

TURNING INSERTS

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



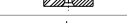
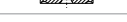

INSERT IDENTIFICATION SYSTEM

B
TURNING
INSERTS

Symbol	Insert
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
J	70° Diamond
V	35° Diamond
Z	25°/15° Diamond
W	80° Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round
Shown angle stands for acute angle for diamond and parallelogram inserts.	
① Shape Symbol	

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
② Relief Angle Symbol	

Symbol (Class)	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005	0.0010	0.025	0.0010	0.025
F	0.0002	0.005	0.0010	0.025	0.0005	0.013
C	0.0005	0.013	0.0010	0.025	0.0010	0.025
H	0.0005	0.013	0.0010	0.025	0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G	0.0010	0.025	0.0050	0.130	0.0010	0.025
J	0.0002	0.005	0.0010	0.025	0.002-0.006	0.05-0.15
K※	0.0005	0.013	0.0010	0.025	0.002-0.006	0.05-0.15
L※	0.0010	0.025	0.0010	0.025	0.002-0.006	0.05-0.15
M※	0.003-0.007	0.080-0.180	0.0050	0.130	0.002-0.006	0.05-0.15
N※	0.003-0.007	0.080-0.180	0.0010	0.025	0.002-0.006	0.05-0.15
U※	0.005-0.015	0.130-0.380	0.0050	0.130	0.003-0.009	0.08-0.25
※ Insert's periphery is as fired. Tolerance difference depends on size and shape of insert						
③ Tolerance Symbol						

Symbol	Hole	Hole Shape	Chipbreaker	Insert
N	No	-	No	
R			One Side	
F			Two Sides	
A		With Hole	No	
M			One Side	
G			Two Sides	
W		With Hole and One Countersink 40°-60°	No	
T			One Side	
Q			Two Sides	
U	Yes	With Hole and Two Countersink 40°-60°	No	
B			Two Sides	
H			No	
C		With Hole and One Countersink 70°-90°	No	
J			One Side	
X			Two Sides	
X	-	-	-	-

④ Hole / Chipbreaker Symbol

ISO
(metric)

C	N	M	G	12	04	08	PG
①	②	③	④	⑤	⑥	⑦	⑧

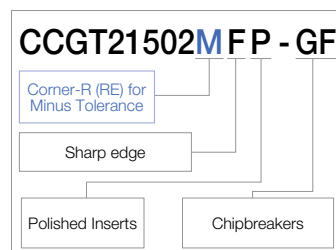
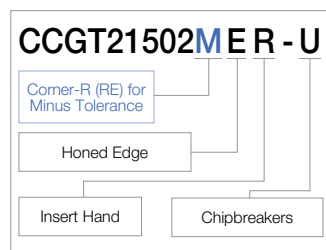
ANSI
(inch)

C	N	M	G	4	3	2	PG
①	②	③	④	⑤	⑥	⑦	⑧

⑤ Edge Length Symbol (ISO)							I.C. Size (mm)	I.C. Size (ANSI) (inch)
03	04		03	06			3.97	5/32
04	05		04	08	08		4.76	3/16
		05					5	
05	06		05	09		03	5.56	7/32
		06					6	
06	07		06	11	11	04	6.35	1/4
08	09		07	13		05	7.94	5/16
		08					8	
09	11	09	09	16	16	06	9.525	3/8
	12	10					10	
		12					12	
12	15	12	12	22	22	08	12.7	1/2
16	19	15	15	27	27	10	15.875	5/8
		16					16	
19	23	19	19	33	33	13	19.05	3/4
		20					20	
22	27	22	22	38			22.225	7/8
		25					25	
25	31	25	25	44	44	17	25.4	1
32	38	31	31	54	54	21	31.75	1-1/4
		32					32	

- Expressed as edge length for ISO.
- ANSI expresses the inscribed circle diameter in inches.

Positive Insert Identification System (e.g. of (8) Manufacturer's Option)



⑥ Thickness Symbol			
ISO		ANSI	
Thickness (mm)	Symbol	Thickness (inch)	Symbol
1.59	01	1/16	1
1.98	T1	5/64	1.2
2.38	02	3/32	1.5
2.78	T2	-	-
3.18	03	1/8	2
3.97	T3	5/32	2.5
4.76	04	3/16	3
5.56	05	7/32	3.5
6.35	06	1/4	4
7.94	07	5/16	5
9.525	09	3/8	6
Thickness displayed as the distance between bottom surface and highest point on cutting edge.			

⑦ Corner-R (RE) Symbol			
ISO		ANSI	
Corner-RE (mm)	Symbol	Corner-RE (inch)	Symbol
Sharp Corner	00	0.000	00
0.03	003	0.001	0.1
0.05	005	0.002	0.13
0.10	01	0.004	0.2
0.20	02	0.008	0.5
0.40	04	1/64	1
0.80	08	1/32	2
1.20	12	3/64	3
1.60	16	1/16	4
2.00	20	5/64	5
2.40	24	3/32	6
2.80	28	7/64	7
3.20	32	1/8	8
Round insert	00 (inch) or M0 (metric)	Round insert	

⑧ Manufacturer's Option

Hand Symbol, Chipbreaker, Symbol, Etc.

When a minus tolerance is specified for the corner-R (RE)

- If a minus tolerance is specified for the corner-R (RE) as shown in the Fig.1, using an insert with corner-R (RE) = 0.008" may result in larger radius than specified.
- Use an insert with a corner R (RE) that has a minus tolerance.

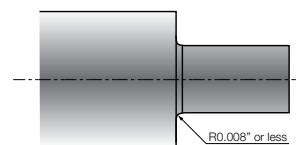







Fig.1 Example of a specified corner-R in the drawing











INSERT COLORS

Insert Color

● Cermet, CVD Coated Cermet, MEGACOAT NANO Cermet, MEGACOAT Cermet, and PVD Coated Cermet

Grades	Cermet									CVD Cermet	MEGACOAT NANO Cermet				MEGACOAT Cermet				PVD Cermet	
	TN610	TN620	TN620M	TN6010	TN6020	TN60	TN100M	TC40	TC60	CCX	PV710	PV720	PV730	PV60M	PV7005	PV7010	PV7025	PV7040	PV7020	PV90
Insert Color																				




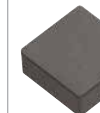
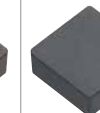
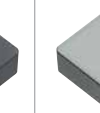


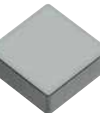


● CVD Coated Carbide

Grades	CVD Coated Carbide																		
	CA310	CA315	CA320	CA415D	CA520D	CA420M	CA4505	CA4515	CA4010	CA4115	CA4120	CA510	CA515	CA025P	CA525	CA530	CA55 Series	CA65 Series	CR9025
Insert Color																			





● PVD Coated Carbide

Grades	MEGACOAT NANO						MEGACOAT NANO PLUS		MEGACOAT NANO HARD		MEGACOAT						PVD Coated Carbide								
	PR1425	PR1510	PR1515	PR1525	PR1535	PR1625	PR1705	PR1725	PR005S	PR015S	PR1210	PR1215	PR1225	PR1230	PR1305	PR1310	PR1325	PR660	PR830	PR905	PR915	PR930	PR1005	PR1025	PR1115
Insert Color																									


● Ceramic

Grades	Alumina Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silcon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic		Whisker Reinforced Ceramic	Cell Fiber Ceramic
	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	KXW1	CF1
Insert Color												

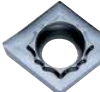
● CBN and PCD

Grades	CBN					PCD			MEGACOAT CBN	PVD Coated CBN
	KBN65B	KBN475	KBN510	KBN525	KBN570	KPD001	KPD010	KPD230	KBN..M	KBN900
Insert Color										

● DLC Coated Carbide

Grades	DLC	
	PDL010	PDL025
Insert Color		

● Uncoated Carbide

Grades	Carbide				
	GW05	GW15	GW25	KW10	SW05
Insert Color					

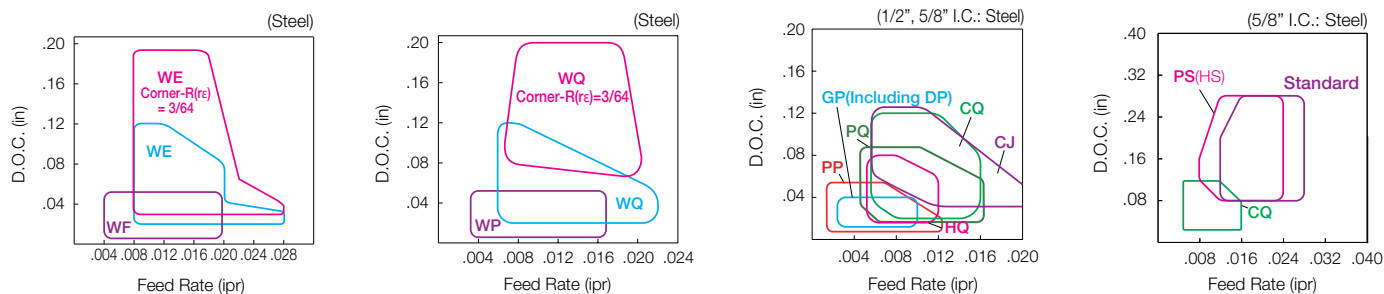
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel

1 Molded Chipbreaker

B TURNING INSERTS	Finishing (Wiper Edge)	WF		Good chip control in finishing operations. Excellent surface finish by controlling adhesion. Less cutting force due to sharp cutting edge.
		WP		Double feed rate is available for finishing to light machining, while maintaining a smooth finish.
		WE		Wide application range is available with improved chip control and high stability. Good surface finish at high feed rates.
		WQ		Double feed rate possible while maintaining a smooth finish. High efficiency and good chip control.
	Finishing-Medium	PP		3-step dot structure realizes stable chip control at a wide range of feed rates. Less cutting force due to sharp cutting edge and smooth rake face.
		PQ		Stable chip control over a wide feed rate range. Well-balanced edge sharpness and toughness.
		GP		Finishing to light machining. Good chip control.
		HQ		Sharp cutting performance with 3-D rake angle and double projection design.
	Finishing-Medium	CQ		Good chip control at various D.O.C. such as copying. Applicable for up-facing.

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



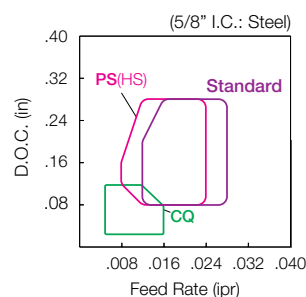
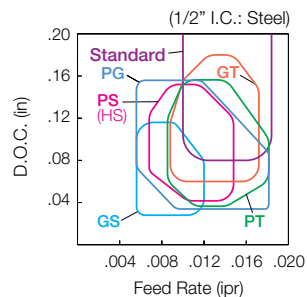
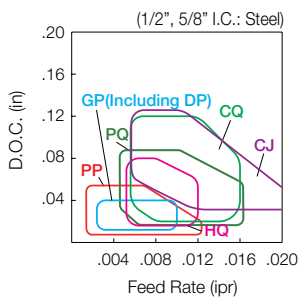
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel

1 Molded Chipbreaker

Finishing-Medium (Up-Facing)	CJ		Ensures chips will curl even in small depth, high feed rate machining. Improves chip evacuation when copying and up-facing.
Medium-Roughing	PG		Stable machining with a balance of edge sharpness and strength. Prevents chip clogging at high feed rates. Good chip control at low feed rates. Stable machining with wide chip control range.
Medium-Roughing	GS		Strong edge chipbreaker. Stable for continuous machining and light interrupted machining.
Medium-Roughing	PS		General purpose chipbreaker. More stable due to large contact surface.
Medium-Roughing	HS		General purpose chipbreaker. Applicable for copying.
Medium-Roughing / High Feed Rate	PT		Low cutting force during high feed machining. Land support structure.
Medium-Roughing / High Feed Rate	GT		Strong edge chipbreaker. Wide land design and smooth chip control even at high feed rate machining.
Roughing Standard			Low cutting force and suitable for large D.O.C. roughing.


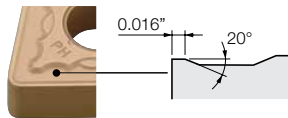

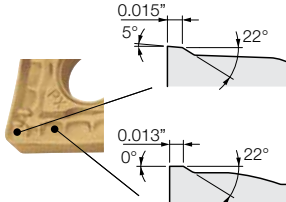
● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



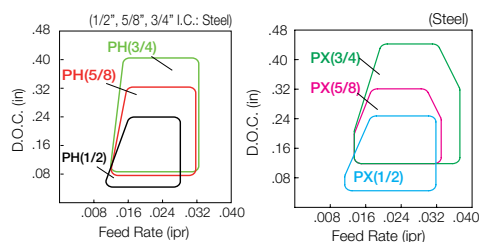
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel


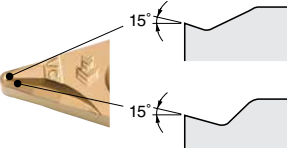

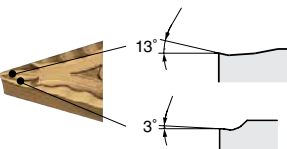
1 Molded Chipbreaker

<p>Roughing</p> <p>PH</p> 	 <p>0.016" 20°</p>	<p>For roughing of steel and cast iron. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.</p>
<p>Single Sided Roughing (High Feed Rate)</p> <p>PX</p> 	 <p>0.015" 5° 22° 0.013" 0° 22°</p>	<p>Roughing and high feed rate operation. Low cutting force chipbreaker.</p>

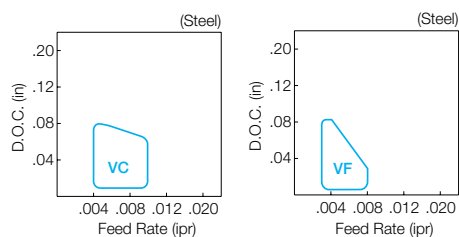
● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel (Copying / Undercutting, Varied D.O.C.)

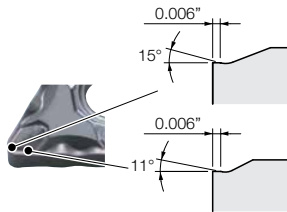
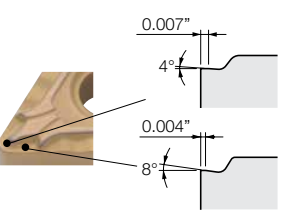
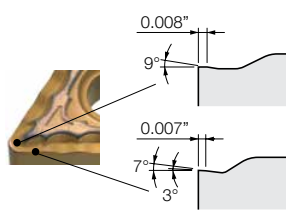
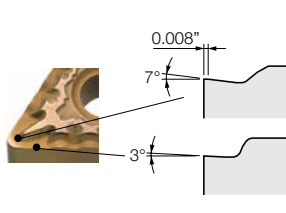
<p>Finishing-Medium</p> <p>VC</p> 	 <p>15° 15°</p>	<p>Handed chipbreaker for copying. Good chip control at varied D.O.C. because of the large space on the main cutting edge side.</p>
<p>Finishing-Medium</p> <p>VF</p> 	 <p>13° 3°</p>	<p>Good chip control for varied D.O.C. such as copying and undercutting.</p>

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

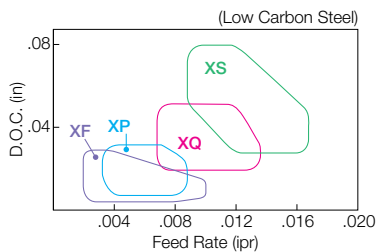


CHIPBREAKER SELECTION (NEGATIVE INSERTS)

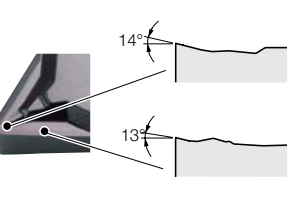
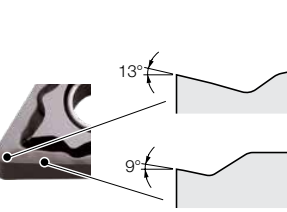
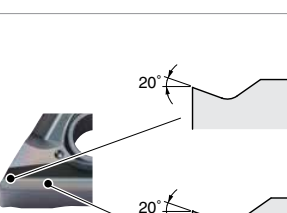
Steel (Copying / Undercutting, Varied D.O.C.)

Finishing	XF		Excellent chip control at high speed and small D.O.C. machining of low carbon steel.
	XP		Short chips when finishing due to sharp cutting and special design.
Medium	XQ		Consistent chip breaking at medium machining due to moderate rake face and special design.
	XS		Consistent chip breaking when roughing due to special rake angle design.

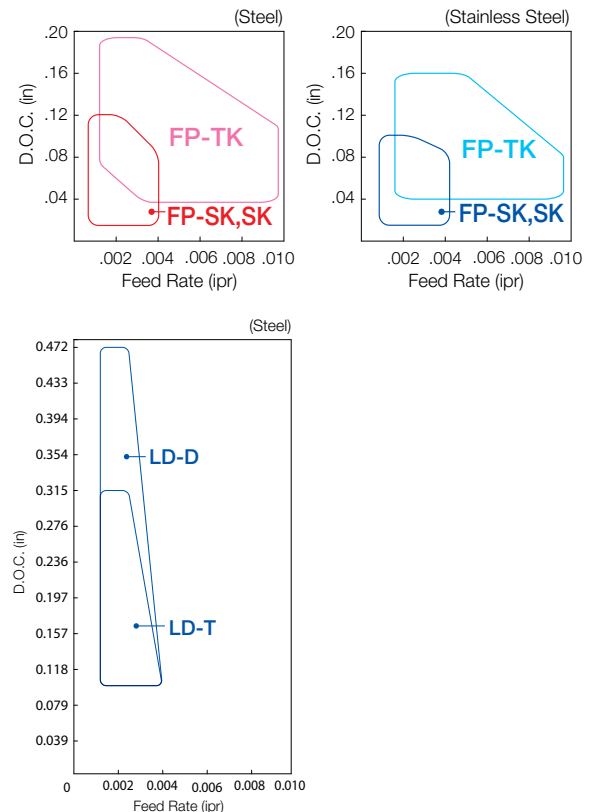
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel / Stainless Steel (Small Parts Machining)


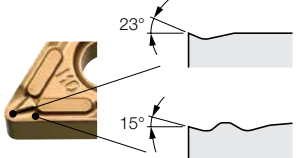

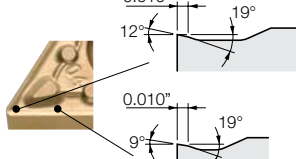

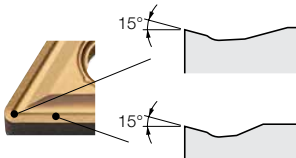

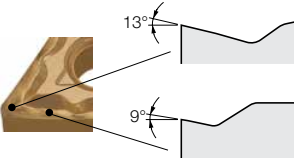

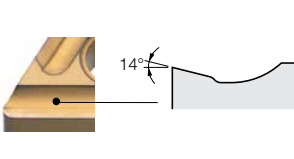
Finishing-Medium	SK		For finishing to medium machining in automatic lathes. Sharp cutting performance equivalent to positive inserts. 2-step dot design provides reliable chip control at various D.O.C..
Medium-Roughing	FP-TK		For medium to high feed rate in automatic lathes (When machining workpieces of medium to large dia.) Superior cutting performance achieved by sharp edge and polished surface. Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.
Large D.O.C.	LD		Available for greater depths of cut than many conventional chipbreakers. Achieves high-precision machining in a single pass. Chipbreaker shape optimized for various depths of cut. Stable chip control in a wide range of machining applications.

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



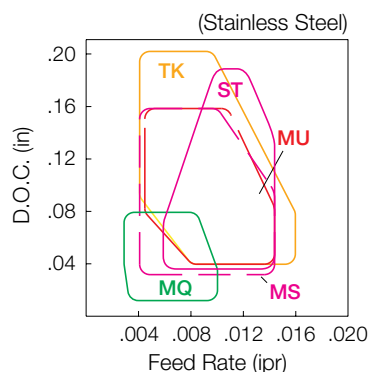
Stainless Steel / Heat-Resistant Alloy / Titanium Alloy

B
TURNING
INSERTS

Finishing	MQ			Large rake angle and circular edge line. Low cutting force and good chip control.
Medium-Roughing	MS			Superior cutting edge sharpness and strength achieved by a positive land. Extra strength of cutting edge inhibits damage from wall shouldering.
Medium-Roughing	MU			Large rake angle reduces cutting force. Less burring achieved by diminishing damage from notching.
Medium-Roughing	TK			Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.
Medium-Roughing	ST			Lower cutting forces due to large rake angle. Less notching with special design.

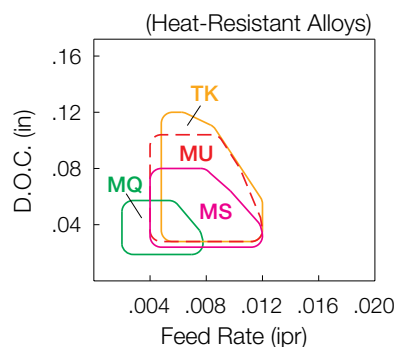
Stainless Steel

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)



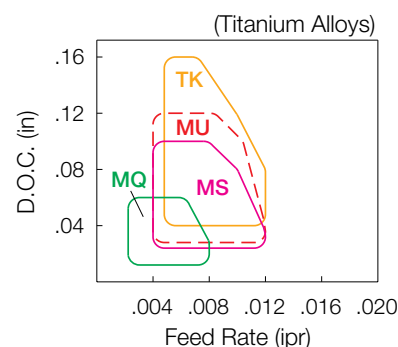
Heat-Resistant Alloy

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)


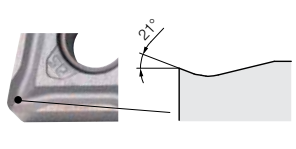

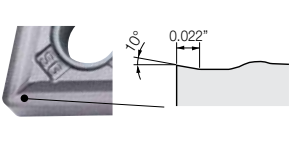

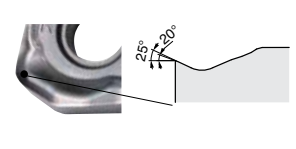


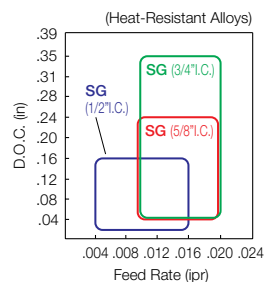
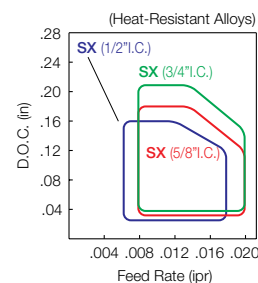
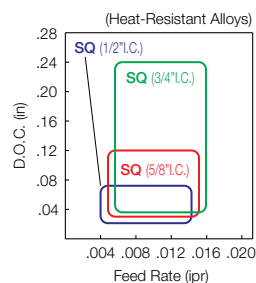
Titanium Alloy

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)



Heat-Resistant Alloy

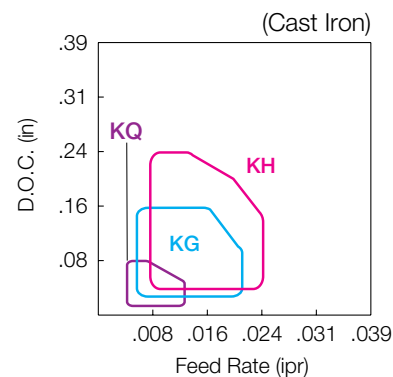
Finishing-Medium	SQ			Effective for burr suppression and reducing notching with positive cutting edge (inclined in (-) direction)
Roughing	SG			Stable chip control during heavy machining applications and high-strength land with low cutting force design.
Roughing (Single Sided)	SX			Slant cutting edge reduces cutting force. Less burring achieved by unique cutting edge design.



Cast Iron (K Series)

Sharp Cutting	KQ		Sharp cutting chipbreaker. Edge geometry is great when requiring sharpness such as machining thin-walled workpieces.
Medium	KG		Excellent balance of sharpness and strength. Excellent stability in continuous machining.
Medium-Roughing	KH		Good for heavily interrupted machining. Strong edge chipbreaker. Improved locating/seating in the toolholder pocket, with high reliability.

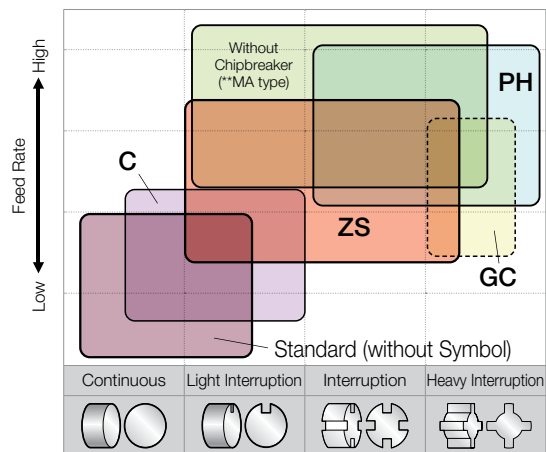
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Cast Iron

Sharp Cutting Oriented	Standard		Standard chipbreaker for continuous to light interrupted machining of cast iron. (Low cutting force)
	C		High feed rate chipbreaker for continuous to light interrupted machining of cast iron.
	ZS		Standard chipbreaker for light interrupted to interrupted machining of cast iron. (High stability)
	Without Chipbreaker		High feed rate chipbreaker for light interrupted machining of cast iron.


