79	3.10
Total passes	5	6	6	8	8	10	12	12	13	14	14
No. of infeed	Radial infeed per pass (mm)										
1	0.16	0.17	0.20	0.17	0.20	0.20	0.20	0.24	0.24	0.27	0.29
2	0.15	0.15	0.19	0.17	0.19	0.19	0.19	0.23	0.22	0.25	0.28
3	0.14	0.14	0.18	0.16	0.18	0.18	0.19	0.22	0.22	0.24	0.27
4	0.12	0.13	0.16	0.15	0.17	0.17	0.18	0.21	0.21	0.23	0.26
5	0.08	0.12	0.14	0.14	0.16	0.17	0.17	0.21	0.21	0.23	0.25
6	-	0.08	0.08	0.13	0.15	0.16	0.17	0.20	0.20	0.22	0.25
7	-	-	-	0.11	0.13	0.15	0.16	0.18	0.19	0.21	0.24
8	-	-	-	0.08	0.08	0.14	0.15	0.17	0.18	0.20	0.23
9	-	-	-	-	-	0.12	0.14	0.16	0.17	0.19	0.22
10	-	-	-	-	-	0.08	0.13	0.15	0.16	0.18	0.20
11	-	-	-	-	-	-	0.12	0.13	0.15	0.17	0.19
12	-	-	-	-	-	-	0.08	0.08	0.14	0.16	0.17
13	-	-	-	-	-	-	-	-	0.12	0.14	0.15
14	-	-	-	-	-	-	-	-	0.18	0.10	0.10

▶ ISO Metric / Internal

Pitch (mm)	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Total infeed(mm)	0.63	0.77	0.92	1.05	1.20	1.48	1.78	2.03	2.31	2.61	2.88
Total passes	5	6	6	8	8	10	12	12	13	14	14
No. of infeed	Radial infeed per pass (mm)										
1	0.15	0.16	0.20	0.16	0.19	0.19	0.19	0.22	0.21	0.23	0.26
2	0.14	0.15	0.18	0.15	0.18	0.18	0.18	0.21	0.21	0.23	0.26
3	0.13	0.14	0.17	0.15	0.17	0.17	0.18	0.20	0.20	0.22	0.25
4	0.12	0.13	0.15	0.14	0.16	0.17	0.17	0.20	0.19	0.22	0.24
5	0.08	0.11	0.13	0.13	0.15	0.16	0.16	0.19	0.19	0.21	0.24
6	-	0.08	0.08	0.12	0.14	0.15	0.16	0.18	0.18	0.20	0.23
7	-	-	-	0.11	0.12	0.14	0.15	0.17	0.18	0.20	0.22
8	-	-	-	0.08	0.08	0.13	0.14	0.16	0.17	0.19	0.21
9	-	-	-	-	-	0.12	0.14	0.15	0.16	0.18	0.20
10	-	-	-	-	-	0.08	0.12	0.14	0.15	0.17	0.19
11	-	-	-	-	-	-	0.11	0.12	0.14	0.16	0.18
12	-	-	-	-	-	-	0.08	0.08	0.13	0.15	0.16
13	-	-	-	-	-	-	-	-	0.12	0.14	0.15
14	-	-	-	-	-	-	-	-	0.08	0.10	0.10

▶ UN / External

Pitch (TPI)	24	20	18	16	14	12	10	8
Total infeed(mm)	0.70	0.84	0.92	1.04	1.17	1.35	1.62	2.02
Total passes	5	6	6	7	8	8	10	12
No. of infeed	Radial infeed per pass (mm)							
1	0.18	0.18	0.20	0.19	0.18	0.22	0.21	0.22
2	0.16	0.17	0.18	0.18	0.18	0.21	0.20	0.21
3	0.15	0.15	0.17	0.17	0.17	0.20	0.19	0.20
4	0.13	0.14	0.15	0.16	0.16	0.19	0.18	0.20
5	0.08	0.12	0.13	0.14	0.15	0.17	0.17	0.19
6	-	0.08	0.08	0.12	0.14	0.15	0.16	0.18
7	-	-	-	0.08	0.12	0.13	0.15	0.17
8	-	-	-	-	0.08	0.08	0.14	0.16
9	-	-	-	-	-	-	0.12	0.15
10	-	-	-	-	-	-	0.08	0.14
11	-	-	-	-	-	-	-	0.12
12	-	-	-	-	-	-	-	0.08

