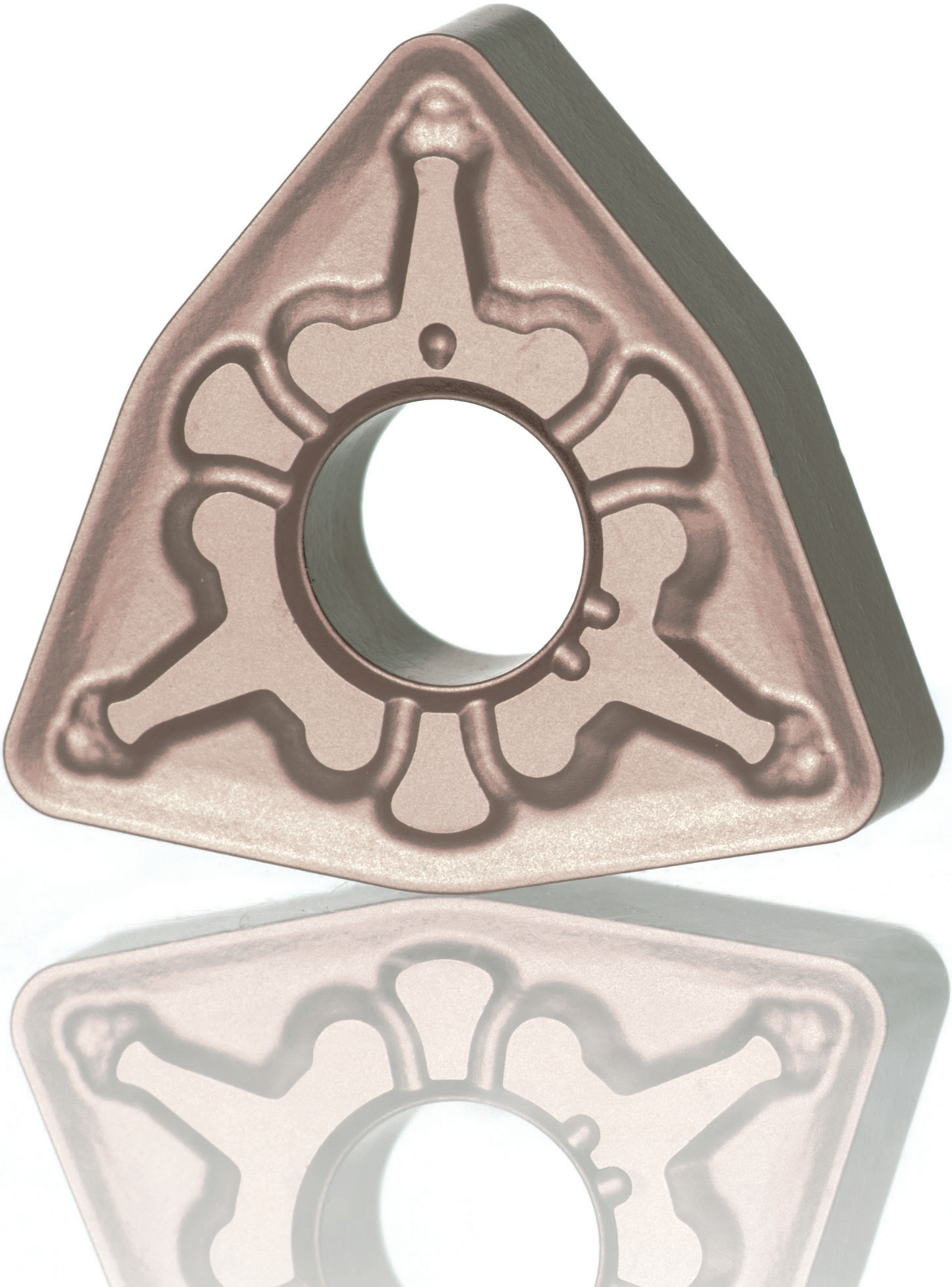
Insert



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.

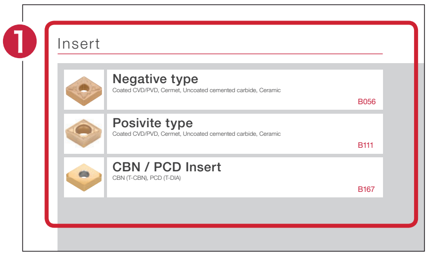
How to use the page

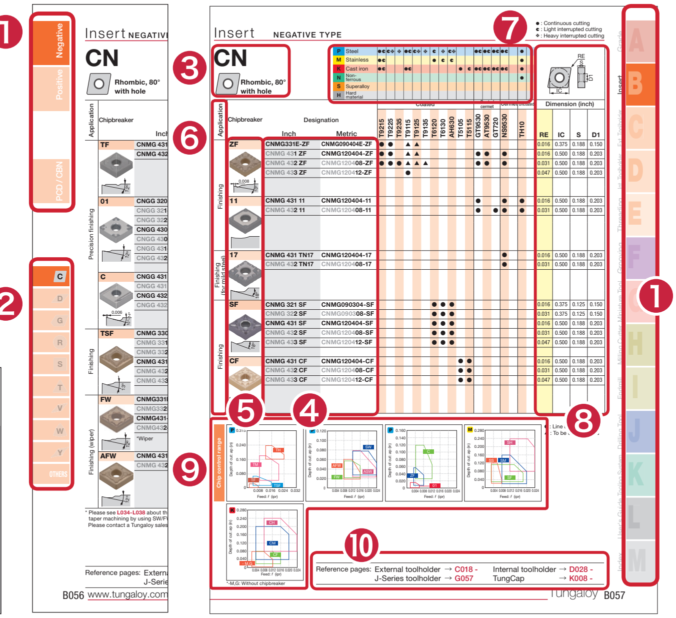
Method ①

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

Method ②

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



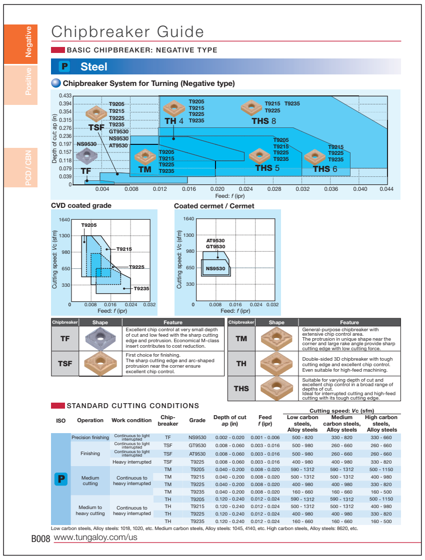


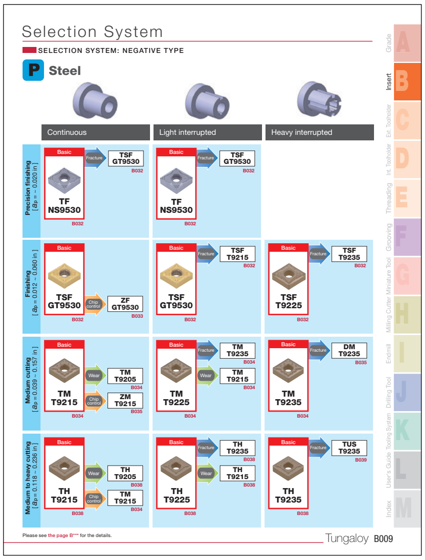
Method ③

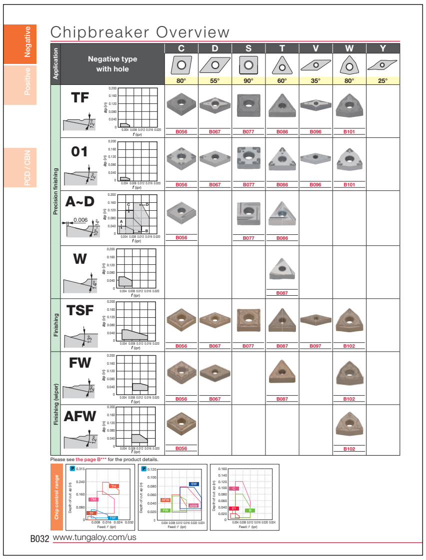
Select an insert at the chipbreaker introduction and the selection guide on B006 - B029 and check the details on the product page.

Method ④

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

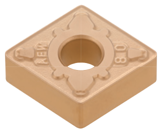






When ordering
- Please specify the designation, grade, and quantity.
  e.g. **CNMG 432 TM T9225 ... 10 pieces** (10 inserts per package)
  *You will find a note if the number per package is not 10.

Insert



Negative type

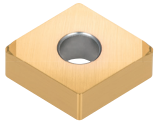
Coated CVD/PVD, Cermet, Uncoated cemented carbide, Ceramic

B056

Posivite type

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

B111



CBN / PCD Insert

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

B167

Designation system for Insert

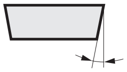
① Shape

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	-	

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

② Relief 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



③ Accuracy

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

	①	②	③	④	⑤
[Example]	**T**	**N**	**M**	**G**	**3**
[Example]	**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		Partly cylindrical hole, single-side 70° ~ 90° Counter sink	Without	
H			Single-sided	
C		Partly cylindrical hole, double-side 70° ~ 90° Counter sink	Without	
J				
X				

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˚

(in)

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 O ○ R ○ P ⬠ S □ T △ C,E,M ▱
0.375					
0.500	±0.003	±0.005	±0.005	±0.008	
0.625	±0.004	±0.007	±0.006	±0.010	
0.750					
1.000	±0.005	±0.010	±0.007	±0.015	

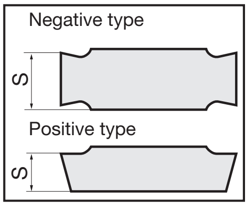
For angles at 55˚ (M-Class)

(in)

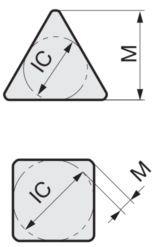
Inscribed circle	Tolerance on inscribed circle dia. (IC)	Tolerance on corner height (M)	Applicable insert shape
0.250	±0.002	±0.004	D ▱
0.375			
0.500	±0.003	±0.006	
0.625	±0.004	±0.007	
0.750			

● Note on insert thickness

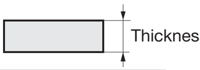
Thickness of insert with chpbreaker grooves is defined as shown to the right.



Inscribed circle (IC)
Corner poin (in)



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

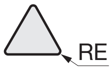


⑥ Thickness

[Example]

⑥	⑦				⑩
3	2				TM
2.5	1	F	N	-	JS
⑥	⑦	⑧ (Optional symbol)	⑨ (Optional symbol)		⑩

⑦ Corner radius



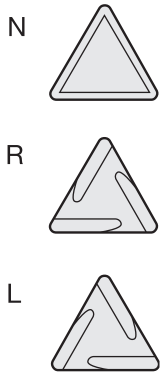
Symbol	Corner radius RE (in)	
V	0.001	-
0	0.004	1/256
0.5	0.008	1/128
1	0.016	1/64
2	0.031	1/32
3	0.047	3/64
4	0.062	1/16
5	0.078	5/64
6	0.094	3/32
7	0.109	7/64
8	0.125	1/8

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 symboles 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
	1 1/4	0.346
Positives	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

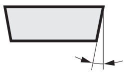
● How to decide the insert designation (conforms to JIS B4120-1998, ISO 1832 / AM1:1998)

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

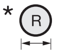
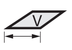
③ Accuracy

	①	②	③	④	⑤
[Example]	**T**	**N**	**M**	**G**	**16**
[Example]	**C**	**C**	**G**	**T**	**09**
	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		Partly cylindrical hole, single-side 70° ~ 90° Counter sink	Without	
H			Single-sided	
C		Partly cylindrical hole, double-side 70° ~ 90° Counter sink	Without	
J			Double-sided	
X	Special			

⑤ Cutting edge length and I.C. symbol

* 																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

*When M0 is included in Designation, the inscribed-circle diameter is metric size.

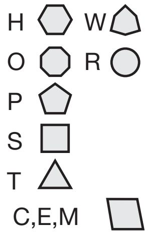
(mm)

ISO Designation

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

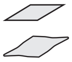
For inserts with nose corner angles larger than 55˚

(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)

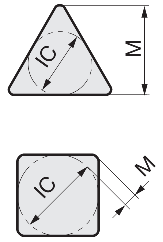
(mm)

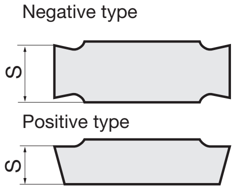
Inscribed circle	Tolerance on inscribed circle dia. (IC)	Tolerance on corner height (M)	Applicable insert shape
6.35	±0.05	±0.11	D 
9.525			
12.7	±0.08	±0.15	
15.875	±0.1	±0.18	
19.05			
6.35	±0.05	±0.16	V Y 
9.525			

● Insert thickness

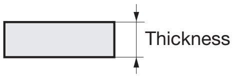
For many of the inserts with chipbreaker, the insert height of the cutting edge is lower. In that case, the insert thickness outlined in the drawing of external dimensions is equivalent of "S" in the figure on the right.

Inscribed circle (IC)
Corner height (M)





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



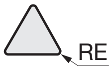
⑥ Thickness

[Example]

⑥ 04 ⑦ 08 - ⑩ TM

⑥ T3 ⑦ 04 ⑧ F ⑨ N - ⑩ JS

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

(Optional symbol)

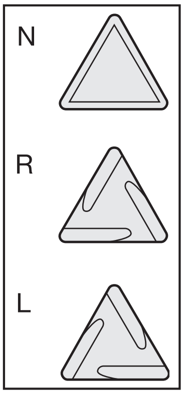
⑧ Major cutting edge

Symbol	Cutting edge	Shape
F	Sharp	

(Optional symbol)

⑨ Hand of insert

Symbol	Hand
R	Right
L	Left
N	Neutral



(Supplementary symbol)

⑩ Chipbreaker

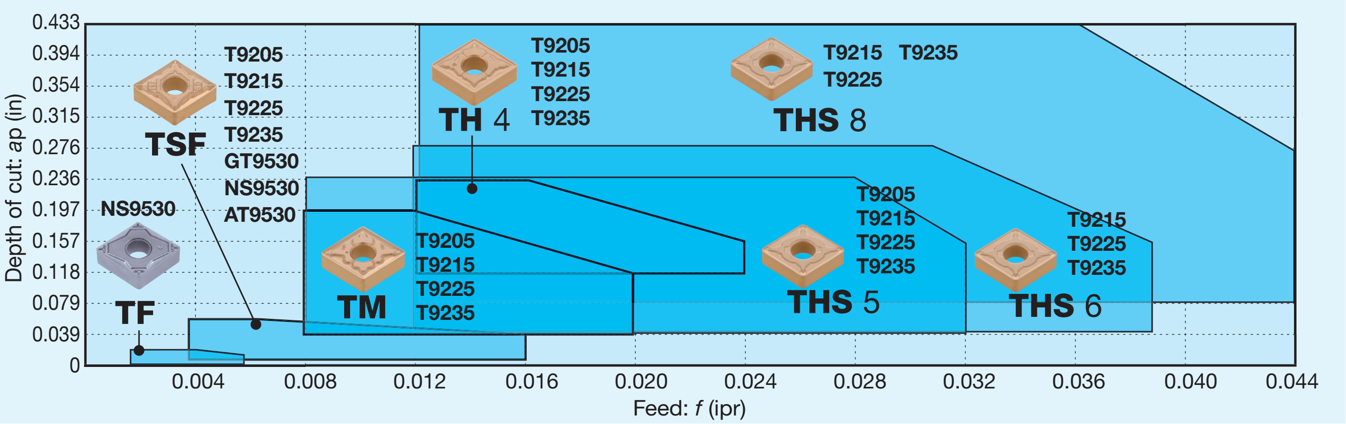
Symbol	Applications	Symbol	Applications
01(TF)	Precision finishing (Basic selection)	AFW	Small depth of cut and high feed (Wiper type Inserts)
TS	Finishing (Basic selection)	ASW	Small depth of cut and high feed (Wiper type Inserts)
TSF	Finishing (Basic selection)	CB	Medium cutting
TM	Medium cutting (Basic 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	C	Finishing (Right and left hand)
HRF	Finishing	D	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	J08,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

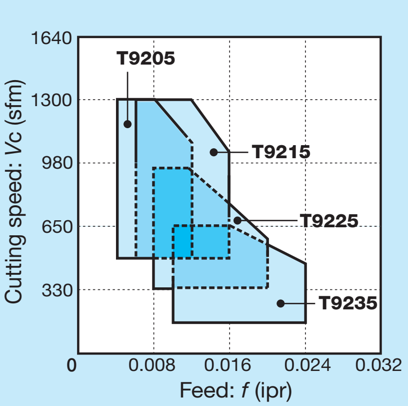
BASIC CHIPBREAKER: NEGATIVE TYPE

P Steel

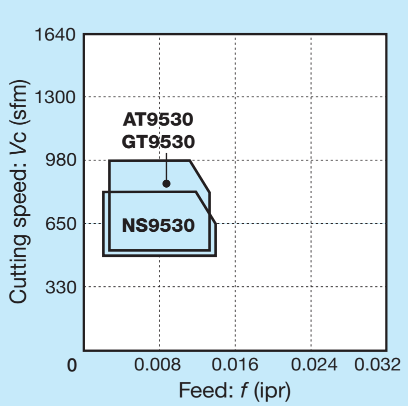
Chipbreaker System for Turning (Negative type)

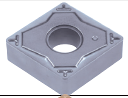
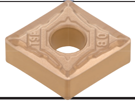


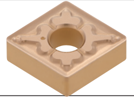
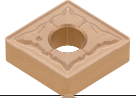
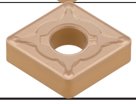
CVD coated grade



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

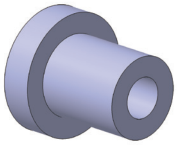
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous to light interrupted	TF	NS9530	0.002 - 0.020	0.001 - 0.006	500 - 820	330 - 820	330 - 660
	Finishing	Continuous to light interrupted	TSF	GT9530	0.008 - 0.060	0.003 - 0.016	500 - 980	260 - 660	260 - 660
		Continuous to light interrupted	TSF	AT9530	0.008 - 0.060	0.003 - 0.016	500 - 980	260 - 660	260 - 660
		Heavy interrupted	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

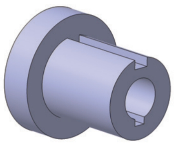
Low carbon steels, Alloy steels: 1018, 1020, etc. Medium carbon steels, Alloy steels: 1045, 4140, etc. High carbon steels, Alloy steels: 8620, etc.

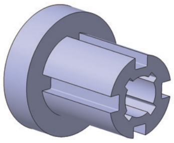
Selection System

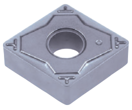
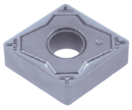
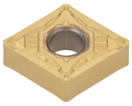
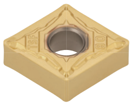
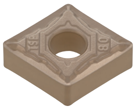
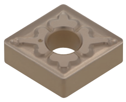
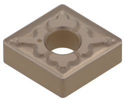
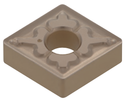
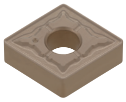
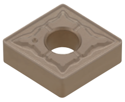
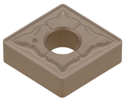
SELECTION SYSTEM: NEGATIVE TYPE

P Steel







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

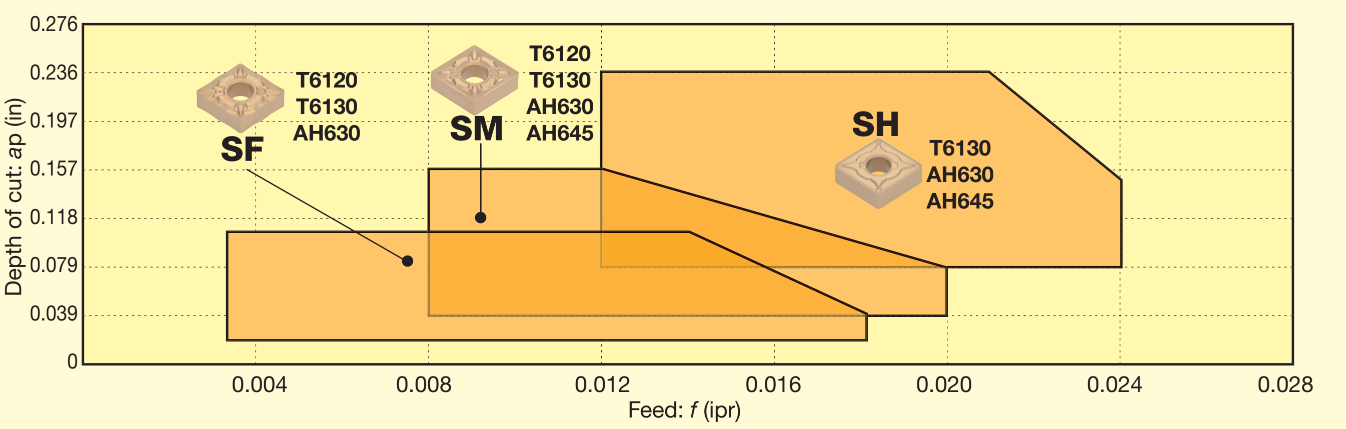
Please see the page B*** for the details.