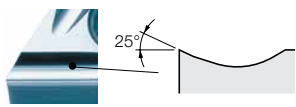

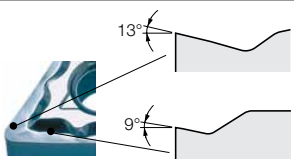
Stability Oriented	GC		Chipbreaker for heavy interrupted machining of cast iron. (Tough edge chipbreaker)
	PH		Chipbreaker for roughing of cast iron and steel. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.



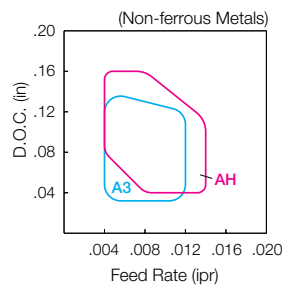
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

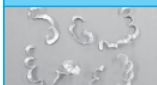
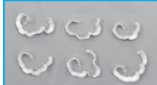
Non-ferrous Metals



B
TURNING
INSERTS

Finishing-Medium	A3			Large rake angle and smooth surface. Good chip control and less adhesion.
Medium-Roughing	AH			Polished chipbreaker. Smooth chip control and less adhesion. G Class: Sharp Edge Prep. M Class: Honed Edge Prep.

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

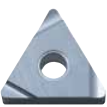
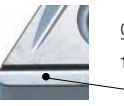
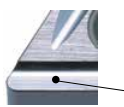
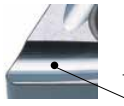


A3 Chipbreaker	
	D.O.C.= 0.08" f= 0.008 ipr
	D.O.C.=0.08" f= 0.012 ipr

AH Chipbreaker	
	D.O.C.= 0.08" f= 0.008 ipr
	D.O.C.= 0.08" f= 0.012 ipr

Steel

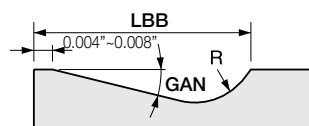
2 Ground Chipbreaker

Sharp Cutting	S		Sharp edge and less cutting force. Good chip control and smooth chip evacuation.
Medium	B		Suitable for general purpose machining at feed rate from 0.006 to 0.010ipr.
Sharp Cutting	C		Suitable for general purpose machining at feed rate from 0.008 to 0.014ipr.
Medium	25R		Applicable to sticky material such as low carbon steel. Large rake angle also suitable for stainless steel.

Effectiveness of Ground Chipbreaker

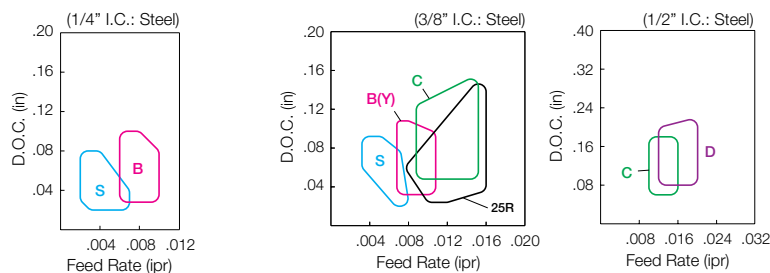
- (1) Lower cutting force and sharper cutting edge
- (2) Improved adhesion resistance
- (3) Improved dimensional accuracy and surface finish
- (4) Controlled chip flow

Specification of B, C, D and Parallel Ground Chipbreaker



Insert Type	I.C. Size	Chipbreaker Name	LBB (in)	GAN	R (in)
CNGG	3/8, 1/2	Without Indication (Similar to C)	0.087	14°	0.040
WNGG	3/8	Without Indication (Similar to C)	0.087	14°	0.040
TNGG	1/4, 3/8	B	0.060	14°	0.020
	3/8, 1/2	C	0.087	14°	0.040
DNGG	3/8, 1/2	Without Indication (Similar to C)	0.100	14°	0.080
VNGG	3/8	Without Indication (Similar to B)	0.060	14°	0.020
SNGG	3/8, 1/2	B	0.060	14°	0.020
	1/2	C	0.087	14°	0.040

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



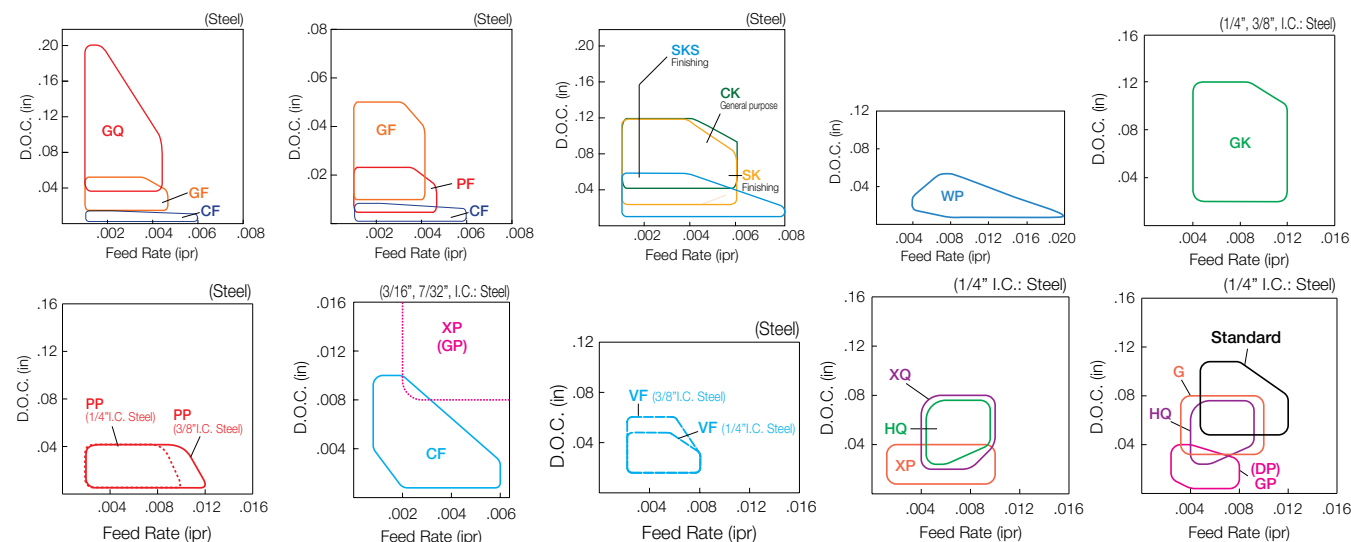
CHIPBREAKER SELECTION (POSITIVE INSERTS)

Steel

1 Molded Chipbreaker

B TURNING INSERTS	Minute D.O.C.	CF		Available for minute D.O.C. (0.0008" - 0.008") finishing.
	Finishing	PF		Finishing chipbreaker for boring with D.O.C. of (0.006" - 0.024")
	Finishing	GF		Dot located close to ridge line of cutting edge on corner. Breaks chips into small pieces at low D.O.C.
	Finishing-Medium	GQ		Enables cutting over a wide range of conditions by using the optimum chipbreaker width according to the cutting depth.
	Finishing	SKS		Finishing chipbreaker with a D.O.C. of 0.2mm-1.5mm. Stable chip control with rake face, bottom face, and chipbreaker face design.
	Finishing	SK		Sharp cutting performance due to Large rake angle. Large dot to the corner edge improved chip control in a wide feed rate range.
	Finishing	CK		Good cutting performance. Applicable without hand for two direction cutting on automatic lathe.
	Finishing	WP		Dual-dot structure with one dot offering stabilized chip control at low feed rates, while a second dot controls chips at higher feed rates.
	Finishing-Medium	GK		Good chip evacuation at wide range by breaker dot and wide chip pocket.
	Finishing	PP		3-step Smart Dot structure is applicable to a wide range of feed rates in steel finishing. Smooth taper cutting edge reduces cutting forces.
	Finishing	DP		Consistent chip breaking performance for finishing.
	Finishing	GP		Good chip control at finishing. Applicable to sticky material like low carbon steel, pipe material.
	Finishing	VF		Good chip control for varied D.O.C. such as copying and undercutting.
	Finishing-Medium	HQ		General purpose chipbreaker for medium machining.
	Medium	G		Chipbreaker for short chips at medium machining.
	Medium	Standard		Strong edge chipbreaker for medium machining range.

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

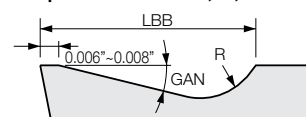


Steel

2 Ground Chipbreaker

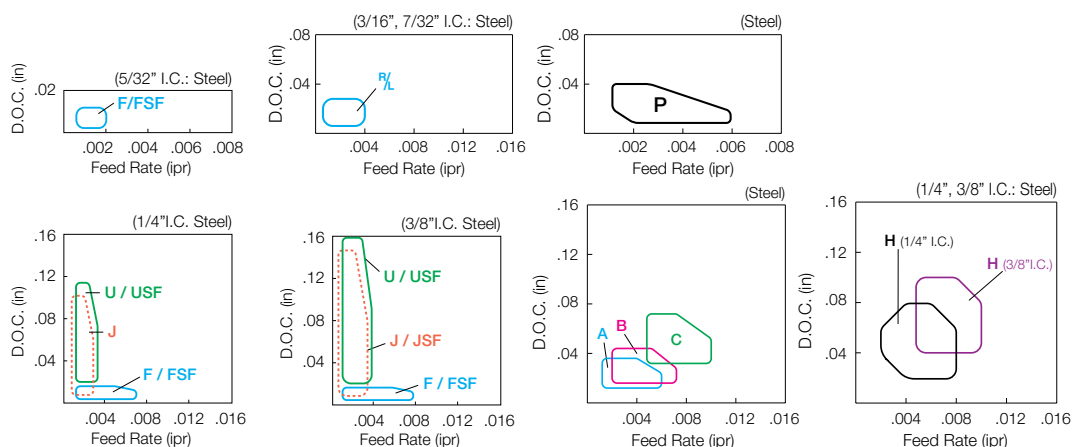
Finishing (Without Indication)			Good chip control during finishing to light machining with low cutting forces.
Finishing F			Good chip control during finishing to light machining with low cutting forces.
Finishing P			Chipbreaker smoothly breaks chips and directs them towards the outside of the workpiece when boring. Sharp cutting performance and good surface finish.
Finishing-Medium Y			Sharp cutting performance and good surface finish.
Low Feed J			Slant chipbreaker width provides chip control at various D.O.C..
Low Feed U			Good chip control at low feed rates and varied D.O.C. with low cutting force. Suitable for automatic lathes.
Finishing A			Large rake angle and low cutting force. Narrow chipbreaker width and consistent chip control.
Finishing-Medium B			General purpose chipbreaker for medium machining. Good balance between chip control and sharp cutting.
Medium C			Applicable to high load machining. Good chip flow and less resistance.
Finishing-Medium H			Sharp cutting performance and small curled chips.

● Specification of A, B, C and parallel ground chipbreaker



Insert Type	Size	Chipbreaker Name	LBB (in)	GAN	R (in)
TPGR	1/4	A	0.040	17°	0.020
	1/4, 3/8	B	0.060	14°	0.020
	3/8	C	0.087	14°	0.040
SPGR	3/8	Without Indication (Similar to B)	0.060	14°	0.020
	1/2	Without Indication (Similar to C)	0.087	14°	0.040

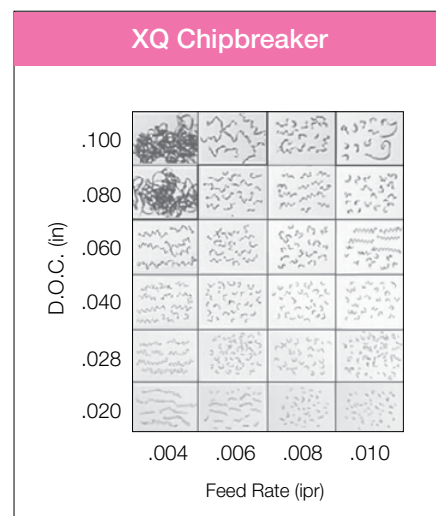
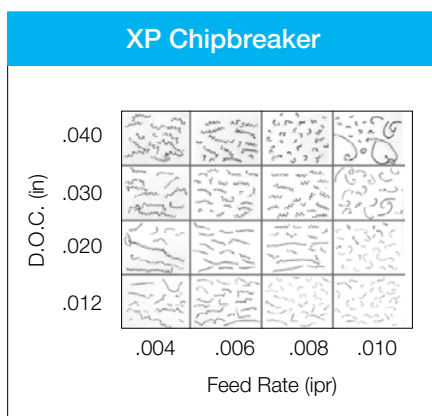
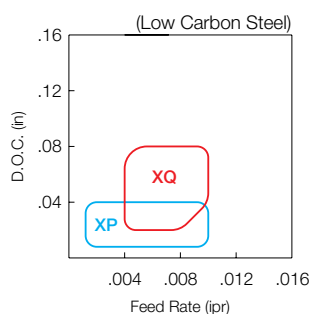
● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Low Carbon Steel (Pipe / Rolled Plate / Rolled Steel)

B TURNING INSERTS	Finishing	XP		Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.
	Finishing-Medium	XQ		Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.

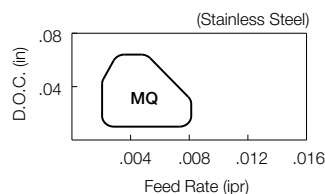
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Stainless Steel

Finishing	MQ		Good chip evacuation when boring. Small curled chips. Prevents chip entanglement with toolholder and stabilizes surface roughness.
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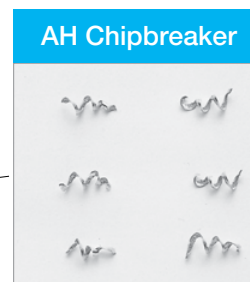
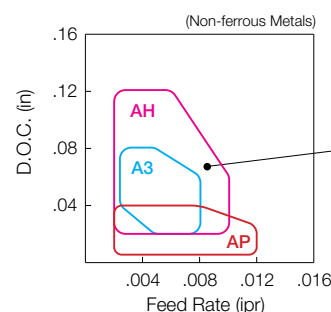
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Non-ferrous Metals

Finishing	AP		Stable chip evacuation and good surface finish when boring stainless steel with small curled chips evacuated towards the outside of the workpiece.
Finishing-Medium	AH		Positive chip groove and good chip control with low cutting forces. Polished surface reduces adhesion.
Finishing-Medium	A3		Large rake angle, smooth chip flow and less adhesion. Sharp edge and good surface finish.

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



- Refer below on how to read the "Indexable Turning Inserts" tables
- Section C contains similar content.

- ✖ Interruption / 1st Choice
- ✖ Interruption / 2nd Choice
- ☛ Light Interruption / 1st Choice
- ☛ Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice

(For hardness under 45HRC)

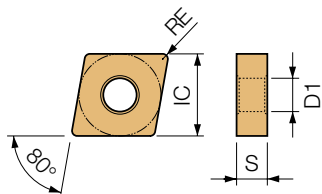
Inserts' ISO Classification of Usage
(Workpiece materials are written on the right side)

Insert Grades
(Red Fonts Are New C

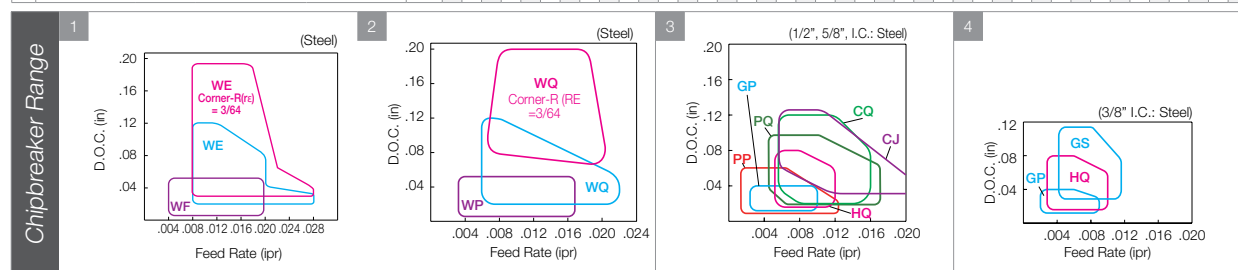
Applicable Chipbreaker Map No.

B15

Negative Insert with Hole

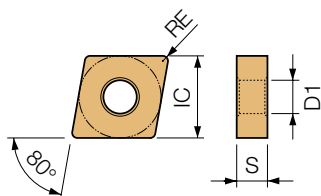


<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16

[illegible]






80° Diamond

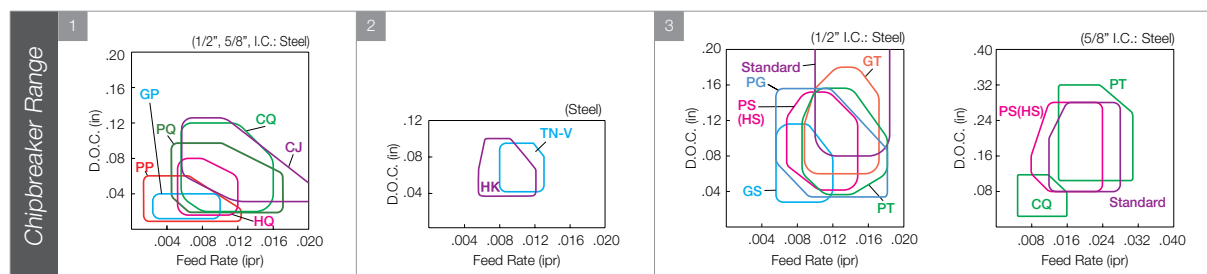
Negative Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CN_33_	3/8	3/16	0.150
CN_43_	1/2	3/16	0.203

			(in)
<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16

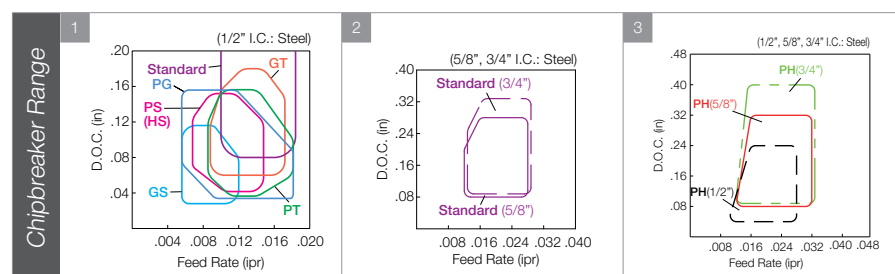
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			RE	TN610 TN620	CX TN60	PV710 PV720 PV730	PV7005	PV900	CA510 CA515	CA025P CA525	CA530 CA5505 CA5515 CA5525 CA5535	CA6515 CA6525	CA310 CA315	CA320 CA4505 CA4515	PR1705 PR1725 PR1425 PR1225	PR005S PR015S	PR1305 PR1310 PR1325	PR1535 PR930 PR1005 PR1025	PR1125 PDL010 PDL025	KW10 SW05					
ANSI Part Number			ISO Part Number																						
Finishing-Medium		CNMG 431CQ	120404CQ	1/64	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D8-D9 F87 F91 F92	1	
		432CQ	120408CQ	1/32	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		433CQ	120412CQ	3/64					●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		CNMG 542CQ	160608CQ	1/32					●	●	●	●	●	●	●	●	●	●	●	●	●	●	D9		
Up Facing		543CQ	160612CQ	3/64					●	●	●	●	●	●	●	●	●	●	●	●	●				
		CNMG 432CJ	120408CJ	1/32					●	●	●	●	●	●	●	●	●	●	●	●	●	●	D8-D9 F87 F91 F92		
		433CJ	120412CJ	3/64					●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		CNMG 543CJ	160612CJ	3/64					●	●	●	●	●	●	●	●	●	●	●	●	●	●	D8-D9		
Up Facing		544CJ	160616CJ	1/16					●	●	●	●	●	●	●	●	●	●	●	●	●				
		CNMG 431TN-V	120404TN-V	1/64		●																	D8-D9 F87 F91 F92	2	
		432TN-V	120408TN-V	1/32		●																			
		CNMG 331GS	090404GS	1/64	●	△		●	●		●	●	●	●	●	●	●	●	●	●	●	●	D9 F92		
Medium-Roughing		332GS	090408GS	1/32	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●				
		CNMG 431GS	120404GS	1/64	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		432GS	120408GS	1/32	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		433GS	120412GS	3/64					△	●	●	●	●	●	●	●	●	●	●	●	●	●			
Medium-Roughing		CNMG 431PG	120404PG	1/64	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●				
		432PG	120408PG	1/32	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		433PG	120412PG	3/64	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		434PG	120416PG	1/16			</																		



80° Diamond

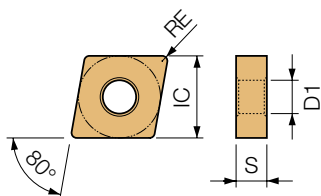
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CN_43_	1/2	3/16	0.203

<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16

[illegible]

80° Diamond

Negative Insert with Hole



<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16










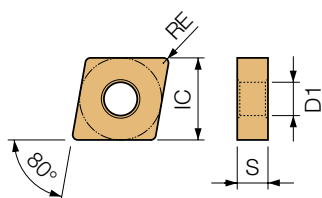
			Corner Radius (in)	Cermet	CVD Cermet	MEGA COAT Cermet	CVD Coated Carbide										MEGACOAT / MEGACOAT NANO PVD Coated Carbide					PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range
			RE	TN610 TN620 TN60	CCX	PV710 PV720 PV730	PV7005	PV90	CA510 CA515 CA025P CA525 CA530 CA5505 CA5515 CA5525 CA5535	CA6515 CA6525	CA310 CA315 CA320 CA4505 CA4515	PR1705 PR1725 PR1425 PR1225 PR005S PR015S PR1305 PR1310 PR1325	PR1535 PR930 PR1005 PR1025	PR1125 PDL010 PDL025	KW10	SW05										
Single Sided / Roughing		CNMM 432PX	120408PX	1/32					●	●	●	●	●	●												
		433PX	120412PX	3/64					●	●	●	●	●	●												
		434PX	120416PX	1/16																						
		CNMM 542PX	160608PX	1/32						●	●	●	●	●												
		543PX	160612PX	3/64						●	●	●	●	●												
		544PX	160616PX	1/16																						
		CNMM 642PX	190608PX	1/32						●	●	●	●	●												
High Feed Rate	643PX	190612PX	3/64						●	●	●	●	●													
	644PX	190616PX	1/16						●	●	●	●	●													
	646PX	190624PX	3/32						●	●	●	●	●													
Finishing		CNMG 431XF	120404XF	1/64	●	●		●	●	●																
		432XF	120408XF	1/32	●	●		●	●	●																
Finishing		CNMG 431XP	120404XP	1/64	●	●	●	●	●																	
		432XP	120408XP	1/32	●	●	△	●	●	●																
Medium		CNMG 431XQ	120404XQ	1/64	●	●	●	●	●																	
		432XQ	120408XQ	1/32	●	●	△	●	●	●																
Roughing		CNMG 432XS	120408XS	1/32	●	●	●		●	●	●	●	●													
Finishing-Medium		CNGG 4305MFP-SK	120402MFP-SK	<0.008				●					●	△	●		●									
		431MFP-SK	120404MFP-SK	<1/64				●						●	△	●		●								
Medium-Roughing		CNGG 431FP-TK	120404FP-TK	1/64									●	△	●		●									
		432FP-TK	120408FP-TK	1/32										●	△	●		●								
Medium-Roughing		CNGG 431TK	120404TK	1/64										△	△		●									
		432TK	120408TK	1/32										△	△		●									
Medium-Roughing		CNMG 431TK	120404TK	1/64										△	△	△	●									
		432TK	120408TK	1/32										△	△	△	●									

Figure 10 consists of three subplots, labeled 1, 2, and 3, each showing a contour plot of the relationship between Depth of Cut (D.O.C.) and Feed Rate for different chipbreaker geometries and materials.

- Subplot 1:** Titled "(1/2", 5/8", 3/4" I.C.: Steel)". The y-axis is D.O.C. (in) ranging from 0.08 to 0.48. The x-axis is Feed Rate (ipr) ranging from 0.008 to 0.040. Three contour regions are shown: PX(3/4") in green, PX(5/8") in pink, and PX(1/2") in blue.
- Subplot 2:** Titled "(Low Carbon Steel)". The y-axis is D.O.C. (in) ranging from 0.04 to 0.20. The x-axis is Feed Rate (ipr) ranging from 0.004 to 0.020. Four contour regions are shown: XP (black), XS (green), XQ (pink), and XF (blue).
- Subplot 3:** Titled "(Steel)" and "(Stainless Steel)". The y-axis is D.O.C. (in) ranging from 0.04 to 0.20. The x-axis is Feed Rate (ipr) ranging from 0.002 to 0.010. Two contour regions are shown: FP-TK (pink) and FP-SK (blue).

B19

Negative Insert with Hole



<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16

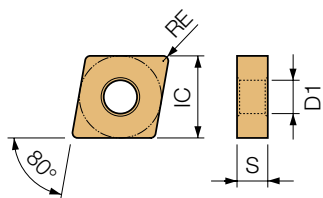
Technical drawing of a square insert showing dimensions: RE (corner radius), IC (insert width), D1 (hole diameter), S (thickness), and a 80° angle. The drawing includes a top view and a side view.