▶ UN / Internal

Pitch (TPI)	24	20	18	16	14	12	10	8
Total infeed(mm)	0.66	0.78	0.86	0.96	1.07	1.25	1.48	2.03
Total passes	5	6	6	7	8	8	10	12
No. of infeed	Radial infeed per pass (mm)							
1	0.16	0.16	0.18	0.17	0.16	0.20	0.19	0.22
2	0.15	0.16	0.17	0.16	0.16	0.19	0.18	0.21
3	0.14	0.14	0.16	0.15	0.15	0.18	0.17	0.20
4	0.12	0.13	0.14	0.14	0.14	0.17	0.17	0.20
5	0.08	0.12	0.13	0.13	0.14	0.16	0.16	0.19
6	-	0.08	0.08	0.12	0.13	0.14	0.15	0.18
7	-	-	-	0.08	0.11	0.13	0.14	0.17
8	-	-	-	-	0.08	0.08	0.13	0.16
9	-	-	-	-	-	-	0.12	0.15
10	-	-	-	-	-	-	0.08	0.14
11	-	-	-	-	-	-	-	0.12
12	-	-	-	-	-	-	-	0.08

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▶ Whitworth / External & Internal

Pitch (TPI)	19	14	11
Total infeed(mm)	0.90	1.20	1.51
Total passes	6	8	9
No. of infeed	Radial infeed per pass (mm)		
1	0.19	0.19	0.22
2	0.18	0.18	0.21
3	0.17	0.17	0.20
4	0.15	0.16	0.19
5	0.13	0.15	0.18
6	0.08	0.14	0.16
7	-	0.12	0.15
8	-	0.08	0.13
9	-	-	0.08

▶ NPT /External& Internal

Pitch (TPI)	27	18	14	11.5	8
Total infeed(mm)	0.76	1.11	1.42	1.73	2.48
Total passes	6	8	10	12	15
No. of infeed	Radial infeed per pass (mm)				
1	0.15	0.17	0.18	0.18	0.21
2	0.15	0.17	0.17	0.17	0.21
3	0.14	0.16	0.16	0.17	0.20
4	0.13	0.15	0.16	0.16	0.20
5	0.11	0.14	0.15	0.16	0.19
6	0.08	0.13	0.14	0.15	0.18
7	-	0.11	0.14	0.15	0.18
8	-	0.08	0.13	0.14	0.17
9	-	-	0.11	0.13	0.17
10	-	-	0.08	0.12	0.16
11	-	-	-	0.11	0.15
12	-	-	-	0.08	0.14
13	-	-	-	-	0.13
14	-	-	-	-	0.11
15	-	-	-	-	0.08

▶ BSPT / External & Internal

Pitch (TPI)	28	19	14	11
Total infeed(mm)	0.62	0.90	1.20	1.51
Total passes	5	6	8	9
No. of infeed	Radial infeed per pass (mm)			
1	0.15	0.19	0.19	0.22
2	0.14	0.18	0.18	0.21
3	0.13	0.17	0.17	0.20
4	0.12	0.15	0.16	0.19
5	0.08	0.13	0.15	0.18
6	-	0.08	0.14	0.16
7	-	-	0.12	0.15
8	-	-	0.08	0.13
9	-	-	-	0.08

▶ Round / External

Pitch (TPI)	10	8	6	4
Total infeed(mm)	1.30	1.63	2.17	2.95
Total passes	8	10	12	14
No. of infeed	Radial infeed per pass (mm)			
1	0.21	0.21	0.24	0.30
2	0.20	0.20	0.23	0.29
3	0.19	0.19	0.22	0.28
4	0.18	0.19	0.21	0.27
5	0.16	0.18	0.20	0.26
6	0.15	0.17	0.19	0.25
7	0.13	0.15	0.18	0.24
8	0.08	0.14	0.17	0.23
9	-	0.12	0.16	0.22
10	-	0.08	0.15	0.21
11	-	-	0.13	0.19
12	-	-	0.08	0.18
13	-	-	-	0.15
14	-	-	-	0.10

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▶ Round / Internal

Pitch (TPI)	10	8	6	4
Total infeed(mm)	1.34	1.64	2.18	2.98
Total passes	8	10	12	14
No. of infeed	Radial infeed per pass (mm)			
1	0.22	0.21	0.24	0.30
2	0.21	0.20	0.23	0.29
3	0.20	0.20	0.22	0.29
4	0.18	0.19	0.21	0.28
5	0.17	0.18	0.21	0.27
6	0.15	0.17	0.20	0.26
7	0.13	0.16	0.19	0.25
8	0.08	0.14	0.17	0.24
9	-	0.12	0.16	0.23
10	-	0.08	0.15	0.21
11	-	-	0.13	0.20
12	-	-	0.08	0.18
13	-	-	-	0.16
14	-	-	-	0.10

Attention:Generally, the radial feed shall not be less than 0.05mm. When machining austenitic stainless steel, the radial feed shall not be less than 0.08mm.