Chipbreaker Guide

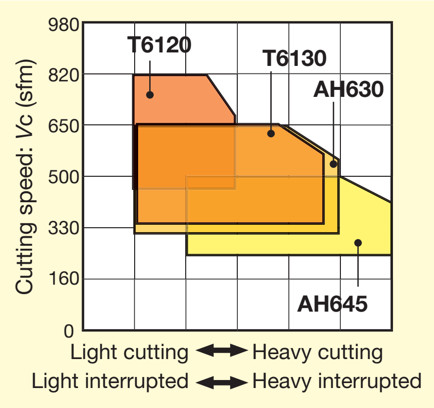
BASIC CHIPBREAKER: NEGATIVE TYPE

M Stainless Steel

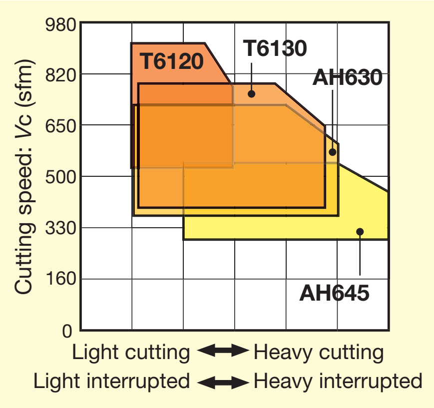
Chipbreaker System for Turning (Negative type)



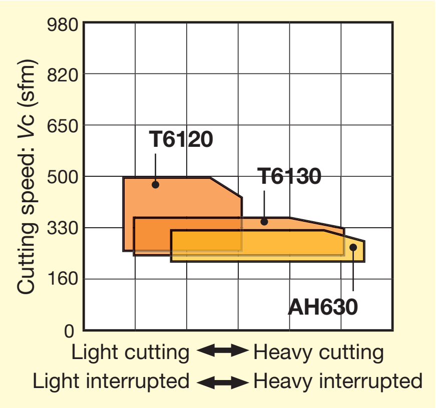
Austenitic stainless steel

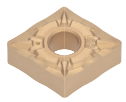
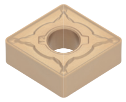


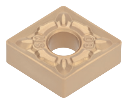
Ferritic / martensite stainless steel



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.

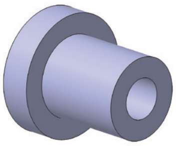
STANDARD CUTTING CONDITIONS

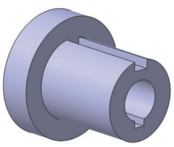
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)
M	Finishing	Continuous	SF	T6120	0.020 - 0.098	0.003 - 0.018	460 - 790
		Continuous to light interrupted	SF	T6130	0.020 - 0.098	0.003 - 0.018	330 - 660
		Heavy interrupted	SF	AH630	0.020 - 0.098	0.003 - 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

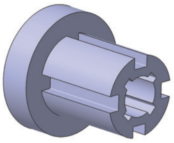
Stainless steels: 304SS, 316SS, etc.

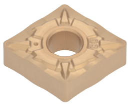
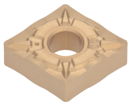
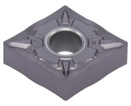
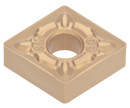
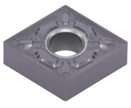
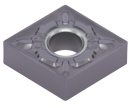
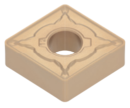
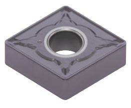
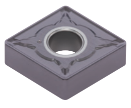
SELECTION SYSTEM: NEGATIVE TYPE

M Stainless Steel







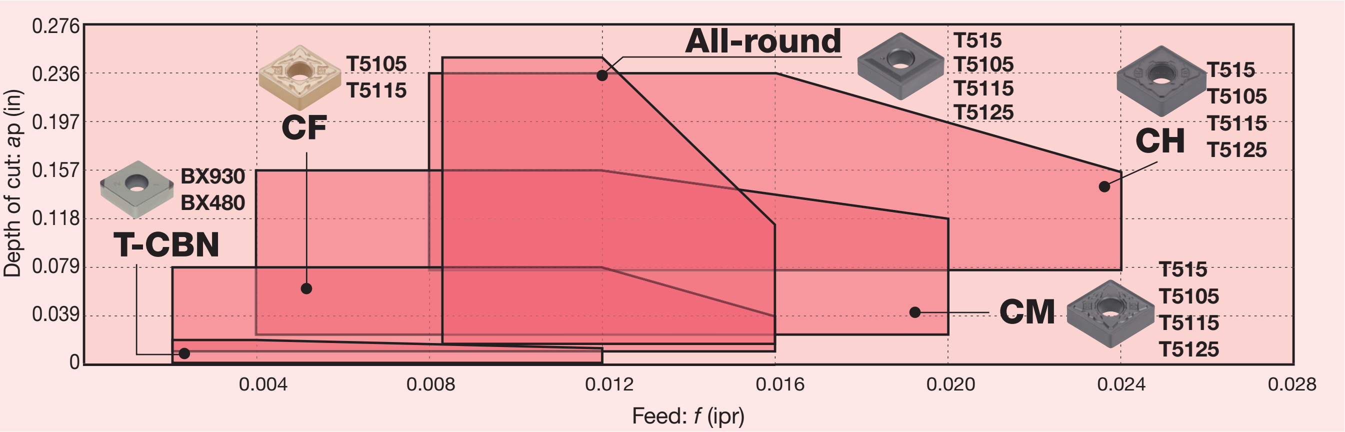
	Continuous	Light interrupted	Heavy interrupted
Finishing [ap = 0.020 ~ 0.060 in]	Basic  **SF T6120** B033 Fracture → **SF T6130** B033	Basic  **SF T6130** B033 Fracture → **SF AH630** B033 Wear → **SF T6120** B033	Basic  **SF AH630** B033 Fracture → **SF AH645** B033 Wear → **SF T6130** B033
Medium cutting [ap = 0.039 ~ 0.157 in]	Basic  **SM T6130** B037 Wear → **SM T6120** B037 Chip control → **SF T6130** B033	Basic  **SM AH630** B037 Fracture → **SM AH645** B037 Wear → **SM T6130** B037	Basic  **SM AH645** B037 Fracture → **SH AH645** B039
Medium to heavy cutting [ap = 0.079 ~ 0.236 in]	Basic  **SH T6130** B039 Fracture → **SH AH630** B039 Wear → **SH T6120** B039 Chip control → **SM T6130** B037	Basic  **SH AH630** B039 Fracture → **SH AH645** B039 Wear → **SH T6130** B039	Basic  **SH AH645** B039 Wear → **SH AH630** B039

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

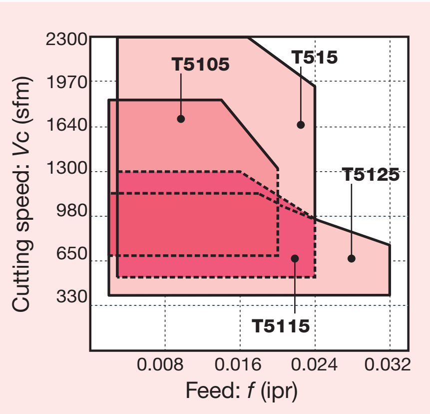
BASIC CHIPBREAKER: NEGATIVE TYPE

K Cast Iron

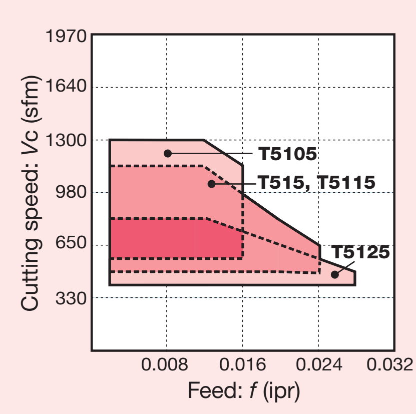
Chipbreaker System for Turning (Negative type)



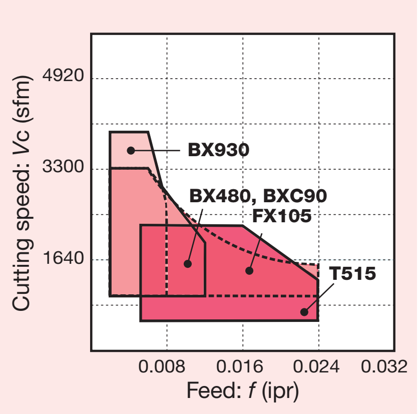
Grey cast iron

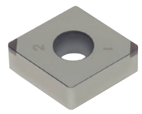
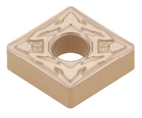
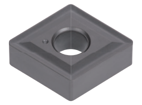


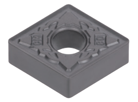
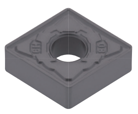
Ductile cast iron



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.

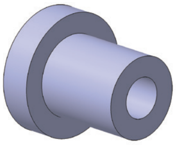
STANDARD CUTTING CONDITIONS

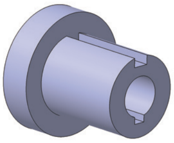
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)	
							Grey cast iron	Ductile cast iron
K	High speed cutting	Continuous	Without	BX930	0.002 - 0.020	0.002 - 0.008	984 - 3937	328 - 1640
		Light interrupted	Without	BX480	0.002 - 0.020	0.002 - 0.012	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

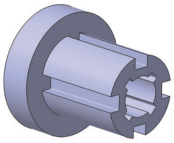
Grey cast iron: Class 25, etc. Ductile cast irons: 65-45-12, etc.

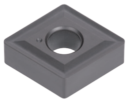
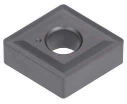
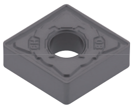
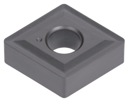
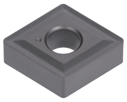
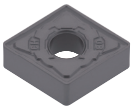
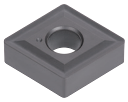
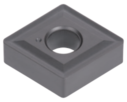
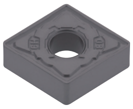
SELECTION SYSTEM: NEGATIVE TYPE

K Cast Iron







	Continuous	Light interrupted	Heavy interrupted
Finishing [a_p = 0.020 ~ 0.079 in]	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Burr occurrence → **CF T5105** B033	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Fracture → **CH T515** B039 Burr occurrence → **CF T5115** B033	Basic  **CH T515** B039 Wear → **CH T5105** B039 Fracture → **CH T5125** B039 Burr occurrence → **All-round T515** B035
Medium cutting [a_p = 0.039 ~0.197 in]	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Burr occurrence → **CF T5105** B033	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Fracture → **CH T515** B039 Burr occurrence → **CF T5115** B033	Basic  **CH T515** B039 Wear → **CH T5105** B039 Fracture → **CH T5125** B039 Burr occurrence → **All-round T515** B035
Medium to heavy cutting [a_p = 0.118 ~ 0.236 in]	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Burr occurrence → **CF T5105** B033	Basic  **All-round T515** B035 Wear → **All-round T5105** B035 Fracture → **CH T515** B039 Burr occurrence → **CF T5115** B033	Basic  **CH T515** B039 Wear → **CH T5105** B039 Fracture → **CH T5125** B039 Burr occurrence → **All-round T515** B035

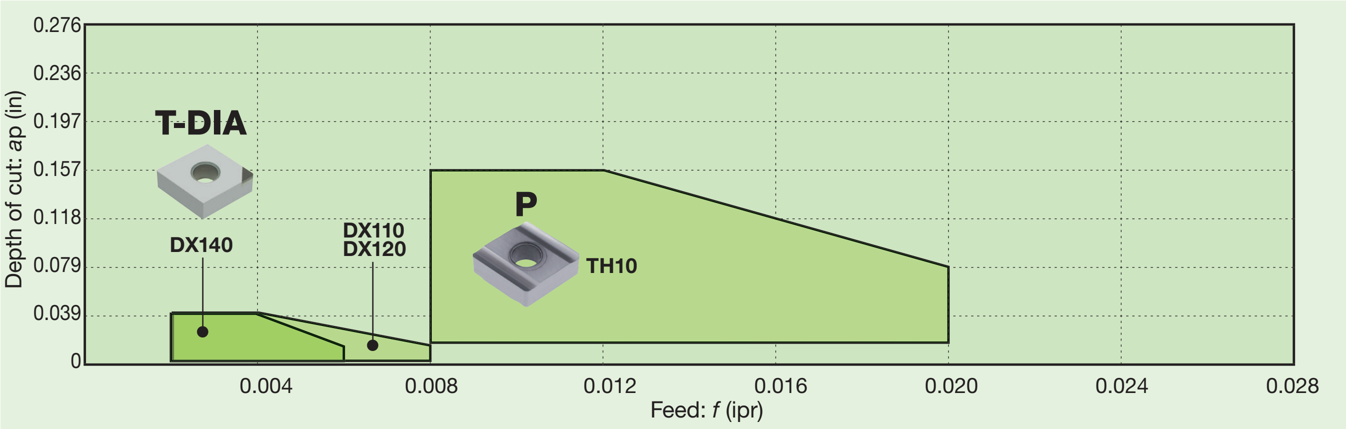
Please see the page B*** for the details.

Chipbreaker Guide

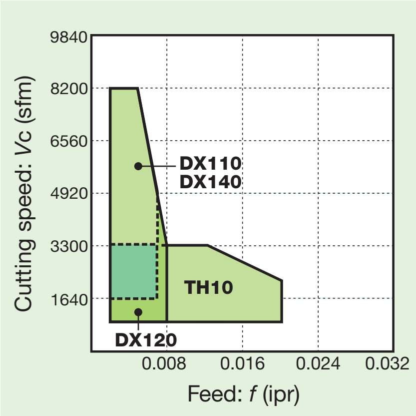
BASIC CHIPBREAKER: NEGATIVE TYPE

N Non-ferrous Metal

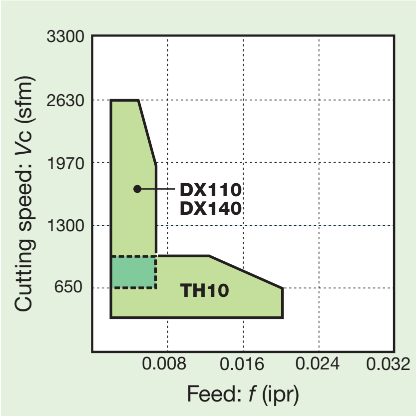
Chipbreaker System for Turning (Negative type)



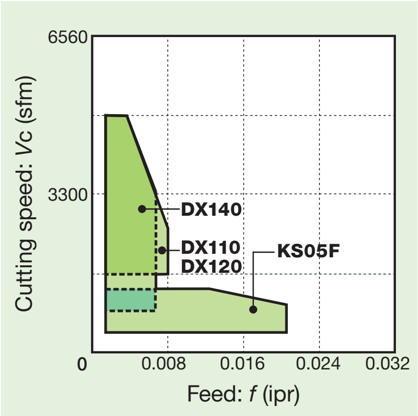
Aluminum alloy (Si < 12%)

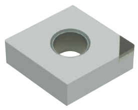
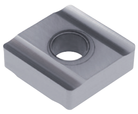


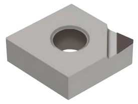
Aluminum alloy (Si ≥ 12%)



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.

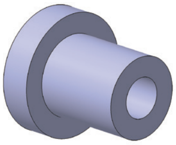
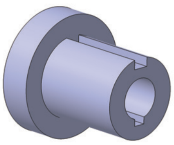
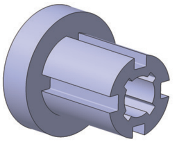
STANDARD CUTTING CONDITIONS

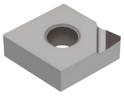
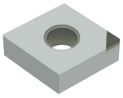
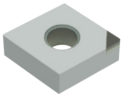
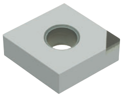
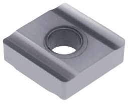
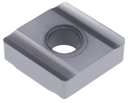
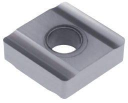
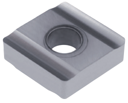
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed *f* (ipr)	Cutting speed: *Vc* (sfm)		
							Aluminum alloy (Si < 12%)	Aluminum alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	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
Precision finishing [a_p = ~ 0.020 in]	**Basic**  With chipbreaker **DX110** B194, B196 Wear → **T-DIA DX140** B195, B197, B198	**Basic**  **T-DIA DX140** B195, B197, B198 Surface quality → With chipbreaker T-DIA **DX110** B194, B196 Wear → **T-DIA DX160** B195, B197	
Finishing [a_p = 0.020 ~0.079 in]	**Basic**  **T-DIA DX140** B195, B197, B198 Surface quality → With chipbreaker T-DIA **DX110** B194, B196 Wear → **T-DIA DX160** B195, B197	**Basic**  **T-DIA DX140** B195, B197, B198 Fracture → **P TH10** B037 Wear → **T-DIA DX160** B195, B197	**Basic**  **P TH10** B037
Medium cutting [a_p = 0.039 ~ 0.157 in]	**Basic**  **P TH10** B037 Wear → **T-DIA DX140** B195, B197, B198	**Basic**  **P TH10** B037 Wear → **T-DIA DX140** B195, B197, B198	**Basic**  **P TH10** B037

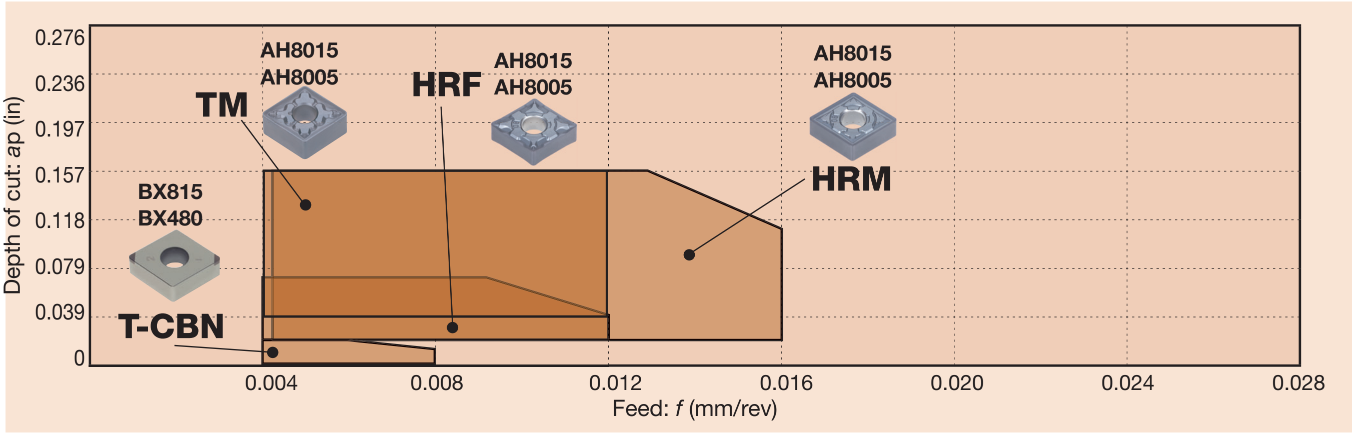
Please see the page B*** for the details.

Chipbreaker Guide

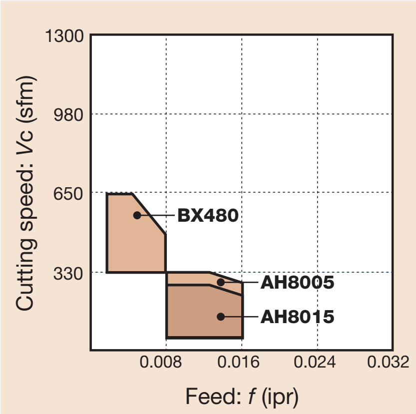
BASIC CHIPBREAKER: NEGATIVE TYPE

S Superalloys and titanium

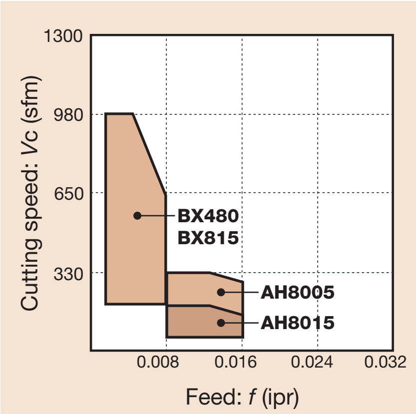
Chipbreaker System for Turning (Negative type)

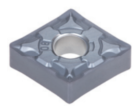
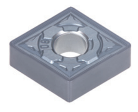


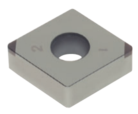
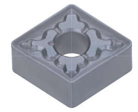
Titanium alloy



Ni-base alloy



Chipbreaker	Shape	Feature
HRF		Suitable for finishing superalloy. Unique protrusion improves chip control in cutting low depth.
HRM		First choice for heat-resistant alloy. The geometry optimized for a wide range of depths of cut.

Chipbreaker	Shape	Feature
No chip-breaker (T-CBN)		Excellent performance in finishing of heat-resistant alloy and titanium alloy with CBN sintered body on the cutting edge.
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.

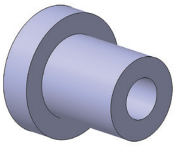
STANDARD CUTTING CONDITIONS

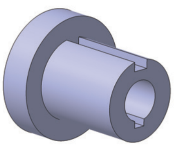
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)	
							Titanium alloy	Ni-base alloy
S	Precision finishing	Continuous	Without	BX480	0.004 - 0.020	0.002 - 0.008	330 - 660	230 - 980
			Without	BX815	0.004 - 0.020	0.002 - 0.008	-	230 - 1310
		Light interrupted	Without	BX480	0.004 - 0.020	0.002 - 0.008	330 - 660	-
	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
	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

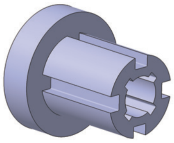
Ni-base alloy: INCONEL718, etc. Titanium alloy: Ti-6Al-4V, etc.