	Right-Hand Shown where Applicable	ANSI		ISO		RE	CVD Coated Carbide																MEGACOAT / MEGACOAT NANO PVD Coated Carbide				PVD Coated Carbide		DLC		Carbide		Toolholder Page	Chipbreaker										
		Part Number	Part Number				TN610	TN620	TN60	CCX	PV710	PV720	PV730	PV7005	PV90	CA510	CA515	CA025P	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA310	CA315	CA320	CA4505	CA4515	PR1705	PR1725	PR1425	PR1225	PR005S	PR015S	PR1305	PR1310	PR1325	PR1535	PR930	PR1005	PR1025

Figure 1 consists of four graphs showing the Chipbreaker Range (D.O.C. vs. Feed Rate) for different materials and chipbreaker types. The graphs are labeled 1 through 4.

- Graph 1: (Stainless Steel)** Shows D.O.C. (in) vs. Feed Rate (ipr) for chipbreaker types TK, MU, MQ, and MS. The ranges are approximately:
 - TK: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.20
 - MU: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.16
 - MQ: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.08
 - MS: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.04
- Graph 2: (3/4" I.C.: Stainless Steel)** Shows D.O.C. (in) vs. Feed Rate (ipr) for chipbreaker type MU. The range is approximately:
 - MU: Feed Rate 0.004 to 0.020, D.O.C. 0.04 to 0.20
- Graph 3: (Heat-Resistant Alloys)** Shows D.O.C. (in) vs. Feed Rate (ipr) for chipbreaker types SQ and SG. The ranges are approximately:
 - SQ: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.24
 - SG: Feed Rate 0.004 to 0.016, D.O.C. 0.04 to 0.24
- Graph 4: (Heat-Resistant Alloys)** Shows D.O.C. (in) vs. Feed Rate (ipr) for chipbreaker types SG and SQ. The ranges are approximately:
 - SG: Feed Rate 0.004 to 0.020, D.O.C. 0.04 to 0.35
 - SQ: Feed Rate 0.004 to 0.020, D.O.C. 0.04 to 0.24

Negative Insert with Hole



(in)

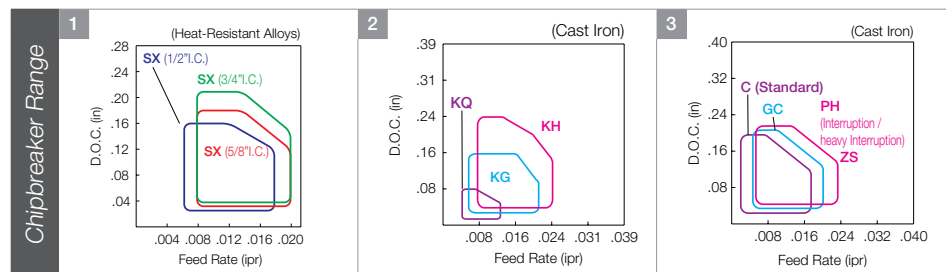
(in)

Part Number	IC	S	D1
CN_33_	3/8	3/16	0.150
CN_43_	1/2	3/16	0.203
CNMM_43X_	1/2	0.174	0.203

Part Number	IC	S	D1
CN_54_	5/8	1/4	1/4
CNMM_54X_	5/8	0.235	1/4
CN_64_	3/4	1/4	5/16
CNMM_64X_	3/4	0.233	5/16

[illegible]

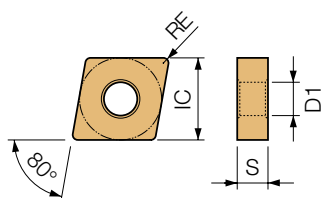
- **CNMM...X^R/-SX** inserts require a different shim, sold separately. See applicable holders on page [D8-D9](#) for applicable shim for SX chipbreaker inserts.



Contact your local Kyocera sales engineer to upgrade old products to new technology.

B21

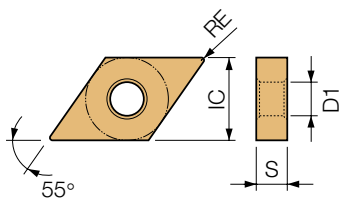
Negative Insert with Hole







<i>Part Number</i>	IC	S	D1
CN_54_	5/8	1/4	1/4
CN_64_	3/4	1/4	5/16

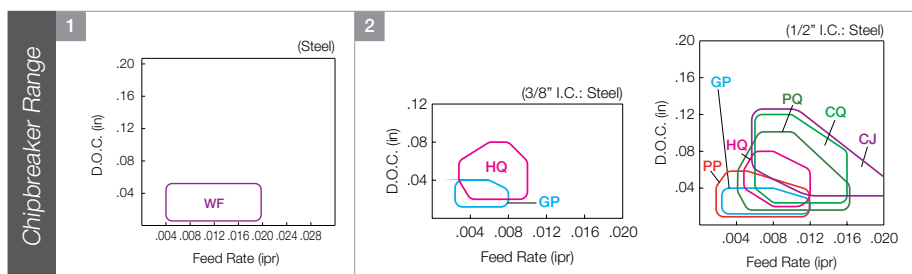
55° Diamond

Negative Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
DN_44_	1/2	1/4	0.203

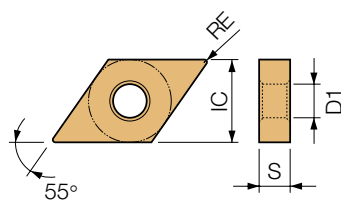
					Corner Radius (in)	Cermet	CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range		
		ANSI Part Number	ISO Part Number	RE	TN610 TN620	TN60	CCX	PV710 PV720 PV730	PV7005	PV90	CA510 CA515 CA525P CA525 CA530 CA5505 CA5515 CA5525 CA5535 CA6515 CA6525 CA310 CA315 CA320 CA4505 CA4515	PR1705 PR1725 PR1742S PR1225 PR005S PR015S PR1305 PR1310 PR1325 PR1535 PR930 PR1005 PR1025 PR1125 PDL010 PDL025	KW10	SW05				
Finishing		DNMX 431WF	150404WF	1/64	●●			●●		●●	●●	●●				D12 D13 F88 F94 F95	1	
		432WF	150408WF	1/32	●●			●●		●●	●●	●●				F88		
		433WF	150412WF	3/64	●●			●●		●●	●●	●●				F95		
		DNMX 441WF	150604WF	1/64	●●			●●		●●	●●	●●						
		442WF	150608WF	1/32	●●			●●		●●	●●	●●						D12 D13 F88
		443WF	150612WF	3/64	●●			●●		●●	●●	●●						
Finishing		DNMG 4305PP	150402PP	0.008	●●		●●	●●			●●	●●						
		431PP	150404PP	1/64	●●			●●		●●	●●	●●					D12 D13 F88 F94 F95	
		432PP	150408PP	1/32	●●			●●		●●	●●	●●						
		433PP	150412PP	3/64	●●			●●		●●	●●	●●						
		DNMG 4405PP	150602PP	0.008	●●		●●	●●			●●	●●						
		441PP	150604PP	1/64	●●			●●		●●	●●	●●					D12 D13 F88	
		442PP	150608PP	1/32	●●			●●		●●	●●	●●						
443PP	150612PP	3/64	●●			●●		●●	●●	●●								
Finishing		DNMG 331GP	110404GP	1/64	●●			●●		●●	●●	●●					D13 F93	
		332GP	110408GP	1/32	●●			●●		●●	●●	●●						
		DNMG 4305GP	150402GP	0.008	●●		●●	●●			●●	●●					D12 D13 F88 F94 F95	
		431GP	150404GP	1/64	●●			●●		●●	●●	●●						
		432GP	150408GP	1/32	●●			●●		●●	●●	●●						
		DNMG 4405GP	150602GP	0.008	●		●											
		441GP	150604GP	1/64	●		●										D12 D13 F88	
		442GP	150608GP	1/32	●		●											
Finishing-Medium		DNMG 431PQ	150404PQ	1/64	●●		●●	●●		●●	●●	●●					D12 D13 F88 F94 F95	
		432PQ	150408PQ	1/32	●●		●●	●●		●●	●●	●●						
		433PQ	150412PQ	3/64	●●		●●	●●		●●	●●	●●						
		DNMG 441PQ	150604PQ	1/64	●●		●●	●●		●●	●●	●●						
		442PQ	150608PQ	1/32	●●		●●	●●		●●	●●	●●					D12 D13 F88	
		443PQ	150612PQ	3/64	●●		●●	●●		●●	●●	●●						



B23

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Negative Insert with Hole



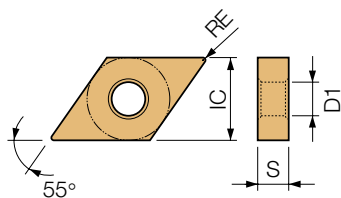
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
DN_44_	1/2	1/4	0.203

Figure 1 consists of four graphs showing the Chipbreaker Range (D.O.C. in) versus Feed Rate (ipr) for different materials and chipbreaker types. The y-axis for all graphs ranges from 0.04 to 0.20 inches. The x-axis for all graphs ranges from 0.004 to 0.020 ipr.

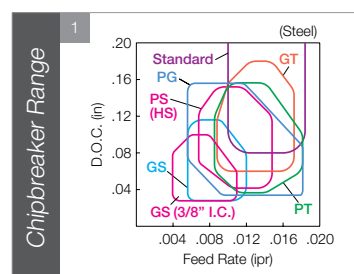
- Graph 1: (1/2" I.C.: Steel)** shows curves for GP, PQ, CQ, CJ, HQ, and PP.
- Graph 2: (Stainless Steel)** shows curves for TK, MU, MQ, and MS.
- Graph 3: (Steel)** shows curves for TN-V and HK.
- Graph 4: (Steel)** shows curves for Standard, PG, PS (HS), GS, GS (3/8" I.C.), GT, and PT.

55° Diamond

Negative Insert with Hole

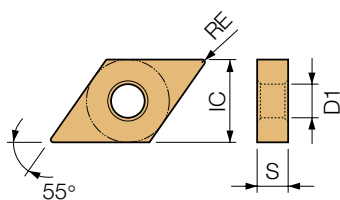


<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
DN_44_	1/2	1/4	0.203

[illegible]

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Negative Insert with Hole



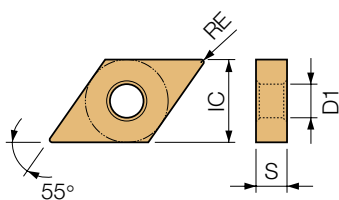
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
DN 44_	1/2	1/4	0.203

Figure 10 consists of three contour plots showing the relationship between Depth of Cut (D.O.C.) in inches and Feed Rate in inches per revolution (ipr) for different chipbreaker ranges. The y-axis for all plots is D.O.C. (in), ranging from 0.04 to 0.20. The x-axis for all plots is Feed Rate (ipr), ranging from 0.004 to 0.020.

- Plot 1 (Steel):** Shows regions for Standard, PG, PS (HS), GS, GS (3/8" I.C.), GT, and PT. The regions are defined by various contour lines.
- Plot 2 (Steel):** Shows regions for PH and PX. The PH region is a small area at low feed rates, and the PX region is a larger area at higher feed rates.
- Plot 3 (Low Carbon Steel):** Shows regions for XP, XQ, and XF. The XF region is a small area at low feed rates, and the XP and XQ regions are larger areas at higher feed rates.

55° Diamond

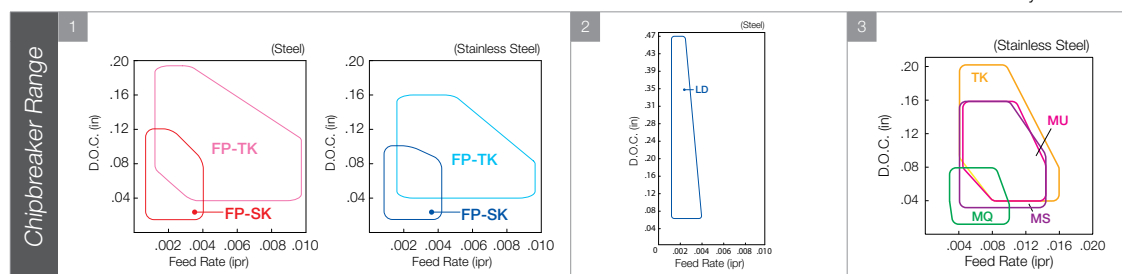
Negative Insert with Hole



<i>Part Number</i>	IC	S	D1
DN_44_	1/2	1/4	0.203

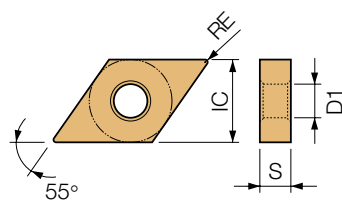
[illegible]

For Heat-Resistant Alloys See  **B8**



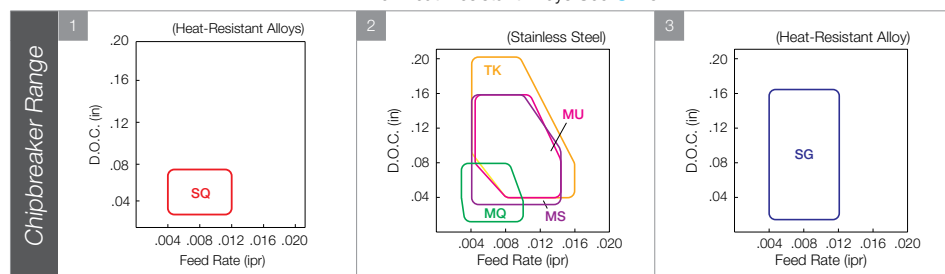
B27

Negative Insert with Hole



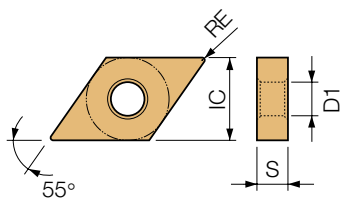
<i>Part Number</i>	IC	S	D1
DN_44_	1/2	1/4	0.203

For Heat-Resistant Alloys See ➡ **B8**

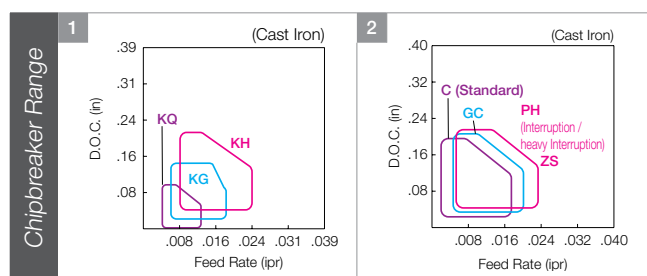


55° Diamond

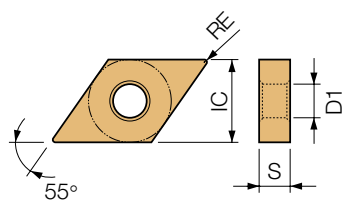
Negative Insert with Hole



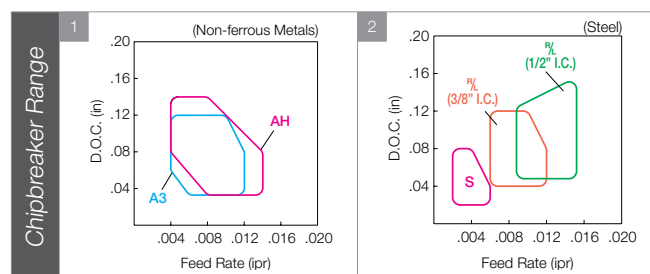
			(in)
<i>Part Number</i>	IC	S	D1
DN_44_	1/2	1/4	0.203

[illegible]

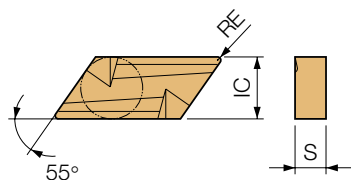
Negative Insert with Hole



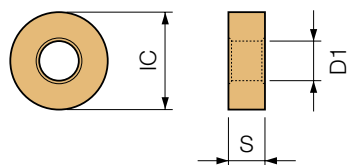
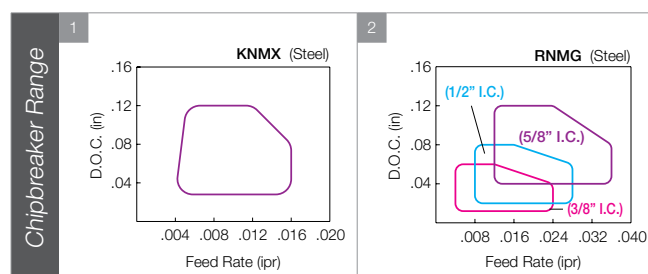
<i>Part Number</i>	IC	S	D1
DN_44_	1/2	1/4	0.203

[illegible]

Negative Insert without Hole

[illegible]

Negative Insert with Hole

[illegible]

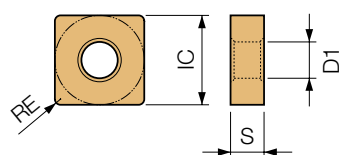
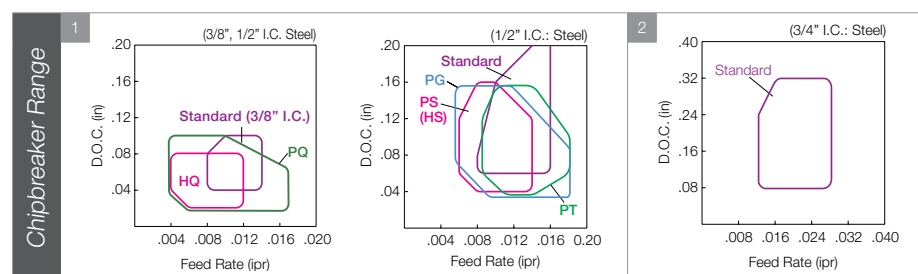
B31

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

90° Square

<i>Part Number</i>	IC	S	D1
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203

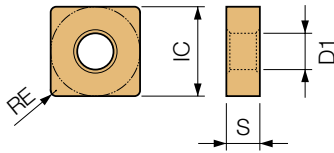
<i>Part Number</i>	IC	S	D1
SN_54_	5/8	1/4	1/4
SN_64_	3/4	1/4	5/16

[illegible]

How to read this page **B15**

90° Square

Negative Insert with Hole



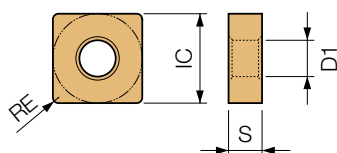
Part Number	IC	S	D1
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203

Part Number	IC	S	D1
SN_54_	5/8	1/4	1/4
SN_64_	3/4	1/4	5/16
SN_86_	1	3/8	0.359

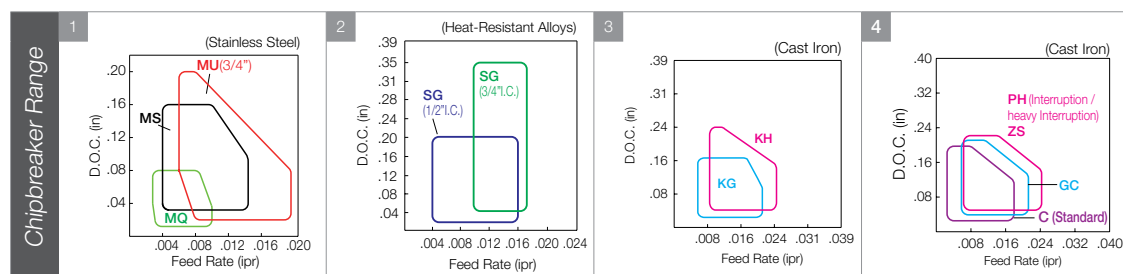
			Corner Radius (in)	CVD Cermet										CVD Coated Carbide										MEGACOAT / MEGACOAT NANO PVD Coated Carbide										PVD Coated Carbide		DLC		Carbide		Toolholder Page	Chipbreaker Range																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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90° Square

Negative Insert

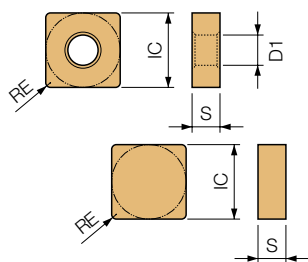


<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
SN 64_	3/4	1/4	5/16

[illegible]

For Heat-Resistant Alloys See  **B8**

90° Square


Negative Insert with &
without HoleRight-Hand Shown
where Applicable

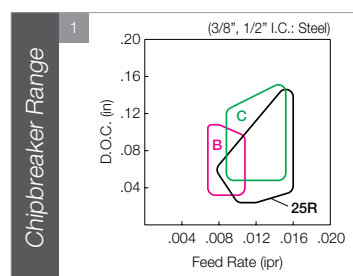
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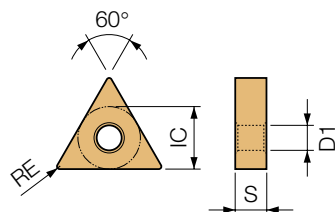
Part Number

Part Number

Cast Iron		SNGA 321	090304	1/64																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
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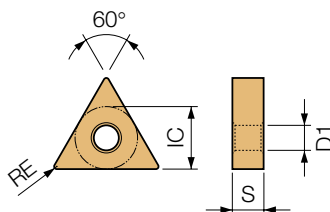


Negative Insert with Hole

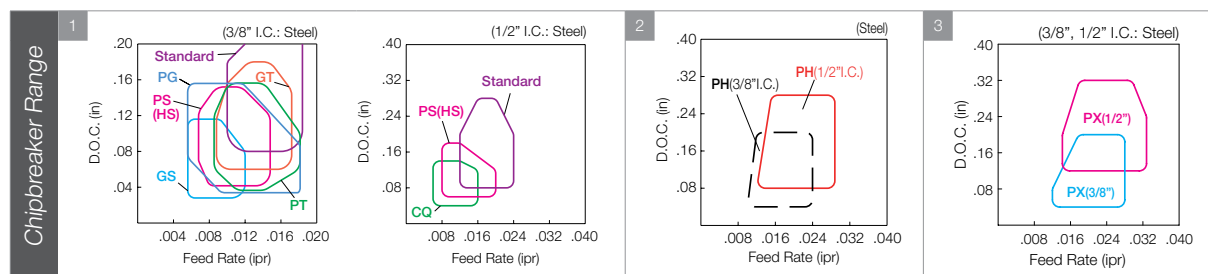


			(in)
<i>Part Number</i>	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203

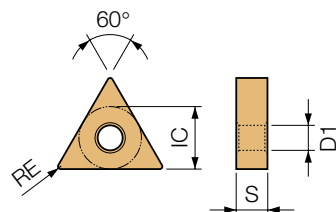
Negative Insert with Hole



	(in)		
Part Number	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203

[illegible]

Negative Insert with Hole

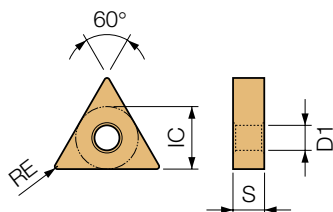


<i>Part Number</i>	IC	S	D1
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203
TN_66_	3/4	3/8	0.312

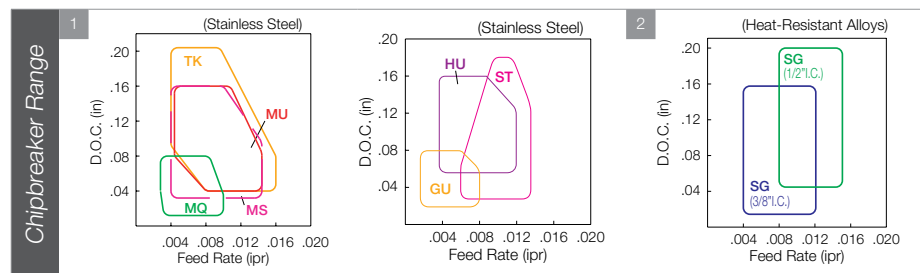
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



Negative Insert with Hole



Part Number

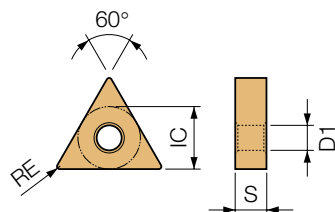
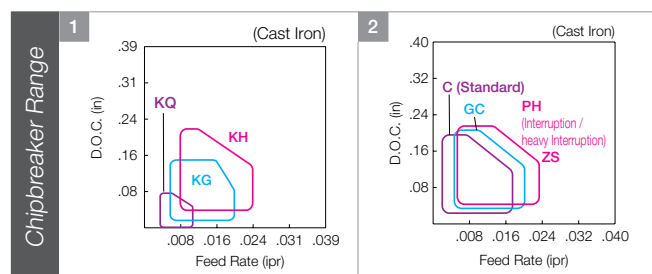
[illegible]

For Heat-Resistant Alloys See **B8**

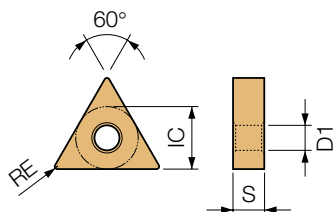
60° Triangle

<i>Part Number</i>	IC	S	D1
TN_22_	1/4	1/8	0.089
TN_23_	1/4	3/16	0.089

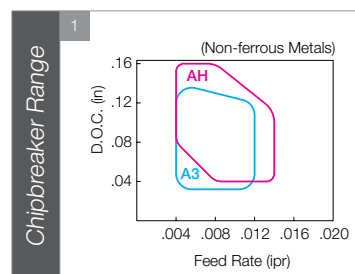
<i>Part Number</i>	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203

[illegible]

Negative Insert with Hole



<i>Part Number</i>	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203

[illegible]

