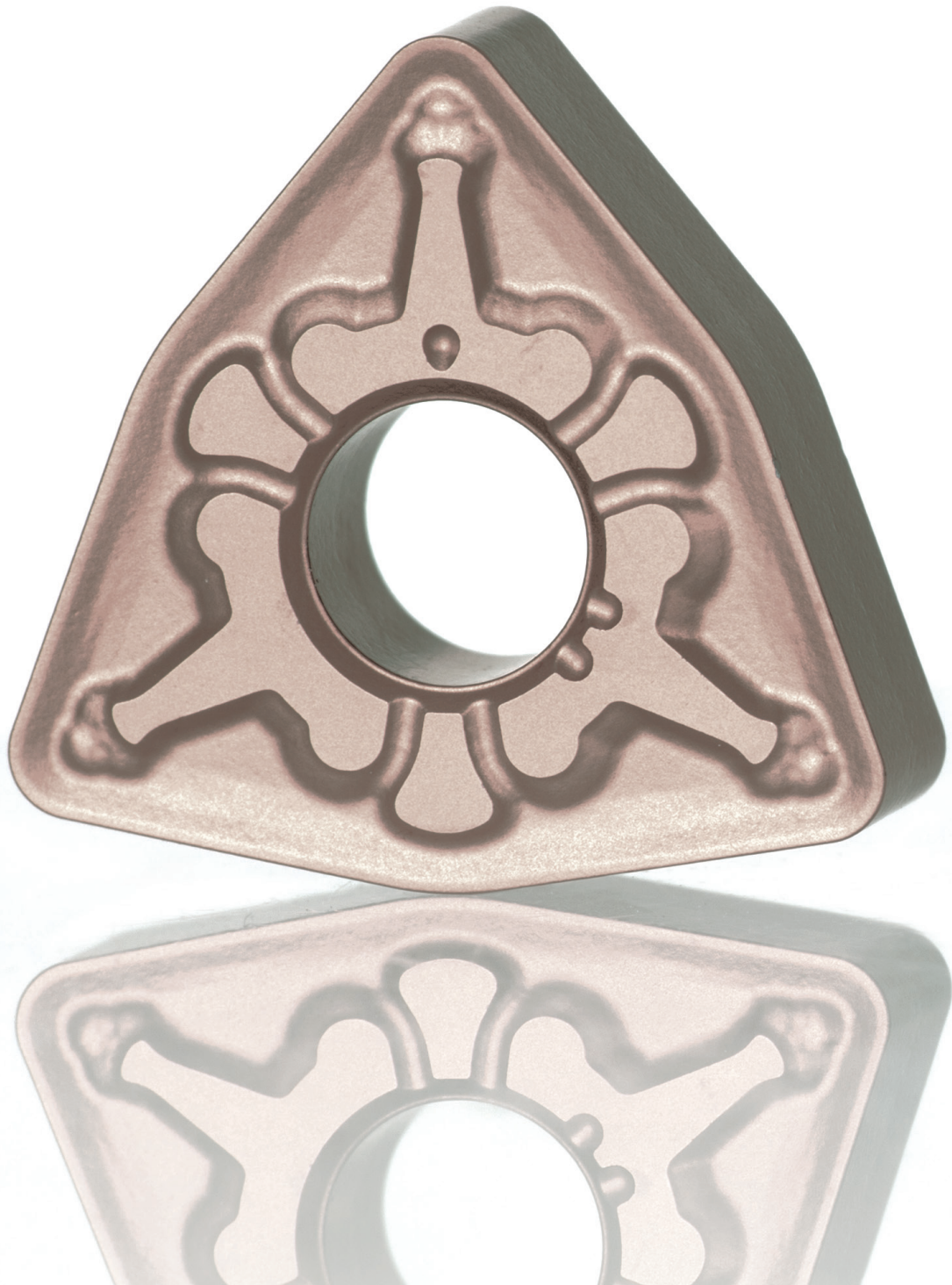


Insert



Insert - Content structure

- Inserts grouped in Negative type, Positive type and CBN/PCD.
- The list is in alphabetical order.
- The order of the list: C (80°) → D (55°) → R (360°) → S (90°) → T (60°) → V (35°) → W (80°) → Y (25°) → Other shapes
- The order of inserts:
 - Negative type (each shape with hole → without hole)
 - Positive type (each shape with hole → without hole)
- The order of chipbreakers:
 - From precision finishing to heavy cutting, in the order of the values of cutting depth and feed rate.
- Insert without chipbreaker is on the last page of each shape.
- Introduces the proposed inserts according to the workpiece materials and the shape of workpiece materials.
- The standard cutting conditions for typical chipbreakers are at the bottom of the pages.
- ● in the catalog describes our standard stock items, and ▲ means the item to be discontinued in the future.

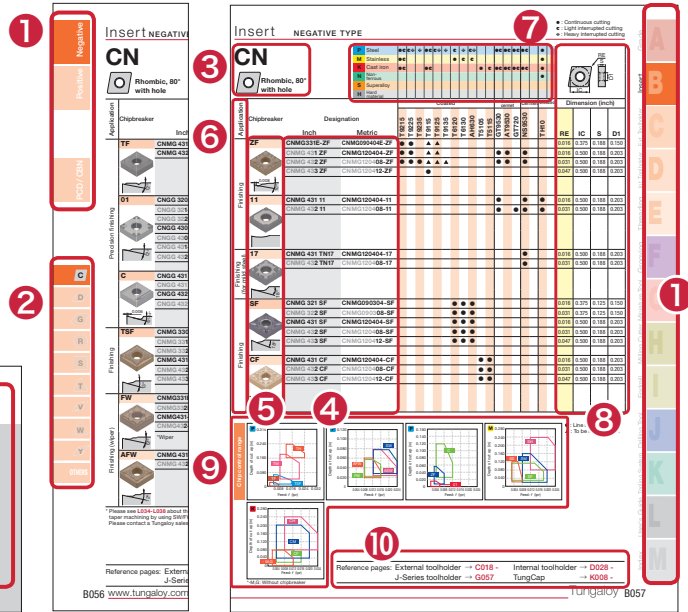
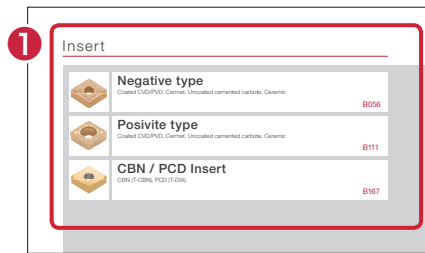
How to use the page

Method ①

Select an insert at the right end, and choose the information page by the insert type (1) and the outer shape of the insert (2) at the left end.

Method ②

Check the page of each insert type from the index on B003 (1), and choose the page of the setting information according to the outer shape of the insert (2).

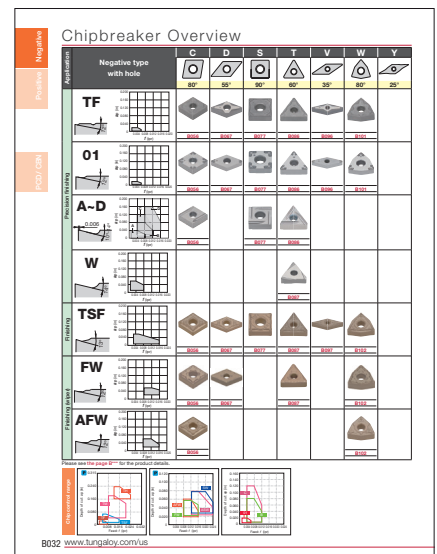
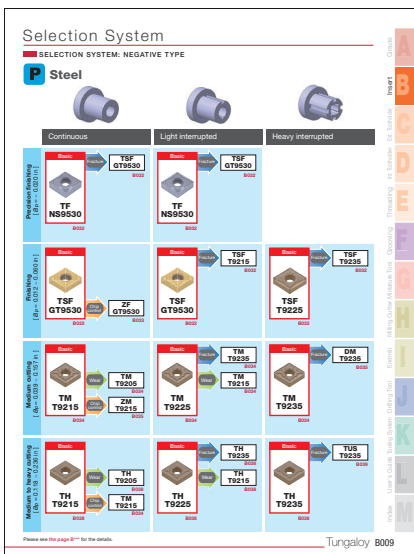
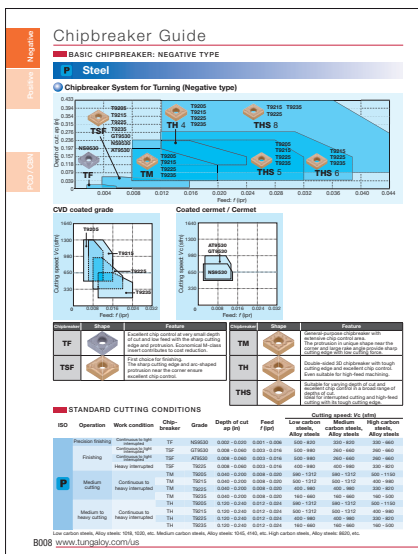


Method ③

Select an insert at the chipbreaker introduction and the selection guide on B006 - B029 and check the details on the product page.

Method ④

Select an insert from the list of chipbreaker shapes on B030-B053 and check the details on each page.



When ordering

- Please specify the designation, grade, and quantity.
- e.g. **CNMG 432 TM T9225 ... 10 pieces** (10 inserts per package)
- *You will find a note if the number per package is not 10.



Negative type

Coated CVD/PVD, Cermet, Uncoated cemented carbide, Ceramic

B056



Positive type

Coated CVD/PVD, Cermet, Uncoated cemented carbide, Ceramic

B111



CBN / PCD Insert

CBN (T-CBN), PCD (T-DIA)

B167

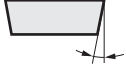
Designation system for Insert

Symbol	Shape	Nose angle (degree)	Figure
H	Hexagonal	120°	
O	Octagonal	135°	
P	Pentagonal	108°	
S	Square	90°	
T	Triangular	60°	
C	Rhombic	80°	
D		55°	
E		75°	
F		50°	
G	G-shape (Tungaloy's symbol)	70°	
M	Rhombic	86°	
V		35°	
Y	Y-shape (Tungaloy's symbol)	25°	
W	Trigon	80°	
L	Rectangular	90°	
A	Parallelogram	85°	
B		82°	
K		55°	
R	Round	-	

1 Shape

Note: For rhombic and parallelogram inserts, use the smaller nose angle.

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



2 Relief angle

Symbol (class)	Tolerance (inch)		
	Cutting point	Thickness (S)	I.C. dia. (IC)
A	±0.0002	±0.0001	±0.0001
F	±0.0002	±0.0001	±0.0005
C	±0.0005	±0.0001	±0.0001
H	±0.0005	±0.0001	±0.0005
E	±0.001	±0.001	±0.001
G	±0.001	±0.005	±0.001
J	±0.0002	±0.001	±0.002 ~ ±0.005
K	±0.0005	±0.001	±0.002 ~ ±0.005
L	±0.001	±0.001	±0.002 ~ ±0.005
M	±0.003 ~ ±0.007	±0.005	±0.002 ~ ±0.005
N	±0.003 ~ ±0.007	±0.001	±0.002 ~ ±0.005
U	±0.005 ~ ±0.015	±0.005	±0.003 ~ ±0.01

3 Accuracy

1	2	3	4	5
T	N	M	G	3
C	C	G	T	3
1	2	3	4	5

4 Groove and hole					
Symbol	Hole	Shape of hole	Chip-breaker	Shape	
N	Without	-	Without		
R			Single-sided		
F			Double-sided		
A	With	Cylindrical hole	Without		
M			Single-sided		
G			Double-sided		
W			Partly cylindrical hole, single-side 40° ~ 60° Counter sink	Without	
T			Single-sided		
Q			Partly cylindrical hole, double-side 40° ~ 60° Counter sink	Without	
U	Double-sided				
B	With	Partly cylindrical hole, single-side 70° ~ 90° Counter sink	Without		
H			Single-sided		
C			Without		
J					
X		Partly cylindrical hole, double-side 70° ~ 90° Counter sink			

5 Size (I.C.)			
Symbol		Dimensions (in)	
Normal series	Small series	I.C.	Fraction
(1.2)	5	0.156	5/32
(1.5)	6	0.187	3/16
(1.8)	7	0.219	7/32
2	(8)	0.250	1/4
(2.5)	0	0.313	5/16
3		0.375	3/8
4		0.500	1/2
5		0.625	5/8
6		0.750	3/4
7		0.875	7/8
8		1.000	1
(10)		1.250	1-1/4

ANSI Designation

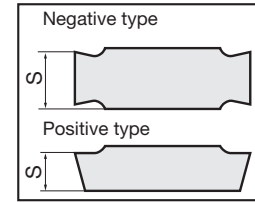
● Detailed accuracy

Corner angles larger than 55°

Inscribed circle	Tolerance on inscribed circle dia. (IC)		Tolerance on corner height (M)		Shape
	J,K,M,N (class)	U (class)	J,K,M,N (class)	U (class)	
0.250	±0.002	±0.003	±0.003	±0.005	H W
0.375					O R
0.500	±0.003	±0.005	±0.005	±0.008	P
0.625					S
0.750					T
1.000	±0.005	±0.010	±0.007	±0.015	C,E,M

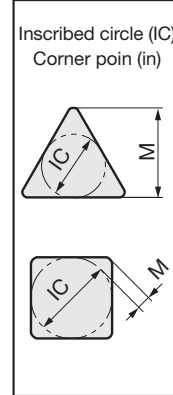
● Note on insert thickness

Thickness of insert with chipbreaker grooves is defined as shown to the right.



For angles at 55° (M-Class)

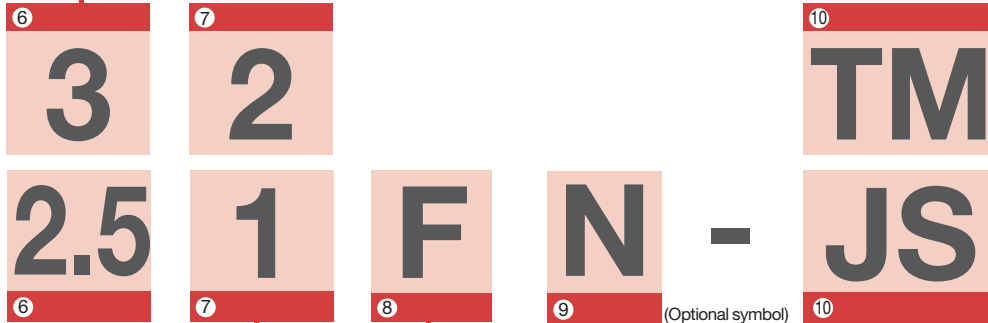
Inscribed circle	Tolerance on inscribed circle dia. (IC)	Tolerance on corner height (M)	Applicable insert shape
0.250	±0.002	±0.004	D
0.375			
0.500	±0.003	±0.006	
0.625	±0.004	±0.007	
0.750			



Symbol		Thickness (in)	
Normal series	Small series		
-	2	0.062	1/16
1.5	3	0.094	3/32
2	4	0.125	1/8
2.5	5	0.156	5/32
3	6	0.187	3/16
3.5	-	0.219	7/32
4	-	0.250	1/4
5	-	0.313	5/16
6	-	0.375	3/8

Thickness

[Example]



7 Corner radius

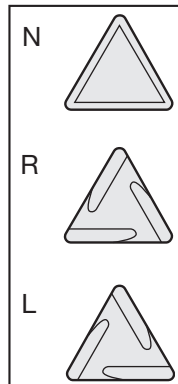
Symbol	Corner radius RE (in)	
V	0.001	-
0	0.004	1/256
0.5	0.008	1/128
1	0.016	1/64
2	0.031	1/32
3	0.047	3/64
4	0.062	1/16
5	0.078	5/64
6	0.094	3/32
7	0.109	7/64
8	0.125	1/8

8 Major cutting edge

Symbol	Cutting edge	Shape
F	Sharp	

9 Hand of insert

Symbol	Hand
R	Right
L	Left
N	Neutral



10 Our company's own symbols showing cutting edge conditions. For details, refer to page B007.

Insert hole size chart

Insert hole size		
	I.C.	Diameter
Negatives	1/4	0.089
	3/8	0.150
	1/2	0.203
	5/8	0.250
	3/4	0.312
	1	0.359
Positives	1 1/4	0.346
	5/32	0.087
	3/16	0.087
	13/64	0.110
	7/32	0.094
	1/4	0.110
	5/16	0.134
	3/8	0.173
1/2	0.217	
5/8	0.217	



Designation system for Insert

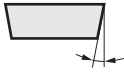
● How to decide the insert designation (conforms to JIS B4120-1998, ISO 1832 / AM1:1998)

Symbol	Shape	Nose angle (degree)	Figure
H	Hexagonal	120°	
O	Octagonal	135°	
P	Pentagonal	108°	
S	Square	90°	
T	Triangular	60°	
C	Rhombic	80°	
D		55°	
E		75°	
F		50°	
G	G-shape (Tungaloy's symbol)	70°	
M	Rhombic	86°	
V		35°	
Y	Y-shape (Tungaloy's symbol)	25°	
W	Trigon	80°	
L	Rectangular	90°	
A	Parallelogram	85°	
B		82°	
K		55°	
R	Round	-	

1 Shape

Note: For rhombic and parallelogram inserts, use the smaller nose angle.

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



2 Relief angle

Symbol (class)	Tolerance (mm)		
	Corner height (M)	Thickness (S)	I.C. dia. (IC)
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.013
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.013
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
J	±0.005	±0.025	±0.005 ~ ±0.13
K	±0.013	±0.025	±0.05 ~ ±0.13
L	±0.025	±0.025	±0.05 ~ ±0.13
M	±0.08 ~ ±0.18	±0.13	±0.05 ~ ±0.13
N	±0.08 ~ ±0.18	±0.025	±0.05 ~ ±0.13
U	±0.13 ~ ±0.38	±0.13	±0.08 ~ ±0.25

3 Accuracy

[Example] T N M G 16

[Example] C C G T 09

4 Groove and hole				
Symbol	Hole	Shape of hole	Chip-breaker	Shape
N	Without	-	Without	
R			Single-sided	
F			Double-sided	
A	Cylindrical hole	-	Without	
M			Single-sided	
G			Double-sided	
W			Partly cylindrical hole, single-side 40° ~ 60° Counter sink	
T	With	-	Single-sided	
Q			Partly cylindrical hole, double-side 40° ~ 60° Counter sink	
U			Double-sided	
B			Partly cylindrical hole, single-side 70° ~ 90° Counter sink	
H	Cylindrical hole, double-side 70° ~ 90° Counter sink	-	Single-sided	
C			Without	
J			Double-sided	
X	Special			

5 Cutting edge length and I.C. symbol																
* (R)	(S)	(C)	(W)	(T)	(D)	(V)	(K)	I.C. dia.								
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	
	03	3.97	03	4.0			06	6.9	04	4.8					3.97	
	04	4.76	04	4.8			08	8.2	05	5.8	08	8.3			4.76	
05	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	
	05	5.56	05	5.6	03	3.8	09	9.6	06	6.8					5.56	
06	6	-	-	-	-	-	-	-	-	-	-	-	-	-	6	
	06	6.35	06	6.5	04	4.3	11	11	07	7.8	11	11.2			6.35	
	07	7.94	08	8.1	05	5.4	13	13.8	09	9.7					7.94	
08	8	-	-	-	-	-	-	-	-	-	-	-	-	-	8	
09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	10	
12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1			12.7
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	16	
19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3					19.05
20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	20	
		22	22.225	22	22.6			38	38.5	27	27.1					22.225
25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	25	
25	25.4	25	25.4	25	25.8			44	44	31	31					25.4
31	31.75	31	31.75	32	32.2			55	55	38	38.8					31.75
32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	32	

ISO Designation

● Detailed accuracy for J,K,L,M,N and U classes

For inserts with nose corner angles larger than 55° (mm)

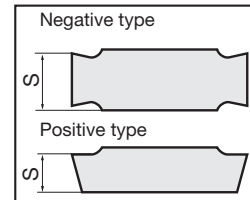
Inscribed circle	Tolerance on inscribed circle dia. (IC)		Tolerance on corner height (M)		Applicable insert shape
	J,K,L,M,N (class)	U (class)	J,K,L,M,N (class)	U (class)	
6.35	±0.05	±0.08	±0.08	±0.13	H W O R P S T C,E,M
9.525					
12.7	±0.08	±0.13	±0.13	±0.2	
15.875	±0.1	±0.18	±0.15	±0.27	
19.05					
25.4	±0.13	±0.25	±0.18	±0.38	
31.75	±0.15	±0.25	±0.2	±0.38	
32					

For M-type inserts with nose corner angles of 55° (Shape: D), 35° (Shape: V), 25° (Shape: Y) (mm)

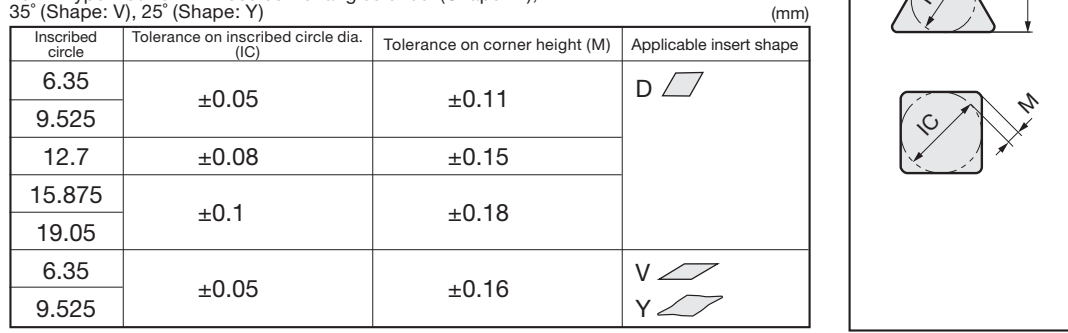
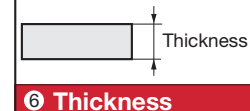
Inscribed circle	Tolerance on inscribed circle dia. (IC)		Tolerance on corner height (M)	Applicable insert shape
	J,K,L,M,N (class)	U (class)		
6.35	±0.05	±0.11	±0.11	D
9.525				
12.7				
15.875	±0.1	±0.18	±0.18	
19.05				
6.35	±0.05	±0.16	±0.16	V Y
9.525				

● Insert thickness

For many of the inserts with chipbreaker, the insert height of the cutting edge is lower. In that case, the insert thickness outlined in the drawing of external dimensions is equivalent of "S" in the figure on the right.



Symbol	Thickness (mm)
X1	1.39
01	1.59
T1	1.98(1.79)
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52



[Example]

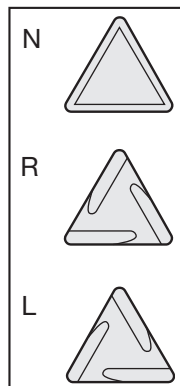
6 7 10
04 08 - TM
6 7 8 9 10
T3 04 F N - JS

(Optional symbol)
(Optional symbol)
(Supplementary symbol)

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

8 Major cutting edge		
Symbol	Cutting edge	Shape
F	Sharp	

9 Hand of insert	
Symbol	Hand
R	Right
L	Left
N	Neutral



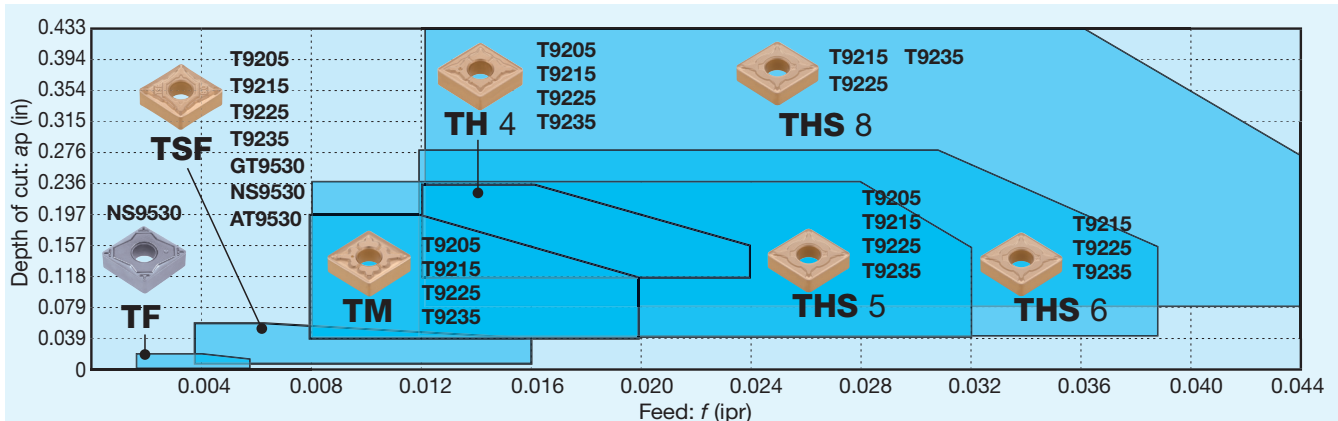
10 Chipbreaker			
Symbol	Applications	Symbol	Applications
01(TF)	Precision finishing (Basic selection)	AFW	Small depth of cut and high feed (Wiper type Inserts)
TS	Finishing (Basic selection)	ASW	Small depth of cut and high feed (Wiper type Inserts)
TSF	Finishing (Basic selection)	CB	Medium cutting
TM	Medium cutting (Basic selection)	CM	Medium cutting of cast irons
THS	Medium to heavy cutting (Basic selection)	All-round	Medium cutting
TRS	Medium to heavy cutting	A	Finishing (Right and left hand)
TUS	Heavy cutting	B	Finishing (Right and left hand)
DM	Medium cutting	D	Finishing (Right and left hand)
HRF	Finishing	C	Finishing (Right and left hand)
HRM	Finishing to medium cutting	P	Finishing of Aluminium alloys
HMM	Finishing to medium cutting	W	Finishing (Angular type)
SF	Finishing of stainless steels	PSF	Finishing (Positive type)
SS	Finishing of stainless and mild steels	PSS	Finishing to light cutting (Positive insert)
SM	Medium cutting of stainless steels	PS	Finishing to medium cutting (Positive type Basic selection)
S	Medium cutting of stainless steels	PM	Medium cutting (Positive type)
SH	Medium to heavy cutting of stainless steels	AL	Finishing to medium cutting of aluminium alloys
SA	For heat-resisting alloys and stainless steels	RS	Medium cutting (For round inserts)
ZF	Finishing and profiling	W□□	Finishing (Angular type)
ZM	Finishing to medium cutting and profiling	H□□	Finishing to medium cutting (Parallel)
NS	Finishing and profiling	11	Finishing
NM	Finishing to medium cutting and profiling	61	Small depth of cut and high feed (For round inserts)
AS	Small depth of cut and high feed	S1	Finishing (For KNMX type)
TA	Medium cutting	Job, J10	For small lathes
TQ	Medium cutting	JS	For small lathes
AM	Small depth of cut and high feed	JRP	For small lathes
FW	Finishing (Wiper type)	JPP	For small lathes
SW	Finishing to medium cutting (Wiper type)	JSP	For small lathes

Chipbreaker Guide

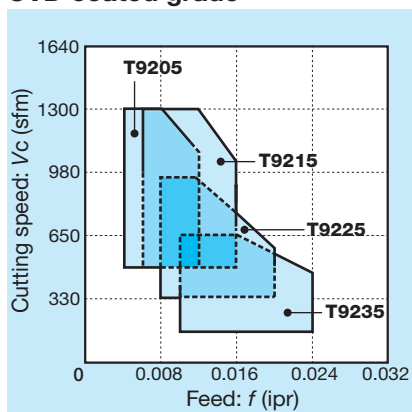
BASIC CHIPBREAKER: NEGATIVE TYPE

P Steel

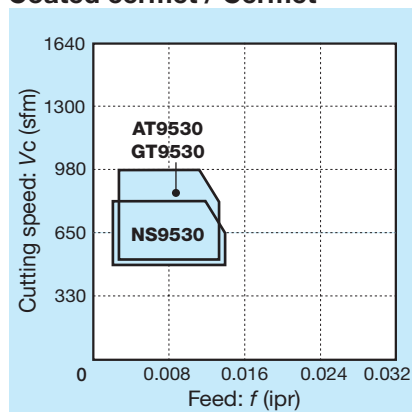
Chipbreaker System for Turning (Negative type)



CVD coated grade



Coated cermet / Cermet



Chipbreaker	Shape	Feature
TF		Excellent chip control at very small depth of cut and low feed with the sharp cutting edge and protrusion. Economical M-class insert contributes to cost reduction.
TSF		First choice for finishing. The sharp cutting edge and arc-shaped protrusion near the corner ensure excellent chip control.

Chipbreaker	Shape	Feature
TM		General-purpose chipbreaker with extensive chip control area. The protrusion in unique shape near the corner and large rake angle provide sharp cutting edge with low cutting force.
TH		Double-sided 3D chipbreaker with tough cutting edge and excellent chip control. Even suitable for high-feed machining.
THS		Suitable for varying depth of cut and excellent chip control in a broad range of depths of cut. Ideal for interrupted cutting and high-feed cutting with its tough cutting edge.

STANDARD CUTTING CONDITIONS

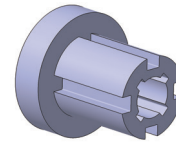
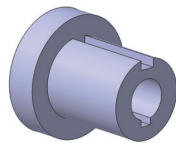
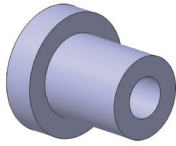
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous to light interrupted	TF	NS9530	0.002 - 0.020	0.001 - 0.006	500 - 820	330 - 820	330 - 660
			TSF	GT9530	0.008 - 0.060	0.003 - 0.016	500 - 980	260 - 660	260 - 660
	Finishing	Continuous to light interrupted	TSF	AT9530	0.008 - 0.060	0.003 - 0.016	500 - 980	260 - 660	260 - 660
			TSF	T9225	0.008 - 0.060	0.003 - 0.016	400 - 980	400 - 980	330 - 820
	Medium cutting	Continuous to heavy interrupted	TM	T9205	0.040 - 0.200	0.008 - 0.020	590 - 1312	590 - 1312	500 - 1150
			TM	T9215	0.040 - 0.200	0.008 - 0.020	500 - 1312	500 - 1312	400 - 980
			TM	T9225	0.040 - 0.200	0.008 - 0.020	400 - 980	400 - 980	330 - 820
			TM	T9235	0.040 - 0.200	0.008 - 0.020	160 - 660	160 - 660	160 - 500
	Medium to heavy cutting	Continuous to heavy interrupted	TH	T9205	0.120 - 0.240	0.012 - 0.024	590 - 1312	590 - 1312	500 - 1150
			TH	T9215	0.120 - 0.240	0.012 - 0.024	500 - 1312	500 - 1312	400 - 980
TH			T9225	0.120 - 0.240	0.012 - 0.024	400 - 980	400 - 980	330 - 820	
TH			T9235	0.120 - 0.240	0.012 - 0.024	160 - 660	160 - 660	160 - 500	

Low carbon steels, Alloy steels: 1018, 1020, etc. Medium carbon steels, Alloy steels: 1045, 4140, etc. High carbon steels, Alloy steels: 8620, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

P Steel



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p = \sim 0.020$ in]	<p>Basic</p>  <p>TF NS9530</p> <p>B032</p> <p>Fracture → TSF GT9530 (B032)</p>	<p>Basic</p>  <p>TF NS9530</p> <p>B032</p> <p>Fracture → TSF GT9530 (B032)</p>	
Finishing [$a_p = 0.012 \sim 0.060$ in]	<p>Basic</p>  <p>TSF GT9530</p> <p>B032</p> <p>Chip control → ZF GT9530 (B033)</p>	<p>Basic</p>  <p>TSF GT9530</p> <p>B032</p> <p>Fracture → TSF T9215 (B032)</p>	<p>Basic</p>  <p>TSF T9225</p> <p>B032</p> <p>Fracture → TSF T9235 (B032)</p>
Medium cutting [$a_p = 0.039 \sim 0.157$ in]	<p>Basic</p>  <p>TM T9215</p> <p>B034</p> <p>Wear → TM T9205 (B034)</p> <p>Chip control → ZM T9215 (B035)</p>	<p>Basic</p>  <p>TM T9225</p> <p>B034</p> <p>Fracture → TM T9235 (B034)</p> <p>Wear → TM T9215 (B034)</p>	<p>Basic</p>  <p>TM T9235</p> <p>B034</p> <p>Fracture → DM T9235 (B035)</p>
Medium to heavy cutting [$a_p = 0.118 \sim 0.236$ in]	<p>Basic</p>  <p>TH T9215</p> <p>B038</p> <p>Wear → TH T9205 (B038)</p> <p>Chip control → TM T9215 (B034)</p>	<p>Basic</p>  <p>TH T9225</p> <p>B038</p> <p>Fracture → TH T9235 (B038)</p> <p>Wear → TH T9215 (B038)</p>	<p>Basic</p>  <p>TH T9235</p> <p>B038</p> <p>Fracture → TUS T9235 (B039)</p>

Please see the page B*** for the details.

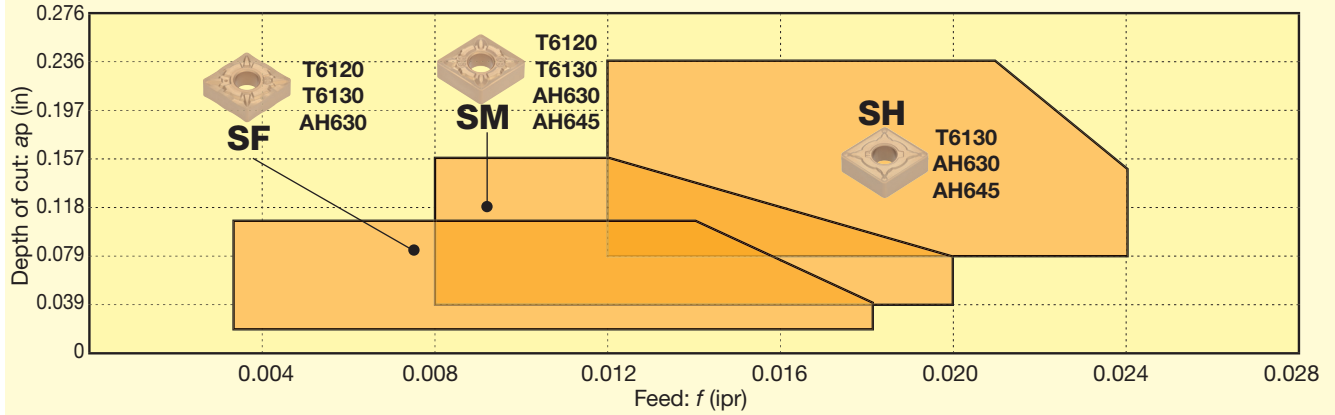


Chipbreaker Guide

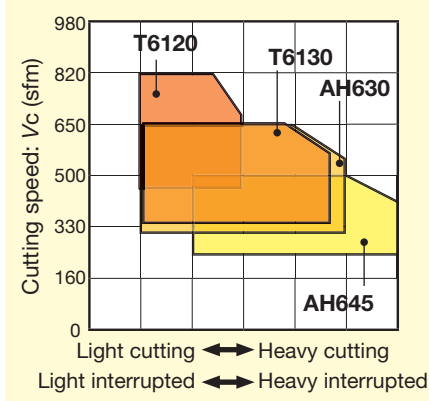
BASIC CHIPBREAKER: NEGATIVE TYPE

M Stainless Steel

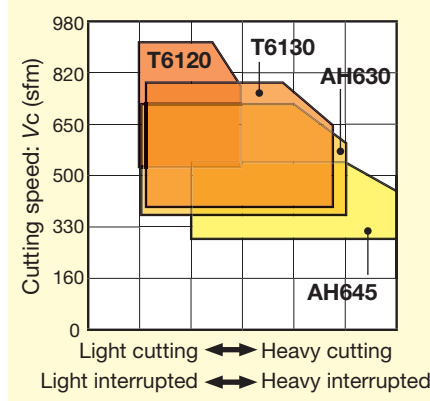
Chipbreaker System for Turning (Negative type)



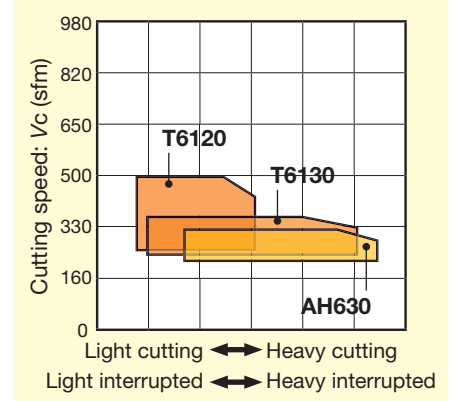
Austenitic stainless steel



Ferritic / martensite stainless steel



Precipitation hardened stainless steel



Chipbreaker	Shape	Feature
SF		Excellent chip control with small depth of cut at high feed. Suitable for finishing stainless steel.
SH		Suitable for medium to heavy cutting. High fracture resistance with specially reinforced cutting edge. Ideal for machining that requires cutting edge strength, such as roughing and interrupted cutting.

Chipbreaker	Shape	Feature
SM		General-purpose chipbreaker with sharpness and good chip control. First choice for stainless steel.

STANDARD CUTTING CONDITIONS

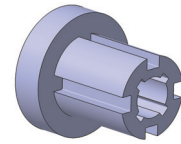
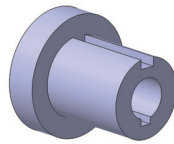
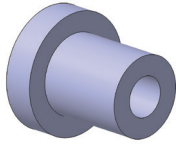
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)
M	Finishing	Continuous	SF	T6120	0.020 - 0.098	0.003 - 0.018	460 - 790
		Continuous to light interrupted	SF	T6130	0.020 - 0.098	0.003 - 0.018	330 - 660
		Heavy interrupted	SF	AH630	0.020 - 0.098	0.003 - 0.018	300 - 620
	Medium cutting	Continuous	SM	T6120	0.040 - 0.160	0.008 - 0.020	460 - 790
		Continuous to light interrupted	SM	T6130	0.040 - 0.160	0.008 - 0.020	330 - 660
		Light interrupted	SM	AH630	0.040 - 0.160	0.008 - 0.020	300 - 620
		Heavy interrupted	SM	AH645	0.040 - 0.160	0.008 - 0.020	230 - 500
	Medium to heavy cutting	Continuous to light interrupted	SH	T6130	0.080 - 0.240	0.012 - 0.024	330 - 660
		Light interrupted	SH	AH630	0.080 - 0.240	0.012 - 0.024	300 - 620
Heavy interrupted		SH	AH645	0.080 - 0.240	0.012 - 0.024	230 - 500	

Stainless steels: 304SS, 316SS, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE










M Stainless Steel



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Finishing $[a_p = 0.020 \sim 0.060 \text{ in}]$	<p>Basic</p>  <p>SF T6120 B033</p> <p>Fracture → SF T6130 B033</p>	<p>Basic</p>  <p>SF T6130 B033</p> <p>Fracture → SF AH630 B033</p> <p>Wear → SF T6120 B033</p>	<p>Basic</p>  <p>SF AH630 B033</p> <p>Fracture → SF AH645 B033</p> <p>Wear → SF T6130 B033</p>
Medium cutting $[a_p = 0.039 \sim 0.157 \text{ in}]$	<p>Basic</p>  <p>SM T6130 B037</p> <p>Wear → SM T6120 B037</p> <p>Chip control → SF T6130 B033</p>	<p>Basic</p>  <p>SM AH630 B037</p> <p>Fracture → SM AH645 B037</p> <p>Wear → SM T6130 B037</p>	<p>Basic</p>  <p>SM AH645 B037</p> <p>Fracture → SH AH645 B039</p>
Medium to heavy cutting $[a_p = 0.079 \sim 0.236 \text{ in}]$	<p>Basic</p>  <p>SH T6130 B039</p> <p>Fracture → SH AH630 B039</p> <p>Wear → SH T6120 B039</p> <p>Chip control → SM T6130 B037</p>	<p>Basic</p>  <p>SH AH630 B039</p> <p>Fracture → SH AH645 B039</p> <p>Wear → SH T6130 B039</p>	<p>Basic</p>  <p>SH AH645 B039</p> <p>Wear → SH AH630 B039</p>

Please see the page B*** for the details.

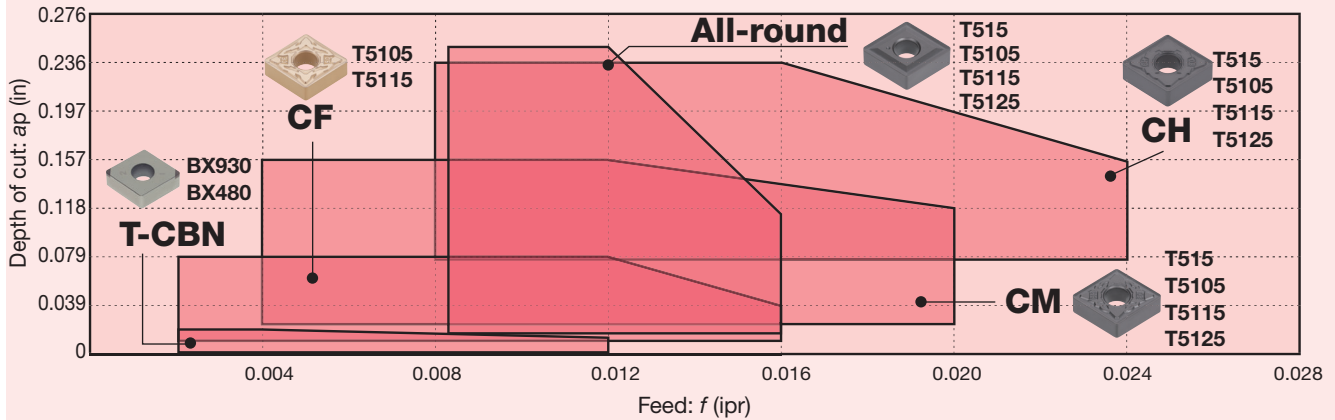
Grade: A, B, C, D, E, F, G, H, I, J, K, L, M
Insert: B
Ext. Toolholder: C
Int. Toolholder: D
Threading: E
Grooving: F
Milling Cutter: G
Miniature Tool: H
Endmill: I
Drilling Tool: J
Tooling System: K
User's Guide: L
Index: M

Chipbreaker Guide

BASIC CHIPBREAKER: NEGATIVE TYPE

K Cast Iron

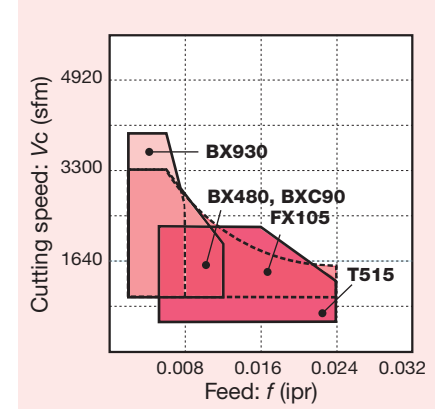
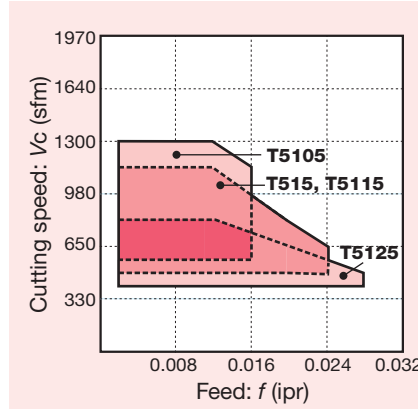
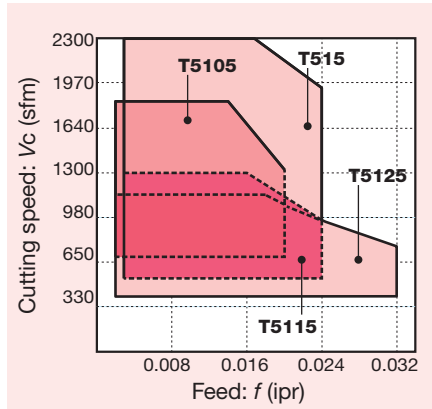
Chipbreaker System for Turning (Negative type)



Grey cast iron

Ductile cast iron

Grey cast iron (high speed cutting)



Chipbreaker	Shape	Feature
No chip-breaker (T-CBN)		Excellent performance in high-speed finishing of cast iron with CBN sintered body on the cutting edge.
CF		Low cutting force chipbreaker for cast iron. Combined with an arc-shaped high rake angle (substantially 20°) drastically reduces cutting force and prevents the deformation and burr of thin-walled components.
All-round		Excellent performance in interrupted cutting. Highly reliable chipbreaker with great stability.

Chip-breaker	Shape	Feature
CM		First choice for cast iron. Versatile chipbreaker for a wide range of applications from continuous to interrupted cutting thanks to the positive land and wide chip pocket.
CH		Chipbreaker with reinforced cutting edge. The negative land and the land support provide stable insert seating and increase cutting edge strength, resulting in no fracture even in heavy cutting.

STANDARD CUTTING CONDITIONS

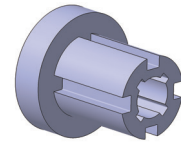
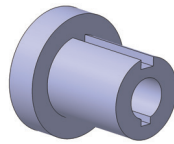
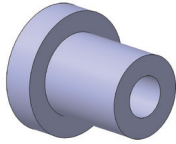
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)	
							Grey cast iron	Ductile cast iron
K	High speed cutting	Continuous	Without	BX930	0.002 - 0.020	0.002 - 0.008	984 - 3937	328 - 1640
		Light interrupted	Without	BX480	0.002 - 0.020	0.002 - 0.012	984 - 3281	328 - 984
		Continuous	Without	BXC90	0.003 - 0.118	0.002 - 0.016	984 - 3281	328 - 984
	Finishing	Continuous	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214
		Light interrupted	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214
		Heavy interrupted	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214
Medium cutting	Continuous	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214	
	Light interrupted	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214	
	Heavy interrupted	CH	T515	0.118 - 0.236	0.008 - 0.024	490 - 2297	459 - 1214	
Medium to heavy cutting	Continuous	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214	
	Light interrupted	All-round	T515	0.039 - 0.197	0.004 - 0.020	490 - 2297	459 - 1214	
	Heavy interrupted	CH	T515	0.118 - 0.236	0.008 - 0.024	490 - 2297	459 - 1214	

Grey cast iron: Class 25, etc. Ductile cast irons: 65-45-12, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

K Cast Iron



	Continuous	Light interrupted	Heavy interrupted
Finishing [$a_p = 0.020 \sim 0.079$ in.]	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5105 (B033)</p>	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Fracture → CH T515 (B039)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5115 (B033)</p>	<p>Basic → Wear → CH T5105 (B039)</p> <p>CH T515 (B039) → Fracture → CH T5125 (B039)</p> <p>CH T515 (B039) → Burr occurrence → All-round T515 (B035)</p>
Medium cutting [$a_p = 0.039 \sim 0.197$ in.]	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5105 (B033)</p>	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Fracture → CH T515 (B039)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5115 (B033)</p>	<p>Basic → Wear → CH T5105 (B039)</p> <p>CH T515 (B039) → Fracture → CH T5125 (B039)</p> <p>CH T515 (B039) → Burr occurrence → All-round T515 (B035)</p>
Medium to heavy cutting [$a_p = 0.118 \sim 0.236$ in.]	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5105 (B033)</p>	<p>Basic → Wear → All-round T5105 (B035)</p> <p>All-round T515 (B035) → Fracture → CH T515 (B039)</p> <p>All-round T515 (B035) → Burr occurrence → CF T5115 (B033)</p>	<p>Basic → Wear → CH T5105 (B039)</p> <p>CH T515 (B039) → Fracture → CH T5125 (B039)</p> <p>CH T515 (B039) → Burr occurrence → All-round T515 (B035)</p>

Please see the page B*** for the details.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

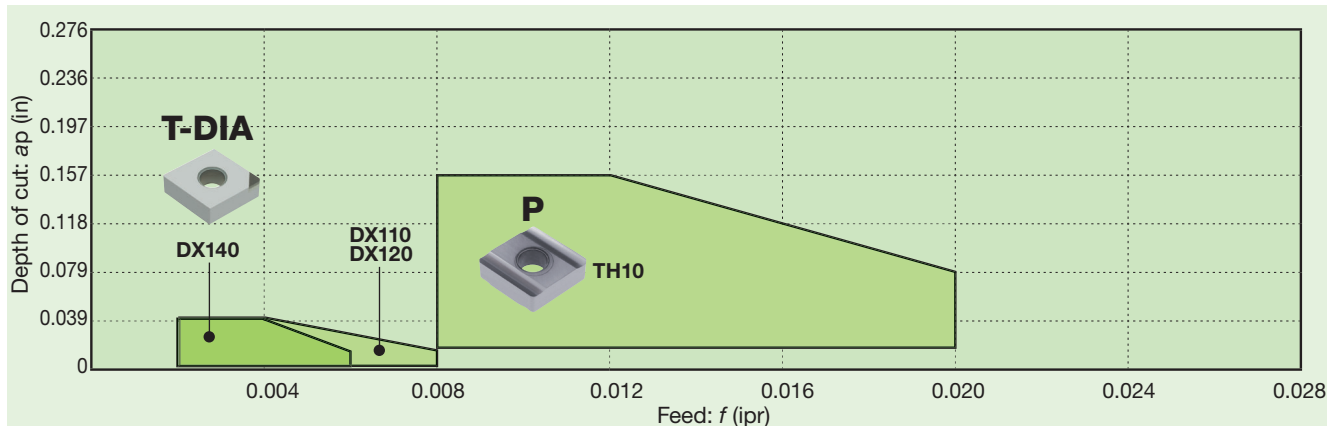


Chipbreaker Guide

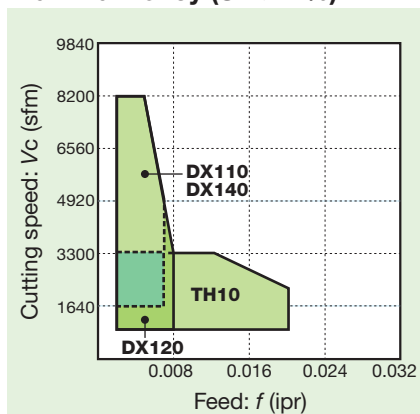
BASIC CHIPBREAKER: NEGATIVE TYPE

N Non-ferrous Metal

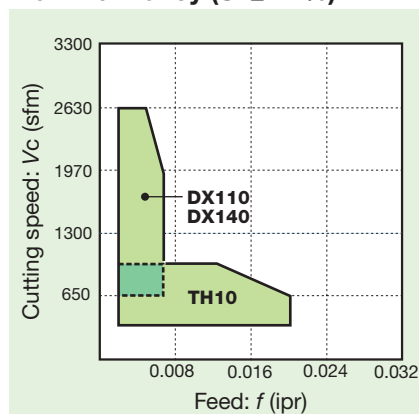
Chipbreaker System for Turning (Negative type)



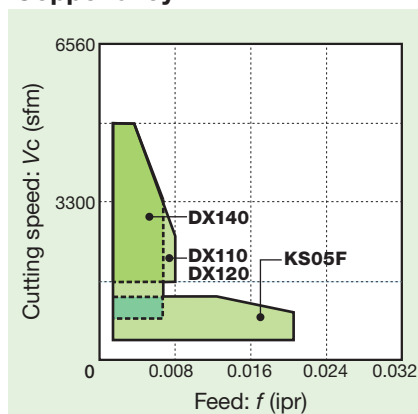
Aluminum alloy (Si < 12%)



Aluminum alloy (Si ≥ 12%)



Copper alloy



Chipbreaker	Shape	Feature
No chip-breaker (T-DIA)		Excellent performance in high-speed finishing of non-ferrous metal, such as aluminum and copper alloy, with diamond sintered body on the cutting edge.
P		Excellent sharpness for non-ferrous metal, such as aluminum and copper alloy.

Chipbreaker	Shape	Feature
With chip-breaker (T-DIA)		Wide chipbreaker for excellent chip control.

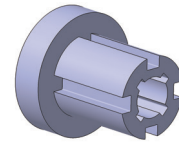
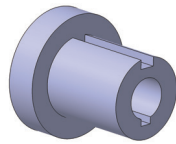
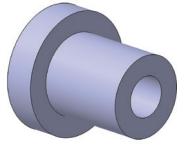
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Aluminum alloy (Si < 12%)	Aluminum alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	Without	DX140	0.002 - 0.040	0.002 - 0.008	980 - 8200	-	1640 - 4920
	Finishing	Continuous	Without	DX140	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	Without	DX140	0.002 - 0.040	0.002 - 0.006	980 - 5900	1310 - 1970	1310 - 3940
		Heavy interrupted	P	TH10	0.020 - 0.160	0.008 - 0.020	330 - 1640	330 - 660	330 - 660
	Medium cutting	Continuous	P	TH10	0.020 - 0.160	0.008 - 0.020	330 - 3280	330 - 980	330 - 980
		Light interrupted	P	TH10	0.020 - 0.160	0.008 - 0.020	330 - 2630	330 - 660	330 - 660
		Heavy interrupted	P	TH10	0.020 - 0.160	0.008 - 0.020	330 - 1640	330 - 660	330 - 660

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

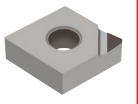
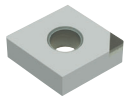
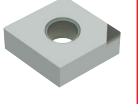
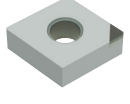
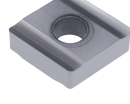
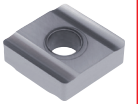
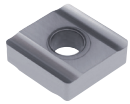
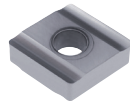
N Non-ferrous Metal



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing $[a_p = \sim 0.020 \text{ in}]$	<p>Basic</p>  <p>With chipbreaker DX110</p> <p>B194, B196</p> <p>Wear → T-DIA DX140</p> <p>B195, B197, B198</p>	<p>Basic</p>  <p>Surface quality → With chipbreaker T-DIA DX110</p> <p>B194, B196</p> <p>Wear → T-DIA DX160</p> <p>B195, B197</p>	
Finishing $[a_p = 0.020 \sim 0.079 \text{ in}]$	<p>Basic</p>  <p>Surface quality → With chipbreaker T-DIA DX110</p> <p>B194, B196</p> <p>Wear → T-DIA DX160</p> <p>B195, B197</p>	<p>Basic</p>  <p>Fracture → P TH10</p> <p>B037</p> <p>Wear → T-DIA DX160</p> <p>B195, B197</p>	<p>Basic</p>  <p>P TH10</p> <p>B037</p>
Medium cutting $[a_p = 0.039 \sim 0.157 \text{ in}]$	<p>Basic</p>  <p>Wear → T-DIA DX140</p> <p>B195, B197, B198</p>	<p>Basic</p>  <p>Wear → T-DIA DX140</p> <p>B195, B197, B198</p>	<p>Basic</p>  <p>P TH10</p> <p>B037</p>

Please see the page B*** for the details.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

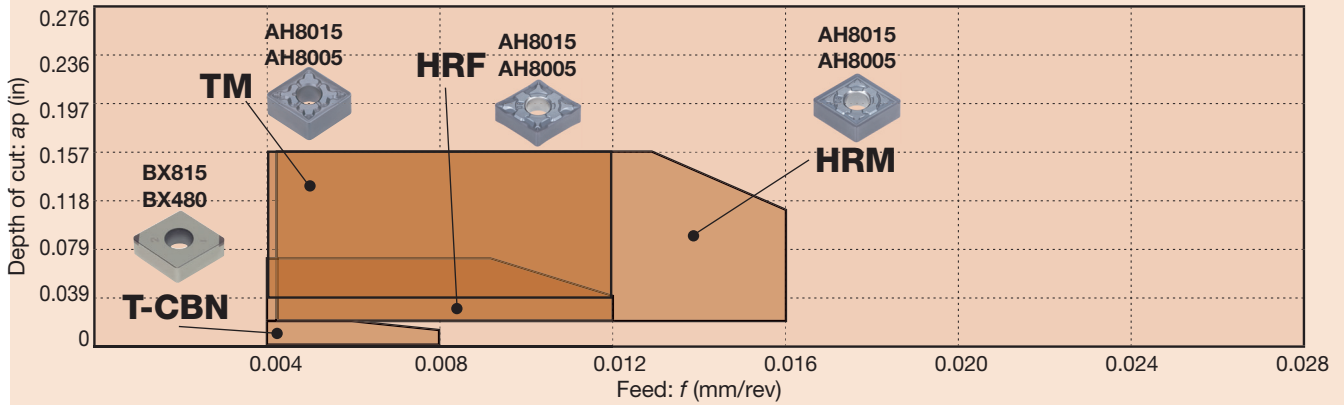
A
B
C
D
E
F
G
H
I
J
K
L
M

Chipbreaker Guide

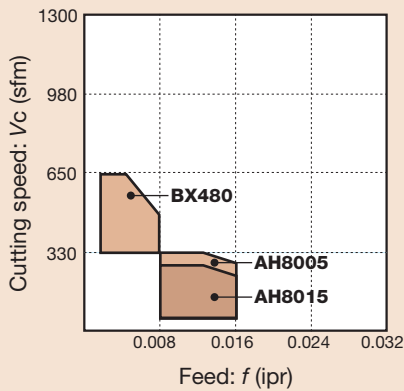
BASIC CHIPBREAKER: NEGATIVE TYPE

S Superalloys and titanium

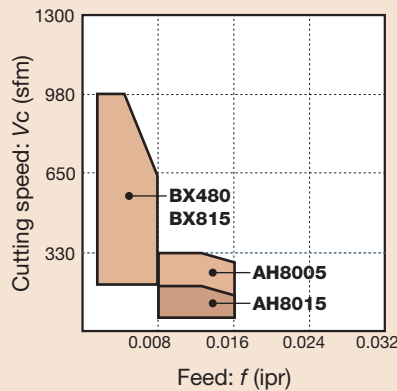
● Chipbreaker System for Turning (Negative type)



Titanium alloy



Ni-base alloy



Chipbreaker	Shape	Feature	Chipbreaker	Shape	Feature
HRF		Suitable for finishing superalloy. Unique protrusion improves chip control in cutting low depth.	No chip-breaker (T-CBN)		Excellent performance in finishing of heat-resistant alloy and titanium alloy with CBN sintered body on the cutting edge.
HRM		First choice for heat-resistant alloy. The geometry optimized for a wide range of depths of cut.	TM		General-purpose chipbreaker with extensive chip control area. The protrusion in unique shape near the corner and large rake angle provide sharp cutting edge with low cutting force.

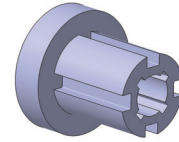
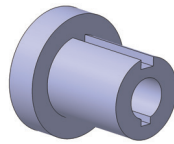
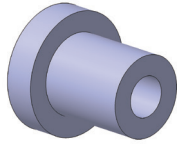
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut a_p (in)	Feed f (ipr)	Cutting speed: V_c (sfm)	
							Titanium alloy	Ni-base alloy
S	Precision finishing	Continuous	Without	BX480	0.004 - 0.020	0.002 - 0.008	330 - 660	230 - 980
		Light interrupted	Without	BX815	0.004 - 0.020	0.002 - 0.008	-	230 - 1310
		Light interrupted	Without	BX480	0.004 - 0.020	0.002 - 0.008	330 - 660	-
S	Finishing to medium cutting	Continuous	HRF	AH8005	0.020 - 0.060	0.002 - 0.010	66 - 330	66 - 330
		Light interrupted	HRF	AH8015	0.020 - 0.060	0.002 - 0.010	66 - 260	66 - 160
		Heavy interrupted	HRF	AH8015	0.020 - 0.060	0.002 - 0.010	33 - 200	33 - 130
S	Medium cutting	Continuous	HRM	AH8005	0.020 - 0.160	0.004 - 0.016	66 - 330	66 - 330
		Light interrupted	HRM	AH8015	0.020 - 0.160	0.004 - 0.016	66 - 260	66 - 160
		Heavy interrupted	HRM	AH8015	0.020 - 0.160	0.004 - 0.016	33 - 200	33 - 130

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

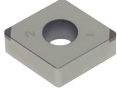
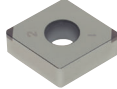
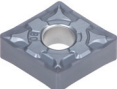
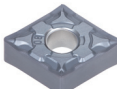
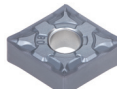
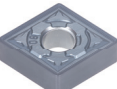
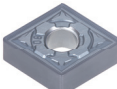
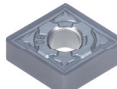
S Superalloys and titanium



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p = \sim 0.020$ in]	<p>Basic</p>  <p>T-CBN BX470 BX815</p> <p>B170 - B188</p>	<p>Basic</p>  <p>T-CBN BX470</p> <p>B170 - B188</p> <p>Fracture → No chipbreaker TH10 B038</p>	
Finishing [$a_p = 0.020 \sim 0.060$ in]	<p>Basic</p>  <p>HRF AH8005</p> <p>B033</p> <p>Fracture → HRF AH8015 B033</p> <p>Chip control → 28 AH8005 B036</p>	<p>Basic</p>  <p>HRF AH8015</p> <p>B033</p> <p>Fracture → HRM AH8015 B037</p> <p>Wear → HRF AH8005 B033</p> <p>Chip control → 28 AH8015 B036</p>	<p>Basic</p>  <p>HRF AH8015</p> <p>B033</p> <p>Fracture → HRM AH8015 B037</p> <p>Wear → HRF AH8005 B033</p>
Medium cutting [$a_p = 0.020 \sim 0.157$ in]	<p>Basic</p>  <p>HRM AH8005</p> <p>B037</p> <p>Fracture → HRM AH8015 B037</p> <p>Burr occurrence → HRF AH8015 B033</p> <p>Chip control → 28 AH8005 B036</p>	<p>Basic</p>  <p>HRM AH8015</p> <p>B037</p> <p>Fracture → TM AH8015 B034</p> <p>Wear → HRM AH8005 B037</p> <p>Chip control → 28 AH8015 B036</p>	<p>Basic</p>  <p>HRM AH8015</p> <p>B037</p> <p>Fracture → TM AH8015 B034</p> <p>Wear → HRM AH8005 B037</p>

Please see the page B*** for the details.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

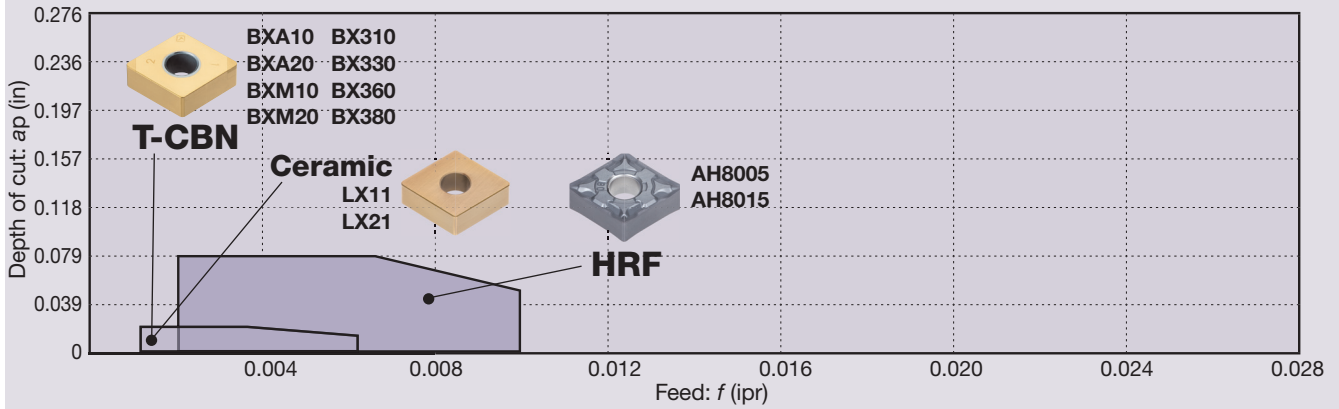


Chipbreaker Guide

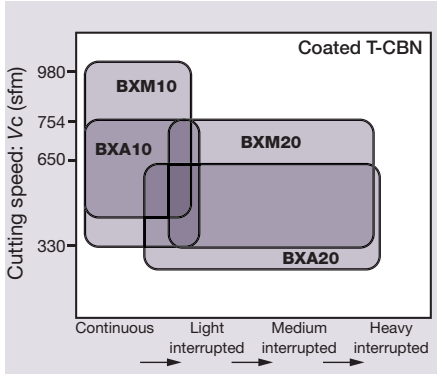
BASIC CHIPBREAKER: NEGATIVE TYPE

H Hard Materials

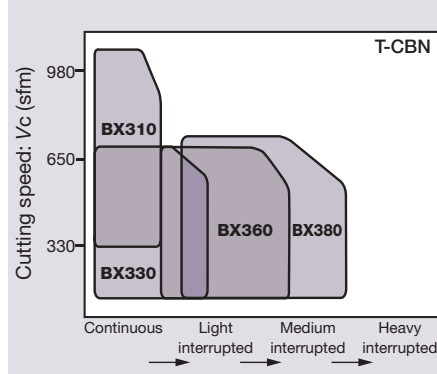
Chipbreaker System for Turning (Negative type)



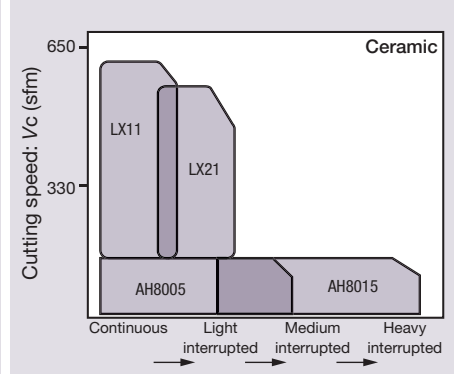
Coated T-CBN



T-CBN



Ceramic, PVD coating



Chipbreaker	Shape	Feature
No chip-breaker (T-CBN)		Excellent performance in finishing of hard material with CBN sintered body on the cutting edge.
No chip-breaker (Ceramic)		Realizes economical hardened steel medium speed finishing.

Chipbreaker	Shape	Feature
HF		Excellent chip control in removing carburized layer at small depth of cut.
HM		Excellent chip control in removing carburized layer at large depth of cut.
HP		Excellent chip control in precision finishing.
HRF		Excellent chip control in Hardent steel medium finishing.