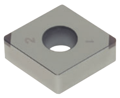
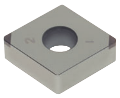
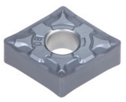
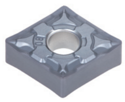
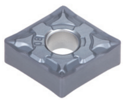
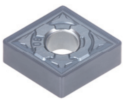
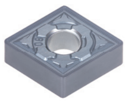
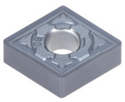
SELECTION SYSTEM: NEGATIVE TYPE

S Superalloys and titanium







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

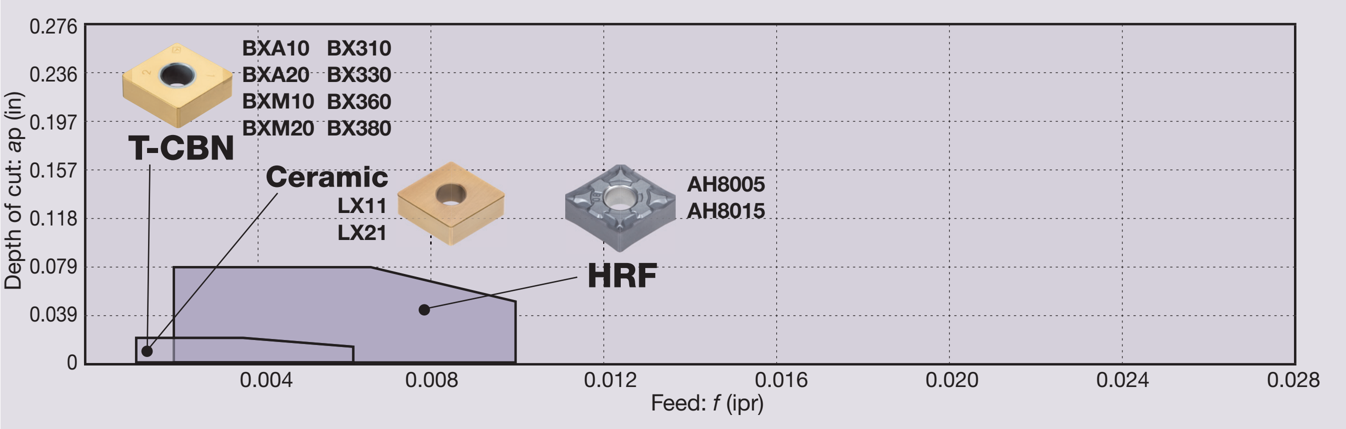
Please see the page B*** for the details.

Chipbreaker Guide

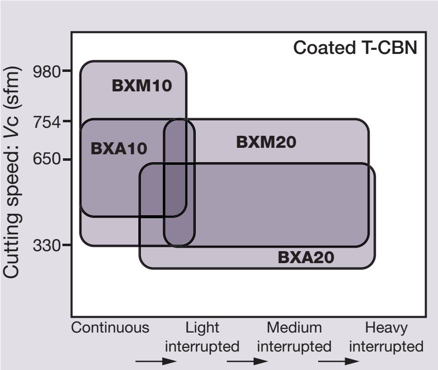
BASIC CHIPBREAKER: NEGATIVE TYPE

H Hard Materials

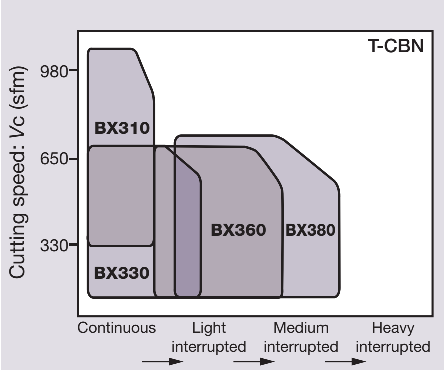
Chipbreaker System for Turning (Negative type)



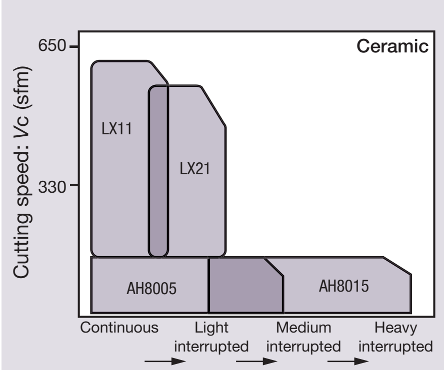
Coated T-CBN

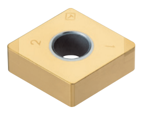


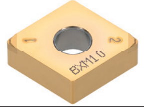
T-CBN



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

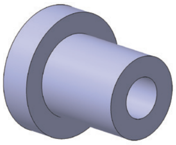
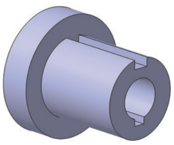
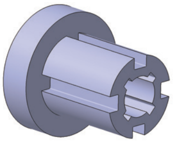
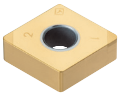
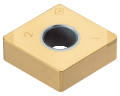
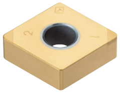
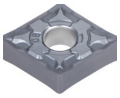
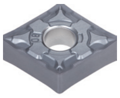
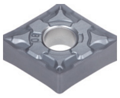
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)
H	Precision finishing	Continuous to light interrupted	HP	BXA10 BXA20 BXM10	0.002 - 0.008	0.001 - 0.007	500 - 1150
	Finishing	Continuous to heavy interrupted	Without	BXA10 BXA20 BXM10	0.002 - 0.020	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
		Continuous	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
Precision finishing [a_p = ~ 0.008 in]	**Basic**  **T-CBN HP BXA10** B173, B176, B182	**Basic**  **T-CBN BXA20** B172 - B181 Fracture → **-H BXM20** B172 - B180 High-speed wear → **T-CBN BXA10** B172 - B181	
Finishing [a_p = ~ 0.020 in]	**Basic**  **T-CBN BXA10** B172 - B181 Eco-noming → **LX11** B065	**Basic**  **T-CBN BXA20** B172 - B181 Fracture → **-H BXM20** B172 - B180 High-speed wear → **T-CBN BXA10** B172 - B181 Eco-noming → **LX21** B065	**Basic**  **T-CBN BXM20** B172 - B181 Fracture → **-H BXM20** B172 - B180
Medium cutting [a_p = ~ 0.020 in]	**Basic**  **HRF AH8005** B058 Fracture → **HRF AH8015** B172 - B180	**Basic**  **HRF AH8015** B058 Fracture → **HRM AH8015** B058	**Basic**  **HRF AH8015** B058 Fracture → **HRM AH8015** B058

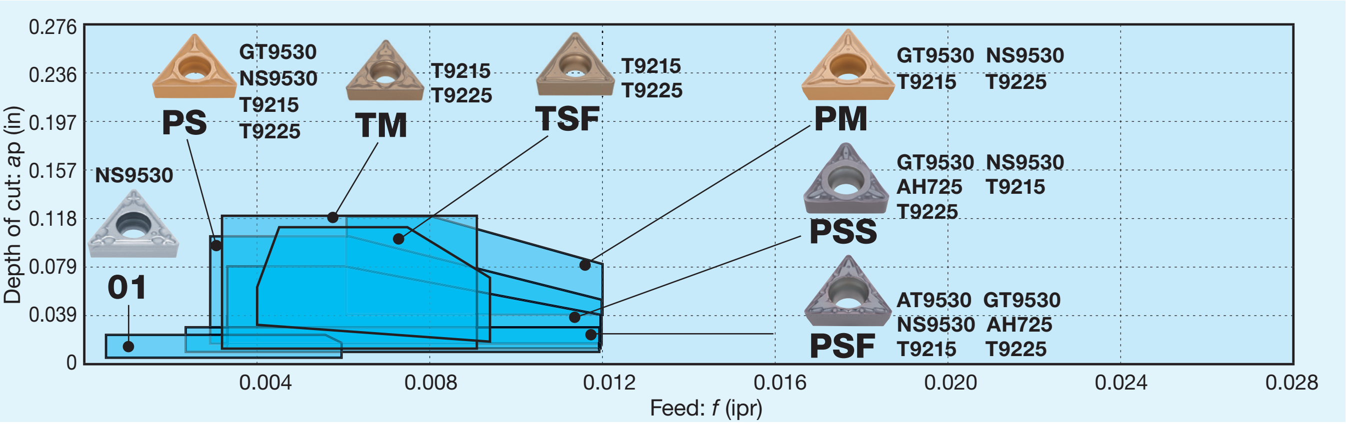
Please see the page B*** for the details.

Chipbreaker Guide

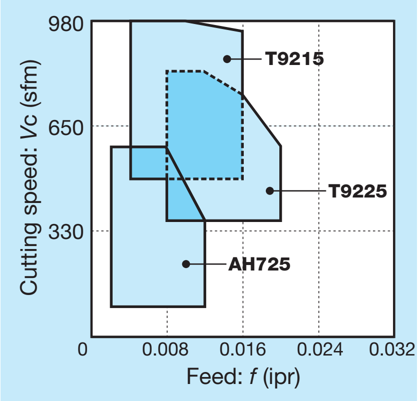
BASIC CHIPBREAKER: POSITIVE TYPE

P Steel

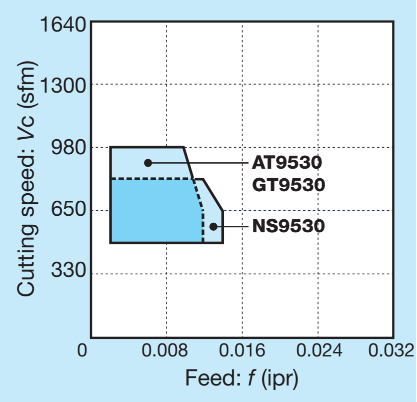
Chipbreaker System for Turning (Positive Type)

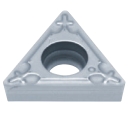
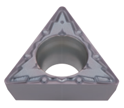
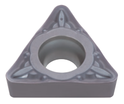


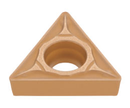
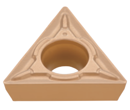
CVD / PVD coated grade

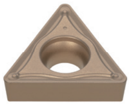
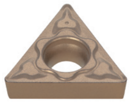


Coated cermet / Cermet



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.

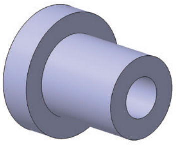
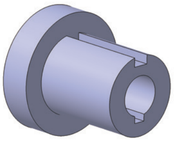
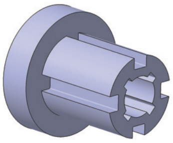
STANDARD CUTTING CONDITIONS

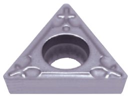
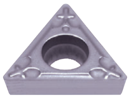
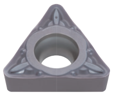
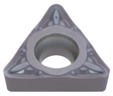
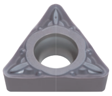
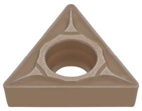
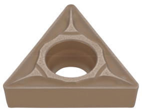
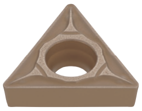
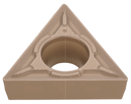
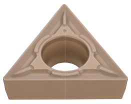
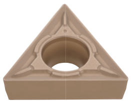
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)		
							Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous	01	NS9530	0.002 - 0.020	0.001 - 0.006	500 - 820	260 -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

P Steel

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

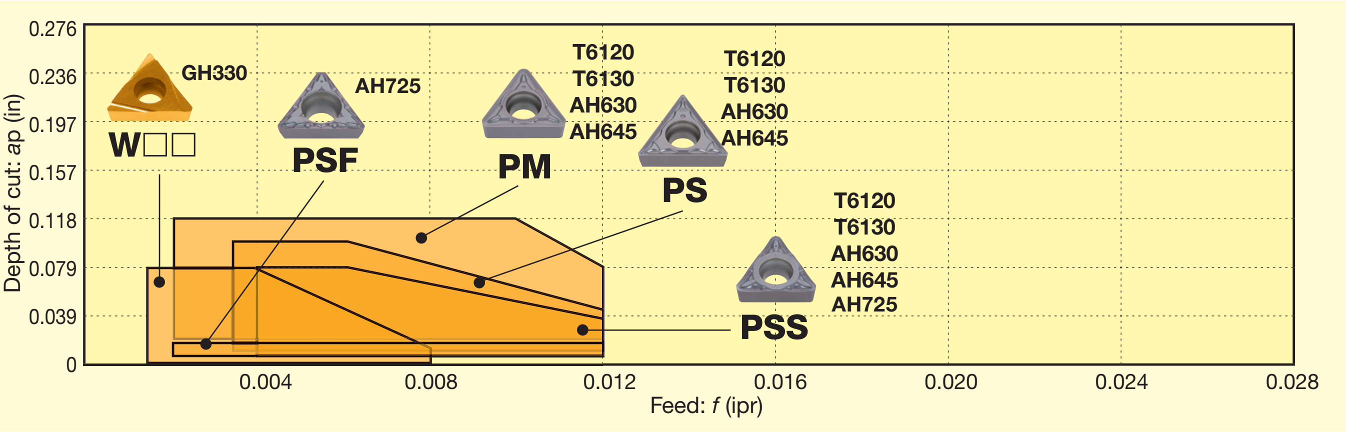
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

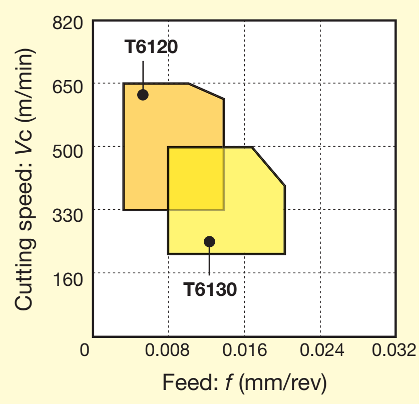
BASIC CHIPBREAKER: POSITIVE TYPE

M Stainless Steel

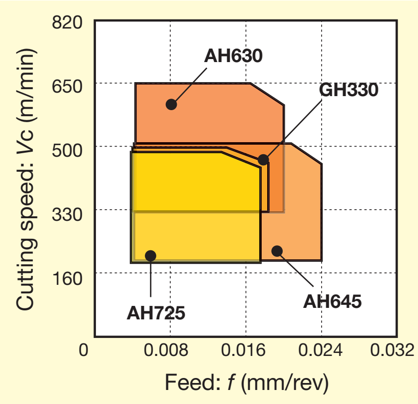
Chipbreaker System for Turning (Positive Type)

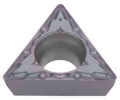


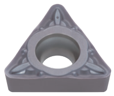
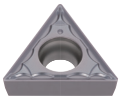
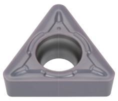
CVD coated grade



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.

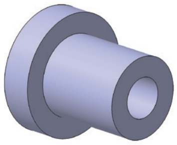
STANDARD CUTTING CONDITIONS

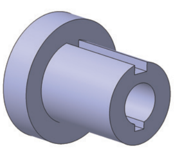
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (sfm)
M	Precision finishing	Continuous	W□□	GH330	0.002 - 0.079	0.001 - 0.008	330 - 500
	Finishing	Continuous	PSF	AH725	0.004 - 0.020	0.002 - 0.012	160 - 500
		Light interrupted	PSF	AH725	0.004 - 0.020	0.002 - 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

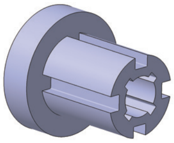
* For CCMT0602 and DCMT0702 type inserts, *ap* = 0.020 - 0.098, Stainless steels: 304SS, 316SS, etc.

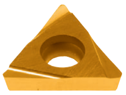
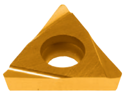
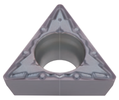
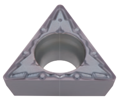
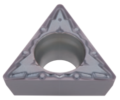
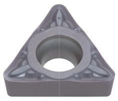
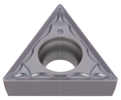
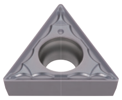
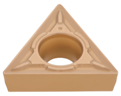
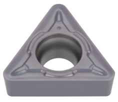
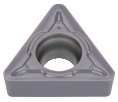
SELECTION SYSTEM: POSITIVE TYPE

M Stainless Steel







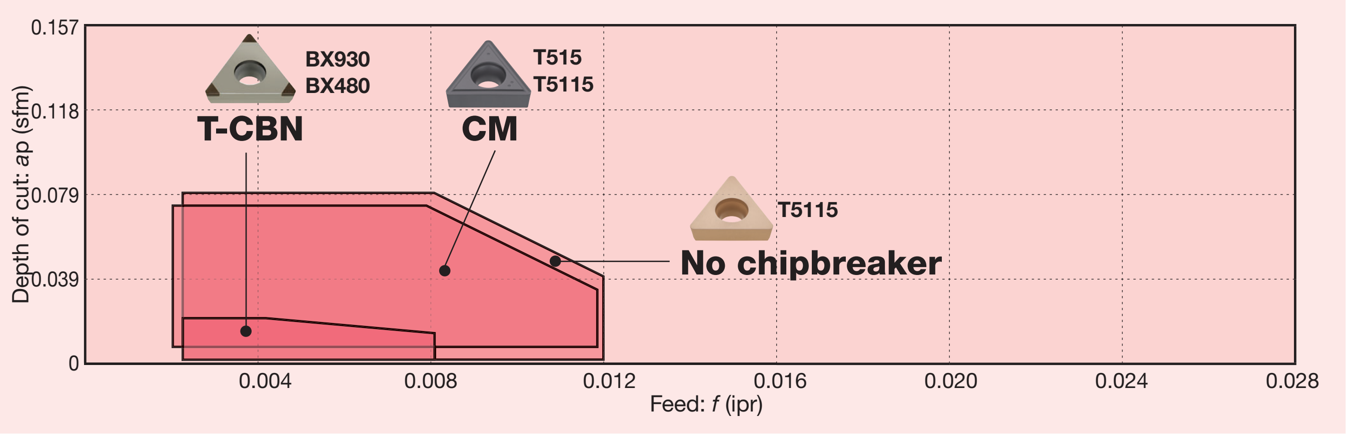
	Continuous	Light interrupted	Heavy interrupted
Precision finishing [ap = ~ 0.020 in]	**Basic**  **W□□** **GH330** B043, B048, B051	**Basic**  **W□□** **GH330** B043, B048, B051	
Finishing [ap = 0.012 ~ 0.060 in]	**Basic**  **PSF** **AH725** B042, B047, B051 Wear → **PSS T6130** B042, B047, B051	**Basic**  **PSF** **AH725** B042, B047, B051 Fracture → **PSS AH630** B042, B047, B051 Wear → **PSS T6130** B042, B047, B051	**Basic**  **PSF** **AH725** B042, B047, B051 Fracture → **PSS AH630** B042, B047, B051
Finishing to medium cutting [ap = 0.020 ~ 0.098 in]	**Basic**  **PSS** **AH630** B042, B047, B051 Wear → **PS T6130** B042, B047, B051	**Basic**  **PS** **AH630** B042, B047, B051 Fracture → **PM AH645** B044, B048 Wear → **PS T6130** B042, B047, B051	**Basic**  **PS** **AH630** B042, B047, B051 Fracture → **PM AH645** B044, B048 Wear → **PS T6130** B042, B047, B051
Medium cutting [ap = 0.039 ~ 0.118 in]	**Basic**  **PM** **T6130** B044, B048	**Basic**  **PM** **AH630** B044, B048 Fracture → **PM AH645** B044, B048 Wear → **PM T6130** B044, B048	**Basic**  **PM** **AH630** B044, B048 Fracture → **PM AH645** B044, B048

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

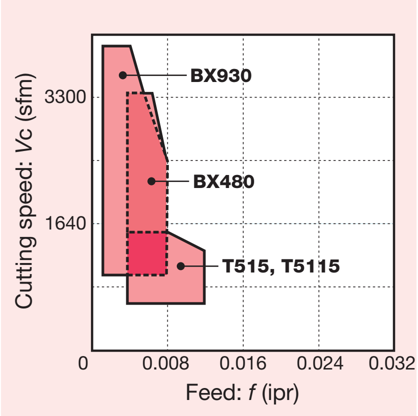
BASIC CHIPBREAKER: POSITIVE TYPE

K Cast Iron

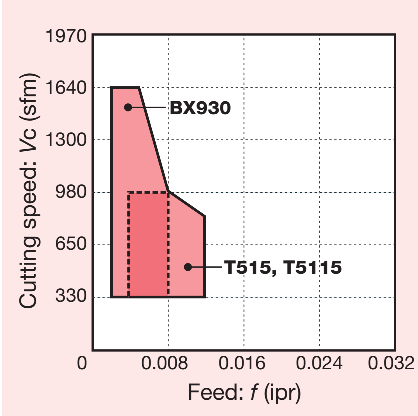
Chipbreaker System for Turning (Positive Type)

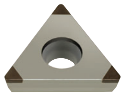
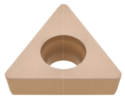


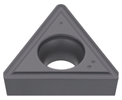
Grey cast iron



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.