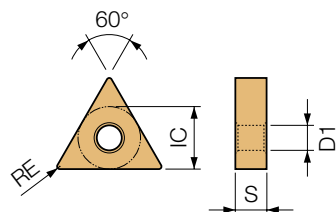
B41


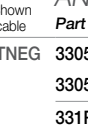
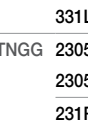
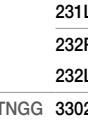
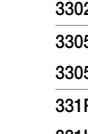
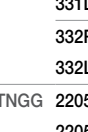

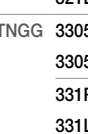
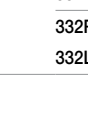
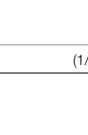



A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

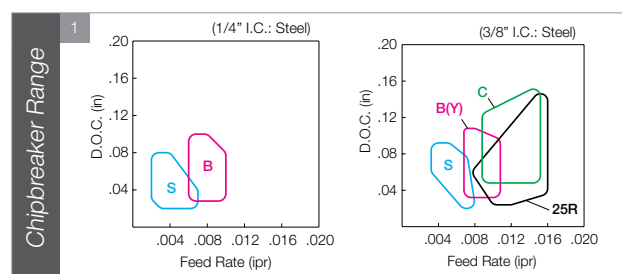
60° Triangle

			(in)
<i>Part Number</i>	IC	S	D1
TN_22_	1/4	1/8	0.089
TN_23_	1/4	3/16	0.089

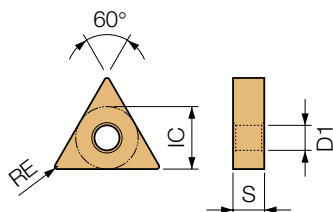
<i>Part Number</i>	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203



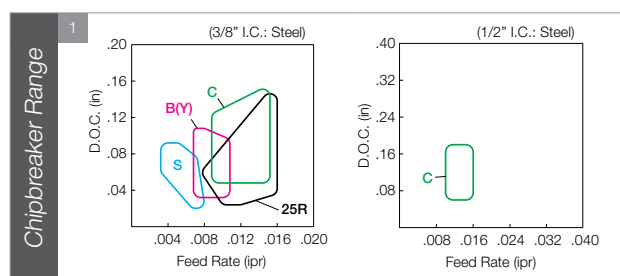
																																																																																																																													
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Negative Insert with Hole

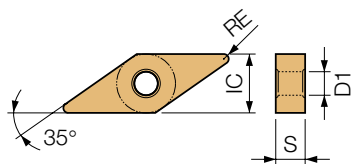


<i>Part Number</i>	IC	S	D1
TN_32_	3/8	1/8	0.150
TN_33_	3/8	3/16	0.150
TN_43_	1/2	3/16	0.203

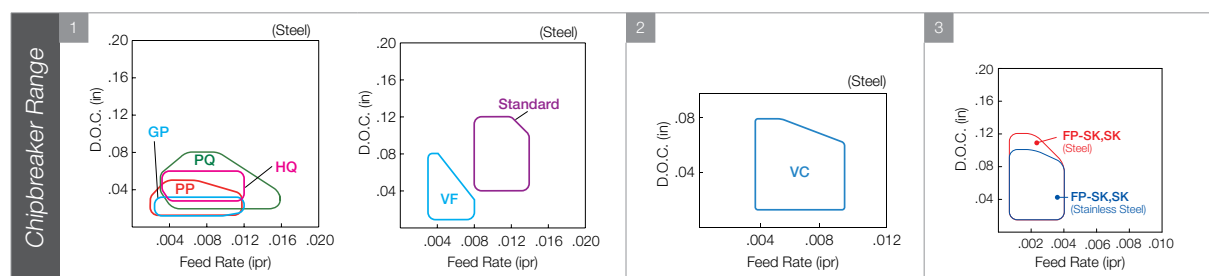
[illegible]

(in)

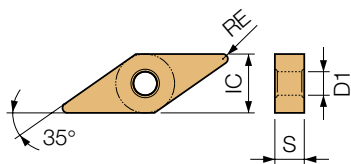
Negative Insert with Hole



Part Number	IC	S	D1
VN_33	3/8	3/16	0.150

[illegible]

Negative Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
VN_33_	3/8	3/16	0.150










			Corner Radius (in)	Cermert	CVD Cermert	MEGA COAT Cermert	CVD Coated Carbide										MEGACOAT / MEGACOAT NANO PVD Coated Carbide					PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range
Right-Hand Shown where Applicable			RE	TN610 TN620 TN60	CKX	PV710 PV720 PV730 PV7005	PV90	CA510 CA515 CA025P CA525 CA530 CA5505 CA5515 CA5525 CA5535	CA6515 CA6525	CA310 CA315 CA320 CA4505 CA4515	PR1705	PR1725 PR1745	PR1225 PR005S PR015S	PR1305 PR1310 PR1325	PR1535	PR930 PR1005 PR1025	PR1125 PDL010 PDL025	KW10	SW05							
ANSI Part Number			ISO Part Number																							
Finishing-Medium		VNMG 331MQ	160404MQ	1/64										●	●					●						
	Stainless Steel / HRSA	332MQ	160408MQ	1/32										●	●					●						
Medium-Roughing		VNMG 331MS	160404MS	1/64										●	●					●						
		332MS	160408MS	1/32										●	●					●						
	Stainless Steel / HRSA	333MS	160412MS	3/64										●	●					●						
Medium-Roughing		VNGG 3302MU	160401MU	0.004																						
		3305MU	160402MU	0.008																						
Medium-Roughing		VNMG 331MU	160404MU	1/64										●	●					●						
	Stainless Steel / HRSA	332MU	160408MU	1/32										●	●					●						
Medium-Roughing		VNMG 331SG	160404SG	1/64										●	●					●						
	Heat-Resistant Alloy	332SG	160408SG	1/32										●	●					●						
Medium-Roughing		VNMG 332KH	160408KH	1/32										●	●	●										
	Cast Iron	333KH	160412KH	3/64										●	●	●										
Medium-Roughing		VNMG 332KG	160408KG	1/32										●	●	●										
	Cast Iron	333KG	160412KG	3/64										●	●	●										
Cast Iron		VNGA 331	160404	1/64					●											●						
	Without Chipbreaker	332	160408	1/32					●											●						
Medium		VNGG 3305R	160402R	0.008	●	●	●	●	●	●							●									
		3305L	160402L	0.008	●	●	●	●	●	●							●									
		331R	160404R	1/64	●	●	●	●	●	●							●			●						
		331L	160404L	1/64	●	●	●	●	●	●							●			●						
		332R	160408R	1/32	●	●	●	●	●	●							●			●						
		332L	160408L	1/32	●	●	●	●	●	●							●			●						

Figure 10 displays four graphs showing the chipbreaker range for different materials, plotting Depth of Cut (D.O.C.) in inches (y-axis) against Feed Rate in inches per revolution (ipr) (x-axis).

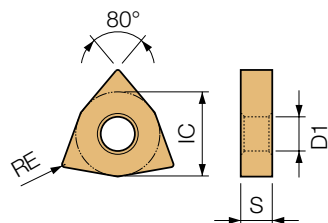
- 1 (Stainless Steel):** Shows four curves labeled MQ, GU, MU, and MS. The y-axis ranges from 0.04 to 0.16, and the x-axis ranges from 0.004 to 0.020.
- 2 (Heat-Resistant Alloys):** Shows a single curve labeled SG. The y-axis ranges from 0.04 to 0.20, and the x-axis ranges from 0.004 to 0.020.
- 3 (Cast Iron):** Shows two curves labeled KH and KG. The y-axis ranges from 0.04 to 0.24, and the x-axis ranges from 0.004 to 0.024.
- 4 (Steel):** Shows a single curve labeled % (Without Indication). The y-axis ranges from 0.04 to 0.20, and the x-axis ranges from 0.004 to 0.020.

B45

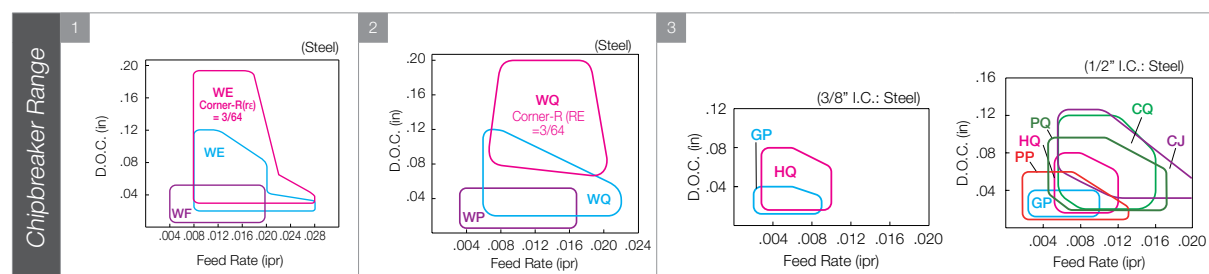
80° Trigon

<i>Part Number</i>	IC	S	D1
WN_325_	3/8	5/32	0.150
WN_33_	3/8	3/16	0.150

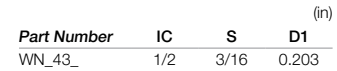
			(in)
<i>Part Number</i>	IC	S	D1
WN_43_	1/2	3/16	0.203



ANSI	ISO
Part Number	Part Number

[illegible]

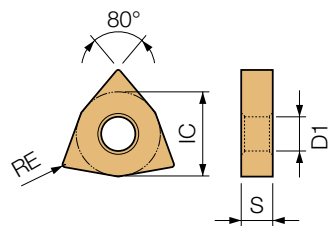
Negative Insert with Hole



INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T



Negative Insert with Hole

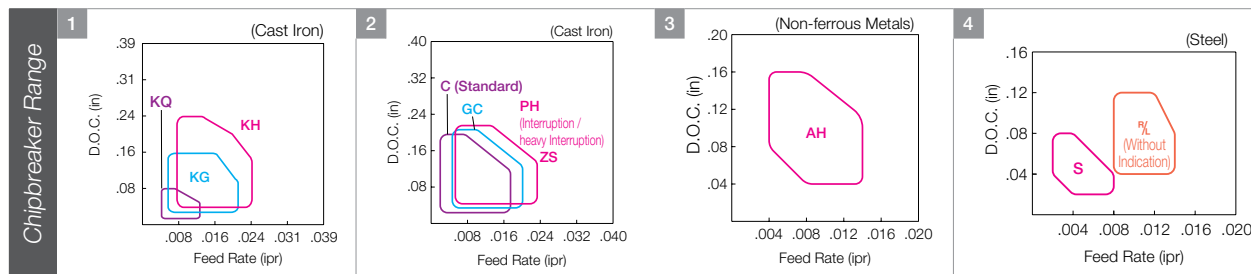


<i>Part Number</i>	IC	S	D1
WN_43_	1/2	3/16	0.203

Contact your local Kyocera sales engineer to upgrade old products to new technology.

80° Trigon

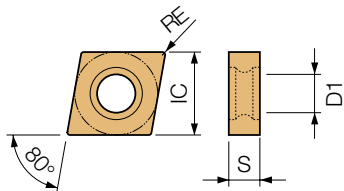
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
WN_43_	1/2	3/16	0.203

[illegible]

B49

Small Double-Sided / 80° Diamond

Turning Inserts



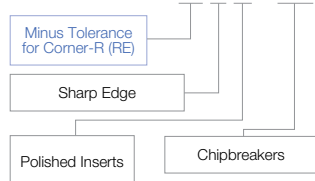
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CN_U242_	0.295	1/8	0.142

[illegible]

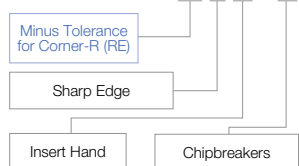
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

- **Small Double-Sided Tool Identification System**

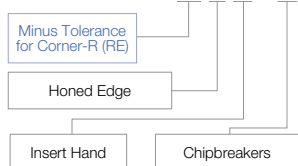
CNGU070301M F P - SK



CNGU070301MFR-U



CNGU070301MER-U



- When minus tolerance is specified for corner-R (RE)

- If a minus tolerance is specified for the corner-R (RE) as shown in Fig.1, using an insert with corner-R = 0.008" may result in larger radius than specified.
- Use an insert whose corner-R (RE) has a minus tolerance.

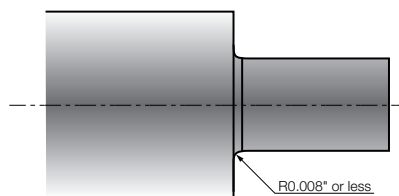
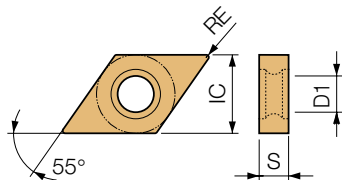


Fig.1 Example of a specified corner-R in drawing

(in)


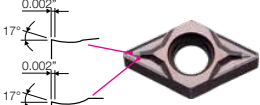


Turning Inserts



Part Number	IC	S	D1
DN_222	0.276	1/8	0.142

[illegible]

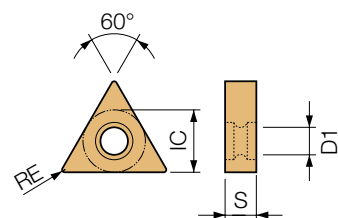
- ### ■ Chipbreaker Selection (Negative Inserts)

Cutting Range	Name	Cross-Section	Advantages
Finishing-Medium	SK		A low cutting force chipbreaker designed for chip control in steel and stainless steel. Cutting performance is similar to comparably sized positive inserts.
Medium-Roughing	GK		Chipbreaker "dot" and pocket design provide chip control at multiple depths of cut and feed rates.
Finishing	F		Controlled chip evacuation direction with low cutting forces.
Low Feed	U		Good chip control at low feed rates and varied depths of cut with low cutting forces.



(in)

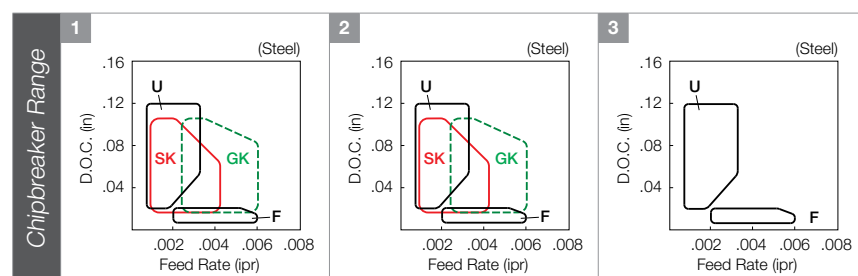
Turning Inserts



Part Number	IC	S	D1
TN_182_	7/32	1/8	0.118

[illegible]

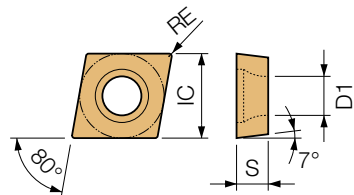
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



How to read this page ➡ **B15**

80° Diamond

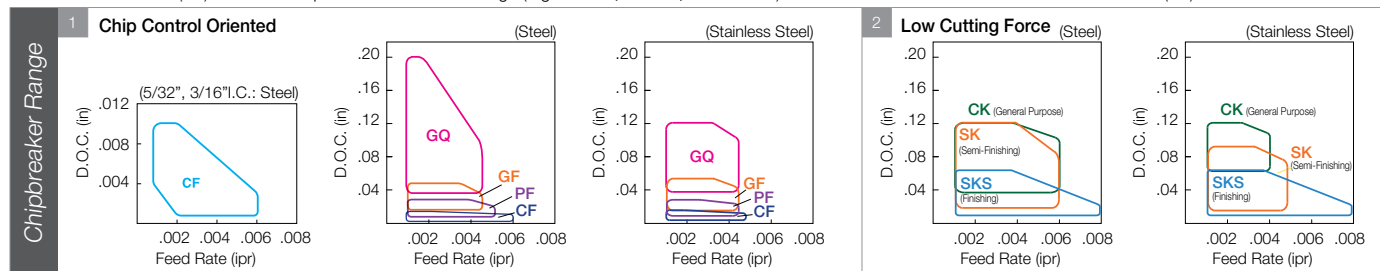
Positive Insert with Hole



(in)				(in)			
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>	<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CC_1109_	0.138	0.055	0.075	CC_215_	1/4	3/32	0.110
CC_1411_	0.169	0.071	0.091	CC_325_	3/8	5/32	0.173
				CC_43_	1/2	3/16	0.217

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

Inserts sold in 10 piece boxes.

B53

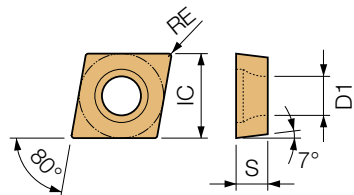
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

How to read this page ➡ **B15**

(in)

80° Diamond

Positive Insert with Hole

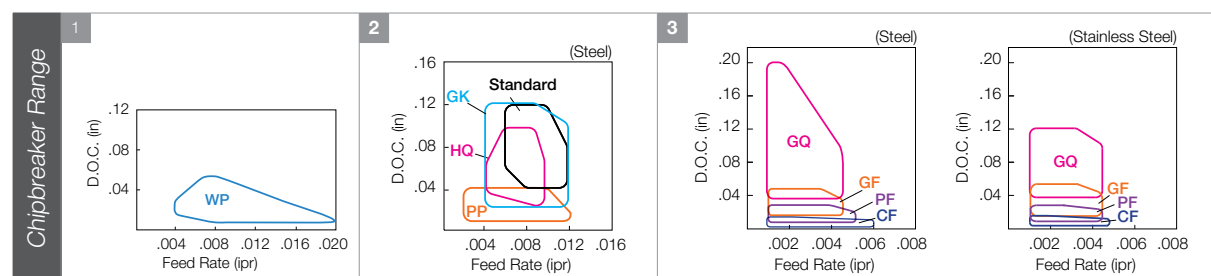


Part Number	Applicable Toolholder Page
CC..215	<u>E24~E26, E45, E52, F29, F47, F49</u>
CC..325	<u>E24~E26, E45, E52, F47, F89</u>

<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CC_215_	1/4	3/32	0.110
CC_325_	3/8	5/32	0.173
CC_43_	1/2	3/16	0.217

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



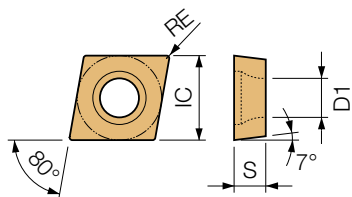
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

How to read this page **B15**

80° Diamond

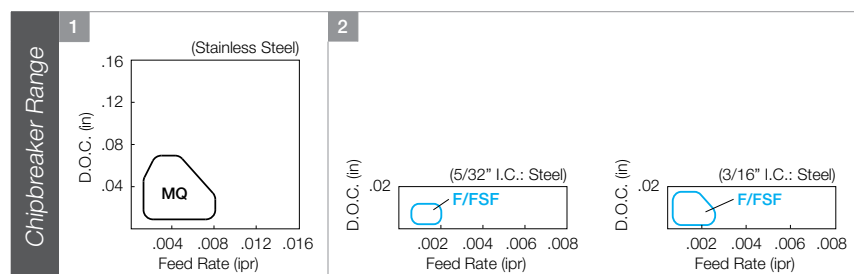
Positive Insert with Hole



Part Number	IC	S	D1	Part Number	IC	S	D1
CC_1109_	0.138	0.055	0.075	CC_215_	1/4	3/32	0.110
CC_1411_	0.169	0.071	0.091	CC_325_	3/8	5/32	0.173
				CC_43_	1/2	3/16	0.217

	Left-Hand Shown where Applicable	ANSI Part Number	ISO Part Number	Corner Radius (in)	RE	Material Compatibility																Toolholder Page	Chipbreaker Range
						Cermet	CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Hard materials	Free-Cutting Steel	Carbon/Alloy Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	HRSA	Titanium Alloy
Medium		CCGT 215013MF	0602005MF	<0.002	TN610																		
		21502MF	060201MF	<0.004	TN620																		
		21505MF	060202MF	<0.008	CCX																		
		2151MF	060204MF	<1/64	PV710																		
		CCGT 325013MF	09T3005MF	<0.002	PV720																		
Finishing-Medium		32502MF	09T301MF	<0.004	PV730																		
		32505MF	09T302MF	<0.008	PV7005																		
		3251MF	09T304MF	<1/64	CA510																		
		CCMT 3251MQ	09T304MQ	1/64	CA515																		
		3252MQ	09T308MQ	1/32	CA525P																		
Finishing		CCET 110901R-FSF	0301003R-FSF	0.001	CA530																		
		110901L-FSF	0301003L-FSF	0.001	CA5505																		
		110902R-FSF	030101R-FSF	0.004	CA5515																		
		110902L-FSF	030101L-FSF	0.004	CA5525																		
		110905R-FSF	030102R-FSF	0.008	CA5535																		
		110905L-FSF	030102L-FSF	0.008	CA6515																		
		11091R-FSF	030104R-FSF	1/64	CA6525																		
		11091L-FSF	030104L-FSF	1/64	CA310																		
		CCET 141101L-FSF	0401003L-FSF	0.001	CA315																		
		141102R-FSF	040101R-FSF	0.004	CA320																		
		141102L-FSF	040101L-FSF	0.004	CA4505																		
		141105R-FSF	040102R-FSF	0.008	CA4515																		
		141105L-FSF	040102L-FSF	0.008	PR1705																		
		14111L-FSF	040104L-FSF	1/64	PR1725																		
		CCET 1109013MR-FSF	0301005MR-FSF	<0.002	PR1225																		
		1109013ML-FSF	0301005ML-FSF	<0.002	PR0155																		
		110902MR-FSF	030101MR-FSF	<0.004	PR01305																		
		110902ML-FSF	030101ML-FSF	<0.004	PR1310																		
		110905MR-FSF	030102MR-FSF	<0.008	PR1325																		
		110905ML-FSF	030102ML-FSF	<0.008	PR1535																		
		11091MR-FSF	030104MR-FSF	<1/64	PR930																		
		11091ML-FSF	030104ML-FSF	<1/64	PR1005																		
		CCET 1411013ML-FSF	0401005ML-FSF	<0.002	PR1025																		
		141102MR-FSF	040101MR-FSF	<0.004	PDL010																		
		141102ML-FSF	040101ML-FSF	<0.004	PDL025																		
		141105MR-FSF	040102MR-FSF	<0.008	KW10																		
		141105ML-FSF	040102ML-FSF	<0.008	SW05																		
		14111MR-FSF	040104MR-FSF	<1/64																			
		14111ML-FSF	040104ML-FSF	<1/64																			

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

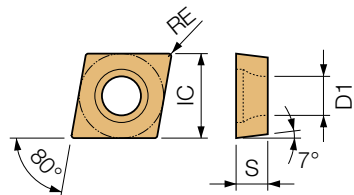


Part Number	Applicable Toolholder Page
CC..215	E24~E26, E45, E52, F29, F47, F49
CC..325	E24~E26, E45, E52, F47, F89

How to read this page ➡ **B15**

80° Diamond

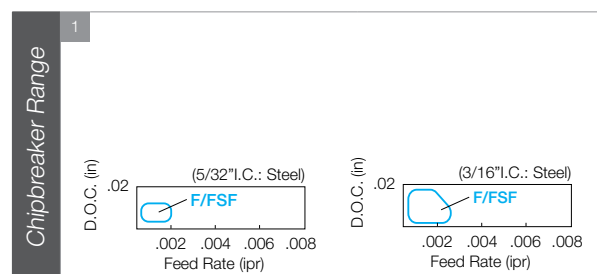
Positive Insert with Hole



(in)				(in)			
Part Number	IC	S	D1	Part Number	IC	S	D1
CC_1109_	0.138	0.055	0.075	CC_215_	1/4	3/32	0.110
CC_1411_	0.169	0.071	0.091	CC_325_	3/8	5/32	0.173
				CC_43_	1/2	3/16	0.217

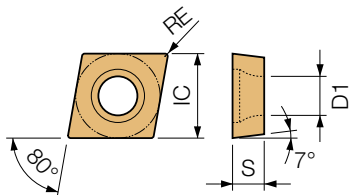
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



80° Diamond

Positive Insert with Hole



(in)				(in)			
Part Number	IC	S	D1	Part Number	IC	S	D1
CC_1109_	0.138	0.055	0.075	CC_215_	1/4	3/32	0.110
CC_1411_	0.169	0.071	0.091	CC_325_	3/8	5/32	0.173
				CC_43_	1/2	3/16	0.217

[illegible]

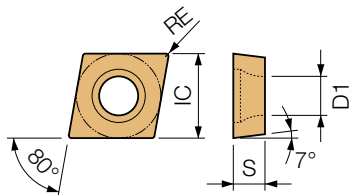
Figure 10 consists of three graphs showing the Chipbreaker Range (D.O.C. in inches vs. Feed Rate in inches per revolution) for different chipbreaker ranges. The graphs are labeled 1, 2, and 3.

- Graph 1 (Steel):** Shows the chipbreaker range for a steel workpiece. The y-axis (D.O.C. (in)) ranges from 0 to 0.08. The x-axis (Feed Rate (ipr)) ranges from 0 to 0.008. The range is labeled 'P'.
- Graph 2 (1/4" I.C.: Steel):** Shows the chipbreaker range for a steel workpiece with a 1/4 inch chipbreaker range. The y-axis (D.O.C. (in)) ranges from 0 to 0.12. The x-axis (Feed Rate (ipr)) ranges from 0 to 0.016. The range is labeled 'U/USF'.
- Graph 3 (3/8" I.C.: Steel):** Shows the chipbreaker range for a steel workpiece with a 3/8 inch chipbreaker range. The y-axis (D.O.C. (in)) ranges from 0 to 0.16. The x-axis (Feed Rate (ipr)) ranges from 0 to 0.016. The range is labeled 'U/USF'.