STANDARD CUTTING CONDITIONS

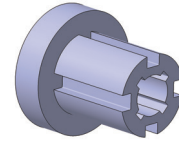
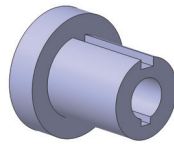
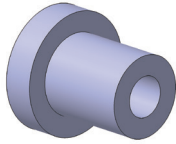
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)	
H	Precision finishing	Continuous to light interrupted	HP	BXA10 BXA20 BXM10	0.002 - 0.008	0.001 - 0.007	500 - 1150	
	Finishing	Continuous to heavy interrupted	Without	BXA10 BXA20 BXM10	0.002 - 0.020	0.002 - 0.010	230 - 720	
	Finishing (Economical)	Continuous to light interrupted	Without	LX11 LX21	0.002 - 0.020	0.002 - 0.010	197 - 590	
	Removing of carburized layer	Continuous		HF	BXM20	0.008 - 0.030	0.002 - 0.008	230 - 660
				HM	BXA20 BXM20	0.020 - 0.040	0.002 - 0.008	230 - 660
	Medium cutting	Continuous to medium interrupted	HRF	AH8005 AH8015	0.002 - 0.080	0.002 - 0.010	33 - 164	

Hardened steels, Pre-hardened steels: D2, H13, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE





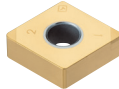
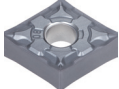
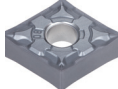
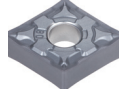
H Hard Materials



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p \sim 0.008$ in.]	<p>Basic</p>  <p>T-CBN HP BXA10</p> <p>B173, B176, B182</p>	<p>Basic</p>  <p>T-CBN BXA20</p> <p>B172 - B181</p> <p>Fracture → -H BXM20 B172 - B180</p> <p>High-speed wear → T-CBN BXA10 B172 - B181</p>	
Finishing [$a_p \sim 0.020$ in.]	<p>Basic</p>  <p>T-CBN BXA10</p> <p>B172 - B181</p> <p>Eco-nomizing → LX11 B065</p>	<p>Basic</p>  <p>T-CBN BXA20</p> <p>B172 - B181</p> <p>Fracture → -H BXM20 B172 - B180</p> <p>High-speed wear → T-CBN BXA10 B172 - B181</p> <p>Eco-nomizing → LX21 B065</p>	<p>Basic</p>  <p>T-CBN BXM20</p> <p>B172 - B181</p> <p>Fracture → -H BXM20 B172 - B180</p>
Medium cutting [$a_p \sim 0.020$ in.]	<p>Basic</p>  <p>HRF AH8005</p> <p>B058</p> <p>Fracture → HRF AH8015 B172 - B180</p>	<p>Basic</p>  <p>HRF AH8015</p> <p>B058</p> <p>Fracture → HRM AH8015 B058</p>	<p>Basic</p>  <p>HRF AH8015</p> <p>B058</p> <p>Fracture → HRM AH8015 B058</p>

Please see the page B*** for the details.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

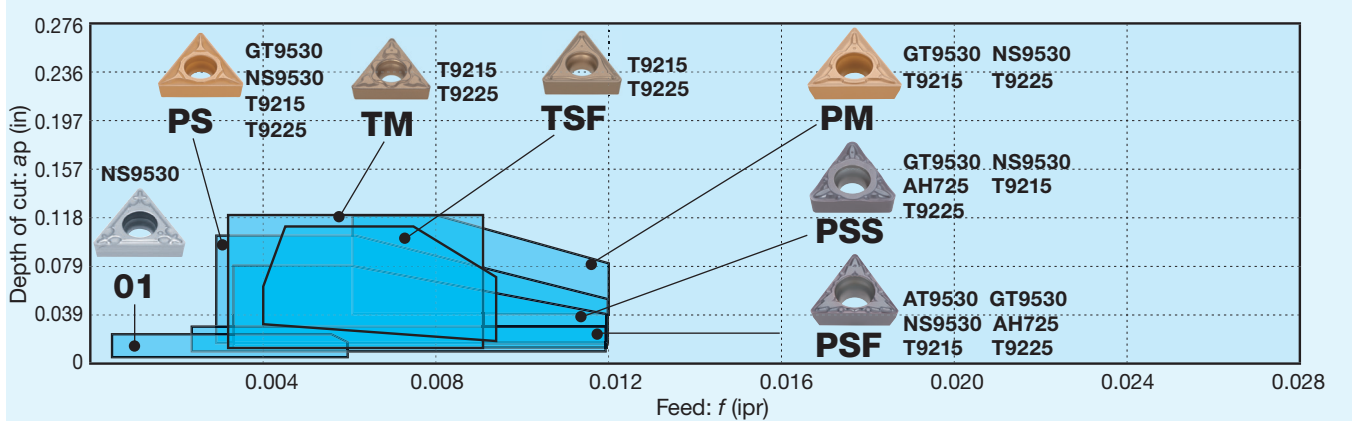


Chipbreaker Guide

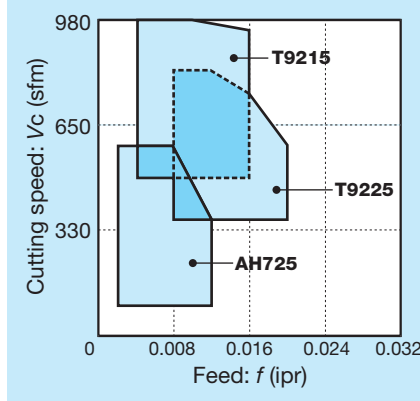
BASIC CHIPBREAKER: POSITIVE TYPE

P Steel

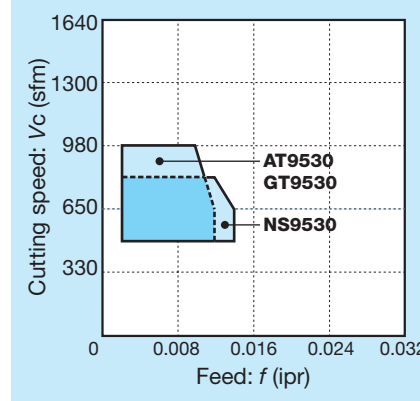
Chipbreaker System for Turning (Positive Type)



CVD / PVD coated grade



Coated cermet / Cermet



Chipbreaker	Shape	Feature
01		Excellent chip control in machining very small depth of cut thanks to the sharp cutting edge and protrusion.
PSF		Low cutting force and high wear resistance. First choice for finishing. Excellent chip control in finishing prevents chip entanglement in internal machining.
PSS		3D chipbreaker for finishing to medium cutting with excellent chip control and low cutting force.

Chipbreaker	Shape	Feature
PS		3D chipbreaker for finishing to medium cutting with excellent chip control and sharpness. M-class insert delivers cost reduction and highly efficient boring in a wide range of applications.
PM		First choice for medium cutting with excellent sharpness and good chip control. Delivers stable machining of stainless steel.

Chipbreaker	Shape	Feature
TSF		Optimal chipbreaker geometry ensures smooth chip control in a high feed range.
TM		Optimal cutting edge and chipbreaker geometry provides effective chip evacuation at greater depths of cut.

STANDARD CUTTING CONDITIONS

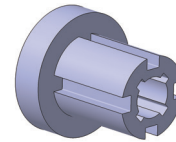
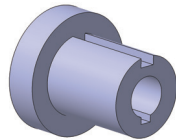
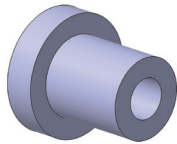
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous	01	NS9530	0.002 - 0.020	0.001 - 0.006	500 - 820	260 - 720	260 - 590
		Light interrupted	01	NS9530	0.002 - 0.020	0.001 - 0.006	500 - 820	260 - 720	260 - 590
	Finishing	Continuous	PSS	NS9530	0.004 - 0.020	0.002 - 0.012	500 - 820	260 - 720	260 - 590
		Light interrupted	PSS	NS9530	0.004 - 0.020	0.002 - 0.012	500 - 820	260 - 720	260 - 590
		Heavy interrupted	PSS	NS9530	0.004 - 0.020	0.002 - 0.012	500 - 820	260 - 720	260 - 590
		Continuous	PS	NS9530	0.012 - 0.079	0.003 - 0.012	500 - 820	260 - 720	260 - 590
	Finishing to light cutting	Light interrupted	PS	NS9530	0.012 - 0.079	0.003 - 0.012	500 - 820	260 - 720	260 - 590
		Heavy interrupted	PS	NS9530	0.012 - 0.079	0.003 - 0.012	500 - 820	260 - 720	260 - 590
			Continuous to Heavy interrupted	PS	T9215	0.020 - 0.098	0.003 - 0.012	400 - 1148	330 - 1148
	Finishing to Medium cutting	Heavy interrupted	PS	T9225	0.020 - 0.098	0.003 - 0.012	330 - 660	260 - 980	260 - 820
Continuous to Heavy interrupted		PM	-	0.040 - 0.120	0.006 - 0.012	500 - 980	330 - 660	260 - 590	
Medium cutting	Continuous to Heavy interrupted	PM	-	0.040 - 0.120	0.006 - 0.012	400 - 820	260 - 590	260 - 400	

Low carbon steels, Alloy steels: 1018, 1020, etc. Medium carbon steels, Alloy steels: 1045, 4140, etc. Hi carbon steels, Alloy steels: 8620, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

P Steel



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p = \sim 0.020$ in.]	<p>Basic</p> <p>01 NS9530</p> <p>B042, B047</p>	<p>Basic</p> <p>01 NS9530</p> <p>B042, B047</p> <p>Fracture → PSF NS9530 B042, B047, B051</p>	
Finishing [$a_p = 0.004 \sim 0.020$ in.]	<p>Basic</p> <p>PSS NS9530</p> <p>B042, B047, B051</p> <p>Wear → PSS GT9530 B042, B047, B051</p> <p>Fracture → PS NS9530 B042, B047, B051</p> <p>Chip control → PSF NS9530 B042, B047, B051</p>	<p>Basic</p> <p>PSS NS9530</p> <p>B042, B047, B051</p> <p>Wear → PSS GT9530 B042, B047, B051</p> <p>Fracture → PS NS9530 B042, B047, B051</p> <p>Chip control → PSF NS9530 B042, B047, B051</p>	<p>Basic</p> <p>PSS NS9530</p> <p>B042, B047, B051</p> <p>Wear → PSS GT9530 B042, B047, B051</p> <p>Fracture → PS NS9530 B042, B047, B051</p> <p>Chip control → PSF NS9530 B042, B047, B051</p>
Finishing to medium cutting [$a_p = 0.020 \sim 0.098$ in.]	<p>Basic</p> <p>PS T9215</p> <p>B042, B047, B051</p> <p>Fracture → PS T9225 B042, B047, B051</p> <p>Wear → PS NS9530 B042, B047, B051</p>	<p>Basic</p> <p>PS T9215</p> <p>B042, B047, B051</p> <p>Fracture → PS T9225 B042, B047, B051</p> <p>Wear → PS NS9530 B042, B047, B051</p>	<p>Basic</p> <p>PS T9215</p> <p>B042, B047, B051</p> <p>Fracture → PM T9225 B044, B048</p> <p>Chip control → TSF T9215 B042, B047</p>
Medium cutting [$a_p = 0.039 \sim 0.118$ in.]	<p>Basic</p> <p>PM T9215</p> <p>B044, B048</p> <p>Wear → PM NS9530 B044, B048</p>	<p>Basic</p> <p>PM T9215</p> <p>B044, B048</p> <p>Fracture → PM T9255 B044, B048</p>	<p>Basic</p> <p>PM T9215</p> <p>B044, B048</p> <p>Chip control → TM T9215 B043, B047</p>

Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

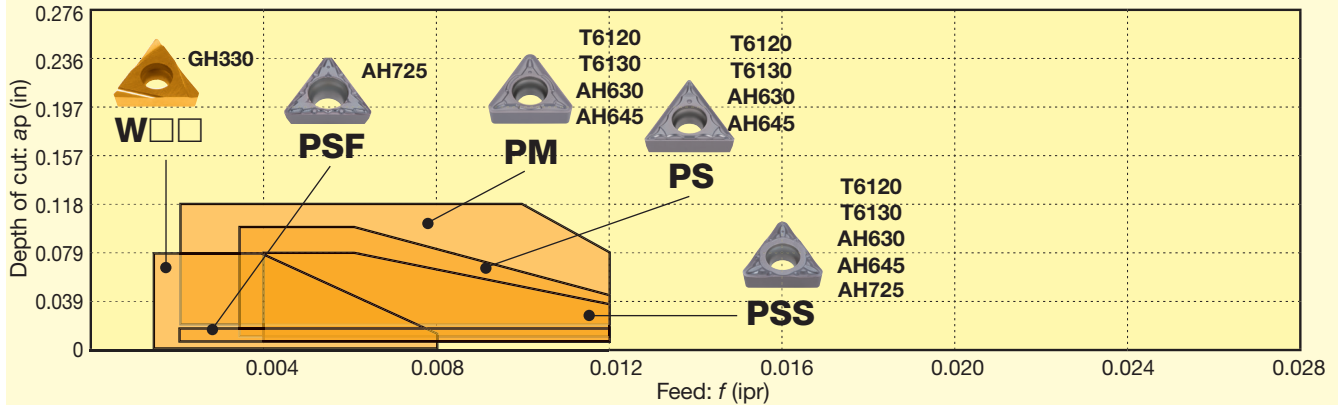


Chipbreaker Guide

BASIC CHIPBREAKER: POSITIVE TYPE

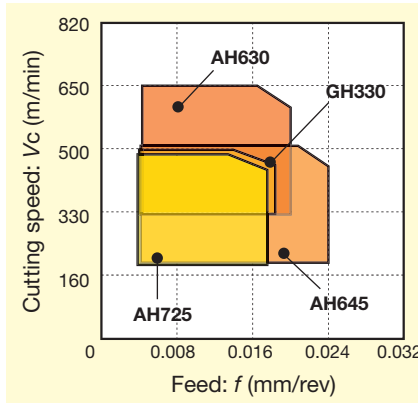
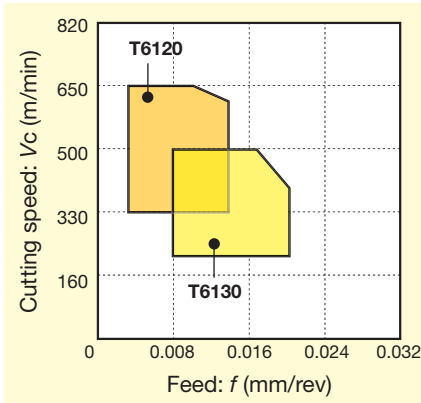
M Stainless Steel

Chipbreaker System for Turning (Positive Type)



CVD coated grade

PVD coated grade



Chipbreaker	Shape	Feature
W□□		Designed to control the direction of chip flow in precision finishing. Smooth chip evacuation in boring.
PSF		Low cutting force and high wear resistance. First choice for finishing. Excellent chip control in finishing prevents chip entanglement in internal machining.

Chipbreaker	Shape	Feature
PSS		3D chipbreaker for finishing to medium cutting with excellent chip control and low cutting force.
PS		3D chipbreaker for finishing to medium cutting with excellent chip control and sharpness. M-class insert delivers cost reduction and highly efficient boring in a wide range of applications.
PM		First choice for medium cutting with excellent sharpness and good chip control. Delivers stable machining of stainless steel.

STANDARD CUTTING CONDITIONS

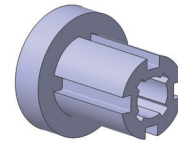
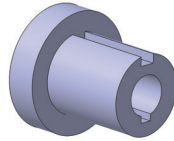
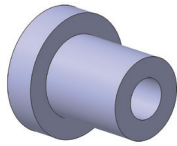
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)
M	Precision finishing	Continuous	W□□	GH330	0.002 - 0.079	0.001 - 0.008	330 - 500
		Continuous	PSF	AH725	0.004 - 0.020	0.002 - 0.012	160 - 500
	Finishing	Light interrupted	PSF	AH725	0.004 - 0.020	0.002 - 0.012	160 - 500
		Heavy interrupted	PSF	AH725	0.004 - 0.020	0.002 - 0.012	160 - 400
	Finishing to light cutting	Continuous	PSS	AH630	0.012 - 0.079	0.003 - 0.012	300 - 620
		Light interrupted	PSS	AH630	0.012 - 0.079	0.003 - 0.012	300 - 620
		Heavy interrupted	PSS	AH630	0.012 - 0.079	0.003 - 0.012	300 - 620
	Finishing to medium cutting	Continuous	PS	T6130	0.020 - 0.098	0.003 - 0.012	330 - 660
		Light interrupted	PS	AH630	0.020 - 0.098	0.003 - 0.012	300 - 620
		Heavy interrupted	PS	AH630	0.020 - 0.098	0.003 - 0.012	300 - 620
	Medium cutting	Continuous	PM	T6130	0.040 - 0.120*	0.006 - 0.012	330 - 660
		Light interrupted	PM	AH630	0.040 - 0.120*	0.006 - 0.012	300 - 620
		Heavy interrupted	PM	AH630	0.040 - 0.120*	0.006 - 0.012	300 - 620

* For CCMT0602 and DCMT0702 type inserts, ap = 0.020 - 0.098, Stainless steels: 304SS, 316SS, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

M Stainless Steel



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p = \sim 0.020$ in.]	<p>Basic</p>  <p>W GH330</p> <p>B043, B048, B051</p>	<p>Basic</p>  <p>W GH330</p> <p>B043, B048, B051</p>	
Finishing [$a_p = 0.012 \sim 0.060$ in.]	<p>Basic</p>  <p>PSF AH725</p> <p>B042, B047, B051</p> <p>Wear → PSS T6130 B042, B047, B051</p>	<p>Basic</p>  <p>PSF AH725</p> <p>B042, B047, B051</p> <p>Fracture → PSS AH630 B042, B047, B051</p> <p>Wear → PSS T6130 B042, B047, B051</p>	<p>Basic</p>  <p>PSF AH725</p> <p>B042, B047, B051</p> <p>Fracture → PSS AH630 B042, B047, B051</p>
Finishing to medium cutting [$a_p = 0.020 \sim 0.098$ in.]	<p>Basic</p>  <p>PSS AH630</p> <p>B042, B047, B051</p> <p>Wear → PS T6130 B042, B047, B051</p>	<p>Basic</p>  <p>PS AH630</p> <p>B042, B047, B051</p> <p>Fracture → PM AH645 B044, B048</p> <p>Wear → PS T6130 B042, B047, B051</p>	<p>Basic</p>  <p>PS AH630</p> <p>B042, B047, B051</p> <p>Fracture → PM AH645 B044, B048</p> <p>Wear → PS T6130 B042, B047, B051</p>
Medium cutting [$a_p = 0.039 \sim 0.118$ in.]	<p>Basic</p>  <p>PM T6130</p> <p>B044, B048</p>	<p>Basic</p>  <p>PM AH630</p> <p>B044, B048</p> <p>Fracture → PM AH645 B044, B048</p> <p>Wear → PM T6130 B044, B048</p>	<p>Basic</p>  <p>PM AH630</p> <p>B044, B048</p> <p>Fracture → PM AH645 B044, B048</p>

Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

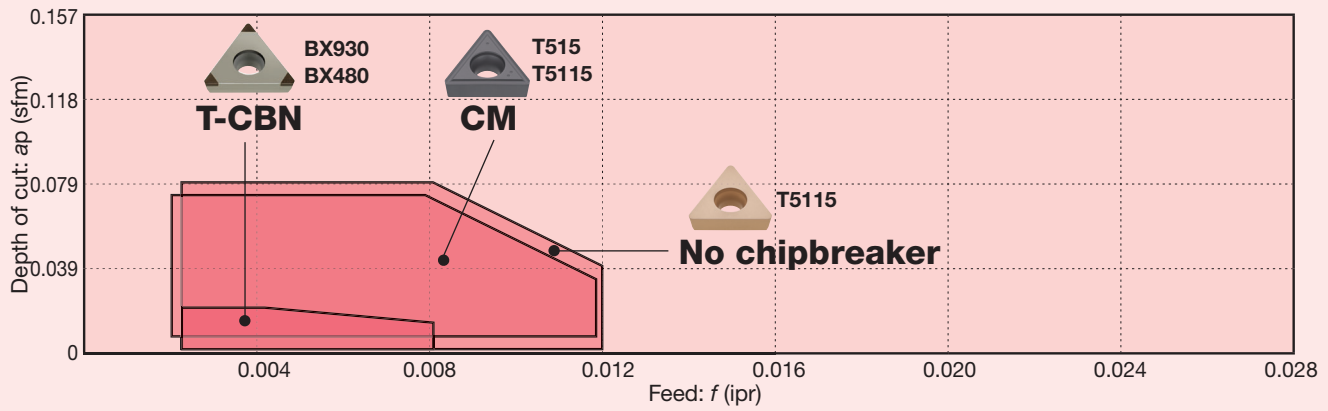


Chipbreaker Guide

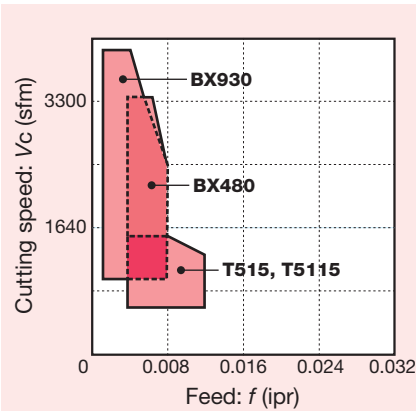
BASIC CHIPBREAKER: POSITIVE TYPE

K Cast Iron

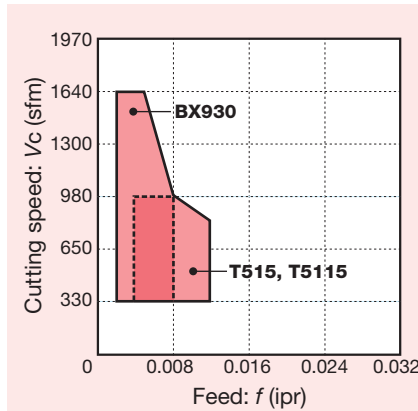
Chipbreaker System for Turning (Positive Type)



Grey cast iron



Ductile cast iron



Chipbreaker	Shape	Feature
No chip-breaker (T-CBN)		Excellent performance in high-speed finishing of cast iron with CBN sintered body on the cutting edge.
No chip-breaker		Suitable for a wide range of applications from finishing to roughing cast iron. Excellent performance with high cutting edge strength.

Chipbreaker	Shape	Feature
CM		Highly versatile all-round chipbreaker with low cutting force. Suitable for finishing to medium cutting.

STANDARD CUTTING CONDITIONS

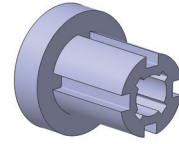
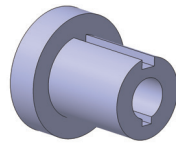
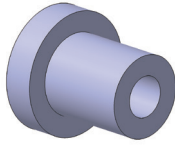
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)	
							Grey cast iron	Ductile cast iron
K	Precision finishing	Continuous	Without	BX930	0.002 - 0.020	0.002 - 0.008	980 - 3940	330 - 1640
		Light interrupted	Without	BX480	0.002 - 0.020	0.002 - 0.008	980 - 2630	330 - 980
		Light interrupted	Without	BX470	0.002 - 0.020	0.002 - 0.008	980 - 2630	330 - 980
	Finishing	Continuous	CM	T515	0.002 - 0.079	0.002 - 0.012	500 - 2300	500 - 980
		Heavy interrupted	CM	T515	0.002 - 0.079	0.002 - 0.012	330 - 660	330 - 660
Medium cutting	Light interrupted	CM	T515	0.002 - 0.079	0.002 - 0.012	330 - 980	330 - 820	

Grey cast irons: Class 25, etc. , Ductile cast irons: 65-45-12, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

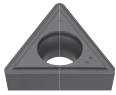

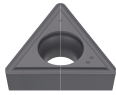
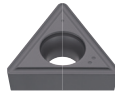
K Cast Iron



Continuous

Light interrupted

Heavy interrupted

Finishing to Medium cutting [$a_p = 0.020 \sim 0.118$ in]	<p>Basic</p>  <p>CM T515</p> <p>B044, B048, B051</p>	<p>Wear</p>  <p>T-CBN BX930</p> <p>B183 -</p>
	<p>Basic</p>  <p>CM T515</p> <p>B044, B048, B051</p>	
	<p>Basic</p>  <p>CM T515</p> <p>B044, B048, B051</p>	

Please find the details on the pages: **B**/7° relief angle**, **B**/11° relief angle**, **B**/5° relief angle**.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

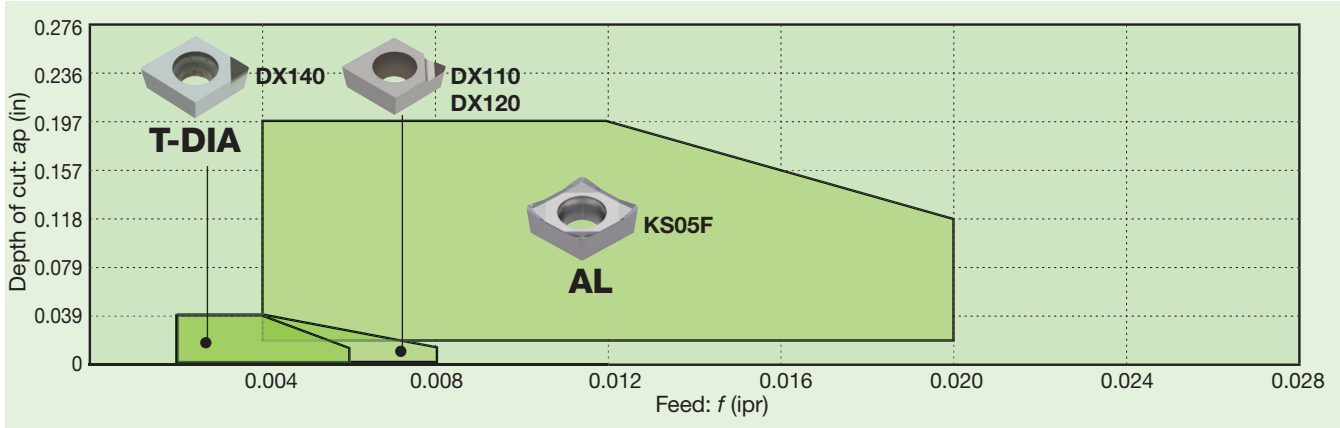


Chipbreaker Guide

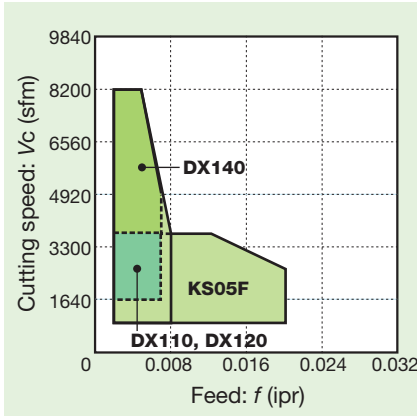
BASIC CHIPBREAKER: POSITIVE TYPE

N Non-ferrous Metal

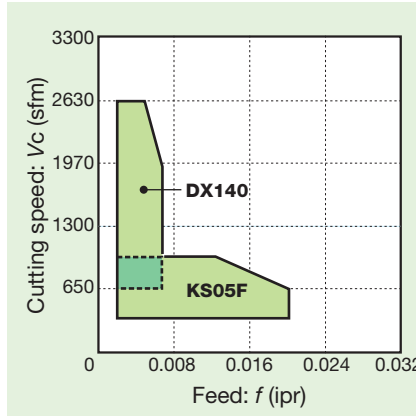
Chipbreaker System for Turning (Positive Type)



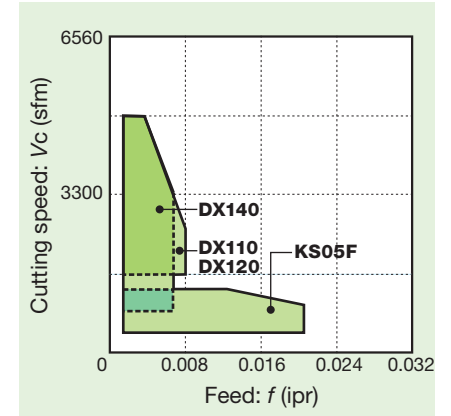
Aluminum alloy (Si < 12%)



Aluminum alloy (Si ≥ 12%)



Copper alloy



Chipbreaker	Shape	Feature
No chip-breaker (T-DIA)		Excellent performance in high-speed finishing of non-ferrous metal with diamond sintered body on the cutting edge.
AL		Large rake angle and sharp cutting edge reduce cutting force. Lapped rake face prevents adhesion. Large inclination on the cutting edge (wavy cutting edge) for more stable chip control.

Chipbreaker	Shape	Feature
With chip-breaker (T-DIA)		Wide chipbreaker for smooth chip evacuation. Large rake face reduces cutting force. DIA on the cutting edge delivers high-speed machining and long tool life.

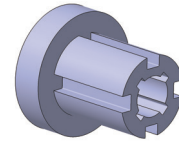
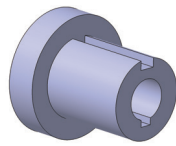
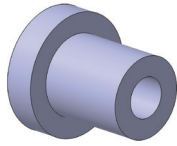
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Aluminum alloy (Si < 12%)	Aluminum alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	Without	DX140	0.002 - 0.040	0.002 - 0.008	980 - 8200	-	1640 - 4920
	Finishing	Continuous	Without	DX140	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	Without	DX140	0.002 - 0.040	0.002 - 0.006	980 - 5900	1310 - 1970	1310 - 3940
		Heavy interrupted	AL	KS05F	0.020 - 0.197	0.004 - 0.020	330 - 1970	330 - 660	-
	Medium cutting	Continuous	AL	KS05F	0.020 - 0.197	0.004 - 0.020	330 - 3940	330 - 980	330 - 980
Light interrupted		AL	KS05F	0.020 - 0.197	0.004 - 0.020	330 - 2950	330 - 660	330 - 660	
Heavy interrupted		AL	KS05F	0.020 - 0.197	0.004 - 0.020	330 - 1970	330 - 660	-	

Selection System

SELECTION SYSTEM: POSITIVE TYPE

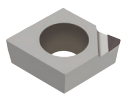
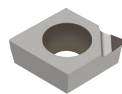
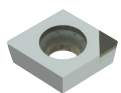
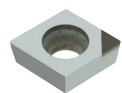
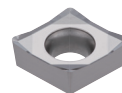
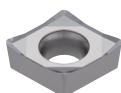
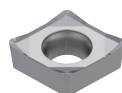
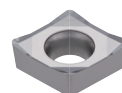
N Non-ferrous Metal



Continuous

Light interrupted

Heavy interrupted

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p \sim 0.020$ in.]	<p>Basic</p>  <p>With chipbreaker DX110</p> <p>B194, B196</p> <p>Wear → T-DIA DX140 B195, B197, B198</p>	<p>Basic</p>  <p>With chipbreaker DX110</p> <p>B194, B196</p> <p>Wear → T-DIA DX140 B195, B197, B198</p>	
Finishing [$a_p = 0.020 \sim 0.079$ in.]	<p>Basic</p>  <p>T-DIA DX140</p> <p>B195, B197, B198</p> <p>Wear → T-DIA DX160 B195, B197</p> <p>Chip control → With chipbreaker T-DIA DX110 B194, B196</p>	<p>Basic</p>  <p>T-DIA DX140</p> <p>B195, B197, B198</p> <p>Fracture → AL KS05F B044</p> <p>Wear → T-DIA DX160 B195, B197</p>	<p>Basic</p>  <p>AL KS05F</p> <p>B044</p>
Medium cutting [$a_p = 0.039 \sim 0.197$ in.]	<p>Basic</p>  <p>AL KS05F</p> <p>B044</p> <p>Wear → With chipbreaker T-DIA DX120 B194, B196</p>	<p>Basic</p>  <p>AL KS05F</p> <p>B044</p> <p>Wear → T-DIA DX140 B195, B197, B198</p>	<p>Basic</p>  <p>AL KS05F</p> <p>B044</p>

Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

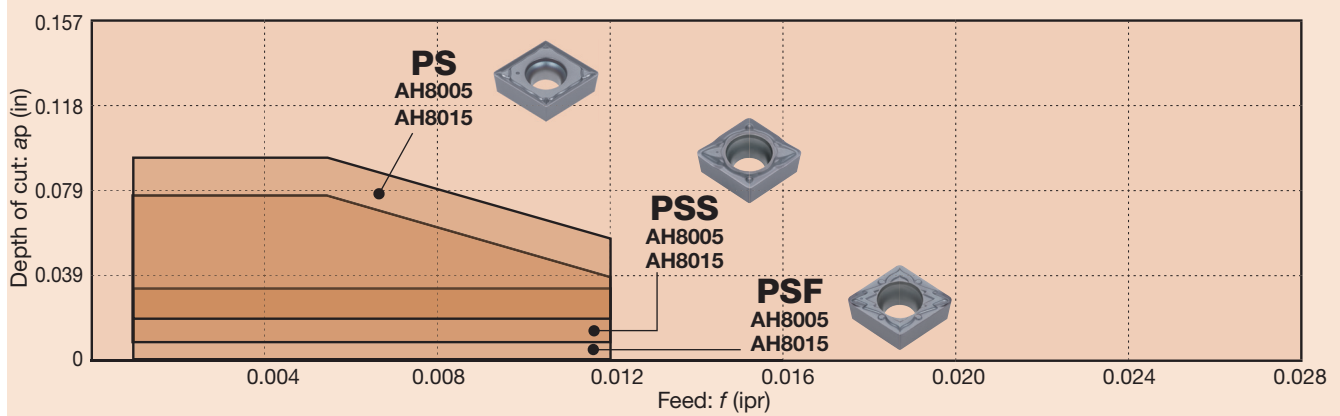


Chipbreaker Guide

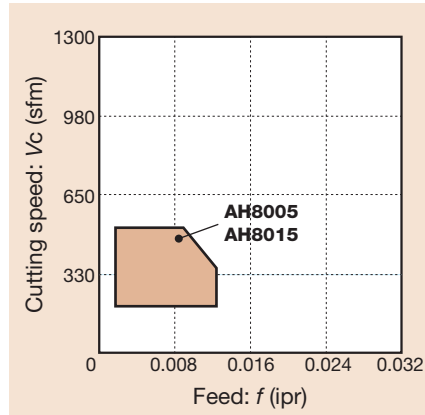
BASIC CHIPBREAKER: POSITIVE TYPE

S Superalloys and titanium

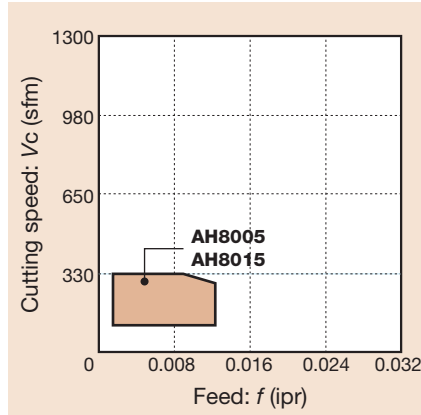
Chipbreaker System for Turning (Positive Type)

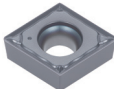


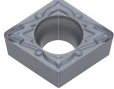
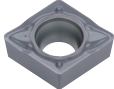
Titanium alloy



Ni-base alloy



Chipbreaker	Shape	Feature
PS		3D chipbreaker for finishing to medium cutting with excellent chip control and sharpness. M-class insert delivers cost reduction and highly efficient boring in a wide range of applications.

Chipbreaker	Shape	Feature
PSF		Low cutting force and high wear resistance. First choice for finishing. Excellent chip control in finishing prevents chip entanglement in internal machining.
PSS		3D chipbreaker for finishing to medium cutting with excellent chip control and low cutting force.

STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut a_p (in)	Feed f (ipr)	Cutting speed: V_c (sfm)	
							Titanium alloy	Ni-base alloy
S	Finishing	Continuous	PSS	AH8015	0.012 - 0.079	0.001 - 0.012	66 - 500	66 - 330
		Light interrupted	PSS	AH8015	0.012 - 0.079	0.001 - 0.012	66 - 500	66 - 330
	Finishing to medium cutting	Continuous	PS	AH8015	0.020 - 0.098	0.001 - 0.012	66 - 500	66 - 330
		Light interrupted	PS	AH8015	0.020 - 0.098	0.001 - 0.012	66 - 500	66 - 330

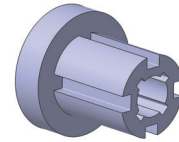
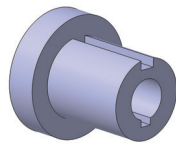
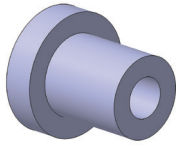
Ni-base alloy: INCONEL718, etc.

Titanium alloy: Ti-6Al-4V, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

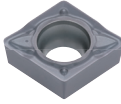
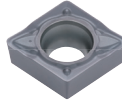
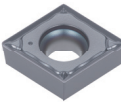
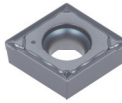
S Superalloys and titanium



Continuous

Light interrupted

Heavy interrupted

Finishing $[a_p = 0.012 \sim 0.079 \text{ in}]$	<p>Basic</p>  <p>PSS AH8015</p> <p>B042, B047, B051</p> <p>Wear → PSS AH8005 B044, B047, B051</p>	<p>Basic</p>  <p>PSS AH8015</p> <p>B042, B047, B051</p> <p>Wear → PSS AH8005 B042, B047, B051</p> <p>Fracture → PS AH8015 B042, B047, B051</p>	
	Finishing to medium cutting $[a_p = 0.020 \sim 0.098 \text{ in}]$	<p>Basic</p>  <p>PS AH8015</p> <p>B042, B047, B051</p> <p>Wear → PSS AH8005 B042, B047, B051</p>	<p>Basic</p>  <p>PS AH8015</p> <p>B042, B047, B051</p> <p>Fracture → All-round AH8015 B044, B049</p>

Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

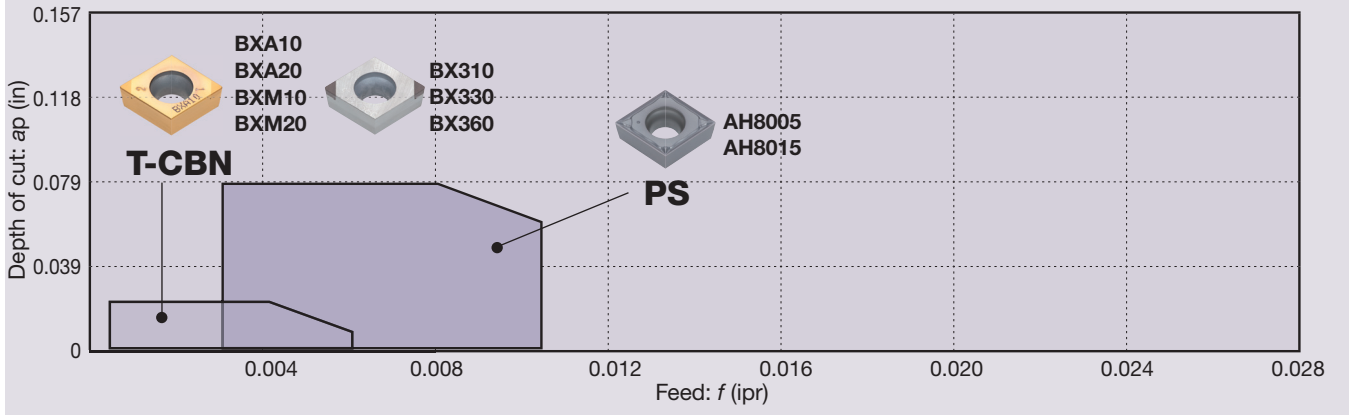


Chipbreaker Guide

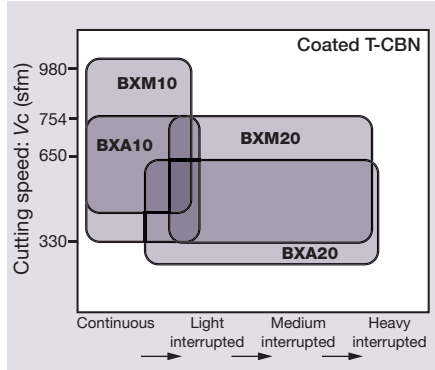
BASIC CHIPBREAKER: POSITIVE TYPE

H Hard Materials

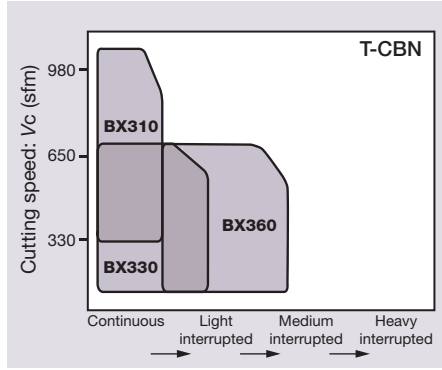
Chipbreaker System for Turning (Positive Type)



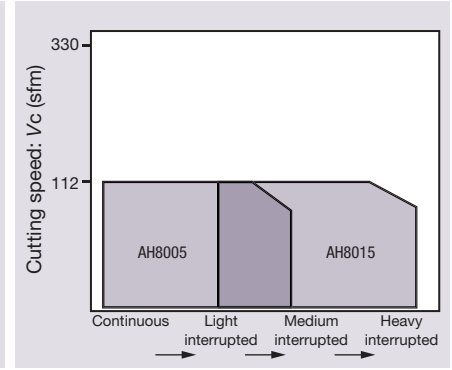
Coated T-CBN



T-CBN



PVD coating



Chipbreaker	Shape	Feature
No chip-breaker (T-CBN)		Excellent performance in high-speed finishing of hard material with CBN sintered body on the cutting edge.

Chipbreaker	Shape	Feature
HP (T-CBN)		Excellent chip control in precision finishing.
PS		Excellent chip control in hardened steel medium finishing.

STANDARD CUTTING CONDITIONS

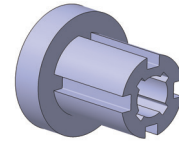
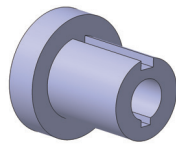
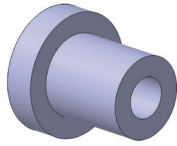
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut a_p (in)	Feed f (ipr)	Cutting speed V_c (sfm)
H	Precision finishing	Continuous	HP	BXA10 BXA20 BXM10	0.002 - 0.080	0.001 - 0.006	500 - 1150
		Light interrupted	Without	BXA20 BXM20	0.002 - 0.080	0.001 - 0.006	230 - 720
	Finishing	Continuous to heavy interrupted	Without	BXA10 BXA20 BXM10	0.003 - 0.020	0.002 - 0.012	230 - 720
		Medium cutting	Continuous to medium interrupted	PS	AH8005 AH8015	0.002 - 0.080	0.002 - 0.010

Hardened steels, Pre-hardened steels: D2, H13, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE


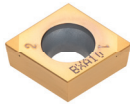
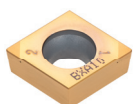
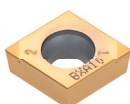
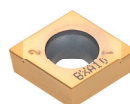
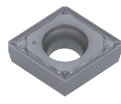
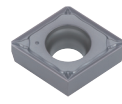
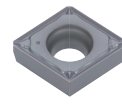
H Hard Materials



Continuous

Light interrupted

Heavy interrupted


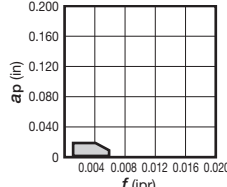
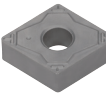
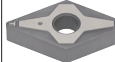


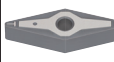
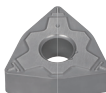
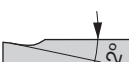
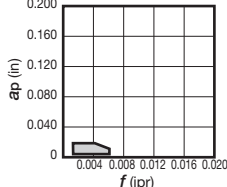
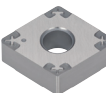
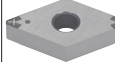


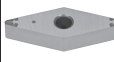


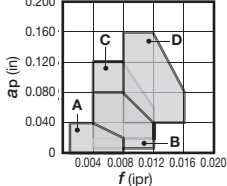
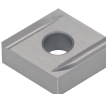



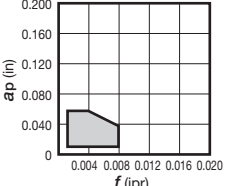
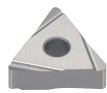
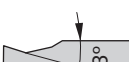
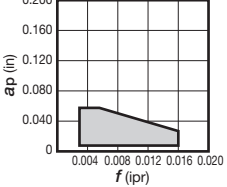



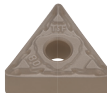
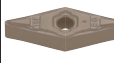


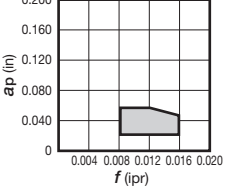
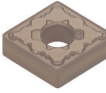
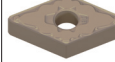



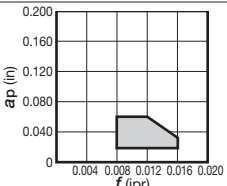
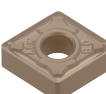

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [$a_p \sim 0.012$ in.]	<p>Basic</p>  <p>T-CBN HP BXA10</p> <p>B173, B176, B182</p>	<p>Basic</p>  <p>T-CBN BXA10</p> <p>B173, B176, B182</p> <p>Fracture → T-CBN BXA20 B172 - B184 B188 - B189 B191 - B192</p>	
Finishing [$a_p \sim 0.020$ in.]	<p>Basic</p>  <p>T-CBN BXA10</p> <p>B173, B176, B182</p>	<p>Basic</p>  <p>T-CBN BXA10</p> <p>B173, B176, B182</p> <p>Fracture → T-CBN BXM20 B182 - B192</p>	<p>Basic</p>  <p>T-CBN BXA20-H</p> <p>B173, B176, B182</p> <p>Fracture → T-CBN BXA20-H B172 - B184 B188 - B189 B191 - B192</p>
Medium cutting [$a_p \sim 0.020$ in.]	<p>Basic</p>  <p>PS AH8005</p> <p>B112, B118, B153</p> <p>Fracture → PS AH8015 B112, B118, B153</p>	<p>Basic</p>  <p>PS AH8015</p> <p>B112, B118, B153</p> <p>Fracture → All-round AH8015 B120</p>	<p>Basic</p>  <p>PS AH8015</p> <p>B112, B118, B153</p> <p>Fracture → All-round AH8015 B120</p>

Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

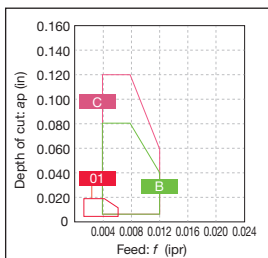
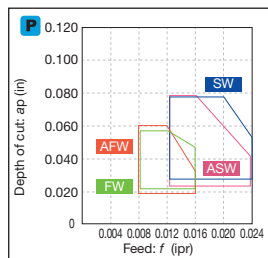
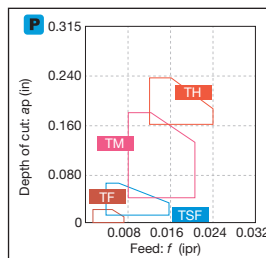


Chipbreaker Overview


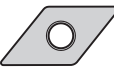


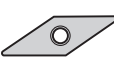


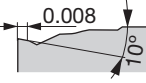

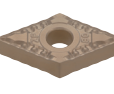
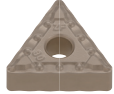
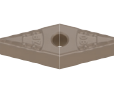

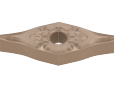


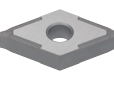

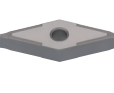







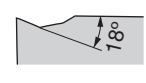

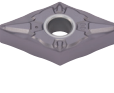


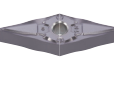

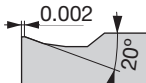

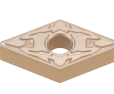


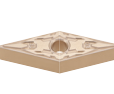

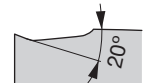

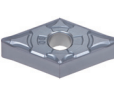

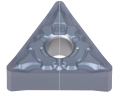
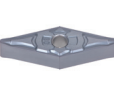

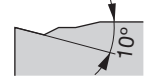

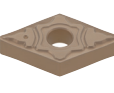

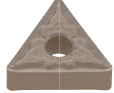
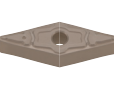

Application	Negative type with hole	C	D	S	T	V	W	Y
		80°	55°	90°	60°	35°	80°	25°
Precision finishing	TF  	 B056	 B067	 B077	 B086	 B096	 B101	
	01  	 B056	 B067	 B077	 B086	 B096	 B101	
	A~D  	 B056		 B077	 B086			
	W  				 B087			
Finishing	TSF  	 B056	 B067	 B077	 B087	 B097	 B102	
	Finishing (wiper)	FW  	 B056	 B067		 B087		 B102
AFW  		 B056						 B102

Please see the page B*** for the product details.

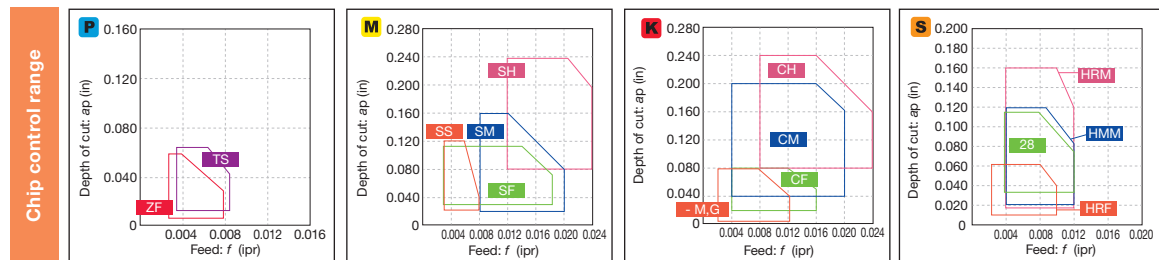
Chip control range



Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Finishing	ZF  ap (in) vs f (ipr) graph							
	11  ap (in) vs f (ipr) graph							
Finishing (for mild steel)	17  ap (in) vs f (ipr) graph							
	SF  ap (in) vs f (ipr) graph							
Finishing	CF  ap (in) vs f (ipr) graph							
	HRF  ap (in) vs f (ipr) graph							
	TS  ap (in) vs f (ipr) graph							
		B057	B068	B078	B088	B097	B102	B109

Please see the page B*** for the product details.

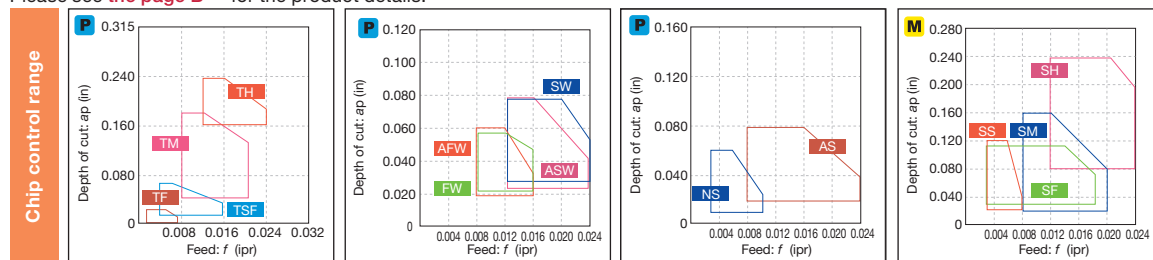


*-M,G: Without chipbreaker


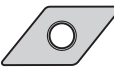


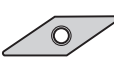


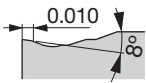
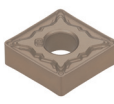
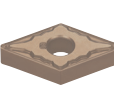

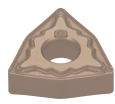

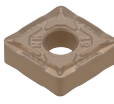
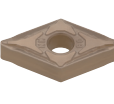

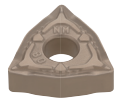
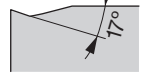
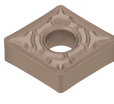
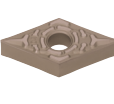
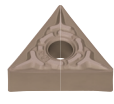
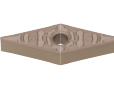


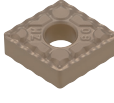
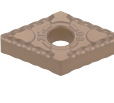


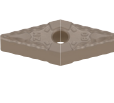

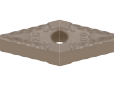
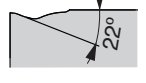
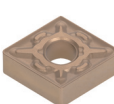



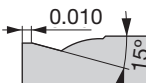
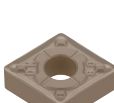
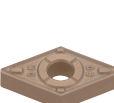




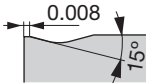
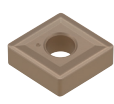
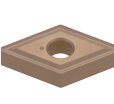


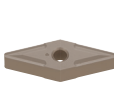
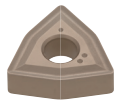
Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting (wiper)	SW 	 B058	 B069		 B089		 B104	
	ASW 	 B058					 B104	
High feed, small depth of cut	AS 	 B058	 B069	 B078	 B089		 B104	
	CB 	 B058	 B069		 B089		 B104	
Finishing	NS 	 B058	 B069	 B079	 B089		 B104	
	SS 	 B059	 B070	 B079	 B090	 B098	 B104	
Medium cutting	TM 	 B059	 B070	 B079	 B090	 B098	 B105	

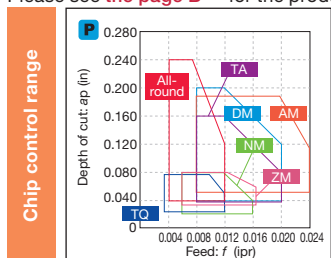
Please see the page B*** for the product details.



Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
		 80°	 55°	 90°	 60°	 35°	 80°	 25°
Finishing to medium cutting	AM  ap (in) vs f (ipr) graph	 B059	 B070		 B090		 B105	
	NM  ap (in) vs f (ipr) graph	 B059	 B070		 B090		 B105	
	TQ  ap (in) vs f (ipr) graph	 B060	 B071		 B090	 B098	 B105	
	ZM  ap (in) vs f (ipr) graph	 B060	 B071	 B079	 B091	 B099	 B106	 B109
Medium cutting	TA  ap (in) vs f (ipr) graph	 B060		 B079	 B090		 B105	
	DM  ap (in) vs f (ipr) graph	 B060	 B071	 B080	 B091	 B099	 B106	
	All-round  ap (in) vs f (ipr) graph	 B060	 B071	 B080	 B091	 B099	 B106	


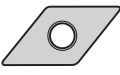


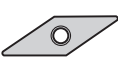



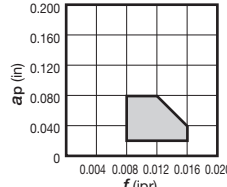
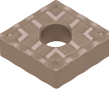
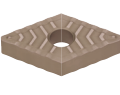




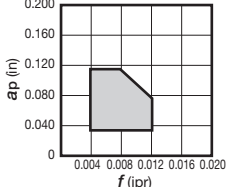
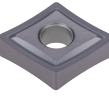
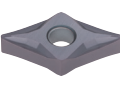
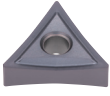
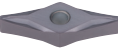

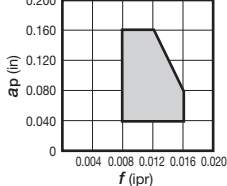
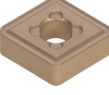
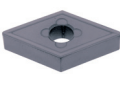





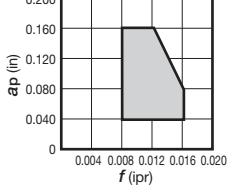
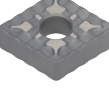
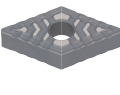

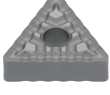
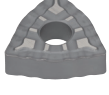

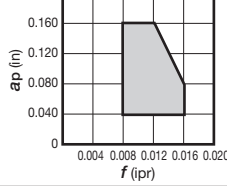

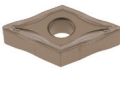


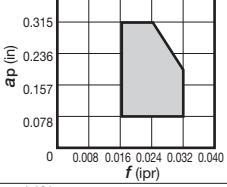
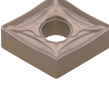
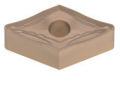



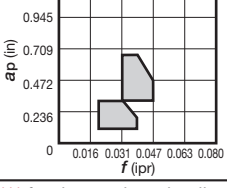


Please see the page B*** for the product details.



Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

A
B
C
D
E
F
G
H
I
J
K
L
M

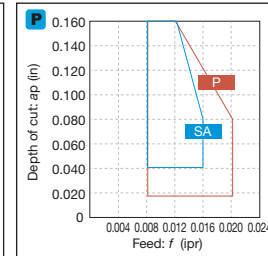
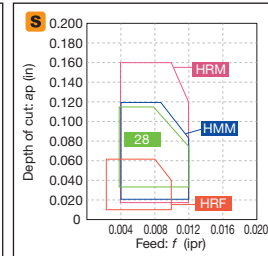
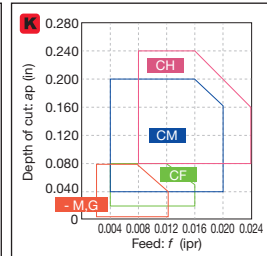
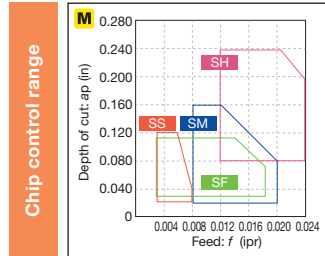
Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting	27  							
	28  							
	33  							
	37  							
	38  							
	57  							
	65  							

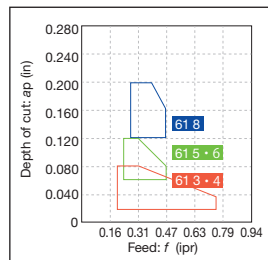
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Negative type with hole	C	D	R	S	T	V	W
		80°	55°		90°	60°	35°	80°
Heavy cutting	61 							
	Parallel 							
Medium cutting	SM 							
	CM 							
	P 							
	HRM 							



*-M,G: Without chipbreaker



Please see the page B*** for the product details.

Grade
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

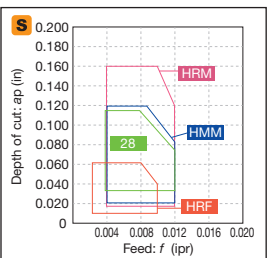
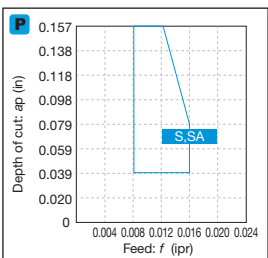
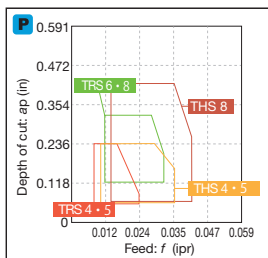
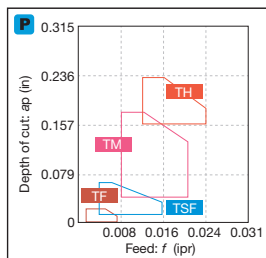


Chipbreaker Overview


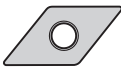



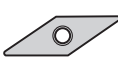


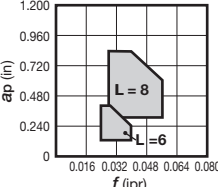


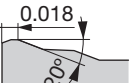
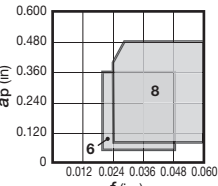
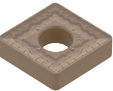

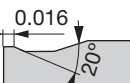
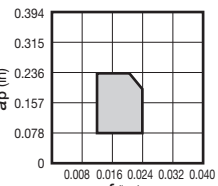
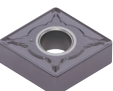
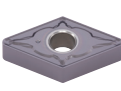

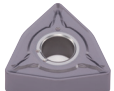
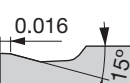
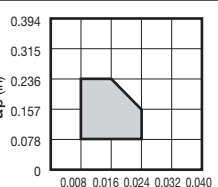
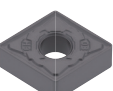
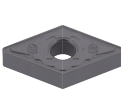

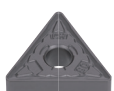
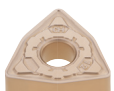
Application	Negative type with hole	C	D	R	S	T	V	W
		80°	55°		90°	60°	35°	80°
Medium cutting	HMM 0.200 0.160 0.120 0.080 0.040 0 0.004 0.008 0.012 0.016 0.020 f (ipr)							
	B062	B073		B082	B093	B100	B107	
	SA 0.200 0.160 0.120 0.080 0.040 0 0.004 0.008 0.012 0.016 0.020 f (ipr)							
B062	B073		B082	B093		B108		
S 0.200 0.160 0.120 0.080 0.040 0 0.004 0.008 0.012 0.016 0.020 f (ipr)								
B063	B073		B082	B094				
Medium to heavy cutting	TH 0.276 0.236 0.197 0.157 0.118 0.079 0.039 0 0.024 0.020 0.016 0.012 0.008 0.004 f (ipr)							
	B063	B074		B082	B094		B108	
THS 0.600 0.480 0.360 0.240 0.120 0 0.012 0.024 0.036 0.048 0.060 f (ipr)								
B063	B074		B082	B094		B108		
Medium to heavy cutting (single side)	TRS 0.394 0.315 0.157 0.078 0 0.008 0.016 0.024 0.032 0.040 f (ipr)							
B064			B083					

Please see the page B*** for the product details.

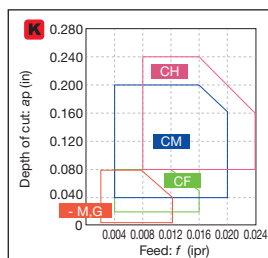
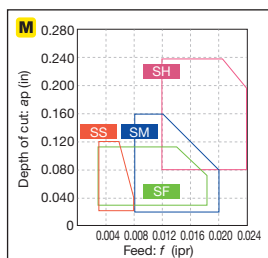
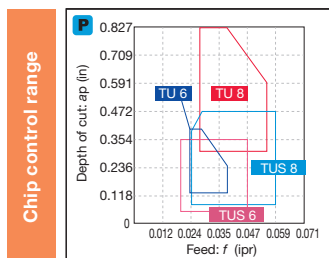
Chip control range



Chipbreaker Overview

Application	Negative type with hole	C	D	R	S	T	V	W
								
		80°	55°		90°	60°	35°	80°
Heavy cutting (single side)	TU  ap (in) vs f (ipr) graph 	 B064			 B083			
	TUS  ap (in) vs f (ipr) graph 	 B064			 B083			
Medium to heavy cutting	SH  ap (in) vs f (ipr) graph 	 B064	 B074		 B084			 B108
	CH  ap (in) vs f (ipr) graph 	 B064	 B074		 B084	 B094		 B108

Please see the page B*** for the product details.



*-M,G: Without chipbreaker







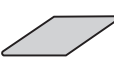

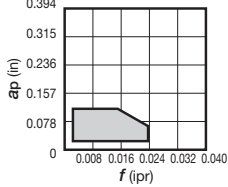

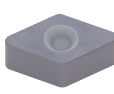


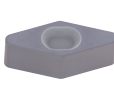

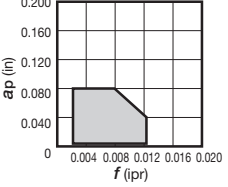







Chipbreaker Overview

Application		Negative type with hole		C	D	R	S	T	V	W
				80°	55°		90°	60°	35°	80°
Finishing to medium cutting	<p>M,G-class</p>									
		B065	B074	B076	B084	B095	B100	B109		
Finishing	<p>Wiper M-class</p>									
		B065								
Application		Negative type with hole		C	D	KNMX	LNGN	R	S	T
				80°	55°	55°	90°		90°	60°
Finishing	<p>S1</p>									
				B110						

Please see [the page B***](#) for the product details.

Chipbreaker Overview

Application	Negative type without hole	C	D	H	R	S	T	V
								
		80°	55°	120°		90°	60°	35°
Finishing to medium cutting	G-class  	 B066	 B075	 B110		 B085		 B101
	M,G-class  	 B066	 B075		 B076	 B085	 B096	

Please see [the page B***](#) for the product details.

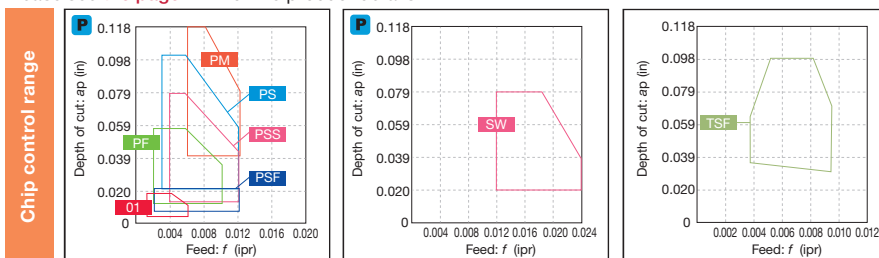
Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index




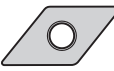



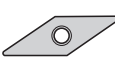
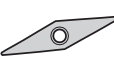
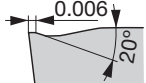
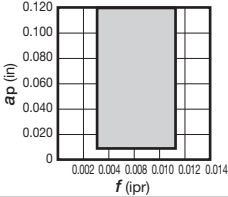

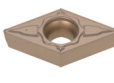


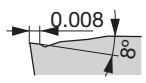
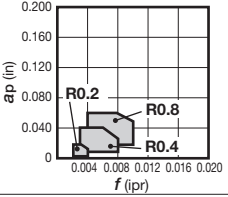

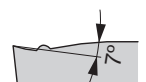
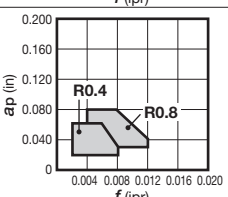


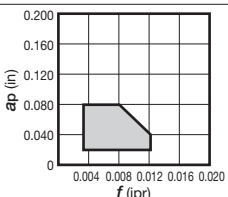
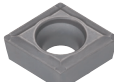
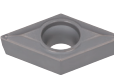


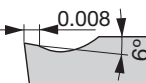
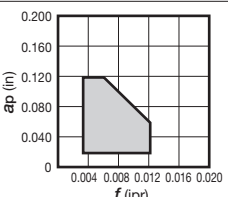
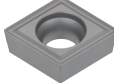
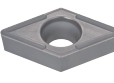

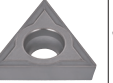
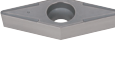
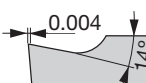
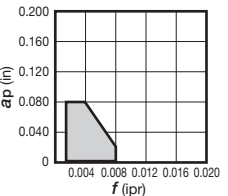
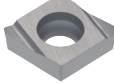
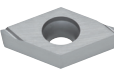
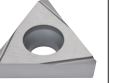
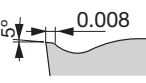
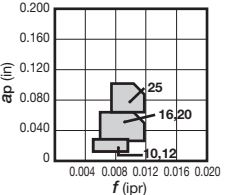
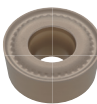
Chipbreaker Overview

Application	Positive 7° with hole						
	C	D	R	S	T	V	Y
	80°	55°		90°	60°	35°	25°
Precision finishing	01 						
	PSF 						
	PF 						
	PSS 						
	SW 						
	PS 						
	TSF 						

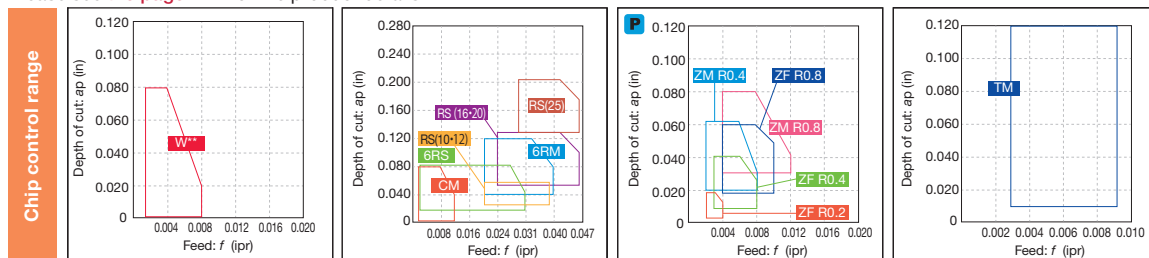
Please see the page B*** for the product details.



Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
Finishing to medium cutting	TM  							
	ZF  							
	ZM  							
	23  							
Medium cutting	24  							
Finishing	W**  							
Finishing to medium cutting	RS  							


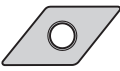



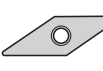
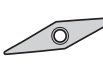
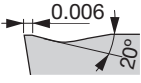
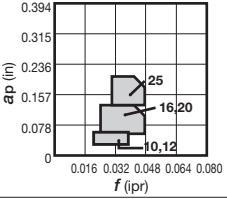

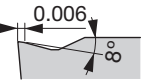
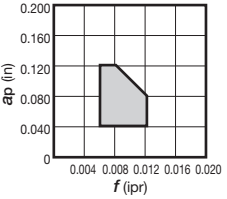

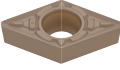


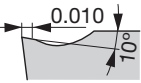
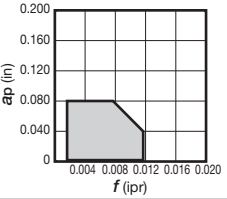

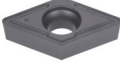


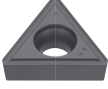
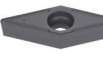

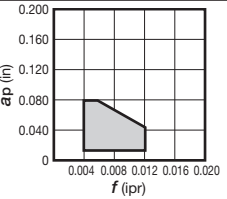
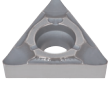
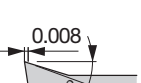
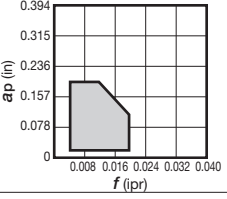

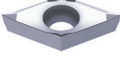


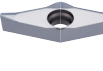

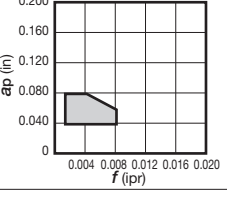


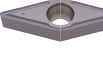

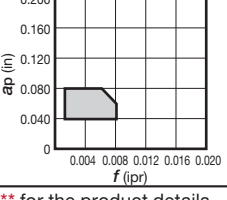


Please see the page B*** for the product details.