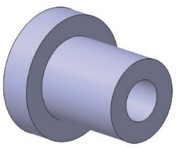
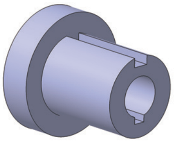
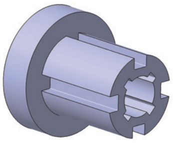
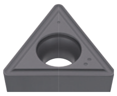
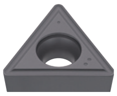
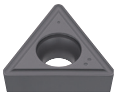
STANDARD CUTTING CONDITIONS

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: POSITIVE TYPE

K Cast Iron

	Continuous	Light interrupted	Heavy interrupted
			
Finishing to Medium cutting [a_p = 0.020 ~ 0.118 in]	Basic  **CM T515** B044, B048, B051 Wear → **T-CBN BX930** B183 -	Basic  **CM T515** B044, B048, B051	Basic  **CM T515** B044, B048, B051

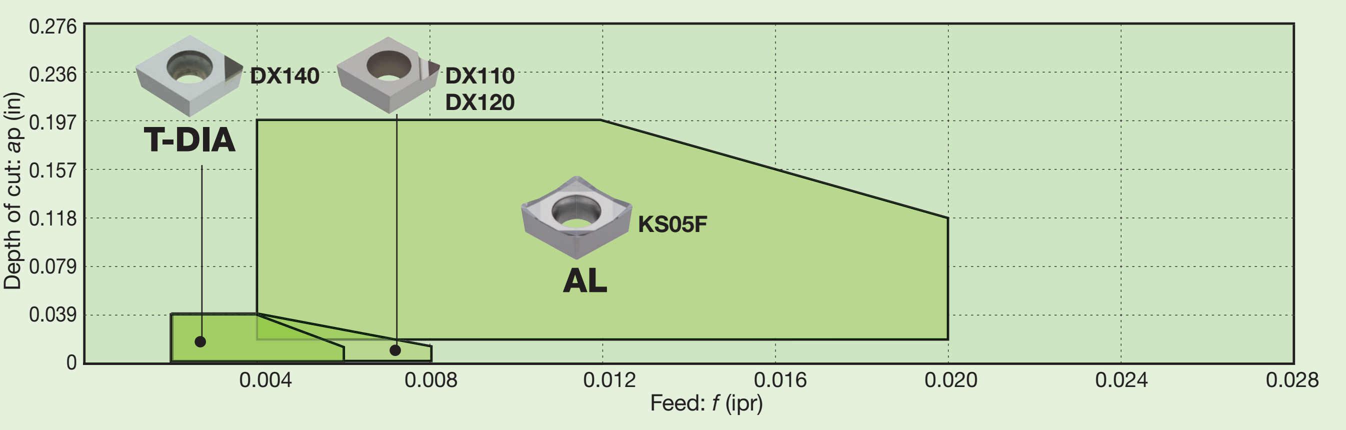
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

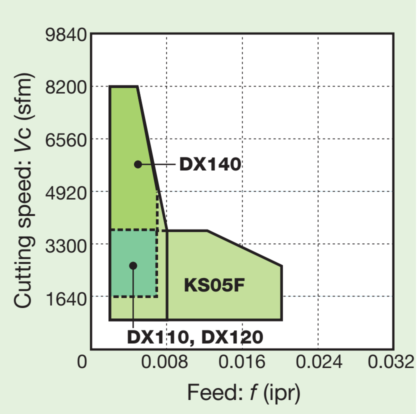
BASIC CHIPBREAKER: POSITIVE TYPE

N Non-ferrous Metal

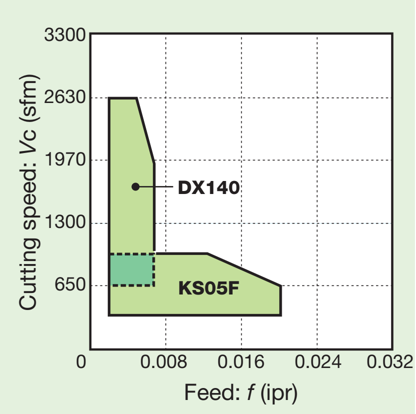
Chipbreaker System for Turning (Positive Type)



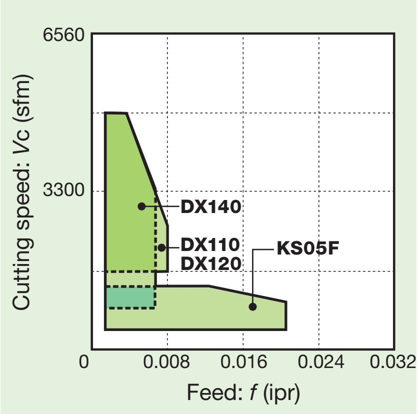
Aluminum alloy (Si < 12%)

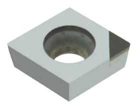
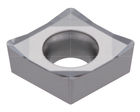


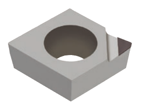
Aluminum alloy (Si ≥ 12%)



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.

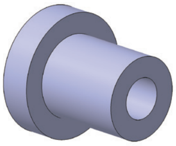
Chipbreaker	Shape	Feature
With chip-breaker (T-DIA)		Wide chipbreaker for smooth chip evacuation. Large rake face reduces cutting force. DIA on the cutting edge delivers high-speed machining and long tool life.

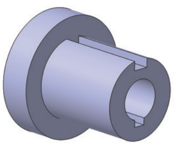
STANDARD CUTTING CONDITIONS

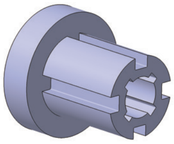
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm) Aluminum alloy (Si < 12%)	Aluminum alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.002 - 0.040	0.002 - 0.006	1640 - 8200	1310 - 2630	1640 - 4920
		Light interrupted	Without	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	-

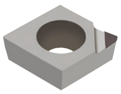
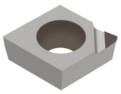
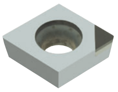
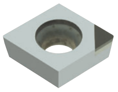
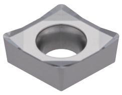
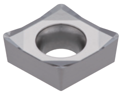
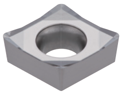
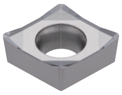
SELECTION SYSTEM: POSITIVE TYPE

N Non-ferrous Metal







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

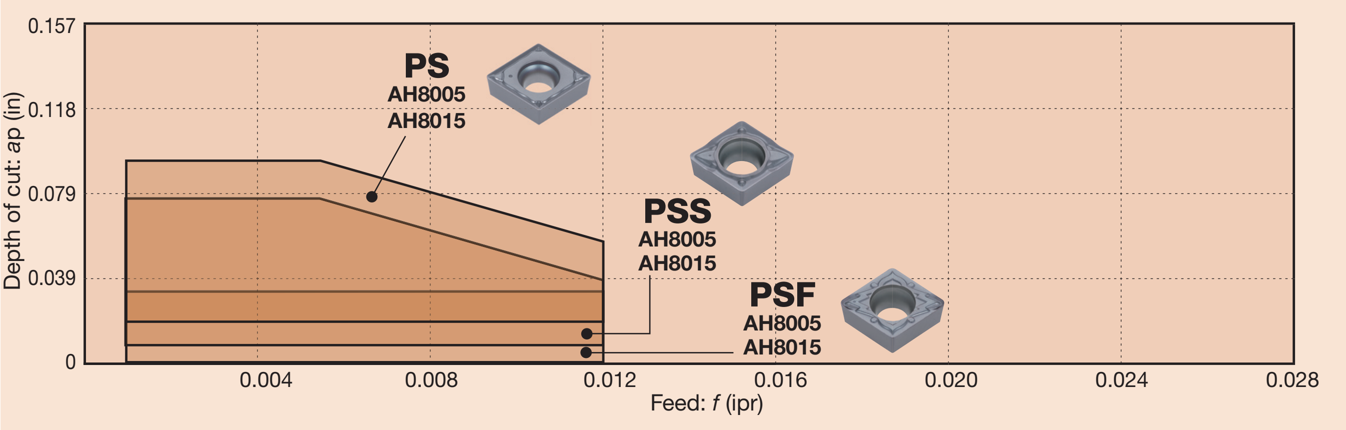
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

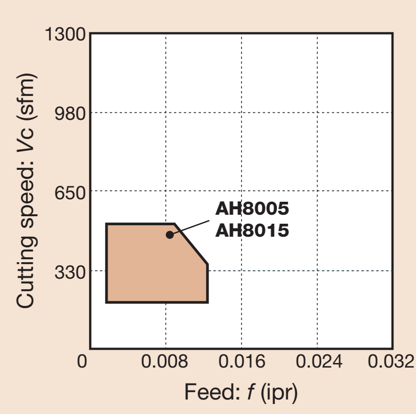
BASIC CHIPBREAKER: POSITIVE TYPE

S Superalloys and titanium

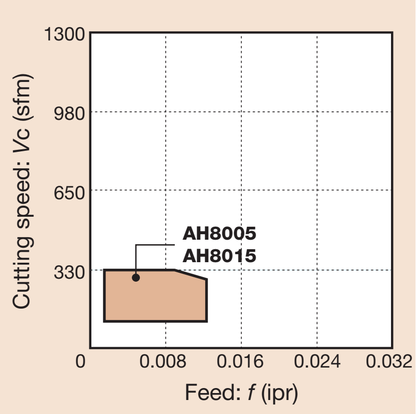
Chipbreaker System for Turning (Positive Type)

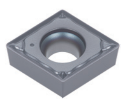


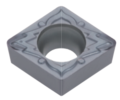
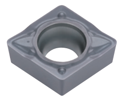
Titanium alloy



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.

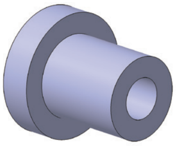
STANDARD CUTTING CONDITIONS

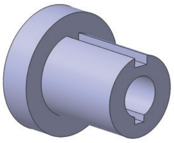
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed: Vc (sfm)	
							Titanium alloy	Ni-base alloy
S	Finishing	Continuous	PSS	AH8015	0.012 - 0.079	0.001 - 0.012	66 - 500	66 - 330
		Light interrupted	PSS	AH8015	0.012 - 0.079	0.001 - 0.012	66 - 500	66 - 330
	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

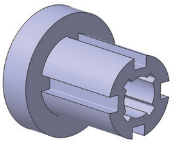
Ni-base alloy: INCONEL718, etc.
Titanium alloy: Ti-6Al-4V, etc.

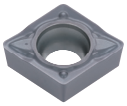
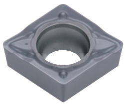
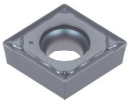
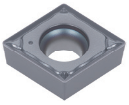
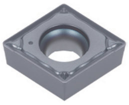
SELECTION SYSTEM: POSITIVE TYPE

S Superalloys and titanium







	Continuous	Light interrupted	Heavy interrupted
Finishing [a_p = 0.012 ~ 0.079 in]	**Basic**  **PSS AH8015** B042, B047, B051 Wear → **PSS AH8005** B044, B047, B051	**Basic**  **PSS AH8015** B042, B047, B051 Wear → **PSS AH8005** B042, B047, B051 Fracture → **PS AH8015** B042, B047, B051	
Finishing to medium cutting [a_p = 0.020 ~ 0.098 in]	**Basic**  **PS AH8015** B042, B047, B051 Wear → **PSS AH8005** B042, B047, B051	**Basic**  **PS AH8015** B042, B047, B051 Fracture → **All-round AH8015** B044, B049	**Basic**  **PS AH8015** B042, B047, B051 Fracture → **All-round AH8015** B044, B049

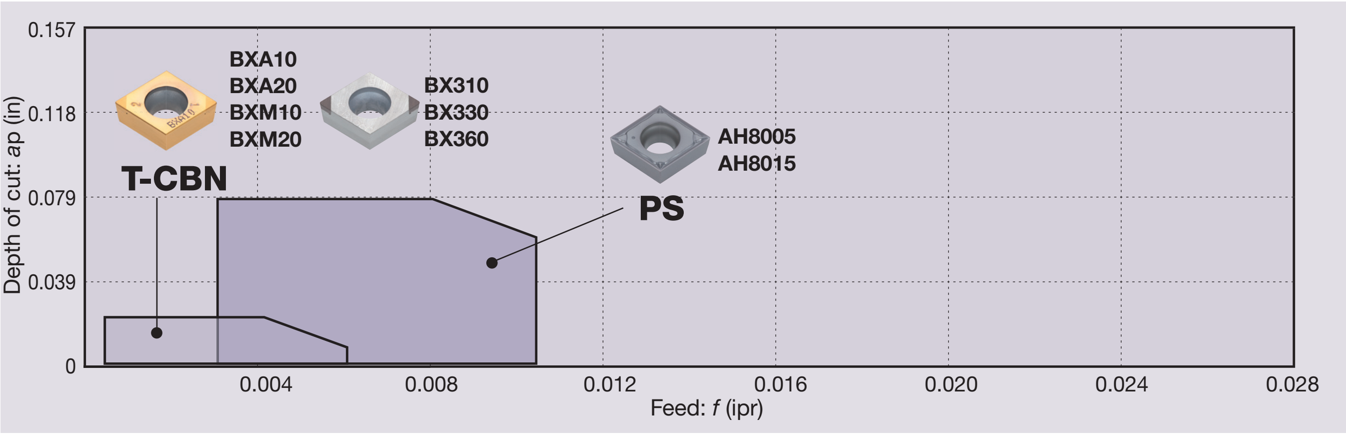
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

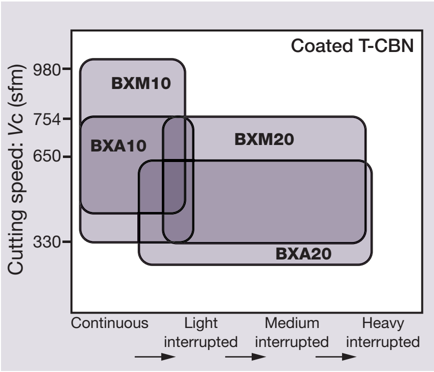
BASIC CHIPBREAKER: POSITIVE TYPE

H Hard Materials

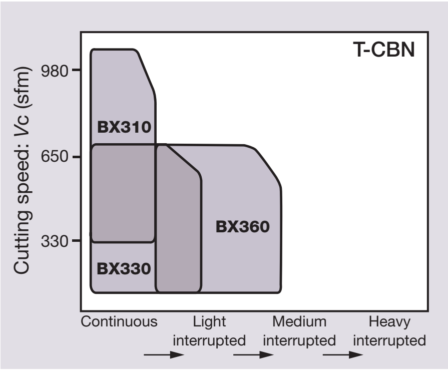
Chipbreaker System for Turning (Positive Type)



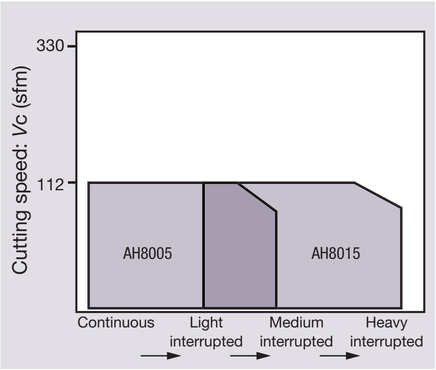
Coated T-CBN

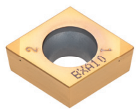


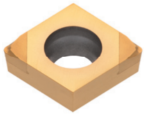
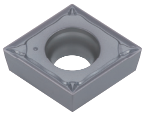
T-CBN



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.

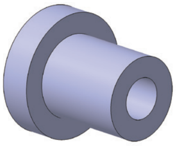
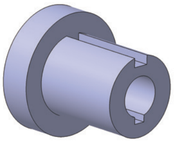
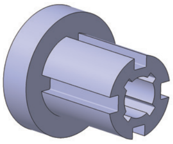
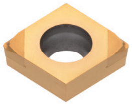
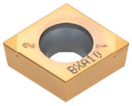
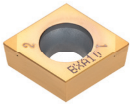
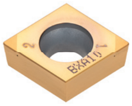
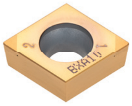
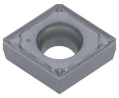
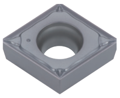
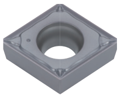
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut ap (in)	Feed f (ipr)	Cutting speed Vc (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	33 - 164

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

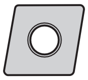
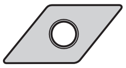
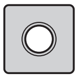
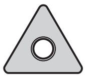
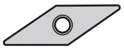
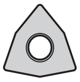
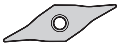
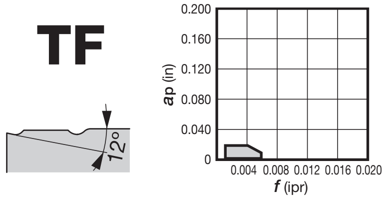
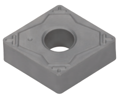
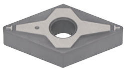
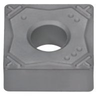
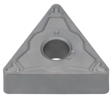
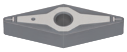
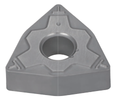
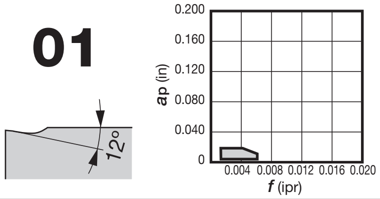
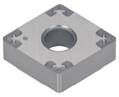
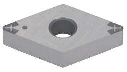
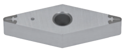
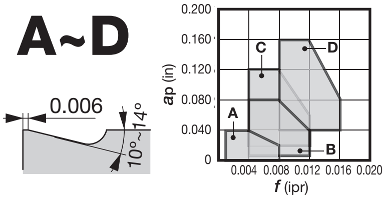
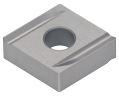
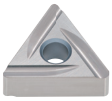
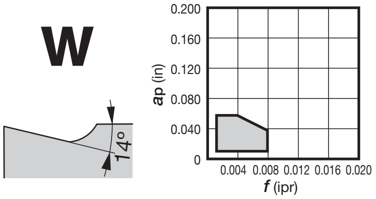
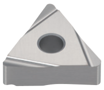
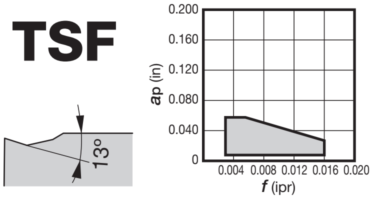
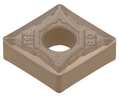
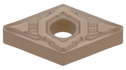
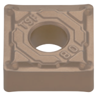
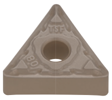
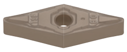
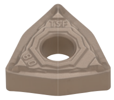
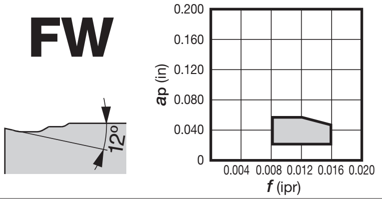
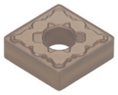
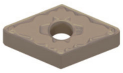
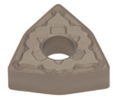
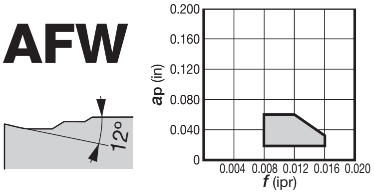
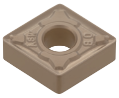
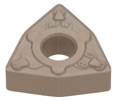
SELECTION SYSTEM: POSITIVE TYPE

H Hard Materials

	Continuous	Light interrupted	Heavy interrupted
			
Precision finishing [a_p = ~ 0.012 in]	Basic  **T-CBN HP BXA10** B173, B176, B182	Basic  **T-CBN BXA10** B173, B176, B182 Fracture **T-CBN BXA20** B172 - B184 B188 - B189 B191 - B192	
Finishing [a_p = ~ 0.020 in]	Basic  **T-CBN BXA10** B173, B176, B182	Basic  **T-CBN BXA10** B173, B176, B182 Fracture **T-CBN BXM20** B182 - B192	Basic  **T-CBN BXA20** B173, B176, B182 Fracture **T-CBN BXA20-H** B172 - B184 B188 - B189 B191 - B192
Medium cutting [a_p = ~ 0.020 in]	Basic  **PS AH8005** B112, B118, B153 Fracture **PS AH8015** B112, B118, B153	Basic  **PS AH8015** B112, B118, B153 Fracture **All-round AH8015** B120	Basic  **PS AH8015** B112, B118, B153 Fracture **All-round AH8015** B120

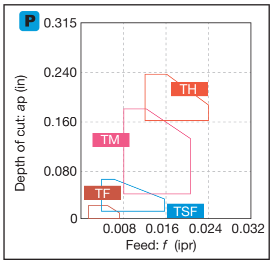
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

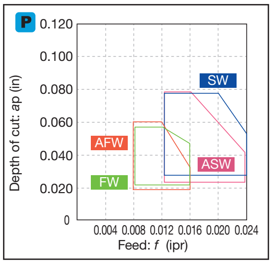
Chipbreaker Overview

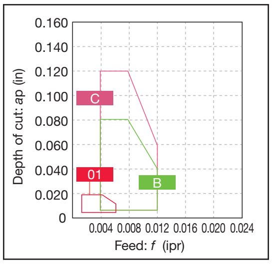
Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Precision finishing	**TF** 	 B056	 B067	 B077	 B086	 B096	 B101	
	01 	 B056	 B067	 B077	 B086	 B096	 B101	
	A~D 	 B056		 B077	 B086			
	W 				 B087			
Finishing	**TSF** 	 B056	 B067	 B077	 B087	 B097	 B102	
Finishing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