Part Number	Applicable Toolholder Page
CC..215	<u>E24~E26, E45, E52, F29, F47, F49</u>
CC..325	<u>E24~E26, E45, E52, F47, F89</u>

(in)

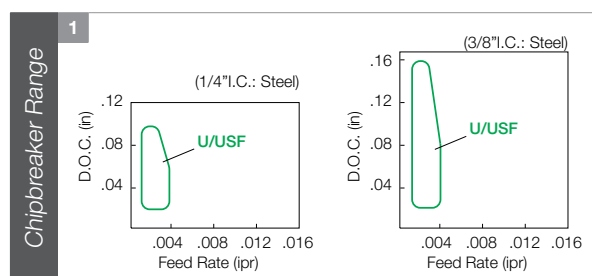
Positive Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CC_215_	1/4	3/32	0.110
CC_325_	3/8	5/32	0.173
CC_43_	1/2	3/16	0.217

[illegible]

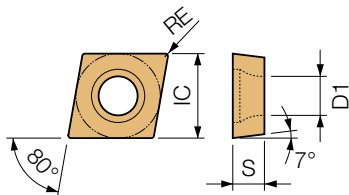
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



Part Number	Applicable Toolholder Page
CC..215	<u>E24~E26, E45, E52, F29, F47, F49</u>
CC..325	<u>E24~E26, E45, E52, F47, F89</u>

(in)

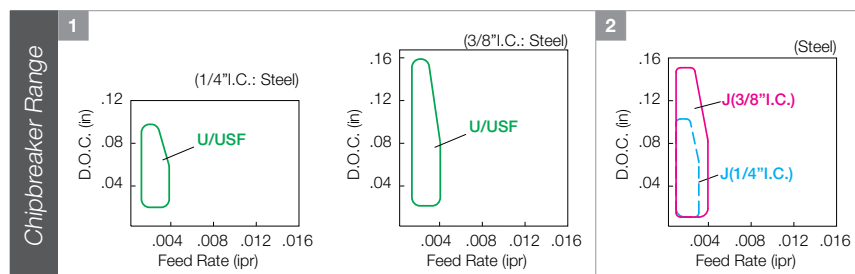
Positive Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
CC_215_	1/4	3/32	0.110
CC_325_	3/8	5/32	0.173
CC_43_	1/2	3/16	0.217

[illegible]

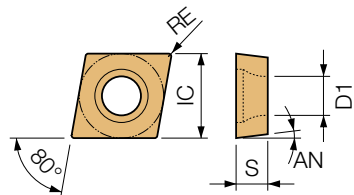
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



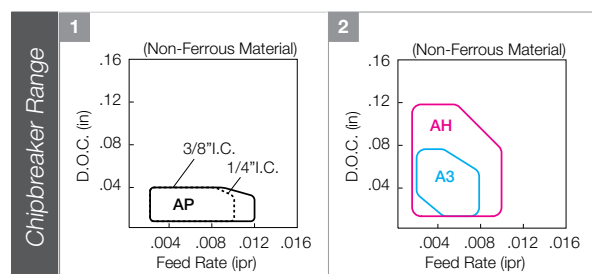
<i>Part Number</i>	<i>Applicable Toolholder Page</i>
CC..215	<u>E24~E26, E45, E52,</u> <u>F29, F47, F49</u>
CC..325	<u>E24~E26, E45, E52,</u> <u>F47, F89</u>

80° Diamond

(in)					(in)				
Part Number	IC	S	D1	AN	Part Number	IC	S	D1	AN
CC_215_	1/4	3/32	0.110	7°	CP_215_	1/4	3/32	0.110	11°
CC_325_	3/8	5/32	0.173		CP_325_	3/8	5/32	0.123	
CC_43_	1/2	3/16	0.217						

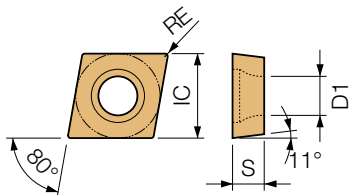


Part Number	Applicable Toolholder Page
CC..215	<u>E24~E26, E45, E52, F29, F47, F49</u>
CC..325	<u>E24~E26, E45, E52, F47, F89</u>

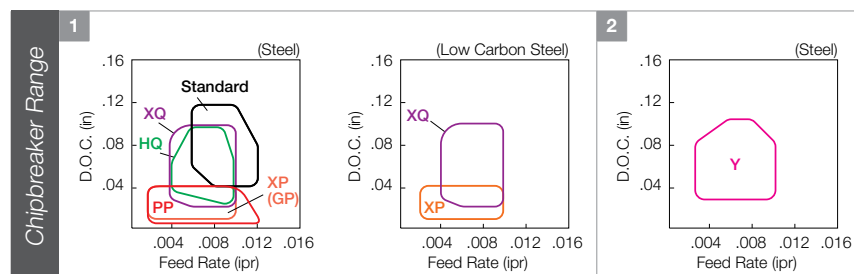


80° Diamond

Positive Insert with Hole



(in)				(in)			
Part Number	IC	S	D1	Part Number	IC	S	D1
CPMT2515_	5/16	3/32	0.130	CP_2515_	5/16	3/32	0.138
CPMT32_	3/8	1/8	0.173	CP_32_	3/8	1/8	0.177

[illegible]

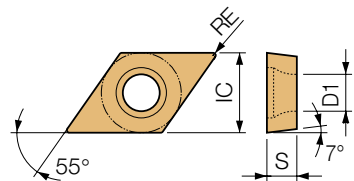
B61

How to read this page ➡ **B15**

(in)

55° Diamond

Positive Insert with Hole

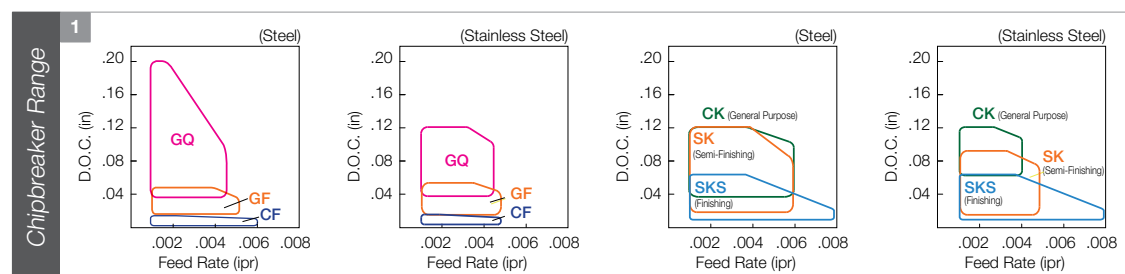


<i>Part Number</i>	<i>Applicable Toolholder Page</i>
DC..215	<u>E27~E33, E46, E52, F55~F59</u>
DC..325	<u>E22, E27~E33, E46, E52, F55~F59, F89</u>

<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



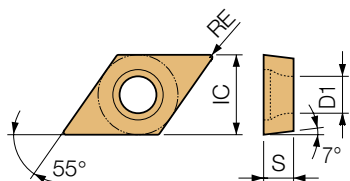
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

How to read this page ➡ **B15**

55° Diamond

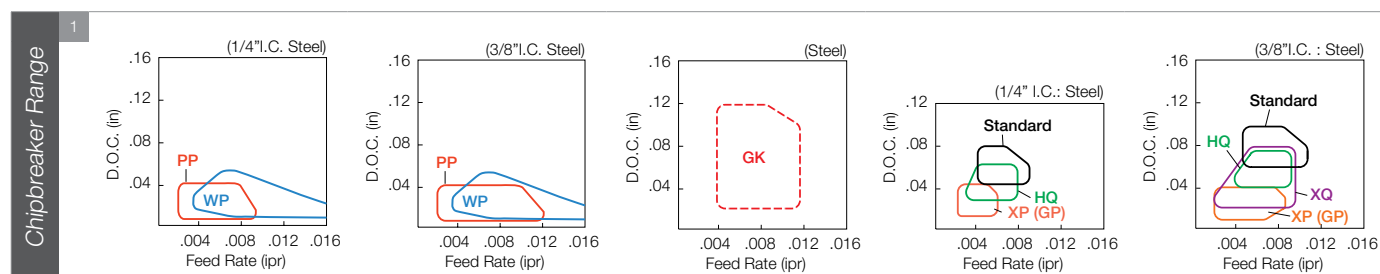
Positive Insert with Hole



Part Number	Applicable Toolholder Page	Part Number	IC	S	D1
DC..215	<u>E27~E33, E46, E52, F55~F59</u>	DC_215_	1/4	3/32	0.110
DC..325	<u>E22, E27~E33, E46, E52, F55~F59, F89</u>	DC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

Inserts sold in 10 piece boxes.

B63

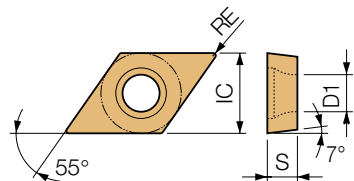
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

How to read this page ➡ **B15**

(in)

55° Diamond

Positive Insert with Hole

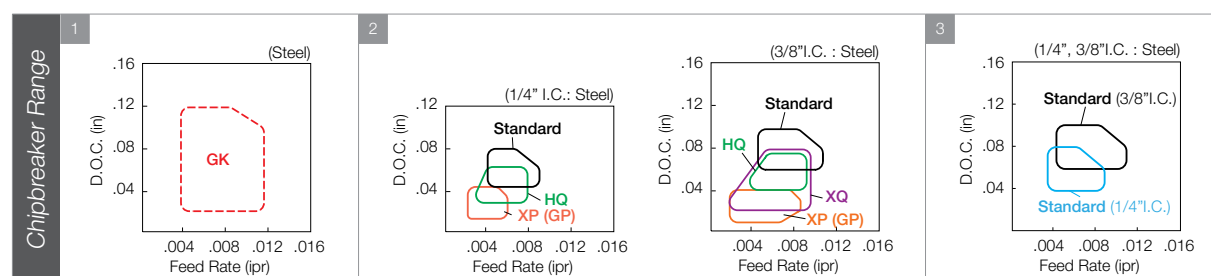


Part Number	Applicable Toolholder Page
DC..215	<u>E27~E33</u> , <u>E46</u> , <u>E52</u> , <u>F55~F59</u>
DC..325	<u>E22</u> , <u>E27~E33</u> , <u>E46</u> , <u>E52</u> , <u>F55~F59</u> , <u>F89</u>

<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

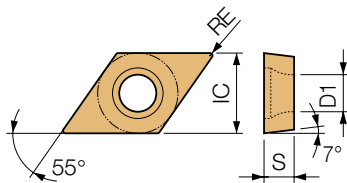
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. **<0.002**, **<0.004**, **<0.008** etc.) indicate models with minus tolerance for corner R (RE).






How to read this page **B15****55° Diamond**

Positive Insert with Hole

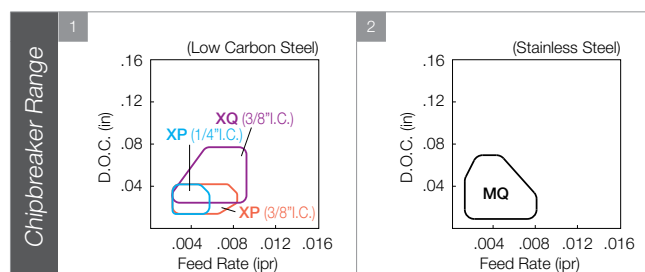


Part Number	Applicable Toolholder Page
DC..215	E27~E33, E46, E52, F55~F59
DC..325	E22, E27~E33, E46, E52, F55~F59, F89

Part Number	IC	S	D1 (in)
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

				Corner Radius (in)	Cermet			CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO PVD Coated Carbide				PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range																							
		ANSI Part Number	ISO Part Number	RE	TN610	TN620	TN60	CCX	PV710	PV720	PV730	PV7005	PV90	CA510	CA515	CA025P	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515			CA310	CA315	CA320	CA4505	CA4515	PR1705	PR1725	PR1425	PR1225	PR005S	PR015S	PR1305	PR1310	PR1325	PR1535	PR930	PR1005	PR1025	PR1125	PDL010	PDL025	KW10	SW05
Finishing		DCMT 2151XP	070204XP	1/64	●	●		●	●	●	●			△	●	●	●			●	●											●	△							●	●		△					
		DCMT 32505XP	11T302XP	0.008	●	●		●	●	●	●					●	●	●	●		●	●								●	△						●	●		△								
		3251XP	11T304XP	1/64	●	●		●	●	●	●		●		●	●	●	●	●	●	●	●								●	△						●	●		△								
		3252XP	11T308XP	1/32	●	●		●	●	●	●		●		●	●	●	●	●	●	●	●								●	△						●	●		△								
Finishing-Medium		DCMT 3251XQ	11T304XQ	1/64	●	●		●	●	●	●			●	●	●	●	●		●	●																											
		3252XQ	11T308XQ	1/32	●	●		●	●	●	●		●		●	●	●	●	●		●	●																										
Finishing-Medium		DCMT 21505MQ	070202MQ	0.008																		●	●												●	△	△	△			●				●			
		2151MQ	070204MQ	1/64																			●	●												●	△	△	△			●			●			
		DCMT 32505MQ	11T302MQ	0.008																			●	●													●	△	△	△			●			●		
		3251MQ	11T304MQ	1/64																			●	●													●	△	△	△			●			●		
		3252MQ	11T308MQ	1/32																			●	●													●	△	△	△			●			●		

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

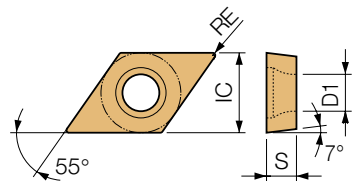


How to read this page ➡ **B15**

(in)

55° Diamond

Positive Insert with Hole

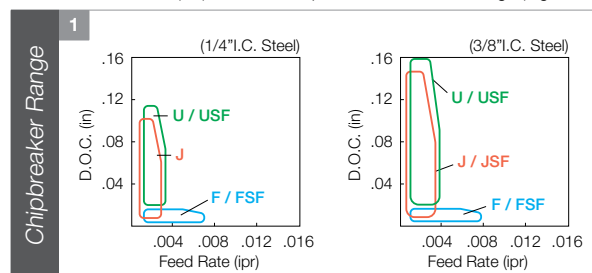


<i>Part Number</i>	<i>Applicable Toolholder Page</i>
DC..215	<u>E27~E33, E46, E52, F55~F59</u>
DC..325	<u>E22, E27~E33, E46, E52, F55~F59, F89</u>

<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

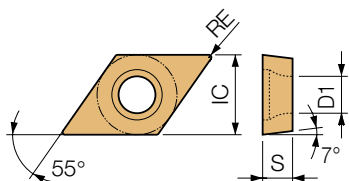
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



(in)

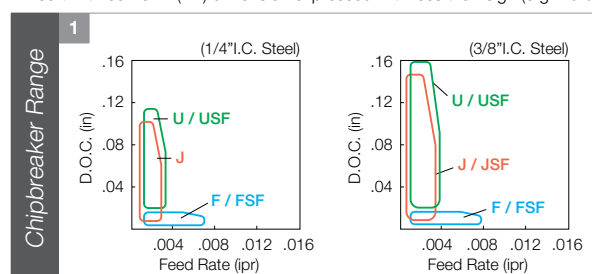
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

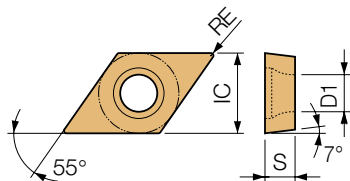


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

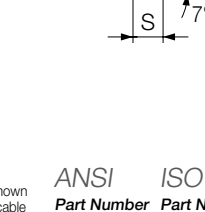
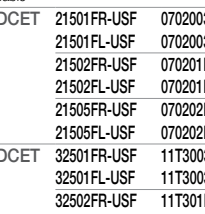
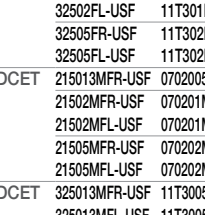
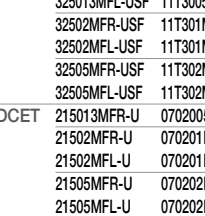
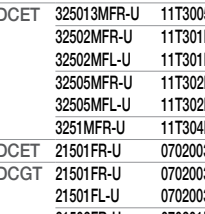
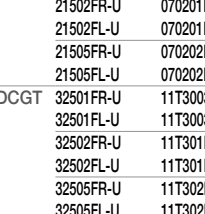
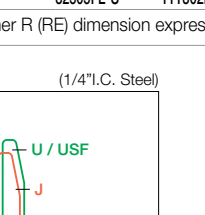
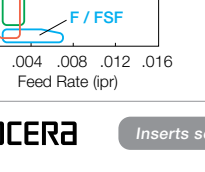
Inserts sold in 10 piece boxes.

(in)

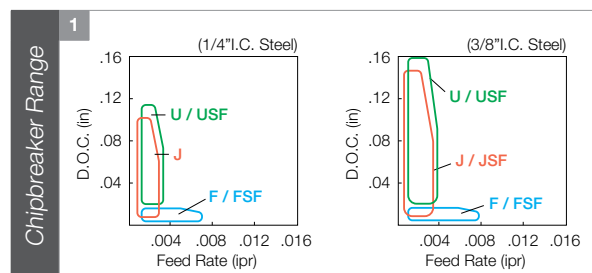
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

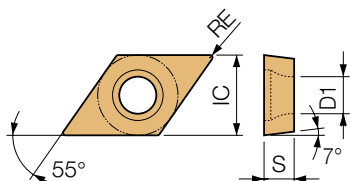
																																																																														
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• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



(in)

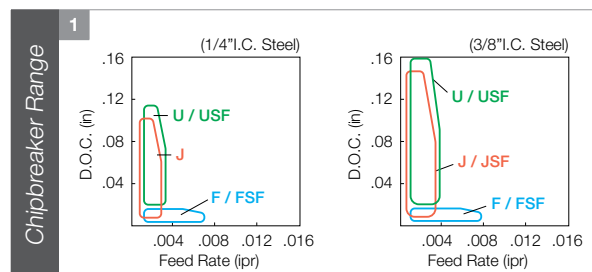
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

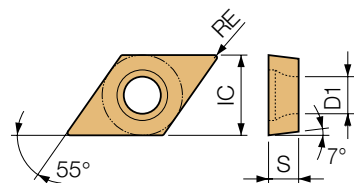
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

How to read this page ➡ **B15**

(in)

55° Diamond

Positive Insert with Hole

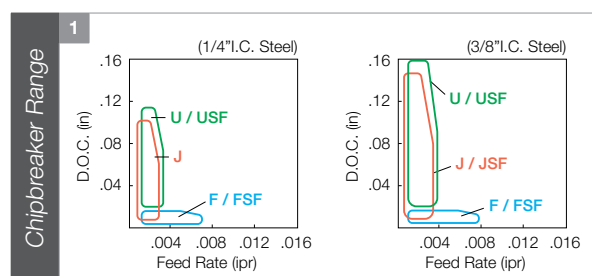


Part Number	Applicable Toolholder Page
DC..215	<u>E27~E33</u> , <u>E46</u> , <u>E52</u> , <u>F55~F59</u>
DC..325	<u>E22</u> , <u>E27~E33</u> , <u>E46</u> , <u>E52</u> , <u>F55~F59</u> , <u>F89</u>

<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

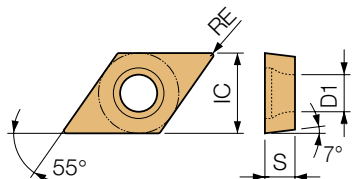


● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

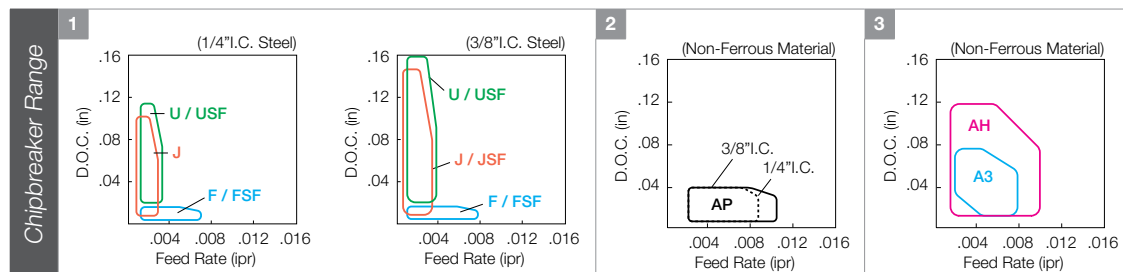
(in)

Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
DC_215_	1/4	3/32	0.110
DC_325_	3/8	5/32	0.173

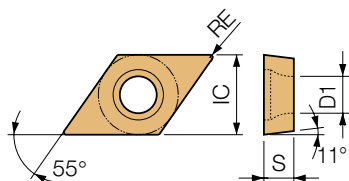
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



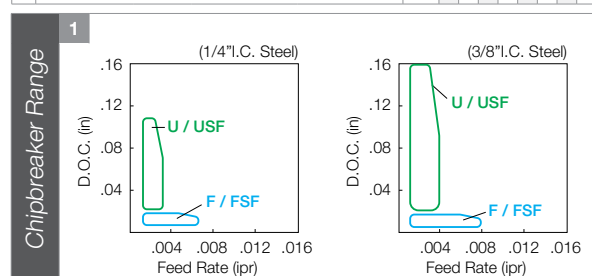
Inserts sold in 10 piece boxes.

(in)

Positive Insert with Hole



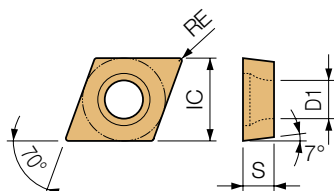
<i>Part Number</i>	IC	S	D1
DP_215_	1/4	3/32	0.110
DP_325_	3/8	5/32	0.173

[illegible]

- Insert with corner R (RE) dimension expressed with less than sign (e.g. **<0.002**, **<0.004**, **<0.008** etc.) indicate models with minus tolerance for corner R (RE).

(in)

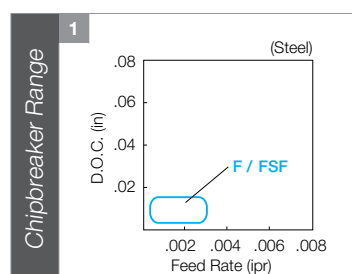
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
JC 1109	0.138	0.055	0.075

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).







● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

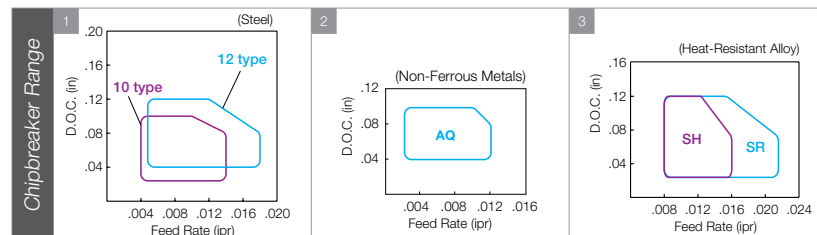
Inserts sold in 10 piece boxes.