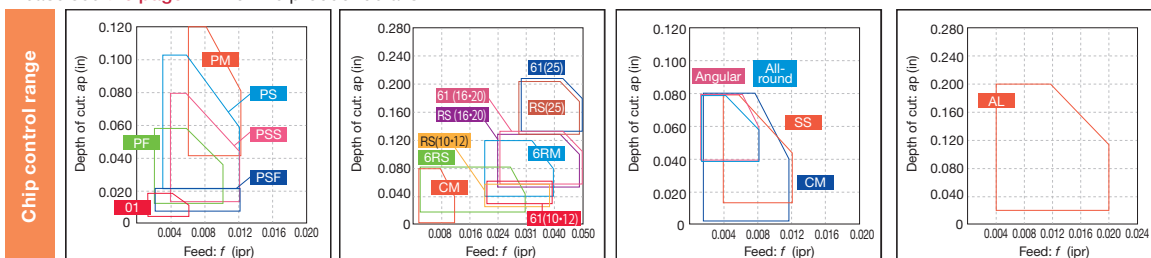
Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index

A
B
C
D
E
F
G
H
I
J
K
L
M


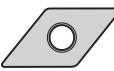



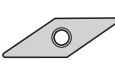
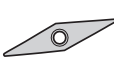
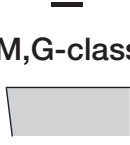
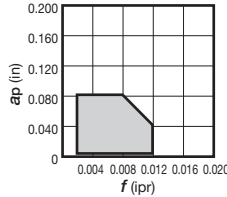

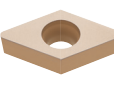

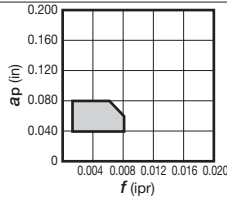
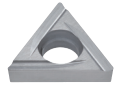

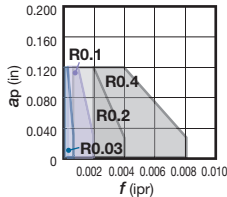
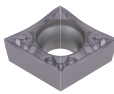
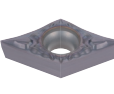
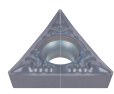

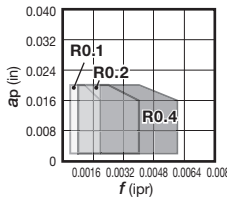
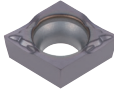

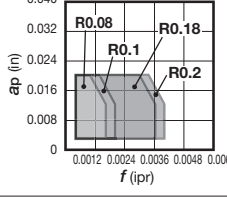
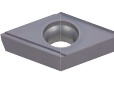

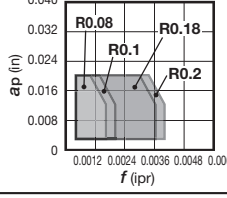
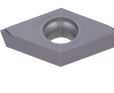
Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
Heavy cutting	61  							
				B132				
Medium cutting	PM  							
		B114	B123		B135	B141		
Finishing to medium cutting	CM  							
		B114	B123	B131	B135	B141	B156	
Finishing to medium cutting	SS  							
						B141		
Finishing to medium cutting	AL  							
		B115	B124	B131		B141	B156	
Finishing to medium cutting	All-round  							
		B115	B124				B156	
Finishing to medium cutting	Angular  							
		B115	B124					

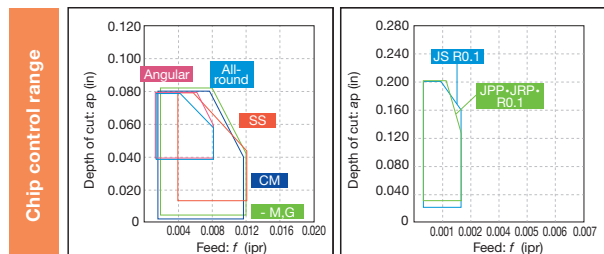
Please see the page B*** for the product details.



Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
Finishing to medium cutting	 M,G-class 	 B115	 B124					
Finishing (with hand)	 (with hand) 					 B142		
For external turning on Swiss lathes (including sharp edge type)	 JS 	 B116	 B125			 B142		
	 JS 	 B116						
For external turning on Swiss lathes (sharp edge)	 JPP 		 B125					
	 JRP 		 B126					

Please see the page B*** for the product details.


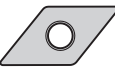






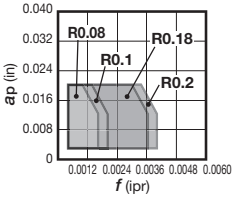
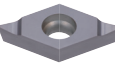

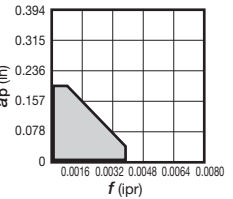



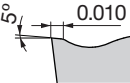
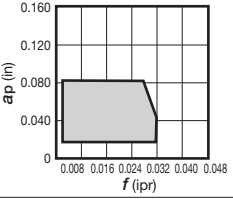

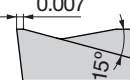
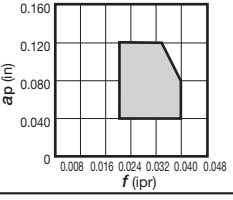



*-M,G: Without chipbreaker

*Chip control range with typical R0.1

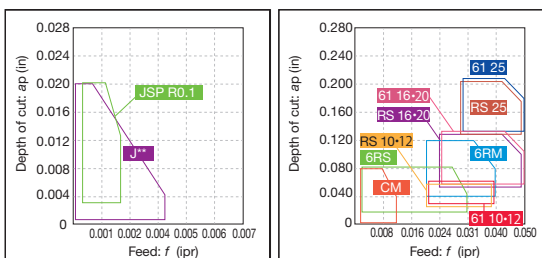


Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
For external turning on Swiss lathes (sharp edge)	JSP  							
			B126					
	J**  							
		B117	B126			B142, B143		
Low cutting force	6RS  							
				B131				
Medium cutting	6RM  							
				B131				

Please see the page B*** for the product details.

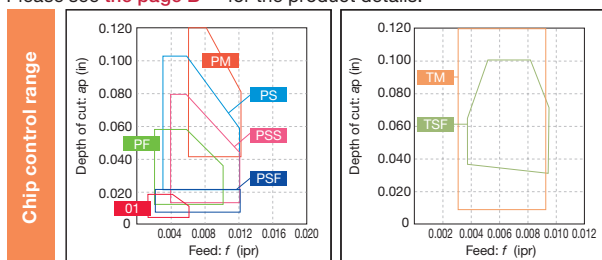
Chip control range



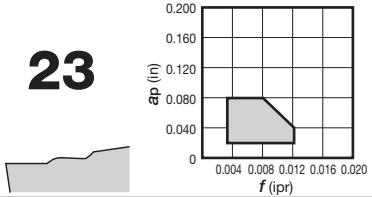


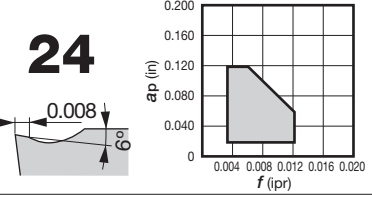
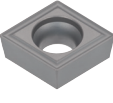


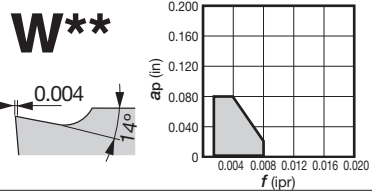
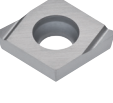
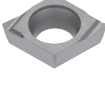

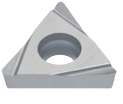
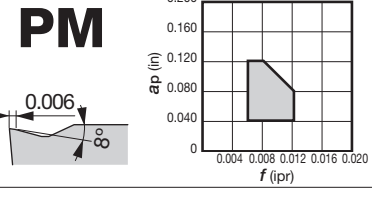
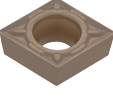
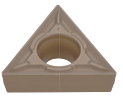
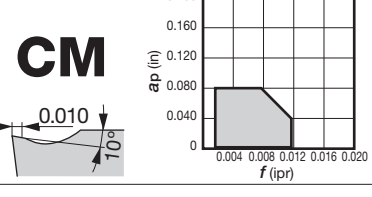
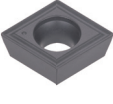

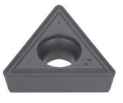
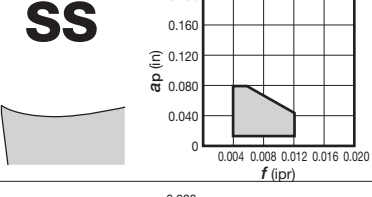
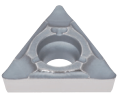
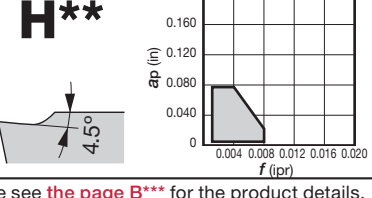
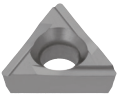
Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
		80°	75°	90°	60°	35°
Precision finishing	01 				 B144	
	PSF 	 B118			 B144	
Finishing	PF 	 B118			 B144	
	PSS 	 B118			 B145	
Finishing to light cutting	PS 	 B118		 B136	 B145	
	TSF 	 B118			 B145	
	TM 	 B118			 B146	

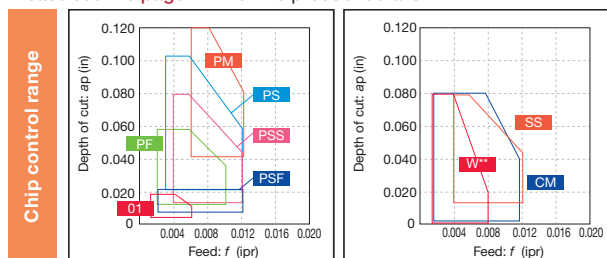
Please see the page B*** for the product details.



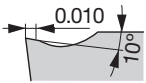
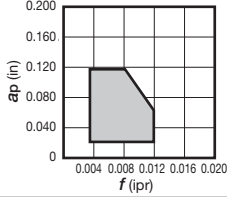
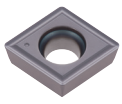
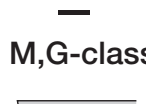
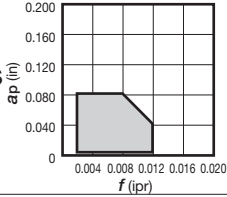


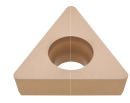
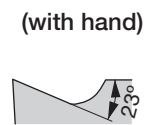
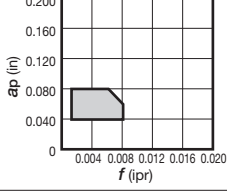

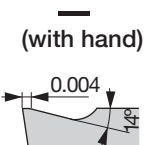
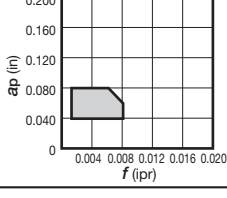
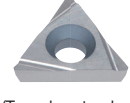
Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
		80°	75°	90°	60°	35°
Finishing to medium cutting	23 			 B136	 B146	
	24 	 B119		 B136	 B146	
Finishing	W** 	 B119	 B129	 B136	 B146, B147	
	PM 	 B120			 B148	
Finishing to medium cutting	CM 	 B120		 B137	 B148	
	SS 				 B148	
	H** 				 B148	

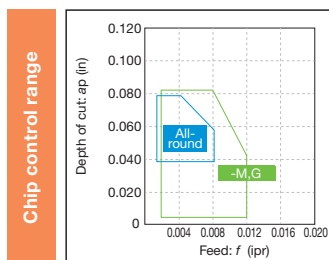
Please see the page B*** for the product details.



Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
		80°	75°	90°	60°	35°
Medium cutting	 					
Finishing to medium cutting	 					
Finishing to medium cutting	 			 (Tungaloy standard hole specification) ISO non-compliant B137		
	 				 (Tungaloy standard hole specification) ISO non-compliant B150	

Please see [the page B***](#) for the product details.

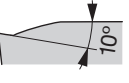
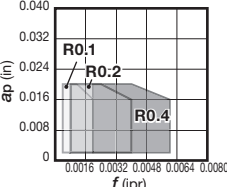
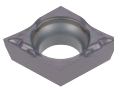
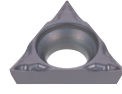
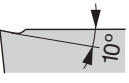
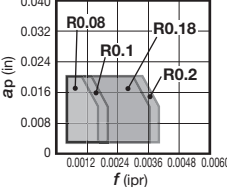
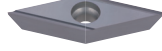

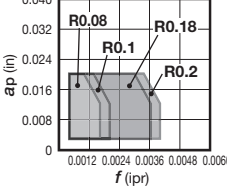
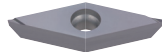

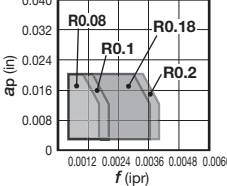
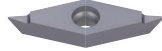
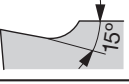
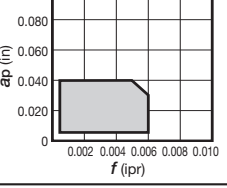
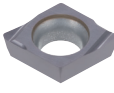



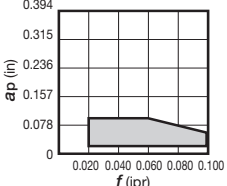

*-M,G: Without chipbreaker


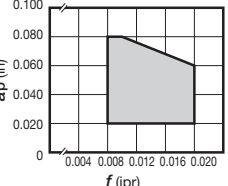

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index



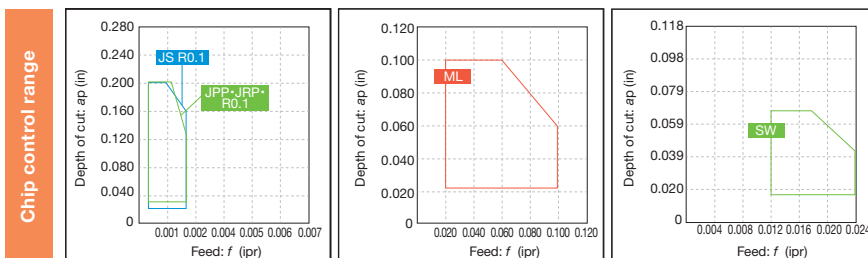
Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
		80°	75°	90°	60°	35°
For internal turning on Swiss lathes	JS  		 B130		 B150	
	JPP  					 B157
For external turning on Swiss lathes (sharp edge)	JRP  					 B157
	JSP  					 B158
Finishing	J08  		 B130			

Application	Positive 11° with hole	W
Heavy cutting	80°	
ML  	 B159	

Application	Positive 7° with hole	C
Medium cutting (wiper)	80°	
SW  	 B112	

Please see the page B*** for the product details.

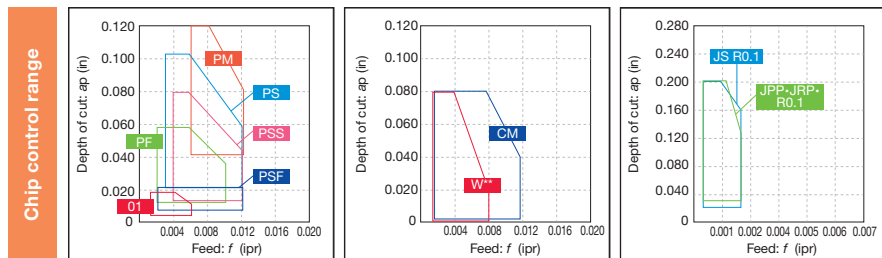


*Chip control range with typical R0.1

Chipbreaker Overview

Application	Positive 5° with hole	V	W	Application	Positive 5° with hole	V	W
		35°	80°			35°	80°
Finishing	PSF 			Finishing	W11 		
	PF 				Medium cutting	24 	
Finishing to light cutting	PSS 			Finishing to medium cutting	CM 		
	PS 				For external turning on Swiss lathes (sharp edge)	JS 	
Finishing to medium cutting	TSF 			For internal turning on Swiss lathes	JS 		
	TM 			For external turning on Swiss lathes (sharp edge)	J10 		
	W08 			For external turning on Swiss lathes (honed edge)	J10 		

Please see the page B*** for the product details.



*Chip control range with typical R0.1




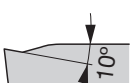
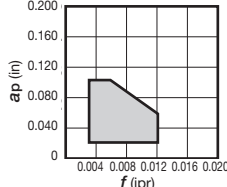


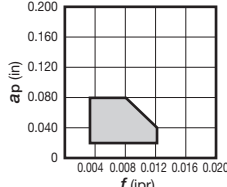


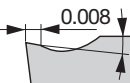
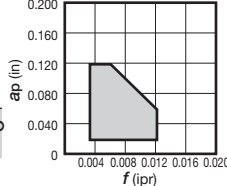

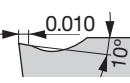
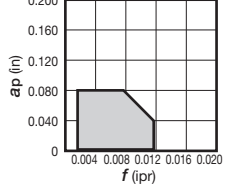


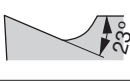
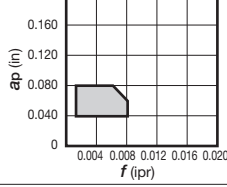

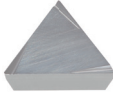

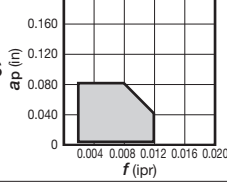




Chipbreaker Overview

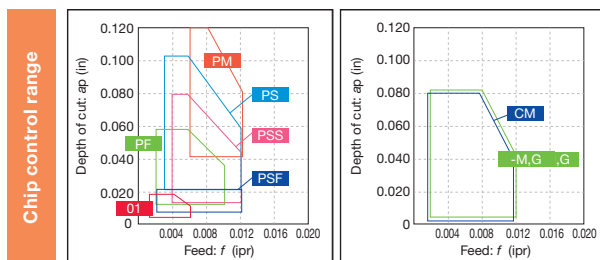
	Application	Positive type with hole	JXF	Application	Positive type with hole	J10E
	Front turning			Back turning		
			B163			B165, B166
	Application	Positive type with hole	JXB	Application	Positive type with hole	JXR
	Back turning			Reverse turning		
			B164			B164
	Application	Positive type with hole	JTB	Application	Round	RT
	Back turning			Medium cutting		
			B165			Special round insert B132

Please see [the page B***](#) for the product details.

Chipbreaker Overview

Application	Positive 11° without hole	R	S	T
				
			90°	60°
Finishing to medium cutting	PS  			 B151
	23  		 B138	 B151
Medium cutting	24  			 B151
Finishing to medium cutting	CM  		 B138	 B151
	 (with hand) 		 B138	 B152
	 M,G-class 		 B138	 B152


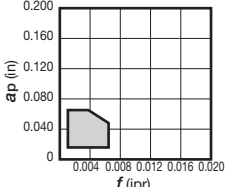
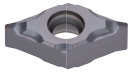
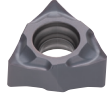
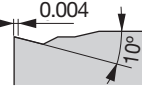
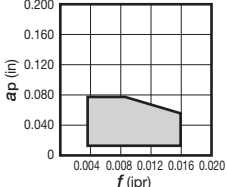
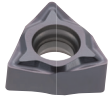
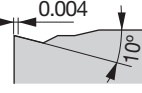
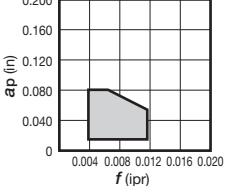
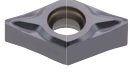
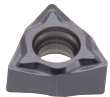

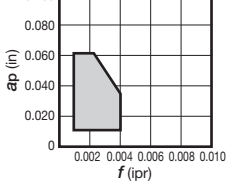
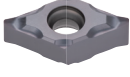
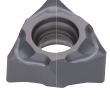
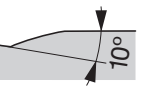
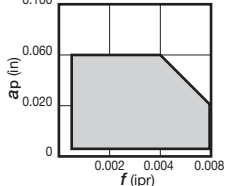
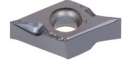
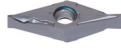
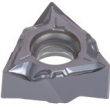
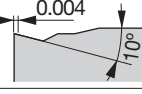
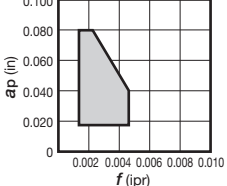
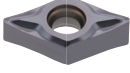
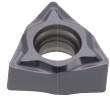

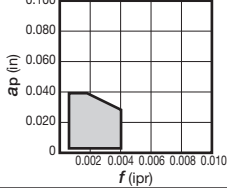
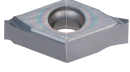
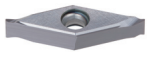
Please see the page B*** for the product details.



*-M,G: Without chipbreaker

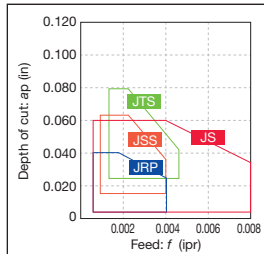
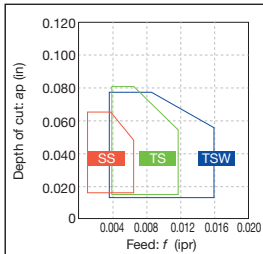


Chipbreaker Overview


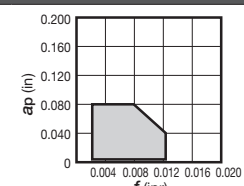

Application	Double-sided positive type with hole	D	V	W
		55°	35°	80°
Finishing (low cutting force)	SS  			
		B128		B162
Finishing (wiper)	TSW  			
				B162
Finishing to medium cutting	TS  			
		B128		B162
Finishing (low cutting force) (sharp edge)	JSS  			
		B128		B162
Finishing to medium cutting (sharp edge)	JS  			
		B127	B158	B160
Finishing to medium cutting (sharp edge)	JTS  			
		B128		B161
Finishing (sharp edge)	JRP  			
		B127	B158	

Please see the page B*** for the product details.

Chip control range

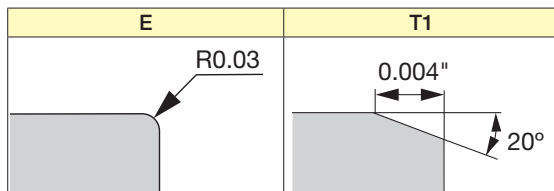


Chipbreaker Overview

Application	Positive 7° without hole		RCGX
			Special round insert
Medium cutting			 B133

Please see [the page B***](#) for the product details.

Cutting edge preparations for ceramic insert



Grade	Symbols	Shape of edge
LX11	-	T01525
LX21	-	T01030
FX105	-	T02025
CX710	-	T02025
TS200	-E	R003
	-T1	T01020
TS300	-E	R003
	-T1	T01020
TZ120	-	T01020

Insert NEGATIVE TYPE

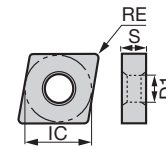
● : Continuous cutting
 ● : Light interrupted cutting
 ✖ : Heavy interrupted cutting

CN



Rhombic, 80°
with hole

Material	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	AH110	AH120	AH8015	GH110	GT9530	AT9530	NS9530	NS520	TH10
P Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation		Coated																		Coated cermet	Cermet	Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	AH110	AH120	AH8015	GH110	GT9530	AT9530	NS9530	NS520	TH10	RE	IC	S	D1			
Precision finishing	TF	CNMG 431 TF	CNMG120404-TF																									
		CNMG 432 TF	CNMG120408-TF																									
	01	CNMG 431 TF	CNMG120404-TF																									
		CNMG 432 TF	CNMG120408-TF																									
		CNMG 320.5-01	CNMG090302-01																									
		CNMG 321-01	CNMG090304-01																									
		CNMG 322-01	CNMG090308-01																									
		CNMG 430-01	CNMG120401-01																									
	Finishing	C	CNMG 431 R-C	CNMG120404R-C																								
			CNMG 431 L-C	CNMG120404L-C																								
CNMG 432 R-C			CNMG120408R-C																									
CNMG 432 L-C			CNMG120408L-C																									
TSF		CNMG 330.5E TSF	CNMG090402E-TSF																									
		CNMG 331E TSF	CNMG090404E-TSF																									
		CNMG 332E TSF	CNMG090408E-TSF																									
		CNMG 431 TSF	CNMG120404-TSF																									
Finishing (wiper)	FW	CNMG 331E FW	CNMG090404E-FW																									
		CNMG 332E FW	CNMG090408E-FW																									
		CNMG 431 FW	CNMG120404-FW																									
		CNMG 432 FW	CNMG120408-FW																									
Finishing (wiper)	AFW	CNMG 431 AFW	CNMG120404-AFW																									
		CNMG 432 AFW	CNMG120408-AFW																									

* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW. Please contact a Tungaloy sales representative with questions.

● : Line up
 ▲ : To be discontinued

Reference pages: External toolholder → **C018 -** Internal toolholder → **D028 -**
 J-Series toolholder → **G057** TungCap → **K008 -**

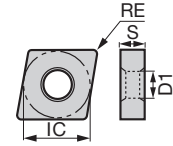
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

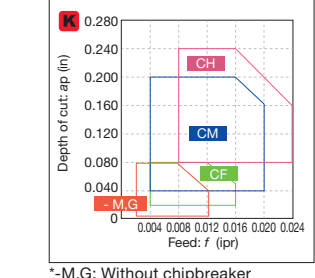
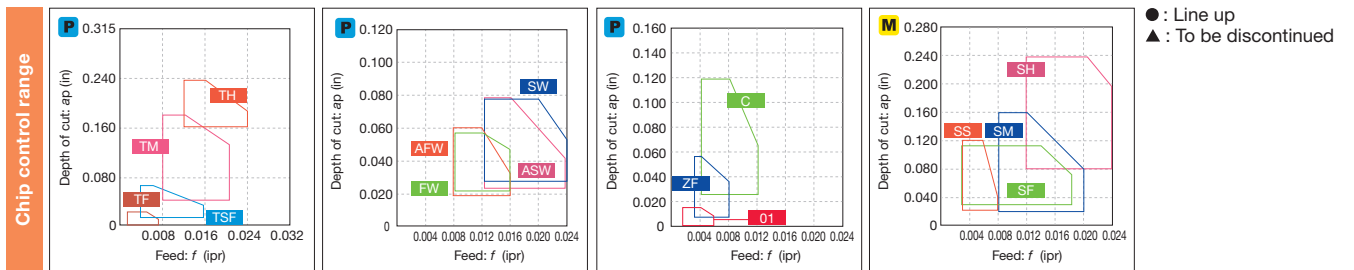
CN

**Rhombic, 80°
with hole**

P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated											Coated cermet	Cermet	Uncoated	Dimension (inch)									
			T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	GT9530	AT9530	GT720	NS9530	TH10	RE	IC	S	D1				
	Inch	Metric																								
Finishing		ZF	CNMG 331E ZF	CNMG090404E-ZF	●	●	▲	▲													0.016	0.375	0.188	0.150		
			CNMG 431 ZF	CNMG120404-ZF	●	●	▲	▲					●	●		●						0.016	0.500	0.188	0.203	
			CNMG 432 ZF	CNMG120408-ZF	●	●	●	▲	▲	▲					●	●		●					0.031	0.500	0.188	0.203
			CNMG 433 ZF	CNMG120412-ZF				▲															0.047	0.500	0.188	0.203
		11	CNMG 431-11	CNMG120404-11										●			●		●			0.016	0.500	0.188	0.203	
			CNMG 432-11	CNMG120408-11										●		●	●		●			0.031	0.500	0.188	0.203	
Finishing (for mild steel)		17	CNMG 431-17	CNMG120404-17																	0.016	0.500	0.188	0.203		
			CNMG 432-17	CNMG120408-17																		0.031	0.500	0.188	0.203	
Finishing		SF	CNMG 321 SF	CNMG090304-SF								●	●	●							0.016	0.375	0.125	0.150		
			CNMG 322 SF	CNMG090308-SF									●	●	●							0.031	0.375	0.125	0.150	
			CNMG 431 SF	CNMG120404-SF									●	●	●							0.016	0.500	0.188	0.203	
			CNMG 432 SF	CNMG120408-SF									●	●	●							0.031	0.500	0.188	0.203	
			CNMG 433 SF	CNMG120412-SF									●	●	●							0.047	0.500	0.188	0.203	
		CF	CNMG 431 CF	CNMG120404-CF									●	●								0.016	0.500	0.188	0.203	
		CNMG 432 CF	CNMG120408-CF									●	●								0.031	0.500	0.188	0.203		
		CNMG 433 CF	CNMG120412-CF									●	●								0.047	0.500	0.188	0.203		



Reference pages: External toolholder → **C018** - Internal toolholder → **D028** -
 J-Series toolholder → **G057** TungCap → **K008** -

*M,G: Without chipbreaker

- Grade
- Insert
- Ext. Toolholder
- Int. Toolholder
- Threading
- Grooving
- Milling Cutter
- Miniature Tool
- Endmill
- Drilling Tool
- Tooling System
- User's Guide
- Index

A

B

C

D

E

F

G

H

I

J

K

L

M

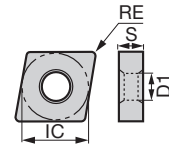
Insert NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

CN

Rhombic, 80°
with hole

	P	M	K	N	S	H															
Steel	●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless		●●																			
Cast iron	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous																					
Superalloy																					
Hard material																					



Application	Chipbreaker	Designation		Coated														Coated cermet	Cermet		Dimension (inch)								
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1					
Finishing		HRF	CNMG 431 HRF	CNMG120404-HRF																	●	●			0.016	0.500	0.188	0.203	
			CNMG 432 HRF	CNMG120408-HRF																		●	●			0.031	0.500	0.188	0.203
			CNMG 433 HRF	CNMG120412-HRF																		●	●			0.047	0.500	0.188	0.203
		TS	CNMG 431 TS	CNMG120404-TS	●	●	●		▲	▲	▲								●	●	●	●	0.016	0.500	0.188	0.203			
			CNMG 432 TS	CNMG120408-TS	●	●	●	●	▲	▲	▲	▲	●						●	●	●	●	0.031	0.500	0.188	0.203			
			CNMG 433 TS	CNMG120412-TS	●	●	●		▲	▲	▲											0.047	0.500	0.188	0.203				
Finishing to medium cutting (wiper)		SW	CNMG 332E SW	CNMG090408E-SW	●	●	●		▲	▲	▲			●							0.031	0.375	0.188	0.150					
			CNMG 333E SW	CNMG090412E-SW	●	●	●		▲	▲	▲			●							0.047	0.375	0.188	0.150					
			CNMG 432 SW	CNMG120408-SW	●	●	●		▲	▲	▲			●	●						0.031	0.500	0.188	0.203					
			CNMG 433 SW	CNMG120412-SW	●	●	●		▲	▲	▲			●	●						0.047	0.500	0.188	0.203					
		ASW	CNMG 432 ASW	CNMG120408-ASW	●	●	●		▲	▲	▲								●		0.031	0.500	0.188	0.203					
			CNMG 433 ASW	CNMG120412-ASW	●	●	●		▲	▲	▲										0.047	0.500	0.188	0.203					
High feed, small depth of cut		AS	CNMG 431 AS	CNMG120404-AS	●	●	●		▲	▲	▲							●		0.016	0.500	0.188	0.203						
			CNMG 432 AS	CNMG120408-AS	●	●	●	●	▲	▲	▲	▲							●		0.031	0.500	0.188	0.203					
			CNMG 433 AS	CNMG120412-AS	●	●	●		▲	▲	▲										0.047	0.500	0.188	0.203					
Boring (double side)		CB	CNMG 321 CB	CNMG090304-CB															●		0.016	0.375	0.125	0.150					
			CNMG 322 CB	CNMG090308-CB																●		0.031	0.375	0.125	0.150				
Finishing		NS	CNMG 431 NS	CNMG120404-NS															●		0.016	0.500	0.188	0.203					
			CNMG 432 NS	CNMG120408-NS	●	●			▲	▲										●		0.031	0.500	0.188	0.203				

* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW.
 Please contact a Tungaloy sales representative with questions.

● : Line up
 ▲ : To be discontinued

Insert **NEGATIVE TYPE**

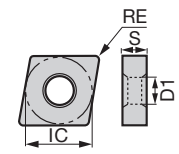
- : Continuous cutting
- : Light interrupted cutting
- ※ : Heavy interrupted cutting

CN



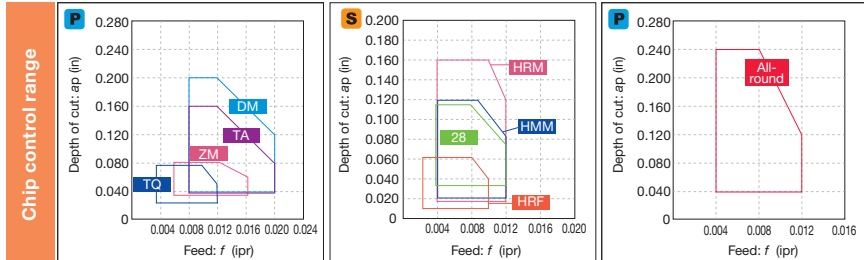
Rhombic, 80°
with hole

	P	M	K	N	S	H	T9205	T9215	T9225	T9235	T9115	T9125	T9135	AH110	AH120	AH725	AH905	AH8005	AH8015	GH330	Coated cermet	Cer- met	Un- coated
P	Steel						●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
M	Stainless	●●												●●	●●	●●	●●	●●	●●	●●			●●
K	Cast iron	●●	●●								●●			●●	●●	●●	●●	●●	●●	●●			●●
N	Non-ferrous			●●																			●●
S	Superalloy				●●									●●	●●	●●							●●
H	Hard material					●●																	●●



Application	Chipbreaker	Designation	Coated																		Coated cermet	Cer- met	Un- coated	Dimension (inch)				
			Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T9135	AH110	AH120	AH725	AH905	AH8005	AH8015	GH330	RE	IC				S	D1			
Finishing to medium cutting		27 CNMG 431-27 CNMG120404-27	●	●			▲	▲														●		0.016	0.500	0.188	0.203	
		CNMG 432-27 CNMG120408-27	●	●	●		▲	▲	▲														●		0.031	0.500	0.188	0.203
		CNMG 433-27 CNMG120412-27			●			▲																	0.047	0.500	0.188	0.203
Medium cutting		28 CNGP 430-28 CNGP120401-28												●	●		●							0.004	0.500	0.188	0.203	
		CNGP 430.5-28 CNGP120402-28												●	●		●							0.008	0.500	0.188	0.203	
		CNGP 431-28 CNGP120404-28												●	●		●							●	0.016	0.500	0.188	0.203
		CNGP 432-28 CNGP120408-28												●	●		●							●	0.031	0.500	0.188	0.203
		CNMG 431-28 CNMG120404-28			●			▲			●	●			●	●		●	●						0.016	0.500	0.188	0.203
		CNMG 432-28 CNMG120408-28													●	●		●	●						0.031	0.500	0.188	0.203
		CNMG 433-28 CNMG120412-28													●			●	●						0.047	0.500	0.188	0.203
Medium cutting		33 CNMG 432-33 CNMG120408-33												●									●	0.031	0.500	0.188	0.203	
		CNMG 434-33 CNMG120416-33	●				▲																	0.063	0.500	0.188	0.203	
		CNMG 543-33 CNMG160612-33	●				▲																		0.047	0.625	0.250	0.250
		CNMG 643-33 CNMG190612-33	●				▲																		0.047	0.750	0.250	0.312
Medium cutting		37 CNMG 431-37 CNMG120404-37	●				▲															●	●	0.016	0.500	0.188	0.203	
		CNMG 432-37 CNMG120408-37	●				▲																●	●	0.031	0.500	0.188	0.203
		CNMG 433-37 CNMG120412-37	●				▲																	●	0.047	0.500	0.188	0.203
Medium cutting		38 CNMG 431-38 CNMG120404-38																				●		0.016	0.500	0.188	0.203	
		CNMG 432-38 CNMG120408-38	●				▲								●								●		0.031	0.500	0.188	0.203

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → **C020** - Internal toolholder → **D029** -
 J-Series toolholder → **G057** TungCap → **K008** -

Grade: A, B, C, D, E, F, G, H, I, J, K, L, M

Insert

Toolholder: Ext. Toolholder, Int. Toolholder

Application: Threading, Grooving, Milling Cutter, Miniature Tool, Endmill, Drilling Tool

User's Guide: Tooling System, Index

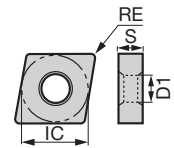
Insert NEGATIVE TYPE

● : Continuous cutting
 ◐ : Light interrupted cutting
 ✱ : Heavy interrupted cutting

CN

Rhombic, 80°
with hole

	P	M	K	N	S	H	Coated	Cermet	Uncoated
Steel	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●
Non-ferrous	●	●	●	●	●	●	●	●	●
Superalloy	●	●	●	●	●	●	●	●	●
Hard material	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation		Coated															Cermet	Uncoated				Dimension (inch)						
		Inch	Metric	T6120	T6130	AH630	AH645	AH110	AH120	T515	T5105	T5115	T5125	AH725	AH8005	AH8015	AH905	GH110	GH330	GT720	NS9530	TH10	KS05F	KS20	RE	IC	S	D1		
Medium cutting		SM	CNMG 331E SM	CNMG090404E-SM	●	●	●																		0.016	0.375	0.188	0.150		
			CNMG 332E SM	CNMG090408E-SM	●	●	●																			0.031	0.375	0.188	0.150	
			CNMG 333E SM	CNMG090412E-SM	●	●	●																				0.047	0.375	0.188	0.150
			CNMG 431 SM	CNMG120404-SM	●	●	●								●												0.016	0.500	0.188	0.203
			CNMG 432 SM	CNMG120408-SM	●	●	●								●		●										0.031	0.500	0.188	0.203
			CNMG 433 SM	CNMG120412-SM	●	●	●								●		●										0.047	0.500	0.188	0.203
			CNMG 543 SM	CNMG160612-SM	●	●																					0.047	0.625	0.250	0.250
		CM	CNMG 431 CM	CNMG120404-CM						●	●	●	●													0.016	0.500	0.188	0.203	
			CNMG 432 CM	CNMG120408-CM						●	●	●	●													0.031	0.500	0.188	0.203	
			CNMG 433 CM	CNMG120412-CM						●	●	●	●													0.047	0.500	0.188	0.203	
			CNMG 542 CM	CNMG160608-CM							●	●	●														0.031	0.625	0.250	0.250
			CNMG 543 CM	CNMG160612-CM							●	●	●	●													0.047	0.625	0.250	0.250
		P	CNMG 431 R-P	CNMG120404-R-P														●			●	●				0.016	0.500	0.188	0.203	
			CNMG 431 L-P	CNMG120404-L-P														●			●	●				0.016	0.500	0.188	0.203	
		CNMG 432 R-P	CNMG120408-R-P														●			●	●				0.031	0.500	0.188	0.203		
		CNMG 432 L-P	CNMG120408-L-P														●			●	●				0.031	0.500	0.188	0.203		
Finishing to medium cutting		HRM	CNMG 431 HRM	CNMG120404-HRM													●	●							0.016	0.500	0.188	0.203		
			CNMG 432 HRM	CNMG120408-HRM														●	●							0.031	0.500	0.188	0.203	
			CNMG 433 HRM	CNMG120412-HRM														●	●							0.047	0.500	0.188	0.203	
			CNMG 542 HRM	CNMG160608-HRM														●	●							0.031	0.625	0.250	0.250	
			CNMG 543 HRM	CNMG160612-HRM														●	●							0.047	0.625	0.250	0.250	
			CNMG 643 HRM	CNMG190612-HRM														●	●							0.047	0.750	0.250	0.312	
			CNMG 644 HRM	CNMG190616-HRM														●	●							0.063	0.750	0.250	0.312	
Medium cutting		HMM	CNMG 431 HMM	CNMG120404-HMM													●								0.016	0.500	0.188	0.203		
			CNMG 432 HMM	CNMG120408-HMM														●				●				0.031	0.500	0.188	0.203	
			CNMG 433 HMM	CNMG120412-HMM														●								0.047	0.500	0.188	0.203	
			CNMG 542 HMM	CNMG160608-HMM														●								0.031	0.625	0.250	0.250	
			CNMG 543 HMM	CNMG160612-HMM														●								0.047	0.625	0.250	0.250	
			CNMG 544 HMM	CNMG160616-HMM														●								0.063	0.625	0.250	0.250	
		SA	CNMG 431 SA	CNMG120404-SA	●	●	●	●	●																	0.016	0.500	0.188	0.203	
			CNMG 432 SA	CNMG120408-SA	●	●	●	●	●	●													●				0.031	0.500	0.188	0.203
			CNMG 433 SA	CNMG120412-SA	●	●	●	●	●	●													●				0.047	0.500	0.188	0.203
			CNMG 643 SA	CNMG190612-SA							●												●				0.047	0.750	0.250	0.312
	CNMG 644 SA	CNMG190616-SA							●												●				0.063	0.750	0.250	0.312		

● : Line up
 ▲ : To be discontinued

Reference pages: External toolholder → C018 -
 J-Series toolholder → G057

Internal toolholder → D028 -
 TungCap → K008 -

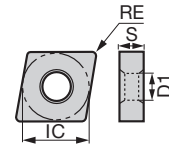
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CN

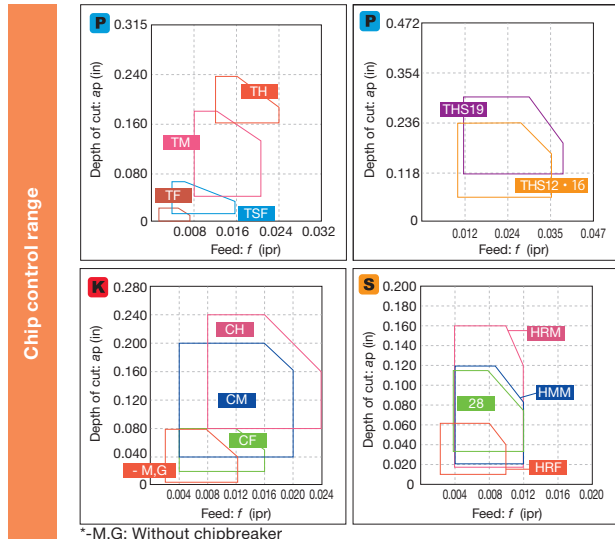
Rhombic, 80° with hole

	P	M	K	N	S	H														
Steel	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Superalloy	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard material	●	●	●	◐	◑	◑	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation		Coated												Coated	Cer-	Dimension (inch)									
				T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	AH120	AH630	AH645	AH8015	GH330	GT720	NS9530	RE	IC	S	D1			
																									met		
Medium cutting		S	CNMG 431 R-S	CNMG120404R-S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.016	0.500	0.188	0.203	
			CNMG 431 L-S	CNMG120404L-S																				0.016	0.500	0.188	0.203
			CNMG 432 R-S	CNMG120408R-S																				0.031	0.500	0.188	0.203
			CNMG 432 L-S	CNMG120408L-S																				0.031	0.500	0.188	0.203
Medium to heavy cutting		TH	CNMG 432 TH	CNMG120408-TH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.031	0.500	0.188	0.203		
			CNMG 433 TH	CNMG120412-TH																			0.047	0.500	0.188	0.203	
			CNMG 434 TH	CNMG120416-TH																			0.063	0.500	0.188	0.203	
			CNMG 543 TH	CNMG160612-TH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.047	0.625	0.250	0.250	
			CNMG 544 TH	CNMG160616-TH																			0.063	0.625	0.250	0.250	
			CNMG 643 TH	CNMG190612-TH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.047	0.750	0.250	0.312	
			CNMG 644 TH	CNMG190616-TH																			0.063	0.750	0.250	0.312	
	THS	CNMG 432 THS	CNMG120408-THS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.031	0.500	0.188	0.203		
		CNMG 433 THS	CNMG120412-THS																			0.047	0.500	0.188	0.203		
		CNMG 434 THS	CNMG120416-THS																			0.063	0.500	0.188	0.203		
		CNMG 543 THS	CNMG160612-THS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.047	0.625	0.250	0.250		
		CNMG 544 THS	CNMG160616-THS																			0.063	0.625	0.250	0.250		
		CNMG 643 THS	CNMG190612-THS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			0.047	0.750	0.250	0.312		
		CNMG 644 THS	CNMG190616-THS																			0.063	0.750	0.250	0.312		
Medium to heavy cutting (single side)		57	CNMM 431-57	CNMM120404-57																	0.016	0.500	0.188	0.203			
			CNMM 432-57	CNMM120408-57	●	●																0.031	0.500	0.188	0.203		
			CNMM 433-57	CNMM120412-57																			0.047	0.500	0.188	0.203	
			CNMM 643-57	CNMM190612-57	●	●																	0.047	0.750	0.250	0.313	
			CNMM 644-57	CNMM190616-57																			0.063	0.750	0.250	0.313	

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → C020 -
 Internal toolholder → D029 -
 J-Series toolholder → G057
 TungCap → K008 -

Insert NEGATIVE TYPE

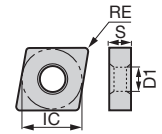
● : Continuous cutting
 ● : Light interrupted cutting
 ※ : Heavy interrupted cutting

CN



Rhombic, 80°
with hole

	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel			●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless		●						●	●													
Cast iron			●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous				●				●	●													
Superalloy					●																	
Hard material						●																




Application	Chipbreaker	Designation		Coated																Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	T515	T5105	T5115	T5125	RE	IC	S	D1		
Medium to heavy cutting (single side)		TRS	CNMM 432 TRS	CNMM120408-TRS	●	●	●	▲	▲	▲								0.031	0.500	0.188	0.203		
			CNMM 433 TRS	CNMM120412-TRS	●	●	●	▲	▲	▲									0.047	0.500	0.188	0.203	
			CNMM 543 TRS	CNMM160612-TRS	●	●	●	▲	▲	▲										0.047	0.625	0.250	0.250
			CNMM 544 TRS	CNMM160616-TRS	●	●	●	▲	▲	▲										0.063	0.625	0.250	0.250
			CNMM 644 TRS	CNMM190616-TRS	●	●	●	▲	▲	▲										0.063	0.750	0.250	0.312
			CNMM 646 TRS	CNMM190624-TRS	●	●	●	▲	▲	▲										0.094	0.750	0.250	0.312
			CNMM 866 TRS	CNMM250924-TRS	●	●	●	▲	▲	▲										0.094	1.000	0.375	0.359
Medium to heavy cutting (single side)		TU	CNMM 643 TU	CNMM190612-TU		●	●		▲	▲								0.047	0.750	0.250	0.312		
			CNMM 644 TU	CNMM190616-TU		●	●		▲	▲									0.063	0.750	0.250	0.312	
			CNMM 646 TU	CNMM190624-TU	●	●	●	▲	▲	▲									0.094	0.750	0.250	0.312	
			CNMM 866 TU	CNMM250924-TU		●	●		▲	▲										0.094	1.000	0.375	0.359
Heavy cutting (single side)		TUS	CNMM 642 TUS	CNMM190608-TUS	●	●			▲	▲								0.031	0.750	0.250	0.312		
			CNMM 643 TUS	CNMM190612-TUS	●	●	●		▲	▲	▲								0.047	0.750	0.250	0.312	
			CNMM 644 TUS	CNMM190616-TUS	●	●	●		▲	▲	▲								0.063	0.750	0.250	0.312	
			CNMM 646 TUS	CNMM190624-TUS	●	●	●		▲	▲	▲								0.094	0.750	0.250	0.312	
			CNMM 648 TUS	CNMM190632-TUS	●	●			▲	▲	▲								0.125	0.750	0.250	0.312	
			CNMM 864 TUS	CNMM250916-TUS	●	●	●		▲	▲	▲								0.063	1.000	0.375	0.359	
			CNMM 866 TUS	CNMM250924-TUS	●	●	●		▲	▲	▲								0.094	1.000	0.375	0.359	
			CNMM 868 TUS	CNMM250932-TUS	●	●			▲	▲									0.125	1.000	0.375	0.359	
Medium to heavy cutting (single side)		65	CNMM 433-65	CNMM120412-65		●			▲								0.047	0.500	0.188	0.203			
Medium to heavy cutting		SH	CNMG 432 SH	CNMG120408-SH							●	●	●				0.031	0.500	0.188	0.203			
			CNMG 433 SH	CNMG120412-SH								●	●	●				0.047	0.500	0.188	0.203		
			CNMG 434 SH	CNMG120416-SH									●	●	●				0.063	0.500	0.188	0.203	
			CNMG 543 SH	CNMG160612-SH									●	●	●				0.047	0.625	0.250	0.250	
			CNMG 544 SH	CNMG160616-SH									●	●	●				0.063	0.625	0.250	0.250	
			CNMG 643 SH	CNMG190612-SH									●	●	●				0.047	0.750	0.250	0.312	
			CNMG 644 SH	CNMG190616-SH									●	●	●				0.063	0.750	0.250	0.312	
		CH	CNMG 431 CH	CNMG120404-CH														0.016	0.500	0.188	0.203		
			CNMG 432 CH	CNMG120408-CH										●	●	●	●		0.031	0.500	0.188	0.203	
			CNMG 433 CH	CNMG120412-CH										●	●	●	●		0.047	0.500	0.188	0.203	
			CNMG 543 CH	CNMG160612-CH										●	●	●			0.047	0.625	0.250	0.250	
			CNMG 544 CH	CNMG160616-CH										●	●	●			0.063	0.625	0.250	0.250	
			CNMG 643 CH	CNMG190612-CH										●	●	●			0.047	0.750	0.250	0.312	
			CNMG 644 CH	CNMG190616-CH										●	●	●			0.063	0.750	0.250	0.312	

● : Line up
 ▲ : To be discontinued

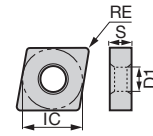
Insert NEGATIVE TYPE

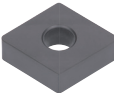

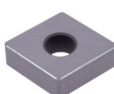
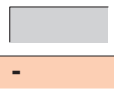
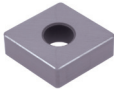

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CN

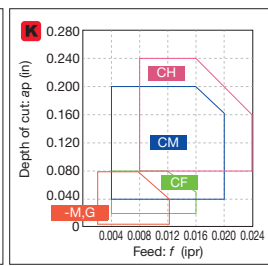
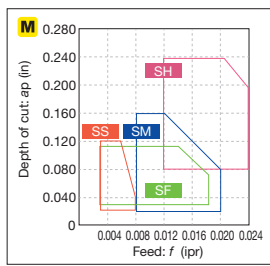
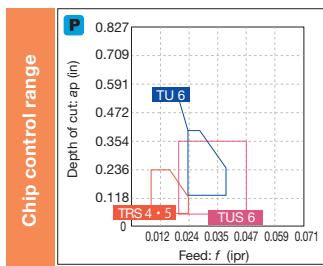
 **Rhombic, 80° with hole**

P	Steel	●	●						●●											
M	Stainless																			●
K	Cast iron	●●	●●	●●	●	⊛		●●					●	●●						
N	Non-ferrous																			●
S	Superalloy																			
H	Hard material																			●



Application	Chipbreaker		Designation		Coated					Cermet		Uncoated	Ceramic				Dimension (inch)			
			Inch	Metric	T9205	T9105	T515	T5105	T5115	T5125	NS520	TH10	TZ120	FX105	LX21	LX11	RE	IC	S	D1
Finishing to medium cutting	 	-	CNMA 331E	CNMA090404E			●								0.016	0.375	0.188	0.150		
			CNMA 332E	CNMA090408E			●									0.031	0.375	0.188	0.150	
			CNMA 333E	CNMA090412E			●									0.047	0.375	0.188	0.150	
			CNMA 334E	CNMA090416E			●									0.063	0.375	0.188	0.150	
			CNMA 431	CNMA120404					●	●	●		●			0.016	0.500	0.188	0.203	
			CNMA 432	CNMA120408	●	▲	●	●	●	●		●		●		0.031	0.500	0.188	0.203	
			CNMA 433	CNMA120412	●	▲	●	●	●	●		●		●		0.047	0.500	0.188	0.203	
			CNMA 434	CNMA120416	●	▲	●	●	●	●		●		●		0.063	0.500	0.188	0.203	
			CNMA 542	CNMA160608					●	●	●					0.031	0.625	0.250	0.250	
			CNMA 543	CNMA160612					●	●	●					0.047	0.625	0.250	0.250	
			CNMA 544	CNMA160616					●	●	●					0.063	0.625	0.250	0.250	
			CNMA 643	CNMA190612					●	●	●					0.047	0.750	0.250	0.312	
		CNMA 644	CNMA190616					●	●	●					0.063	0.750	0.250	0.312		
	Finishing to light cutting	 	Wiper	CNMA 432 W	CNMA120408W										0.031	0.500	0.188	0.203		
				CNMA 433 W	CNMA120412W											0.047	0.500	0.188	0.203	
				CNMA 434 W	CNMA120416W											0.063	0.500	0.188	0.203	
		 	-	CNMA 431	CNMA120404											0.016	0.500	0.188	0.203	
				CNMA 432	CNMA120408							●		●	●	●	0.031	0.500	0.188	0.203
				CNMA 433	CNMA120412									●	●	●	0.047	0.500	0.188	0.203
				CNMA 434	CNMA120416									●	●	●	0.063	0.500	0.188	0.203
			CNMA 435	CNMA120420										●	●	0.078	0.500	0.188	0.203	

● : Line up
▲ : To be discontinued



*-M,G: Without chipbreaker

Reference pages: External toolholder → C020 - Internal toolholder → D028 -
J-Series toolholder → G057 TungCap → K008 -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index

Insert NEGATIVE TYPE

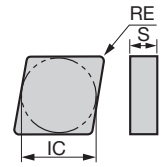
● : Continuous cutting
 ● : Light interrupted cutting
 ✽ : Heavy interrupted cutting

CN



**Rhombic, 80°
without hole**

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material	Ceramic	Others
P	Steel							
M	Stainless							
K	Cast iron		●●					
N	Non-ferrous							
S	Superalloy							
H	Hard material					●		



Application	Chipbreaker	Designation		Ceramic				Dimension (inch)			
		Inch	Metric	FX105	LX21	LX11	CX710	RE	IC	S	D1
-		CNGD 453	CNGD120712	●				0.047	0.500	0.313	-
		CNGD 454	CNGD120716	●				0.063	0.500	0.313	-
-		CNMN 432	CNMN120408	●				0.031	0.500	0.187	-
		CNMN 433	CNMN120412	●				0.047	0.500	0.187	-
-		CNGN 431	CNGN120404		●			0.016	0.500	0.187	-
		CNGN 432	CNGN120408	●	●			0.031	0.500	0.187	-
		CNGN 433	CNGN120412	●	●	●		0.047	0.500	0.187	-
		CNGN 434	CNGN120416	●	●	●		0.063	0.500	0.187	-
		CNGN 435	CNGN120420	●				0.079	0.500	0.187	-
		CNGN 452	CNGN120708	●	●			0.031	0.500	0.313	-
		CNGN 453	CNGN120712	●	●			0.047	0.500	0.313	-
CNGN 454	CNGN120716	●	●			0.063	0.500	0.313	-		
CNGN 455	CNGN120720		●			0.079	0.500	0.313	-		

● : Line up

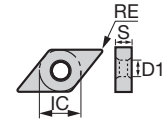
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

DN

 Rhombic, 55° with hole

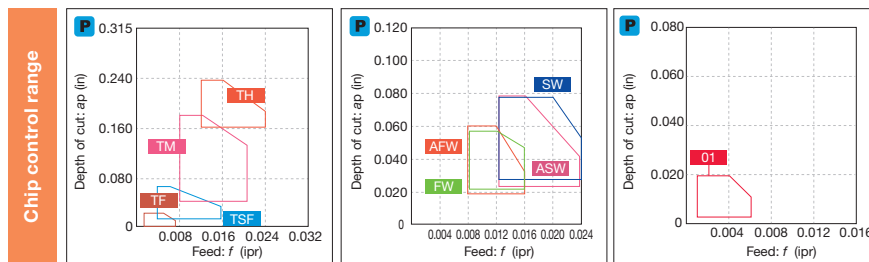
Material	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	AH120	AH8015	GH110	GT9530	AT9530	GT720	NS9530	NS520	TH10	
P Steel	●	◐	◑	◐	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M Stainless	◐	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K Cast iron	◐	◐	●	◐	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N Non-ferrous	◐	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S Superalloy	◐	◐	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H Hard material	◐	◐	◐	◐	◐	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation		Coated																			Coated cermet	Cermet	Uncoated	Dimension (inch)					
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	AH120	AH8015	GH110	GT9530	AT9530	GT720	NS9530	NS520	TH10	RE	IC	S	D1						
Precision finishing	TF	DNMG 330.5E TF	DNMG110402E-TF	●	●																					0.008	0.375	0.187	0.150		
		DNMG 431 TF	DNMG150404-TF																				●	●			0.016	0.500	0.187	0.203	
		DNMG 432 TF	DNMG150408-TF																				●	●			0.031	0.500	0.187	0.203	
	01	DNGG 330.5-01	DNGG110402-01																				●				0.008	0.375	0.187	0.150	
		DNGG 331-01	DNGG110404-01																				●	●			0.016	0.375	0.187	0.150	
		DNGG 332-01	DNGG110408-01																				●	●			0.031	0.375	0.187	0.150	
DNGG 430.5-01		DNGG150402-01																				●	●	●		0.008	0.500	0.187	0.203		
DNGG 431-01		DNGG150404-01																		●			●	●	●		0.016	0.500	0.187	0.203	
	DNGG 432-01	DNGG150408-01																	●			●	●	●		0.031	0.500	0.187	0.203		
Finishing	TSF	DNMG 330.5E TSF	DNMG110402E-TSF	●	●																					0.008	0.375	0.187	0.150		
		DNMG 331E TSF	DNMG110404E-TSF	●	●					▲	▲									●	●		●				0.016	0.375	0.187	0.150	
		DNMG 332E TSF	DNMG110408E-TSF	●	●					▲	▲									●	●		●				0.031	0.375	0.187	0.150	
		DNMG 333E TSF	DNMG110412E-TSF	●	●					▲	▲									●	●		●				0.047	0.375	0.187	0.150	
		DNMG 431 TSF	DNMG150404-TSF	●	●	●	●	▲	▲	▲	▲									●	●		●				0.016	0.500	0.187	0.203	
		DNMG 432 TSF	DNMG150408-TSF	●	●	●	●	▲	▲	▲	▲									●	●		●				0.031	0.500	0.187	0.203	
		DNMG 433 TSF	DNMG150412-TSF	●	●	●	●	▲	▲	▲	▲									●	●		●				0.047	0.500	0.187	0.203	
		DNMG 441 TSF	DNMG150604-TSF	●	●			▲	▲												●	●		●				0.016	0.500	0.250	0.203
		DNMG 442 TSF	DNMG150608-TSF	●	●	●	●	▲	▲	▲	▲										●	●		●				0.031	0.500	0.250	0.203
		DNMG 443 TSF	DNMG150612-TSF	●	●	●	●	▲	▲	▲	▲										●	●		●				0.047	0.500	0.250	0.203
Finishing (wiper)	FW	DNMG 331E FW	DNMG110404E-FW	●							▲															0.016	0.375	0.187	0.150		
		DNMG 332E FW	DNMG110408E-FW	●							▲																0.031	0.375	0.187	0.150	
		DNMG 431 FW	DNMG150404-FW	●							▲																0.016	0.500	0.187	0.203	
		DNMG 432 FW	DNMG150408-FW	●							▲																0.031	0.500	0.187	0.203	
		DNMG 441 FW	DNMG150604-FW	●							▲																0.016	0.500	0.250	0.203	
		DNMG 442 FW	DNMG150608-FW	●							▲																0.031	0.500	0.250	0.203	

* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW. Please contact a Tungaloy sales representative with questions.