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

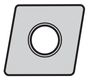
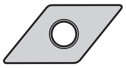
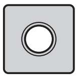
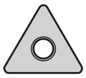
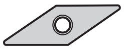
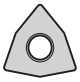
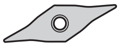
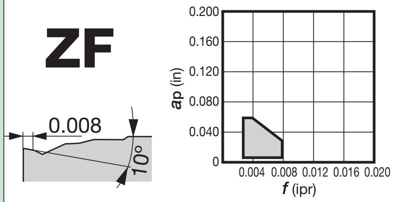
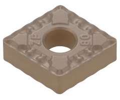
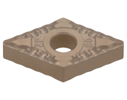
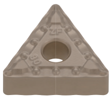
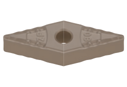
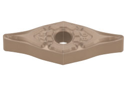
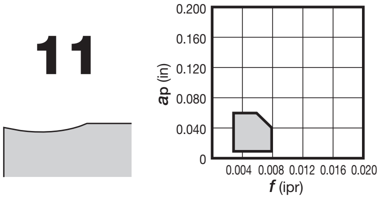
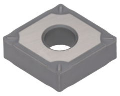
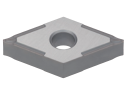
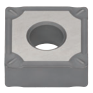
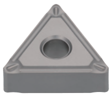
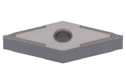
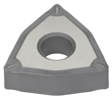
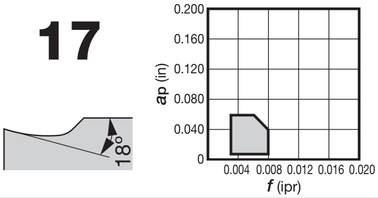
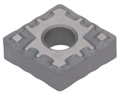
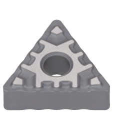
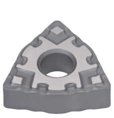
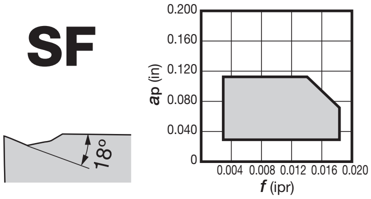
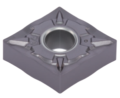
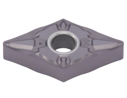
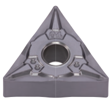
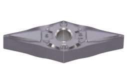
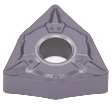
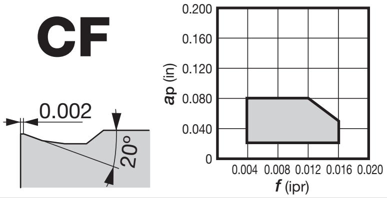
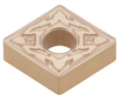
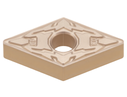
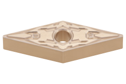
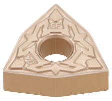
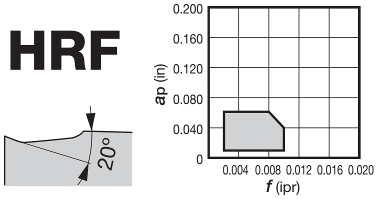
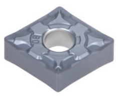
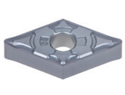
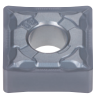
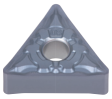
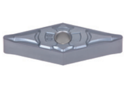
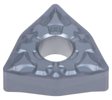
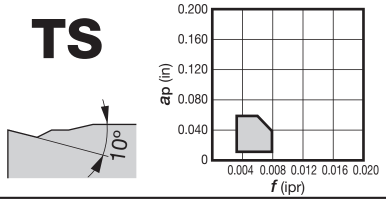
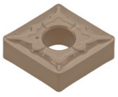
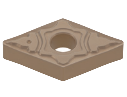
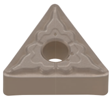
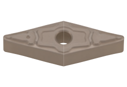
Chip control range





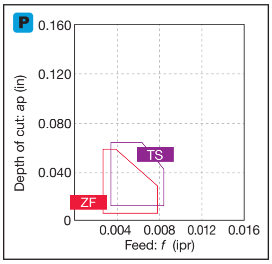


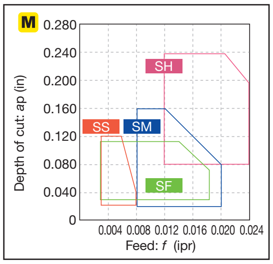
Chipbreaker Overview

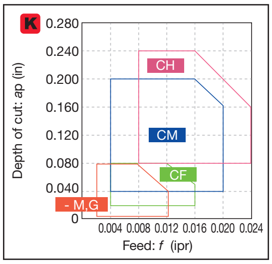
Application	Negative type with hole		C	D	S	T	V	W	Y
									
			80°	55°	90°	60°	35°	80°	25°
Finishing	**ZF**		 B057	 B068		 B088	 B097	 B102	 B109
	11		 B057	 B068	 B078	 B088	 B097	 B102	
Finishing (for mild steel)	**17**		 B057	 B068	 B078	 B088		 B102	
Finishing	**SF**		 B057	 B068	 B078	 B088	 B097	 B103	
	CF		 B057	 B068	 B078	 B088	 B098	 B103	
	HRF		 B058	 B068	 B078	 B088	 B098	 B103	
	TS		 B058	 B069	 B078	 B089	 B098	 B103	

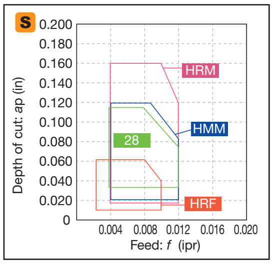
Please see the page B*** for the product details.

Chip control range



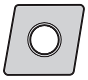
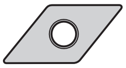
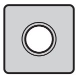
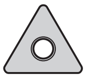
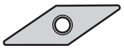
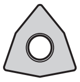
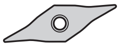
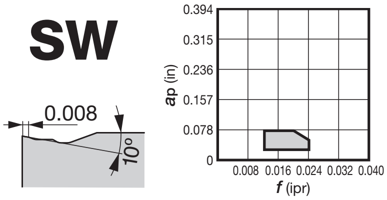
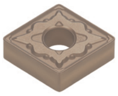
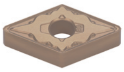
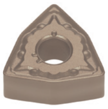
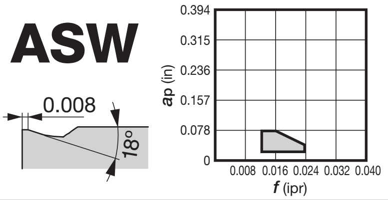
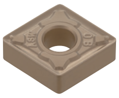
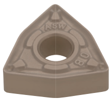
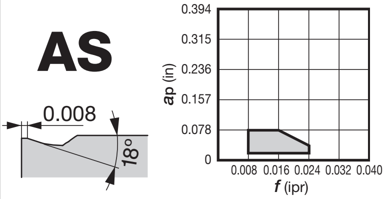
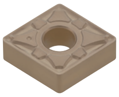
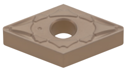
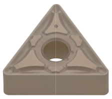
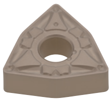
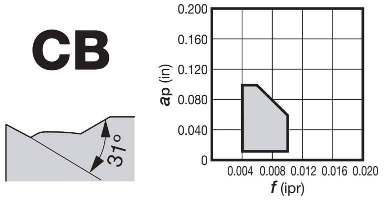
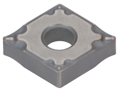
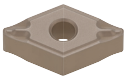
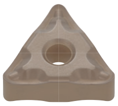
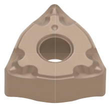
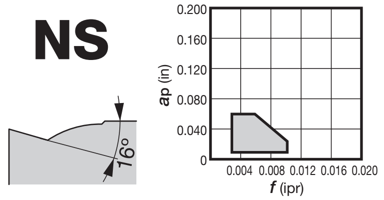
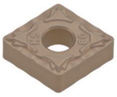
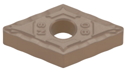
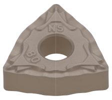
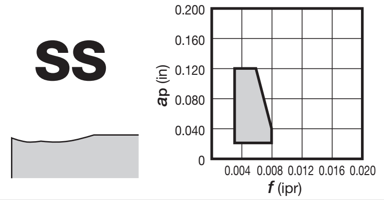
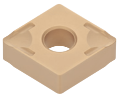
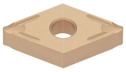
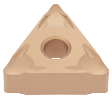
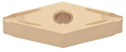
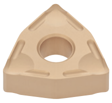
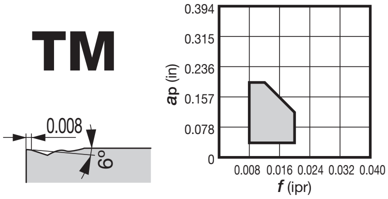
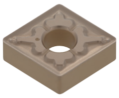
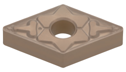
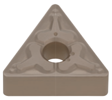
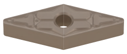
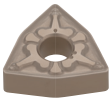






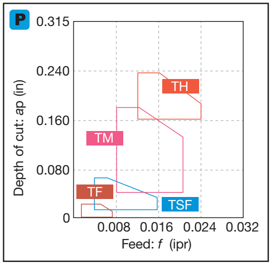
*-M,G: Without chipbreaker

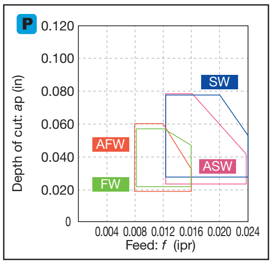
Chipbreaker Overview

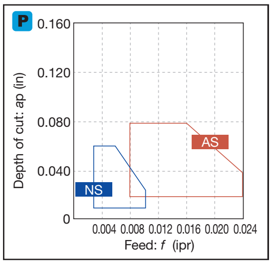
Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting (wiper)	**SW** 	 B058	 B069		 B089		 B104	
	ASW 	 B058					 B104	
High feed, small depth of cut	**AS** 	 B058	 B069	 B078	 B089		 B104	
Boring (double side)	**CB** 	 B058	 B069		 B089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

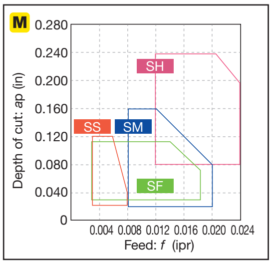
Please see the page B*** for the product details.

Chip control range

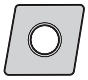
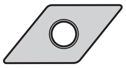
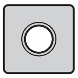
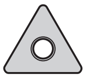
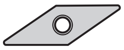
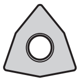
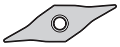








Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
								
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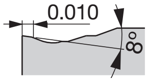
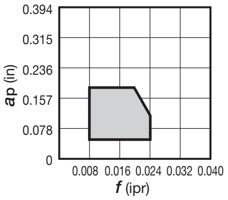
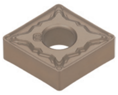
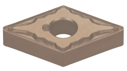
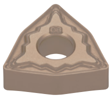
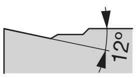
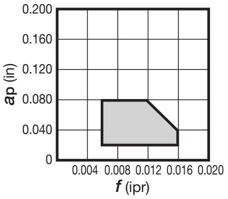
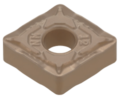
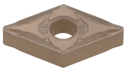
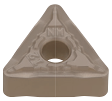
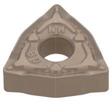
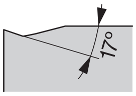
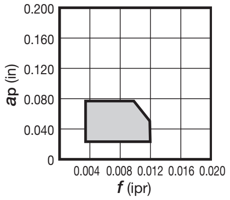
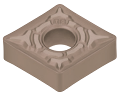
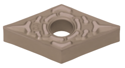
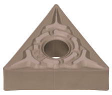
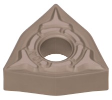
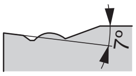
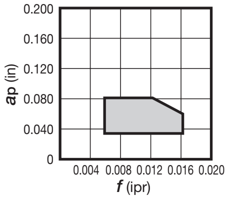
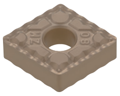
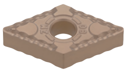
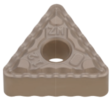
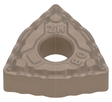
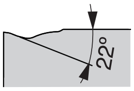
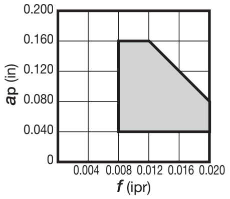
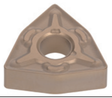
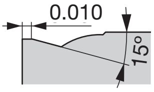
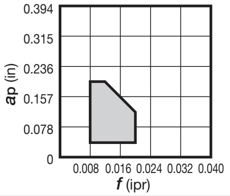
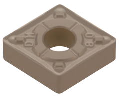
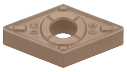
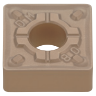
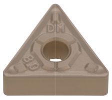
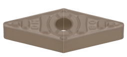
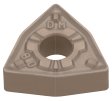
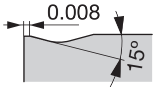
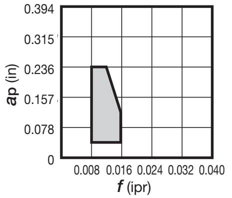
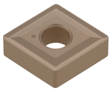
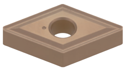
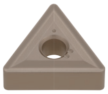
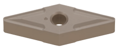
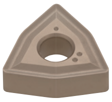
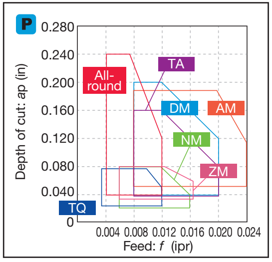
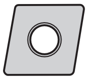
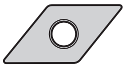
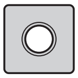
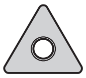
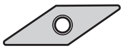
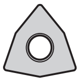
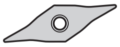
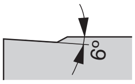
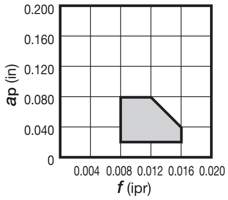
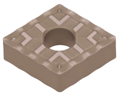
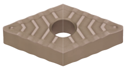
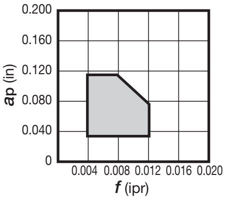
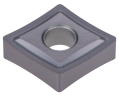
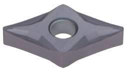
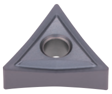
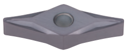
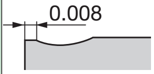
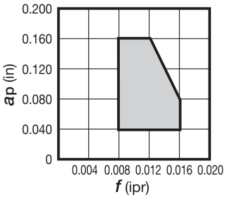
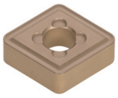
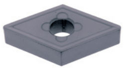
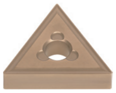
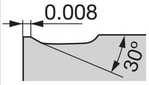
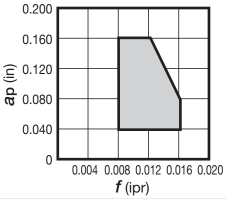
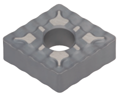
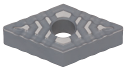
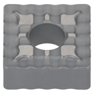
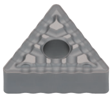
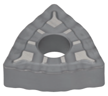
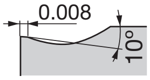
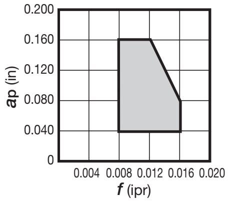
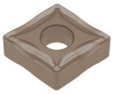
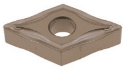
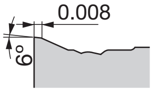
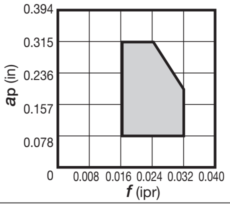
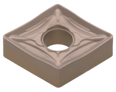
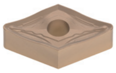
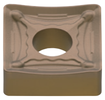
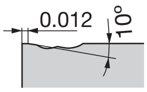
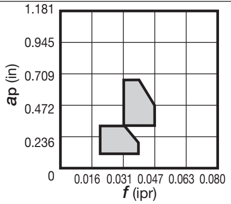
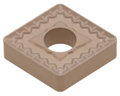
Finishing to medium cutting	**AM**  	 B059	 B070		 B090		 B105	
	NM  	 B059	 B070		 B090		 B105	
	TQ  	 B060	 B071		 B090	 B098	 B105	
	ZM  	 B060	 B071	 B079	 B091	 B099	 B106	 B109
Medium cutting	**TA**  	 B060		 B079	 B090		 B105	
	DM  	 B060	 B071	 B080	 B091	 B099	 B106	
	All-round  	 B060	 B071	 B080	 B091	 B099	 B106	

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

Chip control range

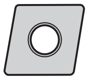
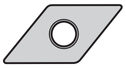
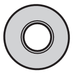
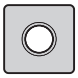
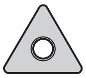
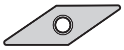
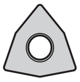
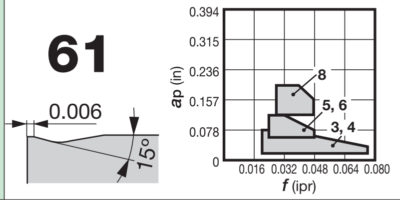
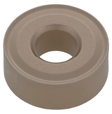
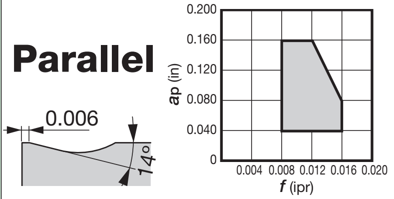
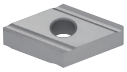
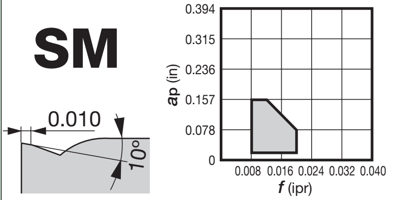
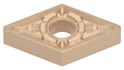
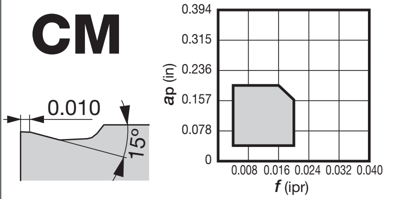
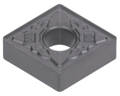
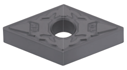
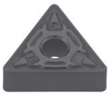
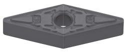
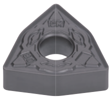
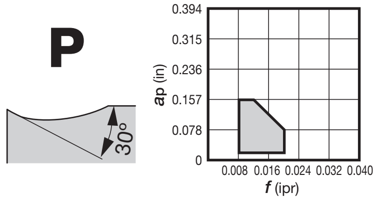
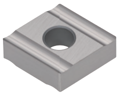
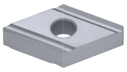
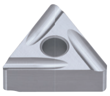
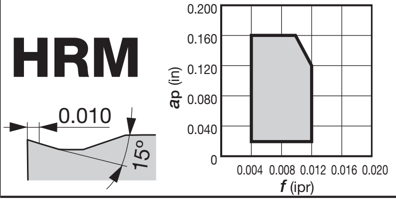
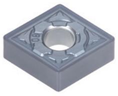
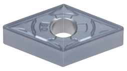
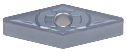
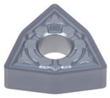


Chipbreaker Overview

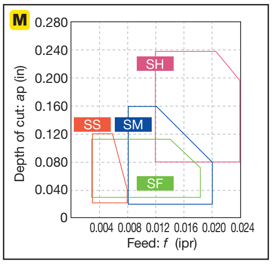
Application	Negative type with hole		C	D	S	T	V	W	Y
			 80°	 55°	 90°	 60°	 35°	 80°	 25°
Finishing to medium cutting	**27** 		 B061	 B071	 B080	 B091		 B106	
Medium cutting	**28** 		 B061	 B072		 B092	 B099		
	33 		 B061	 B072	 B080	 B092	 B099	 B106	
	37 		 B061	 B073	 B080	 B092		 B106	
	38 		 B061	 B072		 B092			
	57 		 B063	 B074	 B083	 B094			
	65 		 B064		 B083				

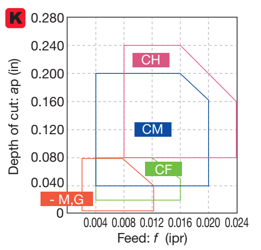
Please see the page B*** for the product details.