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Round

(in)				(in)			
Part Number	IC	S	D1	Part Number	IC	S	D1
RC_1003_	0.394	1/8	0.142	RCMT43..	0.500	3/16	0.173
RC_1204_	0.472	3/16	0.165				

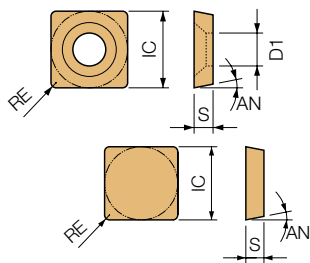
			Corner Radius (in)	Cermet	CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide										MEGACOAT / MEGACOAT NANO PVD Coated Carbide					PVD Coated Carbide	DLC	Carbide	Hard Materials
			R _e	TN610 TN620 TN60	GCX	PV710 PV720 PV730 PV7005	PV90	CA510 CA515 CA025P CA525 CA530 CA5505 CA5515 CA5525 CA5535 CA6515 CA6525 CA310 CA315 CA320 CA4505 CA4515	PR1703	PR1725	PR1225 PR005S PR015S	PR1305 PR1310 PR1325 PR1535 PR1515	PR930 PR1005 PR1025 PR1125 PDL010 PDL025	KW10	GW15	Toolholder Page	Chipbreaker Brand									
Medium		RCMX 1003M0	1003M0	-	● ●	● ●	● ●	● ● ● ● ● ●	● ●	●																
		RCMX 1204M0	1204M0	-	● ●	● ●	● ●	● ● ● ● ● ●	●	● ● ● ●	●															
Finishing-Medium		RCGX 1003M0-AQ	1003M0-AQ	-												●	D25									
Finishing-Medium		RCMT 43SR	120400SR	-									●			●										
		RCMT 43SH	120400SH	-									●													



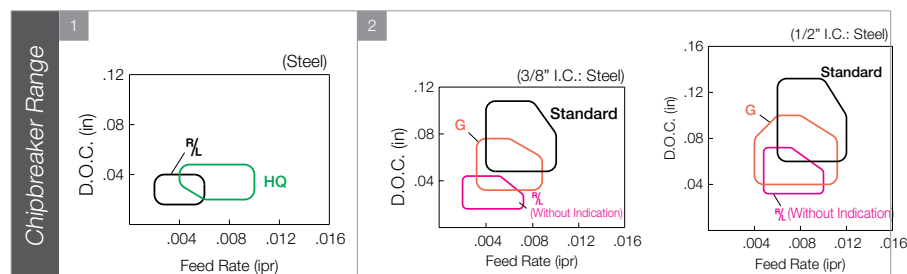
*Chipbreaker shape of RCMX... varies by grade (cermet / PVD coated cermet / CVD coated carbide)

How to read this page ➡ **B15**

90° Square Positive Insert

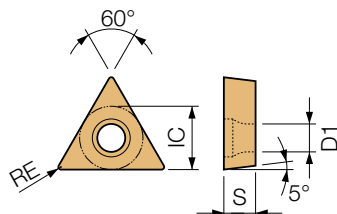


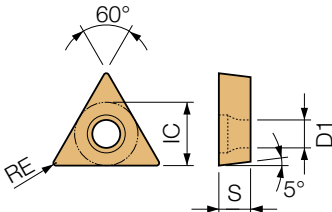
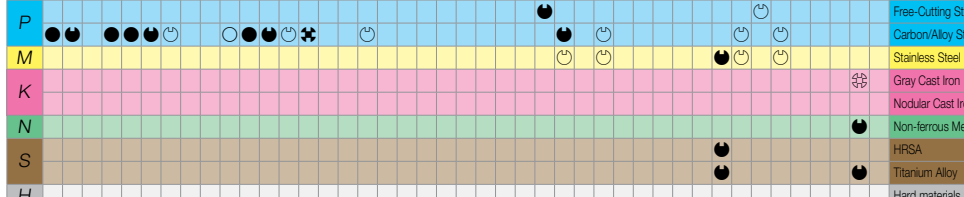


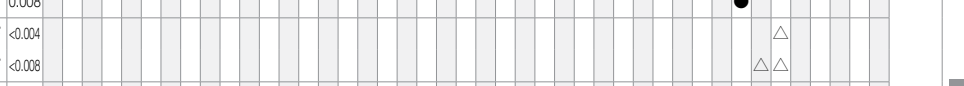

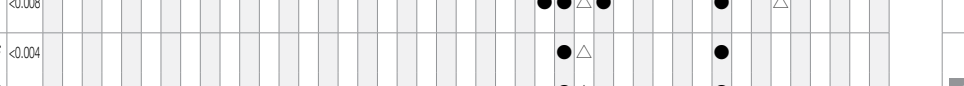
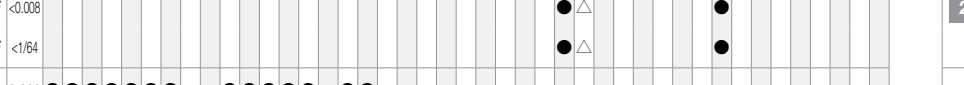
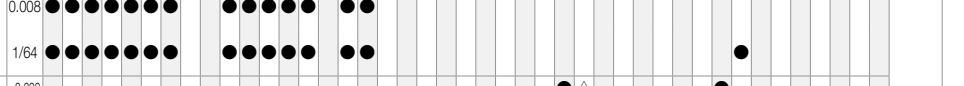
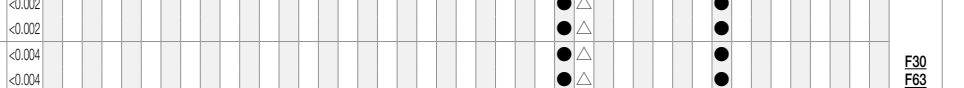
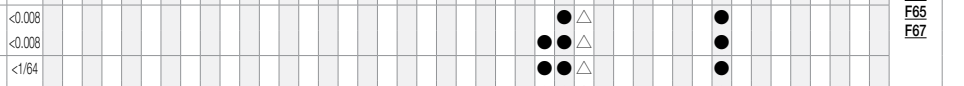
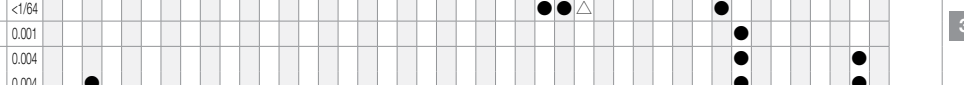
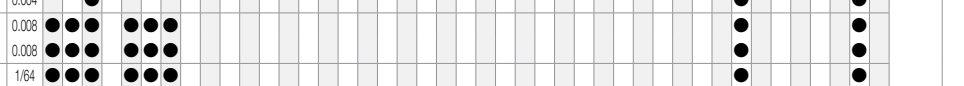
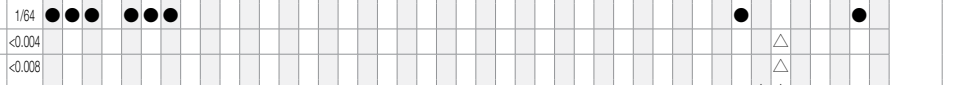
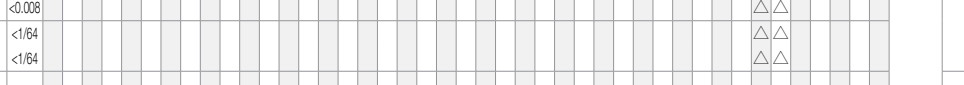

(in)					(in)				
Part Number	IC	S	D1	AN	Part Number	IC	S	D1	AN
SC_325_	3/8	5/32	0.173	7°	SP_32_	3/8	1/8	-	
SPGH32_	3/8	1/8	0.177	11°	SP_42_	1/2	1/8	-	11°
					SP_43_	1/2	3/16	-	

[illegible]

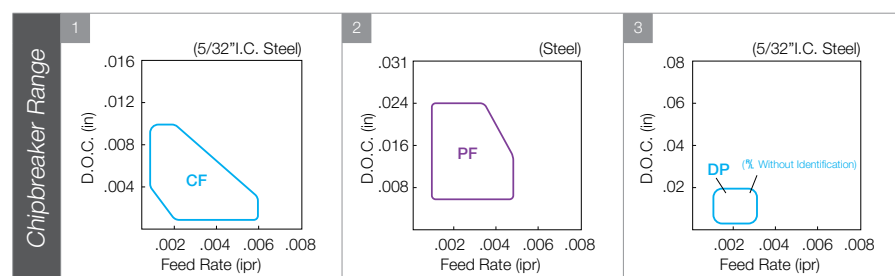
(in)

Positive Insert with Hole

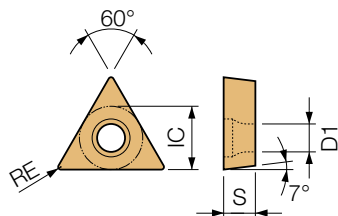


• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



Positive Insert with Hole



(in)

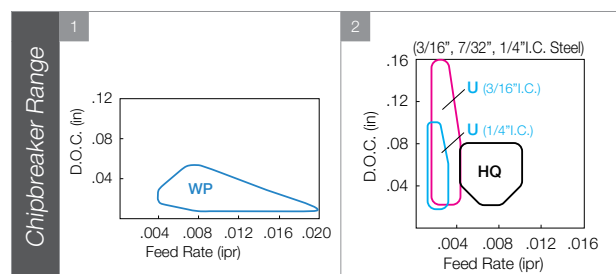
(in)

Part Number	IC	S	D1
TC_1515_	3/16	3/32	0.091
TC_1815_	7/32	3/32	0.098

Part Number	IC	S	D1
TC_215_	1/4	3/32	0.110
TC_325_	3/8	5/32	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

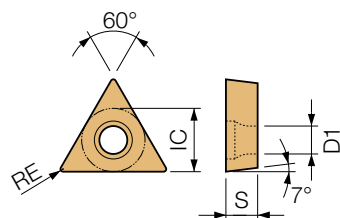


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

(in)

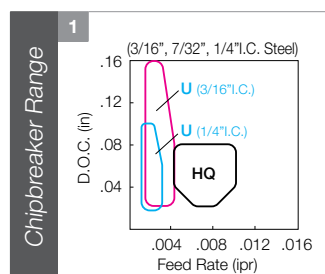
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
TC_1515_	3/16	3/32	0.091
TC_22_	1/4	1/8	0.110

[illegible]

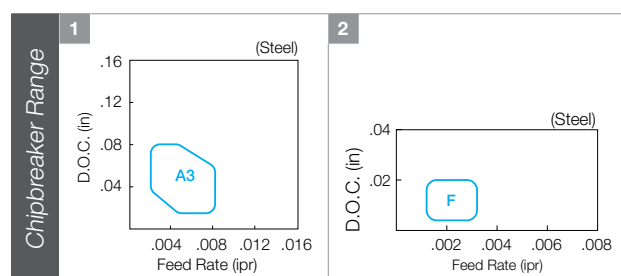
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



60° Triangle

Positive Insert

(in)				(in)			
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>	<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
TCG_121_	5/32	1/16	-	TC_215_	1/4	3/32	0.110
TC_1515_	3/16	3/32	0.091	TC_22_	1/4	1/8	0.110

[illegible]

Inserts sold in 10 piece boxes.

B79

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

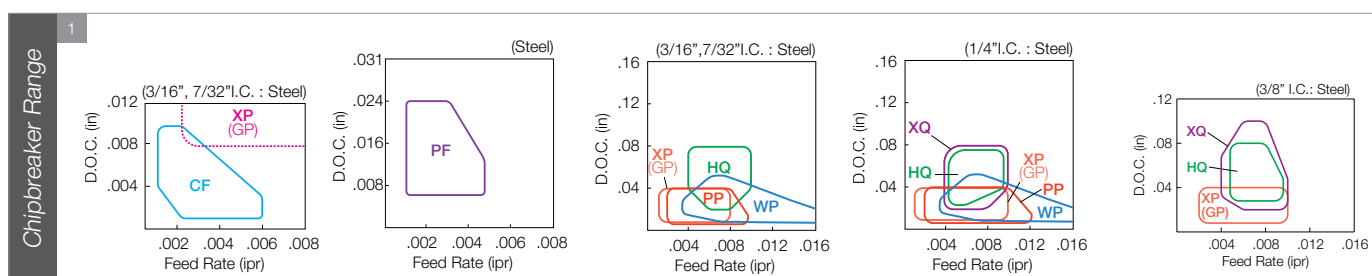
60° Triangle

(in)				(in)			
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>	<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
TP_1515_	3/16	3/32	0.091	TP_1815_	7/32	3/32	0.118
TPMT1815_	7/32	3/32	0.110	TP_22_	1/4	1/8	0.130
				TPMT32_	3/8	1/8	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

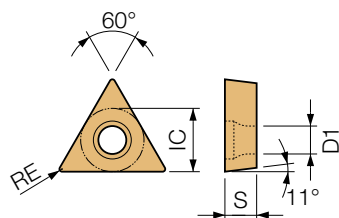
Part Number	Applicable Toolholder Page
TP_1515_	<u>E35, F59, F63, F65, F67</u>
TP_1815_	<u>E35, F28, F63, F65, F67</u>
TP_22_	<u>E35, F63, F65, F66</u>
TP_32_	<u>F63, F66</u>



How to read this page **B15**

60° Triangle

Positive Insert with Hole

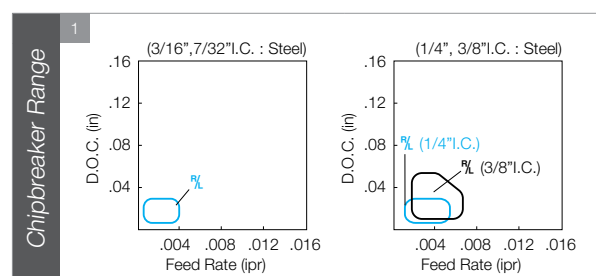


Part Number	IC	S	D1	(in)
TP_1515_	3/16	3/32	0.091	
TP_1815_	7/32	3/32	0.118	
TP_215_	1/4	3/32	0.138	

Part Number	IC	S	D1	(in)
TP_22_	1/4	1/8	0.130	
TP_32_	3/8	1/8	0.177	

		ANSI Part Number	ISO Part Number	Corner Radius (in)	RE	Cermets	CVD Cermets	MEGA COAT Cermets	PVD Cermets	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range
Finishing	TPGH	151502R	080201R	0.004												
		151502L	080201L	0.004												
		151505R	080202R	0.008												
		151505L	080202L	0.008												
		15151R	080204R	1/64												
		15151L	080204L	1/64												
		181502R	090201R	0.004												
		181502L	090201L	0.004												
		181505R	090202R	0.008												
		181505L	090202L	0.008												
		18151R	090204R	1/64												
		18151L	090204L	1/64												
	TPGH	21505R	110202R	0.008												
		21505L	110202L	0.008												
		2151R	110204R	1/64												
		2151L	110204L	1/64												
	TPGH	2205R	110302R	0.008												
		2205L	110302L	0.008												
		221R	110304R	1/64												
		221L	110304L	1/64												
		222R	110308R	1/32												
		222L	110308L	1/32												
	TPGH	3205R	160302R	0.008												
		3205L	160302L	0.008												
		321R	160304R	1/64												
		321L	160304L	1/64												
		322R	160308R	1/32												
		322L	160308L	1/32												

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

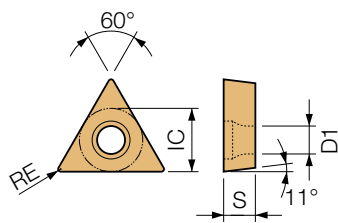


Part Number	Applicable Toolholder Page
TP_1515_	E35, F59, F63, F65, F67
TP_1815_	E35, F28, F63, F65, F67
TP_22_	E35, F63, F65, F66
TP_32_	F63, F66

How to read this page **B15**

60° Triangle

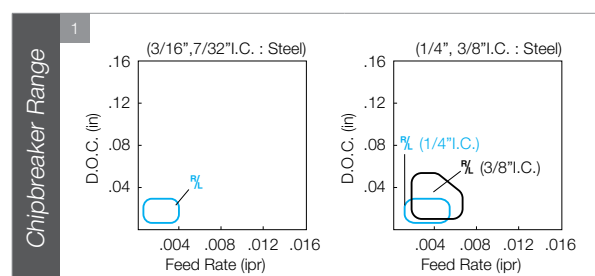
Positive Insert with Hole



Part Number	IC	S	D1	Part Number	IC	S	D1
TP_1515_	3/16	3/32	0.091	TP_22_	1/4	1/8	0.130
TP_1815_	7/32	3/32	0.118	TP_32_	3/8	1/8	0.177
TP_215_	1/4	3/32	0.138				

Left-Hand Shown where Applicable	ANSI Part Number	ISO Part Number	Corner Radius (in)	RE	Cermets	CVD Cermets	MEGA COAT Cermets	PVD Cermets	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range
Finishing	TPGH	151502ML	080201ML	<0.004											
		151505MR	080202MR	<0.008											
		151505ML	080202ML	<0.008											
		15151MR	080204MR	<1/64											
		15151ML	080204ML	<1/64											
	TPGH	181502ML	090201ML	<0.004											
		181505MR	090202MR	<0.008											
		181505ML	090202ML	<0.008											
		18151MR	090204MR	<1/64											
		18151ML	090204ML	<1/64											
	TPGH	21505ML	110202ML	<0.008											
		2151ML	110204ML	<1/64											
	TPGH	2205MR	110302MR	<0.008											
		2205ML	110302ML	<0.008											
		221MR	110304MR	<1/64											
		221ML	110304ML	<1/64											
		222ML	110308ML	<1/32											
	TPGH	3205ML	160302ML	<0.008											
		321MR	160304MR	<1/64											
		321ML	160304ML	<1/64											
		322ML	160308ML	<1/32											

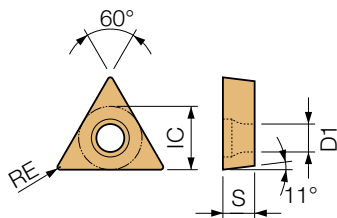
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



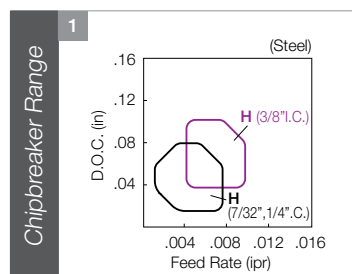
Part Number	Applicable Toolholder Page
TP_1515_	E35, F59, F63, F65, F67
TP_1815_	E35, F28, F63, F65, F67
TP_22_	E35, F63, F65, F66
TP_32_	F63, F66

60° Triangle

(in)				(in)			
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>	<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
TP_1515_	3/16	3/32	0.091	TP_22_	1/4	1/8	0.130
TP_1815_	7/32	3/32	0.118	TP_32_	3/8	1/8	0.177
				TP_33_	3/8	3/16	0.173

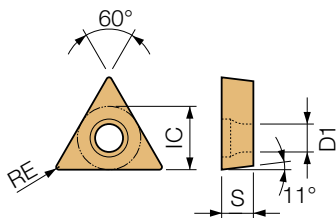
[illegible]

- Insert with corner R (RE) dimension expressed with less than sign (e.g. **<0.002**, **<0.004**, **<0.008** etc.) indicate models with minus tolerance for corner R (RE).



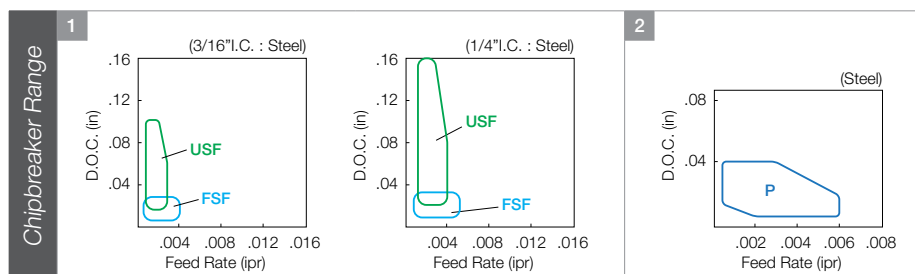
Part Number	Applicable Toolholder Page
TP_1515_	<u>E35, F59, F63, F65, F67</u>
TP_1815_	<u>E35, F28, F63, F65, F67</u>
TP_22_	<u>E35, F63, F65, F66</u>
TP_32_	<u>F63, F66</u>

Positive Insert with Hole



(in)				(in)			
Part Number	IC	S	D1	Part Number	IC	S	D1
TP_1515_	3/16	3/32	0.091	TP_22_	1/4	1/8	0.130
TP_1815_	7/32	3/32	0.118	TP_32_	3/8	1/8	0.177
TP4_	1/4	3/32	0.110	TP_33_	3/8	3/16	0.173

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

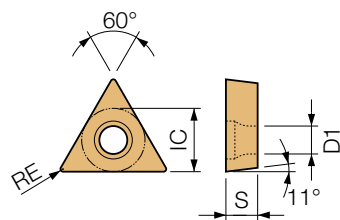


<i>Part Number</i>	Applicable Toolholder Page
TP_1515_	<u>E35</u> , <u>F59</u> , <u>F63</u> , <u>F65</u> , <u>F67</u>
TP_1815_	<u>E35</u> , <u>F28</u> , <u>F63</u> , <u>F65</u> , <u>F67</u>
TP_22_	<u>E35</u> , <u>F63</u> , <u>F65</u> , <u>F66</u>
TP_32_	<u>F63</u> , <u>F66</u>

How to read this page **B15**

60° Triangle

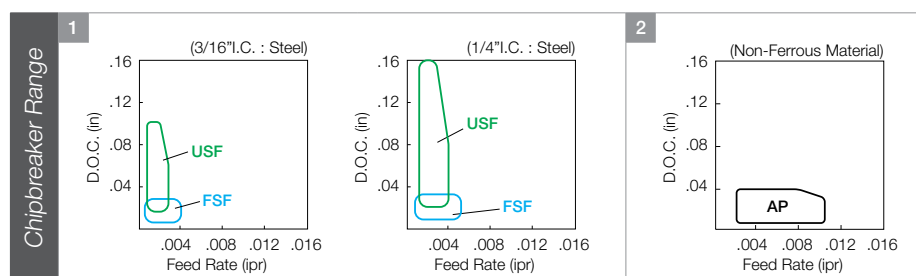
Positive Insert with Hole



Part Number	IC	S	D1	Part Number	IC	S	D1
TP_1515_	3/16	3/32	0.091	TP_22_	1/4	1/8	0.130
TP_1815_	7/32	3/32	0.118	TP_32_	3/8	1/8	0.177
TP_215_	1/4	3/32	0.138	TP_33_	3/8	3/16	0.173

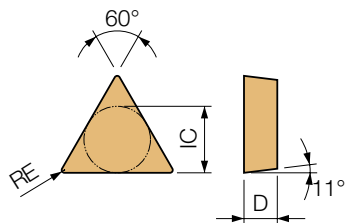
		ANSI Part Number	ISO Part Number	Corner Radius (in)	Cermet	CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range
Finishing	Super Fine	TPET 151502FL-USF	080201FL-USF	0.004	●	●								Reference Table Below	1
		151505FR-USF	080202FR-USF	0.008	●										
		151505FL-USF	080202FL-USF	0.008	●										
		TPET 2201FL-USF	1103003FL-USF	0.001											
		2202FR-USF	110301FR-USF	0.004		△									
	Sharp Edge / Precision	2202FL-USF	110301FL-USF	0.004	●										
		2205FR-USF	110302FR-USF	0.008	●										
		2205FL-USF	110302FL-USF	0.008	●										
		TPET 151505MFR-USF	080202MFR-USF	<0.008								△			
		151505MFL-USF	080202MFL-USF	<0.008								△			
Medium-Finishing	Sharp Edge / Polished	TPET 2202MFL-USF	110301MFL-USF	<0.004								△		Reference Table Below	2
		2205MFR-USF	110302MFR-USF	<0.008								△			
		2205MFL-USF	110302MFL-USF	<0.008								△			
		TPGT 181505AP	090202AP	0.008									●		
		18151AP	090204AP	1/64									●		
	Sharp Edge / Polished	18152AP	090208AP	1/32									●		
		TPGT 2205AP	110302AP	0.008									●		
		221AP	110304AP	1/64									●		
		222AP	110308AP	1/32									●		
		TPGB 151505	080202	0.008	●								●		
Cast Iron	Without Chipbreaker	15151	080204	1/64	●								●	Reference Table Below	F66 J37
		15152	080208	1/32	●								●		
		TPGB 181505	090202	0.008	●								●		
		18151	090204	1/64	●								●		
		TPGB 21501	1102005	0.002	●								●		
	Without Chipbreaker	21502	110201	0.004	●								●		
		21505	110202	0.008	●								●		
		2151	110204	1/64	●								●		
		TPGB 22013	1103005	0.002	●								●		
		2202	110301	0.004	●								●		

● : Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

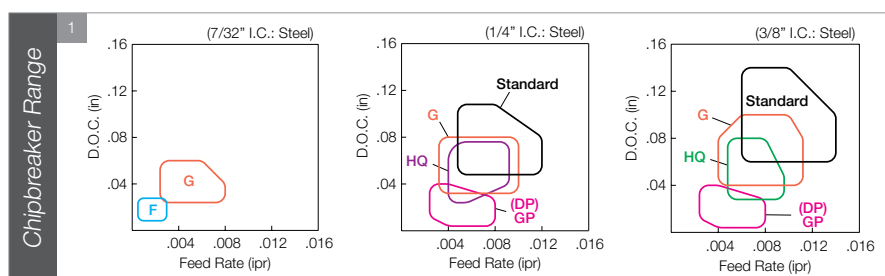


Part Number	Applicable Toolholder Page
TP_1515_	E35, F59, F63, F65, F67
TP_1815_	E35, F28, F63, F65, F67
TP_22_	E35, F63, F65, F66
TP_32_	F63, F66

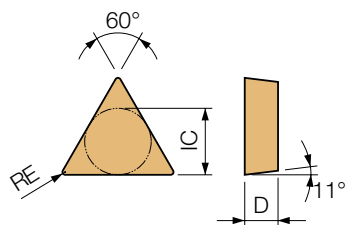
Positive Insert without Hole



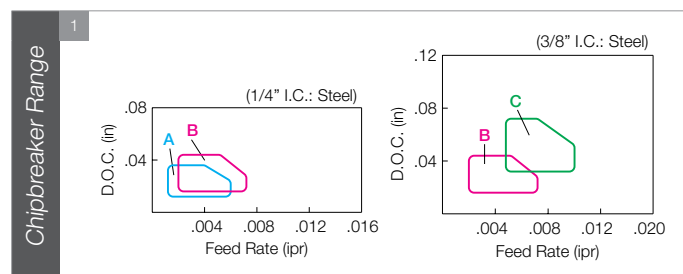
<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
TP_1815_	7/32	3/32	-
TP_22_	1/4	1/8	-
TP_32_	3/8	1/8	-

[illegible]

Positive Insert without Hole

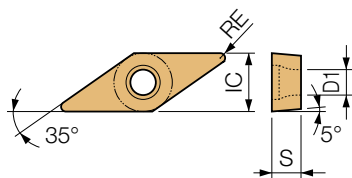


Part Number	IC	S	D1
TP_1815_	7/32	3/32	-
TP_22_	1/4	1/8	-
TP_32_	3/8	1/8	-

[illegible]

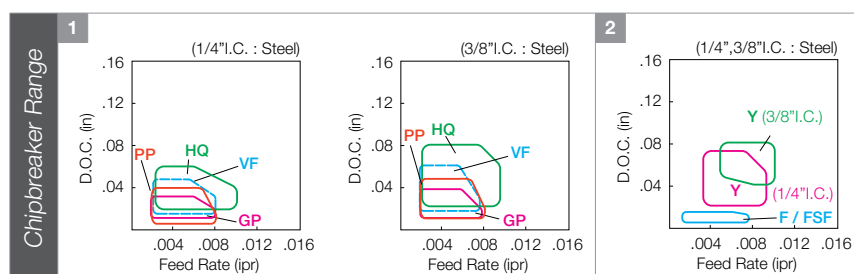
(in)

Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
VB_22_	1/4	1/8	0.110
VB_33_	3/8	3/16	0.173

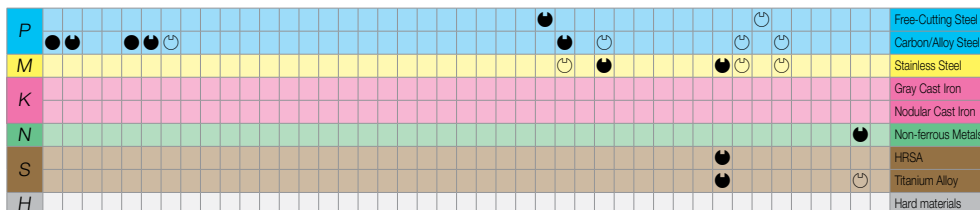
• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



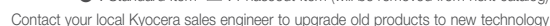
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A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

<i>Part Number</i>	IC	S	D1
VB_22_	1/4	1/8	0.110
VB_33_	3/8	3/16	0.173



• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

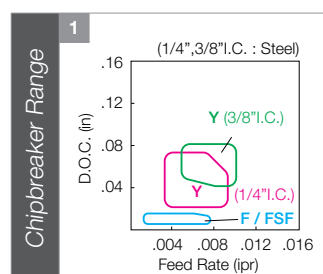


The diagram shows a mechanical part with a circular hole. A force FE is applied at the top right corner. The part has a width IC and a height S . The angle between the top surface and the horizontal is 35° . The thickness of the part is \overline{D} , and the angle between the side surface and the vertical is 5° .