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → **C040 -** Internal toolholder → **D060 -**
 J-Series toolholder → **G059** TungCap → **C048, K012 -**



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

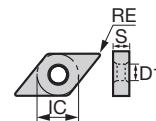
Insert NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 * : Heavy interrupted cutting

DN

Rhombic, 55° with hole

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material	Coated	Coated cermet	Cermet	Uncoated
P	●●●●●●●●	●●	●●	●●●●●●●●	●●	●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●
M	●●	●●●●●●●●	●●	●●	●●●●●●●●	●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●
K	●●	●●	●●●●●●●●	●●●●●●●●	●●	●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●
N	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●
S	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●
H	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●



Application	Chipbreaker	Designation	Coated												Coated cermet	Cermet	Uncoated	Dimension (inch)												
			Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105				T5115	AH8005	AH8015	AH8015	AH8015	GH330	GT9530	AT9530	NS9530	NS520	TH10	RE	IC
Finishing		ZF DNMG 331E ZF	DNMG110404E-ZF	●●	●●	●●	●●	●●	●●	●●															0.016	0.375	0.187	0.150		
		DNMG 431 ZF	DNMG150404-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.016	0.500	0.187	0.203	
		DNMG 432 ZF	DNMG150408-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.031	0.500	0.187	0.203	
		DNMG 433 ZF	DNMG150412-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.047	0.500	0.187	0.203	
		DNMG 441 ZF	DNMG150604-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.016	0.500	0.250	0.203	
		DNMG 442 ZF	DNMG150608-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.031	0.500	0.250	0.203	
		DNMG 443 ZF	DNMG150612-ZF	●●	●●	●●	●●	●●	●●	●●	●●															0.047	0.500	0.250	0.203	
Finishing		11 DNMG 331-11	DNMG110404-11																						0.016	0.375	0.187	0.150		
		DNMG 332-11	DNMG110408-11																							0.031	0.375	0.187	0.150	
		DNMG 431-11	DNMG150404-11																●							0.016	0.500	0.187	0.203	
		DNMG 432-11	DNMG150408-11	●			▲																			0.031	0.500	0.187	0.203	
Finishing (for mild steel)		17 DNMG 431-17	DNMG150404-17																						0.016	0.500	0.187	0.203		
		DNMG 432-17	DNMG150408-17																							0.031	0.500	0.187	0.203	
Finishing		SF DNMG 431 SF	DNMG150404-SF																							0.016	0.500	0.187	0.203	
		DNMG 432 SF	DNMG150408-SF																							0.031	0.500	0.187	0.203	
		DNMG 441 SF	DNMG150604-SF																							0.016	0.500	0.250	0.203	
		DNMG 442 SF	DNMG150608-SF																							0.031	0.500	0.250	0.203	
		CF DNMG 431 CF	DNMG150404-CF																								0.016	0.500	0.187	0.203
		DNMG 432 CF	DNMG150408-CF																								0.031	0.500	0.187	0.203
		DNMG 433 CF	DNMG150412-CF																								0.047	0.500	0.187	0.203
		DNMG 441 CF	DNMG150604-CF																								0.016	0.500	0.250	0.203
		DNMG 442 CF	DNMG150608-CF																								0.031	0.500	0.250	0.203
		DNMG 443 CF	DNMG150612-CF																								0.047	0.500	0.250	0.203
Finishing		HRF DNMG 431 HRF	DNMG150404-HRF																							0.016	0.500	0.187	0.203	
		DNMG 432 HRF	DNMG150408-HRF																							0.031	0.500	0.187	0.203	
		DNMG 441 HRF	DNMG150604-HRF																							0.016	0.500	0.250	0.203	
		DNMG 442 HRF	DNMG150608-HRF																							0.031	0.500	0.250	0.203	

● : Line up
 ▲ : To be discontinued

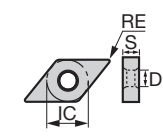
Insert NEGATIVE TYPE


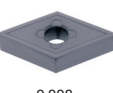
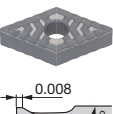
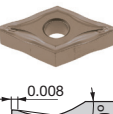
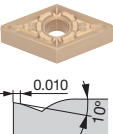
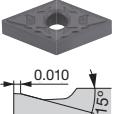
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

DN

 Rhombic, 55° with hole

	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material	T9215	T9115	T6120	T6130	T515	T5105	T5115	T5125	AH630	AH645	AH8005	AH8015	AH110	AH120	GH330	GT9530	NS9530	TH10
P Steel	●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●											●●	●●	●●	●●	●●	●●	●●	
M Stainless	●●	●●	●●	●●	●●	●●											●●	●●	●●	●●	●●	●●	●●	
K Cast iron	●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●											●●	●●	●●	●●	●●	●●	●●	
N Non-ferrous	●●	●●	●●	●●	●●	●●											●●	●●	●●	●●	●●	●●	●●	
S Superalloy	●●	●●	●●	●●	●●	●●											●●	●●	●●	●●	●●	●●	●●	
H Hard material	●●	●●	●●	●●	●●	●●											●●	●●	●●	●●	●●	●●	●●	



Application	Chipbreaker	Designation		Coated																				Coated cermet	Cer- met	Un- coated	Dimension (inch)						
		Inch	Metric	T9215	T9115	T6120	T6130	T515	T5105	T5115	T5125	AH630	AH645	AH8005	AH8015	AH110	AH120	GH330	GT9530	NS9530	TH10	RE	IC				S	D1					
Medium cutting		28	DNMG 431-28	DNMG150404-28														●	●							0.016	0.500	0.187	0.203				
			DNMG 432-28	DNMG150408-28															●	●	●	●					0.031	0.500	0.187	0.203			
			DNMG 441-28	DNMG150604-28																●	●							0.016	0.500	0.250	0.203		
			DNMG 442-28	DNMG150608-28																●	●							0.031	0.500	0.250	0.203		
		33	DNMG 431-33	DNMG150404-33																	●						0.016	0.500	0.187	0.203			
			DNMG 432-33	DNMG150408-33																		●			●		0.031	0.500	0.187	0.203			
		37	DNMG 431-37	DNMG150404-37																						●	0.016	0.500	0.187	0.203			
			DNMG 432-37	DNMG150408-37																				●		●	0.031	0.500	0.187	0.203			
			DNMG 442-37	DNMG150608-37	● ▲																						0.031	0.500	0.250	0.203			
	Medium cutting		38	DNMG 433-38	DNMG150412-38	● ▲																					0.047	0.500	0.187	0.203			
			Parallel	DNMG 431 R	DNMG150404R																						●	●	0.016	0.500	0.187	0.203	
				DNMG 431 L	DNMG150404L																							●	●	0.016	0.500	0.187	0.203
				DNMG 432 R	DNMG150408R																								●	0.031	0.500	0.187	0.203
DNMG 432 L		DNMG150408L																									●	0.031	0.500	0.187	0.203		
		SM	DNMG 331E SM	DNMG110404E-SM		●	●																				0.016	0.375	0.187	0.150			
			DNMG 332E SM	DNMG110408E-SM		●	●																				0.031	0.375	0.187	0.150			
			DNMG 431 SM	DNMG150404-SM		●	●											●	●								0.016	0.500	0.187	0.203			
			DNMG 432 SM	DNMG150408-SM		●	●											●	●								0.031	0.500	0.187	0.203			
			DNMG 433 SM	DNMG150412-SM		●	●											●	●								0.047	0.500	0.187	0.203			
		DNMG 441 SM	DNMG150604-SM		●	●											●	●								0.016	0.500	0.250	0.203				
Medium cutting		CM	DNMG 431 CM	DNMG150404-CM					●	●	●	●														0.016	0.500	0.187	0.203				
			DNMG 432 CM	DNMG150408-CM					●	●	●	●														0.031	0.500	0.187	0.203				
			DNMG 433 CM	DNMG150412-CM					●	●	●	●														0.047	0.500	0.187	0.203				
			DNMG 441 CM	DNMG150604-CM					●	●	●	●														0.016	0.500	0.250	0.203				
			DNMG 442 CM	DNMG150608-CM					●	●	●	●														0.031	0.500	0.250	0.203				

● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C040 - Internal toolholder → D060 -
J-Series toolholder → G059 TungCap → C048, K012 -

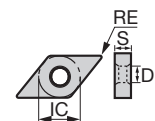
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

DN

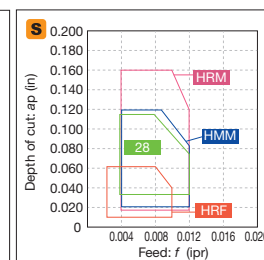
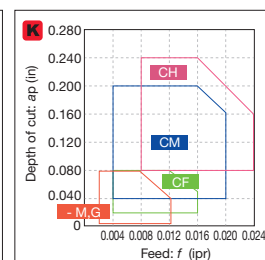
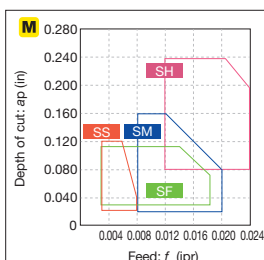
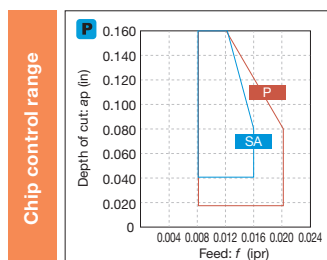
Rhombic, 55° with hole

P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless					◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
K	Cast iron									◐	◐	◐	◐	◐	◐	◐	◐
N	Non-ferrous																
S	Superalloy									◐	◐	◐	◐	◐	◐	◐	◐
H	Hard material																



Application	Chipbreaker	Designation		Coated										Cermet	Un-coated	Dimension (inch)									
		Inch	Metric	T9225	T9235	T9125	T9135	T6130	AH630	AH645	AH120	AH8005	AH8015			AH905	GH110	GH330	NS9530	TH10	RE	IC	S	D1	
Medium cutting		P	DNGG 430.5 R-P	DNGG150402R-P													●	0.008	0.500	0.187	0.203				
			DNGG 430.5 L-P	DNGG150402L-P															●	0.008	0.500	0.187	0.203		
			DNGG 431 R-P	DNGG150404R-P																●	0.016	0.500	0.187	0.203	
			DNGG 431 L-P	DNGG150404L-P																●	0.016	0.500	0.187	0.203	
			DNGG 432 R-P	DNGG150408R-P																	●	0.031	0.500	0.187	0.203
			DNGG 432 L-P	DNGG150408L-P																	●	0.031	0.500	0.187	0.203
Finishing to medium cutting		HRM	DNMG 431 HRM	DNMG150404-HRM								●	●						0.016	0.500	0.187	0.203			
			DNMG 432 HRM	DNMG150408-HRM									●	●						0.031	0.500	0.187	0.203		
			DNMG 433 HRM	DNMG150412-HRM										●	●						0.047	0.500	0.187	0.203	
			DNMG 441 HRM	DNMG150604-HRM											●	●					0.016	0.500	0.250	0.203	
			DNMG 442 HRM	DNMG150608-HRM												●	●					0.031	0.500	0.250	0.203
			DNMG 443 HRM	DNMG150612-HRM													●	●				0.047	0.500	0.250	0.203
Medium cutting		HMM	DNMG 431 HMM	DNMG150404-HMM															0.016	0.500	0.187	0.203			
			DNMG 432 HMM	DNMG150408-HMM																	0.031	0.500	0.187	0.203	
			DNMG 433 HMM	DNMG150412-HMM																		0.047	0.500	0.187	0.203
			DNMG 431 SA	DNMG150404-SA											●						0.016	0.500	0.187	0.203	
			DNMG 432 SA	DNMG150408-SA											●							0.031	0.500	0.187	0.203
			DNMG 441 SA	DNMG150604-SA												●						0.016	0.500	0.250	0.203
Medium cutting		S	DNMG 431 R-S	DNMG150404R-S	●	●	▲	▲	●	●	●									0.016	0.500	0.187	0.203		
			DNMG 431 L-S	DNMG150404L-S	●	●	▲	▲	●	●	●											0.016	0.500	0.187	0.203
			DNMG 432 R-S	DNMG150408R-S	●	●	▲	▲	●	●	●											0.031	0.500	0.187	0.203
			DNMG 432 L-S	DNMG150408L-S	●	●	▲	▲	●	●	●											0.031	0.500	0.187	0.203
			DNMG 441 R-S	DNMG150604R-S	●	●	▲	▲	●	●	●											0.016	0.500	0.250	0.203
			DNMG 441 L-S	DNMG150604L-S	●	●	▲	▲	●	●	●											0.016	0.500	0.250	0.203
			DNMG 442 R-S	DNMG150608R-S	●	●	▲	▲	●	●	●					●						0.031	0.500	0.250	0.203
			DNMG 442 L-S	DNMG150608L-S	●	●	▲	▲	●	●	●											0.031	0.500	0.250	0.203

- : Line up
- ▲ : To be discontinued



*-M,G: Without chipbreaker

Reference pages: External toolholder → C046 - Internal toolholder → D060 -
 J-Series toolholder → G059 TungCap → C048, K012 -

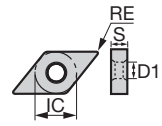
Insert NEGATIVE TYPE

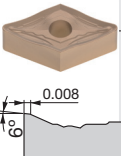
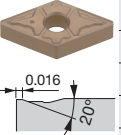
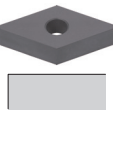
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

DN

P	Steel	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱	●●●✱
M	Stainless	●●																					
K	Cast iron	●●		●●											●●	●●		●●	●●	●●	●●	●●	●●
N	Non-ferrous																						●●
S	Superalloy																					●●	
H	Hard material																						

 Rhombic, 55° with hole



Application	Chipbreaker	Designation	Coated															Coated	Cer-	Un-	Dimension (inch)					
																		cermet	coated		RE	IC	S	D1		
			Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	AH8015	T515	T5105	T5115	T5125	AH120	GT720	NS520	TH10				
Medium to heavy cutting (single side)		57	DNMM 442-57	DNMM150608-57	●			▲														0.031	0.500	0.250	0.203	
			DNMM 443-57	DNMM150612-57	●			▲															0.047	0.500	0.250	0.203
Medium to heavy cutting		TH	DNMG 432 TH	DNMG150408-TH	●	●	●	▲	▲	▲			●	●								0.031	0.500	0.187	0.203	
			DNMG 433 TH	DNMG150412-TH	●	●	●	▲	▲	▲				●	●								0.047	0.500	0.187	0.203
			DNMG 434 TH	DNMG150416-TH	●	●		▲	▲														0.063	0.500	0.187	0.203
			DNMG 442 TH	DNMG150608-TH	●	●	●	▲	▲	▲									●				0.031	0.500	0.250	0.203
			DNMG 443 TH	DNMG150612-TH	●	●	●	▲	▲	▲									●				0.047	0.500	0.250	0.203
			DNMG 444 TH	DNMG150616-TH	●	●	●	▲	▲	▲													0.063	0.500	0.250	0.203
		THS	DNMG 432 THS	DNMG150408-THS	●	●	●	▲	▲	▲													0.031	0.500	0.187	0.203
			DNMG 433 THS	DNMG150412-THS	●	●	●	▲	▲	▲													0.047	0.500	0.187	0.203
			DNMG 434 THS	DNMG150416-THS	●	●		▲	▲														0.063	0.500	0.187	0.203
			DNMG 442 THS	DNMG150608-THS	●	●	●	▲	▲	▲													0.031	0.500	0.250	0.203
			DNMG 443 THS	DNMG150612-THS	●	●	●	▲	▲	▲													0.047	0.500	0.250	0.203
			DNMG 444 THS	DNMG150616-THS	●	●		▲	▲														0.063	0.500	0.250	0.203
		SH	DNMG 432 SH	DNMG150408-SH							●	●	●										0.031	0.500	0.187	0.203
			DNMG 433 SH	DNMG150412-SH							●	●	●										0.047	0.500	0.187	0.203
		DNMG 434 SH	DNMG150416-SH							●	●	●										0.063	0.500	0.187	0.203	
		DNMG 442 SH	DNMG150608-SH							●	●	●										0.031	0.500	0.250	0.203	
		DNMG 443 SH	DNMG150612-SH							●	●	●										0.047	0.500	0.250	0.203	
	CH	DNMG 431 CH	DNMG150404-CH											●	●	●						0.016	0.500	0.187	0.203	
		DNMG 432 CH	DNMG150408-CH											●	●	●	●					0.031	0.500	0.187	0.203	
		DNMG 433 CH	DNMG150412-CH											●	●	●	●					0.047	0.500	0.187	0.203	
		DNMG 441 CH	DNMG150604-CH												●	●	●					0.016	0.500	0.250	0.203	
		DNMG 442 CH	DNMG150608-CH												●	●	●					0.031	0.500	0.250	0.203	
		DNMG 443 CH	DNMG150612-CH												●	●	●					0.047	0.500	0.250	0.203	
Finishing to medium cutting		-	DNMA 331E	DNMA110404E										●								0.016	0.375	0.187	0.150	
			DNMA 332E	DNMA110408E											●								0.031	0.375	0.187	0.150
			DNMA 333E	DNMA110412E											●								0.047	0.375	0.187	0.150
			DNMA 431	DNMA150404											●	●	●	●		●	●	●	0.016	0.500	0.187	0.203
			DNMA 432	DNMA150408											●	●	●	●			●		0.031	0.500	0.187	0.203
			DNMA 433	DNMA150412												●	●	●					0.047	0.500	0.187	0.203
			DNMA 441	DNMA150604											●	●	●	●					0.016	0.500	0.250	0.203
			DNMA 442	DNMA150608											●	●	●	●					0.031	0.500	0.250	0.203
			DNMA 443	DNMA150612												●	●	●					0.047	0.500	0.250	0.203

● : Line up
 ▲ : To be discontinued

Reference pages: External toolholder → C040 - Internal toolholder → D060 -
 J-Series toolholder → G059 TungCap → C048, K012 -

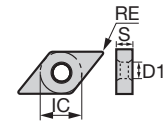
Insert NEGATIVE TYPE

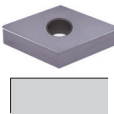
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

DN

 Rhombic, 55° with hole

P	Steel	●	●																	
M	Stainless																			
K	Cast iron	●	●				●	●												
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			●

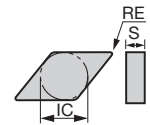


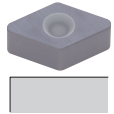
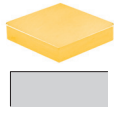
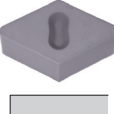
Application	Chipbreaker	Designation		Cermet	Uncoated	Ceramic			Dimension (inch)				
		Inch	Metric	NS520	TH10	FX105	LX21	LX11	RE	IC	S	D1	
Finishing to medium cutting		-	DNGA 431	DNGA150404	●	●				0.016	0.500	0.187	0.203
			DNGA 432	DNGA150408	●	●				0.031	0.500	0.187	0.203
			DNGA 433	DNGA150412			●	●	●	0.047	0.500	0.187	0.203
			DNGA 434	DNGA150416			●			0.063	0.500	0.187	0.203
			DNGA 441	DNGA150604					●	0.016	0.500	0.250	0.203
			DNGA 442	DNGA150608					●	0.031	0.500	0.250	0.203
			DNGA 443	DNGA150612					●	0.047	0.500	0.250	0.203
			DNGA 444	DNGA150616					●	0.063	0.500	0.250	0.203
			DNGA 445	DNGA150620					●	0.079	0.500	0.250	0.203

DN

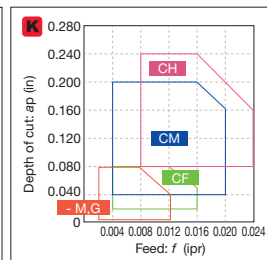
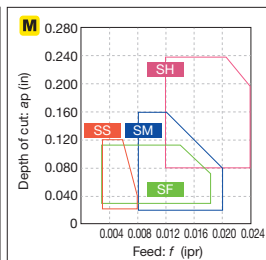
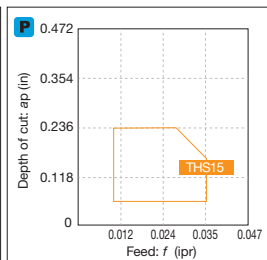
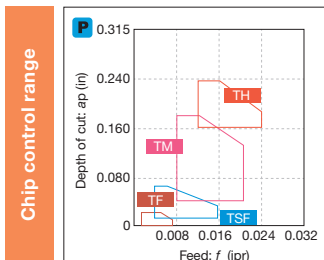
 Rhombic, 55° without hole

P	Steel																			
M	Stainless																			
K	Cast iron	●	●																	
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			●



Application	Chipbreaker	Designation		Ceramic		Dimension (inch)						
		Inch	Metric	FX105	LX11	RE	IC	S	D1			
Finishing to medium cutting		-	DNGD 452	DNGD150708	●				0.031	0.500	0.313	-
			DNGD 453	DNGD150712	●				0.047	0.500	0.313	-
			DNGD 454	DNGD150716	●				0.063	0.500	0.313	-
		-	DNGN 431	DNGN150404		●			0.016	0.500	0.187	-
			DNGN 432	DNGN150408		●			0.031	0.500	0.187	-
			DNGN 433	DNGN150412		●	●		0.047	0.500	0.187	-
			DNGN 434	DNGN150416		●			0.063	0.500	0.187	-
			DNGN 452	DNGN150708		●			0.031	0.500	0.313	-
			DNGN 453	DNGN150712		●			0.047	0.500	0.313	-
			DNGN 454	DNGN150716		●			0.063	0.500	0.313	-
		-	DNMX 454	DNMX150716		●			0.063	0.500	0.313	-

● : Line up



*-M,G: Without chipbreaker

Reference pages: DNGA...: External toolholder → C046 -, Internal toolholder → D060 -, J-Series toolholder → G059, TungCap → C048, K012 - DNGD...: External toolholder → C0 -

Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

Insert NEGATIVE TYPE

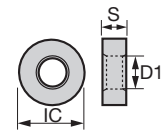
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

RN



Round,
with hole

	P	M	K	N	S	H
Steel	● ● ● ◐ ⊛	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Stainless	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Cast iron	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Non-ferrous	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Superalloy	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Hard material	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●



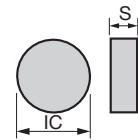
Application	Chipbreaker	Designation		Coated						Uncoated	Ceramic	Dimension (inch)						
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH120	TH10	LX11	RE	IC	S	D1
Heavy cutting		61	RNMG 32-61	RNMG090300-61	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●	-	0.375	0.125	0.150	
			RNMG 43-61	RNMG120400-61	● ●	● ●	● ●	● ●	▲ ▲	▲ ▲	▲ ▲	● ●	● ●		-	0.500	0.187	0.203
			RNMG 54-61	RNMG150600-61	● ●	● ●	● ●	● ●	▲ ▲	▲ ▲					-	0.625	0.250	0.253
			RNMG 64-61	RNMG190600-61	● ●	● ●	● ●	● ●	▲ ▲	▲ ▲	▲ ▲				-	0.750	0.250	0.312
			RNMG 86-61	RNMG250900-61	● ●	● ●			▲ ▲	▲ ▲					-	1.000	0.375	0.363
Finishing to medium cutting		-	RNGA 43	RNGA120400									● ●	-	0.500	0.187	0.203	

RN



Round,
without hole

	P	M	K	N	S	H
Steel	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Stainless	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Cast iron	● ●	● ●	● ●	● ●	● ●	● ●
Non-ferrous	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Superalloy	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Hard material	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●



Application	Chipbreaker	Designation		Ceramic					Dimension (inch)								
		Inch	Metric	FX105	LX11	TW43	TS200	TS300	RE	IC	S	D1					
Finishing to medium cutting		-	RNGN 43	RNGN120400	● ●	● ●							-	0.500	0.187	-	
			RNGN 45	RNGN120700	● ●	● ●	● ●							-	0.500	0.313	-
			RNGN 45-E	-				● ●	● ●					-	0.500	0.187	-
			RNGN 45-T1	-					● ●	● ●				-	0.500	0.187	-
			RNGN 43 T6	-				● ●						-	0.500	0.187	-

- : Line up
- ▲ : To be discontinued

Reference pages: RNMG..., RNGA...:External toolholder → **C084** -

Insert NEGATIVE TYPE

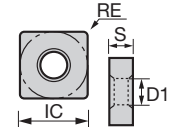
● : Continuous cutting
● : Light interrupted cutting
⬮ : Heavy interrupted cutting

SN



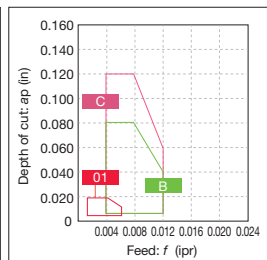
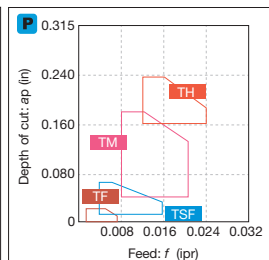
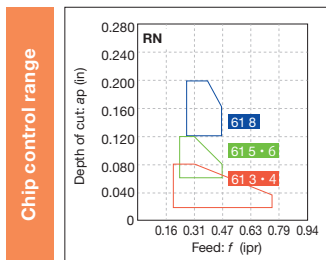
Square, 90° with hole

P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated				Coated cemet		Cermet			Dimension (inch)											
			T9215	T9225	T9115	T9125	GT9530	AT9530	NS9530	NS520	X407	RE	IC	S	D1								
			Inch	Metric																			
Precision finishing	TF	SNMG 431 TF	SNMG120404-TF								●								0.016	0.500	0.187	0.203	
		SNMG 432 TF	SNMG120408-TF									●								0.031	0.500	0.187	0.203
	01	SNGG 320.5-01	SNGG090302-01									●	●							0.008	0.375	0.125	0.150
		SNGG 321-01	SNGG090304-01									●								0.016	0.375	0.125	0.150
		SNGG 322-01	SNGG090308-01									●	●							0.031	0.375	0.125	0.150
		SNGG 430.5-01	SNGG120402-01									●								0.008	0.500	0.187	0.203
		SNGG 431-01	SNGG120404-01									●								0.016	0.500	0.187	0.203
		SNGG 432-01	SNGG120408-01										●	●						0.031	0.500	0.187	0.203
	B ~ D	SNGG 321 R-B	SNGG090304R-B						●			●	●							0.016	0.375	0.125	0.150
		SNGG 321 L-B	SNGG090304L-B						●			●	●							0.016	0.375	0.125	0.150
		SNGG 322 R-B	SNGG090308R-B									●	●							0.031	0.375	0.125	0.150
		SNGG 322 L-B	SNGG090308L-B									●	●							0.031	0.375	0.125	0.150
		SNGG 431 R-C	SNGG120404R-C						●			●		●						0.016	0.500	0.187	0.203
		SNGG 431 L-C	SNGG120404L-C						●			●		●						0.016	0.500	0.187	0.203
		SNGG 432 R-C	SNGG120408R-C									●								0.031	0.500	0.187	0.203
SNGG 432 L-C		SNGG120408L-C									●		●						0.031	0.500	0.187	0.203	
SNGG 432 R-D		SNGG120408R-D									●								0.031	0.500	0.187	0.203	
SNGG 432 L-D		SNGG120408L-D									●								0.031	0.500	0.187	0.203	
Finishing	TSF	SNMG 431 TSF	SNMG120404-TSF	●	●	▲	▲			●	●								0.016	0.500	0.187	0.203	
		SNMG 432 TSF	SNMG120408-TSF	●	●	▲	▲			●	●								0.031	0.500	0.187	0.203	
		SNMG 433 TSF	SNMG120412-TSF	●	●	▲	▲													0.047	0.500	0.187	0.203
	SNMG 433 TSF	SNMG120412-TSF																					

● : Line up
▲ : To be discontinued




Reference pages: External toolholder → **C098** - Internal toolholder → **D047** -

A B C D E F G H I J K L M

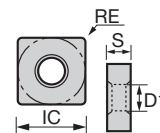
Insert NEGATIVE TYPE


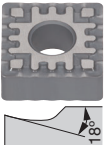
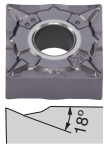




- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

SN

 Square, 90° with hole

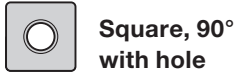
	P	M	K	N	S	H
Steel	●●●●●	●●	●●●●●	●●●●●	●●●●●	●●●●●
Stainless	●●	●●	●●	●●	●●	●●
Cast iron	●●●●●	●●	●●●●●	●●●●●	●●●●●	●●●●●
Non-ferrous	●●●●●	●●	●●	●●	●●	●●
Superalloy	●●	●●	●●	●●	●●	●●
Hard material	●●	●●	●●	●●	●●	●●



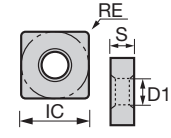
Application	Chipbreaker	Designation		Coated														Coated cermet	Cermet	Uncoated	Dimension (inch)					
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	TH10	RE	IC	S	D1
Finishing		11	SNMG 431-11	SNMG120404-11																		●	0.016	0.500	0.187	0.203
			SNMG 432-11	SNMG120408-11																			●●	0.031	0.500	0.187
Finishing (for mild steel)		17	SNMG 432-17	SNMG120408-17																		●	0.031	0.500	0.187	0.203
			SNMG 431 SF	SNMG120404-SF									●●●											0.016	0.500	0.187
Finishing			SNMG 432 SF	SNMG120408-SF								●●●											0.031	0.500	0.187	0.203
		CF	SNMG 432 CF	SNMG120408-CF													●●							0.031	0.500	0.187
Finishing			SNMG 433 CF	SNMG120412-CF												●●							0.047	0.500	0.187	0.203
		HRF	SNMG 432 HRF	SNMG120408-HRF															●●					0.031	0.500	0.187
Finishing			SNMG 433 HRF	SNMG120412-HRF															●●				0.047	0.500	0.187	0.203
		TS	SNMG 431 TS	SNMG120404-TS	●●				▲▲											●●●				0.016	0.500	0.187
Finishing			SNMG 432 TS	SNMG120408-TS	●●●●●			▲▲▲▲											●●●				0.031	0.500	0.187	0.203
			SNMG 433 TS	SNMG120412-TS	●●●●●			▲▲▲▲																0.047	0.500	0.187
High feed, small depth of cut		AS	SNMG 431 AS	SNMG120404-AS																		●	0.016	0.500	0.187	0.203
			SNMG 432 AS	SNMG120408-AS	●●			▲▲															●	0.031	0.500	0.187

- : Line up
- ▲ : To be discontinued

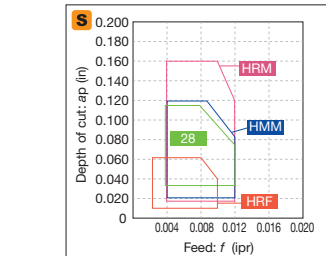
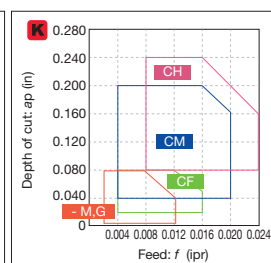
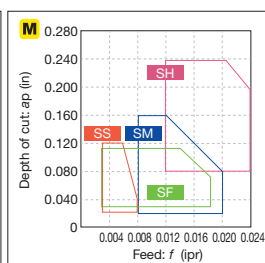
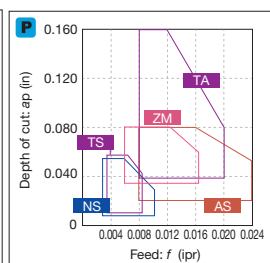
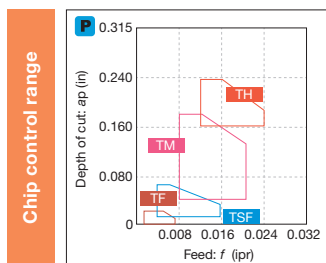
SN



Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●●●●					
M		●●				
K			●●●●			
N				●●●●		
S					●●	
H						●●



Application	Designation		Coated													Dimension (inch)					
	Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GH330	RE	IC	S	D1	
	Chipbreaker		●	◐	✳	●	◐	✳	●	◐	✳	●	◐	✳	●	◐					
Finishing	NS	SNMG 432 NS SNMG120408-NS		●	●			▲	▲									0.031	0.500	0.187	0.203
	SS	SNMG 431 SS SNMG120404-SS										●	●	●	●	●		0.016	0.500	0.187	0.203
		SNMG 432 SS SNMG120408-SS										●	●	●	●	●		0.031	0.500	0.187	0.203
		SNMG 433 SS SNMG120412-SS										●	●	●	●			0.047	0.500	0.187	0.203
Medium cutting	TM	SNMG 321 TM SNMG090304-TM		●	●	●			▲	▲	▲							0.016	0.375	0.125	0.150
		SNMG 322 TM SNMG090308-TM		●	●	●			▲	▲	▲							0.031	0.375	0.125	0.150
	TA	SNMG 431 TM SNMG120404-TM								▲	▲					●		0.016	0.500	0.187	0.203
		SNMG 432 TM SNMG120408-TM		●	●	●			▲	▲	▲					●		0.031	0.500	0.187	0.203
		SNMG 433 TM SNMG120412-TM		●	●	●			▲	▲	▲					●		0.047	0.500	0.187	0.203
		SNMG 434 TM SNMG120416-TM		●	●	●			▲	▲	▲							0.063	0.500	0.187	0.203
		SNMG 542 TM SNMG150608-TM		●					▲									0.031	0.625	0.250	0.250
		SNMG 543 TM SNMG150612-TM		●					▲							●		0.047	0.625	0.250	0.250
		SNMG 642 TM SNMG190608-TM		●					▲							●		0.031	0.750	0.250	0.312
SNMG 643 TM SNMG190612-TM			●					▲							●		0.047	0.750	0.250	0.312	
Medium cutting	TA	SNMG 432 TA SNMG120408-TA		●	●													0.031	0.500	0.187	0.203
		SNMG 433 TA SNMG120412-TA		●	●													0.047	0.500	0.187	0.203
Finishing to medium cutting	ZM	SNMG 432 ZM SNMG120408-ZM		●	●	●			▲	▲	▲							0.031	0.500	0.187	0.203
		SNMG 433 ZM SNMG120412-ZM		●	●	●			▲	▲	▲							0.047	0.500	0.187	0.203



● : Line up
▲ : To be discontinued

*-M,G: Without chipbreaker

Reference pages: External toolholder → C098 - Internal toolholder → D047 -



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

Insert NEGATIVE TYPE

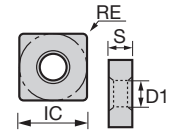
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

SN



Square, 90° with hole

	P	M	K	N	S	H	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5105	T5115	T5125	AH110	AH120	AH905	GH330	GT720	NS9530	NS520	TH10	Coated cermet	Cermet	Un-coated	
Steel	●	◐	◐	◐	◐	◐	●	●	◐	✱	●	●	◐	◐	✱	✱					●	◐	◐	◐	◐	◐	◐	◐	◐	◐	
Stainless		●	◐	◐	◐	◐										◐					●	◐	◐	◐	◐	◐	◐	◐	◐	◐	
Cast iron	◐	◐	◐	◐	◐	◐					◐	◐	◐	◐		◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	
Non-ferrous				◐	◐	◐																									●
Superalloy					◐	◐																								◐	◐
Hard material																															



Application	Chipbreaker	Designation	Coated															Cermet	Un-coated	Dimension (inch)																	
			Inch		Metric		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5105			T5115	T5125	AH110	AH120	AH905	GH330	GT720	NS9530	NS520	TH10	RE	IC	S	D1				
Medium cutting	DM	SNMG 432 DM	SNMG120408-DM	●	●																									●	●	0.031	0.500	0.187	0.203		
		SNMG 433 DM	SNMG120412-DM	●	●	●																									●	●	0.047	0.500	0.187	0.203	
	All-round	SNMG 321	SNMG090304	●	●							▲	▲																	●	●	0.016	0.375	0.125	0.150		
		SNMG 322	SNMG090308	●	●	●						▲	▲	▲																●	●	0.031	0.375	0.125	0.150		
		SNMG 431	SNMG120404	●	●	●						▲	▲	▲				●	●	●	●	●	●						●	●	●	●	0.016	0.500	0.187	0.203	
		SNMG 432	SNMG120408	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	0.031	0.500	0.187	0.203
		SNMG 433	SNMG120412	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●					●	●	●	●	0.047	0.500	0.187	0.203	
		SNMG 434	SNMG120416	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.063	0.500	0.187	0.203	
		SNMG 435	SNMG120420	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.079	0.500	0.187	0.203	
		SNMG 543	SNMG150612	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.047	0.625	0.250	0.250	
		SNMG 544	SNMG150616	●	●			▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.063	0.625	0.250	0.250	
		SNMG 643	SNMG190612	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.047	0.750	0.250	0.312	
		SNMG 644	SNMG190616	●	●	●	●	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	●									0.063	0.750	0.250	0.312	
		SNMG 856	SNMG250724	●	●	●		▲	▲	▲	▲	▲	▲	▲																			0.094	1.000	0.313	0.359	
		SNMG 866	SNMG250924					▲	▲	▲	▲	▲	▲	▲																			0.094	1.000	0.375	0.359	
Finishing to medium cutting	27	SNMG 432-27	SNMG120408-27										▲																●		0.031	0.500	0.187	0.203			
		SNMG 433-27	SNMG120412-27										▲																			0.047	0.500	0.187	0.203		
Medium cutting	33	SNMG 432-33	SNMG120408-33	●	●							▲	▲																			0.031	0.500	0.187	0.203		
		SNMG 433-33	SNMG120412-33										▲																			0.047	0.500	0.187	0.203		
		SNMG 543-33	SNMG150612-33	●	●							▲	▲																				0.047	0.625	0.250	0.250	
		SNMG 644-33	SNMG190616-33									●	●	▲	▲																		0.063	0.750	0.250	0.312	
Medium cutting	37	SNMG 432-37	SNMG120408-37	●								▲																	●	●	0.031	0.500	0.187	0.203			
		SNMG 433-37	SNMG120412-37	●									▲																			0.047	0.500	0.187	0.203		

● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C098 - Internal toolholder → D047 -

Insert NEGATIVE TYPE

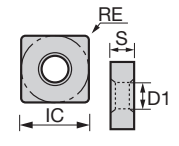
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

SN



Square, 90° with hole

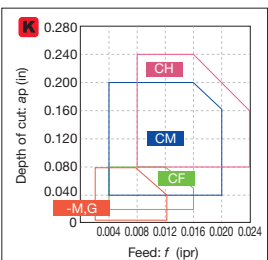
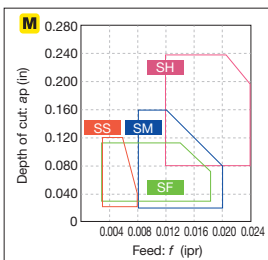
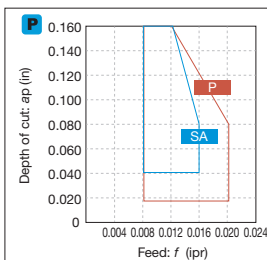
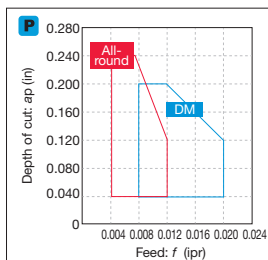
P	Steel	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
K	Cast iron	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
S	Superalloy	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
H	Hard material	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑



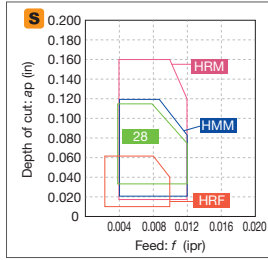
Application	Designation		Coated															Un-coated		Dimension (inch)					
	Inch	Metric	T6120	T6130	AH630	AH645	AH120	T515	T5105	T5115	T5125	AH8005	AH8015	GH110	AH905	GH330	AH725	TH10	KS20	RE	IC	S	D1		
	Chipbreaker																								
Medium cutting	SM 	SNMG 432 SM	SNMG120408-SM	●	●	●	●											●			0.031	0.500	0.187	0.203	
		SNMG 433 SM	SNMG120412-SM	●	●	●	●															0.047	0.500	0.187	0.203
		SNMG 866 SM	SNMG250924-SM	●																		0.094	1.000	0.375	0.359
	CM 	SNMG 432 CM	SNMG120408-CM						●	●	●	●										0.031	0.500	0.187	0.203
		SNMG 433 CM	SNMG120412-CM						●	●	●	●											0.047	0.500	0.187
	P 	SNGG 321 R-P	SNGG090304R-P													●			●		0.016	0.375	0.125	0.150	
		SNGG 321 L-P	SNGG090304L-P													●			●		0.016	0.375	0.125	0.150	
		SNGG 322 R-P	SNGG090308R-P													●		●	●		0.031	0.375	0.125	0.150	
		SNGG 322 L-P	SNGG090308L-P													●		●	●		0.031	0.375	0.125	0.150	
		SNGG 431 R-P	SNGG120404R-P													●			●		0.016	0.500	0.187	0.203	
		SNGG 431 L-P	SNGG120404L-P													●			●		0.016	0.500	0.187	0.203	
		SNGG 432 R-P	SNGG120408R-P													●			●		0.031	0.500	0.187	0.203	
	SNGG 432 L-P	SNGG120408L-P													●			●		0.031	0.500	0.187	0.203		

● : Line up

Chip control range



*-M,G: Without chipbreaker



Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index



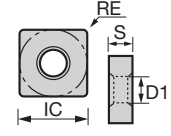
Insert NEGATIVE TYPE

- : Continuous cutting
- (with dot) : Light interrupted cutting
- ✱ : Heavy interrupted cutting

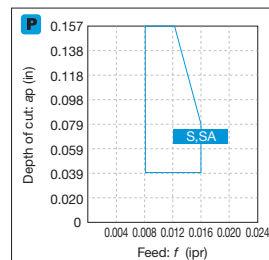
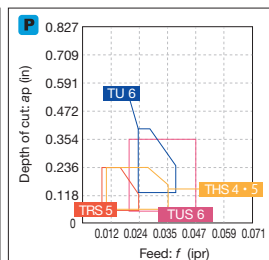
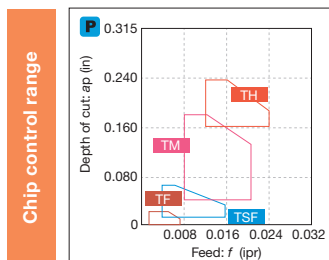
SN

Square, 90° with hole

P	Steel	●●●✱	✱	●●●✱	✱																	
M	Stainless	●●																				
K	Cast iron	●●			●●																	
N	Non-ferrous																					
S	Superalloy																					
H	Hard material																					



Application	Chipbreaker	Designation	Coated												Dimension (inch)			
			Inch		Metric		T9215	T9225	T9235	T9115	T9125	T9135	RE	IC	S	D1		
			Inch	Metric	T9215	T9225											T9235	T9115
Medium to heavy cutting (single side)		TRS	SNMM 543 TRS	SNMM150612-TRS	●	●	●	▲	▲	▲		0.047	0.625	0.250	0.250			
			SNMM 544 TRS	SNMM150616-TRS	●	●	●	▲	▲	▲		0.063	0.625	0.250	0.250			
			SNMM 644 TRS	SNMM190616-TRS	●	●	●	▲	▲	▲		0.063	0.750	0.250	0.312			
			SNMM 646 TRS	SNMM190624-TRS	●	●	●	▲	▲	▲		0.094	0.750	0.250	0.312			
			SNMM 866 TRS	SNMM250924-TRS	●	●	●	▲	▲	▲		0.094	1.000	0.375	0.359			
Heavy cutting (single side)		TU	SNMM 644 TU	SNMM190616-TU			●			▲		0.063	0.750	0.250	0.312			
			SNMM 646 TU	SNMM190624-TU			●	●		▲	▲		0.094	0.750	0.250	0.312		
			SNMM 856 TU	SNMM250724-TU			●	●		▲	▲		0.094	1.000	0.313	0.359		
			SNMM 866 TU	SNMM250924-TU	●	●				▲	▲		0.094	1.000	0.375	0.359		
Heavy cutting (single side)		TUS	SNMM 643 TUS	SNMM190612-TUS	●	●	●	▲	▲	▲		0.047	0.750	0.250	0.312			
			SNMM 644 TUS	SNMM190616-TUS	●	●	●	▲	▲	▲		0.063	0.750	0.250	0.312			
			SNMM 646 TUS	SNMM190624-TUS	●	●	●	▲	▲	▲		0.094	0.750	0.250	0.312			
			SNMM 856 TUS	SNMM250724-TUS	●	●	●	▲	▲	▲		0.094	1.000	0.313	0.359			
			SNMM 858 TUS	SNMM250732-TUS	●	●		▲	▲			0.126	1.000	0.313	0.359			
		SNMM 866 TUS	SNMM250924-TUS	●	●	●	▲	▲	▲		0.094	1.000	0.375	0.359				
		SNMM 868 TUS	SNMM250932-TUS	●	●		▲	▲			0.126	1.000	0.375	0.359				
		57	SNMM 432-57	SNMM120408-57	●	●		▲	▲			0.031	0.500	0.188	0.203			
			SNMM 544-57	SNMM150616-57			●			▲		0.063	0.625	0.250	0.250			
			SNMM 643-57	SNMM190612-57	●					▲		0.047	0.750	0.250	0.312			
Medium to heavy cutting (single side)		65	SNMM 643-65	SNMM190612-65			●			▲		0.047	0.750	0.250	0.312			
			SNMM 1066-65	SNMM310924-65			●			▲		0.094	1.250	0.375	0.346			



● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C098 - Internal toolholder → D047 -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

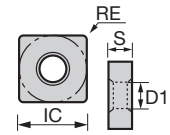
Insert NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

SN

Square, 90°
with hole

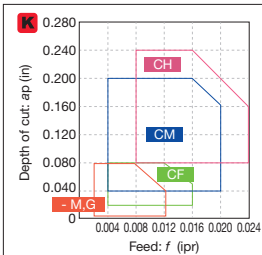
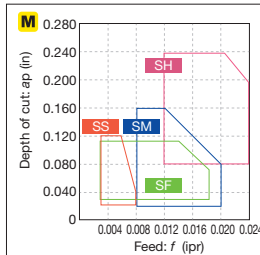
	P	M	K	N	S	H														
Steel	✱	●	●								●	●								
Stainless		●	●																	
Cast iron							●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous																				
Superalloy																				
Hard material																				



Application	Chipbreaker	Designation	Coated							Coated cermet	Cermet	Un-coated	Ceramic			Dimension (inch)							
			Inch		Metric		T6130	AH630	AH645	T515	T5105	T5115	T5125	GT720	NS520	TH10	FX105	LX21	LX11	RE	IC	S	D1
Medium to heavy cutting		SH	SNMG 432 SH	SNMG120408-SH	●	●	●												0.031	0.500	0.187	0.203	
			SNMG 433 SH	SNMG120412-SH	●	●	●													0.047	0.500	0.187	0.203
			SNMG 543 SH	SNMG150612-SH	●	●	●													0.047	0.625	0.250	0.250
			SNMG 544 SH	SNMG150616-SH	●	●	●													0.063	0.625	0.250	0.250
			SNMG 643 SH	SNMG190612-SH	●	●	●													0.047	0.750	0.250	0.312
			SNMG 644 SH	SNMG190616-SH	●	●	●													0.063	0.750	0.250	0.312
		CH	SNMG 432 CH	SNMG120408-CH						●	●	●								0.031	0.500	0.187	0.203
			SNMG 433 CH	SNMG120412-CH						●	●	●								0.047	0.500	0.187	0.203
			SNMG 434 CH	SNMG120416-CH						●	●	●								0.063	0.500	0.187	0.203
Finishing to medium cutting		-	SNMA 322	SNMA090308															0.031	0.375	0.125	0.150	
			SNMA 323	SNMA090312																0.047	0.375	0.125	0.150
			SNMA 431	SNMA120404										●						0.016	0.500	0.187	0.203
			SNMA 432	SNMA120408					●	●	●			●	●		●			0.031	0.500	0.187	0.203
			SNMA 433	SNMA120412					●	●	●			●	●		●			0.047	0.500	0.187	0.203
			SNMA 434	SNMA120416					●	●	●									0.063	0.500	0.187	0.203
			SNMA 543	SNMA150612																0.047	0.625	0.250	0.250
		SNMA 643	SNMA190612																0.047	0.750	0.250	0.312	
		-	SNGA 321	SNGA090304																0.016	0.375	0.125	0.150
			SNGA 431	SNGA120404										●						0.016	0.500	0.187	0.203
			SNGA 432	SNGA120408										●						0.031	0.500	0.187	0.203
			SNGA 433	SNGA120412																0.047	0.500	0.187	0.203
		SNGA 434	SNGA120416																0.063	0.500	0.187	0.203	

● : Line up

Chip control range



Reference pages: External toolholder → **C098** - Internal toolholder → **D047** -

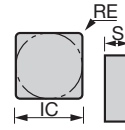
Insert NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 ✦ : Heavy interrupted cutting

SN

□ Square, 90°
 without hole

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●●	●●	●●	●●	●●	●●
M	●●	●●	●●	●●	●●	●●
K	●●	●●	●●	●●	●●	●●
N	●●	●●	●●	●●	●●	●●
S	●●	●●	●●	●●	●●	●●
H	●●	●●	●●	●●	●●	●●



Application	Chipbreaker	Designation	Coated		Uncoated		Ceramic			Dimension (inch)									
			AH120		TH10		FX105	LX21	LX11	TZ120	RE	IC	S	D1					
			Inch	Metric															
-		SNGD 453	SNGD120712							●				0.047	0.500	0.313	-		
		SNGD 454	SNGD120716								●				0.063	0.500	0.313	-	
Finishing to medium cutting		SNGN 322	SNGN090308												0.031	0.375	0.125	-	
		SNGN 421	SNGN120304													0.016	0.500	0.125	-
		SNGN 423	SNGN120312													0.047	0.500	0.125	-
		SNGN 431	SNGN120404													0.016		0.187	-
		SNGN 432	SNGN120408													0.031	0.375	0.187	-
		SNGN 433	SNGN120412													0.047	0.500	0.187	-
		SNGN 434	SNGN120416													0.063	0.500	0.187	-
		SNGN 435	SNGN120420													0.079	0.500	0.187	-
		SNGN 436	SNGN120424													0.094	0.500	0.187	-
		SNGN 452	SNGN120708													0.031	0.500	0.313	-
		SNGN 453	SNGN120712													0.047	0.500	0.313	-
		SNGN 454	SNGN120716													0.063	0.500	0.313	-
		SNGN 455	SNGN120720													0.079	0.500	0.313	-
		-		SNMN 432	SNMN120408												0.031	0.500	0.187
SNMN 433	SNMN120412														0.047	0.500	0.187	-	
*SNMN 434	SNMN120416														0.063	0.500	0.187	-	
-		SNGX 454	SNGX120716											0.063	0.500	0.313	-		

* Chamfer hone 0.008" wide, -25° angle.
 Note: Carbide grades have a radius hone.

● : Line up

Reference pages: External toolholder → C098 -
 SNGD...: External toolholder → C114 SNMN...: External toolholder → C101 -

Grade A
 Insert B
 Ext. Toolholder C
 Int. Toolholder D
 Threading E
 Grooving F
 Milling Cutter G
 Miniature Tool H
 Endmill I
 Drilling Tool J
 Tooling System K
 User's Guide L
 Index M

Insert NEGATIVE TYPE

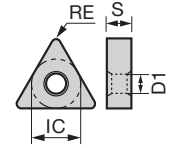
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TN



Triangular, 60° with hole

P	Steel	● ● ● ● ● ●				● ● ● ● ● ●									
M	Stainless	● ● ● ● ● ●				● ● ● ● ● ●									
K	Cast iron	● ● ● ● ● ●				● ● ● ● ● ●									
N	Non-ferrous														
S	Superalloy	●													
H	Hard material														



Application	Chipbreaker	Designation		Coated			Coated cermet		Cermet		Uncoated	Dimension (inch)					
		Inch	Metric	GH110	GH330	SH725	GT9530	GT720	NS9530	NS520	X407	TH10	RE	IC	S	D1	
Precision finishing		TF	TNMG 331 TF	TNMG160404-TF					● ● ● ● ● ●		●	0.016	0.375	0.187	0.150		
			TNMG 332 TF	TNMG160408-TF					● ● ● ● ● ●				0.031	0.375	0.187	0.150	
			01	TNGG 220.5-01	TNGG110302-01								0.008	0.250	0.125	0.089	
				TNGG 221-01	TNGG110304-01									0.016	0.250	0.125	0.089
				TNGG 222-01	TNGG110308-01									0.031	0.250	0.125	0.089
				TNGG 330.5-01	TNGG160402-01	●					● ● ● ● ● ●		●	0.008	0.375	0.187	0.150
			TNGG 331-01	TNGG160404-01	●					● ● ● ● ● ●		●	0.016	0.375	0.187	0.150	
			TNGG 332-01	TNGG160408-01	●					● ● ● ● ● ●			0.031	0.375	0.187	0.150	
Precision finishing (sharp edge)		01	TNGG 330.5 F-01	TNGG160402F-01								0.008	0.375	0.187	0.150		
			TNGG 331 F-01	TNGG160404F-01									0.016	0.375	0.187	0.150	
			TNGG 332 F-01	TNGG160408F-01									0.031	0.375	0.187	0.150	
Precision finishing		A, C	TNGG 221 R-A	TNGG110304R-A				●		●		0.016	0.250	0.125	0.089		
			TNGG 221 L-A	TNGG110304L-A				●		●			0.016	0.250	0.125	0.089	
			TNGG 222 R-A	TNGG110308R-A				●		●			0.031	0.250	0.125	0.089	
			TNGG 222 L-A	TNGG110308L-A				●		●			0.031	0.250	0.125	0.089	
			TNGG 321 R-C	TNGG160304R-C						● ● ● ● ● ●	●		0.016	0.375	0.125	0.150	
			TNGG 321 L-C	TNGG160304L-C						● ● ● ● ● ●			0.016	0.375	0.125	0.150	
			TNGG 322 R-C	TNGG160308R-C						● ● ● ● ● ●			0.031	0.375	0.125	0.150	
			TNGG 322 L-C	TNGG160308L-C						● ● ● ● ● ●			0.031	0.375	0.125	0.150	
			TNGG 33V R-C	TNGG160400R-C						● ● ● ● ● ●			0.001	0.375	0.187	0.150	
			TNGG 33V L-C	TNGG160400L-C						● ● ● ● ● ●			0.001	0.375	0.187	0.150	
			TNGG 330.5 R-C	TNGG160402R-C					●		● ● ● ● ● ●	●	0.008	0.375	0.187	0.150	
			TNGG 330.5 L-C	TNGG160402L-C					●		● ● ● ● ● ●		0.008	0.375	0.187	0.150	
			TNGG 331 R-C	TNGG160404R-C	● ●				●		● ● ● ● ● ●	●	0.016	0.375	0.187	0.150	
			TNGG 331 L-C	TNGG160404L-C	● ●				●		● ● ● ● ● ●	●	0.016	0.375	0.187	0.150	
			TNGG 332 R-C	TNGG160408R-C	● ●				●		● ● ● ● ● ●	●	0.031	0.375	0.187	0.150	
			TNGG 332 L-C	TNGG160408L-C	● ●				●		● ● ● ● ● ●	●	0.031	0.375	0.187	0.150	
		D	TNGG 431 R-D	TNGG220404R-D					● ● ● ● ● ●	●		0.016	0.500	0.187	0.203		
			TNGG 431 L-D	TNGG220404L-D						● ● ● ● ● ●			0.016	0.500	0.187	0.203	
			TNGG 432 R-D	TNGG220408R-D						● ● ● ● ● ●	●		0.031	0.500	0.187	0.203	
			TNGG 432 L-D	TNGG220408L-D						● ● ● ● ● ●			0.031	0.500	0.187	0.203	

● : Line up

Reference pages: External toolholder → C029 - Internal toolholder → D053 -
 J-Series toolholder → G058 -

Insert NEGATIVE TYPE

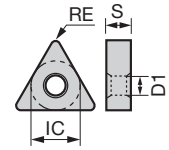
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

TN

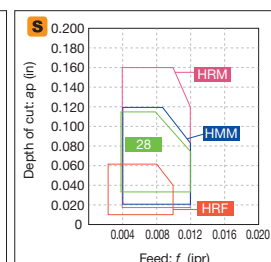
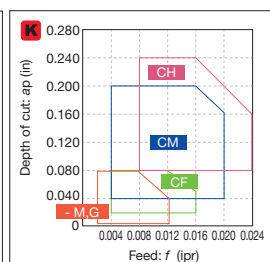
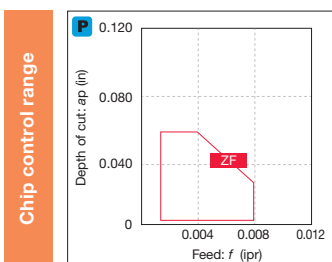


**Triangular, 60°
with hole**

Material	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	TH10	
P Steel	◐	◐	◐	◐	◐	◐	◐	◐	◐										
M Stainless								◐	◐			◐	◐						
K Cast iron				◐	◐														
N Non-ferrous																			
S Superalloy																			
H Hard material																			



Application	Chipbreaker	Designation		Coated														Dimension (inch)								
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	TH10	RE	IC	S	D1	
				●	◐	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛	◜	◝	◞	◟	◠	◡				
Finishing		ZF	TNMG 331 ZF	TNMG160404-ZF	●	●	●	▲	▲	▲								●	●	●		0.016	0.375	0.187	0.150	
			TNMG 332 ZF	TNMG160408-ZF	●	●	●	▲	▲	▲									●	●	●		0.031	0.375	0.187	0.150
			TNMG 333 ZF	TNMG160412-ZF	●			▲															0.047	0.375	0.187	0.150
Finishing		11	TNMG 221-11	TNMG110304-11																●	0.016	0.250	0.125	0.089		
			TNMG 222-11	TNMG110308-11																	●	0.031	0.250	0.125	0.089	
			TNMG 330.5-11	TNMG160402-11																	●	0.008	0.375	0.187	0.150	
			TNMG 331-11	TNMG160404-11																●	●	0.016	0.375	0.187	0.150	
			TNMG 332-11	TNMG160408-11																	●	0.031	0.375	0.187	0.150	
			TNMG 431-11	TNMG220404-11																	●	0.016	0.500	0.187	0.203	
Finishing (for mild steel)		17	TNMG 331-17	TNMG160404-17	●			▲											●	0.016	0.375	0.187	0.150			
			TNMG 332-17	TNMG160408-17	●			▲												●	0.031	0.375	0.187	0.150		
Finishing		SF	TNMG 331 SF	TNMG160404-SF						●	●	●									0.016	0.375	0.187	0.150		
			TNMG 332 SF	TNMG160408-SF						●	●	●										0.031	0.375	0.187	0.150	
			TNMG 333 SF	TNMG160412-SF						●	●	●										0.047	0.375	0.187	0.150	
			CF	TNMG 331 CF	TNMG160404-CF								●	●								0.016	0.375	0.187	0.150	
			TNMG 332 CF	TNMG160408-CF									●	●								0.031	0.375	0.187	0.150	
			HRF	TNMG 331 HRF	TNMG160404-HRF										●	●						0.016	0.375	0.187	0.150	
	TNMG 332 HRF	TNMG160408-HRF											●	●						0.031	0.375	0.187	0.150			



- : Line up
- ▲ : To be discontinued

*M,G: Without chipbreaker

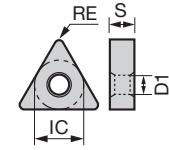
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TN

Triangular, 60° with hole

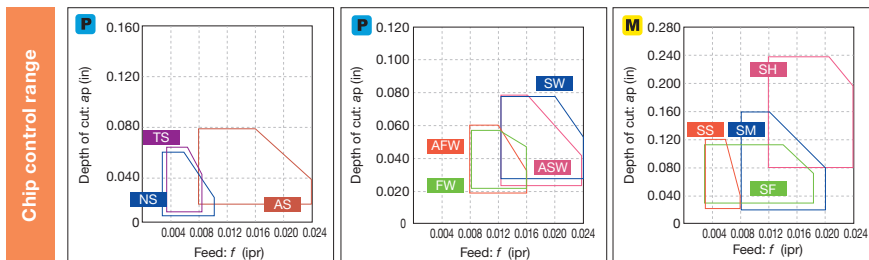
P	Steel	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐																					
K	Cast iron	●	◐	◑		●	◐	◑		●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐			●	◐			●	◐													
S	Superalloy																							
H	Hard material																							



Application	Chipbreaker	Designation		Coated								Coated cermet		Cermet		Dimension (inch)									
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1						
Finishing		TS	TNMG 331 TS	TNMG160404-TS	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	
			TNMG 332 TS	TNMG160408-TS	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	
			TNMG 333 TS	TNMG160412-TS	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	
Finishing to medium cutting (wiper)		SW	TNMG 232E SW	TNMG110408E-SW	●					▲															
			TNMG 233E SW	TNMG110412E-SW	●					▲															
			TNMG 332 SW	TNMG160408-SW	●					▲															
			TNMG 333 SW	TNMG160412-SW	●					▲															
High feed, small depth of cut		AS	TNMG 331 AS	TNMG160404-AS		●	◐			▲	▲			●											
			TNMG 332 AS	TNMG160408-AS	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	
			TNMG 333 AS	TNMG160412-AS	●	◐	◑	✱	●	◐	◑	✱	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	
Boring (double side)		CB	TNMG 221 CB	TNMG110304-CB	●					▲				●											
			TNMG 222 CB	TNMG110308-CB	●					▲					●										
Finishing		NS	TNMG 331 NS	TNMG160404-NS	●	◐				▲	▲			●											
			TNMG 332 NS	TNMG160408-NS	●	◐	◑			▲	▲	▲			●										

* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → **C029** - Internal toolholder → **D053** -
J-Series toolholder → **G058** -



- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

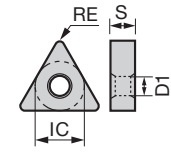
Insert NEGATIVE TYPE

TN

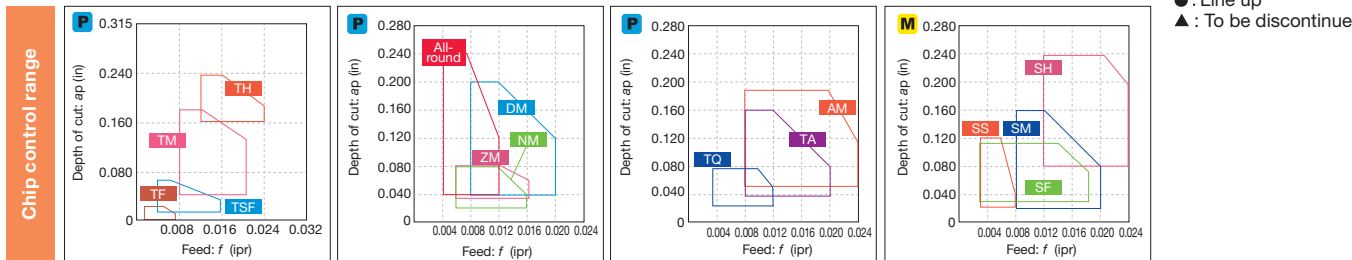


Triangular, 60° with hole

Material	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH630	T515	T5105	T5115	T5125	AH110	AH120	GT9530	GT720	NS9530	NS520	TH10	
P Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M Stainless	●	●								●						●	●	●	●	●	●
K Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N Non-ferrous																●	●	●	●	●	●
S Superalloy																●	●	●	●	●	●
H Hard material																					



Application	Chipbreaker	Designation		Coated																	Coated cermet	Cermet	Un-coated	Dimension (inch)								
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH630	T515	T5105	T5115	T5125	AH110	AH120	GT9530	GT720	NS9530	NS520	TH10	RE	IC	S	D1					
Finishing to m medium cutting		ZM	TNMG 331 ZM	TNMG160404-ZM	●	●	●	●	▲	▲	▲							●	●	●	●	●	●	●	●	●	0.016	0.375	0.187	0.150		
			TNMG 332 ZM	TNMG160408-ZM	●	●	●	●	▲	▲	▲								●	●	●	●	●	●	●	●	●	●	0.031	0.375	0.187	0.150
			TNMG 333 ZM	TNMG160412-ZM	●	●	●	●	▲	▲	▲																		0.047	0.375	0.187	0.150
			TNMG 432 ZM	TNMG220408-ZM							▲																		0.031	0.500	0.187	0.203
			TNMG 433 ZM	TNMG220412-ZM			●				▲																		0.047	0.500	0.187	0.203
Medium cutting		DM	TNMG 332 DM	TNMG160408-DM	●	●	●	●	▲	▲	▲	▲															0.031	0.375	0.187	0.150		
			TNMG 333 DM	TNMG160412-DM	●	●				▲	▲																	0.047	0.375	0.187	0.150	
			TNMG 434 DM	TNMG220416-DM													●											0.063	0.500	0.187	0.203	
Medium cutting		All-round	TNMG 221	TNMG110304	●	●			▲	▲				●	●	●				●	●	●	●	●	●	0.016	0.250	0.125	0.089			
			TNMG 222	TNMG110308	●	●			▲	▲				●	●	●					●	●	●	●	●	●	0.031	0.250	0.125	0.089		
			TNMG 321	TNMG160304																							●	0.016	0.375	0.125	0.150	
			TNMG 322	TNMG160308																							●	0.031	0.375	0.125	0.150	
			TNMG 331	TNMG160404	●	●	●	●	▲	▲	▲	▲		●	●	●	●	●				●	●	●	●	●	●	0.016	0.375	0.187	0.150	
			TNMG 332	TNMG160408	●	●	●	●	▲	▲	▲	▲		●	●	●	●	●			●	●	●	●	●	●	●	0.031	0.375	0.187	0.150	
			TNMG 333	TNMG160412	●	●	●	●	▲	▲	▲	▲		●	●	●	●	●				●	●	●	●	●	●	0.047	0.375	0.187	0.150	
			TNMG 334	TNMG160416							▲	▲	▲		●	●	●										●	0.063	0.375	0.187	0.150	
			TNMG 335	TNMG160420							▲	▲	▲															●	0.079	0.375	0.187	0.150
			TNMG 432	TNMG220408	●	●	●	●	▲	▲	▲	▲		●	●	●											●	0.031	0.500	0.187	0.203	
			TNMG 433	TNMG220412	●	●	●	●	▲	▲	▲	▲	●		●	●	●										●	0.047	0.500	0.187	0.203	
			TNMG 434	TNMG220416							▲	▲	●		●	●	●										●	0.063	0.500	0.187	0.203	
			TNMG 542	TNMG270608														●										0.031	0.625	0.250	0.250	
			TNMG 543	TNMG270612														●										0.047	0.625	0.250	0.250	
			TNMG 544	TNMG270616														●										0.063	0.625	0.250	0.250	
Finishing to medium cutting		27	TNMG 331-27	TNMG160404-27	●	●			▲	▲																	0.016	0.375	0.187	0.150		
			TNMG 332-27	TNMG160408-27	●	●				▲	▲											●						0.031	0.375	0.187	0.150	
			TNMG 333-27	TNMG160412-27	●	●				▲	▲																	0.047	0.375	0.187	0.150	
			TNMG 431-27	TNMG220404-27					●		▲																	0.016	0.500	0.187	0.203	
			TNMG 432-27	TNMG220408-27					●		▲																	0.031	0.500	0.187	0.203	
			TNMG 433-27	TNMG220412-27					●		▲																	0.047	0.500	0.187	0.203	



Reference pages: External toolholder → **C029** - Internal toolholder → **D053** -
J-Series toolholder → **G058** -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

A
B
C
D
E
F
G
H
I
J
K
L
M

Insert NEGATIVE TYPE

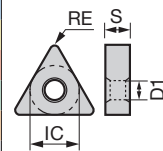
● : Continuous cutting
 ◐ : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TN



Triangular, 60° with hole

	P	M	K	N	S	H	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
●	●	●	●	●	●	●	●	●	●	●	●	●
◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱	✱



Application	Chipbreaker	Designation	Coated																Coated cermet	Cermet	Un-coated	Dimension (inch)																
			Inch		Metric		T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH8005	AH8015	T515	T5105	T5115	T5125	AH110	AH120	AH725	GH330	GT720	NS9530	TH10	RE	IC	S	D1					
Medium cutting		28 TNMG 331-28	TNMG160404-28													●	●														●	●	0.016	0.375	0.187	0.150		
		TNMG 332-28	TNMG160408-28														●	●														●	●	0.031	0.375	0.187	0.150	
		TNMG 431-28	TNMG220404-28																																0.016	0.500	0.187	0.203
		TNMG 432-28	TNMG220408-28																																	0.031	0.500	0.187
Medium cutting		32 TNMG 666-32	TNMG330924-32										●																				0.094	0.750	0.375	0.312		
		33 TNMG 331-33	TNMG160404-33																												●	●	0.016	0.375	0.187	0.150		
		TNMG 332-33	TNMG160408-33																												●	●	0.031	0.375	0.187	0.150		
		TNMG 334-33	TNMG160416-33	●	▲																													0.063	0.375	0.187	0.150	
		TNMG 431-33	TNMG220404-33	●	▲																							●							0.016	0.500	0.187	0.203
		TNMG 433-33	TNMG220412-33		●	▲																													0.047	0.500	0.187	0.203
Medium cutting		37 TNMG 331-37	TNMG160404-37	●	▲																												0.016	0.375	0.187	0.150		
		TNMG 332-37	TNMG160408-37	●	▲																													0.031	0.375	0.187	0.150	
Medium cutting		38 TNMG 331-38	TNMG160404-38																														0.016	0.375	0.187	0.150		
		TNMG 332-38	TNMG160408-38																															0.031	0.375	0.187	0.150	
Medium cutting		SM TNMG 231E SM	TNMG110404E-SM									●	●	●																		0.016	0.250	0.187	0.089			
		TNMG 232E SM	TNMG110408E-SM									●	●	●																			0.031	0.250	0.187	0.089		
		TNMG 331 SM	TNMG160404-SM										●	●	●	●																	0.016	0.375	0.187	0.150		
		TNMG 332 SM	TNMG160408-SM										●	●	●	●																	0.031	0.375	0.187	0.150		
		TNMG 333 SM	TNMG160412-SM										●	●	●	●																	0.047	0.375	0.187	0.150		
		TNMG 432 SM	TNMG220408-SM										●	●	●	●																	0.031	0.500	0.187	0.203		
		TNMG 433 SM	TNMG220412-SM										●	●	●	●																	0.047	0.500	0.187	0.203		
		TNMG 666 SM	TNMG330924-SM										●	●																				0.094	0.750	0.375	0.312	
Medium cutting		CM TNMG 331 CM	TNMG160404-CM													●	●	●	●													0.016	0.375	0.187	0.150			
		TNMG 332 CM	TNMG160408-CM													●	●	●	●													0.031	0.375	0.187	0.150			
		TNMG 333 CM	TNMG160412-CM													●	●	●	●													0.047	0.375	0.187	0.150			
		TNMG 432 CM	TNMG220408-CM													●	●	●	●													0.031	0.500	0.187	0.203			
		TNMG 433 CM	TNMG220412-CM													●	●	●	●													0.047	0.500	0.187	0.203			

● : Line up
 ▲ : To be discontinued

Insert NEGATIVE TYPE

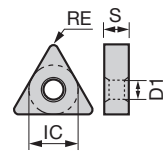
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TN



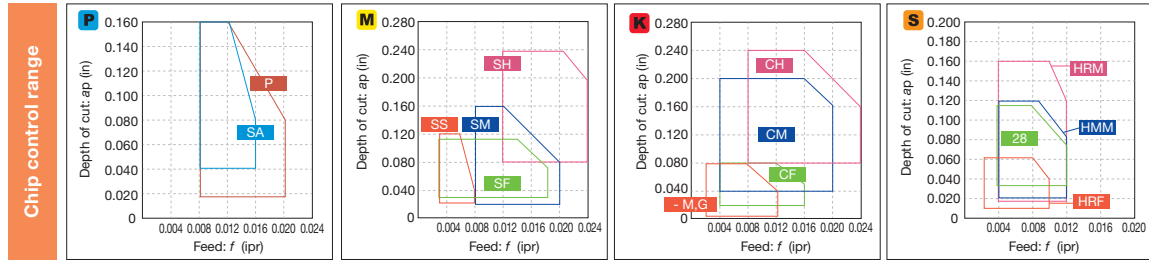
Triangular, 60° with hole

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●	◐	◑	●	●	●
M	●	●	◐	●	●	●
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated							Cermet	Uncoated		Dimension (inch)							
			T6120	T6130	AH630	AH645	AH120	AH8005	AH8015	AH905	GH110	GH330	SH725	NS9530	TH10	KS20	RE	IC	S	D1
			Inch	Metric																
Medium cutting		P	TNGG 330.5 R-P	TNGG160402R-P										●		0.008	0.375	0.187	0.150	
			TNGG 330.5 L-P	TNGG160402L-P											●		0.008	0.375	0.187	0.150
			TNGG 331 R-P	TNGG160404R-P											●		0.016	0.375	0.187	0.150
			TNGG 331 L-P	TNGG160404L-P											●		0.016	0.375	0.187	0.150
			TNGG 332 R-P	TNGG160408R-P											●		0.031	0.375	0.187	0.150
			TNGG 332 L-P	TNGG160408L-P											●		0.031	0.375	0.187	0.150
Medium cutting (sharp edge)		P	TNGG 330.5 FR-P	TNGG160402FR-P												0.008	0.375	0.187	0.150	
			TNGG 330.5 FL-P	TNGG160402FL-P													0.008	0.375	0.187	0.150
			TNGG 331 FR-P	TNGG160404FR-P													0.016	0.375	0.187	0.150
			TNGG 331 FL-P	TNGG160404FL-P													0.016	0.375	0.187	0.150
			TNGG 332 FR-P	TNGG160408FR-P													0.031	0.375	0.187	0.150
			TNGG 332 FL-P	TNGG160408FL-P													0.031	0.375	0.187	0.150
Finishing to medium cutting		HRM	TNMG 331 HRM	TNMG160404-HRM					●	●						0.016	0.375	0.187	0.150	
			TNMG 332 HRM	TNMG160408-HRM													0.031	0.375	0.187	0.150
			TNMG 333 HRM	TNMG160412-HRM													0.047	0.375	0.187	0.150
Medium cutting		HMM	TNMG 331 HMM	TNMG160404-HMM												0.016	0.375	0.187	0.150	
			TNMG 332 HMM	TNMG160408-HMM													0.031	0.375	0.187	0.150
			TNMG 333 HMM	TNMG160412-HMM													0.047	0.375	0.187	0.150
			TNMG 331 SA	TNMG160404-SA	●	●	●	●	●								0.016	0.375	0.187	0.150
			TNMG 332 SA	TNMG160408-SA	●	●	●	●	●						●		0.031	0.375	0.187	0.150
			TNMG 333 SA	TNMG160412-SA	●	●	●	●	●						●		0.047	0.375	0.187	0.150
Medium cutting			TNMG 432 SA	TNMG220408-SA	●	●	●	●						●		0.031	0.500	0.187	0.203	
			TNMG 433 SA	TNMG220412-SA	●	●	●	●									0.047	0.500	0.187	0.203

● : Line up



*-M,G: Without chipbreaker


Reference pages: External toolholder → **C029** - Internal toolholder → **D053** -
 J-Series toolholder → **G058** -

Grade A
 Insert B
 Ext. Toolholder C
 Int. Toolholder D
 Threading E
 Grooving F
 Miniature Tool G
 Milling Cutter H
 Endmill I
 Drilling Tool J
 Tooling System K
 User's Guide L
 Index M

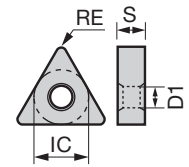
Insert NEGATIVE TYPE

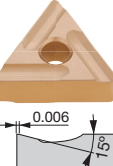
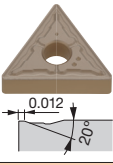
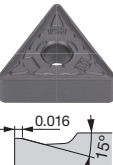
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TN

 **Triangular, 60° with hole**

	P	M	K	N	S	H														
Steel	●●●✱	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Stainless	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Cast iron	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Non-ferrous	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Superalloy	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Hard material	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●



Application	Chipbreaker	Designation		Coated															Cermet	Dimension (inch)					
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH120	AH725	GH330	NS9530	RE	IC	S	D1	
Medium cutting		S	TNMG 331 R-S	TNMG160404R-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●								0.016	0.375	0.187	0.150	
			TNMG 331 L-S	TNMG160404L-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.016	0.375	0.187	0.150
			TNMG 332 R-S	TNMG160408R-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.031	0.375	0.187	0.150
			TNMG 332 L-S	TNMG160408L-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.031	0.375	0.187	0.150
			TNMG 431 R-S	TNMG220404R-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.016	0.500	0.187	0.203
			TNMG 431 L-S	TNMG220404L-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.016	0.500	0.187	0.203
			TNMG 432 R-S	TNMG220408R-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.031	0.500	0.187	0.203
			TNMG 432 L-S	TNMG220408L-S	●●●	●●	●●	▲	▲	▲	●●	●●	●●									0.031	0.500	0.187	0.203
Medium to heavy cutting		TH	TNMG 432 TH	TNMG220408-TH	●●●	●●	▲	▲	▲											0.031	0.500	0.187	0.203		
			TNMG 433 TH	TNMG220412-TH	●●●	●●	▲	▲	▲												0.047	0.500	0.187	0.203	
		THS	TNMG 432 THS	TNMG220408-THS	●●●	●●	▲	▲	▲												0.031	0.500	0.187	0.203	
			TNMG 433 THS	TNMG220412-THS	●●●	●●	▲	▲	▲												0.047	0.500	0.187	0.203	
		CH	TNMG 331 CH	TNMG160404-CH										●●	●●	●●	●●					0.016	0.375	0.187	0.150
			TNMG 332 CH	TNMG160408-CH										●●	●●	●●	●●					0.031	0.375	0.187	0.150
Medium to heavy cutting (single side)			TNMG 333 CH	TNMG160412-CH									●●	●●	●●	●●				0.047	0.375	0.187	0.150		
			TNMG 432 CH	TNMG220408-CH										●●	●●	●●				0.031	0.500	0.187	0.203		
			TNMG 433 CH	TNMG220412-CH											●●	●●	●●				0.047	0.500	0.187	0.203	
			TNMG 434 CH	TNMG220416-CH												●●	●●	●●			0.063	0.500	0.187	0.203	
		57	TNMM 332-57	TNMM160408-57	●					▲											0.031	0.375	0.187	0.150	
	TNMM 432-57	TNMM220408-57	●					▲											0.031	0.500	0.187	0.203			
	TNMM 433-57	TNMM220412-57	●					▲											0.047	0.500	0.187	0.203			

● : Line up
 ▲ : To be discontinued

Reference pages: External toolholder → **C029 -** Internal toolholder → **D053 -**
 J-Series toolholder → **G058 -**

Insert NEGATIVE TYPE

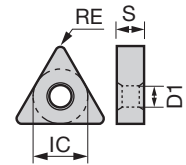
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TN