▶ TR/ External& Internal

Pitch (mm)	1.5	2	3	1.75	2.00	2.50	3.00	3.50
Total infeed (mm)	1.02	1.36	1.27	1.11	1.26	1.56	1.88	2.18
Total passes	6	8	12	13	14	16	16	19
No. of infeed	Radial infeed per pass (mm)							
1	0.22	0.22	0.20	0.24	0.27	0.29	0.34	0.32
2	0.21	0.21	0.19	0.23	0.27	0.29	0.33	0.31
3	0.19	0.20	0.18	0.22	0.26	0.28	0.32	0.31
4	0.17	0.19	0.18	0.22	0.25	0.27	0.32	0.30
5	0.14	0.17	0.17	0.21	0.24	0.27	0.31	0.29
6	0.08	0.16	0.17	0.20	0.23	0.26	0.30	0.29
7	-	0.13	0.16	0.19	0.22	0.25	0.29	0.28
8	-	0.08	0.15	0.18	0.21	0.24	0.28	0.27
9	-	-	0.14	0.17	0.20	0.23	0.26	0.26
10	-	-	0.13	0.16	0.19	0.22	0.25	0.25
11	-	-	0.11	0.14	0.17	0.21	0.24	0.25
12	-	-	0.08	0.13	0.16	0.20	0.22	0.24
13	-	-	-	0.08	0.13	0.19	0.21	0.23
14	-	-	-	-	0.08	0.17	0 19	0.22
15	-	-	-	-	-	0.15	0.16	0.20
16	-	-	-	-	-	0.10	0.10	0.19
17	-	-	-	-	-	-	-	0.17
18	-	-	-	-	-	-	-	0.15
19	-	-	-	-	-	-	-	0.10

▶ ACME / External

Pitch (TPI)	16	14	12	10	8	6	5	4	3
Total infeed (mm)	0.99	1.10	1.26	1.60	1.91	2.46	2.87	3.51	4.57
Total passes	6	7	8	10	12	13	14	16	19
No. of infeed	Radial infeed per pass (mm)								
1	0.22	0.20	0.20	0.20	0.20	0.24	0.26	0.28	0.31
2	0.20	0.19	0.19	0.20	0.20	0.23	0.25	0.28	0.31
3	0.19	0.18	0.18	0.19	0.19	0.23	0.25	0.27	0.30
4	0.17	0.17	0.17	0.18	0.18	0.22	0.24	0.26	0.30
5	0.14	0.15	0.16	0.17	0.18	0.21	0.23	0.26	0.29
6	0.08	0.13	0.15	0.16	0.17	0.20	0.23	0.25	0.28
7		0.08	0.13	0.15	0.16	0.20	0.22	0.24	0.28
8			0.08	0.14	0.15	0.19	0.21	0.23	0.27
9				0.12	0.14	0.18	0.20	0.22	0.26
10				0.08	0.13	0.17	0.19	0.22	0.25
11					0.12	0.16	0.18	0.21	0.24
12					0.08	0.14	0.16	0.19	0.23
13						0.10	0.14	0.18	0.22
14							0.10	0.17	0.21
15								0.15	0.20
16								0.10	0.19
17									0.17
18									0.15
19									0.1

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▶ ACME / Internal

Pitch (TPI)	16	14	12	10	8	6	5	4	3
Total infeed (mm)	1.02	1.14	1.30	1.64	1.95	2.48	2.90	3.54	4.56
Total passes	6	7	8	10	12	13	14	16	19
No. of infeed	Radial infeed per pass (mm)								
1	0.22	0.21	0.21	0.21	0.21	0.24	0.26	0.29	0.31
2	0.21	0.20	0.20	0.20	0.20	0.23	0.26	0.28	0.31
3	0.19	0.19	0.19	0.20	0.20	0.23	0.25	0.27	0.30
4	0.17	0.17	0.18	0.19	0.19	0.22	0.24	0.27	0.29
5	0.14	0.16	0.16	0.18	0.18	0.21	0.24	0.26	0.29
6	0.08	0.13	0.15	0.17	0.17	0.21	0.23	0.25	0.28
7		0.08	0.13	0.16	0.17	0.20	0.22	0.24	0.27
8			0.08	0.14	0.16	0.19	0.21	0.23	0.27
9				0.12	0.15	0.18	0.20	0.23	0.26
10				0.08	0.13	0.17	0.19	0.22	0.25
11					0.12	0.16	0.18	0.21	0.24
12					0.08	0.14	0.16	0.20	0.23
13						0.10	0.15	0.18	0.22
14							0.10	0.17	0.21
15								0.15	0.20
16								0.10	0.19
17									0.17
18									0.15
19									0.1