<i>Part Number</i>	IC	S	D1
VB_22_	1/4	1/8	0.110
VB_33_	3/8	3/16	0.173

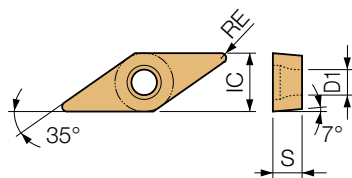
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



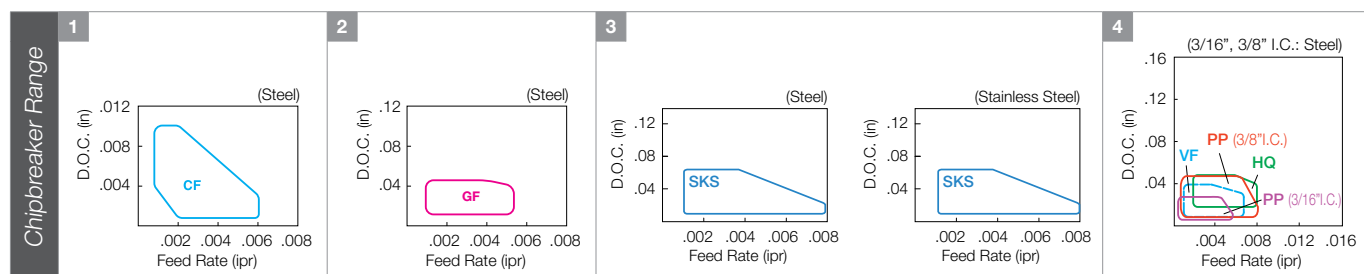
(in)

Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
VC_1515_	3/16	3/32	0.091
VC_22_	1/4	1/8	0.110
VC_33_	3/8	3/16	0.173

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

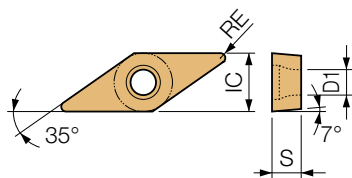


● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

(in)

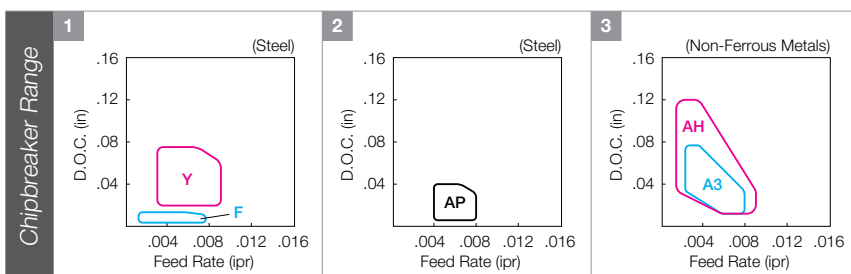
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
VC_1515_	3/16	3/32	0.091
VC_22_	1/4	1/8	0.110
VC_33_	3/8	3/16	0.173

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



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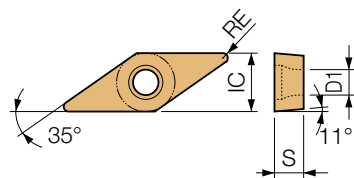
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

How to read this page ➡ **B15**

(in)

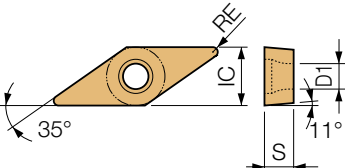
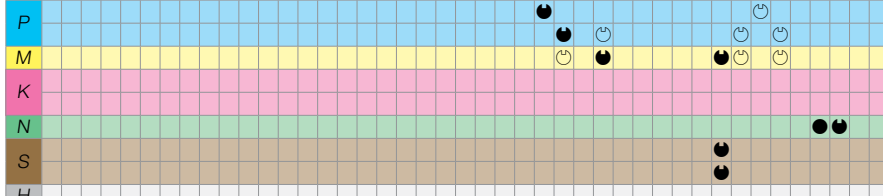
35° Diamond

Positive Insert with Hole

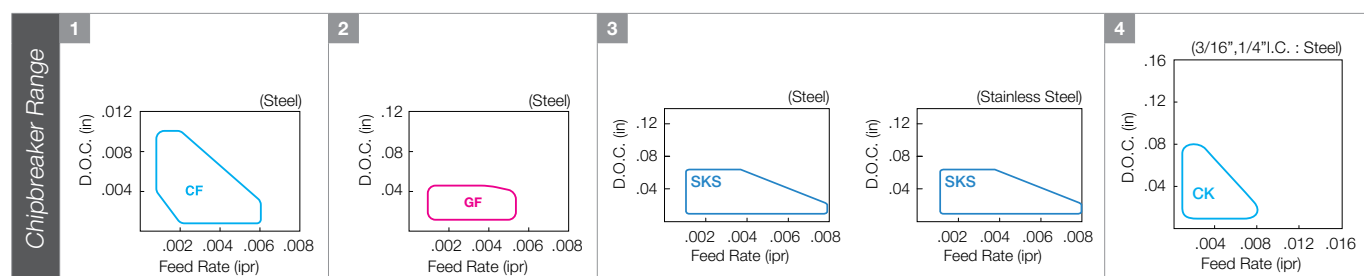


Part Number	Applicable Toolholder Page
VP_1515_	<u>E42</u> , <u>E44</u> , <u>F68</u>
VP_22_	<u>E23</u> , <u>E42-E44</u>

<i>Part Number</i>	IC	S	D1
VP_1515_	3/16	3/32	0.091
VP_22_	1/4	1/8	0.110

																							Free-Cutting Steel	
																							Carbon/Alloy Steel	
																							Stainless Steel	
																							Gray Cast Iron	
																							Modular Cast Iron	
																							Non-ferrous Metals	
																							HRSA	
																							Titanium Alloy	
																							Hard materials	
																							Toolholder	
																							Page	
																							Chipbreaker	
																							Range	
																							1	
																							2	
																							3	
																							4	

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

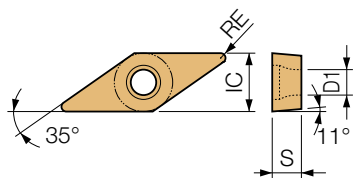


● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology.

(in)

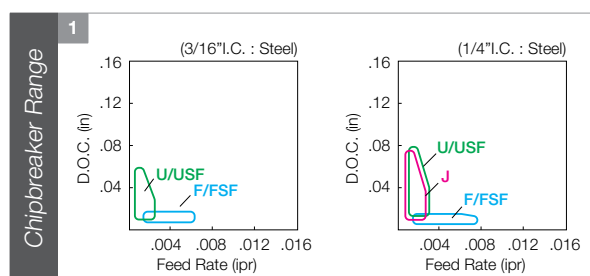
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
VP_1515_	3/16	3/32	0.091
VP_22_	1/4	1/8	0.110

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

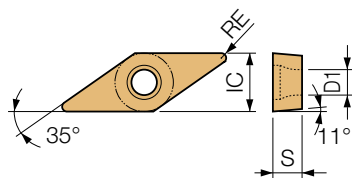


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

(in)

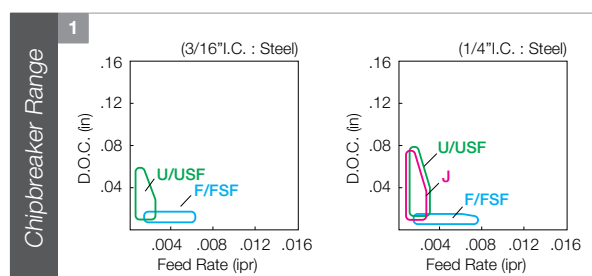
Positive Insert with Hole



Part Number	IC	S	D1
VP_1515_	3/16	3/32	0.091
VP_22_	1/4	1/8	0.110

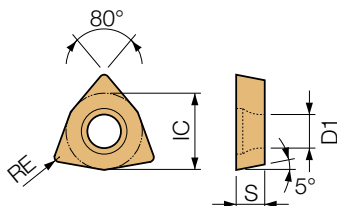
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



(in)

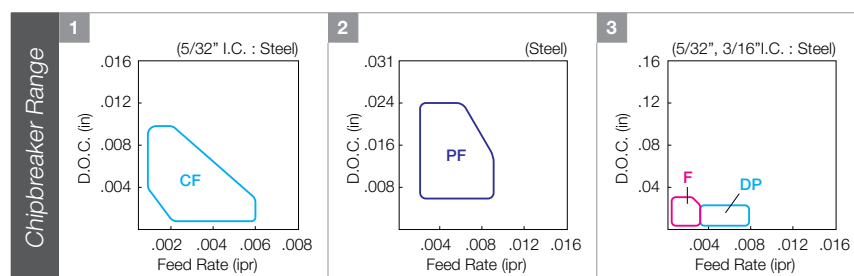
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
WB_121_	5/32	1/16	0.091
WB_1515_	3/16	3/32	0.091

[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

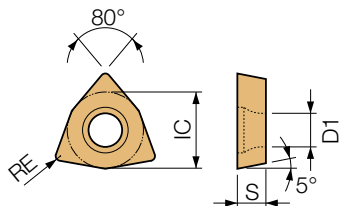
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

How to read this page ➡ **B15**

(in)

80° Trigon

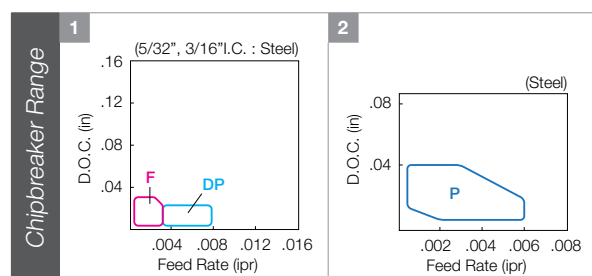
Positive Insert with Hole



<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
WB_121_	5/32	1/16	0.091
WB_1515_	3/16	3/32	0.091

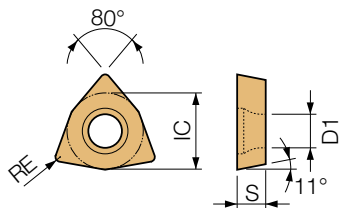
[illegible]

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



(in)

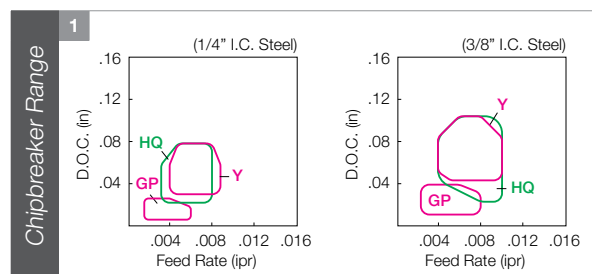
Positive Insert with Hole



<i>Part Number</i>	IC	S	D1
WP_215_	1/4	3/32	0.110
WP_32_	3/8	1/8	0.173

[illegible]

- Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

ZBMT Series ^{NEW}

25° Insert Profiling Tools

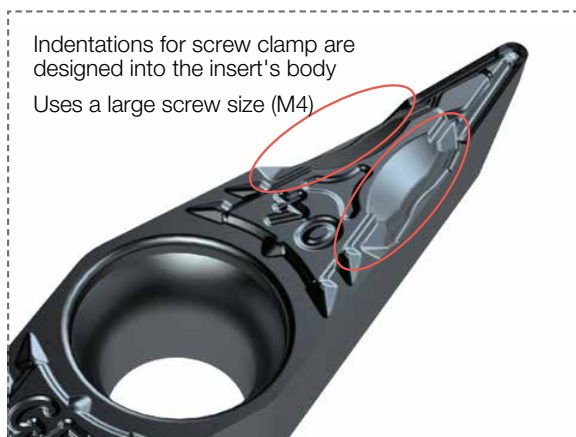
Unique clamping structure and a wide lineup of external toolholders and boring bars.

High precision and stable machining in a wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more.

Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

Side Lock Mechanism

Unique design holds insert at 2 points
Safe even for insert with small tip angle that is difficult to mount



GF Chipbreaker

Solving chip control issues leads to high-quality surface finishes

New GF Chipbreaker for ZBMT Reduces Chip Control Issues at minute D.O.C.

The thin molded chipbreaker extends near the corner and reliably controls chips even in narrow spaces

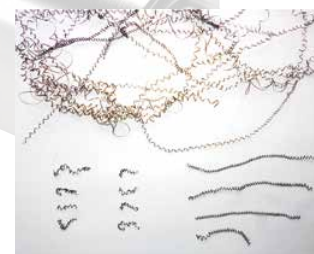
Chip Control Comparison
(Internal Evaluation)

Two-step dot
Responds to chip fluctuation



GF Chipbreaker

Molded cutting edge
Improved chip control at small D.O.C.



Competitor A (25° Type)

Circular chipbreaker

Low resistance and excellent chip control even in ductile workpieces

Cutting Conditions : $V_c = 750 \text{ sfm}$, $f = 0.006 \text{ ipr}$, $\text{D.O.C.} = 0.008'' - 0.020''$, Wet Workpiece 4137 Facing

How to read this page **B15**

25° / 15° Diamond


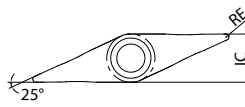


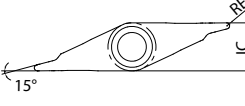

Positive Insert with Hole

ZBMT Inserts

for Copying, profiling, undercutting, tapering, and V-slotting

ISO

Part Number

		Dimensions (in)				MEGACOAT NANO		Toolholder Page
		IC	S	D1	RE	PR1725	PR1535	
 Tip Angle 25°	 	1/2	0.156	0.209	0.008	●	●	D30 F81
					1/64	●	●	
					1/32	●	●	
 Tip Angle 15° (Right-Hand)	 	1/2	0.156	0.209	1/64	●	●	

Because insert has a molded shape, the tip angle may be 24° depending on the measurement location.

Recommended Cutting Conditions

Workpiece	Insert tip angle	Corner-R (RE) (in)	Insert Grade	Vc (sfm)	D.O.C. (in)	f (ipr)
Carbon Steel / Alloy Steel	25°	0.008	PR1725	200 - 490 - 660	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 590	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
		1/64 - 1/32	PR1725	200 - 490 - 660	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
			PR1535	200 - 390 - 590	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
	15°	1/64	PR1725	200 - 490 - 660	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
Stainless Steel	25°	0.008	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
		1/64 - 1/32	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.006 - 0.010
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.006 - 0.010
	15°	1/64	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
Cast Iron	25°	0.008	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
		1/64 - 1/32	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
	15°	1/64	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006

When machining at D.O.C. 0.059" or more, reduce the feed by about 50%.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

KYOCERA

B101

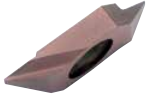
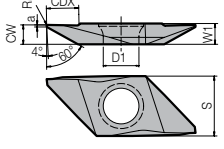


Back Turning

Turning Inserts (Small Tools)

P	Free-Cutting Steel Carbon Steel / Alloy Steel	●	☺	☺	☺	☺	☺
M	Stainless Steel	☺	☺	●	☺	☺	
K	Gray Cast Iron Nodular Cast Iron						●
N	Non-ferrous Metals						●
S	Heat-Resistant Alloys Titanium Alloy		☺	●	☺	☺	
H	Hard materials			●			☺

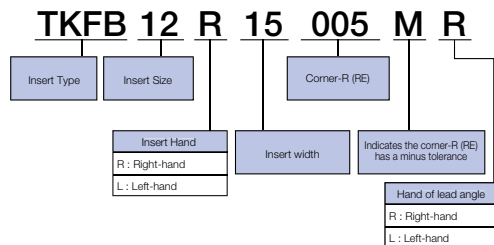
TKFB Inserts (for KTKF Toolholders)

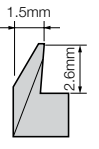
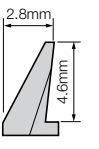
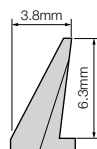
ANSI
Part Number

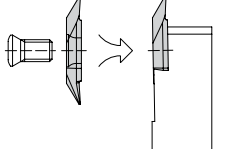
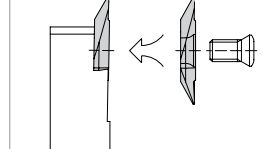
		Dimensions (in)								MEGACOAT NANO					PVD Coated Carbide	Toolholder Page
		CW	a	CDX	RE	W1	S	D1	θ	PR1725	PR1425	PR1535	PR1225	PR1025	KW10	
	TKFB 12R15005M	0.059	0.010	0.102	<0.002	0.118	0.343	0.205	-	●	△	●	●	△	●	E12 E14
	TKFB 12R28005M	0.110	0.012	0.181	<0.002	0.118	0.343	0.205	-	●	△	●	●	△	●	
	TKFB 12R28010M	0.110	0.012	0.181	<0.004	0.118	0.343	0.205	-	●	△	●	●	△	●	
	TKFB 16R38005M	0.150	0.012	0.248	<0.002	0.157	0.374	0.205	-	●	△	●	●	△	●	
	TKFB 16R38010M	0.150	0.012	0.248	<0.004	0.157	0.374	0.205	-	●	△	●	●	△	●	
	TKFB 12L28005MR	0.110	0.012	0.181	<0.002	0.118	0.343	0.205	-			●	●			
	TKFB 12L28010MR	0.110	0.012	0.181	<0.004	0.118	0.343	0.205	-			●	●			
	TKFB 16L38005MR	0.150	0.012	0.248	<0.002	0.157	0.374	0.205	-			●	●			
	TKFB 16L38010MR	0.150	0.012	0.248	<0.004	0.157	0.374	0.205	-			●	●			
	TKFB 12R28005P-GQ	0.110	0.059	0.181	0.002	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 12R28015P-GQ	0.110	0.059	0.181	0.006	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 16R38005P-GQ	0.150	0.071	0.248	0.002	0.157	0.374	0.205	72°	●	△	●	●			
	TKFB 16R38015P-GQ	0.150	0.071	0.248	0.006	0.157	0.374	0.205	72°	●	△	●	●			
	TKFB 12R28005-GQ	0.110	0.059	0.181	0.002	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 12R28015-GQ	0.110	0.059	0.181	0.006	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 16R38005-GQ	0.150	0.071	0.248	0.002	0.157	0.374	0.205	72°	●	△	●	●			
	TKFB 16R38015-GQ	0.150	0.071	0.248	0.006	0.157	0.374	0.205	72°	●	△	●	●			

• Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

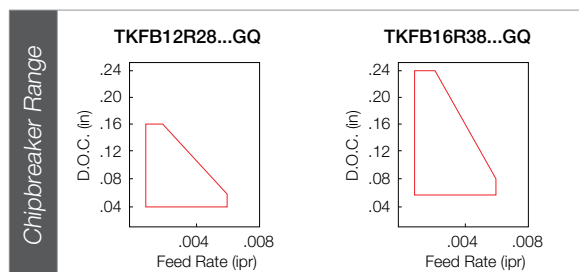
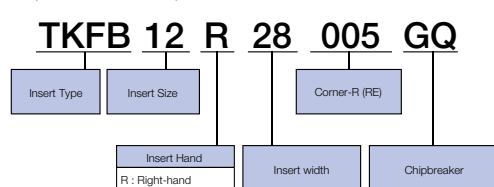
Insert Identification System (See Tables Below)



Small D.O.C.	General Purpose	Large D.O.C.
		
TKFB12R15..	TKFB12R28..	TKFB16R38..

Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	Right-hand (R)	Insert	Left-hand (L)
Lead Angle	Right-hand (R)	Lead Angle	Right-hand (R)
			

Insert Identification System (See Tables Below)



Back Turning

Turning Inserts (Small Tools)

P	Free-Cutting Steel		
	Carbon Steel / Alloy Steel		
M	Stainless Steel		
K	Gray Cast Iron		
	Nodular Cast Iron		
N	Non-ferrous Metals		
S	Heat-Resistant Alloys		
	Titanium Alloy		
H	Hard materials		

TKF Inserts (GTP Chipbreaker)

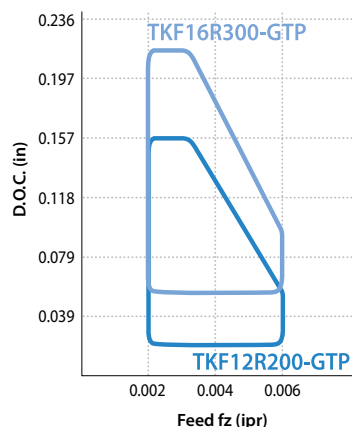
(for KTKF Toolholders)

ANSI
Part Number

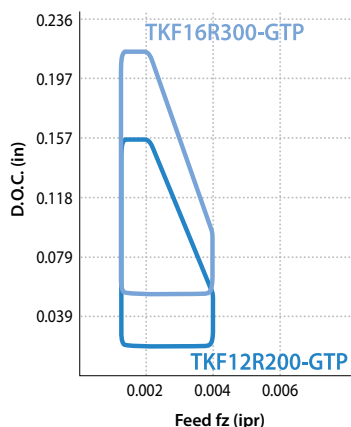
TKF 12R200-GTP												0.079	2.0	0.181	0.003	0.118	0.343	0.197	0°	●	●	E12 E14
TKF 16R300-GTP												0.118	3.0	0.236	0.003	0.157	0.374	0.197	0°	●	●	

• Right-handed insert shown

Chipbreaker Range (Steel)



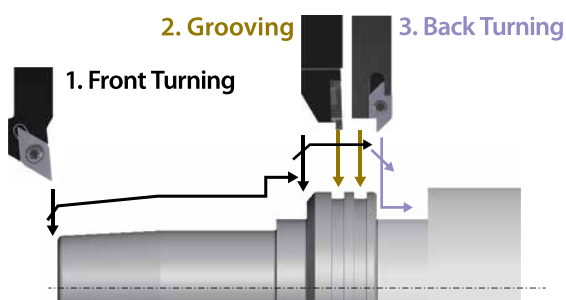
Chipbreaker Range (Stainless Steel)



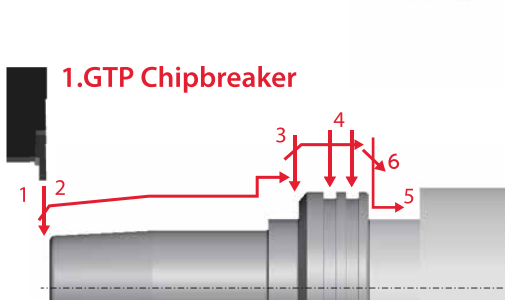
Integrated Tooling Solutions with GTP chipbreaker

The GTP chipbreaker can be used for external turning, grooving, and back turning operations

Conventional Tools



GTP Chipbreaker



Workpiece Example

* Max. Grooving Width / Max. D.O.C. = TKF12R200-GTP (2.0mm / 4.0mm), TKF16R300-GTP (3.0mm / 5.5mm)

Back Turning

Turning Inserts (Small Tools)


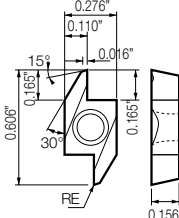

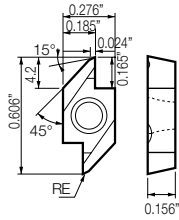

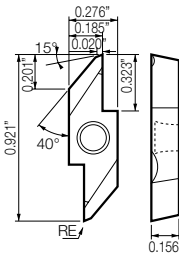
B
TURNING
INSERTS

P										Free-Cutting Steel
M										Carbon Steel / Alloy Steel
K										Stainless Steel
N										Gray Cast Iron
S										Nodular Cast Iron
H										Non-ferrous Metals
										Heat-Resistant Alloys
										Titanium Alloy
										Hard materials