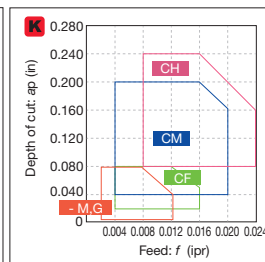
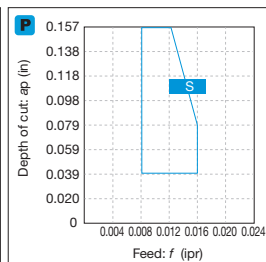
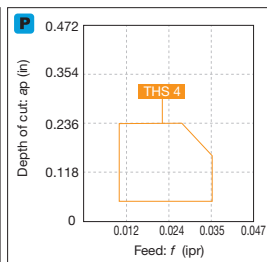
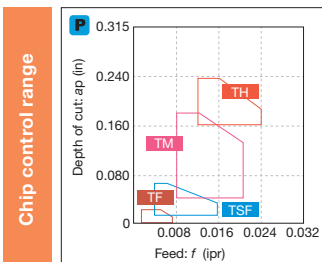
Triangular, 60° with hole

	P	M	K	N	S	H
Steel	●					
Stainless		●				
Cast iron	◐		◐			
Non-ferrous			◐	●		
Superalloy					●	
Hard material						●



Application	Chipbreaker	Designation	Material										Dimension (inch)					
			Coated					Coated cermet	Cermet	Uncoated		Ceramic			RE	IC	S	D1
			T515	T5105	T5115	T5125	GH110	GT720	NS520	TH03	TH10	FX105	LX21	LX11				
Finishing to medium cutting		TNMA 231E	TNMA110404E	●											0.016	0.250	0.187	0.089
		TNMA 232E	TNMA110408E	●											0.031	0.250	0.187	0.089
		TNMA 233E	TNMA110412E	●											0.047	0.250	0.187	0.089
		TNMA 331	TNMA160404	●	●	●	●			●					0.016	0.375	0.187	0.150
		TNMA 332	TNMA160408	●	●	●	●	●	●	●	●				0.031	0.375	0.187	0.150
		TNMA 333	TNMA160412	●	●	●	●				●	●			0.047	0.375	0.187	0.150
		TNMA 334	TNMA160416		●	●	●								0.063	0.375	0.187	0.150
		TNMA 335	TNMA160420		●	●	●								0.079	0.375	0.187	0.150
		TNMA 431	TNMA220404		●	●	●								0.016	0.500	0.187	0.203
		TNMA 432	TNMA220408		●	●	●								0.031	0.500	0.187	0.203
		TNMA 433	TNMA220412		●	●	●								0.047	0.500	0.187	0.203
		TNMA 434	TNMA220416		●	●	●								0.063	0.500	0.187	0.203
		TNGA 221	TNGA110304							●					0.016	0.250	0.125	0.089
		TNGA 222	TNGA110308							●					0.031	0.250	0.125	0.089
		TNGA 321	TNGA160304							●					0.016	0.375	0.125	0.150
		TNGA 322	TNGA160308							●					0.031	0.375	0.125	0.150
		TNGA 330.5	TNGA160402									●			0.008	0.375	0.187	0.150
		TNGA 331	TNGA160404				●		●	●	●	●	●		0.016	0.375	0.187	0.150
		TNGA 332	TNGA160408				●		●	●	●	●	●		0.031	0.375	0.187	0.150
		TNGA 333	TNGA160412						●	●	●	●	●		0.047	0.375	0.187	0.150
TNGA 334	TNGA160416							●	●	●	●		0.063	0.375	0.187	0.150		
TNGA 432	TNGA220408							●					0.031	0.500	0.187	0.203		

● : Line up



*-M,G: Without chipbreaker

Reference pages: External toolholder → C029 - Internal toolholder → D053 -
J-Series toolholder → G058 -

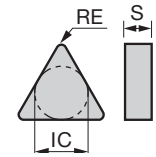
Insert NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 ⬘ : Heavy interrupted cutting

TN



P	Steel	●																
M	Stainless	●																
K	Cast iron	●	●	●	●		●											
N	Non-ferrous	●																
S	Superalloy																	
H	Hard material									●								



Application	Chipbreaker		Designation		Coated					Ceramic					Dimension (inch)				
			Inch	Metric	TH10	FX105	LX21	LX11	TZ120							RE	IC	S	D1
	-																		
Finishing to medium cutting	-		TNGN 222	TNGN110308	●											0.031	0.250	0.125	-
			TNGN 331	TNGN160404			●	●								0.016	0.375	0.187	-
			TNGN 332	TNGN160408	●		●	●								0.031	0.375	0.187	-
			TNGN 333	TNGN160412	●		●	●	●							0.047	0.375	0.187	-
			TNGN 334	TNGN160416			●	●								0.063	0.375	0.187	-
			TNGN 335	TNGN160420			●									0.079	0.375	0.187	-
			TNGN 352	TNGN160708				●								0.031	0.375	0.313	-
			TNGN 353	TNGN160712				●								0.047	0.375	0.313	-

● : Line up

VN



P	Steel	●			●			●	●	●				●				
M	Stainless	●			●			●						●				
K	Cast iron	●			●			●	●	●				●				
N	Non-ferrous				●			●						●				
S	Superalloy				●													
H	Hard material																	



Application	Chipbreaker		Designation		Coated		Coated cemet		Cemet		Uncoated		Dimension (inch)			
			Inch	Metric	GH110	GT720	NS9530	NS520		TH10			RE	IC	S	D1
	TF															
Precision finishing	TF		VNMG 331 TF	VNMG160404-TF					●				0.016	0.375	0.187	0.150
			VNMG 332 TF	VNMG160408-TF		●		●					0.031	0.375	0.187	0.150
			VNGG 330.5-01	VNGG160402-01	●				●	●	●		0.008	0.375	0.187	0.150
			VNGG 331-01	VNGG160404-01					●	●	●		0.016	0.375	0.187	0.150
			VNGG 332-01	VNGG160408-01					●	●			0.031	0.375	0.187	0.150
	Finishing to medium cutting	P		VNGG 331 R-P	VNGG160404R-P						●			0.016	0.375	0.187
			VNGG 332 R-P	VNGG160408R-P						●			0.031	0.375	0.187	0.150

● : Line up

Reference pages: TNGN...: External toolholder → **C029** -
 VNMG..., VNGG...: External toolholder → **C062** -, Internal toolholder → **D078** -,
 TungCap → **K014** -

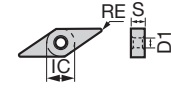
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

VN

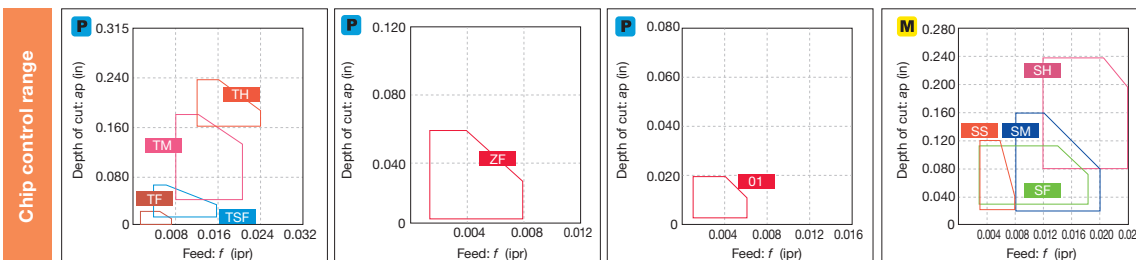
Rhombic, 35° with hole

	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material
●	●	●	●	●	●	●
◐		◐		◐	◐	◐
◑						



Application	Chipbreaker	Designation	Coated										Coated cermet	Cermet	Un-coated	Dimension (inch)													
			Inch		Metric		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH120	GH330	GT9530	AT9530	NS9530	TH10	RE	IC	S	D1		
Finishing	TSF	VNMG 2.330.5E TSF	VNMG120402E-TSF	●	●				▲	▲									●	●	●		0.008	0.281	0.187	0.150			
		VNMG 2.331E TSF	VNMG120404E-TSF	●	●				▲	▲										●	●	●		0.016	0.281	0.187	0.150		
		VNMG 2.332E TSF	VNMG120408E-TSF	●	●				▲	▲											●	●	●		0.031	0.281	0.187	0.150	
		VNMG 330.5 TSF	VNMG160402-TSF																		●	●	●		0.008	0.375	0.187	0.150	
		VNMG 331 TSF	VNMG160404-TSF	●	●	●	●	▲	▲	▲	▲										●	●	●		0.016	0.375	0.187	0.150	
		VNMG 332 TSF	VNMG160408-TSF	●	●	●	●	▲	▲	▲	▲											●	●	●		0.031	0.375	0.187	0.150
		VNMG 333 TSF	VNMG160412-TSF	●	●	●	●	▲	▲	▲	▲														0.047	0.375	0.187	0.150	
	ZF	VNMG 331 ZF	VNMG160404-ZF	●	●	●				▲	▲	▲									●	●	●		0.016	0.375	0.187	0.150	
		VNMG 332 ZF	VNMG160408-ZF	●	●	●				▲	▲	▲										●	●	●		0.031	0.375	0.187	0.150
		VNMG 333 ZF	VNMG160412-ZF	●	●	●				▲	▲	▲													0.047	0.375	0.187	0.150	
	11	VNMG 331-11	VNMG160404-11																										
		VNMG 332-11	VNMG160408-11																										
VNMG 333-11		VNMG160412-11																											
SF	VNMG 331 SF	VNMG160404-SF												●	●	●													
	VNMG 332 SF	VNMG160408-SF												●	●	●													

● : Line up
▲ : To be discontinued



Reference pages: External toolholder → C057 - Internal toolholder → D078 -
TungCap → C064 -, K015 -

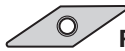
Grade
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index



Insert NEGATIVE TYPE

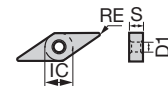
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

VN



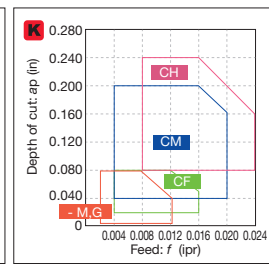
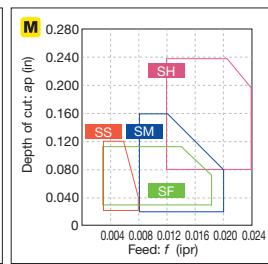
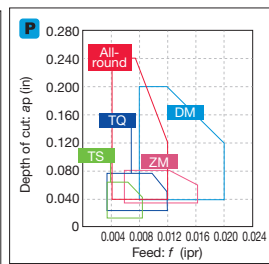
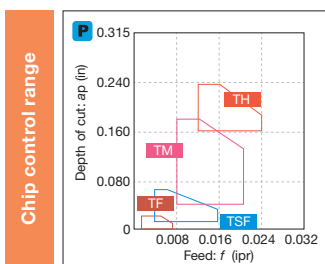
**Rhombic, 35°
with hole**

P	Steel	●	●	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
M	Stainless	●	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
K	Cast iron	●	●	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
N	Non-ferrous	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
S	Superalloy	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
H	Hard material	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐

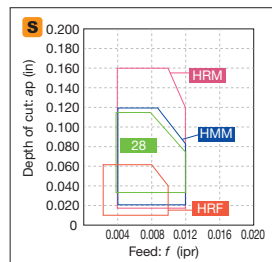


Application	Chipbreaker	Designation	Coated														Cer- met	Un- coated	Dimension (inch)													
			Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125			AH110	AH120	AH8005	AH8015	NS9530	TH10	RE	IC	S	D1				
Medium cutting	DM	VNMG 332 DM	VNMG160408-DM	●	●	●	●	▲	▲	▲	▲												●	●	0.031	0.375	0.187	0.150				
		VNMG 333 DM	VNMG160412-DM	●	●	●		▲	▲	▲														●	●	0.047	0.375	0.187	0.150			
			All-round	VNMG 331	VNMG160404	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●				●	●	0.016	0.375	0.187	0.150				
			VNMG 332	VNMG160408	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●				●	●	0.031	0.375	0.187	0.150					
			VNMG 333	VNMG160412	●	●			▲	▲	●	●	●	●								●	●	0.047	0.375	0.187	0.150					
		28	VNMG 331-28	VNMG160404-28					▲				●	●	●	●	●					●	●	0.016	0.375	0.187	0.150					
			VNMG 332-28	VNMG160408-28									●	●	●								●	●	0.031	0.375	0.187	0.150				
		33	VNMG 331-33	VNMG160404-33		●			▲							●						●	●	0.016	0.375	0.187	0.150					
VNMG 332-33			VNMG160408-33	●	●			▲	▲													●	●	0.031	0.375	0.187	0.150					

● : Line up
▲ : To be discontinued



*-M,G: Without chipbreaker



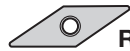
Reference pages: External toolholder → **C062 -** Internal toolholder → **D078 -**
 TungCap → **C064 -, K015 -**

Grade **A**
Insert **B**
Toolholder **C**
Ext. Toolholder **D**
Int. Toolholder **E**
Threading **F**
Grooving **G**
Milling Cutter **H**
Miniature Tool **I**
Endmill **J**
Drilling Tool **K**
Tooling System **L**
User's Guide **M**
Index **M**

Insert NEGATIVE TYPE

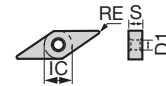
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

VN



Rhombic, 35°
with hole

P	Steel	●	✱	●	✱							●	●		
M	Stainless	●	●	●	✱								●		
K	Cast iron					●	●	●	✱			●	●		
N	Non-ferrous												●		
S	Superalloy												●		
H	Hard material														●



Application	Chipbreaker	Designation		Coated									Cermet	Un-coated	Ceramic	Dimension (inch)					
		Inch	Metric	T6120	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH8005	AH8015	AH905	NS520	TH10	LX11	RE	IC	S	D1
		SM	VNMG 2.331E SM	VNMG120404E-SM	●	●	●	●											0.016	0.281	0.187
 Medium cutting	VNMG 2.332E SM	VNMG120408E-SM	●	●	●	●											0.031	0.281	0.187	0.150	
	VNMG 331 SM	VNMG160404-SM	●	●	●	●											0.016	0.375	0.187	0.150	
	VNMG 332 SM	VNMG160408-SM	●	●	●	●											0.031	0.375	0.187	0.150	
	VNMG 333 SM	VNMG160412-SM	●	●	●	●											0.047	0.375	0.187	0.150	
	CM	VNMG 332 CM	VNMG160408-CM					●	●	●	●							0.031	0.375	0.187	0.150
 Medium cutting	VNMG 333 CM	VNMG160412-CM						●	●	●							0.047	0.375	0.187	0.150	
 Finishing to medium cutting	HRM	VNMG 331 HRM	VNMG160404-HRM														0.016	0.375	0.187	0.150	
	VNMG 332 HRM	VNMG160408-HRM									●	●					0.031	0.375	0.187	0.150	
	VNMG 333 HRM	VNMG160412-HRM									●	●					0.047	0.375	0.187	0.150	
 Medium cutting	HMM	VNMG 331 HMM	VNMG160404-HMM														0.016	0.375	0.187	0.150	
	VNMG 332 HMM	VNMG160408-HMM											●				0.031	0.375	0.187	0.150	
	VNMG 333 HMM	VNMG160412-HMM											●				0.047	0.375	0.187	0.150	
 Finishing to medium cutting	-	VNMA 2.331E	VNMA120404E					●									0.016	0.281	0.187	0.150	
	VNMA 2.332E	VNMA120408E						●									0.031	0.281	0.187	0.150	
	VNMA 330.5	VNMA160402												●			0.008	0.375	0.187	0.150	
	VNMA 331	VNMA160404							●	●	●		●	●			0.016	0.375	0.187	0.150	
	VNMA 332	VNMA160408								●	●	●		●	●		0.031	0.375	0.187	0.150	
	VNGA 331	VNGA160404													●		0.016	0.375	0.187	0.150	
	VNGA 332	VNGA160408													●		0.031	0.375	0.187	0.150	

* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW.
 Please contact a Tungaloy sales representative with questions.

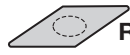
● : Line up

Reference pages: External toolholder → C057 - Internal toolholder → D078 -
 TungCap → C064 -, K015 -

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

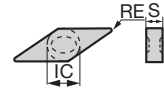
Insert NEGATIVE TYPE

VN



Rhombic, 35° without hole

P	Steel																					
M	Stainless																					
K	Cast iron	●	●																			
N	Non-ferrous																					
S	Superalloy																					
H	Hard material																					



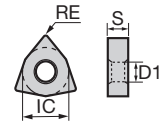
Application	Chipbreaker	Designation		Ceramic		Dimension (inch)							
		Inch	Metric	FX105		RE	IC	S	D1				
Finishing to medium cutting		-	VNGD 353	VNGD160712	●					0.047	0.375	0.313	-

WN



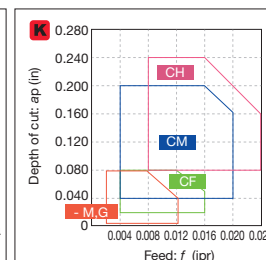
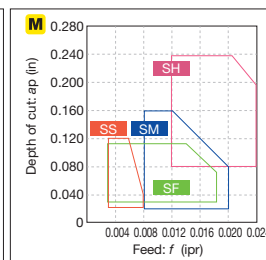
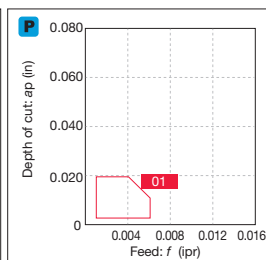
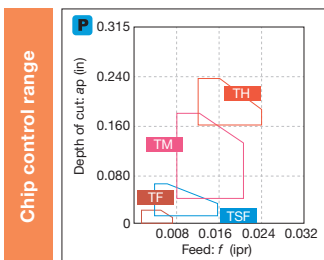
Trigon, 80° with hole

P	Steel	●	●																				
M	Stainless					●	●	●	●														
K	Cast iron	●	●			●	●	●	●														
N	Non-ferrous																						
S	Superalloy																						
H	Hard material																						

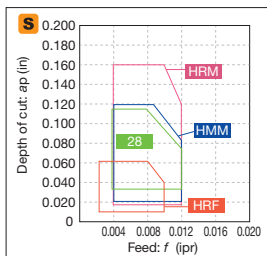


Application	Chipbreaker	Designation		Coated cermet		Cermet		Dimension (inch)					
		Inch	Metric	GT720	NS9530	NS520	RE	IC	S	D1			
Precision finishing		TF	WNMG 431 TF	WNMG080404-TF		●				0.016	0.500	0.187	0.203
			WNMG 432 TF	WNMG080408-TF		●				0.031	0.500	0.187	0.203
		01	WNGG 430.5-01	WNGG080402-01			●	●		0.008	0.500	0.187	0.203
			WNGG 431-01	WNGG080404-01	●			●	●	0.016	0.500	0.187	0.203
			WNGG 432-01	WNGG080408-01	●			●		0.031	0.500	0.187	0.203

● : Line up



*-M,G: Without chipbreaker



Reference pages: VNGD...: External toolholder → C074
 WNMG..., WNGG...:
 External toolholder → C037 -, Internal toolholder → D035 -,
 TungCap → C038 -, K011 -

Insert

NEGATIVE TYPE

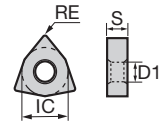
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⌘ : Heavy interrupted cutting

WN



Trigon, 80°
with hole

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
M	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
K	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
N	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
S	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
H	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●



Application	Chipbreaker	Designation		Coated												Coated cermet	Cermet	Dimension (inch)					
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T5115	T515	AH120	AH8015	GT9530	AT9530	NS9530	RE	IC	S	D1	
Finishing		TSF	WNMG 330.5E TSF	WNMG060402E-TSF															0.008	0.375	0.187	0.150	
			WNMG 331E TSF	WNMG060404E-TSF	● ●					▲ ▲					● ●	● ●		● ●		0.016	0.375	0.187	0.150
			WNMG 332E TSF	WNMG060408E-TSF	● ●					▲ ▲					● ●	● ●		● ●		0.031	0.375	0.187	0.150
			WNMG 333E TSF	WNMG060412E-TSF	● ●					▲ ▲					● ●	● ●		● ●		0.047	0.375	0.187	0.150
			WNMG 331 TSF	WNMG060404-TSF	● ●					▲ ▲					● ●	● ●		● ●		0.016	0.375	0.187	0.150
			WNMG 332 TSF	WNMG060408-TSF	● ●					▲ ▲					● ●	● ●		● ●		0.031	0.375	0.187	0.150
			WNMG 431 TSF	WNMG080404-TSF	● ● ●					▲ ▲ ▲					● ● ●	● ● ●		● ● ●		0.016	0.500	0.187	0.203
			WNMG 432 TSF	WNMG080408-TSF	● ● ●					▲ ▲ ▲					● ● ●	● ● ●		● ● ●		0.031	0.500	0.187	0.203
			WNMG 433 TSF	WNMG080412-TSF	● ● ●					▲ ▲ ▲					● ● ●	● ● ●		● ● ●		0.047	0.500	0.187	0.203
Finishing (wiper)		FW	WNMG 331E FW	WNMG060404E-FW	● ● ●				▲ ▲ ▲							● ●	● ●		0.016	0.375	0.187	0.150	
			WNMG 332E FW	WNMG060408E-FW	● ● ●				▲ ▲ ▲							● ●	● ●		0.031	0.375	0.187	0.150	
			WNMG 431 FW	WNMG080404-FW	● ● ●				▲ ▲ ▲							● ●	● ●		0.016	0.500	0.187	0.203	
			WNMG 432 FW	WNMG080408-FW	● ● ●				▲ ▲ ▲							● ●	● ●		0.031	0.500	0.187	0.203	
Finishing		ZF	WNMG 331E ZF	WNMG060404E-ZF	● ●				▲ ▲										0.016	0.375	0.187	0.150	
			WNMG 331 ZF	WNMG060404-ZF	● ●				▲ ▲										0.016	0.375	0.187	0.150	
			WNMG 332 ZF	WNMG060408-ZF	● ●				▲ ▲										0.031	0.375	0.187	0.150	
			WNMG 431 ZF	WNMG080404-ZF	● ● ●				▲ ▲ ▲							● ● ●	● ● ●		● ● ●	0.016	0.500	0.187	0.203
			WNMG 432 ZF	WNMG080408-ZF	● ● ●				▲ ▲ ▲							● ● ●	● ● ●		● ● ●	0.031	0.500	0.187	0.203
			WNMG 433 ZF	WNMG080412-ZF	● ● ●				▲ ▲ ▲							● ● ●	● ● ●		● ● ●	0.047	0.500	0.187	0.203
Finishing (for mild steel)		11	WNMG 431-11	WNMG080404-11													● ●	0.016	0.500	0.187	0.203		
			WNMG 432-11	WNMG080408-11													● ●	0.031	0.500	0.187	0.203		
Finishing (for mild steel)		17	WNMG 431-17	WNMG080404-17													● ●	0.016	0.500	0.187	0.203		
			WNMG 432-17	WNMG080408-17													● ●	0.031	0.500	0.187	0.203		

* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C031 - Internal toolholder → D035 -
TungCap → C038 -, K011 -

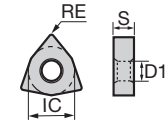
Insert NEGATIVE TYPE

● : Continuous cutting
 ◐ : Light interrupted cutting
 ◑ : Heavy interrupted cutting

WN

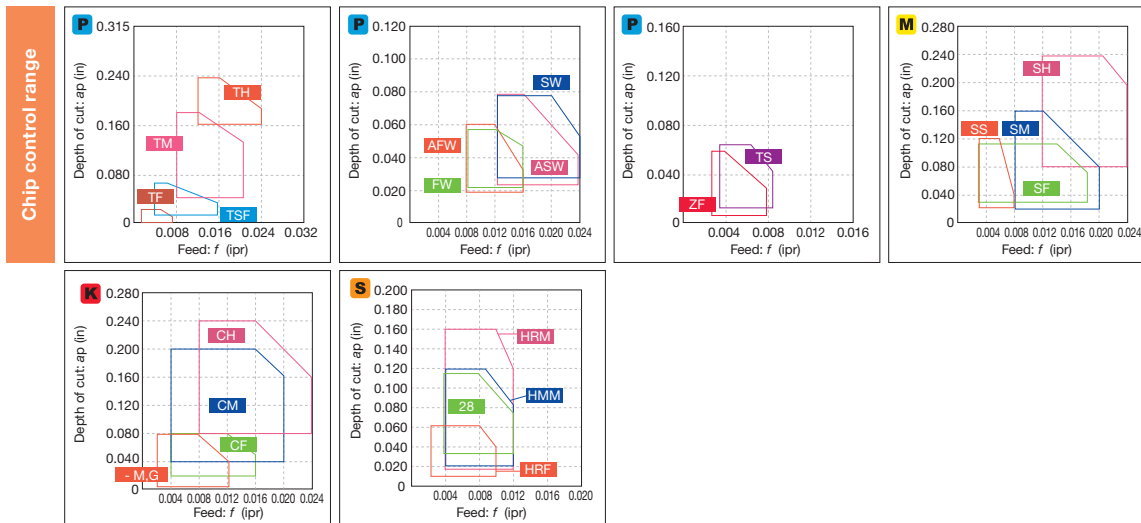
**Trigon, 80°
with hole**

P Steel	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
M Stainless	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
K Cast iron	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
N Non-ferrous																				
S Superalloy																				
H Hard material																				



Application	Chipbreaker	Designation		Coated															Coated cermet	Cermet	Dimension (inch)																			
		Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1															
Finishing		SF	WNMG 331 SF	WNMG060404-SF																																				
			WNMG 332 SF	WNMG060408-SF							●	●	●																											
			WNMG 431 SF	WNMG080404-SF							●	●	●																											
			WNMG 432 SF	WNMG080408-SF							●	●	●																											
			CF	WNMG 431 CF	WNMG080404-CF											●	●																							
			WNMG 432 CF	WNMG080408-CF												●	●																							
			WNMG 433 CF	WNMG080412-CF													●	●																						
			HRF	WNMG 431 HRF	WNMG080404-HRF												●	●																						
			WNMG 432 HRF	WNMG080408-HRF													●	●																						
			TS	WNMG 431 TS	WNMG080404-TS	●	●	●	▲	▲	▲								●	●	●	●																		
			WNMG 432 TS	WNMG080408-TS		●	●	●	▲	▲	▲									●	●	●	●																	
			WNMG 433 TS	WNMG080412-TS		●	●	●	▲	▲	▲										●	●	●	●																

● : Line up
 ▲ : To be discontinued



*-M,G: Without chipbreaker

Reference pages: External toolholder → **C031** - Internal toolholder → **D035** -
 TungCap → **C038** -, **K011** -

Grade
 Insert
 Ext. Toolholder
 Int. Toolholder
 Threading
 Grooving
 Milling Cutter
 Miniature Tool
 Endmill
 Drilling Tool
 Tooling System
 User's Guide
 Index

Grade: **A**
 Insert: **B**
 Ext. Toolholder: **C**
 Int. Toolholder: **D**
 Threading: **E**
 Grooving: **F**
 Milling Cutter: **G**
 Miniature Tool: **H**
 Endmill: **I**
 Drilling Tool: **J**
 Tooling System: **K**
 User's Guide: **L**
 Index: **M**

Insert NEGATIVE TYPE

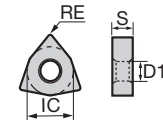
● : Continuous cutting
 ● : Light interrupted cutting
 * : Heavy interrupted cutting

WN



Trigon, 80°
with hole

	P	M	K	N	S	H																
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation		Coated													Cermet NS9530	Dimension (inch)					
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T515		T5115	GH330	RE	IC	S	D1
Finishing to medium cutting (wiper)		SW	WNMG 332E SW	WNMG060408E-SW	●	●	●	●	▲	▲	▲								●	0.031	0.375	0.187	0.150
			WNMG 333E SW	WNMG060412E-SW	●	●	●		▲	▲	▲								●	0.047	0.375	0.187	0.150
			WNMG 432 SW	WNMG080408-SW	●	●	●		▲	▲	▲						●	●		0.031	0.500	0.187	0.203
			WNMG 433 SW	WNMG080412-SW	●	●			▲	▲							●	●		0.047	0.500	0.187	0.203
			*Wiper																				
Finishing to medium cutting (ASW)		ASW	WNMG 332 ASW	WNMG060408-ASW	●	●	●		▲	▲	▲								0.031	0.375	0.187	0.150	
			WNMG 333 ASW	WNMG060412-ASW	●	●	●	●	▲	▲	▲	▲								0.047	0.375	0.187	0.150
			WNMG 432 ASW	WNMG080408-ASW	●	●	●	●	▲	▲	▲	▲								0.031	0.500	0.187	0.203
			WNMG 433 ASW	WNMG080412-ASW	●	●	●	●	▲	▲	▲	▲								0.047	0.500	0.187	0.203
High feed, small depth of cut		AS	WNMG 431 AS	WNMG080404-AS	●				▲									●	0.016	0.500	0.187	0.203	
			WNMG 432 AS	WNMG080408-AS	●	●	●	●	▲	▲	▲	▲							●	0.031	0.500	0.187	0.203
			WNMG 433 AS	WNMG080412-AS	●	●	●	●	▲	▲	▲	▲							●	0.047	0.500	0.187	0.203
Boring (double side)		CB	WNMG 331 CB	WNMG060404-CB			●			▲								●	0.016	0.375	0.187	0.150	
			WNMG 332 CB	WNMG060408-CB			●			▲									●	0.031	0.375	0.187	0.150
Finishing		NS	WNMG 431 NS	WNMG080404-NS	●	●			▲	▲								●	0.016	0.500	0.187	0.203	
			WNMG 432 NS	WNMG080408-NS	●	●			▲	▲									●	0.031	0.500	0.187	0.203
			WNMG 331E SS	WNMG060404E-SS										●	●					0.016	0.375	0.187	0.150
			WNMG 332E SS	WNMG060408E-SS										●	●					0.031	0.375	0.187	0.150
			WNMG 333E SS	WNMG060412E-SS										●	●					0.047	0.375	0.187	0.150
			WNMG 431 SS	WNMG080404-SS								●	●	●	●		●			0.016	0.500	0.187	0.203
	WNMG 432 SS	WNMG080408-SS								●	●	●	●		●			0.031	0.500	0.187	0.203		
	WNMG 433 SS	WNMG080412-SS								●	●	●	●					0.047	0.500	0.187	0.203		

* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C031 - Internal toolholder → D035 -
TungCap → C038 -, K011 -

Insert NEGATIVE TYPE

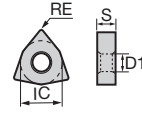
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

WN

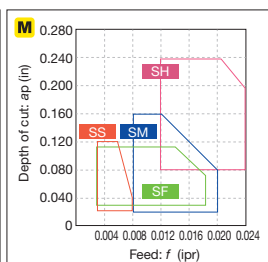
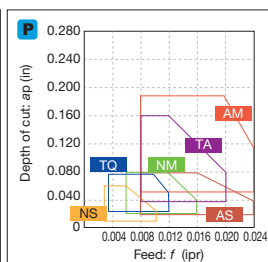
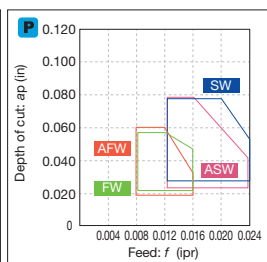
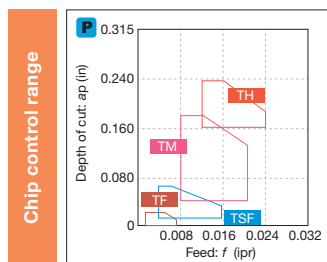


Trigon, 80°
with hole

P	Steel	●	◐	◑	✱	●	◐	◑	✱	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐			●	◐	◑	✱	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
K	Cast iron	◐	◑	●		◐	◑	●		◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous																			
S	Superalloy											◐	◑	●						
H	Hard material																			



Application	Chipbreaker	Designation		Coated												Coated cermet		Cermet	Dimension (inch)								
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH120	AH725	AH8015	T515	GT9530	AT9530	NS9530	RE	IC	S	D1					
Medium cutting		TM	WNMG 331E TM	WNMG060404E-TM	●	●				▲	▲		●	●									0.016	0.375	0.187	0.150	
			WNMG 332E TM	WNMG060408E-TM	●	●				▲	▲		●	●										0.031	0.375	0.187	0.150
			WNMG 333E TM	WNMG060412E-TM	●	●				▲	▲		●	●										0.047	0.375	0.187	0.150
			WNMG 331 TM	WNMG060404-TM	●	●	●			▲	▲	▲												0.016	0.375	0.187	0.150
			WNMG 332 TM	WNMG060408-TM	●	●	●	●		▲	▲	▲	▲	●										0.031	0.375	0.187	0.150
			WNMG 431 TM	WNMG080404-TM	●	●	●	●	●	▲	▲	▲	▲	●	●									0.016	0.500	0.187	0.203
			WNMG 432 TM	WNMG080408-TM	●	●	●	●	●	▲	▲	▲	▲	●	●	●	●							0.031	0.500	0.187	0.203
			WNMG 433 TM	WNMG080412-TM	●	●	●	●	●	▲	▲	▲	▲	●	●	●	●							0.047	0.500	0.187	0.203
			WNMG 434 TM	WNMG080416-TM	●	●	●			▲	▲	▲		●										0.063	0.500	0.187	0.203
Finishing to medium cutting		AM	WNMG 432 AM	WNMG080408-AM	●	●				▲	▲												0.031	0.500	0.187	0.203	
			WNMG 433 AM	WNMG080412-AM	●	●				▲	▲												0.047	0.500	0.187	0.203	
			WNMG 434 AM	WNMG080416-AM	●	●				▲	▲												0.063	0.500	0.187	0.203	
		TQ	WNMG 431 TQ	WNMG080404-TQ	●	●									●	●		●					0.016	0.500	0.187	0.203	
			WNMG 432 TQ	WNMG080408-TQ	●	●									●	●		●					0.031	0.500	0.187	0.203	
Medium cutting		TA	WNMG 432 TA	WNMG080408-TA	●	●																	0.031	0.500	0.187	0.203	
			WNMG 433 TA	WNMG080412-TA	●	●																		0.047	0.500	0.187	0.203
		NM	WNMG 333E NM	WNMG060412E-NM		●						▲												0.047	0.375	0.187	0.150
	WNMG 432 NM	WNMG080408-NM	●	●	●				▲	▲	▲											0.031	0.500	0.187	0.203		
	WNMG 433 NM	WNMG080412-NM	●	●	●	●			▲	▲	▲	▲										0.047	0.500	0.187	0.203		



● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C031 - Internal toolholder → D035 - TungCap → C038 -, K011 -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index



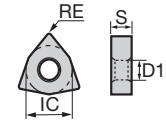
Insert NEGATIVE TYPE

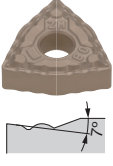
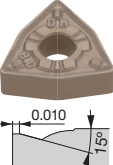
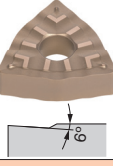
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

WN

 **Trigon, 80° with hole**

	P	M	K	N	S	H
Steel	●●●●✱	●●●●✱	●●●●✱	●●●●✱	●●●●✱	●●●●✱
Stainless	●●	●●	●●	●●	●●	●●
Cast iron	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Non-ferrous						
Superalloy						
Hard material						



Application	Chipbreaker	Designation		Coated														Coated cermet	Cermet	Un-coated	Dimension (inch)								
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GH330	GT720	GT9530	NS9530	NS520	TH10	RE	IC	S	D1		
Finishing to medium cutting		ZM	WNMG 332E ZM	WNMG060408E-ZM	●	●			▲	▲														0.031	0.375	0.187	0.150		
			WNMG 332 ZM	WNMG060408-ZM	●	●	●		▲	▲	▲														0.031	0.375	0.187	0.150	
			WNMG 333 ZM	WNMG060412-ZM	●	●	●		▲	▲	▲														0.047	0.375	0.187	0.150	
			WNMG 432 ZM	WNMG080408-ZM	●	●	●		▲	▲	▲										●	●			0.031	0.500	0.187	0.203	
			WNMG 433 ZM	WNMG080412-ZM	●	●	●		▲	▲	▲														0.047	0.500	0.187	0.203	
			WNMG 434 ZM	WNMG080416-ZM	●	●			▲	▲															0.063	0.500	0.187	0.203	
Medium cutting		DM	WNMG 432 DM	WNMG080408-DM	●	●	●	●	▲	▲	▲	▲												0.031	0.500	0.187	0.203		
			WNMG 433 DM	WNMG080412-DM	●	●	●	●	▲	▲	▲	▲													0.047	0.500	0.187	0.203	
			All-round	WNMG 331	WNMG060404	●	●			▲	▲		●	●	●										0.016	0.375	0.187	0.150	
			WNMG 332	WNMG060408	●	●			▲	▲	▲		●	●	●										0.031	0.375	0.187	0.150	
			WNMG 431	WNMG080404	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●				●	●		0.016	0.500	0.187	0.203	
			WNMG 432	WNMG080408	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●				●	●		0.031	0.500	0.187	0.203	
Finishing to medium cutting		27	WNMG 432-27	WNMG080408-27		●			▲															0.031	0.500	0.187	0.203		
			33	WNMG 431-33	WNMG080404-33																●				0.016	0.500	0.187	0.203	
			WNMG 432-33	WNMG080408-33						▲													●		0.031	0.500	0.187	0.203	
			WNMG 433-33	WNMG080412-33																					0.047	0.500	0.187	0.203	
			37	WNMG 431-37	WNMG080404-37																		●			0.016	0.500	0.187	0.203
			WNMG 432-37	WNMG080408-37	●				▲													●	●		0.031	0.500	0.187	0.203	

● : Line up
 ▲ : To be discontinued

Reference pages: External toolholder → C031 - Internal toolholder → D035 -
 TungCap → C038 -, K011 -

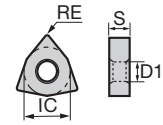
Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

WN

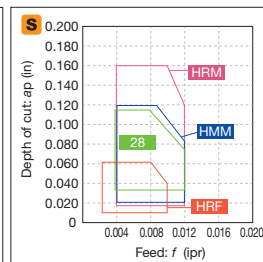
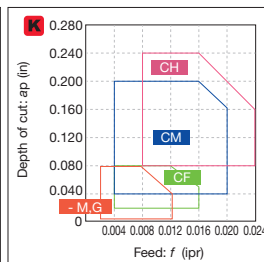
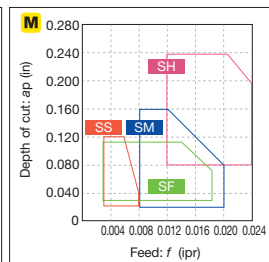
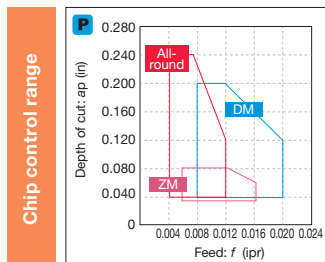
Trigon, 80°
with hole

	P	M	K	N	S	H
Steel	●	◐	◑	◐	◑	◑
Stainless	◑	◑	◑	◑	◑	◑
Cast iron	◑	◑	◑	◑	◑	◑
Non-ferrous	◑	◑	◑	◑	◑	◑
Superalloy	◑	◑	◑	◑	◑	◑
Hard material	◑	◑	◑	◑	◑	◑



Application	Chipbreaker	Designation	Coated										Uncoated	Dimension (inch)							
			T6120	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH120	AH725	AH8005	AH8015	AH905	KS20	RE	IC	S	D1	
			Inch	Metric																	
Medium cutting		SM	WNMG 331E SM	WNMG060404E-SM	●	●	●											0.016	0.375	0.187	0.150
		WNMG 332E SM	WNMG060408E-SM	●	●	●												0.031	0.375	0.187	0.150
		WNMG 333E SM	WNMG060412E-SM	●	●	●												0.047	0.375	0.187	0.150
		WNMG 332 SM	WNMG060408-SM									●						0.031	0.375	0.187	0.150
		WNMG 431 SM	WNMG080404-SM	●	●	●	●											0.016	0.500	0.187	0.203
		WNMG 432 SM	WNMG080408-SM	●	●	●	●					●						0.031	0.500	0.187	0.203
		WNMG 433 SM	WNMG080412-SM	●	●	●	●					●						0.047	0.500	0.187	0.203
Medium cutting		CM	WNMG 431 CM	WNMG080404-CM													0.016	0.500	0.187	0.203	
		WNMG 432 CM	WNMG080408-CM				●	●	●								0.031	0.500	0.187	0.203	
		WNMG 433 CM	WNMG080412-CM				●	●	●	●							0.047	0.500	0.187	0.203	
Finishing to medium cutting		HRM	WNMG 431 HRM	WNMG080404-HRM								●	●				0.016	0.500	0.187	0.203	
		WNMG 432 HRM	WNMG080408-HRM									●	●				0.031	0.500	0.187	0.203	
		WNMG 433 HRM	WNMG080412-HRM									●	●				0.047	0.500	0.187	0.203	
Medium cutting		HMM	WNMG 431 HMM	WNMG080404-HMM										●			0.016	0.500	0.187	0.203	
		WNMG 432 HMM	WNMG080408-HMM											●			0.031	0.500	0.187	0.203	
		WNMG 433 HMM	WNMG080412-HMM											●			0.047	0.500	0.187	0.203	

● : Line up



*-M,G: Without chipbreaker

Reference pages: External toolholder → **C031** - Internal toolholder → **D035** -
TungCap → **C038** -, **K011** -

Grade: A, B, C, D, E, F, G, H, I, J, K, L, M
Insert
Toolholder: Ext., Int.
Threading, Grooving, Milling Cutter, Miniature Tool, Endmill, Drilling Tool
User's Guide: Tooling System, Index

Insert NEGATIVE TYPE

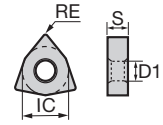
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

WN



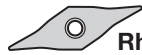
Trigon, 80° with hole

P	Steel					●	●												
M	Stainless					●	●												
K	Cast iron	●	●	●	●	●	●												
N	Non-ferrous					●	●												
S	Superalloy					●	●												
H	Hard material																		



Application	Chipbreaker		Designation						Dimension (inch)					
			Coated			Cermet	Uncoated	Ceramic						
	Inch	Metric	T515	T5105	T5115	T5125	AH120	NS520	TH10	LX11	RE	IC	S	D1
Finishing to medium cutting	-	WNMA 331E	WNMA060404E	●							0.016	0.375	0.187	0.150
		WNMA 332E	WNMA060408E	●							0.031	0.375	0.187	0.150
		WNMA 333E	WNMA060412E	●							0.047	0.375	0.187	0.150
		WNMA 334E	WNMA060416E	●							0.063	0.375	0.187	0.150
		WNMA 431	WNMA080404		●	●	●			●	0.016	0.500	0.187	0.203
		WNMA 432	WNMA080408		●	●	●		●		0.031	0.500	0.187	0.203
		WNMA 433	WNMA080412		●	●	●				0.047	0.500	0.187	0.203
		WNMA 434	WNMA080416		●	●	●				0.063	0.500	0.187	0.203
		WNGA 431	WNGA080404								0.016	0.500	0.187	0.203
		WNGA 432	WNGA080408								0.031	0.500	0.187	0.203
	WNGA 433	WNGA080412								0.047	0.500	0.187	0.203	

YN

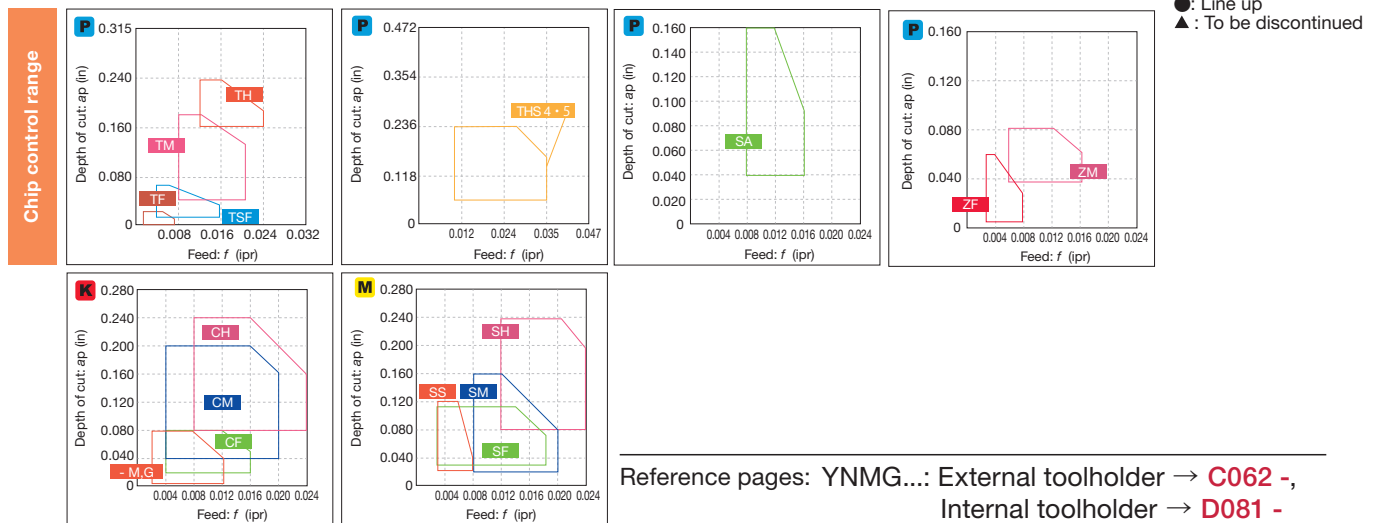


Rhombic, 25° with hole

P	Steel	●	●	●	●	●	●												
M	Stainless	●	●	●	●	●	●												
K	Cast iron							●	●										
N	Non-ferrous																		
S	Superalloy																		
H	Hard material																		



Application	Chipbreaker		Designation						Dimension (inch)				
			Coated			Coated cermet	Cermet						
	Inch	Metric	T9225	T9235	T9125	T9135	GT9530	NS9530	RE	IC	S	D1	
Finishing	ZF	YNMG 331 ZF	YNMG160404-ZF	●	●	▲	▲	●	●	0.016	0.375	0.187	0.150
		YNMG 332 ZF	YNMG160408-ZF	●	●	▲	▲	●	●	0.031	0.375	0.187	0.150
Finishing to medium cutting	ZM	YNMG 331 ZM	YNMG160404-ZM	●	●	▲	▲	●	●	0.016	0.375	0.187	0.150
		YNMG 332 ZM	YNMG160408-ZM	●	●	▲	▲	●	●	0.031	0.375	0.187	0.150



Reference pages: YNMG...: External toolholder → **C062 -**,
Internal toolholder → **D081 -**

Insert NEGATIVE TYPE

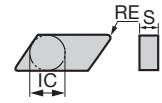
● : Continuous cutting
 ●● : Light interrupted cutting
 ●●● : Heavy interrupted cutting

KN



Parallelogram, 55°
without hole

P	Steel	●●																		
M	Stainless	●●																		
K	Cast iron	●●																		
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			



Application	Chipbreaker	Designation		Coated	Dimension (inch)					
		Inch	Metric		RE	IC	S	D1		
		S1	-		KNMX160405R-S1	●				
Finishing		-	KNMX160405L-S1	●						

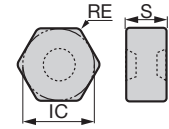
●: Line up

HN



Hexagonal,
120°
without hole

P	Steel																			
M	Stainless																			
K	Cast iron	●●																		
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			



Application	Chipbreaker	Designation		Ceramic	Dimension (inch)					
		Inch	Metric		RE	IC	S	D1		
Finishing to medium cutting		-	HNGD 453	HNGD050712	●					
			HNGD 454	HNGD050716	●					

●: Line up

Reference pages: HNGD...: External toolholder → **C111**

Insert POSITIVE TYPE

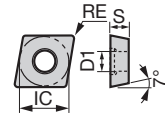
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CC



**Rhombic, 80°
with hole
Positive 7°**

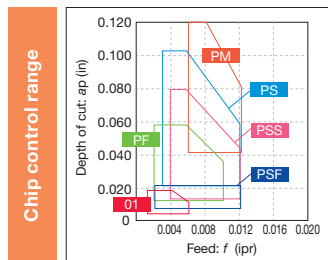
	P	M	K	N	S	H															
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous																					
Superalloy																					
Hard material																					



Application	Chipbreaker	Designation		Coated											Coated cermet	Cermet	Dimension (inch)						
				T9215	T9225	T9115	T9125	T6120	T6130	AH725	AH8005	AH8015	AH110	GH730	SH725	J740	GT9530	NS9530	RE	IC	S	D1	
				Inch	Metric																		
Precision finishing		01	CCGT 21.50.5-01	CCGT060202-01															0.008	0.250	0.094	0.110	
			CCGT 32.50.5-01	CCGT09T302-01																0.008	0.375	0.156	0.173
Precision finishing (sharp edge)		01	CCGT 21.50.5 F-01	CCGT060202F-01															<0.008	0.250	0.094	0.110	
			CCGT 21.51 F-01	CCGT060204F-01																<0.016	0.250	0.094	0.110
			CCGT 32.50.5 F-01	CCGT09T302F-01																<0.008	0.375	0.156	0.173
			CCGT 32.51 F-01	CCGT09T304F-01																<0.016	0.375	0.156	0.173
Finishing		PSF	CCMT 21.50.5 PSF	CCMT060202-PSF															0.008	0.250	0.094	0.110	
			CCMT 21.51 PSF	CCMT060204-PSF	●	●	▲	▲			●	●	●							0.016	0.250	0.094	0.110
			CCMT 32.50.5 PSF	CCMT09T302-PSF							●									0.008	0.375	0.156	0.173
			CCMT 32.51 PSF	CCMT09T304-PSF	●	●	▲	▲			●	●	●							0.016	0.375	0.156	0.173
			CCMT 32.52 PSF	CCMT09T308-PSF	●	●	▲	▲			●									0.031	0.375	0.156	0.173
		PF	CCMT 21.50.5 PF	CCMT060202-PF												●	●			0.008	0.250	0.094	0.110
			CCMT 21.51 PF	CCMT060204-PF							●	●				●	●			0.016	0.250	0.094	0.110
			CCMT 21.52 PF	CCMT060208-PF												●	●			0.031	0.250	0.094	0.110
	CCMT 32.50.5 PF	CCMT09T302-PF												●				0.008	0.375	0.156	0.173		
	CCMT 32.51 PF	CCMT09T304-PF								●	●			●	●			0.016	0.375	0.156	0.173		
	CCMT 32.52 PF	CCMT09T308-PF	●		▲									●	●			0.031	0.375	0.156	0.173		

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -

Insert POSITIVE TYPE

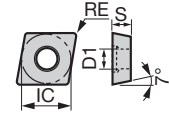
● : Continuous cutting
 ● : Light interrupted cutting
 * : Heavy interrupted cutting

CC



**Rhombic, 80°
with hole
Positive 7°**

	P	M	K	N	S	H
Steel	●●●*	●●●*	●●●*	●●●*	●●●*	●●●*
Stainless	●●	●●	●●	●●	●●	●●
Cast iron	●●	●●	●●	●●	●●	●●
Non-ferrous	●●	●●	●●	●●	●●	●●
Superalloy	●●	●●	●●	●●	●●	●●
Hard material	●●	●●	●●	●●	●●	●●



Application	Chipbreaker	Designation		Coated													Coated cermet	Cermet	Dimension (inch)						
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	GH730	GT9530	AT9530	NS9530	RE	IC	S	D1		
Finishing to light cutting		PSS	CCMT 21.51 PSS	CCMT060204-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.250	0.094	0.110
			CCMT 21.52 PSS	CCMT060208-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.250	0.094	0.110
			CCMT 32.51 PSS	CCMT09T304-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.375	0.156	0.173
			CCMT 32.52 PSS	CCMT09T308-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.375	0.156	0.173
			CCMT 431 PSS	CCMT120404-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.500	0.187	0.217
			CCMT 432 PSS	CCMT120408-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.500	0.187	0.217
			CCMT 433 PSS	CCMT120412-PSS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.047	0.500	0.187	0.217
Medium cutting (wiper)		SW	CCMT 21.51 SW	CCMT060204-SW	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.250	0.094	0.110	
			CCMT 21.52 SW	CCMT060208-SW	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.250	0.094	0.110	
			CCMT 32.51 SW	CCMT09T304-SW	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.375	0.156	0.173	
			CCMT 32.52 SW	CCMT09T308-SW	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.375	0.156	0.173	
			*Wiper																						
Finishing to medium cutting		PS	CCMT 21.50.5 PS	CCMT060202-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.008	0.250	0.094	0.110	
			CCMT 21.51 PS	CCMT060204-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.250	0.094	0.110	
			CCMT 21.52 PS	CCMT060208-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.250	0.094	0.110	
			CCMT 32.50.5 PS	CCMT09T302-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.008	0.375	0.156	0.173	
			CCMT 32.51 PS	CCMT09T304-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.375	0.156	0.173	
			CCMT 32.52 PS	CCMT09T308-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.375	0.156	0.173	
			CCMT 431 PS	CCMT120404-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.016	0.500	0.187	0.217	
			CCMT 432 PS	CCMT120408-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.031	0.500	0.187	0.217	
		CCMT 433 PS	CCMT120412-PS	●●●	●●●	▲▲	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●	0.047	0.500	0.187	0.217		
			TSF	CCMT 21.51 TSF	CCMT060204-TSF	●●	●●														●	0.016	0.250	0.094	0.110
			CCMT 21.52 TSF	CCMT060208-TSF	●●	●●															●	0.031	0.250	0.094	0.110
			CCMT 32.51 TSF	CCMT09T304-TSF	●●	●●															●	0.016	0.375	0.156	0.173
	CCMT 32.52 TSF		CCMT09T308-TSF	●●	●●															●	0.031	0.375	0.156	0.173	
		TM	CCMT 21.51 TM	CCMT060204-TM	●●	●●														●	0.016	0.250	0.094	0.110	
		CCMT 21.52 TM	CCMT060208-TM	●●	●●															●	0.031	0.250	0.094	0.110	
		CCMT 32.51 TM	CCMT09T304-TM	●●	●●															●	0.016	0.375	0.156	0.173	
		CCMT 32.52 TM	CCMT09T308-TM	●●	●●															●	0.031	0.375	0.156	0.173	

* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW.
 Please contact a Tungaloy sales representative with questions.

● : Line up
 ▲ : To be discontinued

Insert POSITIVE TYPE

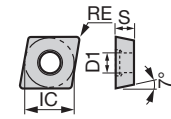
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

CC



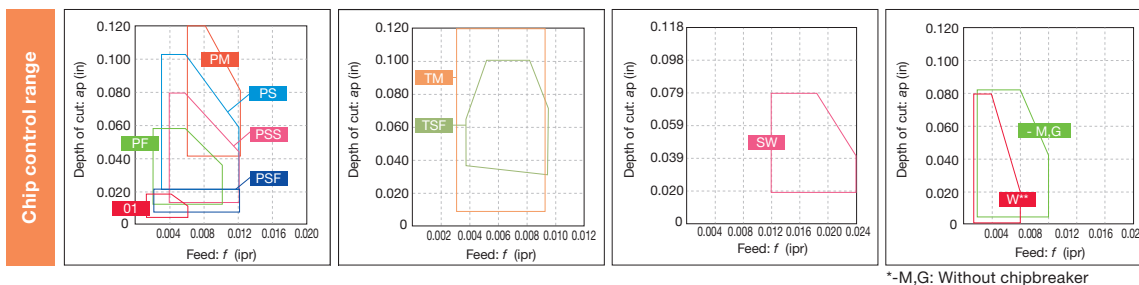
Rhombic, 80°
with hole
Positive 7°

Material	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material
	●●●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●



Application	Chipbreaker	Designation		Coated						Cermet	Uncoated	Dimension (inch)					
		Inch	Metric	T9215	T9225	T9115	T9125	T6130	AH120	SH730	NS9530	TH10	RE	IC	S	D1	
Finishing to medium cutting		23	CCMT 21.50.5-23	CCMT060202-23								●					
			CCMT 21.51-23	CCMT060204-23	●		▲					●					
			CCMT 21.52-23	CCMT060208-23	●		▲						●				
			CCMT 32.51-23	CCMT09T304-23	●		▲					●					
			CCMT 32.52-23	CCMT09T308-23	●		▲					●					
Medium cutting		24	CCMT 21.50.5-24	CCMT060202-24	●		▲					●					
			CCMT 21.51-24	CCMT060204-24	●	●	▲	▲	●	●		●					
			CCMT 21.52-24	CCMT060208-24	●	●	▲	▲	●	●		●					
			CCMT 32.50.5-24	CCMT09T302-24	●		▲					●					
			CCMT 32.51-24	CCMT09T304-24	●	●	▲	▲	●	●		●					
			CCMT 32.52-24	CCMT09T308-24	●	●	▲	▲	●	●		●					
			CCMT 432-24	CCMT120408-24	●	●	▲	▲	●	●		●					
Finishing		W08	CCGT 4.51.8V R-W08	CCGT03X100R-W08								●					
			CCGT 4.51.8V L-W08	CCGT03X100L-W08								●					
			CCGT 4.51.80 R-W08	CCGT03X101R-W08								●					
			CCGT 4.51.80 L-W08	CCGT03X101L-W08								●					
			CCGT 4.51.80.5 R-W08	CCGT03X102R-W08								●					
			CCGT 4.51.80.5 L-W08	CCGT03X102L-W08								●					
			CCGT 4.51.81 R-W08	CCGT03X104R-W08								●					
			CCGT 4.51.81 L-W08	CCGT03X104L-W08								●					
			CCGT 5.52.2V R-W08	CCGT04T100R-W08								●					
			CCGT 5.52.2V L-W08	CCGT04T100L-W08								●					
			CCGT 5.52.20 R-W08	CCGT04T101R-W08								●					
			CCGT 5.52.20 L-W08	CCGT04T101L-W08								●					
			CCGT 5.52.20.5 R-W08	CCGT04T102R-W08								●					
			CCGT 5.52.20.5 L-W08	CCGT04T102L-W08								●					
			CCGT 5.52.21 R-W08	CCGT04T104R-W08								●					
	CCGT 5.52.21 L-W08	CCGT04T104L-W08								●							

- : Line up
- ▲ : To be discontinued



*-M,G: Without chipbreaker

Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index



Insert POSITIVE TYPE

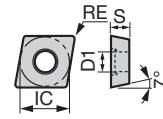
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CC

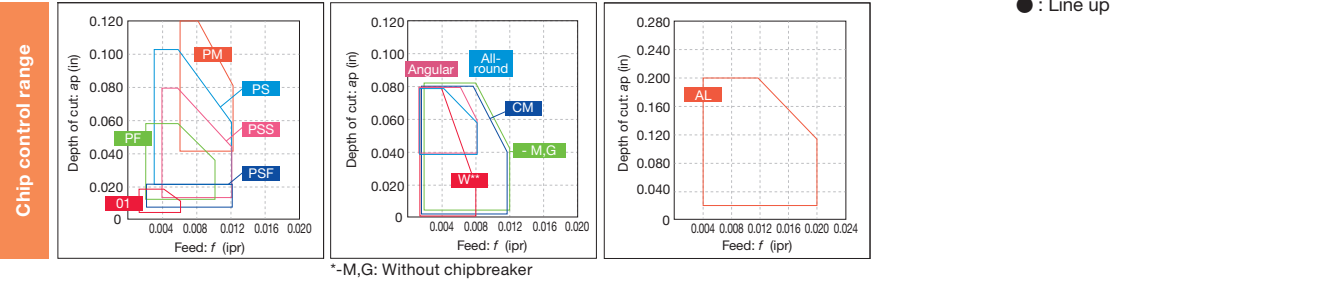


Rhombic, 80°
with hole
Positive 7°

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●	◐	◑	◐	◐	◐
M	◐	◐	◐	◐	◐	◐
K	◐	◐	◐	◐	◐	◐
N	◐	◐	◐	◐	◐	◐
S	◐	◐	◐	◐	◐	◐
H	◐	◐	◐	◐	◐	◐



Application	Chipbreaker	Designation	Coated		Cermet	Uncoated		Dimension (inch)				
			T5115	GH110	SH725	NS9530	TH10	KS05F	RE	IC	S	D1
			Inch	Metric								
Finishing to medium cutting		AL	CCGT 21.50 AL	CCGT060201-AL	●				0.004	0.250	0.094	0.110
			CCGT 21.50.5 AL	CCGT060202-AL	●				0.008	0.250	0.094	0.110
			CCGT 21.51 AL	CCGT060204-AL					0.016	0.250	0.094	0.110
			CCGT 32.50 AL	CCGT09T301-AL					0.004	0.375	0.156	0.173
			CCGT 32.50.5 AL	CCGT09T302-AL	●				0.008	0.375	0.156	0.173
			CCGT 32.51 AL	CCGT09T304-AL	●				0.016	0.375	0.156	0.173
			CCGT 32.52 AL	CCGT09T308-AL					0.031	0.375	0.156	0.173
			CCGT 430.5 AL	CCGT120402-AL					0.008	0.500	0.187	0.217
			CCGT 431 AL	CCGT120404-AL					0.016	0.500	0.187	0.217
			CCGT 432 AL	CCGT120408-AL					0.031	0.500	0.187	0.217
		All-round	CCGT 21.50.5	CCGT060202		●			0.008	0.250	0.094	0.110
			CCGT 21.51	CCGT060204		●			0.016	0.250	0.094	0.110
			CCGT 32.50.5	CCGT09T302		●			0.008	0.375	0.156	0.173
			CCGT 32.51	CCGT09T304		●			0.016	0.375	0.156	0.173
			CCGT 32.52	CCGT09T308		●			0.031	0.375	0.156	0.173
		Angular	CCGT 21.5V R	CCGT060200R				●	0.001	0.250	0.094	0.110
		CCGT 21.50.5 R	CCGT060202R				●	0.008	0.250	0.094	0.110	
		CCGT 21.50.5 L	CCGT060202L				●	0.008	0.250	0.094	0.110	
		CCGT 21.51 L	CCGT060204L				●	0.016	0.250	0.094	0.110	
		CCGT 32.50.5 R	CCGT09T302R				●	0.008	0.375	0.156	0.173	
		CCGT 32.50.5 L	CCGT09T302L				●	0.008	0.375	0.156	0.173	
		CCGT 32.51 R	CCGT09T304R				●	0.016	0.375	0.156	0.173	
		CCGT 32.51 L	CCGT09T304L				●	0.016	0.375	0.156	0.173	
	-	CCMW 21.51	CCMW060204	●				0.016	0.250	0.094	0.110	
		CCMW 21.52	CCMW060208	●				0.031	0.250	0.094	0.110	
		CCMW 32.51	CCMW09T304	●				0.016	0.375	0.156	0.173	
		CCMW 32.52	CCMW09T308	●				0.031	0.375	0.156	0.173	
	-	CCGW 21.50.5	CCGW060202				●	0.008	0.250	0.094	0.110	
		CCGW 21.51	CCGW060204				●	0.016	0.250	0.094	0.110	
		CCGW 32.51	CCGW09T304	●			●	0.016	0.375	0.156	0.173	



Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -

Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

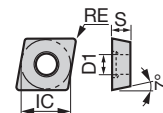
Insert POSITIVE TYPE

● : Continuous cutting
● : Light interrupted cutting
✱ : Heavy interrupted cutting

CC

Rhombic, 80°
with hole
Positive 7°

P	Steel	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
M	Stainless	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
K	Cast iron	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
N	Non-ferrous	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
S	Superalloy	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
H	Hard material	●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●



Application	Chipbreaker	Designation		Coated										Dimension (inch)				
		Inch	Metric	AH725	SH725	SH730									RE	IC	S	D1
For internal turning on Swiss lathes		JS	CCGT 4.51.80 JS	CCGT03X101-JS			●								<0.0039	0.141	0.055	0.075
			CCGT 4.51.80.5 JS	CCGT03X102-JS			●								<0.008	0.141	0.055	0.075
			CCGT 4.51.81 JS	CCGT03X104-JS			●								<0.016	0.141	0.055	0.075
			CCGT 5.52.20 JS	CCGT04T101-JS			●								<0.0039	0.172	0.070	0.091
			CCGT 5.52.20.5 JS	CCGT04T102-JS			●								<0.008	0.172	0.070	0.091
			CCGT 5.52.21 JS	CCGT04T104-JS			●								<0.016	0.172	0.070	0.091
For internal turning on Swiss lathes (sharp edge)		JS	CCGT 4.51.80 F-JS	CCGT03X101F-JS			●							<0.0039	0.141	0.055	0.075	
			CCGT 4.51.80.5 F-JS	CCGT03X102F-JS			●							<0.008	0.141	0.055	0.075	
			CCGT 4.51.81 F-JS	CCGT03X104F-JS			●							<0.016	0.141	0.055	0.075	
			CCGT 5.52.20 F-JS	CCGT04T101F-JS			●							<0.0039	0.172	0.070	0.091	
			CCGT 5.52.20.5 F-JS	CCGT04T102F-JS			●							<0.008	0.172	0.070	0.091	
			CCGT 5.52.21 F-JS	CCGT04T104F-JS			●							<0.016	0.172	0.070	0.091	
For external turning on Swiss lathes		JS	CCGT 21.50 N-JS	CCGT060201N-JS	●									0.004	0.250	0.094	0.110	
			CCGT 21.50.5 N-JS	CCGT060202N-JS	●									0.008	0.250	0.094	0.110	
			CCGT 21.51 N-JS	CCGT060204N-JS	●									0.016	0.250	0.094	0.110	
			CCGT 32.50 N-JS	CCGT09T301N-JS	●									0.004	0.375	0.156	0.173	
			CCGT 32.50.5 N-JS	CCGT09T302N-JS	●									0.008	0.375	0.156	0.173	
			CCGT 32.51 N-JS	CCGT09T304N-JS	●									0.016	0.375	0.156	0.173	
For external turning on Swiss lathes (sharp edge)		JS	CCGT 21.5V FN-JS	CCGT060200FN-JS	●	●								0.001	0.250	0.094	0.110	
			CCGT 21.50 FN-JS	CCGT060201FN-JS	●	●								<0.0039	0.250	0.094	0.110	
			CCGT 21.50.5 FN-JS	CCGT060202FN-JS	●	●								<0.008	0.250	0.094	0.110	
			CCGT 21.51 FN-JS	CCGT060204FN-JS	●	●								<0.016	0.250	0.094	0.110	
			CCGT 32.5V FN-JS	CCGT09T300FN-JS	●	●								0.001	0.375	0.156	0.173	
			CCGT 32.50 FN-JS	CCGT09T301FN-JS	●	●								<0.0039	0.375	0.156	0.173	
			CCGT 32.50.5 FN-JS	CCGT09T302FN-JS	●	●								<0.008	0.375	0.156	0.173	
			CCGT 32.51 FN-JS	CCGT09T304FN-JS	●	●								<0.016	0.375	0.156	0.173	

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -

Insert POSITIVE TYPE

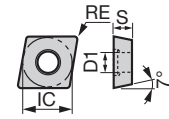
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CC



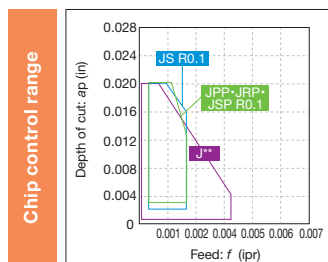
**Rhombic, 80°
with hole
Positive 7°**

P	Steel	●●●●			●●															
M	Stainless	●●●●																		
K	Cast iron				●●															
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			



Application	Chipbreaker	Designation		Coated			Cermet			Uncoated			Dimension (inch)					
		Inch	Metric	SH725 J740		NS9530			TH10			RE	IC	S	D1			
For external turning on Swiss lathes (sharp edge)		J10	CCGT 21.5V FR-J10	CCGT060200FR-J10	●	●								0.001	0.250	0.094	0.110	
			CCGT 21.5V FL-J10	CCGT060200FL-J10	●	●									0.001	0.250	0.094	0.110
			CCGT 21.50 FR-J10	CCGT060201FR-J10	●	●			●						0.004	0.250	0.094	0.110
			CCGT 21.50 FL-J10	CCGT060201FL-J10	●	●									0.004	0.250	0.094	0.110
			CCGT 21.50.5 FR-J10	CCGT060202FR-J10	●	●			●						0.008	0.250	0.094	0.110
			CCGT 21.50.5 FL-J10	CCGT060202FL-J10	●	●			●						0.008	0.250	0.094	0.110
			CCGT 32.5V FR-J10	CCGT09T300FR-J10	●	●									0.001	0.375	0.156	0.173
			CCGT 32.5V FL-J10	CCGT09T300FL-J10	●	●									0.001	0.375	0.156	0.173
			CCGT 32.50 FR-J10	CCGT09T301FR-J10	●	●									0.004	0.375	0.156	0.173
			CCGT 32.50 FL-J10	CCGT09T301FL-J10	●	●									0.004	0.375	0.156	0.173
			CCGT 32.50.5 FR-J10	CCGT09T302FR-J10	●	●									0.008	0.375	0.156	0.173
			CCGT 32.50.5 FL-J10	CCGT09T302FL-J10	●	●									0.008	0.375	0.156	0.173
			CCGT 32.51 FR-J10	CCGT09T304FR-J10	●										0.016	0.375	0.156	0.173