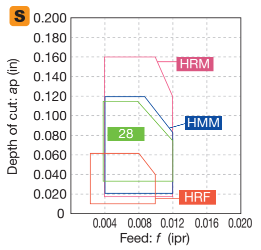
Chipbreaker Overview

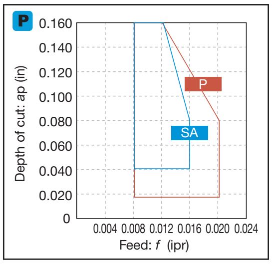
Application	Negative type with hole	C	D	R	S	T	V	W
		 80°	 55°		 90°	 60°	 35°	 80°
Heavy cutting	**61** 			 B076				
Medium cutting	**Parallel** 		 B072					
	SM 	 B062	 B072		 B081	 B092	 B100	 B107
	CM 	 B062	 B072		 B081	 B092	 B100	 B107
	P 	 B062	 B073		 B081	 B093	 B096	
Finishing to medium cutting	**HRM** 	 B062	 B073		 B082	 B093	 B100	 B107

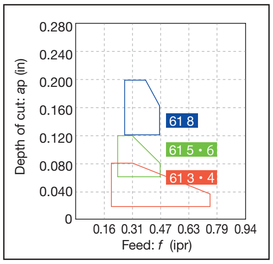
Chip control range







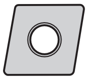
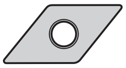
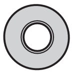
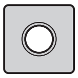
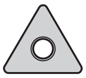
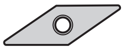
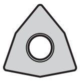
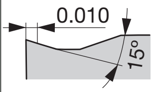
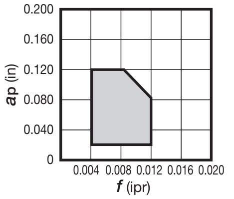
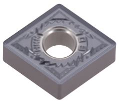
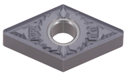
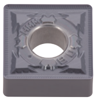
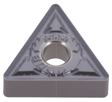
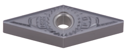
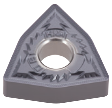
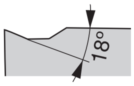
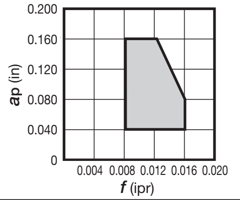
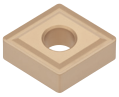
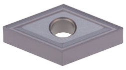
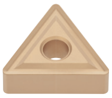
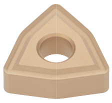
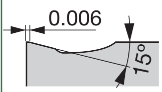
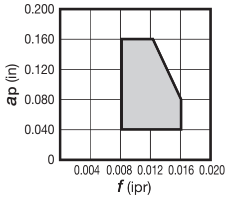
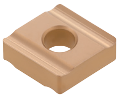
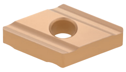
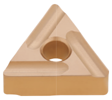
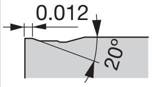
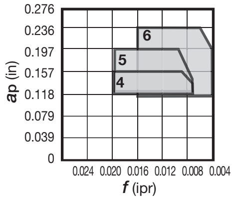
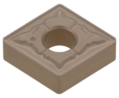
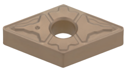
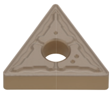
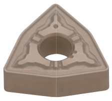
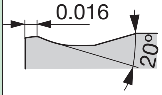
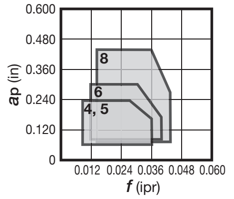
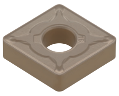
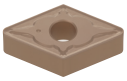
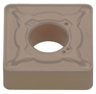
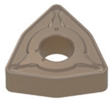
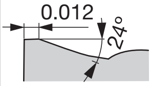
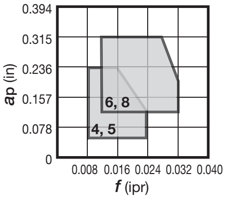
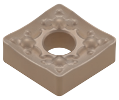
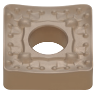




*-M,G: Without chipbreaker

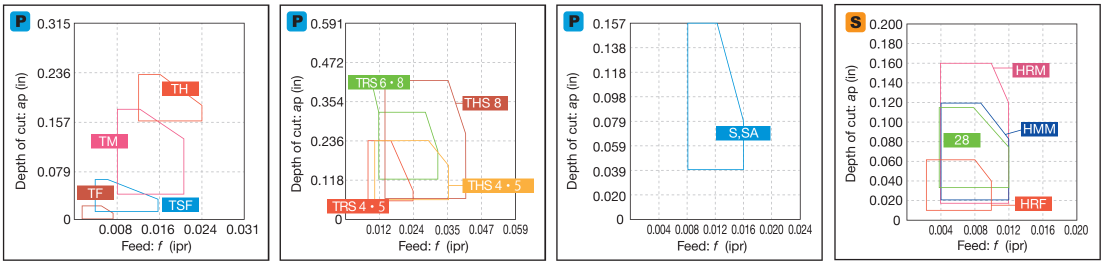
Please see the page B*** for the product details.

Chipbreaker Overview

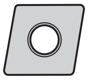
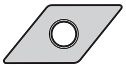
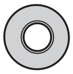
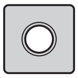
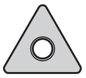
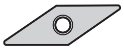
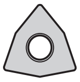
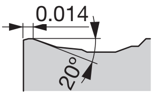
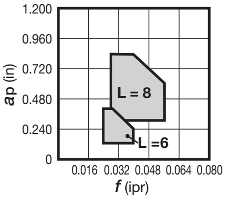
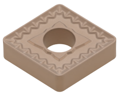
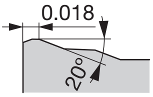
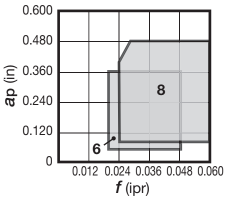
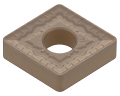
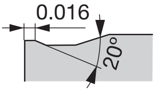
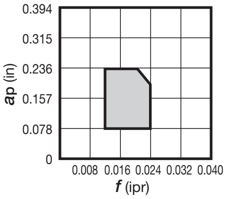
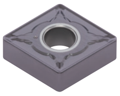
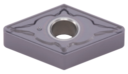
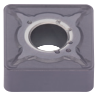
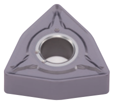
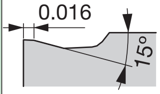
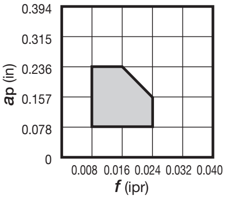
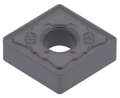
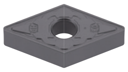
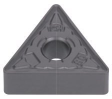
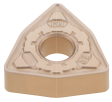
Application	Negative type with hole	C	D	R	S	T	V	W
								
		80°	55°		90°	60°	35°	80°
Medium cutting	**HMM**   	 B062	 B073		 B082	 B093	 B100	 B107
	SA   	 B062	 B073		 B082	 B093		 B108
	S   	 B063	 B073		 B082	 B094		
Medium to heavy cutting	**TH**   	 B063	 B074		 B082	 B094		 B108
	THS   	 B063	 B074		 B082	 B094		 B108
Medium to heavy cutting (single side)	**TRS**   	 B064			 B083			

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

Chip control range

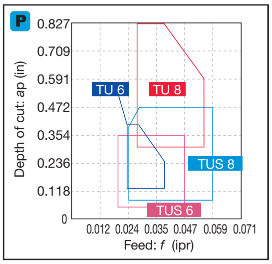


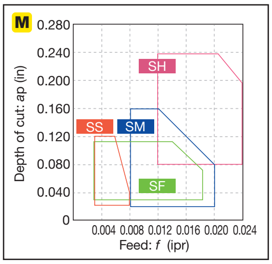
Chipbreaker Overview

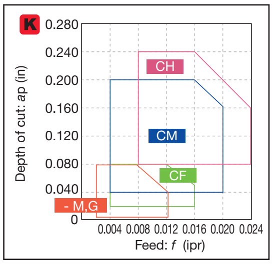
Application	Negative type with hole		C	D	R	S	T	V	W
			 80°	 55°		 90°	 60°	 35°	 80°
Heavy cutting (single side)	**TU**  	 	 B064			 B083			
	TUS  	 	 B064			 B083			
Medium to heavy cutting	**SH**  	 	 B064	 B074		 B084			 B108
	CH  	 	 B064	 B074		 B084	 B094		 B108

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

Chip control range







*-M,G: Without chipbreaker

Chipbreaker Overview

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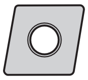
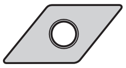
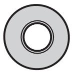
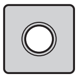
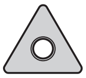
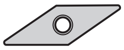
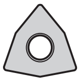
<tr><th rowspan="3">Application</th><th colspan="2" rowspan="3">Negative type with hole</th><th>C</th><th>D</th><th>R</th><th>S</th><th>T</th><th>V</th><th>W</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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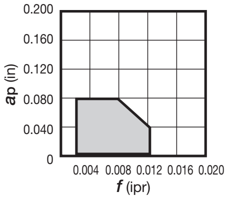
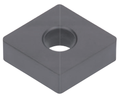
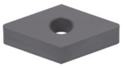
M,G-class
</td><td>
</td><td>
B065</td><td>
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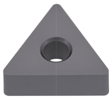
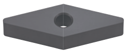
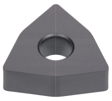
B084</td><td>
B095</td><td>
B100</td><td>
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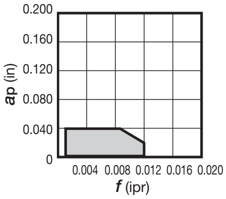
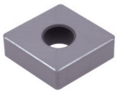
M-class
</td><td>
</td><td>
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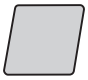
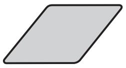
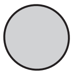
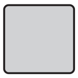
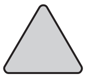
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>80°</td><td>55°</td><td>55°</td><td>90°</td><td></td><td>90°</td><td>60°</td></tr>
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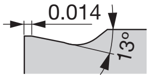
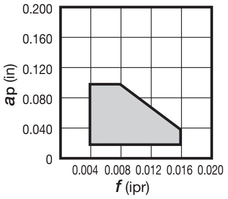

</td><td>
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B110</td><td></td><td></td><td></td><td></td></tr>
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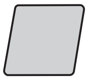
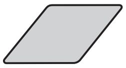
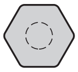
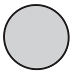
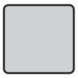
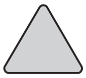
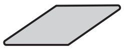
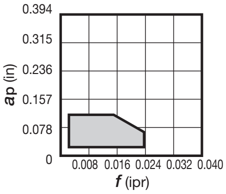
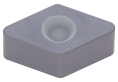
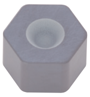
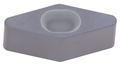
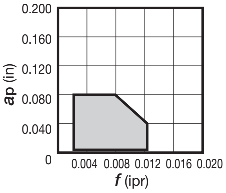
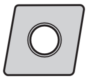
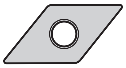
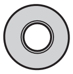
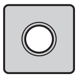
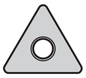
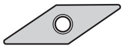
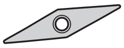
Please see the page B*** for the product details.

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.

Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
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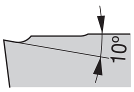
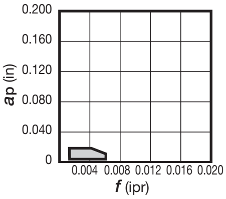
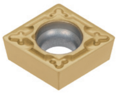
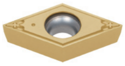
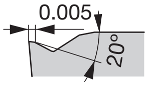
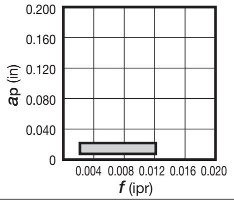
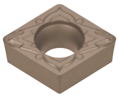
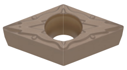
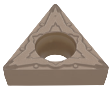
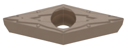
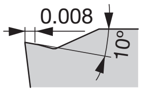
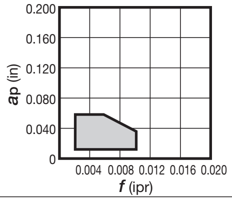
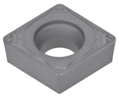
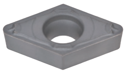
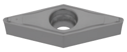
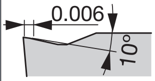
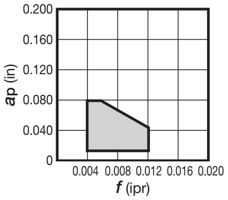
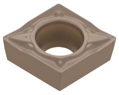
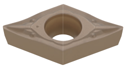
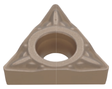
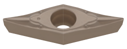
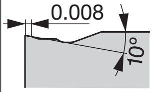
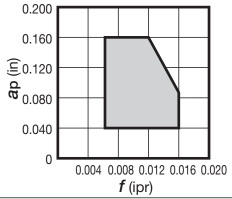
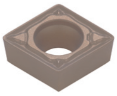
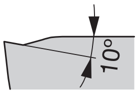
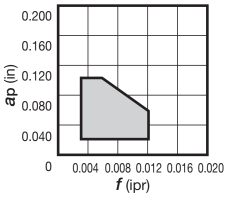
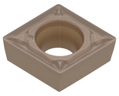
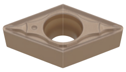
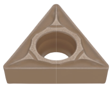
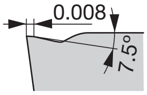
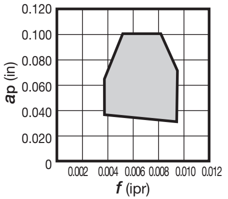
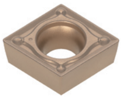
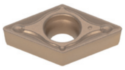
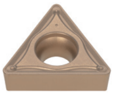
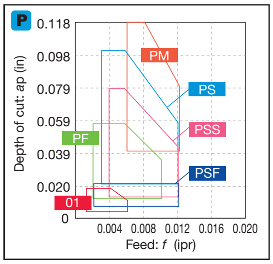
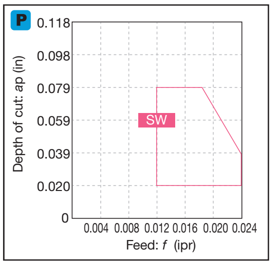
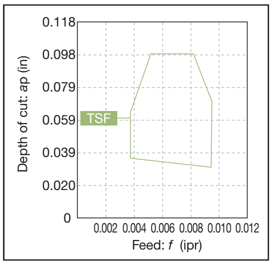
Precision finishing	**01**  	 B111	 B121			 B139		
Finishing	**PSF**  	 B111	 B121			 B139	 B155	
	PF  	 B111	 B121				 B155	
Finishing to light cutting	**PSS**  	 B112	 B122			 B139	 B155	
Medium cutting (wiper)	**SW**  	 B112						
Finishing to medium cutting	**PS**  	 B112	 B122		 B135	 B140	 B155	
	TSF  	 B112	 B122			 B140	 B155	

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

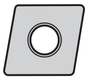
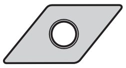
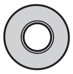
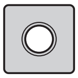
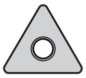
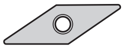
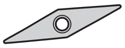
Chip control range







Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
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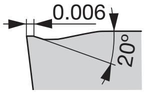
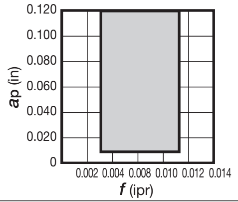
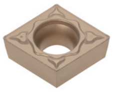
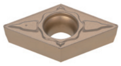
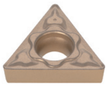
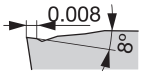
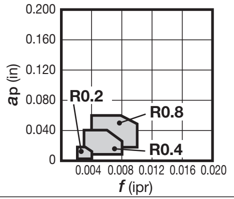
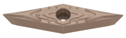
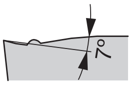
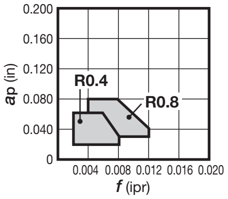
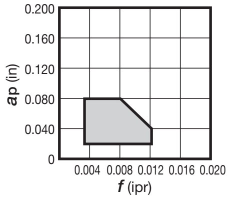
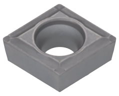
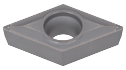
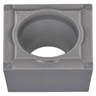
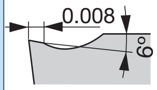
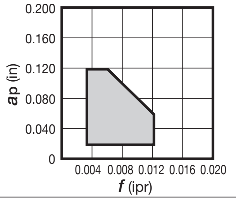
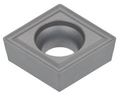
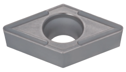
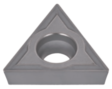
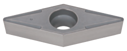
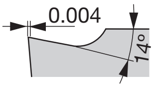
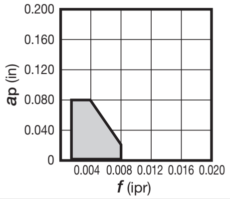
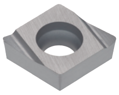
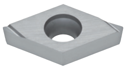
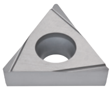
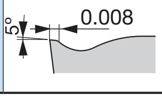
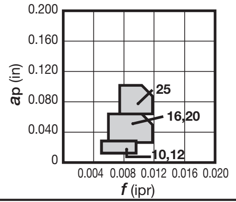
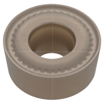
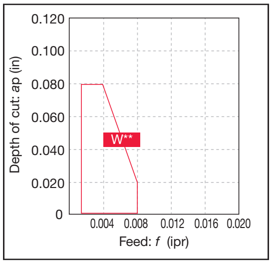
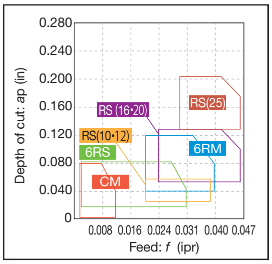
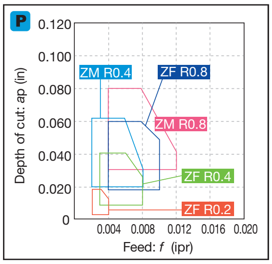
Finishing to medium cutting	**TM**  	 B112	 B122			 B140	 B155	
	ZF  							 B163
	ZM  							 B163
	23  	 B113	 B122		 B135	 B140		
Medium cutting	**24**  	 B113	 B122		 B135	 B140	 B156	
Finishing	**W****  	 B113, B114	 B123			 B140		
Finishing to medium cutting	**RS**  			 B131				

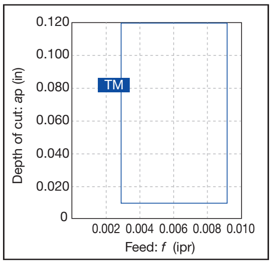
Please see the page B*** for the product details.

Chip control range

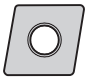
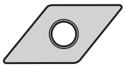
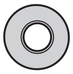
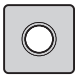
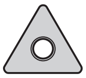
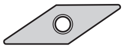
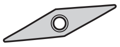
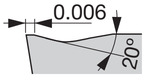
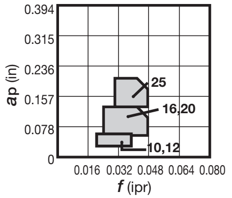
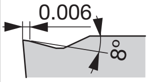
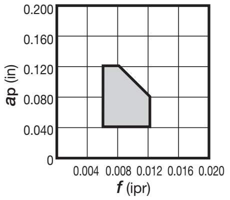
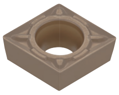
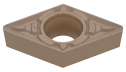
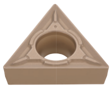
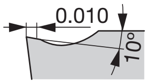
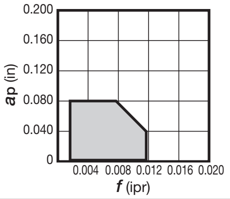
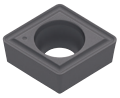
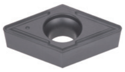
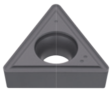
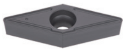
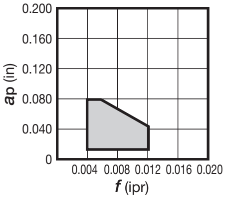
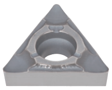
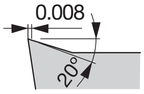
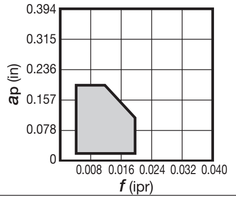
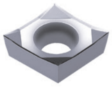
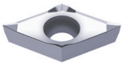
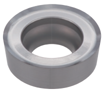
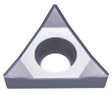
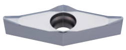
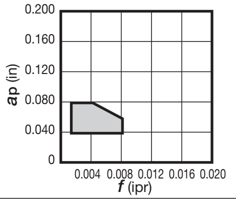
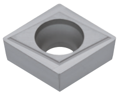
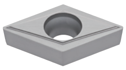
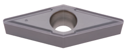
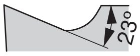
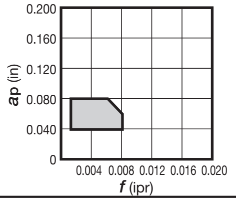
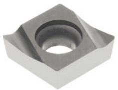
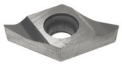






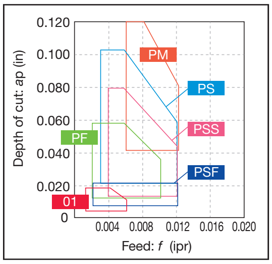


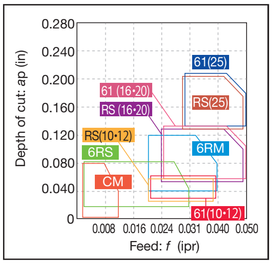
Chipbreaker Overview

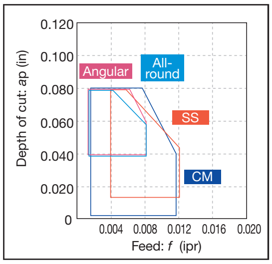
Application	Positive 7° with hole	C	D	R	S	T	V	Y
		 80°	 55°		 90°	 60°	 35°	 25°
Heavy cutting	**61**  			 B132				
Medium cutting	**PM**  	 B114	 B123		 B135	 B141		
Finishing to medium cutting	**CM**  	 B114	 B123	 B131	 B135	 B141	 B156	
	SS  					 B141		
	AL  	 B115	 B124	 B131		 B141	 B156	
	All-round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

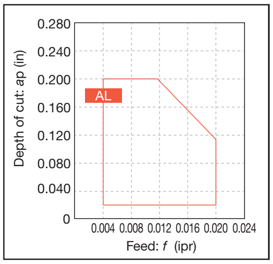
Please see the page B*** for the product details.