AABS / SABS / AABW / SABW Inserts


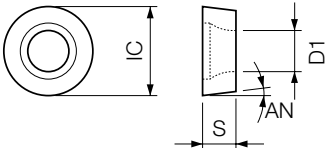

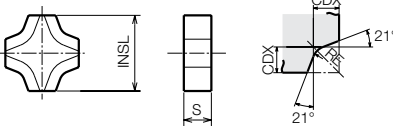
ANSI

Part Number

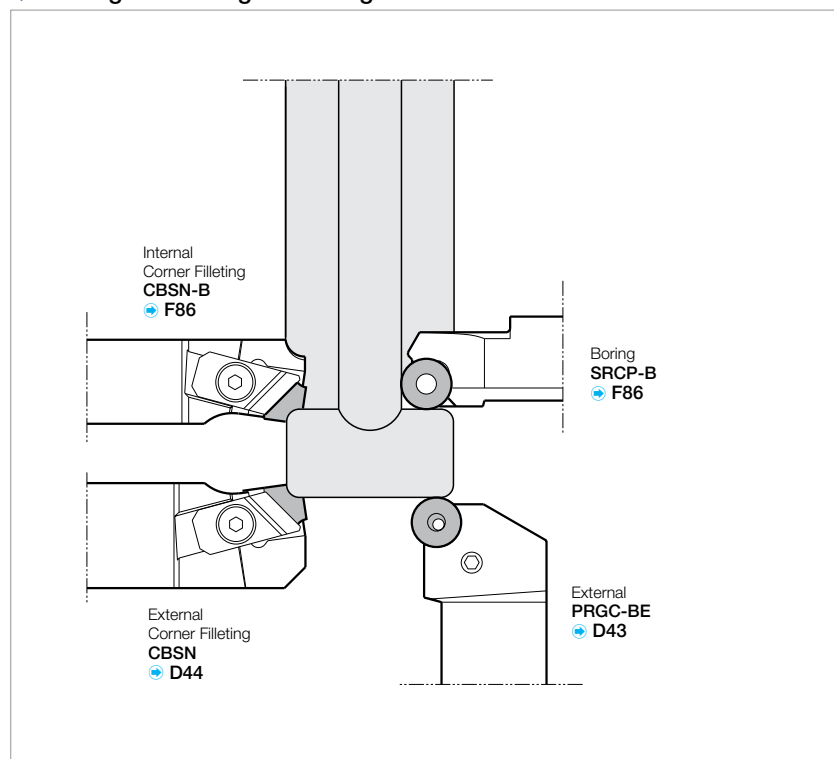
		ABS	15R4005	0.002	●					●			●	E19
			15R4015	0.006	●					●			●	
		ABS	15R4005M	<0.002		●	●	△	●		△	△		
			15R4015M	<0.006		●	●	△	●		△	△		
		ABW	15R4005	0.002	●					●			●	E20
			15R4015	0.006	●					●			●	
		ABW	15R4005M	<0.002		●	●	△	●		△	△		
			15R4015M	<0.006		●	●	△	●		△	△		
		ABW	23R5005	0.002	●					●			●	E21
			23R5015	0.006	●					●			●	
		ABW	23R5005M	<0.002			●	△	●			△		
			23R5015M	<0.006		●	●	△	●		△	△		

● Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

Bearing Machining

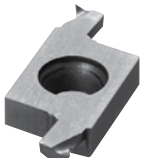
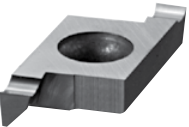

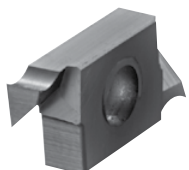
		ISO/ANSI Part Number	Dimension (mm)				Relief Angle	Cermet	Toolholder Page
			IC	S	D1	RE	AN	TN90	
External / Boring / Facing 		RCMT 1204M0-BB	12.0	4.76	4.2	-	7°	●	D43
		1606M0-BB	16.0	6.35	5.5	-	7°	●	
		RPMT 42M0-BB	12.0	3.18	4.4	-	11°	●	F86
		1604M0-BB	16.0	4.76	5.5	-	11°	●	
Corner Filleting 		SNMF 120406-21	INSL	S	CDX	RE		●	D44 F86
		120410-21	12.70	4.76	1.5	0.6		●	
		120416-21	12.70	4.76	3.0	1.0		●	
		120416-21	12.70	4.76	3.1	1.6	-	●	
		120421-21	12.70	4.76	3.2	2.1		●	
		120426-21	12.70	4.76	3.3	2.6		●	

◆ Tooling for Bearing Machining





Micro Boring

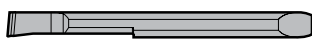

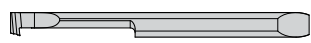






Twin Bars

Micro Boring	Micro Face Grooving
TWB Twin-Bars F44	TWFG Twin-Bars G10
	
TWBT Twin-Bars F45	TWFGT Twin-Bars G101
	

Solid Micro Boring Bars

Micro Boring	
MBS Micro Bars F14	MBE Micro Bars F15
	

EZ Bars / System Tip-Bars / Tip-Bars

Micro Boring		Micro Back Boring
EZB EZ Bars F18	EZVB EZ Bars F23	EZBT EZ Bars F23
		
EZBF EZ Bars F22	NEW EZBP EZ Bars F25	NEW EZBC EZ Bars F26
		
VNB-S / VNB System Tip-Bars F38	VNBX-S System Tip-Bars F42	VNBT System Tip-Bars F39
		

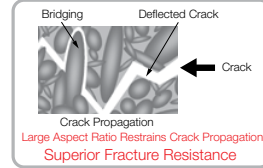
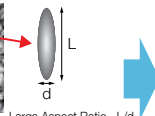
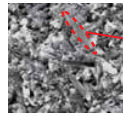
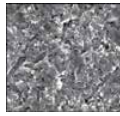
Solid Tip-Bars (Grooving / Threading)

Micro Grooving	Micro Face Grooving	Micro Internal Threading
EZG EZ Bars G63	EZFG EZ Bars G96	EZT EZ Bars J32
		
VNG System Tip-Bars G65	VNFG System Tip-Bars G98	VNT System Tip-Bars J36
		

KS6015 / KS6050 / CS7050 High Speed Machining of Cast Iron

- Improved fracture resistance by high aspect ratio constituents
- Resists chipping due to scale and interrupted machining
- High speed machining of cast iron by controlling grain boundary phase (good wear resistance)

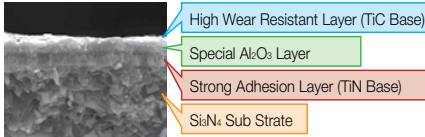
KS6015 NEW Wear Resistant Machining



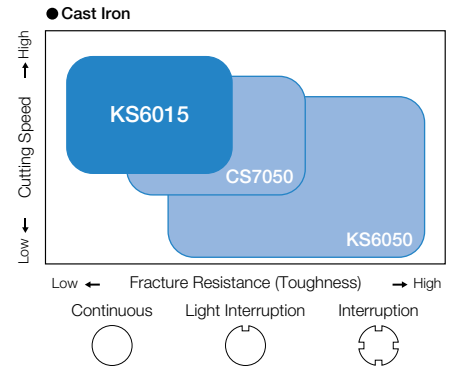
KS6050 General Purpose Interrupted Machining

CS7050 (Coated Si3N4)

Superior wear resistance attained with strong coating adherence
Applicable to high speed machining



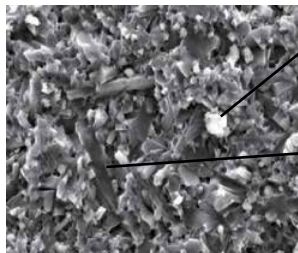
Application Map



KS6030/KS6040 SiAlON Ceramic Heat-Resistant Alloy Machining

Improved wear and fracture resistance due to the mixture of the hard and acicular particles

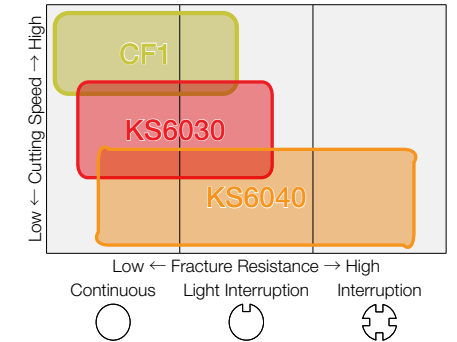
Superior balance in heat resistant alloys machining achieves optimum balance between wear and fracture resistance.



Hard Particle
(Improved Wear Resistance)

Acicular Particle
(Improved Fracture Resistance)

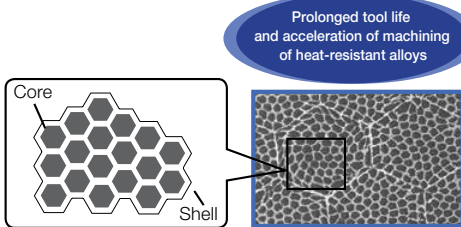
HRSA Application Map



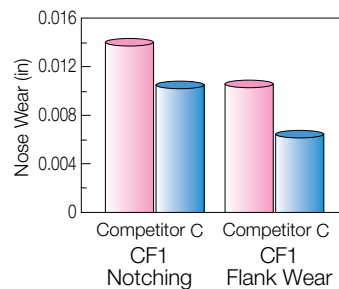
CF1 Honeycomb Structure Ceramic Heat-Resistant Alloy Machining

What is Honeycomb structure ceramic?

Honeycomb structure ceramic is a composite material consisting of a core (gray portion) and shell (white portion)



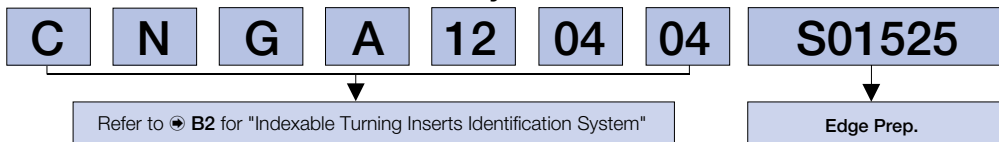
Comparison of Wear Resistance



<Cutting Conditions>

Workpiece Material: Ni-base Heat-Resistant Alloys
Tool Geometry: RNGN120400
Vc = 490sfm, D.O.C. = 0.039"
Feed Rate f = 0.006ipr Wet

Ceramic Insert Identification System



How to Identify Edge Preparation

Edge Prep.	Symbol	Cutting Edge Spec.	Example	Shape
S		Chamfered and Honed Cutting edge	S00625 0.006" X 25° Chamfered and Honed Cutting edge	
T		Chamfered Cutting edge	T00825 0.008" X 25° Chamfered Cutting edge	

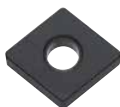
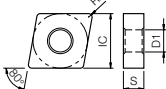

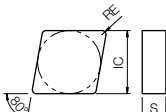
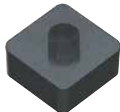
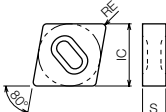
Refer to B3 for insert color

80° Diamond

Negative Insert

Part Number	IC	S	D1
CN_A 43_	1/2	3/16	0.203
CN_43_	1/2	3/16	-
CN_45_	1/2	5/16	-

Part Number	IC	S	D1
CNG 55_	5/8	5/16	-
CNGX 45_	1/2	5/16	-

Edge Prep.			Material										Toolholder						
Symbol	Cutting Edge Spec.	Example	K	Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	Heat-resistant Alloys	Hard Materials	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic		
S	Chamfered and Honed Cutting Edge	S00625		0.006" X 25° Chamfered and Honed Cutting Edge															
T	Chamfered Cutting Edge	T00625		0.006" X 25° Chamfered Cutting Edge															
				S															
			H																
Insert			ANSI Part Number	Edge Prep (in)	ISO Part Number	Corner Radius (in)	RE	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1
		CNGA 433T00425AA	S00425	CNGA 120412S01025	3/64	●													
		CNGA 431T00625AA	S00625	CNGA 120404S01525	1/64				●										
		432T00625AA		120408S01525	1/32				●										
		433T00625AA		120412S01525	3/64				●										
		CNGA 431S00825	S00825	CNGA 120404S02025	1/64					●									
		432S00825		120408S02025	1/32					●									
		433S00825		120412S02025	3/64					●									
		CNGA 431T01230AA	S01230	CNGA 120404S03030	1/64					●									
		432T01230AA		120408S03030	1/32					●									
		433T01230AA		120412S03030	3/64					●									
CNGA 431T00625	T00625	CNGA 120404T01525	1/64					●											
432T00625		120408T01525	1/32					●											
433T00625		120412T01525	3/64					●											
CNGA 431T00825	T00825	CNGA 120404T02025	1/64		●	●		●			●	●	●	●					
432T00825		120408T02025	1/32		●			●	●	●	●	●							
433T00825		120412T02025	3/64		●	●		●	●	●	●	●							
CNGA 543T00825	T00825	CNGA 160612T02025	3/64							●									
CNMA 432T00625AA	S00625	CNMA 120408S01525	1/32							●									
CNMA 432T01230AA	S01230	CNMA 120408S03030	1/32							●									
433T01230AA		120412S03030	3/64							●									
		CNG 432T00425AA	S00425	CNGN 120408S01025	1/32	△													
		433T00425AA		120412S01025	3/64	●													
		CNG 432T00420	T00420	CNGN 120408T01020	1/32											●	△		
		433T00420		120412T01020	3/64											△			
		CNG 432T00825		CNGN 120408T02025	1/32		●			●	●				△				
		433T00825	120412T02025	3/64					●	●	●	●							
		434T00825	120416T02025	1/16		●					●								
		CNG 452T00625AA	S00625	CNGN 120708S01525	1/32					●									
		453T00625AA		120712S01525	3/64					●									
		CNG 452T00420	T00420	CNGN 120708T01020	1/32													△	●
453T00420	120712T01020	3/64														△			
CNG 451T00825	T00825	CNGN 120704T02025	1/64		●														
452T00825		120708T02025	1/32		●						●								
453T00825		120712T02025	3/64		●														
454T00825		120716T02025	1/16		●							●							
CNG 552T00825	T00825	CNGN 160708T02025	1/32		●														
553T00825		160712T02025	3/64		●														
554T00825		160716T02025	1/16		●														
CNM 452T00825		T00825	CNMN 120708T02025	1/32		●													
453T00825	120712T02025		3/64		△														
		CNGX 453T00825	T00825	CNGX 120712T02025	3/64								△						
		454T00825		120716T02025	1/16							△	△						

55° / 75° Diamond

Negative Insert

(in)


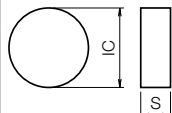
(in)

<i>Part Number</i>	IC	S	D1
DNGX 35_	0.394	5/16	-
DNGX 45_	1/2	5/16	-
ENG 45_	1/2	5/16	-

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

KYOCERA B109

(in)				(in)			
<i>Part Number</i>	IC	S	D1	<i>Part Number</i>	IC	S	D1
RNG 32_	3/8	1/8	-	RNG 45_	1/2	5/16	-
RNG 33_	3/8	3/16	-	RNG 55_	5/8	5/16	-
RNG 35_	3/8	5/16	-	RNG 65_	3/4	5/16	-
RNG 43_	1/2	3/16	-	RNG 85_	1	5/16	-

Edge Prep.				K	Material												Toolholder	Grade				
Symbol	Cutting Edge Spec.	Example			Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)																
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge		Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)																
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge		Heat-resistant Alloys	Hard Materials																
Insert				ANSI Part Number	*Edge Prep (in)	ISO Part Number	Corner Radius (in)	RE	KA30	A65	KT66	AE6N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1		
 		RNG	32E001	E001	RNGN	090300E003	-										△					
			32T00420	T00420		090300T01020	-											●				
		RNG	33T00625AA	S00625	RNGN	090400S01525	-					●										
			33S00825	S00825		090400S02025	-						●									
			33T00420	T00420		090400T01020	-														△	
			33T00825	T00825		090400T02025	-			●				●								
		RNG	35T00420	T00420	RNGN	090700T01020	-														△	
		RNG	43E001	E001	RNGN	120400E003	-												●			
			43T00625AA	S00625		120400S01525	-						●									
			43S00825	S00825		120400S02025	-							●								
			43T00420	T00420		120400T01020	-												●	△	△	
			43T00625	T00625		120400T01525	-															
			43T00825	T00825		120400T02025	-			●		△			●	●	●	△				
		RNG	45E001	E001	RNGN	120700E003	-												●			
			45E002	E002		120700E005	-													●		
			45K06015	K06015		120700K15015	-								●							
			45T00625AA	S00625		120700S01525	-							●								
			45S00825	S00825		120700S02025	-								●							
			45T00420	T00420		120700T01020	-												●	●	△	
			45T00625	T00625		120700T01525	-							●								
			45T00825	T00825		120700T02025	-			●		△			●	●	●					
		RNG	55T00625AA	S00625	RNGN	150700S01525	-							●								
			55S00825	S00825		150700S02025	-								●							
			55T00825	T00825		150700T02025	-				●											
		RNG	65E001	E001	RNGN	190700E003	-												●			
			65T00420	T00420		190700T01020	-												●	●		●
		RNG	85E001	E001	RNGN	250700E003	-												●			
			85T00420	T00420		250700T01020	-												△			

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
E	R-honed Cutting Edge	E002	R0.002" Honed
K	Double Chamfered Cutting Edges	K06015	0.060" X 15° Chamfered Cutting Edge

Note: Symbol "K" describe only the largest chamfer width and its angle.

90° Square

Negative Insert

(in)

<i>Part Number</i>	<i>IC</i>	<i>S</i>	<i>D1</i>
SN_A 43_	1/2	3/16	0.203
SNG 43_	1/2	3/16	-
SNG 45_	1/2	5/16	-


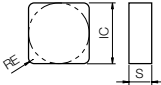

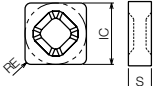
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BOHRING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX



90° Square

Negative Insert

Part Number	IC	S	D1
SN_45_	1/2	5/16	-
SN_55_	5/8	5/16	-

Edge Prep.																				
Symbol	Cutting Edge Spec.	Example	K	Gray Cast Iron (With Scale)																
S	Chamfered and Honed Cutting Edge	S00525		Gray Cast Iron (Without Scale)																
				Nodular Cast Iron (With Scale)																
				Nodular Cast Iron (Without Scale)																
T	Chamfered Cutting Edge	T00315	S	Heat-resistant Alloys																
			H	Hard Materials																
Insert			Edge Prep (in)	ISO Part Number	Corner Radius (in)															
					RE	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXXW1	Toolholder	Page	
		SNG 451T00825	T00825	SNGN 120704T02025	1/64	●												D35 D40 D41		
		452T00825		120708T02025	1/32	●				△										
		453T00825		120712T02025	3/64	●				●										
		454T00825		120716T02025	1/16	●				●	●	●								
		455T00825		120720T02025	5/64	●				●										
		SNM 454T00825	T00825	SNMN 120716T02025	1/16	●														
		SNG 553T00825	T00825	SNGN 150712T02025	3/64	●				△								D35		
		554T00825		150716T02025	1/16	●					●									
		SNGX 454T00825	T00825	SNGX 120716T02025	1/16								△							
		SNGX 552T00825	T00825	SNGX 150708T02025	1/32							△								
553T00825				150712T02025	3/64						●									

60° Triangle

Negative Insert

Part Number	IC	S	D1
TNGA 33_	3/8	3/16	0.150
TNG 22_	1/4	1/8	-

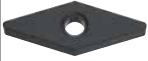
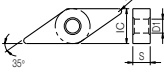

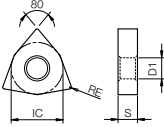
Part Number	IC	S	D1
TNG 33_	3/8	3/16	-
TNG 35_	3/8	5/16	-
TNG 43_	1/2	3/16	-

Edge Prep.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Symbol	Cutting Edge Spec.	Example	K	Gray Cast Iron (With Scale)			●	☺	☺	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	

35° Diamond / 80°Trigon

Negative Insert

Part Number	IC	S	D1
VN_A 33_	3/8	3/16	0.150
WNGA 43_	1/2	3/16	0.203


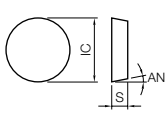

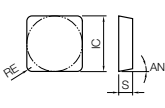

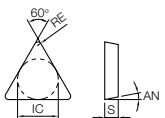
Edge Prep.		Example		K		S		H		Aluminum Oxide Ceramic		PVD Coated Ceramic		MEGACOAT Ceramic		Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic		SiAlON Ceramic		Honeycomb Structure Ceramic		Whisker Reinforced Ceramic		Toolholder	Page								
Symbol	Cutting Edge Spec.																																		
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																																
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge																																
Insert		ANSI Part Number		Edge Prep (in)		ISO Part Number		Corner Radius (in)		KA30		A65		KT66		A66N		PT600M		KS6015		KS6050		CS7050		KS6030		KS6040		CF1		KXW1			
		VNGA 331T00625AA		S00625	VNGA 160404S01525	1/64																													
		332T00625AA		S00625	160408S01525	1/32																													
		VNGA 331S00825		S00825	VNGA 160404S02025	1/64																													
		332S00825		S00825	160408S02025	1/32																													
		VNGA 331T00825		T00825	VNGA 160404T02025	1/64																													
		332T00825		T00825	160408T02025	1/32																													
		333T00825		T00825	160412T02025	3/64																													
		VNMA 332T00625AA		S00625	VNMA 160408S01525	1/32																													
		WNGA 432T00625AA		S00625	WNGA 080408S01525	1/32																													
		WNGA 431T00625		T00625	WNGA 080404T01525	1/64																													
		432T00625		T00625	080408T01525	1/32																													
		433T00625		T00625	080412T01525	3/64																													

Positive

Positive Insert

Part Number	IC	S	AN
RPG 32	3/8	1/8	11°
RPG 43	1/2	3/16	
SPG 32_	3/8	1/8	
SPG 42_	1/2	1/8	

Part Number	IC	S	AN
TBG 121_	5/32	1/16	5°
TCG 33_	3/8	3/16	7°
TPG 1815_	7/32	3/32	11°
TPG 22_	1/4	1/8	
TPG 32_	3/8	1/8	

Edge Prep.				K	Gray Cast Iron (With Scale) Gray Cast Iron (Without Scale) Nodular Cast Iron (With Scale) Nodular Cast Iron (Without Scale)																							
Symbol	Cutting Edge Spec.	Example			S	Heat-resistant Alloys																						
						H	Hard Materials																					
Insert				*Edge Prep (in)	ISO Part Number	Corner Radius (in) RE	Aluminum Oxide Ceramic PVD Coated Ceramic MEGACOAT Ceramic Silicon Nitride Ceramic CVD Coated Silicon Nitride Ceramic SiAlON Ceramic Honeycomb Structure Ceramic Whisker Reinforced Ceramic												Toolholder									
ANSI Part Number							KA30	A65	KT66	AE6N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1										
		RPG	32E001	E001	RPGN	090300E003	-								●													
			32T00420	T00420		090300T01020	-									●												
		RPG	43E001	E001	RPGN	120400E003	-									●												
			43T00420	T00420		120400T01020	-										●	△										
		SPG	322T00320AA	S00320	SPGN	090308S00820	1/32			●																		
		SPG	322T00320	T00320	SPGN	090308T00820	1/32		●		△																	
		SPG	422T00320	T00320	SPGN	120308T00820	1/32		●																			
			423T00320			120312T00820	3/64		●																			
		TBG	12105T00320AA	S00320	TBGN	060102S00820	0.008				△																	
			1211T00320AA			060104S00820	1/64				●																	
			1212T00320AA			060108S00820	1/32				●																	
		TCG	332T00320	T00320	TCGN	160408T00820	1/32			△																		
		TPG	18151T00320	T00320	TPGN	090204T00820	1/64				△		●															
			18152T00320			090208T00820	1/32					●																
		TPG	2205T00320AA	S00320	TPGN	110302S00820	0.008					●																
		TPG	221T00320AA			TPGN	110304S00820	1/64					●															
			222T00320AA				110308S00820	1/32					●															
		TPG	221T00320	T00320	TPGN	110304T00820	1/64		●		●	●																
			222T00320				110308T00820	1/32		●		●	●															
		TPG	321T00320AA	S00320	TPGN	160304S00820	1/64					●																
			322T00320AA				160308S00820	1/32					●															
			323T00320AA				160312S00820	3/64					●															
		TPG	3205T00320	T00320	TPG	160302T00820	0.008		●																			
			321T00320				160304T00820	1/64		●			●	●														
	322T00320				160308T00820	1/32		●			●	●																
	323T00320				160312T00820	3/64			△																			

* For cutting edge "E", please refer to the table below.

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
E	R-honed Cutting Edge	E002	R0.002" Honed


Inserts for Roll Machining

B
TURNING
INSERTS

NEGATIVE
POSITIVE

C
D
R
S
T
V
W

CERAMIC

Edge Prep.				K	Gray Cast Iron (With Scale)										Gray Cast Iron (Without Scale)										Nodular Cast Iron (With Scale)										Nodular Cast Iron (Without Scale)										Heat-resistant Alloys										Hard Materials																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Insert				ANSI Part Number	*Edge Prep (in)	ISO Part Number		Dimensions (in)					Aluminum Oxide Ceramic										PVD Coated Ceramic MEGACOAT Ceramic										Silicon Nitride Ceramic										CVD Coated Silicon Nitride Ceramic										SiAlON Ceramic										Honeycomb Structuring Ceramic Whisker Reinforced Ceramic										Toolholder																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Grooving Inserts

Edge Prep.		Example		K																							
Symbol	Cutting Edge Spec.																										
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																								
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge																								
				S	Heat-resistant Alloys																						
				H	Hard Materials																						