● : Line up



*Chip control range with typical R0.1

Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -



Insert POSITIVE TYPE

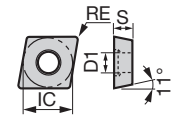
● : Continuous cutting
 ◐ : Light interrupted cutting
 ※ : Heavy interrupted cutting

CP



Rhombic, 80°
 with hole
 Positive 11°

P	Steel	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
M	Stainless	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
K	Cast iron	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
N	Non-ferrous																					
S	Superalloy																					
H	Hard material																					



Application	Chipbreaker	Designation		Coated														Coated cermet	Cermet	Dimension (inch)							
		Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	GH730	GT9530	AT9530	NS9530	RE	IC	S	D1		
				CPMT 21.50.5 PSF	CPMT060202-PSF																						
Finishing		PSF	CPMT 21.51 PSF	CPMT060204-PSF	●	●		▲	▲						●							0.008	0.250	0.094	0.110		
			CPMT 2.51.50.5 PSF	CPMT080202-PSF												●							0.016	0.250	0.094	0.110	
			CPMT 2.51.51 PSF	CPMT080204-PSF	●	●			▲	▲						●								0.008	0.313	0.094	0.134
			CPMT 320.5 PSF	CPMT090302-PSF												●				●	●		0.008	0.375	0.125	0.173	
			CPMT 321 PSF	CPMT090304-PSF	●	●			▲	▲						●				●	●		0.016	0.375	0.125	0.173	
			CPMT 32.50.5 PSF	CPMT09T302-PSF												●							0.008	0.375	0.156	0.173	
			CPMT 32.51 PSF	CPMT09T304-PSF	●	●			▲	▲						●							0.016	0.375	0.156	0.173	
Finishing to light cutting		PSS	CPMT 21.51 PSS	CPMT060204-PSS	●	●			▲	▲					●							0.016	0.250	0.094	0.110		
			CPMT 2.51.51 PSS	CPMT080204-PSS	●	●			▲	▲	●	●	●	●		●						●	0.016	0.313	0.094	0.134	
			CPMT 2.51.52 PSS	CPMT080208-PSS	●	●			▲	▲	●	●	●	●		●						●	0.031	0.313	0.094	0.134	
			CPMT 321 PSS	CPMT090304-PSS	●	●			▲	▲	●	●	●	●		●						●	0.016	0.375	0.125	0.173	
			CPMT 322 PSS	CPMT090308-PSS	●	●			▲	▲	●	●	●	●		●						●	0.031	0.375	0.125	0.173	
			CPMT 32.51 PSS	CPMT09T304-PSS	●	●			▲	▲						●							0.016	0.375	0.156	0.173	
			CPMT 32.52 PSS	CPMT09T308-PSS	●	●			▲	▲						●							0.031	0.375	0.156	0.173	
Finishing to medium cutting		PS	CPMT 21.50.5 PS	CPMT060202-PS	●	●			▲	▲					●	●	●	●	●		●	0.008	0.250	0.094	0.110		
			CPMT 21.51 PS	CPMT060204-PS	●	●			▲	▲						●	●	●	●	●		●	0.016	0.250	0.094	0.110	
			CPMT 2.51.50.5 PS	CPMT080202-PS	●	●			▲	▲	●	●	●	●		●						●	0.008	0.313	0.094	0.134	
			CPMT 2.51.51 PS	CPMT080204-PS	●	●			▲	▲	●	●	●	●		●						●	0.016	0.313	0.094	0.134	
			CPMT 2.51.52 PS	CPMT080208-PS	●	●			▲	▲	●	●	●	●		●						●	0.031	0.313	0.094	0.134	
			CPMT 321 PS	CPMT090304-PS	●	●			▲	▲	●	●	●	●		●						●	0.016	0.375	0.125	0.173	
			CPMT 322 PS	CPMT090308-PS	●	●			▲	▲	●	●	●	●		●						●	0.031	0.375	0.125	0.173	
			CPMT 32.50.5 PS	CPMT09T302-PS	●	●			▲	▲						●	●	●					0.008	0.375	0.156	0.173	
			CPMT 32.51 PS	CPMT09T304-PS	●	●			▲	▲						●	●	●				●	0.016	0.375	0.156	0.173	
			CPMT 32.52 PS	CPMT09T308-PS	●	●			▲	▲						●	●	●					0.031	0.375	0.156	0.173	
Finishing to medium cutting		TSF	CPMT 32.51 TSF	CPMT09T304-TSF	●	●																0.016	0.375	0.156	0.173		
			CPMT 32.52 TSF	CPMT09T308-TSF	●	●																	0.031	0.375	0.156	0.173	
Finishing to medium cutting		TM	CPMT 32.51 TM	CPMT09T304-TM	●	●																0.016	0.375	0.156	0.173		
			CPMT 32.52 TM	CPMT09T308-TM	●	●																	0.031	0.375	0.156	0.173	

Reference pages: Internal toolholder → D025 -

● : Line up
 ▲ : To be discontinued

Insert POSITIVE TYPE

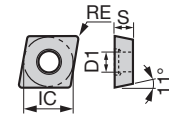
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

CP



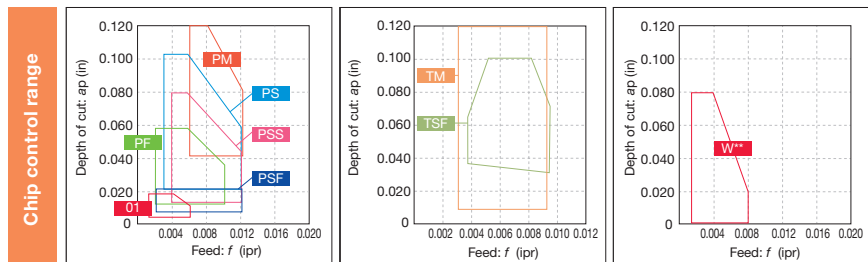
Rhombic, 80°
with hole
Positive 11°

P	Steel	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
K	Cast iron	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
S	Superalloy	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
H	Hard material	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑



Application	Chipbreaker	Designation		Coated				Cermet		Uncoated		Dimension (inch)					
		Inch	Metric	T9215	T9225	T9115	T9125	NS9530		TH10			RE	IC	S	D1	
Medium cutting		24	CPMT 2.51.51-24	CPMT080204-24	●	▲							0.016	0.313	0.094	0.134	
			CPMT 2.51.52-24	CPMT080208-24	●	▲								0.031	0.313	0.094	0.134
			CPMT 322-24	CPMT090308-24	●	▲								0.031	0.375	0.125	0.173
			CPMT 432-24	CPMT120408-24					●					0.031	0.500	0.187	0.217
			CPMT 53.52-24	CPMT160508-24	●	▲			●					0.031	0.625	0.219	0.217
			CPMT 53.53-24	CPMT160512-24					●					0.047	0.625	0.219	0.217
Finishing		W15	CPGT 730.5 L-W15	CPGT050202L-W15					●				0.008	0.219	0.094	0.098	
			CPGT 731 L-W15	CPGT050204L-W15					●				0.016	0.219	0.094	0.098	
			CPGT 2.51.50.5 R-W15	CPGT080202R-W15						●				0.008	0.313	0.094	0.134
			CPGT 2.51.50.5 L-W15	CPGT080202L-W15					●		●			0.008	0.313	0.094	0.134
			CPGT 2.51.51 R-W15	CPGT080204R-W15						●				0.016	0.313	0.094	0.134
		CPGT 2.51.51 L-W15	CPGT080204L-W15					●		●			0.016	0.313	0.094	0.134	
		W20	CPGT 320.5 R-W20	CPGT090302R-W20					●		●			0.008	0.375	0.125	0.173
		CPGT 320.5 L-W20	CPGT090302L-W20					●		●			0.008	0.375	0.125	0.173	
		CPGT 321 R-W20	CPGT090304R-W20					●		●			0.016	0.375	0.125	0.173	
		CPGT 321 L-W20	CPGT090304L-W20					●		●			0.016	0.375	0.125	0.173	

● : Line up
▲ : To be discontinued



Reference pages: Internal toolholder → **D025 -**



Insert POSITIVE TYPE

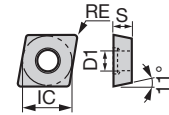
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

CP



Rhombic, 80° with hole
Positive 11°

	P	M	K	N	S	H																	
Steel	●✱	●	●✱	●	✱	✱	●	●														●	●
Stainless				●	●	●	✱	●	●	●												●	●
Cast iron			●									●	●	●	●							●	●
Non-ferrous																						●	●
Superalloy																						●	●
Hard material																							



Application	Chipbreaker	Designation		Coated											Cermet	Dimension (inch)					
		Inch	Metric	T9225	T9105	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH725	AH8005	AH8015	AH905	NS9530	RE	IC	S	D1
		PM	CPMT 21.51 PM	CPMT060204-PM				●	●	●	●			●						0.016	0.250
	CPMT 21.52 PM	CPMT060208-PM	●	▲	●	●	●	●				●						0.031	0.250	0.094	0.110
	CPMT 321 PM	CPMT090304-PM	●	▲	●	●	●	●				●				●		0.016	0.375	0.125	0.173
	CPMT 322 PM	CPMT090308-PM	●	▲	●	●	●	●				●				●		0.031	0.375	0.125	0.173
	CM	CPMT 21.51 CM	CPMT060204-CM									●						0.016	0.250	0.094	0.110
		CPMT 21.52 CM	CPMT060208-CM									●						0.031	0.250	0.094	0.110
		CPMT 2.51.51 CM	CPMT080204-CM									●						0.016	0.313	0.094	0.134
		CPMT 2.51.52 CM	CPMT080208-CM									●						0.031	0.313	0.094	0.134
		CPMT 321 CM	CPMT090304-CM								●	●						0.016	0.375	0.125	0.173
		CPMT 322 CM	CPMT090308-CM								●	●						0.031	0.375	0.125	0.173
		CPMT 32.51 CM	CPMT09T304-CM								●	●						0.016	0.375	0.156	0.173
		CPMT 32.52 CM	CPMT09T308-CM								●	●						0.031	0.375	0.156	0.173
		CPMT 32.53 CM	CPMT09T312-CM									●						0.047	0.375	0.156	0.173
		CPMT 432 CM	CPMT120408-CM									●						0.031	0.500	0.187	0.217
	CPMT 433 CM	CPMT120412-CM									●						0.047	0.500	0.187	0.217	
	All-round	CPMT 432	CPMT120408															0.031	0.500	0.187	0.217
	-	CPMW 2.51.51	CPMW080204								●							0.016	0.313	0.094	0.134
		CPMW 2.51.52	CPMW080208								●							0.031	0.313	0.094	0.134
		CPMW 321	CPMW090304	▲							●							0.016	0.375	0.125	0.173
		CPMW 322	CPMW090308								●							0.031	0.375	0.125	0.173

● : Line up
 ▲ : To be discontinued

Reference pages: Internal toolholder → **D025 -**

Insert POSITIVE TYPE

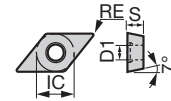
● : Continuous cutting
● : Light interrupted cutting
✱ : Heavy interrupted cutting

DC

Rhombic, 55°
with hole
Positive 7°



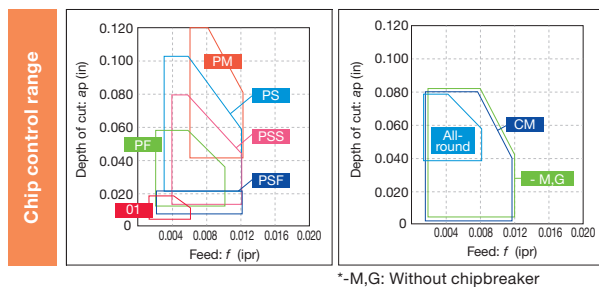
P	Steel	●	●	✱	●	●	●	●					●	●	
M	Stainless	●	●					●	●	●			●	●	●
K	Cast iron	●	●	●		●							●	●	
N	Non-ferrous														
S	Superalloy					●	●	●	●						
H	Hard material														



Application	Chipbreaker	Designation	Coated										Coated cermet		Dimension (inch)				
			Inch					Metric					GT9530	J9530	NS9530	RE	IC	S	D1
			T9215	T9225	T9115	T9125	AH725	AH8005	AH8015	AH905	GH730	SH725	J740	GT9530	J9530	NS9530			
Precision finishing	01	DCGT 21.50.5-01	DCGT070202-01									●				0.008	0.250	0.094	0.110
		DCGT 32.50.5-01	DCGT11T302-01											●		0.008	0.375	0.156	0.173
Precision finishing (sharp edge)	01	DCGT 21.50.5 F-01	DCGT070202F-01													<0.008	0.250	0.094	0.110
		DCGT 21.51 F-01	DCGT070204F-01													<0.016	0.250	0.094	0.110
		DCGT 32.50.5 F-01	DCGT11T302F-01													<0.008	0.375	0.156	0.173
		DCGT 32.51 F-01	DCGT11T304F-01													<0.016	0.375	0.156	0.173
Finishing	PSF	DCMT 21.50.5 PSF	DCMT070202-PSF						●					●	●	0.008	0.250	0.094	0.110
		DCMT 21.51 PSF	DCMT070204-PSF	●	●	▲	▲	●					●	●	●	0.016	0.250	0.094	0.110
		DCMT 32.50.5 PSF	DCMT11T302-PSF					●					●	●	●	0.008	0.375	0.156	0.173
		DCMT 32.51 PSF	DCMT11T304-PSF	●	●	▲	▲	●	●	●	●		●	●	●	0.016	0.375	0.156	0.173
		DCMT 32.52 PSF	DCMT11T308-PSF	●	●	▲	▲	●	●	●	●		●	●	●	0.031	0.375	0.156	0.173
		PF	DCMT 21.50.5 PF	DCMT070202-PF									●	●	●	0.008	0.250	0.094	0.110
			DCMT 21.51 PF	DCMT070204-PF									●	●	●	0.016	0.250	0.094	0.110

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up
▲ : To be discontinued



Reference pages: External toolholder → **C050 -** Internal toolholder → **D056 -**
J-Series toolholder → **G036 -**

Grade
 Insert
 Ext. Toolholder
 Int. Toolholder
 Threading
 Grooving
 Miniature Tool
 Milling Cutter
 Endmill
 Drilling Tool
 Tooling System
 User's Guide
 Index



Insert POSITIVE TYPE

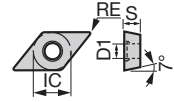
- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

DC

Rhombic, 55°
with hole
Positive 7°



P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated															Coated cermet	Cermet	Dimension (inch)									
			Inch		Metric		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	AH905	GH730	GT9530	AT9530	NS9530	RE	IC	S	D1		
Finishing to light cutting		PSS	DCMT 21.51 PSS	DCMT070204-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			DCMT 21.52 PSS	DCMT070208-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.51 PSS	DCMT11T304-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.52 PSS	DCMT11T308-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.53 PSS	DCMT11T312-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Finishing to medium cutting		PS	DCMT 21.50.5 PS	DCMT070202-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			DCMT 21.51 PS	DCMT070204-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			DCMT 21.52 PS	DCMT070208-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.50.5 PS	DCMT11T302-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.51 PS	DCMT11T304-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.52 PS	DCMT11T308-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			DCMT 32.53 PS	DCMT11T312-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Finishing to medium cutting		TSF	DCMT 21.50.5 TSF	DCMT070202-TSF	●	●																							
			DCMT 21.51 TSF	DCMT070204-TSF	●	●																							
			DCMT 21.52 TSF	DCMT070208-TSF	●	●																							
			DCMT 32.51 TSF	DCMT11T304-TSF	●	●																							
			DCMT 32.52 TSF	DCMT11T308-TSF	●	●																							
Finishing to medium cutting		TM	DCMT 21.50.5 TM	DCMT070202-TM	●	●																							
			DCMT 21.51 TM	DCMT070204-TM	●	●																							
			DCMT 21.52 TM	DCMT070208-TM	●	●																							
			DCMT 32.51 TM	DCMT11T304-TM	●	●																							
			DCMT 32.52 TM	DCMT11T308-TM	●	●																							
Medium cutting		23	DCMT 21.51-23	DCMT070204-23																	●								
			DCMT 32.51-23	DCMT11T304-23																		●							
			DCMT 32.52-23	DCMT11T308-23																		●							
Medium cutting		24	DCMT 21.50.5-24	DCMT070202-24																	●								
			DCMT 21.51-24	DCMT070204-24	●	●	▲	▲														●							
			DCMT 21.52-24	DCMT070208-24	●	●		▲															●						
			DCMT 32.50.5-24	DCMT11T302-24	●	●		▲															●						
			DCMT 32.51-24	DCMT11T304-24	●	●	▲	▲															●						
	DCMT 32.52-24	DCMT11T308-24	●	●	▲	▲	●														●								

● : Line up
▲ : To be discontinued

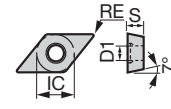
Reference pages: External toolholder → C050 - Internal toolholder → D056 -
J-Series toolholder → G036 -

DC

Rhombic, 55°
 with hole
 Positive 7°



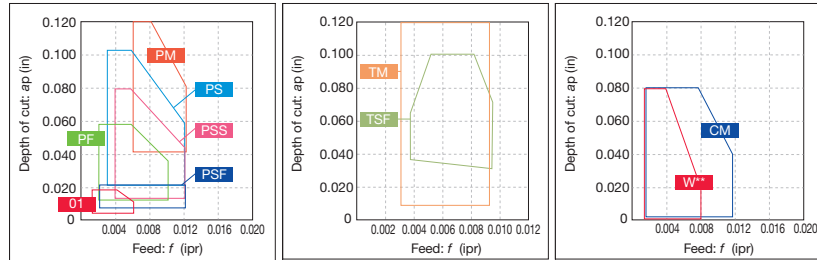
Material	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GH330	GH730	GT9530	Coated cermet	Cermet	Un-coated
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation			Coated													Coated cermet	Cermet	Un-coated	Dimension (inch)							
			Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GH330	GH730	GT9530	NS9530	TH10	RE	IC	S	D1			
Finishing		W10 DCGT 21.5V R-W10	DCGT070200R-W10																				●	0.001	0.250	0.094	0.110	
		DCGT 21.5V R-W10	DCGT070200L-W10																					●	0.001	0.250	0.094	0.110
		DCGT 21.50.5 R-W10	DCGT070202R-W10																					●	0.008	0.250	0.094	0.110
		DCGT 21.50.5 L-W10	DCGT070202L-W10																				●	0.008	0.250	0.094	0.110	
		DCGT 21.51 R-W10	DCGT070204R-W10															●						●	0.016	0.250	0.094	0.110
		DCGT 21.51 L-W10	DCGT070204L-W10															●						●	0.016	0.250	0.094	0.110
Finishing		W15 DCGT 32.50.5 R-W15	DCGT11T302R-W15																				●	0.008	0.375	0.156	0.173	
		DCGT 32.50.5 L-W15	DCGT11T302L-W15																			●	0.008	0.375	0.156	0.173		
		DCGT 32.51 R-W15	DCGT11T304R-W15																				●	0.016	0.375	0.156	0.173	
		DCGT 32.51 L-W15	DCGT11T304L-W15																				●	0.016	0.375	0.156	0.173	
		DCGT 32.52 R-W15	DCGT11T308R-W15																				●	0.031	0.375	0.156	0.173	
		DCGT 32.52 L-W15	DCGT11T308L-W15																				●	0.031	0.375	0.156	0.173	
Medium cutting		PM DCMT 21.51 PM	DCMT070204-PM	●	●	▲	▲	●	●	●	●						●	●					●	0.016	0.250	0.094	0.110	
		DCMT 21.52 PM	DCMT070208-PM	●	●	▲	▲	●	●	●	●							●	●					●	0.031	0.250	0.094	0.110
		DCMT 32.51 PM	DCMT11T304-PM	●	●	▲	▲	●	●	●	●							●	●					●	0.016	0.375	0.156	0.173
		DCMT 32.52 PM	DCMT11T308-PM	●	●	▲	▲	●	●	●	●							●	●					●	0.031	0.375	0.156	0.173
		DCMT 32.53 PM	DCMT11T312-PM	●		▲	●	●	●	●	●								●					●	0.047	0.375	0.156	0.173
Finishing to medium cutting		CM DCMT 21.51 CM	DCMT070204-CM														●							0.016	0.250	0.094	0.110	
		DCMT 21.52 CM	DCMT070208-CM															●							0.031	0.250	0.094	0.110
		DCMT 32.51 CM	DCMT11T304-CM														●	●							0.016	0.375	0.156	0.173
		DCMT 32.52 CM	DCMT11T308-CM													●	●								0.031	0.375	0.156	0.173
		DCMT 32.53 CM	DCMT11T312-CM														●								0.047	0.375	0.156	0.173

● : Line up
 ▲ : To be discontinued

Chip control range



Reference pages: External toolholder → **C050** - Internal toolholder → **D056** -
 J-Series toolholder → **G036** -



Insert POSITIVE TYPE

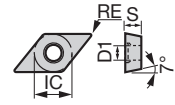
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

DC

Rhombic, 55°
 with hole
 Positive 7°



P	Steel	●	●			●●														
M	Stainless			●																
K	Cast iron	●●	●	●		●●														
N	Non-ferrous																			
S	Superalloy			●																
H	Hard material																			



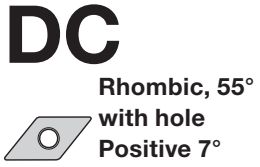
Application	Chipbreaker	Designation		Coated			Cermet			Uncoated			Dimension (inch)					
		Inch	Metric	T9105	T5115	GH110	NS9530			TH10	KS05F				RE	IC	S	D1
Finishing to medium cutting	AL 	DCGT 21.50.5 AL	DCGT070202-AL											0.008	0.250	0.094	0.110	
		DCGT 21.51 AL	DCGT070204-AL											0.016	0.250	0.094	0.110	
		DCGT 32.50.5 AL	DCGT11T302-AL											0.008	0.375	0.156	0.173	
		DCGT 32.51 AL	DCGT11T304-AL											0.016	0.375	0.156	0.173	
		DCGT 32.52 AL	DCGT11T308-AL											0.031	0.375	0.156	0.173	
	All-round 	DCGT 21.50.5	DCGT070202				●							0.008	0.250	0.094	0.110	
		DCGT 21.51	DCGT070204				●							0.016	0.250	0.094	0.110	
		DCGT 32.50.5	DCGT11T302				●							0.008	0.375	0.156	0.173	
		DCGT 32.51	DCGT11T304				●							0.016	0.375	0.156	0.173	
		DCGT 32.52	DCGT11T308				●							0.031	0.375	0.156	0.173	
Angular 	DCGT 21.50.5 R	DCGT070202R								●			0.008	0.250	0.094	0.110		
	DCGT 21.50.5 L	DCGT070202L								●			0.008	0.250	0.094	0.110		
	DCGT 21.51 R	DCGT070204R								●			0.016	0.250	0.094	0.110		
	DCGT 21.51 L	DCGT070204L								●			0.016	0.250	0.094	0.110		
	DCGT 32.50.5 R	DCGT11T302R								●			0.008	0.375	0.156	0.173		
	DCGT 32.50.5 L	DCGT11T302L								●			0.008	0.375	0.156	0.173		
	DCGT 32.51 R	DCGT11T304R								●			0.016	0.375	0.156	0.173		
	DCGT 32.51 L	DCGT11T304L								●			0.016	0.375	0.156	0.173		
Medium cutting	-	DCMW 21.51	DCMW070204	▲	●									0.016	0.250	0.094	0.110	
		DCMW 21.52	DCMW070208		●									0.031	0.250	0.094	0.110	
		DCMW 32.51	DCMW11T304	▲	●									0.016	0.375	0.156	0.173	
		DCMW 32.52	DCMW11T308		●									0.031	0.375	0.156	0.173	
	-	DCGW 21.50.5	DCGW070202								●			0.008	0.250	0.094	0.110	
		DCGW 21.51	DCGW070204			●					●			0.016	0.250	0.094	0.110	
		DCGW 32.51	DCGW11T304								●			0.016	0.375	0.156	0.173	
		DCGW 32.52	DCGW11T308								●			0.031	0.375	0.156	0.173	

● : Line up
 ▲ : To be discontinued

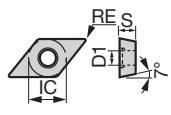
Reference pages: External toolholder → C050 - Internal toolholder → D056 -
 J-Series toolholder → G036 -

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

Insert POSITIVE TYPE

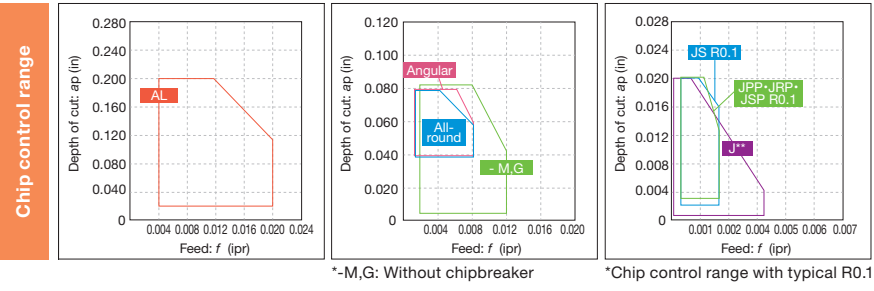


P Steel	● ● ● ● ● ● ● ●
M Stainless	● ● ● ● ● ● ● ●
K Cast iron	● ● ● ● ● ● ● ●
N Non-ferrous	● ● ● ● ● ● ● ●
S Superalloy	● ● ● ● ● ● ● ●
H Hard material	● ● ● ● ● ● ● ●



Application	Chipbreaker			Designation			Coated			Dimension (inch)			
	Inch	Metric	Designation	AH725	SH725	SH730	RE	IC	S	D1			
				●	●	●							
For external turning on Swiss lathes (sharp edge)		10°	JS	DCGT 21.5V FN-JS	DCGT070200FN-JS	● ●	0.001	0.250	0.094	0.110			
			DCGT 21.50 FN-JS	DCGT070201FN-JS	● ●	<0.004	0.250	0.094	0.110				
			DCGT 21.50.5 FN-JS	DCGT070202FN-JS	● ●	<0.008	0.250	0.094	0.110				
			DCGT 32.5V FN-JS	DCGT11T300FN-JS	● ●	0.001	0.375	0.156	0.173				
			DCGT 32.50 FN-JS	DCGT11T301FN-JS	● ●	<0.004	0.375	0.156	0.173				
			DCGT 32.50.5 FN-JS	DCGT11T302FN-JS	● ●	<0.008	0.375	0.156	0.173				
			DCGT 32.51 FN-JS	DCGT11T304FN-JS	● ●	<0.016	0.375	0.156	0.173				
For external turning on Swiss lathes		10°	JS	DCGT 21.50 N-JS	DCGT070201N-JS	●	0.004	0.250	0.094	0.110			
			DCGT 21.50.5 N-JS	DCGT070202N-JS	●	0.008	0.250	0.094	0.110				
			DCGT 32.50 N-JS	DCGT11T301N-JS	●	0.004	0.375	0.156	0.173				
			DCGT 32.50.5 N-JS	DCGT11T302N-JS	●	0.008	0.375	0.156	0.173				
			DCGT 32.51 N-JS	DCGT11T304N-JS	●	0.016	0.375	0.156	0.173				
For external turning on Swiss lathes (sharp edge)		10°	JPP	DCET 21.5X MFR-JPP	DCET0702008MFR-JPP	● ●	<0.003	0.250	0.094	0.110			
			DCET 21.5X MFL-JPP	DCET0702008MFL-JPP	● ●	<0.003	0.250	0.094	0.110				
			DCET 21.50 MFR-JRP	DCET070201MFR-JPP	● ●	<0.004	0.250	0.094	0.110				
			DCET 21.50 MFL-JRP	DCET070201MFL-JPP	● ●	<0.004	0.250	0.094	0.110				
			DCET 21.50.4 MFR-JRP	DCET0702018MFR-JPP	● ●	<0.007	0.250	0.094	0.110				
			DCET 21.50.4 MFL-JRP	DCET0702018MFL-JPP	● ●	<0.007	0.250	0.094	0.110				
			DCET 21.50.5 MFR-JPP	DCET070202MFR-JPP	● ●	<0.008	0.250	0.094	0.110				
			DCET 21.50.5 MFL-JPP	DCET070202MFL-JPP	● ●	<0.008	0.250	0.094	0.110				
			DCET 32.5X MFR-JPP	DCET11T3008MFR-JPP	● ●	<0.003	0.375	0.156	0.173				
			DCET 32.5X MFL-JPP	DCET11T3008MFL-JPP	● ●	<0.003	0.375	0.156	0.173				
			DCET 32.50 MFR-JPP	DCET11T301MFR-JPP	● ●	<0.004	0.375	0.156	0.173				
			DCET 32.50 MFL-JPP	DCET11T301MFL-JPP	● ●	<0.004	0.375	0.156	0.173				
			DCET 32.50.4 MFR-JPP	DCET11T3018MFR-JPP	● ●	<0.007	0.375	0.156	0.173				
			DCET 32.50.4 MFL-JPP	DCET11T3018MFL-JPP	● ●	<0.007	0.375	0.156	0.173				
			DCET 32.50.5 MFR-JPP	DCET11T302MFR-JPP	● ●	<0.008	0.375	0.156	0.173				
DCET 32.50.5 MFL-JPP	DCET11T302MFL-JPP	● ●	<0.008	0.375	0.156	0.173							

*Corner radius (RE) with a sign of inequality (<) means minus tolerance. ● : Line up



Grade: A, B, C, D, E, F, G, H, I, J, K, L, M

Insert: B

Toolholder: Int. Toolholder, Ext. Toolholder

Application: Threading, Grooving, Milling Cutter, Miniature Tool, Endmill, Drilling Tool, Tooling System

Index: M

Insert POSITIVE TYPE

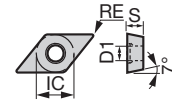
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

DC

Rhombic, 55°
 with hole
 Positive 7°



P	Steel	●●●●●●			●●		●●		●●											
M	Stainless	●●●●●●																		
K	Cast iron						●●		●●											
N	Non-ferrous																			
S	Superalloy	●●																		
H	Hard material																			



Application	Chipbreaker	Designation	Coated				Coated cermet		Cermet	Uncoated		Dimension (inch)				
			SH725	SH730	J740	J9530	NS9530	TH10	RE	IC	S	D1				
													Inch	Metric		
For external turning on Swiss lathes (sharp edge)	JRP	DCET 21.5X MFR-JRP	DCET0702008MFR-JRP	●●								<0.003	0.250	0.094	0.110	
		DCET 21.5X MFL-JRP	DCET0702008MFL-JRP	●●									<0.003	0.250	0.094	0.110
		DCET 21.50 MFR-JRP	DCET070201MFR-JRP	●●									<0.004	0.250	0.094	0.110
		DCET 21.50 MFL-JRP	DCET070201MFL-JRP	●●									<0.004	0.250	0.094	0.110
		DCET 21.50.4 MFR-JRP	DCET0702018MFR-JRP	●●									<0.007	0.250	0.094	0.110
		DCET 21.50.4 MFL-JRP	DCET0702018MFL-JRP	●●									<0.007	0.250	0.094	0.110
		DCET 21.50.5 MFR-JRP	DCET070202MFR-JRP	●●									<0.008	0.250	0.094	0.110
		DCET 21.50.5 MFL-JRP	DCET070202MFL-JRP	●●									<0.008	0.250	0.094	0.110
		DCET 32.5X MFR-JRP	DCET11T3008MFR-JRP	●●									<0.003	0.375	0.156	0.173
		DCET 32.5X MFL-JRP	DCET11T3008MFL-JRP	●●									<0.003	0.375	0.156	0.173
	DCET 32.50 MFR-JRP	DCET11T301MFR-JRP	●●									<0.004	0.375	0.156	0.173	
	DCET 32.50 MFL-JRP	DCET11T301MFL-JRP	●●									<0.004	0.375	0.156	0.173	
	DCET 32.50.4 MFR-JRP	DCET11T3018MFR-JRP	●●									<0.007	0.375	0.156	0.173	
	DCET 32.50.4 MFL-JRP	DCET11T3018MFL-JRP	●●									<0.007	0.375	0.156	0.173	
	DCET 32.50.5 MFR-JRP	DCET11T302MFR-JRP	●●									<0.008	0.375	0.156	0.173	
	DCET 32.50.5 MFL-JRP	DCET11T302MFL-JRP	●●									<0.008	0.375	0.156	0.173	
	JSP	DCET 21.5X MFN-JSP	DCET0702008MFN-JSP	●●									<0.003	0.250	0.094	0.110
		DCET 21.50 MFN-JSP	DCET070201MFN-JSP	●●									<0.004	0.250	0.094	0.110
		DCET 21.50.4 MFN-JSP	DCET0702018MFN-JSP	●●									<0.007	0.250	0.094	0.110
		DCET 21.50.5 MFN-JSP	DCET070202MFN-JSP	●●									<0.008	0.250	0.094	0.110
DCET 32.5X MFN-JSP		DCET11T3008MFN-JSP	●●									<0.003	0.375	0.156	0.173	
DCET 32.50 MFN-JSP		DCET11T301MFN-JSP	●●									<0.004	0.375	0.156	0.173	
DCET 32.50.4 MFN-JSP		DCET11T3018MFN-JSP	●●									<0.007	0.375	0.156	0.173	
DCET 32.50.5 MFN-JSP		DCET11T302MFN-JSP	●●									<0.008	0.375	0.156	0.173	
J10		DCGT 21.5V FR-J10	DCGT070200FR-J10	●●	●						●		0.001	0.250	0.094	0.110
		DCGT 21.5V FL-J10	DCGT070200FL-J10	●●	●						●		0.001	0.250	0.094	0.110
	DCGT 21.50 FR-J10	DCGT070201FR-J10	●●	●					●	●		0.004	0.250	0.094	0.110	
	DCGT 21.50 FL-J10	DCGT070201FL-J10	●●	●					●	●		0.004	0.250	0.094	0.110	
	DCGT 21.50.5 FR-J10	DCGT070202FR-J10	●●	●					●	●		0.008	0.250	0.094	0.110	
	DCGT 21.50.5 FL-J10	DCGT070202FL-J10	●●	●					●	●		0.008	0.250	0.094	0.110	
	DCGT 21.51 FR-J10	DCGT070204FR-J10	●●									0.016	0.250	0.094	0.110	
	DCGT 21.51 FL-J10	DCGT070204FL-J10	●●									0.016	0.250	0.094	0.110	
	DCGT 32.5V FR-J10	DCGT11T300FR-J10	●●	●						●		0.001	0.375	0.156	0.173	
	DCGT 32.5V FL-J10	DCGT11T300FL-J10	●●	●						●		0.001	0.375	0.156	0.173	
For external turning on Swiss lathes (honed edge)	J10	DCGT 21.50.5 R-J10	DCGT070202R-J10				●					0.008	0.250	0.094	0.110	
		DCGT 32.50.5 R-J10	DCGT11T302R-J10				●					0.008	0.375	0.156	0.173	

*Corner radius (RE) with a sign of inequality (<) means minus tolerance. ● : Line up

Reference pages: External toolholder → C050 - Internal toolholder → D056 -
 J-Series toolholder → G036 -

Insert POSITIVE TYPE

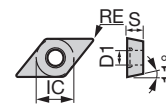
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

DP

Rhombic, 55°
with hole
Positive 11°



Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●●					
M		●				
K			●●			
N				●		
S					●	
H						●



Application	Chipbreaker		Designation		Coated		Cermet		Dimension (inch)			
			Inch	Metric	T9225	T9125	AH8015	NS9530	RE	IC	S	D1
	PS	DPMT 21.50.5 PS	DPMT070202-PS	● ▲ ●	●	●	●	●	0.008	0.250	0.094	0.110
Finishing to medium cutting		DPMT 21.51 PS	DPMT070204-PS	● ▲ ●	●	●	●	●	0.016	0.250	0.094	0.110
		DPMT 21.52 PS	DPMT070208-PS	● ▲ ●	●	●	●	●	0.031	0.250	0.094	0.110

- : Line up
- ▲ : To be discontinued

Insert POSITIVE TYPE / DOUBLE SIDE

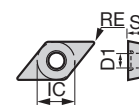
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

DX

Rhombic, 55°
with hole



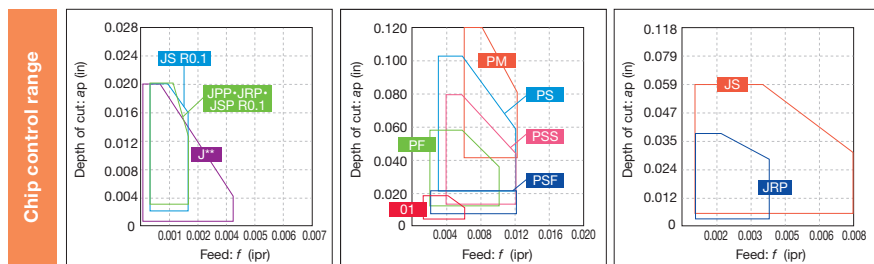
Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●●					
M		●●				
K			●			
N				●		
S					●	
H						●



Application	Chipbreaker		Designation		Coated		Dimension (inch)					
			Inch	Metric	SH725				RE	IC	S	D1
	JRP	DXGU 220MFRE JRP	DXGU070301MFRE-JRP	●					<0.004	0.250	0.125	0.106
Finishing (sharp edge)		DXGU 220MFLE JRP	DXGU070301MFLE-JRP	●					<0.004	0.250	0.125	0.106
		DXGU 220.5MFRE JRP	DXGU070302MFRE-JRP	●					<0.008	0.250	0.125	0.106
		DXGU 220.5MFLE JRP	DXGU070302MFLE-JRP	●					<0.008	0.250	0.125	0.106
Finishing to medium cutting (sharp edge)	J	DXGU 220MFR JS	DXGU070301MFR-JS	●					<0.004	0.250	0.125	0.106
		DXGU 220MFL JS	DXGU070301MFL-JS	●					<0.004	0.250	0.125	0.106
		DXGU 220.5MFR JS	DXGU070302MFR-JS	●					<0.008	0.250	0.125	0.106
		DXGU 220.5MFL JS	DXGU070302MFL-JS	●					<0.008	0.250	0.125	0.106
		DXGU 221MFR JS	DXGU070304MFR-JS	●					<0.016	0.250	0.125	0.106
		DXGU 221MFL JS	DXGU070304MFL-JS	●					<0.016	0.250	0.125	0.106

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

- : Line up



*Chip control range with typical R0.1

Reference pages: DPMT...: Internal toolholder → **D059 -**
DXGU...: External toolholder → **C042 -**, Internal toolholder → **D042 -**

Grade: A, B, C, D, E, F, G, H, I, J, K, L, M
Insert: B
Toolholder: C, D, E, F, G, H, I, J, K, L, M

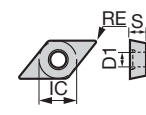
Insert POSITIVE TYPE / DOUBLE SIDE

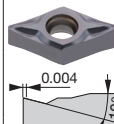
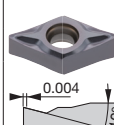
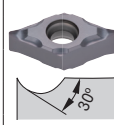
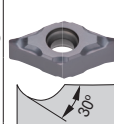
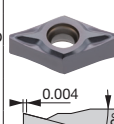
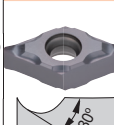
- : Continuous cutting
- c : Light interrupted cutting
- * : Heavy interrupted cutting

DX

 **Rhombic, 55° with hole**

P	Steel	●c	●c	●c										
M	Stainless	●c	●c	●c										
K	Cast iron	●c	●c	●c						●				
N	Non-ferrous									●				
S	Superalloy	●c								●				
H	Hard material													



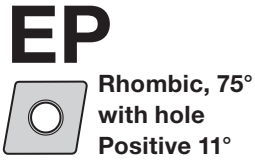
Application	Chipbreaker		Designation	Coating							Dimension (inch)					
				Coated		Coated cermet		Cermet	Uncoated							
	Inch	Metric		AH725	AH8015	SH725	GT9530	NS9530	KS05F	RE	IC	S	D1			
Finishing to medium cutting (sharp edge)	JTS	DXGU 220MFR JTS	DXGU070301MFR-JTS			●										
		DXGU 220MFL JTS	DXGU070301MFL-JTS			●										
		DXGU 220.5MFR JTS	DXGU070302MFR-JTS			●										
		DXGU 220.5MFL JTS	DXGU070302MFL-JTS			●										
Finishing to medium cutting	JTS	DXGU 220MR JTS	DXGU070301MR-JTS	●												
		DXGU 220ML JTS	DXGU070301ML-JTS	●												
		DXGU 220.5MR JTS	DXGU070302MR-JTS	●												
		DXGU 220.5ML JTS	DXGU070302ML-JTS	●												
Finishing (low cutting force) (sharp edge)	JSS	DXGU 220MFR JSS	DXGU070301MFR-JSS			●										
		DXGU 220MFL JSS	DXGU070301MFL-JSS			●										
		DXGU 220.5MFR JSS	DXGU070302MFR-JSS			●										
		DXGU 220.5MFL JSS	DXGU070302MFL-JSS			●										
Finishing (low cutting force)	JSS	DXGU 220MR JSS	DXGU070301MR-JSS	●												
		DXGU 220ML JSS	DXGU070301ML-JSS	●												
		DXGU 220.5MR JSS	DXGU070302MR-JSS	●												
		DXGU 220.5ML JSS	DXGU070302ML-JSS	●												
Finishing to medium cutting	TS	DXGU 220.5R TS	DXGU070302R-TS	●	●		●			●			0.008	0.250	0.125	0.106
		DXGU 220.5L TS	DXGU070302L-TS	●	●		●			●			0.008	0.250	0.125	0.106
		DXGU 221R TS	DXGU070304R-TS	●	●		●			●			0.016	0.250	0.125	0.106
		DXGU 221L TS	DXGU070304L-TS	●	●		●			●			0.016	0.250	0.125	0.106
		DXGU 222R TS	DXGU070308R-TS	●	●		●			●			0.031	0.250	0.125	0.106
		DXGU 222L TS	DXGU070308L-TS	●	●		●			●			0.031	0.250	0.125	0.106
Finishing (low cutting force)	SS	DXGU 220.5R SS	DXGU070302R-SS	●	●		●			●			0.008	0.250	0.125	0.106
		DXGU 220.5L SS	DXGU070302L-SS	●	●		●			●			0.008	0.250	0.125	0.106
		DXGU 221R SS	DXGU070304R-SS	●	●		●			●			0.016	0.250	0.125	0.106
		DXGU 221L SS	DXGU070304L-SS	●	●		●			●			0.016	0.250	0.125	0.106

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

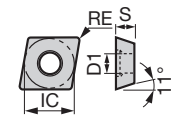
● : Line up

Insert POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

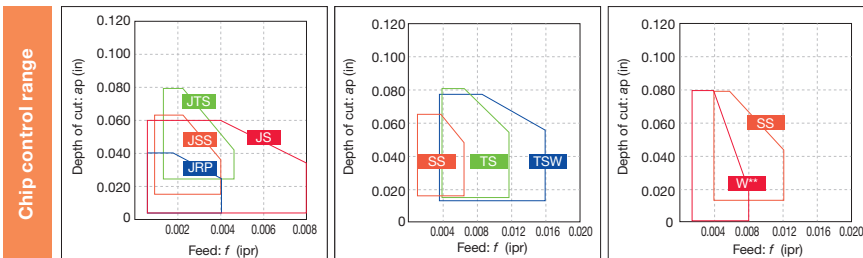


P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	Hard material															



Application	Designation		Coated				Coated cermet	Cermet	Uncoated		Dimension (inch)				
			Inch		Metric						RE	IC	S	D1	
			GH110	SH725	SH730	GT9530	NS9530	TH10	UX30						
Finishing	W08	EPGT 4.51.8V R-W08	EPGT03X100R-W08						●		0.001	0.141	0.055	0.075	
		EPGT 4.51.8V L-W08	EPGT03X100L-W08						●		0.001	0.141	0.055	0.075	
		EPGT 4.51.80 R-W08	EPGT03X101R-W08						●		0.004	0.141	0.055	0.075	
		EPGT 4.51.80 L-W08	EPGT03X101L-W08						●		0.004	0.141	0.055	0.075	
		EPGT 4.51.80.5R-W08	EPGT03X102R-W08						●		0.008	0.141	0.055	0.075	
		EPGT 4.51.80.5L-W08	EPGT03X102L-W08						●		0.008	0.141	0.055	0.075	
		EPGT 4.51.81 R-W08	EPGT03X104R-W08						●		0.016	0.141	0.055	0.075	
		EPGT 4.51.81 L-W08	EPGT03X104L-W08						●		0.016	0.141	0.055	0.075	
		EPGT 52V R-W08	EPGT040100R-W08						●		0.001	0.156	0.063	0.091	
		EPGT 52V L-W08	EPGT040100L-W08	●	●			●	●	●	0.001	0.156	0.063	0.091	
		EPGT 520 R-W08	EPGT040101R-W08						●		0.004	0.156	0.063	0.091	
		EPGT 520 L-W08	EPGT040101L-W08						●		0.004	0.156	0.063	0.091	
		EPGT 520.5 R-W08	EPGT040102R-W08	●	●			●	●	●	0.008	0.156	0.063	0.091	
		EPGT 520.5 L-W08	EPGT040102L-W08	●	●		●	●	●	●	0.008	0.156	0.063	0.091	
		EPGT 521 R-W08	EPGT040104R-W08	●	●			●	●	●	0.016	0.156	0.063	0.091	
		EPGT 521 L-W08	EPGT040104L-W08	●	●		●	●	●	●	0.016	0.156	0.063	0.091	
	Finishing (sharp edge)	W08	EPGT 4.51.8V FR-W08	EPGT03X100FR-W08						●		0.001	0.141	0.055	0.075
			EPGT 4.51.8V FL-W08	EPGT03X100FL-W08						●		0.001	0.141	0.055	0.075
		EPGT 4.51.80 FR-W08	EPGT03X101FR-W08						●		0.004	0.141	0.055	0.075	
		EPGT 4.51.80 FL-W08	EPGT03X101FL-W08						●		0.004	0.141	0.055	0.075	
		EPGT 4.51.80.5FR-W08	EPGT03X102FR-W08						●		0.008	0.141	0.055	0.075	
		EPGT 4.51.80.5FL-W08	EPGT03X102FL-W08						●		0.008	0.141	0.055	0.075	
		EPGT 4.51.81 FR-W08	EPGT03X104FR-W08						●		0.016	0.141	0.055	0.075	
		EPGT 4.51.81 FL-W08	EPGT03X104FL-W08						●		0.016	0.141	0.055	0.075	
		EPGT 52V FR-W08	EPGT040100FR-W08						●		0.001	0.156	0.063	0.091	
		EPGT 52V FL-W08	EPGT040100FL-W08						●		0.001	0.156	0.063	0.091	
		EPGT 520 FR-W08	EPGT040101FR-W08						●		0.004	0.156	0.063	0.091	
		EPGT 520 FL-W08	EPGT040101FL-W08						●		0.004	0.156	0.063	0.091	
		EPGT 520.5 FR-W08	EPGT040102FR-W08						●		0.008	0.156	0.063	0.091	
		EPGT 520.5 FL-W08	EPGT040102FL-W08						●		0.008	0.156	0.063	0.091	
		EPGT 521 FR-W08	EPGT040104FR-W08						●		0.016	0.156	0.063	0.091	
		EPGT 521 FL-W08	EPGT040104FL-W08						●		0.016	0.156	0.063	0.091	

● : Line up



Reference pages: Internal toolholder → D040 -



Insert POSITIVE TYPE

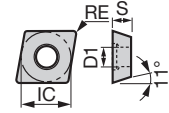
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

EP



Rhombic, 75°
with hole
Positive 11°

	P	M	K	N	S	H
Steel	●●●●●●					
Stainless	●●●●●●					
Cast iron						
Non-ferrous						
Superalloy	●●					
Hard material						



Application	Chipbreaker		Designation			Coated				Dimension (inch)			
			Inch	Metric	SH725	SH730	J740	RE	IC	S	D1		
For internal turning on Swiss lathes		JS	EPGT 4.51.80 JS	EPGT03X101-JS	●			<0.004	0.141	0.055	0.075		
			EPGT 4.51.80.5 JS	EPGT03X102-JS	●			<0.008	0.141	0.055	0.075		
			EPGT 4.51.81 JS	EPGT03X104-JS	●			<0.016	0.141	0.055	0.075		
			EPGT 520 JS	EPGT040101-JS	●			<0.004	0.156	0.063	0.091		
			EPGT 520.5 JS	EPGT040102-JS	●			<0.008	0.156	0.063	0.091		
			EPGT 521 JS	EPGT040104-JS	●			<0.016	0.156	0.063	0.091		
For internal turning on Swiss lathes (sharp edge)		JS	EPGT 4.51.80 F-JS	EPGT03X101F-JS	●			<0.004	0.141	0.055	0.075		
			EPGT 4.51.80.5 F-JS	EPGT03X102F-JS	●			<0.008	0.141	0.055	0.075		
			EPGT 4.51.81 F-JS	EPGT03X104F-JS	●			<0.016	0.141	0.055	0.075		
			EPGT 520 F-JS	EPGT040101F-JS	●			<0.004	0.156	0.063	0.091		
			EPGT 520.5 F-JS	EPGT040102F-JS	●			<0.008	0.156	0.063	0.091		
			EPGT 521 F-JS	EPGT040104F-JS	●			<0.016	0.156	0.063	0.091		
Finishing		J08	EPGT 52V L-J08	EPGT040100L-J08	●	●		0.001	0.156	0.063	0.091		
			EPGT 520.5 L-J08	EPGT040102L-J08	●	●		0.008	0.156	0.063	0.091		
			EPGT 521 L-J08	EPGT040104L-J08	●	●		0.016	0.156	0.063	0.091		
Finishing (sharp edge)		J08	EPGT 52V FL-J08	EPGT040100FL-J08	●			0.001	0.156	0.063	0.091		
			EPGT 520.5 FL-J08	EPGT040102FL-J08	●			0.008	0.156	0.063	0.091		
			EPGT 521 FL-J08	EPGT040104FL-J08	●			0.016	0.156	0.063	0.091		

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: Internal toolholder → **D040 -**

Insert POSITIVE TYPE

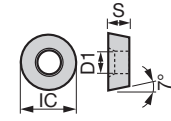
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

RC

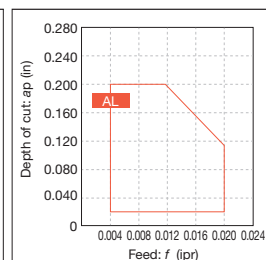
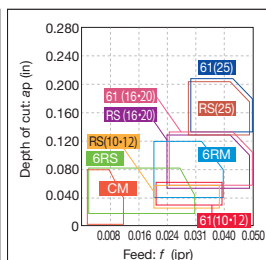
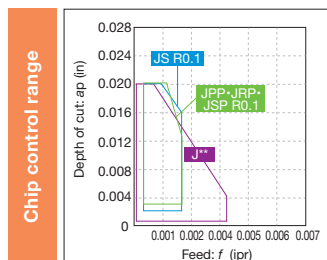


Round,
with hole
Positive 7°

P	Steel	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
K	Cast iron	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
S	Superalloy	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
H	Hard material	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑



Application	Chipbreaker	Designation	Coated								Uncoated	Dimension (inch)								
			Inch		Metric		T9215	T9225	T9115	T9125	T5115	AH120	AH8005	AH8015	AH905	KS05F	RE	IC	S	D1
Finishing to medium cutting		RS	-	RCMT10T3M0-RS	●	●	▲	▲				●	●	●		-	0.394	0.156	0.173	
			-	RCMT1204M0-RS	●	●	▲	▲			●	●	●	●		-	0.472	0.187	0.173	
			-	RCMT1606M0-RS	●	●	▲	▲			●					-	0.630	0.250	0.217	
			-	RCMT2006M0-RS		●		▲								-	0.787	0.250	0.256	
			-	RCMT2507M0-RS		●		▲								-	0.984	0.313	0.299	
		CM	-	RCMT0502M0-CM							●					-	0.197	0.094	0.098	
			-	RCMT0602M0-CM							●					-	0.236	0.094	0.110	
			-	RCMT0803M0-CM							●					-	0.315	0.125	0.134	
		AL	-	RCGT0602M0-AL											●	-	0.236	0.094	0.110	
		-	RCGT0803M0-AL												●	-	0.315	0.125	0.134	
		-	RCGT1003M0-AL												●	-	0.394	0.125	0.173	
Finishing (low cutting force)		6RS	-	RCMT1204M0-6RS	●	●	▲	▲								-	0.472	0.187	0.173	
		6RM	-	RCMT1204M0-6RM	●	●	▲	▲								-	0.472	0.187	0.173	



- : Line up
- ▲ : To be discontinued

*Chip control range with typical R0.1

Reference pages: External toolholder → C078 -, C087

Grade
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

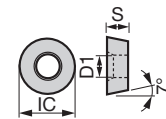
Insert POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

RC

Round, with hole
Positive 7°

P	Steel	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
M	Stainless	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
K	Cast iron	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
S	Superalloy	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
H	Hard material	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑



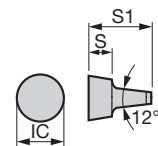
Application	Chipbreaker		Coated							Cermet	Uncoated	Dimension (inch)					
	Designation	Inch	Metric	T9215	T9225	T9115	T9125	AH8005	AH8015	AH905	NS9530	TH10	RE	IC	S	D1	
Heavy cutting	61	-	RCMT0502M0-61	●	●	▲	▲				●	●	-	0.197	0.094	0.098	
		-	RCMT0602M0-61	●	●	▲	▲				●	●	-	0.236	0.094	0.110	
		-	RCMT0803M0-61	●	●	▲	▲				●	●	-	0.315	0.125	0.134	
	61	-	RCMM1003M0-61	●	●	▲	▲	●	●	●		●	●	-	0.394	0.125	0.142
		-	RCMM1204M0-61	●	●	▲	▲	●	●	●		●	●	-	0.472	0.187	0.165
		-	RCMM1606M0-61	●	●	▲	▲						●	-	0.630	0.250	0.205
		-	RCMM2006M0-61	●	●	▲	▲						●	-	0.787	0.250	0.256
		-	RCMM2507M0-61	●	●	▲	▲						●	-	0.984	0.313	0.283

D1 (in)	Designation	0502M0	0602M0	0803M0	1003M0	1204M0	1606M0	2006M0	2507M0
RC*T		0.098	0.110	0.134	0.173	0.173	0.217	0.256	0.299
RCMM		-	-	-	0.142	0.165	0.205	0.256	0.283

RT

Special round insert

P	Steel	●																				
M	Stainless	●																				
K	Cast iron	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
N	Non-ferrous	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
S	Superalloy	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
H	Hard material	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑



Application	Chipbreaker		Uncoated							Dimension (inch)					
	Designation	Inch	Metric	TH10	KS20							RE	IC	S	S1
Medium cutting	-	-	RT05	●								-	0.197	0.098	0.256
		-	RT06	●	●							-	0.236	0.118	0.303
		-	RT08	●								-	0.315	0.165	0.406

- : Line up
- ▲ : To be discontinued

Reference pages: RC...: External toolholder → **C078** -

Insert POSITIVE TYPE

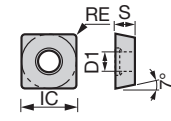
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

SC

Square, 90°
with hole
Positive 7°

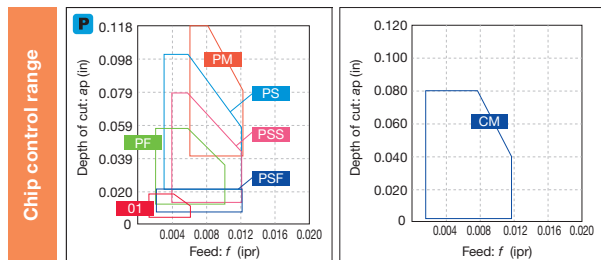


	P	M	K	N	S	H	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GT9530	AT9530	NS9530	
Steel	●●●	●●●	●●●	●●●	●●●	●●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Stainless	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Cast iron	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Non-ferrous	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Superalloy	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Hard material	●●	●●	●●	●●	●●	●●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●



Application	Chipbreaker		Designation	Material																			Dimension (inch)					
	Inch	Metric		Coated									Coated cermet				Cermet	RE	IC	S	D1							
			T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GT9530	AT9530	NS9530											
Finishing to medium cutting			PS SCMT 32.51 PS SCMT09T304-PS	●	●	▲	▲	●	●	●	●	●	●	●					●	●	●	●	●	0.016	0.375	0.156	0.173	
			SCMT 32.52 PS SCMT09T308-PS	●	●	▲	▲	●	●	●	●									●	●	●	●	●	0.031	0.375	0.156	0.173
			SCMT 431 PS SCMT120404-PS	●	●	▲	▲	●	●	●	●									●				●	0.016	0.500	0.187	0.217
			SCMT 432 PS SCMT120408-PS	●	●	▲	▲	●	●	●	●									●				●	0.031	0.500	0.187	0.217
			SCMT 433 PS SCMT120412-PS	●	●	▲	▲	●	●	●	●									●				●	0.047	0.500	0.187	0.217
Finishing to medium cutting			23 SCMT 32.50.5-23 SCMT09T302-23																				0.008	0.375	0.156	0.173		
			SCMT 32.52-23 SCMT09T308-23			●	▲												●					0.031	0.375	0.156	0.173	
			SCMT 432-23 SCMT120408-23			●	▲												●	●					0.031	0.500	0.187	0.217
Medium cutting			24 SCMT 21.51-24 SCMT070204-24			●	▲															●	0.016	0.313	0.094	0.134		
			SCMT 32.50.5-24 SCMT09T302-24																				●	0.008	0.375	0.156	0.173	
			SCMT 32.51-24 SCMT09T304-24			●	▲																●	0.016	0.375	0.156	0.173	
			SCMT 32.52-24 SCMT09T308-24	●	●	▲	▲																●	0.031	0.375	0.156	0.173	
			SCMT 431-24 SCMT120404-24	●	●	▲	▲																●	0.016	0.500	0.187	0.217	
Medium cutting			PM SCMT 32.51 PM SCMT09T304-PM	●	●	▲	▲	●	●	●	●	●	●	●					●			●	0.016	0.375	0.156	0.173		
			SCMT 32.52 PM SCMT09T308-PM	●	●	▲	▲	●	●	●	●									●			●	0.031	0.375	0.156	0.173	
			SCMT 432 PM SCMT120408-PM	●	●	▲	▲	●	●	●	●									●			●	0.031	0.500	0.187	0.217	
			SCMT 433 PM SCMT120412-PM	●	●	▲	▲	●	●	●	●									●			●	0.047	0.500	0.187	0.217	
Finishing to medium cutting			CM SCMT 32.51 CM SCMT09T304-CM														●	●					0.016	0.375	0.156	0.173		
			SCMT 32.52 CM SCMT09T308-CM															●	●					0.031	0.375	0.156	0.173	
			SCMT 32.53 CM SCMT09T312-CM																●					0.047	0.375	0.156	0.173	
			SCMT 431 CM SCMT120404-CM																●	●					0.016	0.500	0.187	0.217
			SCMT 432 CM SCMT120408-CM																●	●					0.031	0.500	0.187	0.217

● : Line up
▲ : To be discontinued



Reference pages: External toolholder → **C110 -**

Insert POSITIVE TYPE

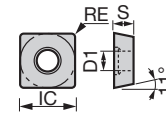
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

SP



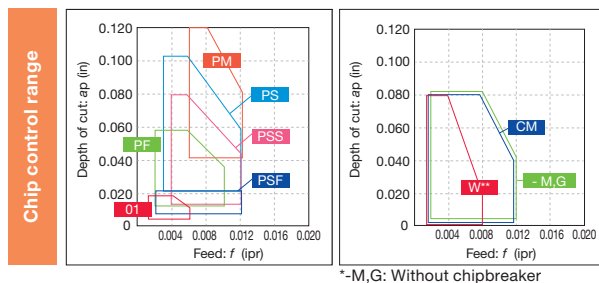
Square, 90°
with hole
Positive 11°

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●					
M		●				
K	◐	◐	●			
N				●		
S					●	
H						●



Application	Chipbreaker	Designation		Coated		Cermet	Uncoated	Dimension (inch)				
		Inch	Metric	T515	T5115	NS9530	TH10	RE	IC	S	D1	
		CM	SPMT 321 CM	SPMT090304-CM	●				0.016	0.375	0.125	0.173
Finishing to medium cutting		SPMT 322 CM	SPMT090308-CM	●				0.031	0.375	0.125	0.173	
		SPMT 431 CM	SPMT120404-CM	●	●			0.016	0.500	0.187	0.217	
		SPMT 432 CM	SPMT120408-CM	●	●			0.031	0.500	0.187	0.217	
		-	SPGM 321 L	SPGM090304L			●		0.016	0.375	0.125	0.173
		(Tungaloy standard hole specification)	SPGM 421 L	SPGM120304L			●		0.016	0.500	0.125	0.217
		SPGM 422 L	SPGM120308L			●		0.031	0.500	0.125	0.217	
		-	SPMW 321	SPMW090304	●				0.016	0.375	0.125	0.173
		SPMW 322	SPMW090308	●				0.031	0.375	0.125	0.173	
		SPMW 431	SPMW120404	●				0.016	0.500	0.187	0.217	
		SPMW 432	SPMW120408	●				0.031	0.500	0.187	0.217	
		-	SPGW 320.5	SPGW090302				●	0.008	0.375	0.125	0.173
		SPGW 321	SPGW090304				●	0.016	0.375	0.125	0.173	
		SPGW 431	SPGW120404				●	0.016	0.500	0.187	0.217	
		-	SPGA 321	SPGA090304			●		0.016	0.375	0.125	0.173
		(Tungaloy standard hole specification)										

● : Line up



Reference pages: Internal toolholder → **D045 -**

Insert POSITIVE TYPE

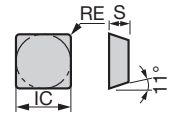
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

SP



Square, 90°
without hole
Positive 11°

	P	M	K	N	S	H
Steel	●	●	●	●	●	●
Stainless	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●
Non-ferrous	●	●	●	●	●	●
Superalloy	●	●	●	●	●	●
Hard material	●	●	●	●	●	●



Application	Chipbreaker	Designation		Material						Dimension (inch)								
		Inch	Metric	Coated			Cermet			Uncoated		Ceramic		RE	IC	S	D1	
				T9225	T9125	T5115	T3130	AH120	NS9530	TH10	UX30	LX11						
Finishing to medium cutting		23	SPMR 321-23	SPMR090304-23										0.016	0.375	0.125	-	
			SPMR 322-23	SPMR090308-23	●	▲				●					0.031	0.375	0.125	-
			SPMR 421-23	SPMR120304-23	●	▲				●					0.016	0.500	0.125	-
			SPMR 422-23	SPMR120308-23	●	▲				●					0.031	0.500	0.125	-
		CM	SPMR 321 CM	SPMR090304-CM			●							0.016	0.375	0.125	-	
			SPMR 322 CM	SPMR090308-CM			●							0.031	0.375	0.125	-	
			SPMR 421 CM	SPMR120304-CM			●							0.016	0.500	0.125	-	
			SPMR 422 CM	SPMR120308-CM			●							0.031	0.500	0.125	-	
			SPMR 423 CM	SPMR120312-CM			●							0.047	0.500	0.125	-	
		-	SPGR 321 L	SPGR090304L						●				0.016	0.375	0.125	-	
		-	SPGN 321	SPGN090304							●		●	0.016	0.375	0.125	-	
			SPGN 322	SPGN090308							●		●	0.031	0.375	0.125	-	
		SPGN 421	SPGN120304							●		●	0.016	0.500	0.125	-		
		SPGN 422	SPGN120308							●		●	0.031	0.500	0.125	-		
		SPGN 423	SPGN120312							●		●	0.047	0.500	0.125	-		
		SPGN 432	SPGN120408							●			0.031	0.500	0.187	-		
	-	SPMN 321	SPMN090304			●							0.016	0.375	0.125	-		
		SPMN 322	SPMN090308			●							0.031	0.375	0.125	-		
		SPMN 421	SPMN120304			●							0.016	0.500	0.125	-		
		SPMN 422	SPMN120308			●	●	●		●	●		0.031	0.500	0.125	-		
		SPMN 423	SPMN120312			●				●	●		0.047	0.500	0.125	-		
		SPMN 432	SPMN120408			●		●		●	●		0.031	0.500	0.187	-		
		SPMN 433	SPMN120412			●							0.047	0.500	0.187	-		
		SPMN 633	SPMN190412				●			●			0.047	0.750	0.187	-		

● : Line up
 ▲ : To be discontinued

Insert POSITIVE TYPE

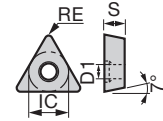
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TC



Triangular, 60°
with hole
Positive 7°

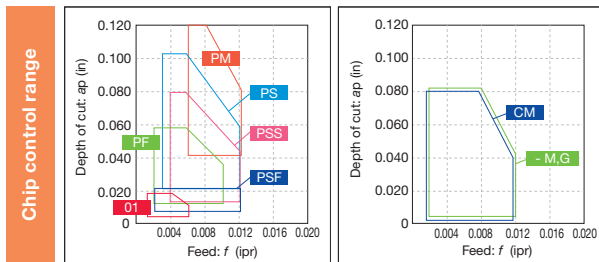
Material	TC	TCM	TK	TN	TS	TH	Coated	Coated cermet	Cermet	Un-coated
P Steel	●	●	●	●	●	●	●	●	●	●
M Stainless	●	●	●	●	●	●	●	●	●	●
K Cast iron	●	●	●	●	●	●	●	●	●	●
N Non-ferrous	●	●	●	●	●	●	●	●	●	●
S Superalloy	●	●	●	●	●	●	●	●	●	●
H Hard material	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated							Coated cermet	Cermet	Un-coated	Dimension (inch)						
			T9215	T9225	T9115	T9125	AH725	SH725	J740	GT9530	NS9530	NS520	TH10	RE	IC	S	D1		
		Inch	Metric																
Precision finishing		01 TCGT 731-01	TCGT090204-01												0.016	0.219	0.094	0.098	
		TCGT 21.50.5-01	TCGT110202-01												0.008	0.250	0.094	0.110	
		TCGT 21.51-01	TCGT110204-01							●					0.016	0.250	0.094	0.110	
		TCGT 21.52-01	TCGT110208-01							●	●				0.031	0.250	0.094	0.110	
		TCGT 32.51-01	TCGT16T304-01										●		0.016	0.375	0.156	0.173	
		TCGT 32.52-01	TCGT16T308-01									●	●		0.031	0.375	0.156	0.173	
Precision finishing (sharp edge)		01 TCGT 21.50.5 F-01	TCGT110202F-01											<0.008	0.250	0.094	0.110		
		TCGT 21.51 F-01	TCGT110204F-01											<0.016	0.250	0.094	0.110		
Finishing		PSF TCMT 730.5 PSF	TCMT090202-PSF											0.008	0.219	0.094	0.098		
		TCMT 731 PSF	TCMT090204-PSF	●	●	▲	▲	●						0.016	0.219	0.094	0.098		
		TCMT 21.50.5 PSF	TCMT110202-PSF												0.008	0.250	0.094	0.110	
		TCMT 21.51 PSF	TCMT110204-PSF	●	●	▲	▲	●							0.016	0.250	0.094	0.110	
		TCMT 220.5 PSF	TCMT110302-PSF												0.008	0.250	0.125	0.110	
		TCMT 221 PSF	TCMT110304-PSF	●	●	▲	▲	●							0.016	0.250	0.125	0.110	
Finishing to light cutting		PSS TCMT 731 PSS	TCMT090204-PSS	●	●	▲	▲	●						0.016	0.219	0.094	0.098		
		TCMT 732 PSS	TCMT090208-PSS	●	●	▲	▲	●						0.031	0.219	0.094	0.098		
		TCMT 21.51 PSS	TCMT110204-PSS	●	●	▲	▲	●						0.016	0.250	0.094	0.110		
		TCMT 21.52 PSS	TCMT110208-PSS	●	●	▲	▲	●						0.031	0.250	0.094	0.110		
		TCMT 221 PSS	TCMT110304-PSS	●	●	▲	▲	●						0.016	0.250	0.125	0.110		
		TCMT 222 PSS	TCMT110308-PSS	●	●	▲	▲	●						0.031	0.250	0.125	0.110		
		TCMT 32.51 PSS	TCMT16T304-PSS	●	●	▲	▲	●						0.016	0.375	0.156	0.173		
		TCMT 32.52 PSS	TCMT16T308-PSS	●	●	▲	▲	●						0.031	0.375	0.156	0.173		
TCMT 32.53 PSS	TCMT16T312-PSS	●	●	▲	▲	●						0.047	0.375	0.156	0.173				