Chip control range

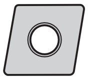
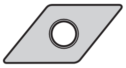
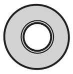
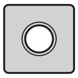
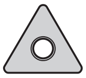
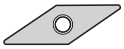
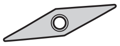
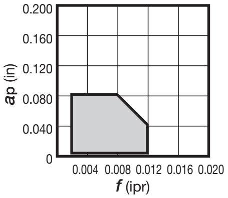
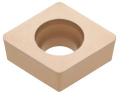
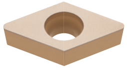
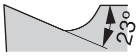
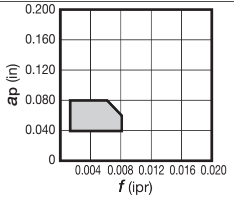
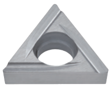
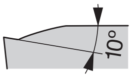
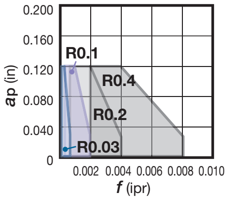
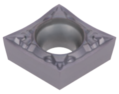
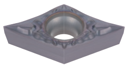
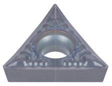
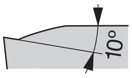
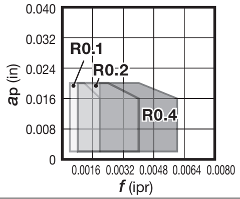
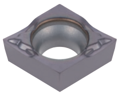
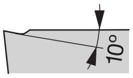
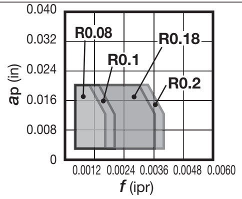
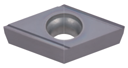
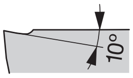
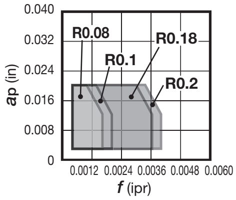
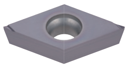






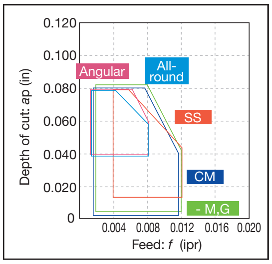


Chipbreaker Overview

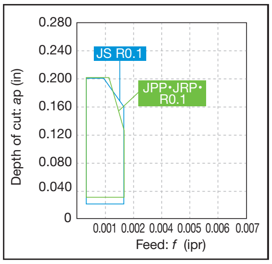
Application	Positive 7° with hole		C	D	R	S	T	V	Y
									
			80°	55°		90°	60°	35°	25°
Finishing to medium cutting	**—** **M,G-class** 		 B115	 B124					
Finishing	**—** (with hand) 						 B142		
For external turning on Swiss lathes (including sharp edge type)	**JS** 		 B116	 B125			 B142		
	JS 		 B116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

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

Chip control range

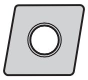
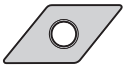
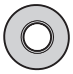
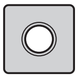
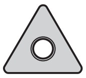
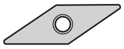
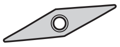
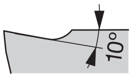
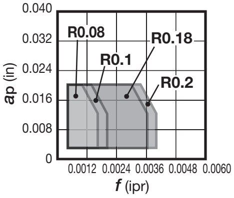
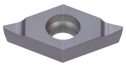


*-M,G: Without chipbreaker



*Chip control range with typical R0.1

Chipbreaker Overview

<table>
<tr><th rowspan="3">Application</th><th rowspan="3" colspan="2">Positive 7°
with hole</th><th>C</th><th>D</th><th>R</th><th>S</th><th>T</th><th>V</th><th>Y</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>80°</td><td>55°</td><td></td><td>90°</td><td>60°</td><td>35°</td><td>25°</td></tr>
<tr><td rowspan="2">For external turning on Swiss lathes
(sharp edge)</td><td>JSP

</td><td>
</td><td></td><td>
B126</td><td></td><td></td><td></td><td></td><td></td></tr>
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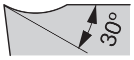
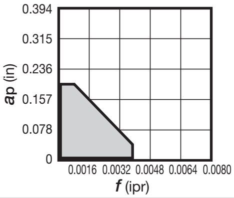
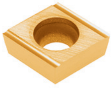
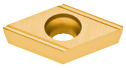

</td><td>
</td><td>
B117</td><td>
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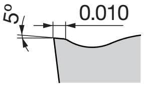
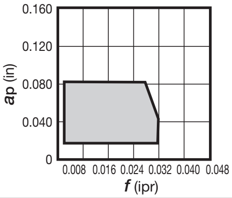
B142, B143</td><td></td><td></td></tr>
<tr><td>Low cutting force</td><td>6RS

</td><td>
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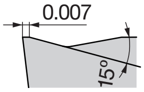
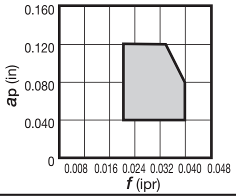
<tr><td>Medium cutting</td><td>6RM

</td><td>
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B131</td><td></td><td></td><td></td><td></td></tr>
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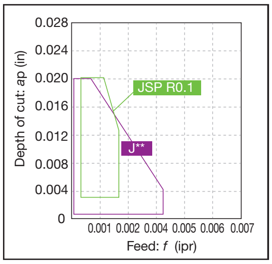
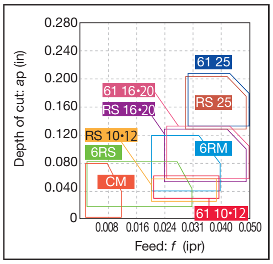
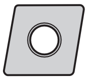
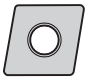
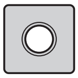
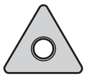
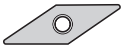
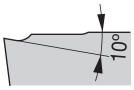
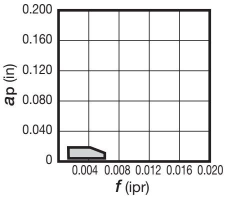
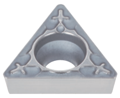
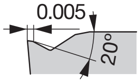
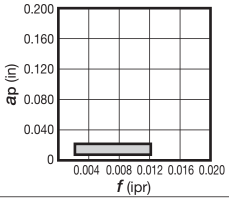
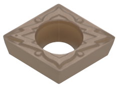
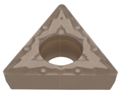
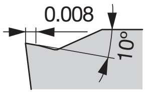
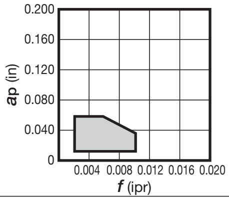
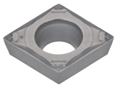
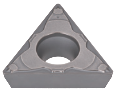
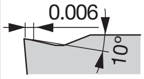
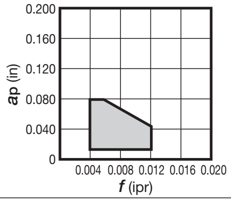
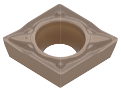
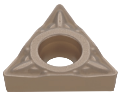
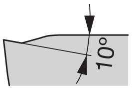
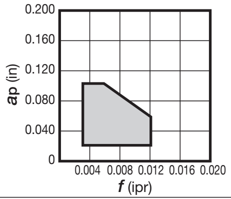
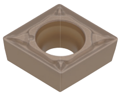
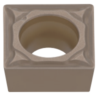
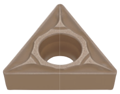
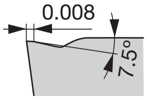
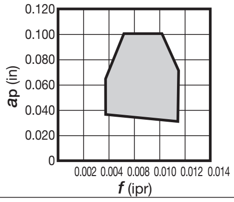
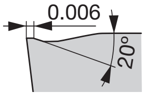
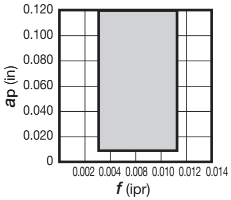
Please see the page B*** for the product details.

Chip control range



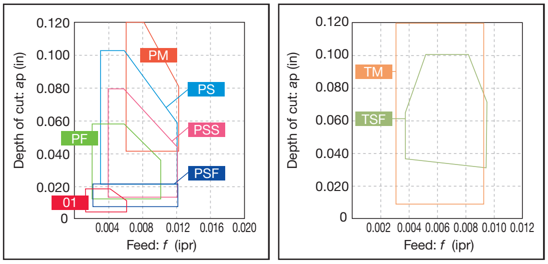


Chipbreaker Overview

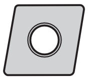
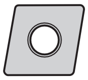
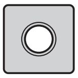
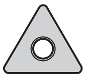
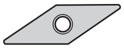
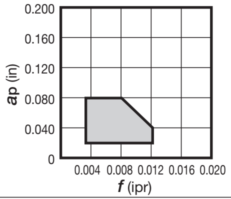
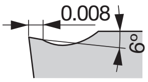
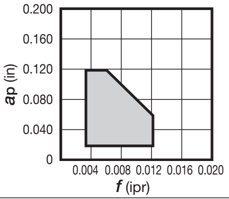
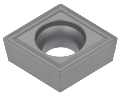
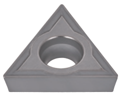
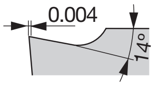
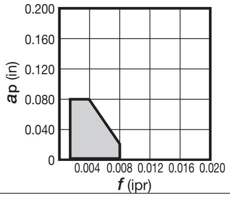
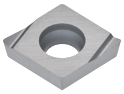
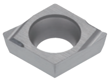
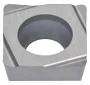
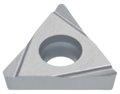
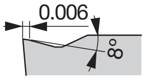
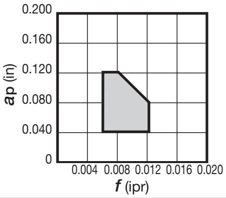
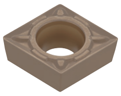
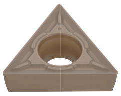
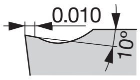
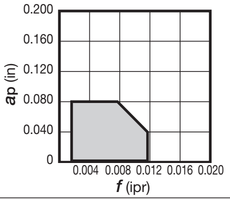
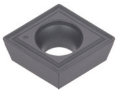
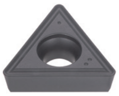
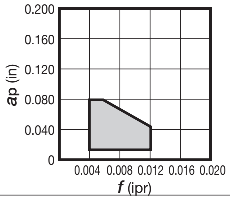
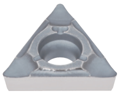
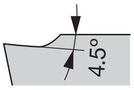
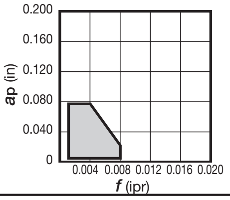
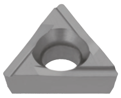
Application	Positive 11° with hole			C	E	S	T	V
				 80°	 75°	 90°	 60°	 35°
Precision finishing	**01**						 B144	
Finishing	**PSF**			 B118			 B144	
	PF			 B118			 B144	
Finishing to light cutting	**PSS**			 B118			 B145	
Finishing to medium cutting	**PS**			 B118		 B136	 B145	
	TSF			 B118			 B145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

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

Chip control range

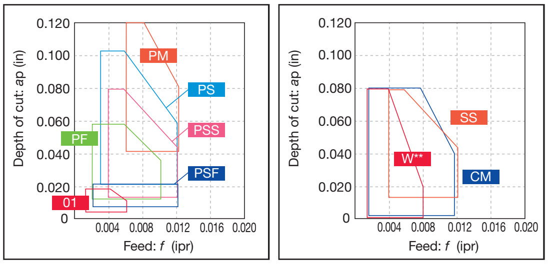


Chipbreaker Overview

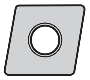
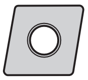
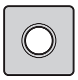
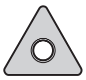
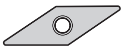
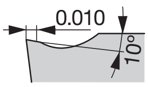
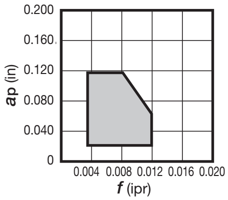
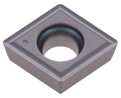
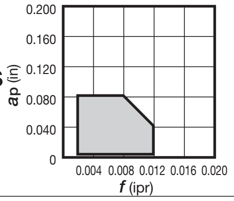
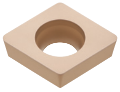
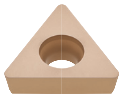
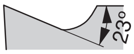
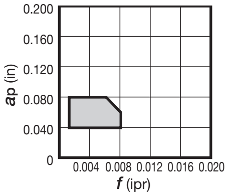
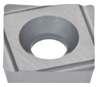
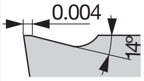
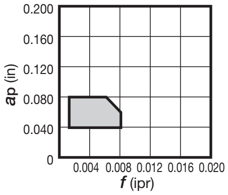
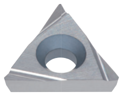
Application	Positive 11° with hole	C	E	S	T	V
		 80°	 75°	 90°	 60°	 35°
Finishing to medium cutting	**23**   			 B136	 B146	
Medium cutting	**24**   	 B119		 B136	 B146	
Finishing	**W****   	 B119	 B129	 B136	 B146, B147	
Medium cutting	**PM**   	 B120			 B148	
Finishing to medium cutting	**CM**   	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

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

Chip control range

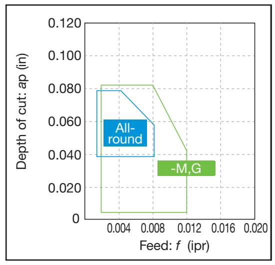


Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
						
		80°	75°	90°	60°	35°
Medium cutting	**All-round**  	 **B120**				
Finishing to medium cutting	**—** **M,G-class**  	 **B120**		 **B137**	 **B149, B150**	
Finishing to medium cutting	**—** (with hand)  			 (Tungaloy standard hole specification) ISO non-compliant **B137**		
	— (with hand)  				 (Tungaloy standard hole specification) ISO non-compliant **B150**	

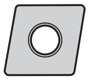
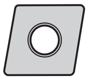
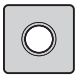
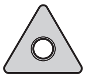
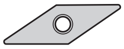
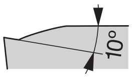
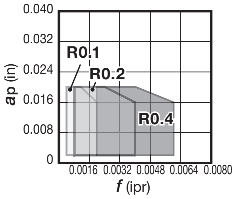
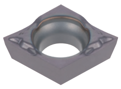
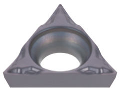
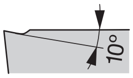
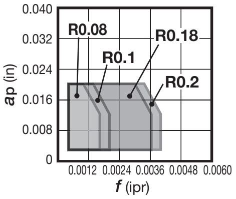
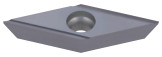
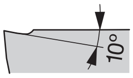
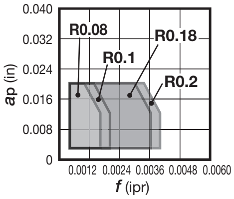
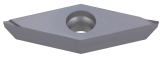
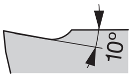
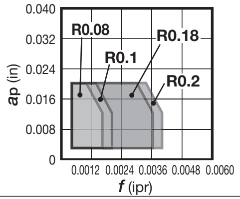
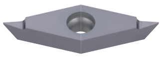
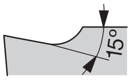
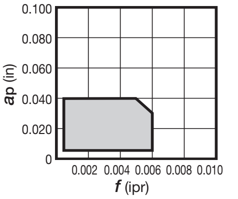
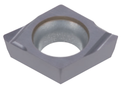
Please see the page B*** for the product details.

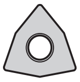
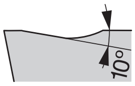
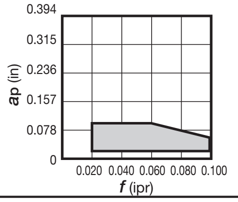
Chip control range

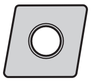
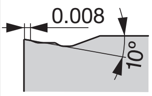
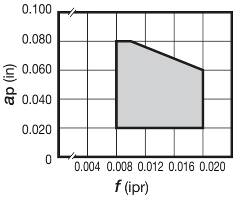
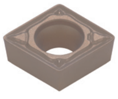


*-M,G: Without chipbreaker

Chipbreaker Overview

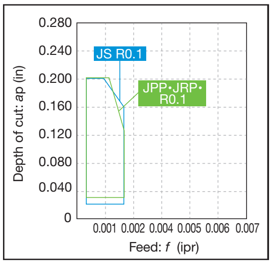
Application	Positive 11° with hole	C	E	S	T	V
		 80°	 75°	 90°	 60°	 35°
For internal turning on Swiss lathes	**JS**  		 B130		 B150	
For external turning on Swiss lathes (sharp edge)	**JPP**  					 B157
	JRP  					 B157
	JSP  					 B158
Finishing	**J08**  		 B130			

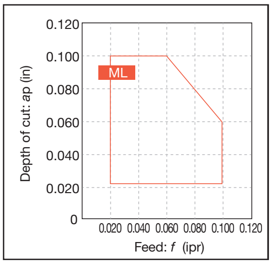
Application	Positive 11° with hole	W
		 80°
Heavy cutting	**ML**  	 B159

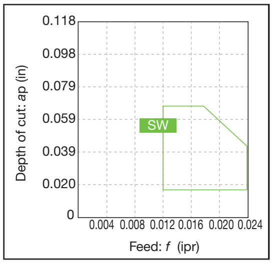
Application	Positive 7° with hole	C
		 80°
Medium cutting (wiper)	**SW**  	 B112

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

Chip control range

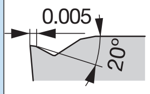
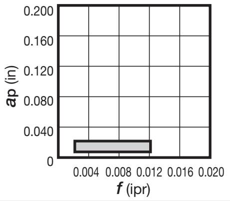
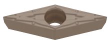
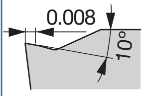
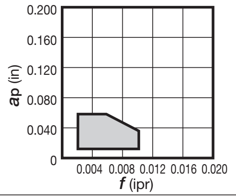
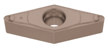
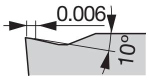
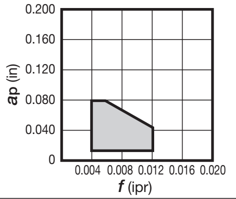
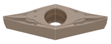
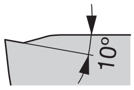
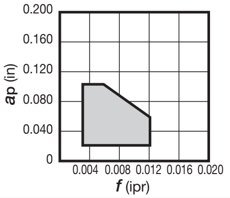
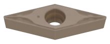
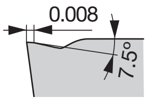
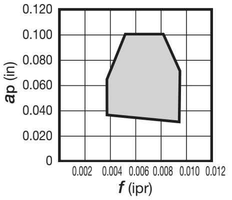
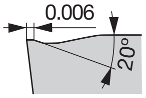
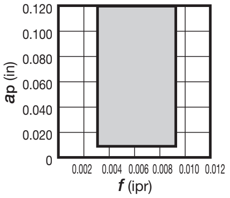
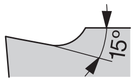
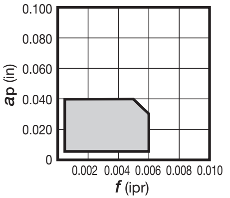
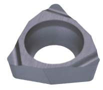


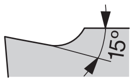
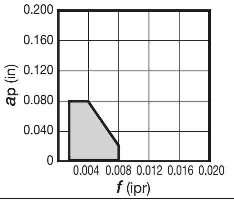
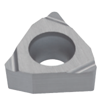
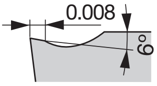
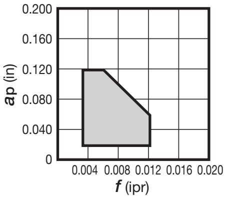
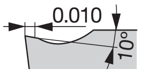
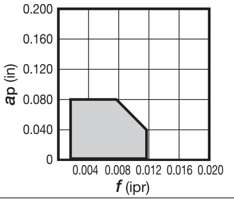
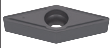
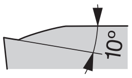
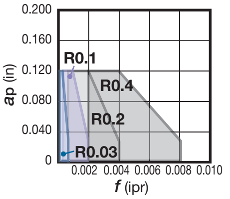
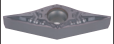
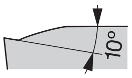
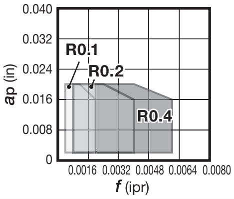
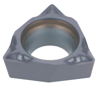
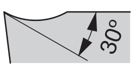
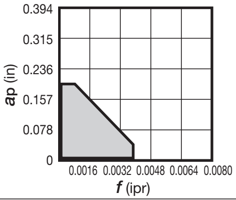
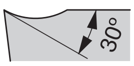
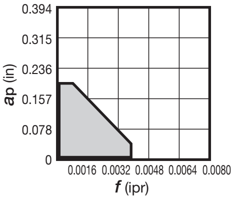