▶ STACME / External& Internal

Pitch (TPI)	16	14	12	19	8	6	5	4	3
Total infeed (mm)	0.70	0.77	0.87	1.13	1.33	1.64	1.90	2.27	2.90
Total passes	5	5	6	7	8	9	10	11	15
No. of infeed	Radial infeed per pass (mm)								
1	0.18	0.20	0.18	0.21	0.22	0.24	0.25	0.24	0.25
2	0.16	0.18	0.17	0.20	0.21	0.23	0.24	0.24	0.24
3	0.15	0.17	0.16	0.19	0.19	0.22	0.23	0.23	0.24
4	0.13	0.14	0.15	0.17	0.18	0.21	0.22	0.22	0.23
5	0.08	0.08	0.13	0.15	0.17	0.19	0.21	0.21	0.22
6			0.08	0.13	0.15	0.18	0.19	0.20	0.22
7				0.08	0.13	0.16	0.18	0.19	0.21
8					0.08	0.14	0.16	0.18	0.20
9						0.08	0.14	0.17	0.19
10							0.09	0.16	0.18
11								0.14	0.17
12								0.09	0.16
13									0.15
14									0.13
15									0.09

▶ API / External& Internal

Pitch (TPI)	4	5
Total infeed (mm)	3.08	3.74
Total passes	12	15
No. of infeed	Radial infeed per pass (mm)	
1	0.36	0.34
2	0.35	0.34
3	0.33	0.33
4	0.32	0.31
5	0.30	0.30
6	0.29	0.29
7	0.27	0.28
8	0.25	0.27
9	0.23	0.25
10	0.20	0.24
11	0.16	0.22
12	0.08	0.20
13		0.18
14		0.15
15		0.08

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▶ APIRD / External& Internal

Pitch (TPI)	8	10
Total infeed (mm)	1.80	1.40
Total passes	10	12
No. of infeed	Radial infeed per pass (mm)	
1	0.18	0.19
2	0.18	0.19
3	0.17	0.18
4	0.16	0.18
5	0.16	0.17
6	0.15	0.16
7	0.14	0.16
8	0.13	0.15
9	0.11	0.14
10	0.08	0.13
11		0.11
12		0.08

▶ MJ / External

Pitch (mm)	1.5	2
Total infeed (mm)	0.92	1.21
Total passes	6	8
No. of infeed	Radial infeed per pass (mm)	
1	0.2	0.19
2	0.18	0.18
3	0.17	0.17
4	0.15	0.16
5	0.13	0.15
6	0.08	0.14
7		0.12
8		0.08

▶ UNJ / Internal

Pitch (TPI)	32	28	24	20	18	16	14	12	10	8
Total infeed (mm)	0.51	0.57	0.66	0.78	0.87	0.97	1.10	1.27	1.52	1.90
Total passes	4	5	5	6	6	7	8	8	10	12
No. of infeed	Radial infeed per pass (mm)									
1	0.16	0.14	0.16	0.16	0.18	0.17	0.17	0.20	0.19	0.20
2	0.14	0.13	0.15	0.15	0.17	0.16	0.16	0.19	0.19	0.20
3	0.13	0.12	0.14	0.14	0.16	0.16	0.16	0.18	0.18	0.19
4	0.08	0.11	0.12	0.13	0.15	0.15	0.15	0.17	0.17	0.18
5		0.08	0.08	0.12	0.13	0.13	0.14	0.16	0.16	0.18
6				0.08	0.08	0.12	0.13	0.15	0.15	0.17
7						0.08	0.11	0.13	0.14	0.16
8							0.08	0.08	0.13	0.15
9									0.12	0.14
10									0.08	0.13
11										0.12
12										0.08

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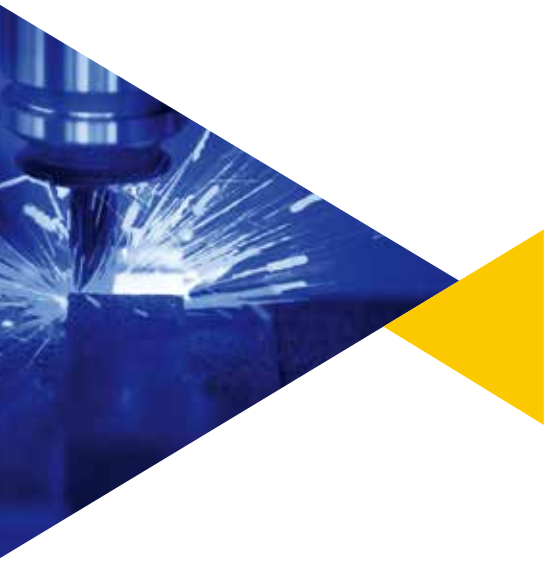

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