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

- : Line up
- ▲ : To be discontinued



*-M,G: Without chipbreaker

Reference pages: External toolholder → **C080** - Internal toolholder → **D049**
J-Series toolholder → **G051** -

Insert POSITIVE TYPE

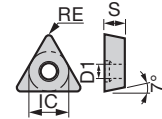
- : Continuous cutting
- : Light interrupted cutting
- ※ : Heavy interrupted cutting

TC



Triangular, 60°
with hole
Positive 7°

	P	M	K	N	S	H
Steel	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
Stainless	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
Cast iron	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
Non-ferrous	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
Superalloy	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●
Hard material	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●	●●●●●●●●



Application	Chipbreaker	Designation	Coated				Cermet	Uncoated	Dimension (inch)						
			AH725	SH725	SH730	J740	NS9530	TH10	RE	IC	S	D1			
			Inch	Metric											
Finishing 	-	TCGT 620.5 R	TCGT080102R					●	●			0.008	0.187	0.063	0.106
	JS	TCGT 21.5V FN-JS	TCGT110200FN-JS	●	●							0.001	0.250	0.094	0.110
		TCGT 21.50 FN-JS	TCGT110201FN-JS	●	●							<0.004	0.250	0.094	0.110
		TCGT 21.50.5 FN-JS	TCGT110202FN-JS	●	●							<0.008	0.250	0.094	0.110
For external turning on Swiss lathes (sharp edge) 		TCGT 21.51 FN-JS	TCGT110204FN-JS	●	●							<0.016	0.250	0.094	0.110
	JS	TCGT 21.50 N-JS	TCGT110201N-JS	●								0.004	0.250	0.094	0.110
		TCGT 21.50.5 N-JS	TCGT110202N-JS	●								0.008	0.250	0.094	0.110
		TCGT 21.51 N-JS	TCGT110204N-JS	●								0.016	0.250	0.094	0.110
For external turning on Swiss lathes (honed edge) 	J08	TCGT 63V FR-J08	TCGT080200FR-J08	●	●					●		0.001	0.187	0.094	0.091
		TCGT 63V FL-J08	TCGT080200FL-J08	●	●					●		0.001	0.187	0.094	0.091
		TCGT 630 FR-J08	TCGT080201FR-J08	●	●					●		0.004	0.187	0.094	0.091
		TCGT 630 FL-J08	TCGT080201FL-J08	●	●					●		0.004	0.187	0.094	0.091
		TCGT 630.5 FR-J08	TCGT080202FR-J08	●	●					●		0.008	0.187	0.094	0.091
		TCGT 630.5 FL-J08	TCGT080202FL-J08	●	●					●		0.008	0.187	0.094	0.091
		TCGT 631 FR-J08	TCGT080204FR-J08	●								0.016	0.187	0.094	0.091

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: J-Series toolholder → G051

Insert POSITIVE TYPE

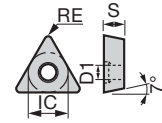
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TC



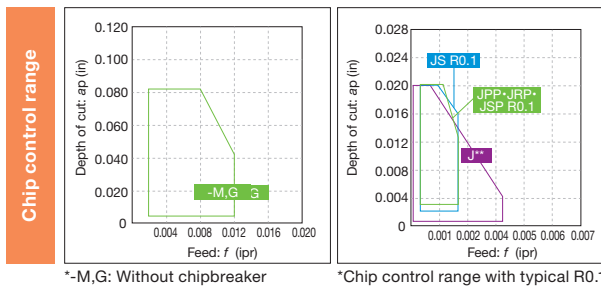
Triangular, 60°
with hole
Positive 7°

P	Steel	●●●●	●●	●●	●●	●●	●		
M	Stainless	●●●●					●●		
K	Cast iron			●●	●●		●●		
N	Non-ferrous						●		
S	Superalloy								
H	Hard material								



Application	Chipbreaker	Designation		Coating					Dimension (inch)						
		Inch	Metric	SH725		J9530	NS9530	TH10	RE	IC	S	D1			
				J740											
For external turning on Swiss lathes (sharp edge)		J10	TCGT 21.5V FR-J10	TCGT110200FR-J10	●	●					0.001	0.250	0.094	0.110	
			TCGT 21.5V FL-J10	TCGT110200FL-J10	●	●						0.001	0.250	0.094	0.110
			TCGT 21.50 FR-J10	TCGT110201FR-J10	●	●						0.004	0.250	0.094	0.110
			TCGT 21.50 FL-J10	TCGT110201FL-J10	●	●						0.004	0.250	0.094	0.110
			TCGT 21.50.5 FR-J10	TCGT110202FR-J10	●	●		●				0.008	0.250	0.094	0.110
			TCGT 21.50.5 FL-J10	TCGT110202FL-J10	●	●		●				0.008	0.250	0.094	0.110
			TCGT 21.51 FR-J10	TCGT110204FR-J10	●							0.016	0.250	0.094	0.110
			TCGT 22V FR-J10	TCGT110300FR-J10	●	●						0.001	0.250	0.125	0.110
			TCGT 22V FL-J10	TCGT110300FL-J10	●	●						0.001	0.250	0.125	0.110
			TCGT 220 FR-J10	TCGT110301FR-J10	●	●						0.004	0.250	0.125	0.110
			TCGT 220 FL-J10	TCGT110301FL-J10	●	●						0.004	0.250	0.125	0.110
			TCGT 220.5 FR-J10	TCGT110302FR-J10	●	●			●			0.008	0.250	0.125	0.110
			TCGT 220.5 FL-J10	TCGT110302FL-J10	●	●			●			0.008	0.250	0.125	0.110
For external turning on Swiss lathes (honed edge)		J10	TCGT 220.5 R-J10	TCGT110302R-J10			●			0.008	0.250	0.125	0.110		
			TCGT 220.5 L-J10	TCGT110302L-J10			●			0.008	0.250	0.125	0.110		

● : Line up



Reference pages: Internal toolholder → **D049** J-Series toolholder → **G051**

Grade: A, B, C, D, E, F, G, H, I, J, K, L, M
Insert: B
Toolholder: C, D, E, F, G, H, I, J, K, L, M

Insert POSITIVE TYPE

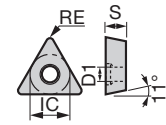
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TP



Triangular, 60°
with hole
Positive 11°

	P	M	K	N	S	H													
Steel	●	●	●	✱	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●					●	●											●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous																			●
Superalloy							●												
Hard material																			



Application	Chipbreaker	Designation		Coated						Coated cermet		Cermet		Un-coated	Dimension (inch)						
		Inch	Metric	T9215	T9225	T9115	T9125	AH725	GH730	GT9530	GT720	NS9530	NS520	TH10	RE	IC	S	D1			
Precision finishing		01	TPGT 730.5-01	TPGT090202-01																	
			TPGT 731-01	TPGT090204-01										●	0.016	0.219	0.094	0.098			
			TPGT 21.50.5-01	TPGT110202-01												0.008	0.250	0.094	0.110		
			TPGT 21.51-01	TPGT110204-01										●	0.016	0.250	0.094	0.110			
			TPGT 21.52-01	TPGT110208-01												0.031	0.250	0.094	0.110		
			TPGT 2.520.5-01	TPGT130302-01							●					0.008	0.313	0.125	0.134		
			TPGT 2.521-01	TPGT130304-01							●				●	0.016	0.313	0.125	0.134		
			TPGT 2.522-01	TPGT130308-01												0.031	0.313	0.125	0.134		
			TPGT 32.51-01	TPGT16T304-01							●				●	0.016	0.375	0.156	0.173		
			TPGT 32.52-01	TPGT16T308-01								●				0.031	0.375	0.156	0.173		
Finishing		PSF	TPMT 730.5 PSF	TPMT090202-PSF																	
			TPMT 731 PSF	TPMT090204-PSF	●	●	▲	▲	●		●					0.016	0.219	0.094	0.098		
			TPMT 21.50.5 PSF	TPMT110202-PSF							●					0.008	0.250	0.094	0.110		
			TPMT 21.51 PSF	TPMT110204-PSF	●	●	▲	▲	●		●					0.016	0.250	0.094	0.110		
			TPMT 220.5 PSF	TPMT110302-PSF												0.008	0.250	0.125	0.134		
			TPMT 221 PSF	TPMT110304-PSF	●	●	▲	▲	●		●					0.016	0.250	0.125	0.134		
			TPMT 2.521 PSF	TPMT130304-PSF	●	●	▲	▲	●							0.016	0.313	0.125	0.134		
			TPMT 32.51 PSF	TPMT16T304-PSF	●	●	▲	▲	●							0.016	0.375	0.156	0.173		
		PF	TPMT 21.51 PF	TPMT110204-PF						●						0.016	0.250	0.094	0.110		
			TPMT 21.52 PF	TPMT110208-PF							●					0.031	0.250	0.094	0.110		
			TPMT 220.5 PF	TPMT110302-PF												0.008	0.250	0.125	0.134		
			TPMT 221 PF	TPMT110304-PF							●					0.016	0.250	0.125	0.134		
			TPMT 2.521 PF	TPMT130304-PF								●				0.016	0.313	0.125	0.134		
			TPMT 2.522 PF	TPMT130308-PF												0.031	0.313	0.125	0.134		
														0.016	0.375	0.156	0.173				

● : Line up
 ▲ : To be discontinued

Reference pages: Mounting hole specification → **B149**
 Internal toolholder → **D050 -**

Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

Insert POSITIVE TYPE

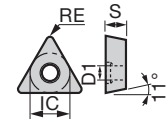
● : Continuous cutting
● : Light interrupted cutting
✳ : Heavy interrupted cutting

TP



Triangular, 60°
with hole
Positive 11°

P	Steel	● ✳ ● ● ✳	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
M	Stainless	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
K	Cast iron	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
N	Non-ferrous	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
S	Superalloy	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
H	Hard material	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●



Application	Chipbreaker	Designation		Coated			Coated cermet	Cermet	Uncoated	Dimension (inch)								
		Inch	Metric	T9215	T9225	T9125	GH110	SH725	SH730	GT9530	NS9530	TH10	UX30	RE	IC	S	D1	
Finishing to medium cutting		TM	TPMT 21.51 TM	TPMT110204-TM	● ●									0.016	0.250	0.094	0.110	
			TPMT 21.52 TM	TPMT110208-TM	● ●										0.031	0.250	0.094	0.110
			TPMT 221 TM	TPMT110304-TM	● ●										0.016	0.250	0.125	0.134
			TPMT 222 TM	TPMT110308-TM	● ●										0.031	0.250	0.125	0.134
			TPMT 32.51 TM	TPMT16T304-TM	● ●										0.016	0.375	0.156	0.173
			TPMT 32.52 TM	TPMT16T308-TM	● ●										0.031	0.375	0.156	0.173
		23	TPMT 730.5-23	TPMT090202-23							●			0.008	0.219	0.094	0.098	
			TPMT 731-23	TPMT090204-23	● ▲						●			0.016	0.219	0.094	0.098	
			TPMT 21.51-23	TPMT110204-23	● ▲						●			0.016	0.250	0.094	0.110	
			TPMT 2.521-23	TPMT130304-23	● ▲						●			0.016	0.313	0.125	0.134	
			TPMT 2.522-23	TPMT130308-23	● ▲						●			0.031	0.313	0.125	0.134	
			TPMT 32.51-23	TPMT16T304-23							●			0.016	0.375	0.156	0.173	
		TPMT 32.52-23	TPMT16T308-23	● ▲						●			0.031	0.375	0.156	0.173		
Medium cutting		24	TPMT 731-24	TPMT090204-24	● ▲						●			0.016	0.219	0.094	0.098	
			TPMT 21.51-24	TPMT110204-24	● ▲						●			0.016	0.250	0.094	0.110	
			TPMT 21.52-24	TPMT110208-24								●			0.031	0.250	0.094	0.110
			TPMT 2.521-24	TPMT130304-24	● ▲							●			0.016	0.313	0.125	0.134
			TPMT 2.522-24	TPMT130308-24	● ▲							●			0.031	0.313	0.125	0.134
			TPMT 32.51-24	TPMT16T304-24	● ▲							●			0.016	0.375	0.156	0.173
			TPMT 32.52-24	TPMT16T308-24	● ▲							●			0.031	0.375	0.156	0.173
Finishing		W08	TPGT 5.52V R-W08	TPGT070100R-W08							●			0.001	0.172	0.063	0.102	
			TPGT 5.52V L-W08	TPGT070100L-W08								●			0.001	0.172	0.063	0.102
			TPGT 5.520 R-W08	TPGT070101R-W08								●			0.004	0.172	0.063	0.102
			TPGT 5.520 L-W08	TPGT070101L-W08								●			0.004	0.172	0.063	0.102
			TPGT 5.520.5 R-W08	TPGT070102R-W08								●			0.008	0.172	0.063	0.102
			TPGT 5.520.5 L-W08	TPGT070102L-W08								●			0.008	0.172	0.063	0.102
			TPGT 5.521 R-W08	TPGT070104R-W08								●			0.016	0.172	0.063	0.102
			TPGT 5.521 L-W08	TPGT070104L-W08								●			0.016	0.172	0.063	0.102
			TPGT 63V L-W08	TPGT080200L-W08					●		●				0.001	0.187	0.094	0.091
			TPGT 630.5 L-W08	TPGT080202L-W08			●		●		●	●	●		0.008	0.187	0.094	0.091
	TPGT 631 L-W08	TPGT080204L-W08			●		●		●	●	●		0.016	0.187	0.094	0.091		
Finishing (sharp edge)		W08	TPGT 5.52V FL-W08	TPGT070100FR-W08										0.001	0.172	0.063	0.102	
			TPGT 5.52V FR-W08	TPGT070100FL-W08											0.001	0.172	0.063	0.102
			TPGT 5.520 FR-W08	TPGT070101FR-W08											0.004	0.172	0.063	0.102
			TPGT 5.520 FL-W08	TPGT070101FL-W08											0.004	0.172	0.063	0.102
			TPGT 5.520.5 FR-W08	TPGT070102FR-W08											0.008	0.172	0.063	0.102
			TPGT 5.520.5 FL-W08	TPGT070102FL-W08											0.008	0.172	0.063	0.102
			TPGT 5.521 FR-W08	TPGT070104FR-W08											0.016	0.172	0.063	0.102
			TPGT 5.521 FL-W08	TPGT070104FL-W08											0.016	0.172	0.063	0.102

● : Line up
▲ : To be discontinued

Reference pages: Mounting hole specification → B149
Internal toolholder → D050 -

Insert POSITIVE TYPE

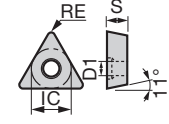
- : Continuous cutting
- : Light interrupted cutting
- : Heavy interrupted cutting

TP



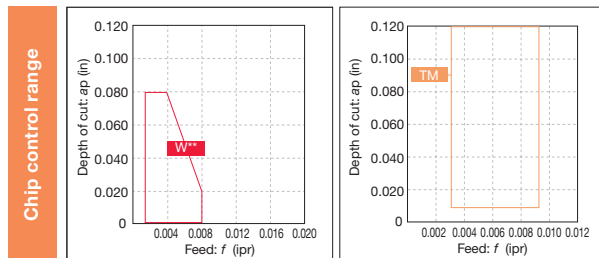
**Triangular, 60°
with hole
Positive 11°**

	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloy	H Hard material
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●



Application	Chipbreaker	Designation		Coated		Coated cermet	Cermet	Uncoated		Dimension (inch)				
		Inch	Metric	GH110	GH330	GT9530	NS9530	TH10	UX30	RE	IC	S	D1	
Finishing		W10	TPGH 630.5 L-W10	TPGH080202L-W10			●				0.008	0.187	0.094	0.091
			TPGH 631 L-W10	TPGH080204L-W10			●				0.016	0.187	0.094	0.091
			TPGH 731 L-W10	TPGH090204L-W10			●	●			0.016	0.219	0.094	0.118
		W13	TPGH 21.51 L-W13	TPGH110204L-W13			●				0.016	0.250	0.094	0.134
			TPGH 220.5 L-W13	TPGH110302L-W13			●				0.008	0.250	0.125	0.134
			TPGH 221 L-W13	TPGH110304L-W13			●	●			0.016	0.250	0.125	0.134
		W15	TPGT 730.5 R-W15	TPGT090202R-W15				●			0.008	0.219	0.094	0.098
			TPGT 730.5 L-W15	TPGT090202L-W15			●		●		0.008	0.219	0.094	0.098
			TPGT 731 R-W15	TPGT090204R-W15				●			0.016	0.219	0.094	0.098
			TPGT 731 L-W15	TPGT090204L-W15	● ●		●		● ●		0.016	0.219	0.094	0.098
			TPGT 21.50.5 R-W15	TPGT110202R-W15				●			0.008	0.250	0.094	0.110
			TPGT 21.50.5 L-W15	TPGT110202L-W15				●		●	0.008	0.250	0.094	0.110
			TPGT 21.51 L-W15	TPGT110204L-W15	● ●		●		● ●		0.016	0.250	0.094	0.110
			TPGT 21.52 R-W15	TPGT110208R-W15				●			0.031	0.250	0.094	0.110
		TPGT 21.52 L-W15	TPGT110208L-W15						●	0.031	0.250	0.094	0.110	
		TPGT 220.5 L-W15	TPGT110302L-W15				●			0.008	0.250	0.125	0.134	
		TPGT 221 R-W15	TPGT110304R-W15				●			0.016	0.250	0.125	0.134	
	TPGT 221 L-W15	TPGT110304L-W15				●			0.016	0.250	0.125	0.134		
	TPGT 222 L-W15	TPGT110308L-W15				●			0.031	0.250	0.125	0.134		
	TPGT 2.520.5 R-W15	TPGT130302R-W15				●			0.008	0.313	0.125	0.134		
	TPGT 2.520.5 L-W15	TPGT130302L-W15				●		●	0.008	0.313	0.125	0.134		
	TPGT 2.521 R-W15	TPGT130304R-W15	●			●			0.016	0.313	0.125	0.134		
	TPGT 2.521 L-W15	TPGT130304L-W15	● ●		●	●		● ●	0.016	0.313	0.125	0.134		
	TPGT 2.522 L-W15	TPGT130308L-W15				●		●	0.031	0.313	0.125	0.134		
	TPGT 32.50.5 R-W15	TPGT16T302R-W15				●			0.008	0.375	0.156	0.173		
	TPGT 32.50.5 L-W15	TPGT16T302L-W15				●		●	0.008	0.375	0.156	0.173		
	TPGT 32.51 R-W15	TPGT16T304R-W15				●		●	0.016	0.375	0.156	0.173		
	TPGT 32.51 L-W15	TPGT16T304L-W15	● ●		●	●		● ●	0.016	0.375	0.156	0.173		
	TPGT 32.52 L-W15	TPGT16T308L-W15				●		● ●	0.031	0.375	0.156	0.173		

● : Line up



Reference pages: Mounting hole specification → B149
Internal toolholder → D050 -

Grade A B C D E F G H I J K L M
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index

Insert POSITIVE TYPE

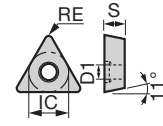
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TP



Triangular, 60°
with hole
Positive 11°

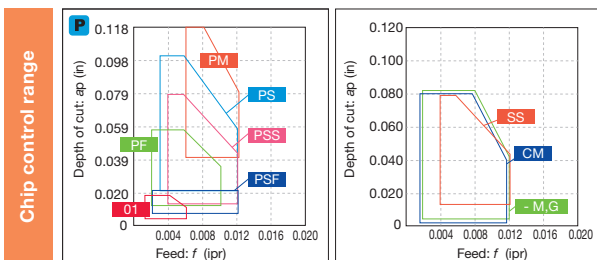
P	Steel					●	◐													
M	Stainless																			
K	Cast iron	◐				●	◐													
N	Non-ferrous																			
S	Superalloy																			
H	Hard material																			



Application	Chipbreaker	Designation		Dimension (inch)												
		Inch	Metric	T5115	NS9530	TH10 UX30		RE	IC	S	D1					
Finishing to medium cutting		-	TPGM 5.520.5 R	TPGM070102R		●						0.008	0.172	0.063	0.106	
			TPGM 5.520.5 L	TPGM070102L		●							0.008	0.172	0.063	0.106
			TPGM 5.521 R	TPGM070104R		●							0.016	0.172	0.063	0.106
			TPGM 5.521 L	TPGM070104L		●							0.016	0.172	0.063	0.106
			TPGM 730.5 R	TPGM090202R		●							0.008	0.219	0.094	0.126
			TPGM 730.5 L	TPGM090202L		●							0.008	0.219	0.094	0.126
			TPGM 731 L	TPGM090204L		●							0.016	0.219	0.094	0.126
			TPGM 21.50.5 R	TPGM110202R		●							0.008	0.250	0.094	0.118
			TPGM 21.50.5 L	TPGM110202L		●							0.008	0.250	0.094	0.118
			TPGM 21.51 R	TPGM110204R		●							0.016	0.250	0.094	0.118
			TPGM 21.51 L	TPGM110204L		●							0.016	0.250	0.094	0.118
			TPGM 220.5 R	TPGM110302R		●							0.008	0.250	0.125	0.118
			TPGM 220.5 L	TPGM110302L		●							0.008	0.250	0.125	0.118
			TPGM 220.5 L-2	TPGM110302L-2				●					0.008	0.250	0.125	0.118
			TPGM 221 R	TPGM110304R		●							0.016	0.250	0.125	0.118
			TPGM 221 L	TPGM110304L		●							0.016	0.250	0.125	0.118
			TPGM 221 L-2	TPGM110304L-2				●					0.016	0.250	0.125	0.118
			TPGM 320.5 L	TPGM160302L		●							0.008	0.375	0.125	0.157
			TPGM 321 R	TPGM160304R		●							0.016	0.375	0.125	0.157
			TPGM 321 L	TPGM160304L		●							0.016	0.375	0.125	0.157
	TPGM 321 L-2	TPGM160304L-2				●					0.016	0.375	0.125	0.157		
	-	TPMW 21.51	TPMW110204	●								0.016	0.250	0.094	0.110	
		TPMW 21.52	TPMW110208	●								0.031	0.250	0.094	0.110	
		TPMW 2.521	TPMW130304	●								0.016	0.313	0.125	0.134	
		TPMW 2.522	TPMW130308	●								0.031	0.313	0.125	0.134	
		TPMW 32.51	TPMW16T304	●								0.016	0.375	0.156	0.173	
		TPMW 32.52	TPMW16T308	●								0.031	0.375	0.156	0.173	

● : Line up

Mounting hole specification	TP*T	TPGM0701	TPGM (A) 0902~1603	TPGH										
	60°	60°	80°	81°										
					D1 (in)	0701**	0802**	0902**	1102**	1103**	1303**	1603**	16T3**	
						TP*T(W)	-	0.091	0.098	0.110	0.134	0.134	-	0.173
						TPGM(A)	0.106	-	0.126	0.118	0.118	-	0.157	-
						TPGH	-	0.091	0.118	0.134	0.134	-	0.177	-



*-M,G: Without chipbreaker

Reference pages: Internal toolholder → **D050 -**

Insert POSITIVE TYPE

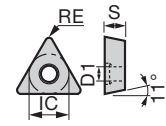
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

TP



Triangular, 60°
with hole
Positive 11°

	P	M	K	N	S	H
Steel	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
Stainless	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
Cast iron	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
Non-ferrous	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
Superalloy	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
Hard material	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●



Application	Chipbreaker	Designation		Coated		Cermet		Uncoated		Dimension (inch)			
		Inch	Metric	GH110	SH725	SH730	NS9530	TH10	RE	IC	S	D1	
Finishing to medium cutting	-	TPGA 731	TPGA090204							0.016	0.219	0.094	0.126
	(Tungaloy standard hole specification) ISO non-compliant	TPGA 21.50.5	TPGA110202				●			0.008	0.250	0.094	0.118
		TPGA 21.51	TPGA110204							0.016	0.250	0.094	0.118
		TPGA 220.5	TPGA110302				●			0.008	0.250	0.125	0.118
		TPGA 221	TPGA110304							0.016	0.250	0.125	0.118
		TPGA 321	TPGA160304				●			0.016	0.375	0.125	0.157
		TPGA 322	TPGA160308							0.031	0.375	0.125	0.157
	-	TPGW 730.5	TPGW090202							0.008	0.219	0.094	0.098
		TPGW 731	TPGW090204							0.016	0.219	0.094	0.098
		TPGW 21.50.5	TPGW110202							0.008	0.250	0.094	0.110
	TPGW 21.51	TPGW110204	●						0.016	0.250	0.094	0.110	
	TPGW 221	TPGW110304							0.016	0.250	0.125	0.134	
	TPGW 2.521	TPGW130304							0.016	0.313	0.125	0.134	
	TPGW 32.51	TPGW16T304	●						0.016	0.375	0.156	0.173	
	TPGW 32.52	TPGW16T308							0.031	0.375	0.156	0.173	
For internal turning on Swiss lathes	JS	TPGT 5.520 JS	TPGT070101-JS			●				<0.004	0.172	0.063	0.102
		TPGT 5.520.5 JS	TPGT070102-JS			●				<0.008	0.172	0.063	0.102
		TPGT 5.521 JS	TPGT070104-JS			●				<0.016	0.172	0.063	0.102
For internal turning on Swiss lathes (sharp edge)	JS	TPGT 5.520 F-JS	TPGT070101F-JS	●						<0.004	0.172	0.063	0.102
		TPGT 5.520.5 F-JS	TPGT070102F-JS	●						<0.008	0.172	0.063	0.102
		TPGT 5.521 F-JS	TPGT070104F-JS	●						<0.016	0.172	0.063	0.102

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: Internal toolholder → **D050 -**

Insert POSITIVE TYPE

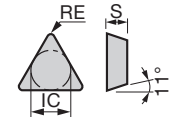
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

TP



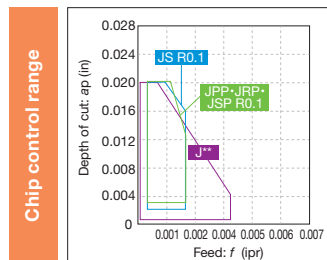
Triangular, 60°
without hole
Positive 11°

Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
P	●●●●●●●●	●●	●●	●●	●	●●
M	●●	●●●●●●●●	●●	●●	●	●●
K	●●	●●	●●●●●●●●	●●	●	●●
N	●●	●●	●●	●●●●●●●●	●	●●
S	●●	●●	●●	●●	●●●●●●●●	●●
H	●●	●●	●●	●●	●●	●●

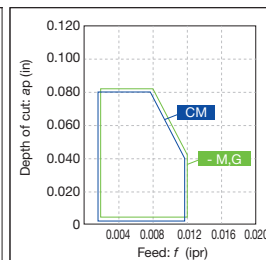
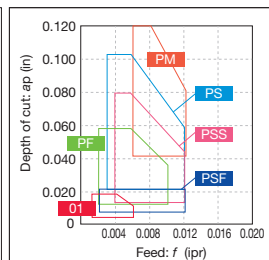


Application	Chipbreaker	Designation		Coated						Cermet	Uncoated	Dimension (inch)				
		Inch	Metric	T9215	T9225	T9115	T9125	T5115	AH725	NS9530	TH10	RE	IC	S	D1	
Finishing to medium cutting		PS	TPMR 221 PS	TPMR110304-PS	●	●	▲	▲				0.016	0.250	0.125	-	
			TPMR 222 PS	TPMR110308-PS	●	●	▲	▲				0.031	0.250	0.125	-	
			TPMR 321 PS	TPMR160304-PS	●	●	▲	▲				0.016	0.375	0.125	-	
			TPMR 322 PS	TPMR160308-PS	●	●	▲	▲				0.031	0.375	0.125	-	
Finishing to medium cutting		23	TPMR 221-23	TPMR110304-23	●	●	▲	▲		●		0.016	0.250	0.125	-	
			TPMR 222-23	TPMR110308-23	●	●	▲	▲		●		0.031	0.250	0.125	-	
			TPMR 321-23	TPMR160304-23	●	●	▲	▲	●		●		0.016	0.375	0.125	-
			TPMR 322-23	TPMR160308-23	●	●	▲	▲		●		0.031	0.375	0.125	-	
Medium cutting		24	TPMR 221-24	TPMR110304-24	●	●	▲	▲		●		0.016	0.250	0.125	-	
			TPMR 222-24	TPMR110308-24	●	●	▲	▲		●		0.031	0.250	0.125	-	
			TPMR 321-24	TPMR160304-24	●	●	▲	▲	●		●		0.016	0.375	0.125	-
			TPMR 322-24	TPMR160308-24	●	●	▲	▲		●		0.031	0.375	0.125	-	
Finishing to medium cutting		CM	TPMR 221 CM	TPMR110304-CM					●			0.016	0.250	0.125	-	
			TPMR 222 CM	TPMR110308-CM					●			0.031	0.250	0.125	-	
			TPMR 321 CM	TPMR160304-CM					●			0.016	0.375	0.125	-	
			TPMR 322 CM	TPMR160308-CM					●			0.031	0.375	0.125	-	
			TPMR 323 CM	TPMR160312-CM					●			0.047	0.375	0.125	-	

● : Line up
▲ : To be discontinued



*Chip control range with typical R0.1



*-M,G: Without chipbreaker

Reference pages: Internal toolholder → **D051** -

Grade
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Miniature Tool
Milling Cutter
Endmill
Drilling Tool
Tooling System
User's Guide
Index



Insert POSITIVE TYPE

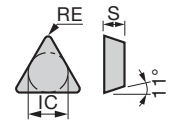
● : Continuous cutting
 ● : Light interrupted cutting
 * : Heavy interrupted cutting

TP



Triangular, 60°
 without hole
 Positive 11°

P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous																		
S	Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	Hard material																		



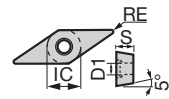
Application	Chipbreaker	Designation		Coated				Cermets		Uncoated		Ceramic		Dimension (inch)				
		Inch	Metric	T5115	GH110	AH120	T3130	NS9530	NS740	TH10	UX30	LX21	LX11	RE	IC	S	D1	
Finishing to medium cutting		-	TPGR 220.5 L	TPGR110302L					●					0.008	0.250	0.125	-	
			TPGR 221 L	TPGR110304L					●						0.016	0.250	0.125	-
			TPGR 321 R	TPGR160304R					●						0.016	0.375	0.125	-
			TPGR 321 L	TPGR160304L					●						0.016	0.375	0.125	-
			TPGR 322 L	TPGR160308L					●						0.031	0.375	0.125	-
		-	TPMN 221	TPMN110304	●				●		●	●			0.016	0.250	0.125	-
			TPMN 222	TPMN110308	●				●		●	●			0.031	0.250	0.125	-
			TPMN 321	TPMN160304	●	●	●		●		●	●			0.016	0.375	0.125	-
			TPMN 322	TPMN160308	●	●	●		●		●	●			0.031	0.375	0.125	-
			TPMN 323	TPMN160312	●		●								0.047	0.375	0.125	-
			TPMN 431	TPMN220404						●	●				0.016	0.500	0.187	-
			TPMN 432	TPMN220408			●			●	●				0.031	0.500	0.187	-
			TPMN 433	TPMN220412			●			●	●				0.047	0.500	0.187	-
		-	TPGN 220.5	TPGN110302						●					0.008	0.250	0.125	-
			TPGN 221	TPGN110304		●			●				●	●	0.016	0.250	0.125	-
		TPGN 222	TPGN110308					●				●	●	0.031	0.250	0.125	-	
		TPGN 320.5	TPGN160302						●					0.008	0.375	0.125	-	
		TPGN 321	TPGN160304		●	●		●	●			●	●	0.016	0.375	0.125	-	
		TPGN 322	TPGN160308		●	●		●	●			●	●	0.031	0.375	0.125	-	
		TPGN 323	TPGN160312					●				●	●	0.047	0.375	0.125	-	
		TPGN 431	TPGN220404					●		●				0.016	0.500	0.187	-	
		TPGN 432	TPGN220408			●		●						0.031	0.500	0.187	-	
		TPGN 433	TPGN220412			●		●						0.047	0.500	0.187	-	

VB



Rhombic, 35°
 with hole
 Positive 5°

P	Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	Stainless	●	●					●											
K	Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Non-ferrous																		
S	Superalloy						●												
H	Hard material																		



Application	Chipbreaker	Designation		Coated					Coated cermet	Cermet		Dimension (inch)						
		Inch	Metric	T9215	T9225	T9115	T9125	AH725	GT9530	NS9530	RE	IC	S	D1				
Finishing	PSF	VBMT 220.5 PSF	VBMT110302-PSF						●						0.008	0.250	0.125	0.110
		VBMT 221 PSF	VBMT110304-PSF	●	●	▲	▲	●	●		●				0.016	0.250	0.125	0.110
		VBMT 330.5 PSF	VBMT160402-PSF					●	●		●				0.008	0.375	0.187	0.173
		VBMT 331 PSF	VBMT160404-PSF	●	●	▲	▲	●	●		●				0.016	0.375	0.187	0.173

● : Line up
 ▲ : To be discontinued

Reference pages: VBMT...: External toolholder → **C065**
 Internal toolholder → **D051 -**

Insert POSITIVE TYPE

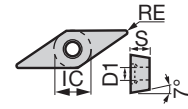
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

VC

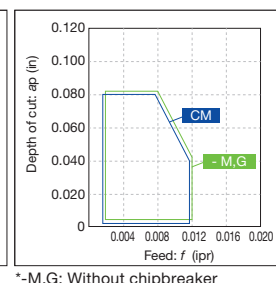
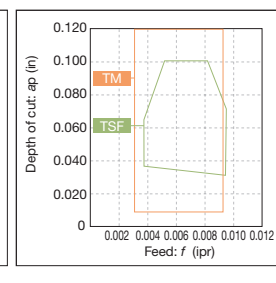
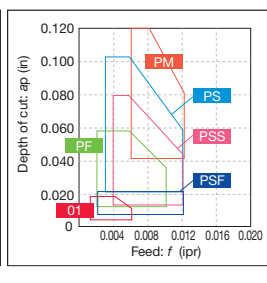
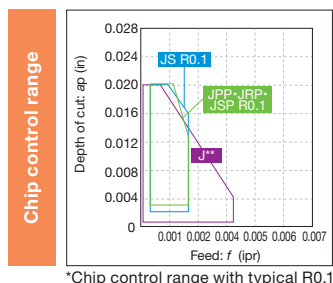
Rhombic, 35°
with hole
Positive 7°



	P	M	K	N	S	H	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑	●	◐	◑
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Superalloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Application	Chipbreaker	Designation	Coated										Coated cermet	Cermet	Dimension (inch)															
			Inch		Metric		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	AH905	GT9530	AT9530	NS9530	RE	IC	S	D1				
Finishing		PSF	VCMT 630.5 PSF	VCMT080202-PSF																		●	●	●	●	0.008	0.187	0.094	0.091	
			VCMT 631 PSF	VCMT080204-PSF	●	●	▲	▲								●							●	●	●	●	0.016	0.187	0.094	0.091
			VCMT 220.5 PSF	VCMT110302-PSF												●											0.008	0.250	0.125	0.110
			VCMT 221 PSF	VCMT110304-PSF	●	●	▲	▲								●											0.016	0.250	0.125	0.110
			VCMT 331 PSF	VCMT160404-PSF	●	●	▲	▲								●	●	●	●	●	●	●	●	●	●	0.016	0.375	0.187	0.173	
			VCMT 332 PSF	VCMT160408-PSF	●	●	▲	▲								●	●	●	●	●	●	●	●	●	●	0.031	0.375	0.187	0.173	
		PF	VCMT 630.5 PF	VCMT080202-PF																		●	●	●	●	0.008	0.187	0.094	0.091	
			VCMT 631 PF	VCMT080204-PF																		●	●	●	●	0.016	0.187	0.094	0.091	
			VCMT 331 PF	VCMT160404-PF																		●	●	●	●	0.016	0.375	0.187	0.173	
			VCMT 332 PF	VCMT160408-PF																		●	●	●	●	0.031	0.375	0.187	0.173	
Finishing to light cutting		PSS	VCMT 221 PSS	VCMT110304-PSS	●	●	▲	▲	●	●	●	●	●	●	●							●	●	●	●	0.016	0.250	0.125	0.110	
			VCMT 222 PSS	VCMT110308-PSS	●	●	▲	▲	●	●	●	●	●	●	●							●	●	●	●	0.031	0.250	0.125	0.110	
			VCMT 331 PSS	VCMT160404-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.016	0.375	0.187	0.173	
			VCMT 332 PSS	VCMT160408-PSS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.031	0.375	0.187	0.173	
Finishing to medium cutting		PS	VCMT 220.5 PS	VCMT110302-PS	●	●	▲	▲	●	●	●	●	●	●	●							●	●	●	●	0.008	0.250	0.125	0.110	
			VCMT 221 PS	VCMT110304-PS	●	●	▲	▲	●	●	●	●	●	●	●							●	●	●	●	0.016	0.250	0.125	0.110	
			VCMT 222 PS	VCMT110308-PS	●	●	▲	▲	●	●	●	●	●	●	●							●	●	●	●	0.031	0.250	0.125	0.110	
			VCMT 331 PS	VCMT160404-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.016	0.375	0.187	0.173	
			VCMT 332 PS	VCMT160408-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.031	0.375	0.187	0.173	
			TSF	VCMT 331 TSF	VCMT160404-TSF	●	●																				0.016	0.375	0.187	0.173
			VCMT 332 TSF	VCMT160408-TSF	●	●																				0.031	0.375	0.187	0.173	
		TM	VCMT 331 TM	VCMT160404-TM	●	●																				0.016	0.375	0.187	0.173	
			VCMT 332 TM	VCMT160408-TM	●	●																				0.031	0.375	0.187	0.173	



- : Line up
- ▲ : To be discontinued

Reference pages: External toolholder → **C068** - Internal toolholder → **D044** -

Grade
Insert
Toolholder
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

Insert POSITIVE TYPE

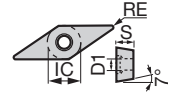
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

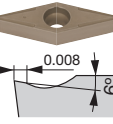
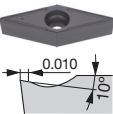

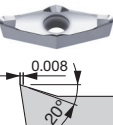
VC

Rhombic, 35°
with hole
Positive 7°



Material	Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material	T9215	T9225	T9115	T9125	T515	T5115	AH8005	AH8015	AH905	NS9530	KS05F
P	●●●●	●●	●●				●	●									
M	●●												●	●			
K	●●		●●						●●	●						●●	●●
N				●●													●●
S					●●								●	●	●		●●
H																	



Application	Chipbreaker	Designation		Coated											Cermet	Un-coated	Dimension (inch)					
		Inch	Metric	T9215	T9225	T9115	T9125	T515	T5115	AH8005	AH8015	AH905	NS9530	KS05F	RE	IC	S	D1				
		Finishing to medium cutting	24	VCMT 331-24	VCMT160404-24	●	●	▲	▲									●		0.016	0.375	0.187
		VCMT 332-24	VCMT160408-24	●	●	▲	▲									●		0.031	0.375	0.187	0.173	
																						
	CM	VCMT 631 CM	VCMT080204-CM									●						0.016	0.187	0.094	0.091	
		VCMT 331 CM	VCMT160404-CM								●	●						0.016	0.375	0.187	0.173	
											●	●						0.031	0.375	0.187	0.173	
		VCMT 332 CM	VCMT160408-CM								●	●						0.047	0.375	0.187	0.173	
		VCMT 333 CM	VCMT160412-CM								●											
Medium cutting	All-round	VCMT 331	VCMT160404										●	●	●			0.016	0.375	0.187	0.173	
		VCMT 332	VCMT160408										●	●	●			0.031	0.375	0.187	0.173	
													●	●	●			0.047	0.375	0.187	0.173	
		VCMT 333	VCMT160412										●	●	●							
Finishing to medium cutting	AL	VCGT 331 AL	VCGT160404-AL														●	0.016	0.375	0.187	0.173	
		VCGT 332 AL	VCGT160408-AL														●	0.031	0.375	0.187	0.173	
																	●	0.047	0.375	0.187	0.173	
		VCGT 43.55 AL	VCGT220520-AL														●	0.079	0.500	0.219	0.217	
		VCGT 43.57.5 AL	VCGT220530-AL														●	0.118	0.500	0.219	0.217	

● : Line up
 ▲ : To be discontinued

Reference pages: VC*T...: External toolholder → C068 - Internal toolholder → D044 -

Insert POSITIVE TYPE

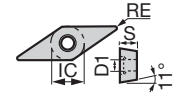
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

VP

**Rhombic, 35°
with hole
Positive 11°**

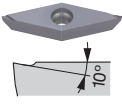
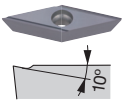


P	Steel	●●●●																							
M	Stainless	●●●●																							
K	Cast iron																								
N	Non-ferrous																								
S	Superalloy	●●																							
H	Hard material																								



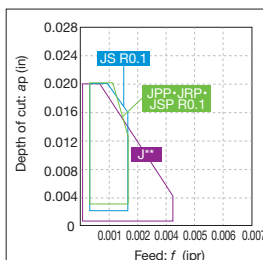
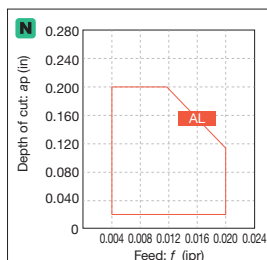
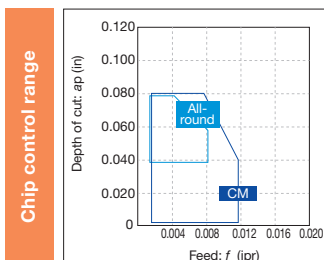
Application	Chipbreaker	Designation		Coated		Dimension (inch)			
		Inch	Metric	SH725	SH730	RE	IC	S	D1
		<p>JPP</p> <p>VPET 63X MFR-JPP VPET0802008MFR-JPP ●●</p> <p>VPET 63X MFL-JPP VPET0802008MFL-JPP ●●</p> <p>VPET 630 MFR-JPP VPET080201MFR-JPP ●●</p> <p>VPET 630 MFL-JPP VPET080201MFL-JPP ●●</p> <p>VPET 630.4 MFR-JPP VPET0802018MFR-JPP ●●</p> <p>VPET 630.4 MFL-JPP VPET0802018MFL-JPP ●●</p> <p>VPET 630.5 MFR-JPP VPET080202MFR-JPP ●●</p> <p>VPET 630.5 MFL-JPP VPET080202MFL-JPP ●●</p> <p>VPET 22X MFR-JPP VPET1103008MFR-JPP ●●</p> <p>VPET 22X MFL-JPP VPET1103008MFL-JPP ●●</p> <p>VPET 220 MFR-JPP VPET110301MFR-JPP ●●</p> <p>VPET 220 MFL-JPP VPET110301MFL-JPP ●●</p> <p>VPET 220.4 MFR-JPP VPET1103018MFR-JPP ●●</p> <p>VPET 220.4 MFL-JPP VPET1103018MFL-JPP ●●</p> <p>VPET 220.5 MFR-JPP VPET110302MFR-JPP ●●</p> <p>VPET 220.5 MFL-JPP VPET110302MFL-JPP ●●</p> <p>JRP</p> <p>VPET 63X MFR-JRP VPET0802008MFR-JRP ●●</p> <p>VPET 63X MFL-JRP VPET0802008MFL-JRP ●●</p> <p>VPET 630 MFR-JRP VPET080201MFR-JRP ●●</p> <p>VPET 630 MFL-JRP VPET080201MFL-JRP ●●</p> <p>VPET 630.4 MFR-JRP VPET0802018MFR-JRP ●●</p> <p>VPET 630.4 MFL-JRP VPET0802018MFL-JRP ●●</p> <p>VPET 630.5 MFR-JRP VPET080202MFR-JRP ●●</p> <p>VPET 630.5 MFL-JRP VPET080202MFL-JRP ●●</p> <p>VPET 22X MFR-JRP VPET1103008MFR-JRP ●●</p> <p>VPET 22X MFL-JRP VPET1103008MFL-JRP ●●</p> <p>VPET 220 MFR-JRP VPET110301MFR-JRP ●●</p> <p>VPET 220 MFL-JRP VPET110301MFL-JRP ●●</p> <p>VPET 220.4 MFR-JRP VPET1103018MFR-JRP ●●</p> <p>VPET 220.4 MFL-JRP VPET1103018MFL-JRP ●●</p> <p>VPET 220.5 MFR-JRP VPET110302MFR-JRP ●●</p> <p>VPET 220.5 MFL-JRP VPET110302MFL-JRP ●●</p>							

For external turning on Swiss lathes (sharp edge)



*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up



*Chip control range with typical R0.1

Reference pages: VPET...: J-Series toolholder → G030 -

Grade Insert Ext. Toolholder Int. Toolholder Threading Grooving Milling Cutter Miniature Tool Endmill Drilling Tool User's Guide Tooling System Index

A B C D E F G H I J K L M

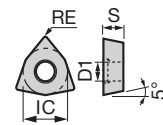
Insert POSITIVE TYPE

● : Continuous cutting
 ●● : Light interrupted cutting
 ●●● : Heavy interrupted cutting

WB

Trigon, 80°
with hole
Positive 5°

	P	M	K	N	S	H
Steel	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Stainless	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Cast iron	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Non-ferrous	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Superalloy	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Hard material	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●



Application	Chipbreaker	Designation		Coated			Cermet			Dimension (inch)															
		Inch	Metric	GH110	SH725	SH730	NS9530				RE	IC	S	D1											
Finishing (sharp edge)		W11	WBGT 520.5 L-W11	WBGT060102L-W11	●																				
			WBGT 521 L-W11	WBGT060104L-W11																					
			WBGT 630.5 L-W11	WBGT080202L-W11																					
			WBGT 631 L-W11	WBGT080204L-W11																					
For internal turning on Swiss lathes		JS	WBGT 520 R-JS	WBGT030101R-JS		●																			
			WBGT 520 L-JS	WBGT030101L-JS		●																			
			WBGT 520.5 R-JS	WBGT030102R-JS		●																			
			WBGT 520.5 L-JS	WBGT030102L-JS		●																			
			WBGT 521 R-JS	WBGT030104R-JS		●																			
			WBGT 521 L-JS	WBGT030104L-JS		●																			
For internal turning on Swiss lathes (sharp edge)		JS	WBGT 520 FR-JS	WBGT030101FR-JS	●																				
			WBGT 520 FL-JS	WBGT030101FL-JS	●																				
			WBGT 520.5 FR-JS	WBGT030102FR-JS	●																				
			WBGT 520.5 FL-JS	WBGT030102FL-JS	●																				
			WBGT 521 FR-JS	WBGT030104FR-JS	●																				

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: WBGT...: Internal toolholder → **D083**

Insert POSITIVE TYPE / DOUBLE SIDE

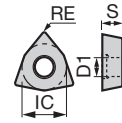
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

WX



Trigon, 80°
with hole

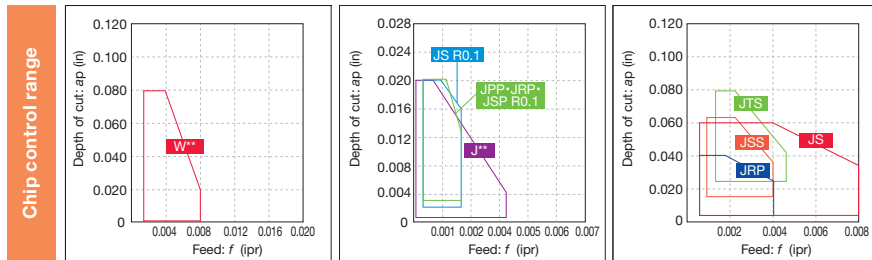
P	Steel	● ● ● ●																			
M	Stainless	● ● ● ●																			
K	Cast iron	● ● ● ●																			
N	Non-ferrous	● ● ● ●																			
S	Superalloy	● ● ● ●																			
H	Hard material	● ● ● ●																			



Application	Chipbreaker		Designation		Coated		Dimension (inch)			
					AH725	SH725	RE	IC	S	D1
Finishing to medium cutting (sharp edge)		JS	WXGU 220MFR JS	WXGU040301MFR-JS	●	<0.004	0.250	0.125	0.106	
			WXGU 220MFL JS	WXGU040301MFL-JS	●	<0.004	0.250	0.125	0.106	
			WXGU 220.5MFR JS	WXGU040302MFR-JS	●	<0.008	0.250	0.125	0.106	
			WXGU 220.5MFL JS	WXGU040302MFL-JS	●	<0.008	0.250	0.125	0.106	
			WXGU 221MFR JS	WXGU040304MFR-JS	●	<0.016	0.250	0.125	0.106	
			WXGU 221MFL JS	WXGU040304MFL-JS	●	<0.016	0.250	0.125	0.106	
		JTS	WXGU 220MFR JTS	WXGU040301MFR-JTS	●	<0.004	0.250	0.125	0.106	
			WXGU 220MFL JTS	WXGU040301MFL-JTS	●	<0.004	0.250	0.125	0.106	
			WXGU 220.5MFR JTS	WXGU040302MFR-JTS	●	<0.008	0.250	0.125	0.106	
			WXGU 220.5MFL JTS	WXGU040302MFL-JTS	●	<0.008	0.250	0.125	0.106	
Finishing to medium cutting		JTS	WXGU 220MR JTS	WXGU040301MR-JTS	●	<0.004	0.250	0.125	0.106	
			WXGU 220ML JTS	WXGU040301ML-JTS	●	<0.004	0.250	0.125	0.106	
			WXGU 220.5MR JTS	WXGU040302MR-JTS	●	<0.008	0.250	0.125	0.106	
			WXGU 220.5ML JTS	WXGU040302ML-JTS	●	<0.008	0.250	0.125	0.106	

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up



*Chip control range with typical R0.1

Reference pages: WXGU... External toolholder → C033 -, Internal toolholder → D034

Grade: A, B, C, D, E, F, G, H, I, J, K, L, M
Insert: B
Toolholder: C, D, E, F, G, H, I, J, K, L, M

Insert POSITIVE TYPE

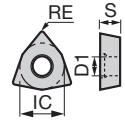
● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

WX



**Trigon, 80°
with hole**

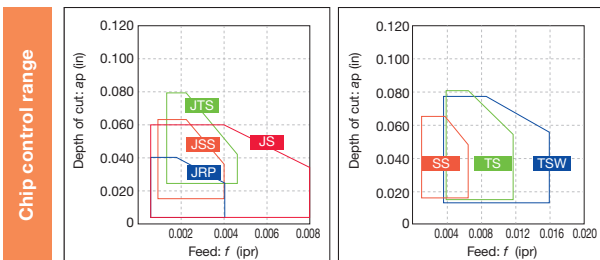
P	Steel	●	●	●	●		●	●	●										
M	Stainless	●	●	●	●														
K	Cast iron	●					●	●	●					●					
N	Non-ferrous																		
S	Superalloy	●																	
H	Hard material																		



Application	Chipbreaker	Designation	Coated					Coated cermet		Cermet	Uncoated	Dimension (inch)				
			Inch		Metric		AH725	AH8015	SH725	GT9530	NS9530	KS05F	RE	IC	S	D1
			Inch	Metric	AH725	AH8015	SH725	GT9530	NS9530	KS05F	RE	IC	S	D1		
Finishing (low cutting force) (sharp edge)		JSS WXGU 220MFR JSS WXGU040301MFR-JSS			●						<0.004	0.250	0.125	0.106		
		WXGU 220MFL JSS WXGU040301MFL-JSS			●						<0.004	0.250	0.125	0.106		
		WXGU 220.5MFR JSS WXGU040302MFR-JSS			●						<0.008	0.250	0.125	0.106		
		WXGU 220.5MFL JSS WXGU040302MFL-JSS			●						<0.008	0.250	0.125	0.106		
Finishing (low cutting force)		JSS WXGU 220MR JSS WXGU040301MR-JSS	●								<0.004	0.250	0.125	0.106		
		WXGU 220ML JSS WXGU040301ML-JSS	●								<0.004	0.250	0.125	0.106		
		WXGU 220.5MR JSS WXGU040302MR-JSS	●								<0.008	0.250	0.125	0.106		
		WXGU 220.5ML JSS WXGU040302ML-JSS	●								<0.008	0.250	0.125	0.106		
Finishing to medium cutting		TS WXGU 220.5R TS WXGU040302R-TS	●	●		●		●		●	0.008	0.250	0.125	0.106		
		WXGU 220.5L TS WXGU040302L-TS	●	●		●		●		●	0.008	0.250	0.125	0.106		
		WXGU 221R TS WXGU040304R-TS	●	●		●		●		●	0.016	0.250	0.125	0.106		
		WXGU 221L TS WXGU040304L-TS	●	●		●		●		●	0.016	0.250	0.125	0.106		
		WXGU 222R TS WXGU040308R-TS	●	●		●		●		●	0.031	0.250	0.125	0.106		
Finishing (wiper)		TSW WXGU 221R TSW WXGU040304R-TSW	●	●		●		●		●	0.016	0.250	0.125	0.106		
		WXGU 221L TSW WXGU040304L-TSW	●	●		●		●		●	0.016	0.250	0.125	0.106		
		WXGU 222R TSW WXGU040308R-TSW	●	●		●		●		●	0.031	0.250	0.125	0.106		
		WXGU 222L TSW WXGU040308L-TSW	●	●		●		●		●	0.031	0.250	0.125	0.106		
Finishing (low cutting force)		SS WXGU 220.5R SS WXGU040302R-SS	●	●		●		●		●	0.008	0.250	0.125	0.106		
		WXGU 220.5L SS WXGU040302L-SS	●	●		●		●		●	0.008	0.250	0.125	0.106		
		WXGU 221R SS WXGU040304R-SS	●	●		●		●		●	0.016	0.250	0.125	0.106		
		WXGU 221L SS WXGU040304L-SS	●	●		●		●		●	0.016	0.250	0.125	0.106		

*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up



Reference pages: WXGU...: External toolholder → C033 -, Internal toolholder → D034

Insert POSITIVE TYPE

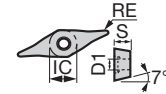
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

YW



**Rhombic, 25°
with hole
Positive 7°**

P	Steel	●●	●●																	
M	Stainless	●●	●●																	
K	Cast iron	●●	●●																	
N	Non-ferrous	●●	●●																	
S	Superalloy	●●	●●																	
H	Hard material																			



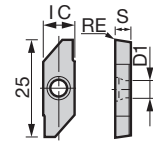
Application	Chipbreaker	Designation		Coated		Coated cermet		Dimension (inch)						
		Inch	Metric	T9225	T9125	GT9530	RE	IC	S	D1				
Finishing to medium cutting	ZF	-	YWMT11T202-ZF	●	▲	●					0.008	0.184	0.109	0.091
		-	YWMT11T204-ZF	●	▲	●					0.016	0.184	0.109	0.091
		-	YWMT16T302-ZF	●	▲	●					0.008	0.276	0.156	0.113
		-	YWMT16T304-ZF	●	▲	●					0.016	0.276	0.156	0.113
		-	YWMT16T308-ZF	●	▲	●					0.031	0.276	0.156	0.113
	ZM	-	YWMT11T204-ZM	●	▲	●					0.016	0.184	0.109	0.091
Finishing to fine cutting	ZM	-	YWMT16T304-ZM	●	▲	●					0.016	0.276	0.156	0.113
		-	YWMT16T308-ZM	●	▲	●					0.031	0.276	0.156	0.113

JXF



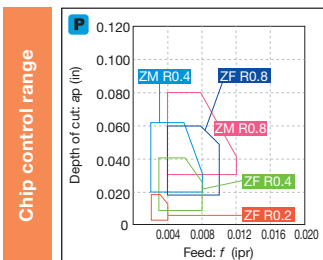
Front turning

P	Steel	●●	●●																	
M	Stainless	●●	●●																	
K	Cast iron	●●	●●																	
N	Non-ferrous	●●	●●																	
S	Superalloy	●●	●●																	
H	Hard material																			



Application	Chipbreaker	Designation		Coated		Uncoated		Dimension (inch)						
		Inch	Metric	J740	TH10	RE	IC	S	D1					
Front turning	-	-	JXFR8000F	●		●					0.001	0.315	0.156	0.173
		-	JXFR8010F	●		●					0.004	0.315	0.156	0.173

- : Line up
- ▲ : To be discontinued



Reference pages: External toolholder → **C069, C136** Internal toolholder → **D084**
 JXF...: J-Series toolholder → **G056 -**



BXA10, BXA20

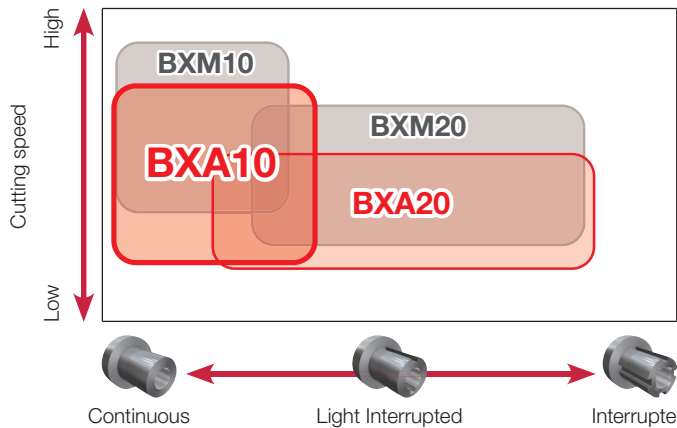
- Coated CBN grade for hardened steel



Incredible reliability in hardened steel turning

APPLICATION AREA

The best suitable grade can be selected for your application requirements



BXA10

First choice for continuous to light interrupted cuts
For $V_c = 230$ m/min or less

BXA20

First choice for light to heavy interrupted cuts
For $V_c = 180$ m/min or less

BXM10

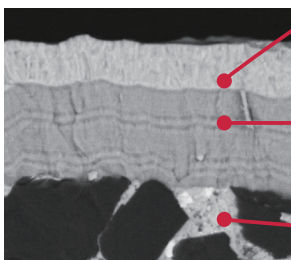
Complementary grade for continuous to light interrupted cuts
For extremely high cutting speeds of $V_c = 300$ m/min

BXM20

Complementary grade for light to heavy interrupted cuts
For high cutting speeds of $V_c = 200$ m/min

GRADE PROPERTIES

BXA10

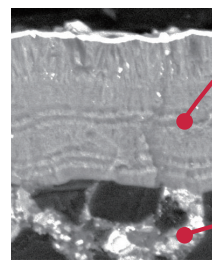


TiCN layer with high thermal stability and wear resistance

TiAlN layer with good adhesion and resistance to delamination and chipping

Dedicated CBN substrate with excellent flank wear and crater wear resistance

BXA20



Extremely thick TiAlN coating (max 3.5x thicker than existing grades) with good adhesion and delamination resistance enhances the grade's wear and fracture resistance

Dedicated CBN substrate with excellent fracture resistance

T-CBN SERIES

- WavyJoint



For **high efficiency** hardened steel machining

■ New brazing technology for increased machining efficiency - "WavyJoint"

- A maximum depth of cut up to 0.8 mm
- Reduces the number of passes to increase productivity

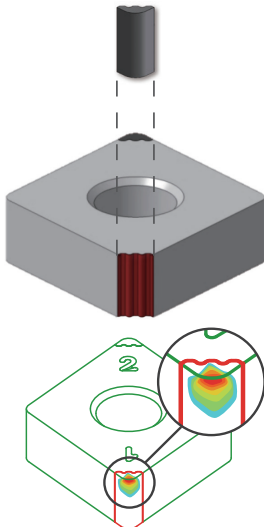


Strong joint

WavyJoint BXA20

Vs.

Standard



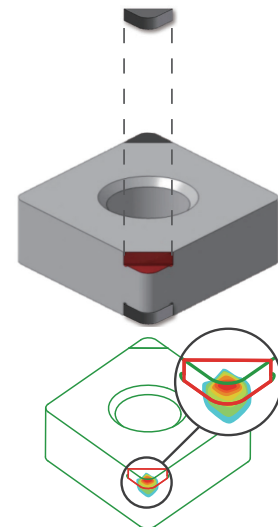
CBN tip size:
Using the CBN tip in a mass as large as **200%** provides increased thermal conductivity and helps reduce the temperature at the cutting edge

Brazing area:

Increased **160%** for enhanced brazing strength

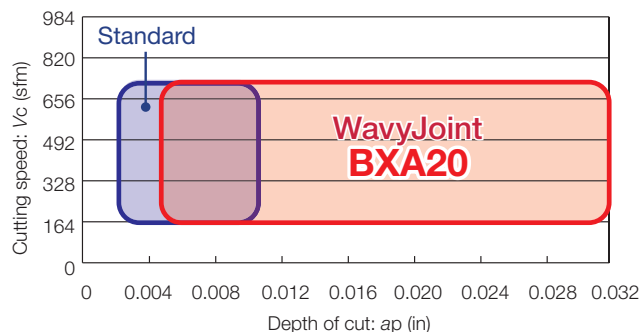
Temperature during machining is concentrated on the CBN tip, reducing temperature issues in the brazing zone.

Workpiece material : 4140 (60HRC)
Cutting speed : $V_c = 492$ sfm
Feed : $f_z = 0.008$ ipr
Depth of cut : $a_p = 0.030$ "
Coolant : Dry



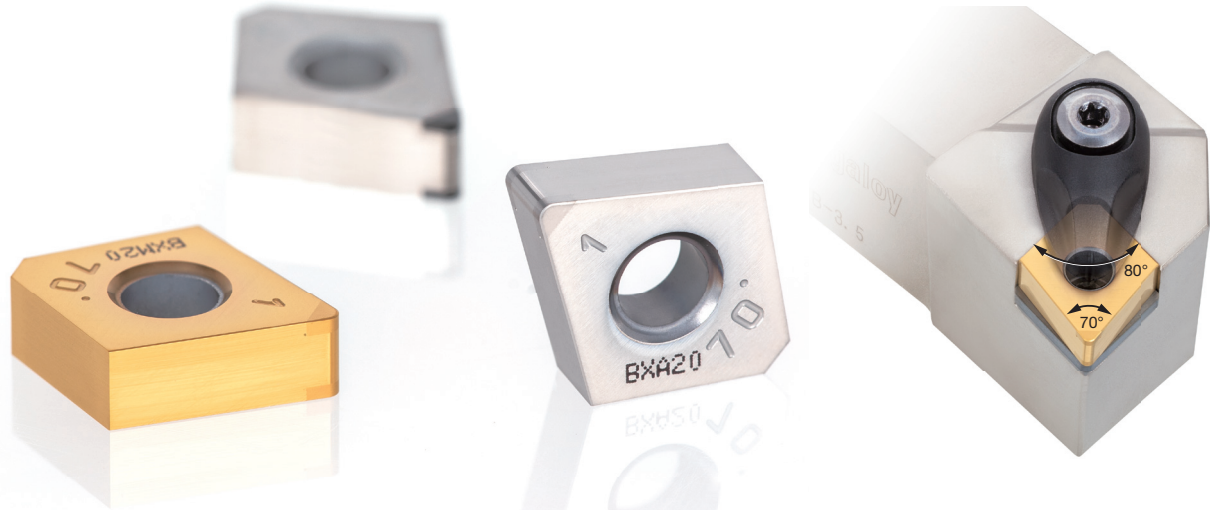
■ APPLICATION AREA

Hard Turning



H

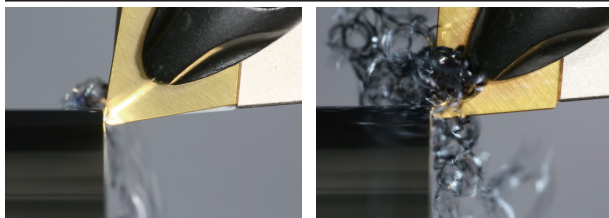
WavyJoint BXA20
Great performance for continuous to heavy interrupted cutting at low and medium speeds.



For **high efficiency in finishing** hardened steel, cast iron and sintered metals

■ Chip control in face turning

Continuous cutting



GNGA type
Corner angle: 70°

CNGA type
Corner angle: 80°

Since GNGA type inserts have enough space for chip flow, chip packing doesn't occur, improving surface finish and preventing sudden chipping on cutting edge. Existing standard toolholders for CNGA1204 can be used.

Interrupted cutting



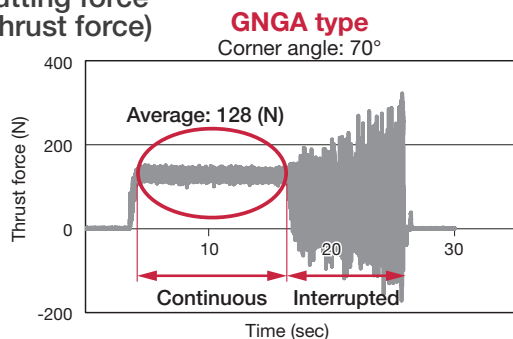
GNGA type
Corner angle: 70°

CNGA type
Corner angle: 80°

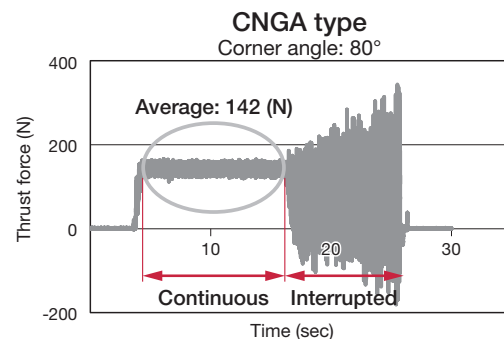
H Toolholder : ACLNL2525M12-A
Insert : 2QP-GNGA 432 BXM20
2QP-CNGA 432 BXM20
Workpiece material : 4140 (60HRC)
Cutting speed : $V_c = 492$ sfm
Feed : $f = 0.004$ ipr
Depth of cut : $a_p = 0.005$ "
Machining : Face turning
Coolant : Dry

■ CUTTING PERFORMANCE

Cutting force
(Thrust force)

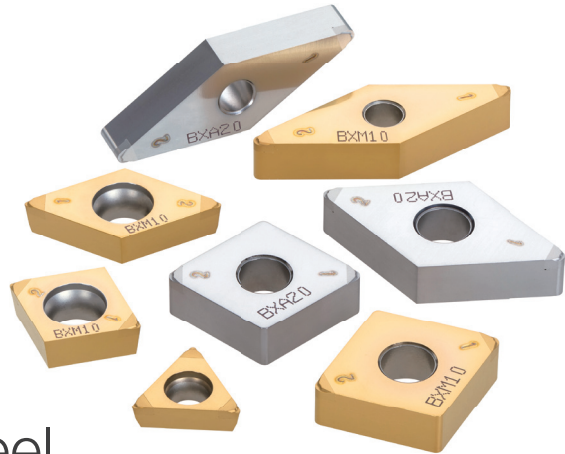


GNGA type has large clearance and reduces cutting force compared to the regular CNGA type.



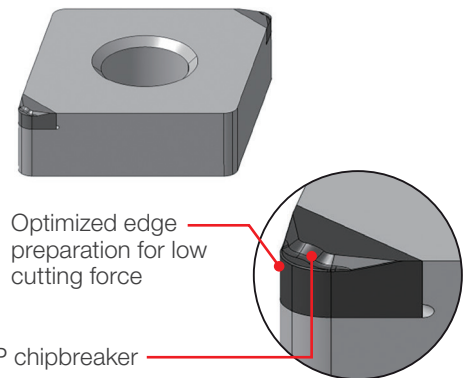
H Toolholder : ACLNL2525M12-A
Insert : 2QP-GNGA 432 BXM20
2QP-CNGA 432 BXM20
Workpiece material : 4140 (59HRC)
Cutting speed : $V_c = 492$ sfm
Feed : $f = 0.006$ ipr
Depth of cut : $a_p = 0.005$ "
Machining : Face turning
Coolant : Dry

HARDBREAKER HP



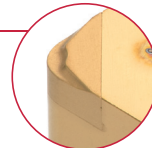
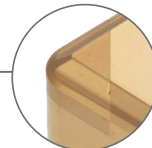
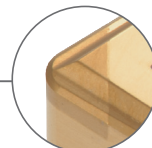
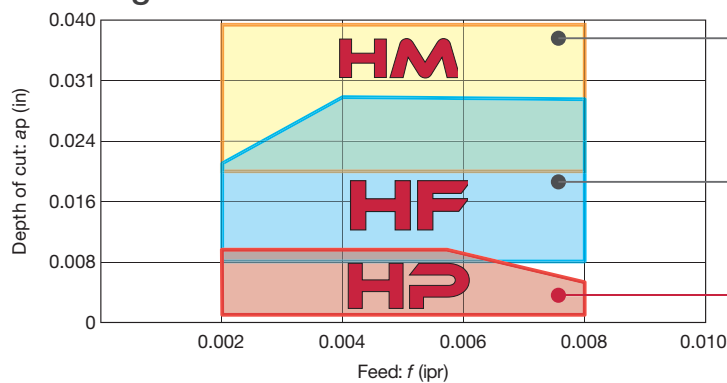
New HP Chipbreaker for Finishing Hardened Steel

- 1 By separating the chipbreaker from the cutting edge, the cutting force imposed on the cutting edge during machining is significantly reduced, thus providing long tool life.
- 2 The cutting edge preparation is designed to ensure easy cutting at low cutting forces, while maintaining close tolerances with no deviations.
- 3 The HP style chipbreaker, combined with built-in wipers, yields excellent surface quality and good chip control.

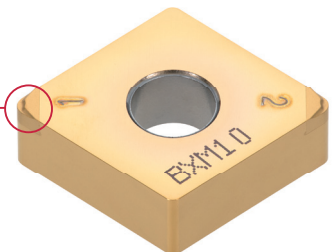


APPLICATION AREA

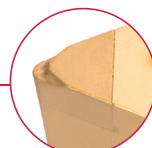
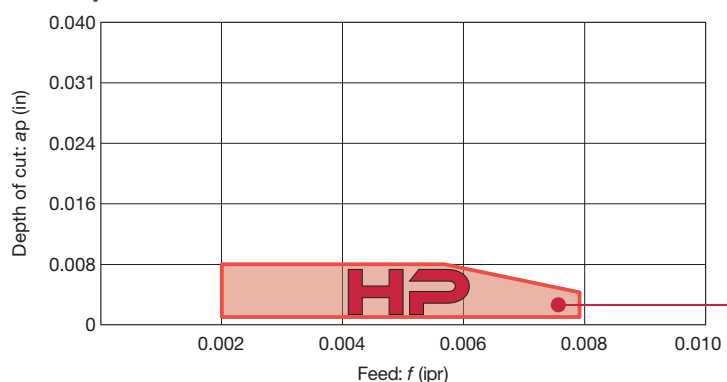
For negative insert



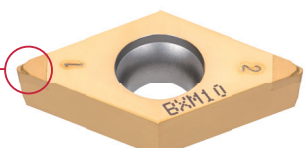
HP



For positive insert



HP



Designation System for T-CBN (PCBN) Inserts

One-use type

2 **QP** - **CNGA120404** - **L**

1 Number of corners

2 Type

QP	One-use inserts
QS	WavyJoint

3 ISO symbol

4 Special feature & chipbreaker

Without	Standard cutting edge	W	With wiper
F	Sharp edge	W□	With wiper
-L	Excellent wear resistance	-HF	With chipbreaker
-LF	Lower cutting force, superior sharpness	-HM	With chipbreaker
-LC	Excellent crater wear resistance	-HP	With chipbreaker
-H	Excellent fracture resistance		

One-use type (10 pieces per package)

T **2** **QP** - **CNGA120408**

1 "T" means 10 pieces per package.

Regrindable type

TNGA160402 - **QBN**

1 ISO symbol

2 CBN inserts

T-CBN (PCBN tipped) grooving inserts

XG **R** **63** **10** **S** - **QBN**

1 For grooving tool GX-type

2 Hand of Insert

L	Left
R	Right

3 Groove width (mm)

10	1.0
15	1.5

4 Corner radius: RE (mm)

S	0.2
---	-----

5 CBN inserts

For TUNGCUT

S **G** **N** **200** - **020**

1 Number of edge

S	Single corner
---	---------------

2 Application

G	Grooving
---	----------

3 For use

N	Non breaker
---	-------------

4 Groove width (mm)

200	2.0
-----	-----

5 Corner radius: RE (mm)

020	0.2
-----	-----

Designation System for T-DIA (PCD) Inserts

One-use type

1 **QP** - **TCMT110304**

1 Number of corners

2 Type

QP	One-use inserts
----	-----------------

3 ISO symbol

Regrindable type

TPGW110204 - **DIA**

1 ISO symbol

2 PCD inserts

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

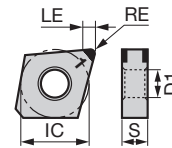
Y

OTHERS

CBN Insert NEGATIVE TYPE

- : Continuous cutting
- : Light interrupted cutting
- * : Heavy interrupted cutting

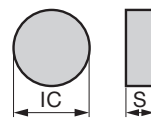
P	Steel									
M	Stainless									
K	Cast iron						●●●●			
N	Non-ferrous									
S	Superalloy									
H	Hard material	●●	●●●●	●●●●	●●●●					
	Sintered metal					●●				



Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX360	BX470	BX930	Dimension (inch)					Edge prep.					Wiper	Chipbreaker				
	Inch	Metric								No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF			LC	H		
2QP-GNGA (Corner angle 70°) 	*2QP-GNGA 430.5	2QP-GNGA120402								2	0.087	0.080	0.500	0.187	0.203	○									
	*2QP-GNGA 431	2QP-GNGA120404	●							2	0.083	0.016	0.500	0.187	0.203	○									
	*2QP-GNGA 432	2QP-GNGA120408	●	●	●	●	●	●	●	2	0.083	0.031	0.500	0.187	0.203	○									
	*2QP-GNGA 433	2QP-GNGA120412	●	●	●	●	●	●	●	2	0.087	0.047	0.500	0.187	0.203	○									
2QP-GNGA**-L (Corner angle 70°) 	*2QP-GNGA 430.5-L	2QP-GNGA120402-L			●	●				2	0.087	0.080	0.500	0.187	0.203		○								
	*2QP-GNGA 431-L	2QP-GNGA120404-L			●	●				2	0.083	0.016	0.500	0.187	0.203		○								
	*2QP-GNGA 432-L	2QP-GNGA120408-L			●	●				2	0.083	0.031	0.500	0.187	0.203		○								
	*2QP-GNGA 433-L	2QP-GNGA120412-L			●	●				2	0.087	0.047	0.500	0.187	0.203		○								
2QP-GNGA**-LF (Corner angle 70°) 	*2QP-GNGA 430.5-LF	2QP-GNGA120402-LF			●	●				2	0.087	0.080	0.500	0.187	0.203			○							
	*2QP-GNGA 431-LF	2QP-GNGA120404-LF			●	●				2	0.083	0.016	0.500	0.187	0.203			○							
	*2QP-GNGA 432-LF	2QP-GNGA120408-LF			●	●				2	0.083	0.031	0.500	0.187	0.203			○							
	*2QP-GNGA 433-LF	2QP-GNGA120412-LF			●	●				2	0.087	0.047	0.500	0.187	0.203			○							
2QP-GNGA**-LC (Corner angle 70°) 	*2QP-GNGA 430.5-LC	2QP-GNGA120402-LC			●	●				2	0.087	0.080	0.500	0.187	0.203				○						
	*2QP-GNGA 431-LC	2QP-GNGA120404-LC			●	●				2	0.083	0.016	0.500	0.187	0.203				○						
	*2QP-GNGA 432-LC	2QP-GNGA120408-LC			●	●				2	0.083	0.031	0.500	0.187	0.203				○						
	*2QP-GNGA 433-LC	2QP-GNGA120412-LC			●	●				2	0.087	0.047	0.500	0.187	0.203				○						
2QP-GNGA**-H (Corner angle 70°) 	*2QP-GNGA 431-H	2QP-GNGA120404-H			●	●				2	0.083	0.016	0.500	0.187	0.203					○					
	*2QP-GNGA 432-H	2QP-GNGA120408-H			●	●				2	0.083	0.031	0.500	0.187	0.203					○					
	*2QP-GNGA 433-H	2QP-GNGA120412-H			●	●				2	0.087	0.047	0.500	0.187	0.203					○					
2QP-GNGG**-HP (Corner angle 70°) 	*2QP-GNGG431-HP	2QP-GNGG120404-HP	●		●	●				2	0.083	0.016	0.500	0.187	0.203										○
	*2QP-GNGG432-HP	2QP-GNGG120408-HP	●		●	●				2	0.083	0.031	0.500	0.187	0.203										○
	*2QP-GNGG433-HP	2QP-GNGG120412-HP	●		●	●				2	0.087	0.047	0.500	0.187	0.203										○

* Tungaloy's standard

P	Steel									
M	Stainless									
K	Cast iron	●●								
N	Non-ferrous									
S	Superalloy									
H	Hard material									

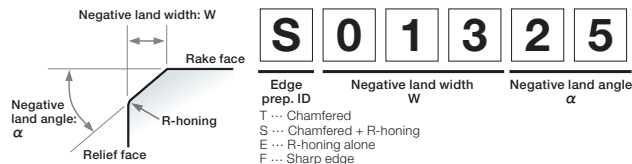


Shape	Designation		BXC90	No. of corners	Dimension (inch)					Edge prep.					Wiper	Chipbreaker		
	Inch	Metric			LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC			H	
S-RNGN 	S-RNGN 32	S-RNGN090300	●	-	-	-	0.375	0.125	-	○								
	S-RNGN 43	S-RNGN120400	●	-	-	-	0.500	0.187	-	○								

● : Line up









Edge preparation specification

	BXM10	BXM20	BXA20	BX310 BXC50	BX330	BX360 BX380	BX470	BX480	BX910 BX930	BXC90
Standard	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	T02020
Sharp edge	-	-	-	-	-	-	F	-	-	-
-L	S01315	S01315	S01315	-	S01315	-	-	-	-	-
-LF	-	-	S00515	-	-	-	-	-	-	-
-LC	-	-	S00535	-	-	-	-	-	-	-
-H	-	S01835	S01835	-	S01335	-	-	-	-	-
Wiper	S01315	S01315	S01315	-	S01325	-	-	-	-	-



CBN Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Shape	Designation												Dimension (inch)					Edge prep.								
	Inch	Metric	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX910	BX930	BXC90	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LFL	LC	H
													LE	RE		IC	S	D1								
	2QP-SNGA	2QP-SNGA 431	2QP-SNGA120404	●	●	●		●	●	●	●	●	●	●	2	0.094	0.016	0.500	0.187	0.203	○					
		2QP-SNGA 432	2QP-SNGA120408	●	●	●		●	●	●	●	●	●	●	2	0.094	0.031	0.500	0.187	0.203	○					
		2QP-SNGA 433	2QP-SNGA120412	●	●	●		●	●	●	●	●	●	●	2	0.094	0.047	0.500	0.187	0.203	○					
	2QP-SNGA**-L	2QP-SNGA 431-L	2QP-SNGA120404-L						●					2	0.094	0.016	0.500	0.187	0.203		○					
		2QP-SNGA 432-L	2QP-SNGA120408-L	●	●	●			●					2	0.094	0.031	0.500	0.187	0.203		○					
		2QP-SNGA 433-L	2QP-SNGA120412-L	●	●	●			●					2	0.094	0.047	0.500	0.187	0.203		○					
	2QP-SNGA**-LF	2QP-SNGA 432-LF	2QP-SNGA120408-LF		●	●								2	0.094	0.031	0.500	0.187	0.203			○				
		2QP-SNGA 433-LF	2QP-SNGA120412-LF		●	●								2	0.094	0.047	0.500	0.187	0.203			○				
	2QP-SNGA**-H	2QP-SNGA 431-H	2QP-SNGA120404-H								●	●		2	0.094	0.016	0.500	0.187	0.203						○	
		2QP-SNGA 432-H	2QP-SNGA120408-H	●		●			●	●				2	0.094	0.031	0.500	0.187	0.203						○	
		2QP-SNGA 433-H	2QP-SNGA120412-H	●		●			●	●				2	0.094	0.047	0.500	0.187	0.203						○	
	4QP-SNGA	4QP-SNGA 431	4QP-SNGA120404				●							4	0.094	0.016	0.500	0.187	0.203	○						
		4QP-SNGA 432	4QP-SNGA120408				●							4	0.094	0.031	0.500	0.187	0.203	○						
		4QP-SNGA 433	4QP-SNGA120412				●							4	0.094	0.047	0.500	0.187	0.203	○						
	SNGA**-QBN	SNGA 430.5 QBN	SNGA120402-QBN									●		1	0.161	0.008	0.500	0.187	0.203	○						
		SNGA 431 QBN	SNGA120404-QBN									●		1	0.161	0.016	0.500	0.187	0.203	○						
		SNGA 432 QBN	SNGA120408-QBN									●		1	0.161	0.031	0.500	0.187	0.203	○						
		SNGA 433 QBN	SNGA120412-QBN									●		1	0.161	0.047	0.500	0.187	0.203	○						
	2QP-SNGN	2QP-SNGN 322	2QP-SNGN090308									●		2	0.094	0.031	0.375	0.125	-	○						
		2QP-SNGN 323	2QP-SNGN090312									●		2	0.094	0.047	0.375	0.125	-	○						
	S-SNGN	S-SNGN 322	S-SNGN090308									●	8	-	0.031	0.375	0.125	-	○							
	Solid CBN	S-SNGN 323	S-SNGN090312									●	8	-	0.047	0.375	0.125	-	○							
		S-SNGN 422	S-SNGN120308									●	8	-	0.031	0.500	0.125	-	○							
		S-SNGN 423	S-SNGN120312									●	8	-	0.047	0.500	0.125	-	○							
		S-SNGN 432	S-SNGN120408									●	8	-	0.031	0.500	0.187	-	○							
		S-SNGN 433	S-SNGN120412									●	8	-	0.047	0.500	0.187	-	○							

● : Line up

Reference pages: External toolholder → C098 - Internal toolholder → D047 -

Grade
Insert
Ext. Toolholder
Int. Toolholder
Threading
Grooving
Milling Cutter
Miniature Tool
Endmill
Drilling Tool
Tooling System
User's Guide
Index

A

B

C

D

E

F

G

H

I

J








K

L

M

CBN Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

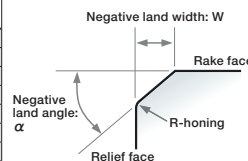
Shape	Designation		Material										Dimension (inch)					Edge prep.								
	Inch	Metric	BXM10	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX930	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper
			P	M	K	N	S	H	✱																	
	3QP-WNGA	3QP-WNGA 431	3QP-WNGA080404											3	0.091	0.016	0.500	0.187	0.203	○						
		3QP-WNGA 432	3QP-WNGA080408	●	●			●	●	●	●	●	●	3	0.087	0.031	0.500	0.187	0.203	○						
		3QP-WNGA 433	3QP-WNGA080412			●	●							3	0.094	0.047	0.500	0.187	0.203	○						
	3QP-WNGA**-L	3QP-WNGA 432-L	3QP-WNGA080408-L			●	●							3	0.087	0.031	0.500	0.187	0.203		○					
	3QP-WNGA**-LF	3QP-WNGA 432-LF	3QP-WNGA080408-LF			●	●							3	0.087	0.031	0.500	0.187	0.203			○				
	3QP-WNGA**-H	3QP-WNGA 432-H	3QP-WNGA080408-H			●	●							3	0.087	0.031	0.500	0.187	0.203						○	
	3QP-WNGA**WL	3QP-WNGA 432-WL	3QP-WNGA080408WL	●	●	●	●							3	0.087	0.031	0.500	0.187	0.203						○	
	6QP-WNGA	6QP-WNGA 431	6QP-WNGA080404					●						6	0.091	0.016	0.500	0.187	0.203	○						
		6QP-WNGA 432	6QP-WNGA080408			●									6	0.087	0.031	0.500	0.187	0.203	○					
	6QS-WNGA	6QS-WNGA 432	6QS-WNGA080408			●								6	0.059	0.031	0.500	0.187	0.203	○						
		6QS-WNGA**-H	6QS-WNGA 432-H	6QS-WNGA080408-H			●								6	0.059	0.031	0.500	0.187	0.203						○

*Please see the page B201 about the toolholders recommended for wiper inserts of the designation with WL at the end.

● : Line up

Edge preparation specification

	BXM10	BXM20	BXA20	BX310 BXC50	BX330	BX360 BX380	BX470	BX480	BX910 BX930	BXC90
Standard	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	T02020
Sharp edge	-	-	-	-	-	-	F	-	-	-
-L	S01315	S01315	S01315	-	S01315	-	-	-	-	-
-LF	-	-	S00515	-	-	-	-	-	-	-
-LC	-	-	S00535	-	-	-	-	-	-	-
-H	-	S01835	S01835	-	-	S01335	-	-	-	-
Wiper	S01315	S01315	S01315	-	S01325	-	-	-	-	-



S	0	1	3	2	5
Edge prep. ID		Negative land width W		Negative land angle α	
T ... Chamfered	S ... Chamfered + R-honing	E ... R-honing alone	F ... Sharp edge		

Reference pages: External toolholder → **C037** - Internal toolholder → **D035** -
 TungCap → **C038** -, **K011** -

CBN Insert POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

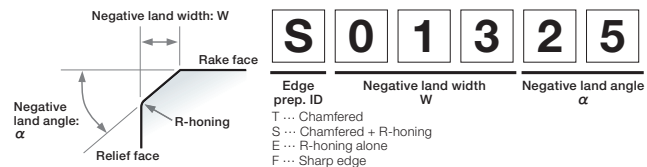
Shape	Designation		Material									Dimension (inch)					Edge prep.									
	Inch	Metric	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LFLC	H	Wiper	Chipbreaker	
	2QP-CCMW	2QP-CCMW 21.50.5	2QP-CCMW060202										2	0.091	0.008	0.250	0.094	0.110	○							
		2QP-CCMW 21.51	2QP-CCMW060204					●	●	●		●	2	0.091	0.016	0.250	0.094	0.110	○							
		2QP-CCMW 32.51	2QP-CCMW09T304					●	●	●		●	2	0.091	0.016	0.375	0.156	0.173	○							
		2QP-CCMW 32.52	2QP-CCMW09T308					●	●	●		●	2	0.087	0.031	0.375	0.156	0.173	○							
	Q-CCMW	Q-CCMW 21.51	Q-CCMW060204					●					1	0.098	0.016	0.250	0.094	0.110	○							
		Q-CCMW 32.51	Q-CCMW09T304					●					1	0.098	0.016	0.375	0.156	0.173	○							
	1QP-CCGW	1QP-CCGW 4.51.80.5	1QP-CCGW03X102					●					1	0.055	0.008	0.141	0.055	0.075								
		1QP-CCGW 4.51.81	1QP-CCGW03X104					●					1	0.051	0.016	0.141	0.055	0.075								
		1QP-CCGW 5.52.20.5	1QP-CCGW04T102					●					1	0.075	0.008	0.172	0.070	0.091								
		1QP-CCGW 5.52.21	1QP-CCGW04T104					●					1	0.071	0.016	0.172	0.070	0.091								
	2QP-CPGW	2QP-CPGW 2.51.50.5	2QP-CPGW080202		●	●							2	0.091	0.080	0.313	0.094	0.134	○							
		2QP-CPGW 2.51.51	2QP-CPGW080204		●	●							2	0.091	0.016	0.313	0.094	0.134	○							
		2QP-CPGW 2.51.52	2QP-CPGW080208		●	●							2	0.087	0.031	0.313	0.094	0.134	○							
		2QP-CPGW 320.5	2QP-CPGW090302		●	●							2	0.091	0.080	0.313	0.094	0.134	○							
		2QP-CPGW 321	2QP-CPGW090304		●	●							2	0.091	0.016	0.375	0.125	0.173	○							
		2QP-CPGW 322	2QP-CPGW090308		●	●							2	0.087	0.031	0.375	0.125	0.173	○							
	CPGA**-QBN	CPGA 31.51 QBN	CPGA090204-QBN										1	0.157	0.016	0.375	0.094	0.157	○							
		CPGA 31.52 QBN	CPGA090208-QBN										1	0.150	0.031	0.375	0.094	0.157	○							

Q-CCMW: 2 pieces per package

● : Line up

Edge preparation specification

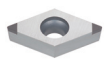
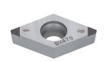
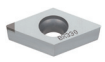
	BXM10 BXM20	BXA20	BX310 BX330 BX360 BX480 BX930	BX470	BX910
Standard	S01325	S01325	S00515	T01315	S01315
Sharp edge	-	-	-	F	-
-L	-	S01315	-	-	-
-LF	-	S00515	-	-	-
-LC	-	S00535	-	-	-
-H	-	S01835	-	-	-
Wiper	-	S01315	-	-	-

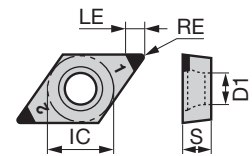


Reference pages: External toolholder → **C026** - Internal toolholder → **D020** -
J-Series toolholder → **G027** -

CBN Insert POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊛ : Heavy interrupted cutting

Shape	Designation		Dimension (inch)							Edge prep.															
	Inch	Metric	BXM10	BXM20	BXA20	BX310	BX330	BX360	BX470	BX480	BX930	No. of corners	Edge prep.												
													LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
	2QP-DCMW	2QP-DCMW 21.50.5	2QP-DCMW070202				●	●				2	0.106	0.008	0.250	0.094	0.110	○							
		2QP-DCMW 21.51	2QP-DCMW070204				●	●			●	2	0.098	0.016	0.250	0.094	0.110	○							
		2QP-DCMW 32.50.5	2QP-DCMW11T302				●	●				2	0.106	0.008	0.375	0.156	0.173	○							
		2QP-DCMW 32.51	2QP-DCMW11T304				●	●				2	0.098	0.016	0.375	0.156	0.173	○							
		2QP-DCMW 32.52	2QP-DCMW11T308				●	●				2	0.083	0.031	0.375	0.156	0.173	○							
	2QP-DCGW**F	2QP-DCGW32.50.5F	2QP-DCGW11T302F						●			2	0.106	0.008	0.375	0.156	0.173	○							
		2QP-DCGW32.51F	2QP-DCGW11T304F						●			2	0.098	0.016	0.375	0.156	0.173	○							
	Q-DCMW	Q-DCMW 21.51	Q-DCMW070204									1	0.083	0.016	0.250	0.094	0.110	○							
		Q-DCMW 32.51	Q-DCMW11T304									1	0.083	0.016	0.375	0.156	0.173	○							

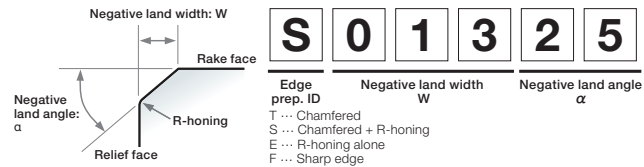


Q-DCMW: 2 pieces per package

● : Line up

Edge preparation specification

	BXM10 BXM20	BXA20	BX310 BX330 BX360 BX480 BX930	BX470	BX910
Standard	S01325	S01325	S00515	T01315	S01315
Sharp edge	-	-	-	F	-
-L	-	S01315	-	-	-
-LF	-	S00515	-	-	-
-LC	-	S00535	-	-	-
-H	-	S01835	-	-	-
Wiper	-	S01315	-	-	-



Reference pages: External toolholder → **C050** - Internal toolholder → **D056** -
J-Series toolholder → **G036** -

CBN Insert POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

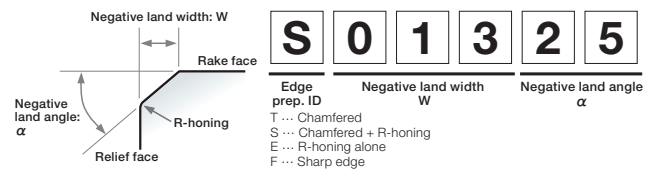
Shape	Designation							Dimension (inch)					Edge prep.								
	Inch	Metric	BX330	BX360	BX480	BX910	BX930	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LFLC	H	Wiper	Chipbreaker	
	3QP-TPGN	3QP-TPGN22.5	3QP-TPGN110302			●															
		3QP-TPGN221	3QP-TPGN110304			●															
		3QP-TPGN 222	3QP-TPGN110308			●	●														
		3QP-TPGN 223	3QP-TPGN110312			●	●														
		3QP-TPGN 321	3QP-TPGN160304			●															
		3QP-TPGN 322	3QP-TPGN160308			●															
	3QP-TPMN	3QP-TPMN 220.5	3QP-TPMN110302	●	●		●														
		3QP-TPMN 221	3QP-TPMN110304	●	●		●														
		3QP-TPMN 222	3QP-TPMN110308	●	●		●														
		3QP-TPMN 321	3QP-TPMN160304	●	●		●														
		3QP-TPMN 322	3QP-TPMN160308	●	●		●														
	Q-TPGN	Q-TPGN221	Q-TPGN110304	●																	
		Q-TPGN 222	Q-TPGN110308	●																	
		Q-TPGN 321	Q-TPGN160304	●																	
		Q-TPGN 332	Q-TPGN160308	●																	
	TPGN**-QBN	TPG 221 QBN	TPGN110304-QBN	●																	
		TPG 222 QBN	TPGN110308-QBN	●																	
		TPG 321 QBN	TPGN160304-QBN	●																	
		TPG 322 QBN	TPGN160308-QBN	●																	
	TBGN**-QBN	TBGN 521 QBN	TBGN060104-15-QBN	●																	
		TBGN 522 QBN	TBGN060108-15-QBN	●																	

Q-TPGN: 2 pieces per package

● : Line up

Edge preparation specification

	BXM10 BXM20	BXA20	BX310 BX330 BX360 BX480 BX930	BX470	BX910
Standard	S01325	S01325	S00515	T01315	S01315
Sharp edge	-	-	-	F	-
-L	-	S01315	-	-	-
-LF	-	S00515	-	-	-
-LC	-	S00535	-	-	-
-H	-	S01835	-	-	-
Wiper	-	S01315	-	-	-



Reference pages: Internal toolholder → **D050 -**



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

OTHERS

CBN Insert POSITIVE TYPE

- : Continuous cutting
- : Light interrupted cutting
- ✱ : Heavy interrupted cutting

P	Steel																			
M	Stainless																			
K	Cast iron																	●	✱	●
N	Non-ferrous																			
S	Superalloy																			
H	Hard material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Sintered metal																	●	✱	●






Shape	Designation		Dimension (inch)									Edge prep.										
			Inch	Metric	No. of corners	LE	RE	IC	S	D1	Standard	Edge prep.										
												Sharp edge	L	LFLC	H	Wiper	Chipbreaker					
	3QP-TPGW	3QP-TPGW 630.5	3QP-TPGW080202								3	0.091	0.008	0.187	0.094	0.091	○					
		3QP-TPGW 631	3QP-TPGW080204	●	●	●	●				3	0.087	0.016	0.187	0.094	0.091	○					
		3QP-TPGW 632	3QP-TPGW080208			●	●				3	0.075	0.031	0.187	0.094	0.091	○					
		3QP-TPGW 730.5	3QP-TPGW090202			●	●				3	0.091	0.008	0.219	0.094	0.098	○					
		3QP-TPGW 731	3QP-TPGW090204	●	●	●	●				3	0.087	0.016	0.219	0.094	0.098	○					
		3QP-TPGW 732	3QP-TPGW090208			●	●				3	0.075	0.031	0.219	0.094	0.098	○					
		3QP-TPGW 21.50	3QP-TPGW110202			●	●				3	0.091	0.008	0.250	0.094	0.110	○					
		3QP-TPGW 21.51	3QP-TPGW110204	●	●	●	●				3	0.087	0.016	0.250	0.094	0.110	○					
		3QP-TPGW 21.52	3QP-TPGW110208			●	●				3	0.075	0.031	0.250	0.094	0.110	○					
		3QP-TPGW 220.5	3QP-TPGW110302			●	●				3	0.091	0.008	0.250	0.125	0.134	○					
		3QP-TPGW 221	3QP-TPGW110304	●	●	●	●				3	0.087	0.016	0.250	0.125	0.134	○					
		3QP-TPGW 222	3QP-TPGW110308	●	●	●	●				3	0.075	0.031	0.250	0.125	0.134	○					
		3QP-TPGW 2.520.5	3QP-TPGW130302			●	●				3	0.091	0.008	0.313	0.125	0.134	○					
		3QP-TPGW 2.521	3QP-TPGW130304	●	●	●	●				3	0.087	0.016	0.313	0.125	0.134	○					
		3QP-TPGW 2.522	3QP-TPGW130308			●	●				3	0.075	0.031	0.313	0.125	0.134	○					
		3QP-TPGW 32.50.5	3QP-TPGW16T302			●	●				3	0.091	0.008	0.375	0.156	0.173	○					
		3QP-TPGW 32.51	3QP-TPGW16T304	●	●	●	●				3	0.087	0.016	0.375	0.156	0.173	○					
		3QP-TPGW 32.52	3QP-TPGW16T308	●	●	●	●				3	0.075	0.031	0.375	0.156	0.173	○					
		3QP-TPGW 330.5	3QP-TPGW160402			●	●				3	0.091	0.008	0.375	0.187	0.173	○					
		3QP-TPGW 331	3QP-TPGW160404	●	●	●	●				3	0.087	0.016	0.375	0.187	0.173	○					
	3QP-TPGW 332	3QP-TPGW160408			●	●				3	0.075	0.031	0.375	0.187	0.173	○						
	3QP-TPGW**F	3QP-TPGW 221F	3QP-TPGW110304F								3	0.087	0.016	0.250	0.125	0.134	○					
		3QP-TPGW 222F	3QP-TPGW110308F								3	0.075	0.031	0.250	0.125	0.134	○					
	3QP-TPGW**-L	3QP-TPGW 220.5-L	3QP-TPGW110302-L			●	●				3	0.091	0.008	0.250	0.125	0.134		○				
		3QP-TPGW 221-L	3QP-TPGW110304-L			●	●				3	0.087	0.016	0.250	0.125	0.134		○				
		3QP-TPGW 222-L	3QP-TPGW110308-L			●	●				3	0.075	0.031	0.250	0.125	0.134		○				
	3QP-TPGW**-LF	3QP-TPGW 220.5-LF	3QP-TPGW110302-LF			●	●				3	0.091	0.008	0.250	0.125	0.134			○			
		3QP-TPGW 221-LF	3QP-TPGW110304-LF			●	●				3	0.087	0.016	0.250	0.125	0.134			○			
		3QP-TPGW 222-LF	3QP-TPGW110308-LF			●	●				3	0.075	0.031	0.250	0.125	0.134			○			
	3QP-TPGW**-LC	3QP-TPGW 220.5-LC	3QP-TPGW110302-LC			●	●				3	0.091	0.008	0.250	0.125	0.134				○		
		3QP-TPGW 221-LC	3QP-TPGW110304-LC			●	●				3	0.087	0.016	0.250	0.125	0.134				○		
		3QP-TPGW 222-LC	3QP-TPGW110308-LC			●	●				3	0.075	0.031	0.250	0.125	0.134				○		
	3QP-TPGW**-H	3QP-TPGW 221-H	3QP-TPGW110304-H				●				3	0.087	0.016	0.250	0.125	0.134					○	
		3QP-TPGW 222-H	3QP-TPGW110308-H				●				3	0.075	0.031	0.250	0.125	0.134					○	
		3QP-TPGW 330.5-H	3QP-TPGW160402-H			●					3	0.091	0.008	0.375	0.187	0.173					○	
		3QP-TPGW 331-H	3QP-TPGW160404-H			●	●				3	0.087	0.016	0.375	0.187	0.173					○	
		3QP-TPGW 332-H	3QP-TPGW160408-H			●	●				3	0.075	0.031	0.375	0.187	0.173					○	

● : Line up

Reference pages: Internal toolholder → D050 -

CBN Insert POSITIVE TYPE

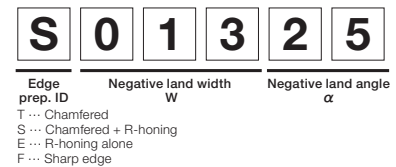
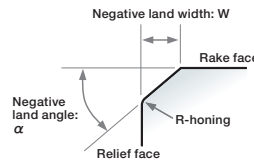
- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

Shape	Designation		Material							Dimension (inch)						Edge prep.								
	Inch	Metric	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX930	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
			●	◐	◑	●	◐	◑	●	◐														
	3QP-TPGT	3QP-TPGT221-HP	3QP-TPGT110304-HP	●							3	0.087	0.016	0.250	0.125	0.134								○
		3QP-TPGT222-HP	3QP-TPGT110308-HP	●		●					3	0.075	0.031	0.250	0.125	0.134								
	3QP-TPMW	3QP-TPMW 631	3QP-TPMW080204					●	●	●	3	0.087	0.016	0.187	0.094	0.091	○							
		3QP-TPMW 730.5	3QP-TPMW090202					●	●	●	3	0.091	0.008	0.219	0.094	0.098	○							
		3QP-TPMW 731	3QP-TPMW090204					●	●	●	3	0.087	0.016	0.219	0.094	0.098	○							
		3QP-TPMW 21.50.5	3QP-TPMW110202					●	●	●	3	0.091	0.008	0.250	0.094	0.110	○							
		3QP-TPMW 21.51	3QP-TPMW110204					●	●	●	3	0.087	0.016	0.250	0.094	0.110	○							
		3QP-TPMW 220.5	3QP-TPMW110302					●	●	●	3	0.091	0.008	0.250	0.125	0.134	○							
		3QP-TPMW 221	3QP-TPMW110304					●	●	●	3	0.087	0.016	0.250	0.125	0.134	○							
		3QP-TPMW 222	3QP-TPMW110308					●	●	●	3	0.075	0.031	0.250	0.125	0.134	○							
		3QP-TPMW 2.520.5	3QP-TPMW130302					●	●	●	3	0.091	0.008	0.313	0.125	0.134	○							
		3QP-TPMW 2.521	3QP-TPMW130304					●	●	●	3	0.087	0.016	0.313	0.125	0.134	○							
		3QP-TPMW 32.51	3QP-TPMW16T304					●	●	●	3	0.087	0.016	0.375	0.156	0.173	○							
		3QP-TPMW 32.52	3QP-TPMW16T308					●			3	0.075	0.031	0.375	0.156	0.173	○							
	3QP-TCGW	3QP-TCGW 730.5	3QP-TCGW090202			●	●				3	0.091	0.008	0.219	0.094	0.098	○							
		3QP-TCGW 731	3QP-TCGW090204			●	●				3	0.087	0.016	0.219	0.094	0.098	○							
		3QP-TCGW 732	3QP-TCGW090208			●	●				3	0.075	0.031	0.219	0.094	0.098	○							
		3QP-TCGW 21.50.5	3QP-TCGW110202			●	●				3	0.091	0.008	0.250	0.094	0.110	○							
		3QP-TCGW 21.51	3QP-TCGW110204			●	●				3	0.087	0.016	0.250	0.094	0.110	○							
		3QP-TCGW 21.52	3QP-TCGW110208			●	●				3	0.075	0.031	0.250	0.094	0.110	○							
		3QP-TCGW 32.50.5	3QP-TCGW16T302			●	●				3	0.091	0.008	0.375	0.156	0.173	○							
		3QP-TCGW 32.51	3QP-TCGW16T304			●	●				3	0.087	0.016	0.375	0.156	0.173	○							
	3QP-TCGW 32.52	3QP-TCGW16T308			●	●				3	0.075	0.031	0.375	0.156	0.173	○								

● : Line up

Edge preparation specification

	BXM10 BXM20	BXA20	BX310 BX330 BX360 BX480 BX930	BX470	BX910
Standard	S01325	S01325	S00515	T01315	S01315
Sharp edge	-	-	-	F	-
-L	-	S01315	-	-	-
-LF	-	S00515	-	-	-
-LC	-	S00535	-	-	-
-H	-	S01835	-	-	-
Wiper	-	S01315	-	-	-

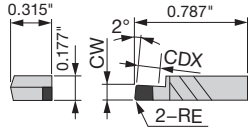


Reference pages: Internal toolholder → **D050 -**

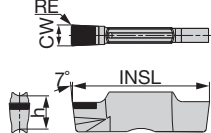
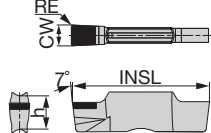
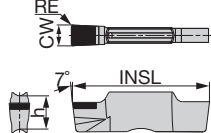
CBN Insert NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

For GX-RE

Shape	Designation	BX360	P	M	K	N	S	H	Dimension (inch)		
									CW±0.05	RE	CDX
	XGR** QBN										
	XGR6310S-QBN	●							0.039	0.008	0.059
	XGR6315S-QBN	●							0.059	0.008	0.091
	XGR6320S-QBN	●							0.079	0.008	0.118
	XGR6325S-QBN	●							0.098	0.008	0.150
	XGR6330S-QBN	●							0.118	0.008	0.177
	XGR6335S-QBN	●							0.138	0.008	0.209
	XGR6340S-QBN	●							0.157	0.008	0.236
XGR6345S-QBN	●							0.177	0.008	0.236	

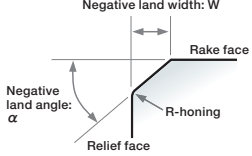
For TungCut

Shape	Designation	BX360	P	M	K	N	S	H	Dimension (inch)				Edge prep.			
									Seat size	CW±0.025	RE	INSL	h	Standard	S	H
	SGN															
	SGN200-020	●							2	0.079	0.008	0.787	0.197	○		
	SGN300-020	●							3	0.118	0.008	0.787	0.197	○		
	SGN400-020	●							4	0.157	0.008	0.787	0.197	○		
	SGN** S															
	SGN200-020-S	●							2	0.079	0.008	0.787	0.197	○		
	SGN300-020-S	●							3	0.118	0.008	0.787	0.197	○		
	SGN400-020-S	●							4	0.157	0.008	0.787	0.197	○		
	SGN500-020-S	●							5	0.197	0.008	0.984	0.217	○		
	SGN** H															
	SGN200-020-H	●							2	0.079	0.008	0.787	0.197			○
	SGN300-020-H	●							3	0.118	0.008	0.787	0.197			○
	SGN400-020-H	●							4	0.157	0.008	0.787	0.197			○
	SGN500-020-H	●							5	0.197	0.008	0.984	0.217			○

● : Line up

Edge preparation specification

	BX360
Standard	E002
-S	S01325
-H	S01335



S	0	1	3	2	5
Edge prep. ID	Negative land width W		Negative land angle α		
S ... Chamfered + R-honing					
E ... R-honing alone					

Reference pages: XGR...: Toolholder → **F100 -** SGN...: Toolholder → **F013 -**



Negative

Positive

PCD / CBN

C

D

G

R

S

T

V

W

Y

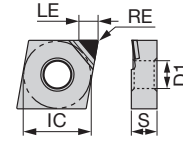
OTHERS


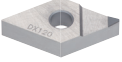

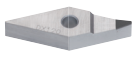
PCD Insert

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Negative type
with rake

P	Steel																		
M	Stainless																		
K	Cast iron																		
N	Non-ferrous	●●●●																	
S	Superalloy																		
H	Hard material																		



Shape	Designation		DX110	DX120	No. of corners	Dimension (inch)					Edge prep.			Rake angle
	Inch	Metric				LE	RE	IC	S	D1	Sharp edge			
	CNMM** - DIA	CNMM 430.5 DIA	CNMM120402 - DIA	●	1	0.138	0.008	0.500	0.187	0.203	○			○
		CNMM 431 DIA	CNMM120404 - DIA	●	1	0.138	0.016	0.500	0.187	0.203	○			○
		1QP - CNMM 430.5	1QP - CNMM120402	●	1	0.110	0.008	0.500	0.187	0.203	○			○
		1QP - CNMM 431	1QP - CNMM120404	●	1	0.110	0.016	0.500	0.187	0.203	○			○
	DNMM** - DIA	DNMM 430.5 DIA	DNMM150402 - DIA	●	1	0.130	0.008	0.500	0.187	0.203	○			○
		DNMM 431 DIA	DNMM150404 - DIA	●	1	0.122	0.016	0.500	0.187	0.203	○			○
	TNMM** - DIA	TNMM 330.5 DIA	TNMM160402 - DIA	●	1	0.130	0.008	0.375	0.187	0.150	○			○
		TNMM 331 DIA	TNMM160404 - DIA	●	1	0.126	0.016	0.375	0.187	0.150	○			○
		1QP - TNMM 330.5	1QP - TNMM160402	●	1	0.106	0.008	0.375	0.187	0.150	○			○
		1QP - TNMM 331	1QP - TNMM160404	●	1	0.102	0.016	0.375	0.187	0.150	○			○
	VNMM** - DIA	VNMM 330.5 DIA	VNMM160402 - DIA	●	1	0.189	0.008	0.375	0.187	0.150	○			○
		VNMM 331 DIA	VNMM160404 - DIA	●	1	0.173	0.016	0.375	0.187	0.150	○			○
		VNMM 332 DIA	VNMM160408 - DIA	●	1	0.142	0.031	0.375	0.187	0.150	○			○

● : Line up

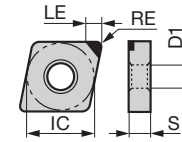
Reference pages: External toolholder → **C018** - Internal toolholder → **D028** -
 J-Series toolholder → **G057** - TungCap → **K008** -


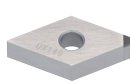



PCD Insert

- : Continuous cutting
- ◐ : Light interrupted cutting
- ◑ : Heavy interrupted cutting

Negative type

P	Steel										
M	Stainless										
K	Cast iron										
N	Non-ferrous	●●●●									
S	Superalloy										
H	Hard material										



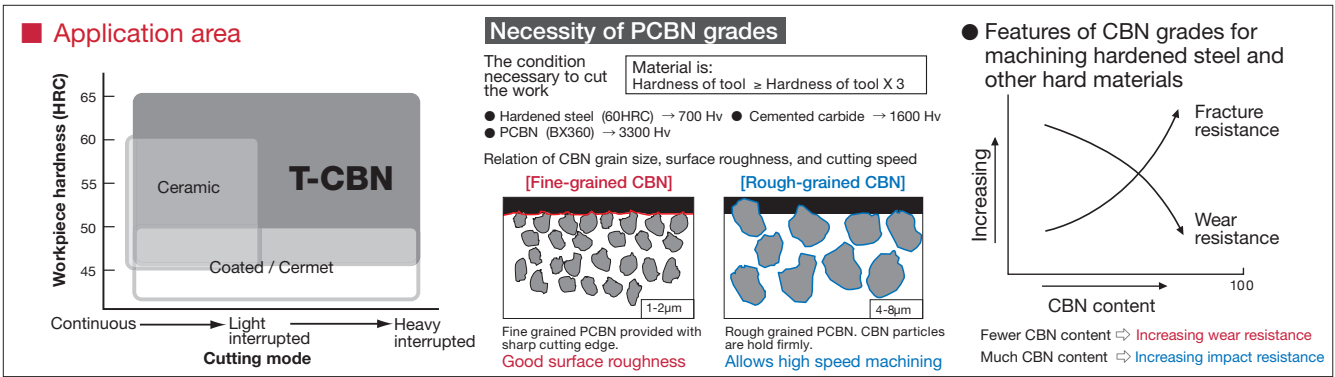
Shape	Designation		DX140	DX160	No. of corners	Dimension (inch)					Edge prep.			
	Inch	Metric				LE	RE	IC	S	D1	Sharp edge			
	CNGA**-DIA	CNGA 431 DIA CNGA 432 DIA				CNGA120404-DIA CNGA120408-DIA	●	●	1	0.138	0.016	0.500	0.187	0.203
														
DNGA**-DIA	DNGA 431 DIA DNGA 432 DIA	DNGA150404-DIA DNGA150408-DIA	● ●	●	1	0.122	0.016	0.500	0.187	0.203	○			
														
SNGA**-DIA	SNGA 431 DIA SNGA 432 DIA	SNGA120404-DIA SNGA120408-DIA	●	●	1	0.142	0.016	0.500	0.187	0.203	○			
														
SNGN**-DIA	SNGN 432 DIA	SNGN120408-DIA	●		1	0.142	0.031	0.500	0.187	-	○			
														
TNGA**-DIA	TNGA 331 DIA TNGA 332 DIA	TNGA160404-DIA TNGA160408-DIA	● ●	● ●	1	0.126	0.016	0.375	0.187	0.150	○			
														

● : Line up

Reference pages: External toolholder → **C018** - Internal toolholder → **D028** -
 J-Series toolholder → **G057** - TungCap → **K008** -



H T-CBN series for hardened steel and hard material



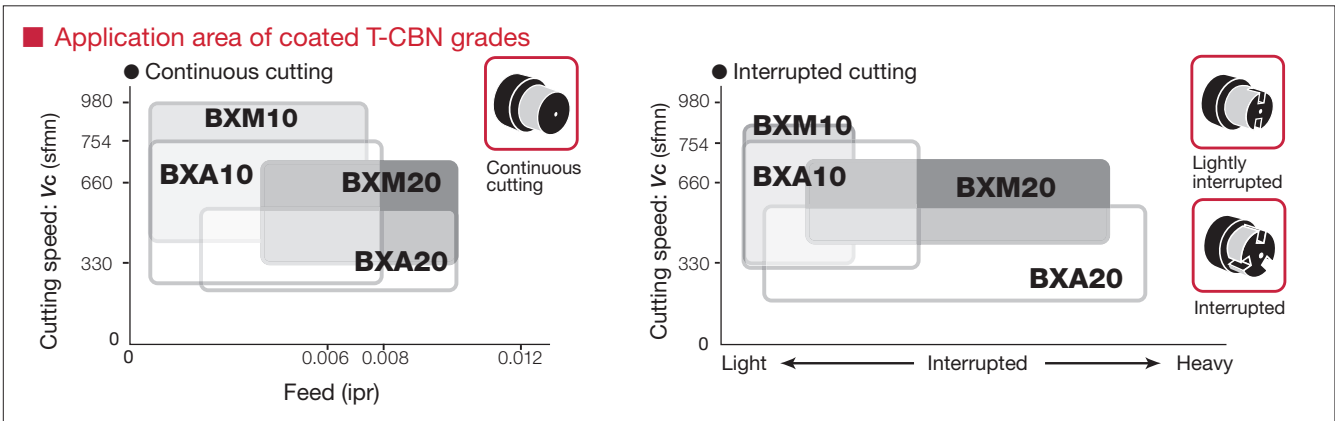
Basic selection of T-CBN grades in machining of hardened steel and hard material

Coated T-CBN grades

- BXA10** For continuous and light interrupted cutting
- BXA20** For general purpose, less than $V_c = 591$ sfm
- BXM10** For high speeds cutting
- BXM20** For general purpose, more than $V_c = 591$ sfm

Uncoated T-CBN grades

- BX310** For high speeds / Priority on wear resistance in continuous cutting
- BX330** For medium speeds / Priority on surface quality
- BX360** For low to medium speeds / General purpose grade with excellent fracture resistance
- BX380** For low to medium speeds / Priority on fracture resistance in heavy interrupted cutting



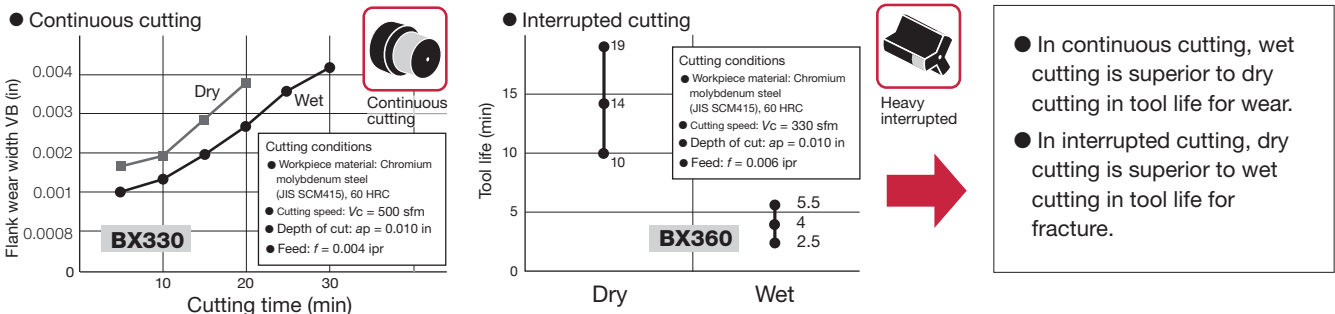
Effects of Coated T-CBN grades

Coated on hard CBN
Hardness:
CBN > Coating layer

- Protect CBN from oxidation wear**
Since the coating layer intercepts air, oxidation wear of CBN can be prevented.
- Peeling of coating layer can be prevented**
Hard and deformation resistant CBN is excellent substrate material.

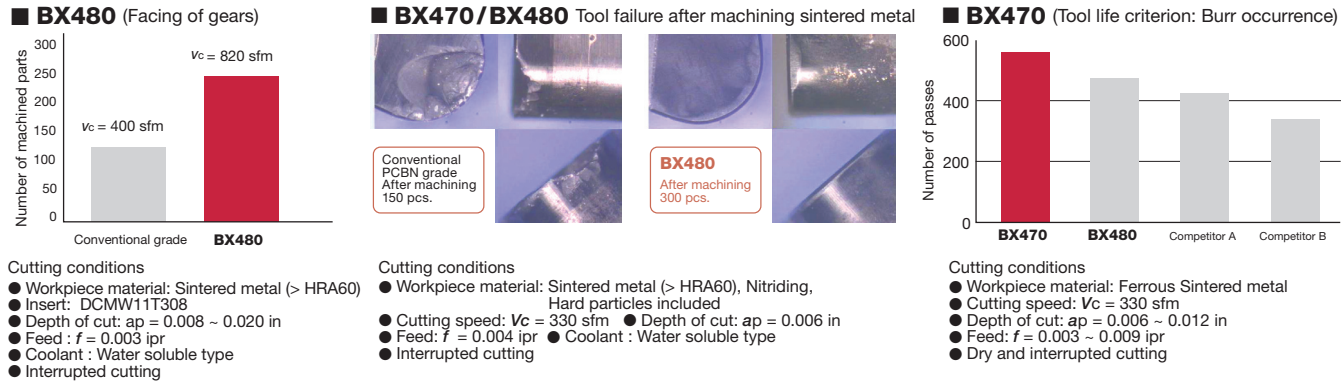
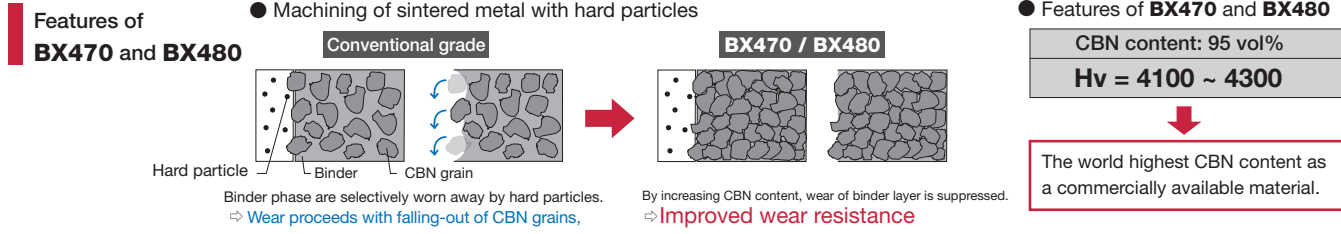
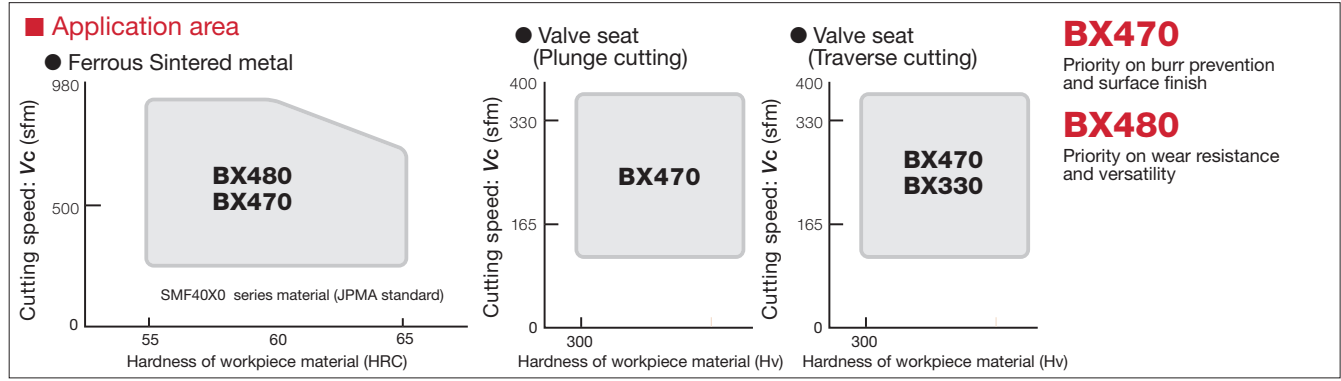
Improved resistance to flank wear

Effects of coolant in machining of hardened steel

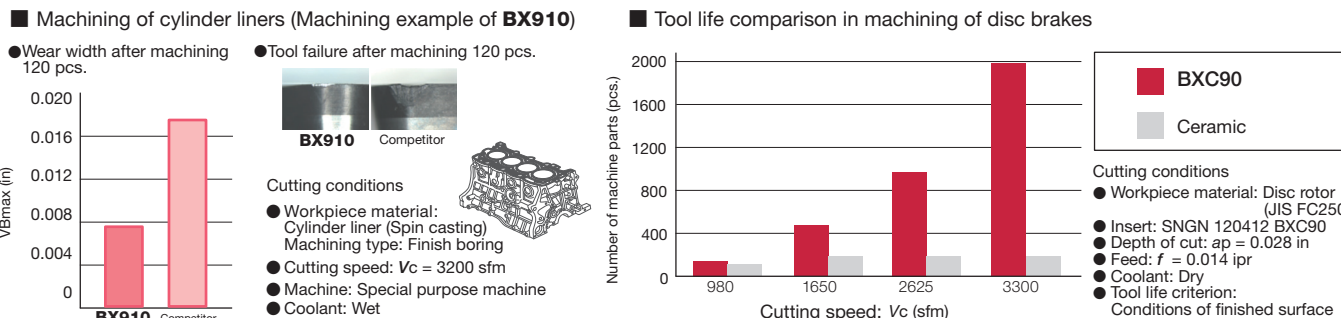
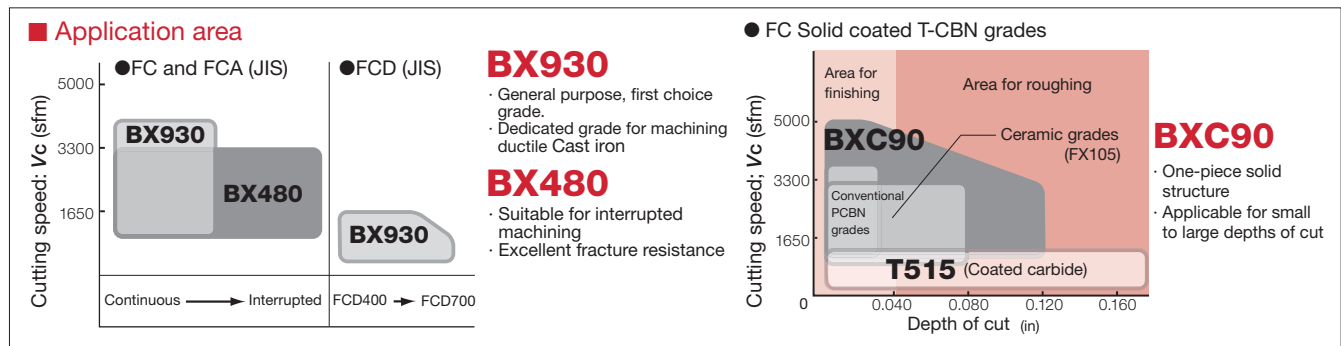


Technical Guide

T-CBN series for sintered metal



T-CBN series for grey cast iron and ductile cast iron



BX910 For machining cylinder liners

T-CBN Series

Edge preparation specifications

T-CBN inserts with special edge preparation specifications are made to order. Refer to the following description.

Designation system for edge specifications

Example:
 Negative land width: 0.13 mm
 Negative land angle: -25°
 With R-honing

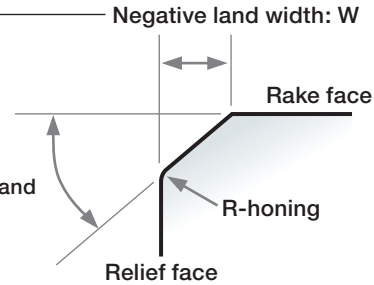


Shape Negative land width: W Negative land angle: α

T ... Chamfered
 S ... Chamfered + R-honing
 E ... R-honing alone
 F ... Sharp edge

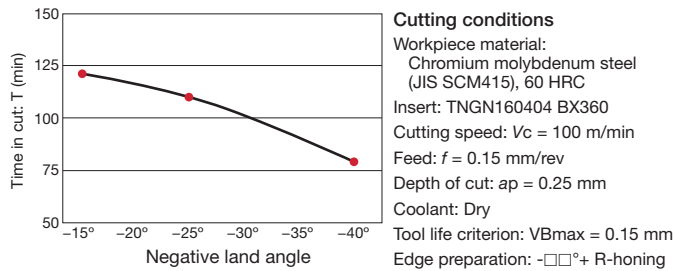
● Symbol

W	Negative land width (mm)	α	Negative land angle
005	0.05	10°	-10°
010	0.10	15°	-15°
013	0.13	20°	-20°
015	0.15	25°	-25°
018	0.18	30°	-30°
		35°	-35°
		40°	-40°

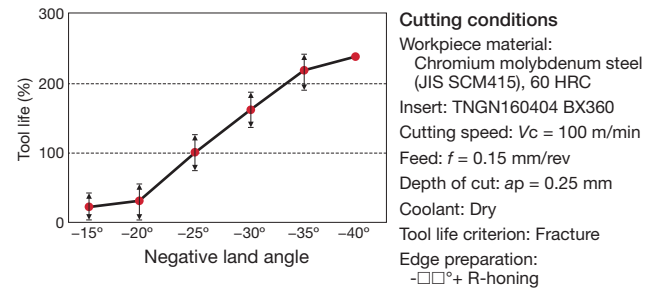


● Edge specification can be selected in combination of items described here.
 ● Inserts with "R" honing alone are available.

● Relationship between negative land angle and tool life in continuous turning



● Relationship between negative land angle and tool life in interrupted turning



- For **continuous cutting**, small negative land angle is favorable to **minimize wear**.
- For **interrupted cutting**, large negative land angle is favorable to **minimize fracture**.

Standard edge specifications

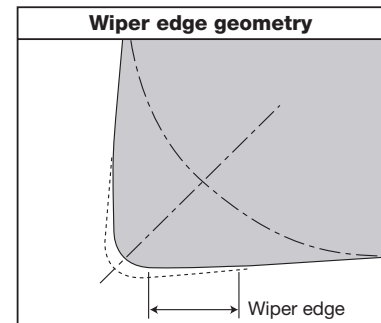
Grade	BXA10	BXA20	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930
Negative insert	S01325	S01325	S01325	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	S01315
Positive insert	S01325	S01325	S01325	S01325	-	S00515	S00515	S00515	-	T01315	S00515	S01315	S00515

Wiper insert

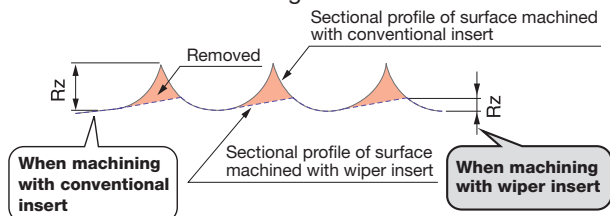
● A finishing edge (wiper edge) is formed at the point of intersection between corner radius and straight cutting edge.

Effect of wiper edge

- **Doubles the productivity → Reduced machining time**
 The wiper edge can double the feed rate and moreover does not deteriorate the surface roughness. (Note: Feed rate: $*f < 0.3$ mm/rev)
- **Superior surface roughness → By integrating roughing and finishing into one process, productivity can be increased.**
 Compared with conventional inserts only with corner radius, surface roughness can be improved with the wiper edge.



Profiles of surface roughness



Recommended toolholders for wiper inserts

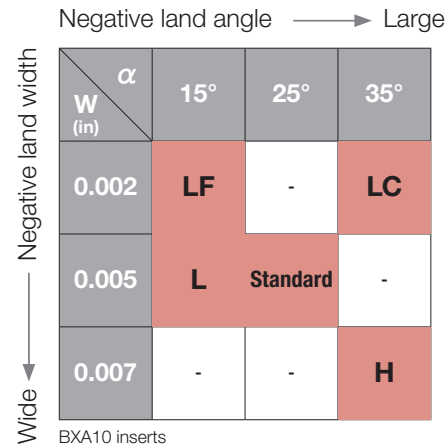
	2QP-CNGA1204**WL	3QP-WNGA080408WL	2QP-DNGA1504**WJ	3QP-TNGA1604**WG
End cutting angle	95°		93°	91°
External toolholder	ACLNR/L**12-A	AWLNR/L**08-A	ADJNR/L**15-A	ATGNR/L**16-A
	DCLNR/L**12	DWLNR/L**08	DDJNR/L**15	ATFNR/L**16-A
Internal toolholder	A**-ACLNR/L12-D...	A**-AWLNR/L08-D...	A**-ADUNR/L15-D...	A**-ATFNR/L16-D...

Technical Guide

T-CBN Series

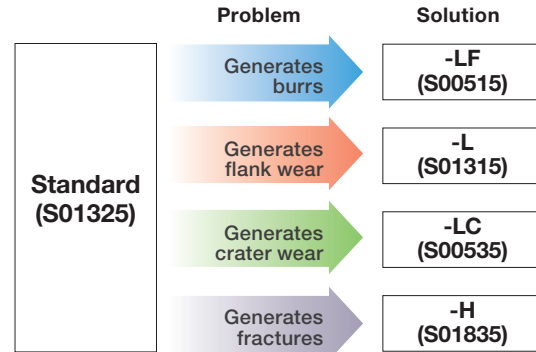
5 edge preparation options covering various hard

Edge preparations turning applications



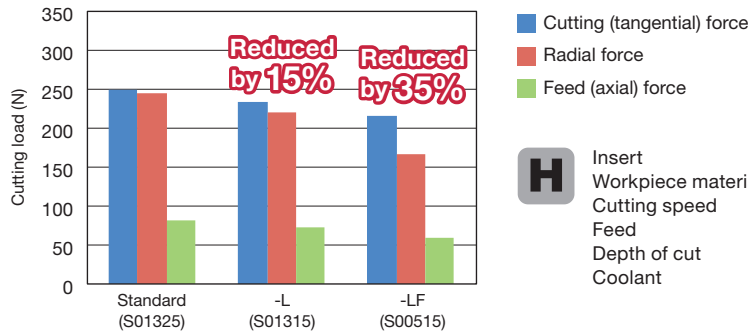
Selections of edge preparations

Allows you to select the most suited types of edge prep for your applications



Cutting loads

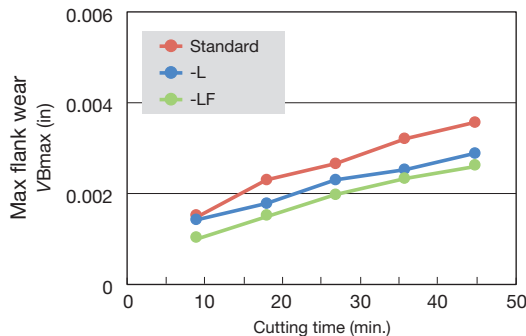
The -L and -LF provide reduced cutting loads over the standard edge prep type



H Insert : 2QP-CNGA 432
 Workpiece material : 4140 (Alloy steel, 60HRC)
 Cutting speed : $V_c = 328$ sfm
 Feed : $f = 0.012$ ipr
 Depth of cut : $a_p = 0.008$ "
 Coolant : Dry

Flank wear

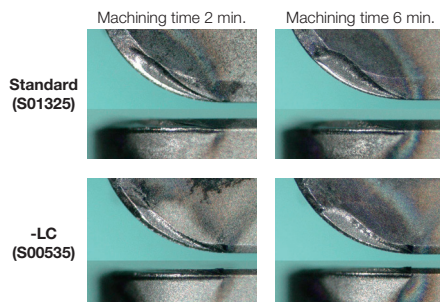
The -L and -LF provide reduced flank wear over the standard edge prep type



H Insert : 2QP-CNGA 432
 Workpiece material : 4140 (Alloy steel, 60HRC)
 Cutting speed : $V_c = 427$ sfm
 Feed : $f = 0.006$ ipr
 Depth of cut : $a_p = 0.008$ "
 Coolant : Wet

Crater wear

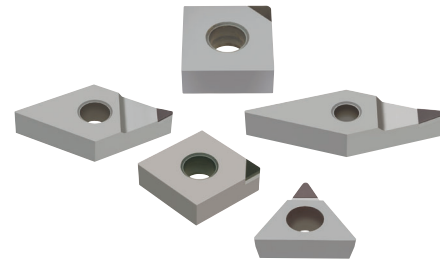
The -LC provides reduced crater wear over the standard edge prep type
 Reduces insert fracture induced by crater wear



H Insert : 2QP-CNGA 432
 Workpiece material : 4140 (Alloy steel, 60HRC)
 Cutting speed : $V_c = 656$ sfm
 Feed : $f = 0.004$ ipr
 Depth of cut : $a_p = 0.008$ "
 Coolant : Wet

PCD grade, T-DIA series

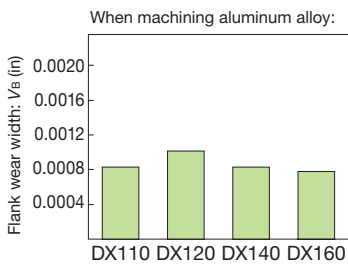
Expanded product line allows T-DIA tools to be applied to wider workpiece materials and cutting conditions.



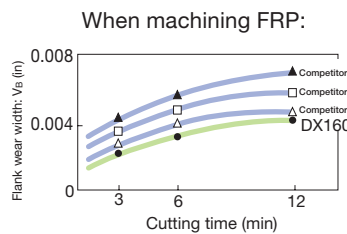
Features and applications (Physical and mechanical properties)

	DX110	DX120	DX140	DX160
Grade				
Property	Super fine grained grade. Excels in surface finish.	Fine grained grade. Excels in surface finish.	General purpose grade	High purity grade for hard materials
Approx. grain size of diamond (µm)	< 1	5	13	28
Hardness (Hv)	8500	→→→→→		10000 (Harder)
Wear resistance	→→→→→			Higher
Grindability (Cutting edge sharpness)	Better	←←←←←		

Cutting performance (Wear resistance)

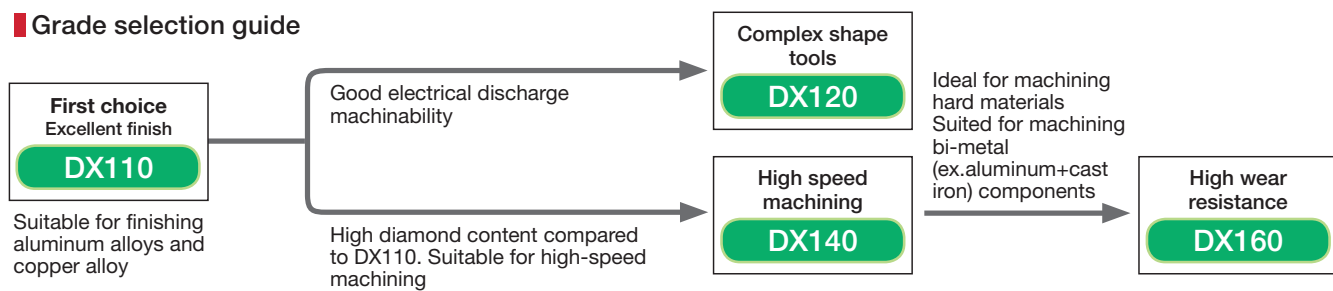


- Continuous external turning**
- Workpiece material: 10 % Si, aluminum alloy
 - Insert: SPGN120308-DIA
 - Toolholder: CSBPR2525M4
 - Cutting speed: $v_c = 1640$ sfm
 - Feed: $f = 0.004$ ipr
 - Depth of cut: $a_p = 0.020$ in
 - Coolant: Dry cutting
 - Cutting time: 30 min



- Face milling**
- Workpiece material: Fiber reinforced plastics (FRP)
 - Insert: SFCN42ZFN-DIA
 - Milling cutter: THF4408RIA
 - Cutting speed: $v_c = 3090$ sfm
 - Feed: $f = 0.004$ ipr
 - Depth of cut: $a_p = 0.059$ in
 - Coolant: Dry cutting

Grade selection guide



STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade				Cutting speed v_c (sfm)	Depth of cut a_p (in)	Feed f (ipr)
		DX110	DX120	DX140	DX160			
N	Aluminum alloys (Si < 12 %)	◎	○	○		3300 - 8200	0.002 - 0.080	0.002 - 0.008
	Aluminum alloys (Si ≥ 12 %)	◎	○	○	○	1300 - 2630	0.002 - 0.080	0.002 - 0.008
	Copper, brass	◎	○			1640 - 4920	0.002 - 0.080	0.002 - 0.008
	Phosphor bronze	◎	○	○		980 - 1640	0.002 - 0.080	0.002 - 0.008
	Carbon, graphite		○	○	◎	980 - 1640	0.002 - 0.080	0.002 - 0.008
	FRP		○	○	◎	1640 - 3300	0.002 - 0.020	0.001 - 0.004
	Plastics	◎	○	○		1640 - 3300	0.002 - 0.020	0.00039 - 0.002
	Cemented carbides			○	◎	30 - 65	0.002 - 0.008	0.00039 - 0.002
	Green ceramics			○	◎	330 - 500	0.002 - 0.080	0.001 - 0.004

(Note) ◎ : First choice ○ : Second choice