*Chip control range with typical R0.1

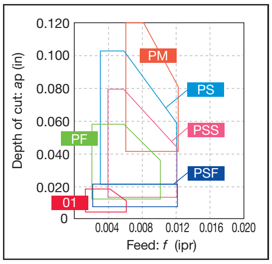
Chipbreaker Overview

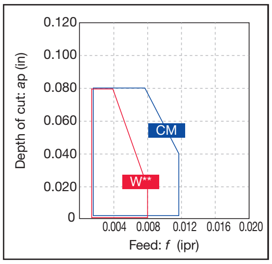
Application	Positive 5° with hole		V	W
			35°	80°
Finishing	**PSF** 		 B152	
	PF 		 B153	
Finishing to light cutting	**PSS** 		 B153	
Finishing to medium cutting	**PS** 		 B153	
	TSF 		 B153	
	TM 		 B153	
Finishing	**W08** 			 B159

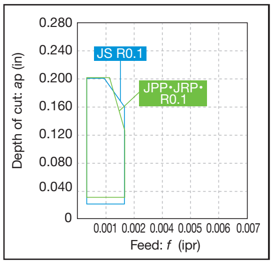
Application	Positive 5° with hole		V	W
			35°	80°
Finishing	**W11** 			 B160
Medium cutting	**24** 		 B154	
Finishing to medium cutting	**CM** 		 B154	
For external turning on Swiss lathes (sharp edge)	**JS** 		 B154	
For internal turning on Swiss lathes	**JS** 			 B160
For external turning on Swiss lathes (sharp edge)	**J10** 		 B154	
For external turning on Swiss lathes (honed edge)	**J10** 		 B154	

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

Chip control range







*Chip control range with typical R0.1

Chipbreaker Overview

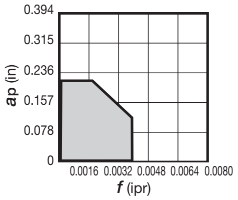
JXF

Application

Positive type with hole

Front turning

—



B163

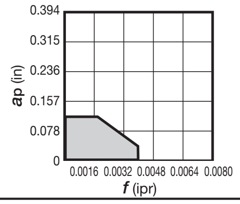
J10E

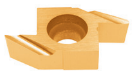
Application

Positive type with hole

Back turning

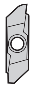
—





B165, B166

JXB

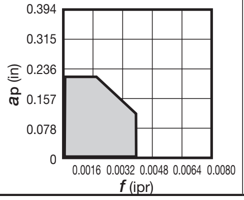


Application

Positive type with hole

Back turning

—



B164

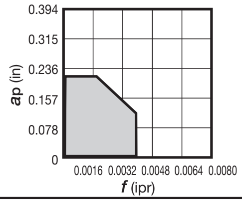
JXR

Application

Positive type with hole

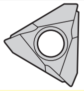
Reverse turning

—



B164

JTB

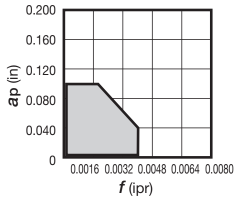


Application

Positive type with hole

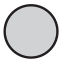
Back turning

—



B165

RT



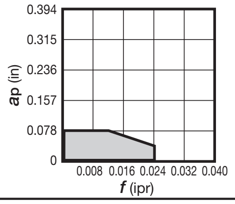
Special round insert

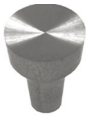
Application

Round

Medium cutting

—

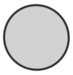
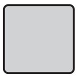
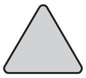
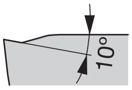
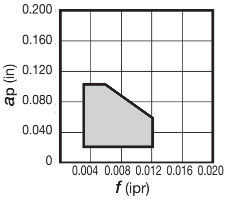
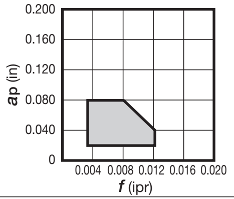
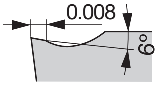
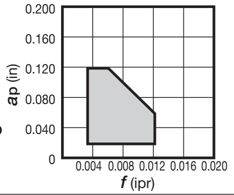
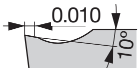
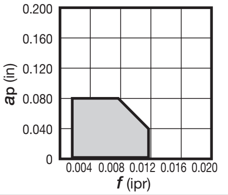
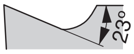
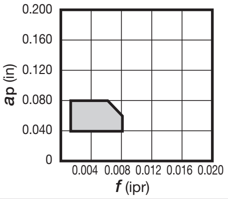
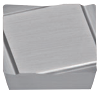
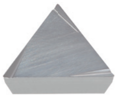
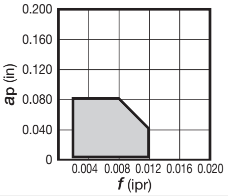
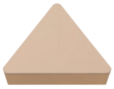




B132

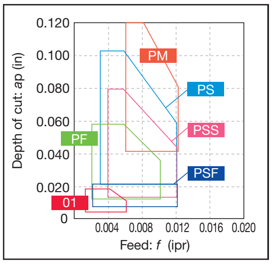
Please see the page B*** for the product details.

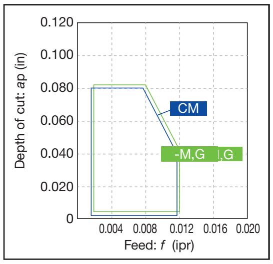
Chipbreaker Overview

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.

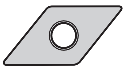
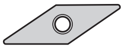
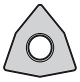
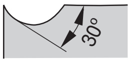
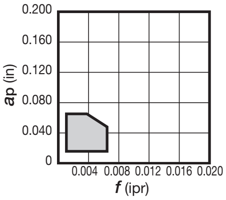
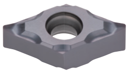
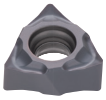
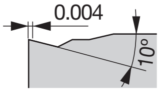
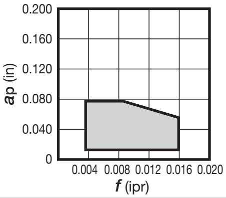
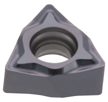
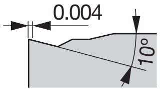
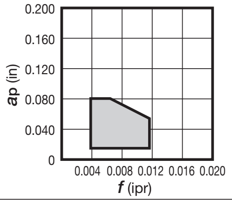
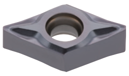
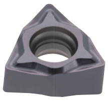
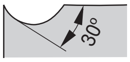
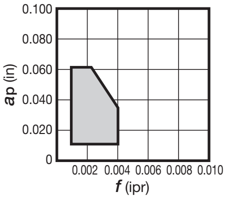
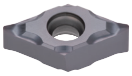
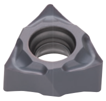
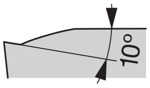
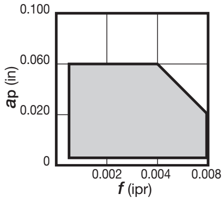
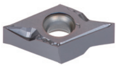
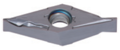
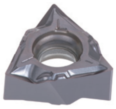
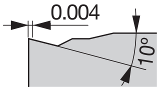
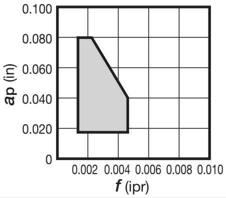
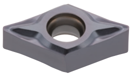
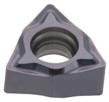
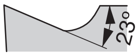
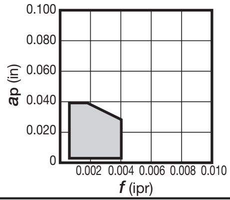
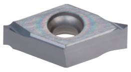
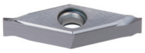
Chip control range





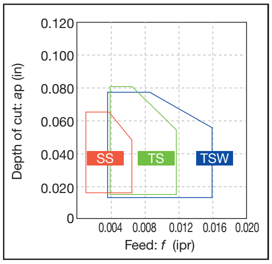
*-M,G: Without chipbreaker

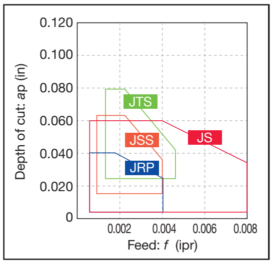
Chipbreaker Overview

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
	JTS 		 B128		 B161
Finishing (sharp edge)	**JRP** 		 B127	 B158	

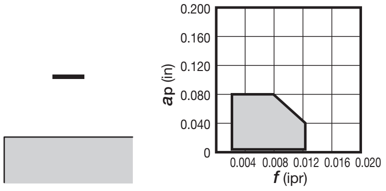
Please see the page B*** for the product details.

Chip control range



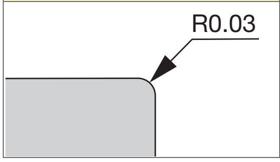
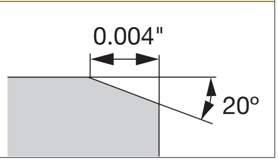


Chipbreaker Overview

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

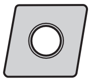
E	T1
	

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

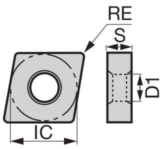
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

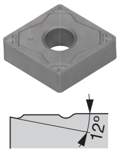
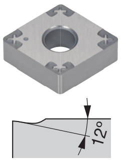
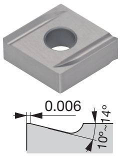
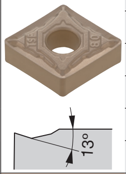
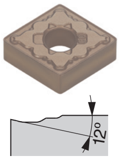
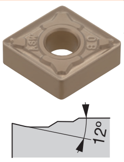
CN



**Rhombic, 80°
with hole**

		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																●		●	0.016	0.500	0.188	0.203
		CNMG 432 TF	CNMG120408-TF																●			0.031	0.500	0.188	0.203
	01	CNGG 320.5-01	CNGG090302-01																●			0.008	0.375	0.125	0.150
		CNGG 321-01	CNGG090304-01																●			0.016	0.375	0.125	0.150
		CNGG 322-01	CNGG090308-01																●			0.031	0.375	0.125	0.150
		CNGG 430-01	CNGG120401-01										●									0.004	0.500	0.188	0.203
		CNGG 430.5-01	CNGG120402-01										●						●	●	●	0.008	0.500	0.188	0.203
		CNGG 431-01	CNGG120404-01										●						●	●	●	0.016	0.500	0.188	0.203
		CNGG 432-01	CNGG120408-01										●						●	●	●	0.031	0.500	0.188	0.203
	C	CNGG 431 R-C	CNGG120404R-C													●			●			0.016	0.500	0.188	0.203
		CNGG 431 L-C	CNGG120404L-C																●			0.016	0.500	0.188	0.203
		CNGG 432 R-C	CNGG120408R-C																●			0.031	0.500	0.188	0.203
		CNGG 432 L-C	CNGG120408L-C																●			0.031	0.500	0.188	0.203
Finishing	**TSF**	CNMG 330.5E TSF	CNMG090402E-TSF											●	●							0.008	0.375	0.188	0.150
		CNMG 331E TSF	CNMG090404E-TSF		●	●			▲	▲				●	●		●	●	●			0.016	0.375	0.188	0.150
		CNMG 332E TSF	CNMG090408E-TSF		●	●			▲	▲				●	●		●	●	●			0.031	0.375	0.188	0.150
		CNMG 431 TSF	CNMG120404-TSF	●	●	●		▲	▲	▲		●		●	●		●	●	●			0.016	0.500	0.188	0.203
		CNMG 432 TSF	CNMG120408-TSF	●	●	●	●	▲	▲	▲	▲	●		●	●		●	●	●			0.031	0.500	0.188	0.203
		CNMG 433 TSF	CNMG120412-TSF		●	●			▲	▲		●		●	●							0.047	0.500	0.188	0.203
Finishing (wiper)	**FW**	CNMG 331E FW	CNMG090404E-FW	●	●	●		▲	▲	▲							●		●			0.016	0.375	0.188	0.150
		CNMG 332E FW	CNMG090408E-FW	●	●	●		▲	▲	▲							●		●			0.031	0.375	0.188	0.150
		CNMG 431 FW	CNMG120404-FW		●				▲								●		●			0.016	0.500	0.188	0.203
		CNMG 432 FW	CNMG120408-FW	●	●	●		▲	▲	▲							●		●			0.031	0.500	0.188	0.203
		*Wiper																							
	AFW	CNMG 431 AFW	CNMG120404-AFW		●	●			▲	▲							●		●			0.016	0.500	0.188	0.203
		CNMG 432 AFW	CNMG120408-AFW	●	●	●	●	▲	▲	▲	▲						●					0.031	0.500	0.188	0.203

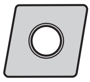
* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

● : Line up
▲ : To be discontinued

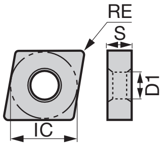
Reference pages: External toolholder → C018 -
J-Series toolholder → G057
Internal toolholder → D028 -
TungCap → K008 -

● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

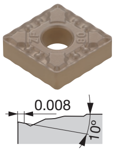
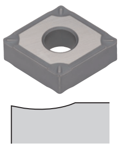
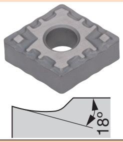
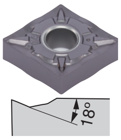
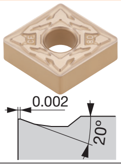
CN



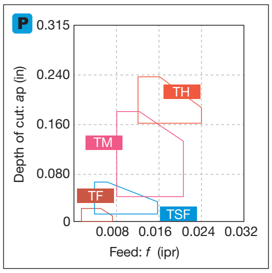
Rhombic, 80°
with hole

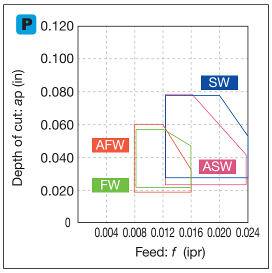


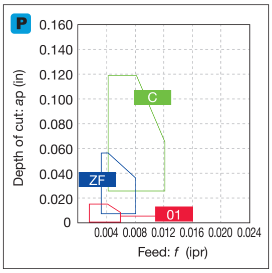
		T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	GT9530	AT9530	GT720	NS9530		TH10	
P	Steel	●◖	◖✠	✠	●◖	◖✠	✠	◖	✠	◖✠			●◖	●◖	●◖	●◖		●	
M	Stainless	●◖						●	◖	◖								●	
K	Cast iron	●◖			●◖						●	◖	●◖	●◖	●◖	●◖		●	
N	Non-ferrous																	●	
S	Superalloy																		
H	Hard material																		

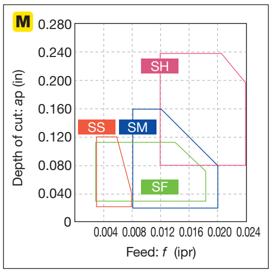
Application	Chipbreaker	Designation		Coated											Coated cermet			Cermet		Uncoated		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	GT9530	AT9530	GT720	NS9530		TH10		RE	IC	S	D1
Finishing	ZF	CNMG 331E ZF	CNMG090404E-ZF	●	●		▲	▲														0.016	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

Chip control range

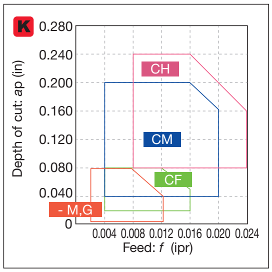








● : Line up
▲ : To be discontinued

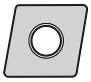


*-M,G: Without chipbreaker

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

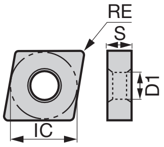
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

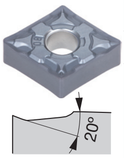
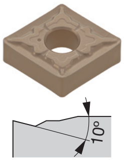
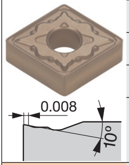
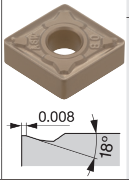
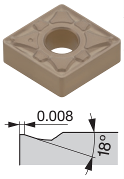
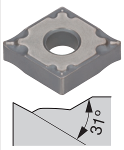
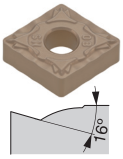
CN



**Rhombic, 80°
with hole**

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	NS520
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	✠					●◖	●◖	●◖	●◖
M	Stainless		●◖							◖			●	◖				
K	Cast iron	●◖	●◖			●◖	●◖				●◖	◖			●◖	●◖	●◖	●◖
N	Non-ferrous																	
S	Superalloy												●	◖				
H	Hard material																	



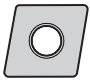
Application	Chipbreaker	Designation		Coated													Coated cermet		Cermet		Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1
Finishing	**HRF**	CNMG 431 HRF	CNMG120404-HRF												●	●					0.016	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
		*Wiper																						
	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

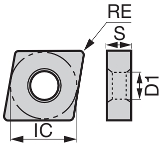
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

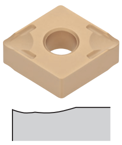
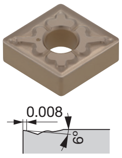
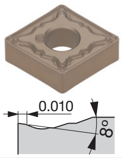
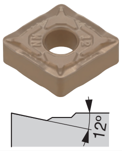
CN



Rhombic, 80° with hole

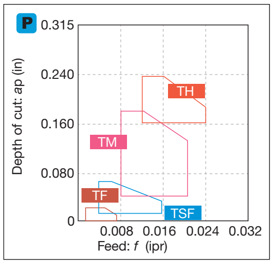
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T515	AH110	AH120	AH725	AH8015	GH330	NS9530
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	◖	✠	◖✠	✠		●	●◖	◖		●◖	●◖
M	Stainless		●◖							●	◖	◖	✠		●	●◖	◖	◖	●◖	
K	Cast iron	●◖	●◖			●◖	●◖							●◖	●	●◖	◖		●◖	●◖
N	Non-ferrous																			
S	Superalloy														●	●◖	●	◖		
H	Hard material																			

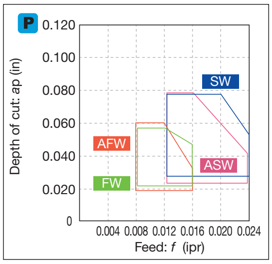


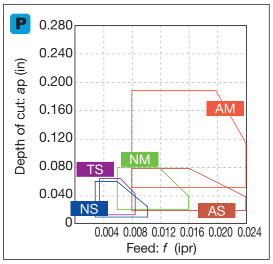
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T515	AH110	AH120	AH725	AH8015	GH330	Cermet NS9530	Dimension (inch) RE	IC	S	D1
Finishing	**SS**	CNMG 331E SS	CNMG090404E-SS											●	●								0.016	0.375	0.188	0.150
		CNMG 332E SS	CNMG090408E-SS											●	●								0.031	0.375	0.188	0.150
		CNMG 431 SS	CNMG120404-SS									●	●	●	●			●			●		0.016	0.500	0.188	0.203
		CNMG 432 SS	CNMG120408-SS									●	●	●	●			●			●		0.031	0.500	0.188	0.203
		CNMG 433 SS	CNMG120412-SS									●	●	●	●						●		0.047	0.500	0.188	0.203
Medium cutting	**TM**	CNMG 321 TM	CNMG090304-TM		●	●			▲	▲													0.016	0.375	0.125	0.150
		CNMG 322 TM	CNMG090308-TM		●	●	●		▲	▲	▲												0.031	0.375	0.125	0.150
		CNMG 331E TM	CNMG090404E-TM		●	●			▲	▲		●	●	●		●		●		●			0.016	0.375	0.188	0.150
		CNMG 332E TM	CNMG090408E-TM		●	●			▲	▲		●	●	●		●		●		●			0.031	0.375	0.188	0.150
	 0.008 6°	CNMG 333E TM	CNMG090412E-TM		●	●			▲	▲		●	●	●		●		●		●			0.047	0.375	0.188	0.150
		CNMG 431 TM	CNMG120404-TM	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●		●			0.016	0.500	0.188	0.203
		CNMG 432 TM	CNMG120408-TM	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●	●	●			0.031	0.500	0.188	0.203
		CNMG 433 TM	CNMG120412-TM	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●		●			0.047	0.500	0.188	0.203
		CNMG 434 TM	CNMG120416-TM		●	●	●		▲	▲	▲	●	●	●	●	●		●		●			0.063	0.500	0.188	0.203
		CNMG 543 TM	CNMG160612-TM	●	●	●	●	▲	▲	▲	▲							●		●			0.047	0.625	0.250	0.250
		CNMG 642 TM	CNMG190608-TM	●	●	●	●	▲	▲	▲	▲							●					0.031	0.750	0.250	0.312
		CNMG 643 TM	CNMG190612-TM	●	●	●	●	▲	▲	▲	▲							●					0.047	0.750	0.250	0.312
Finishing to medium cutting	**AM**	CNMG 432 AM	CNMG120408-AM		●	●			▲	▲													0.031	0.500	0.188	0.203
	 0.010 8°	CNMG 433 AM	CNMG120412-AM		●	●			▲	▲													0.047	0.500	0.188	0.203
		CNMG 434 AM	CNMG120416-AM		●	●			▲	▲													0.063	0.500	0.188	0.203
	NM	CNMG 432 NM	CNMG120408-NM	●	●	●	●	▲	▲	▲	▲											●	0.031	0.500	0.188	0.203
	 12°	CNMG 433 NM	CNMG120412-NM		●	●	●		▲	▲	▲												0.047	0.500	0.188	0.203

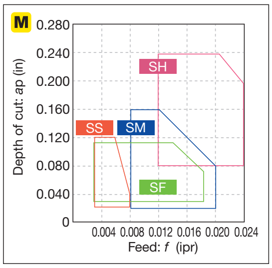
● : Line up
▲ : To be discontinued

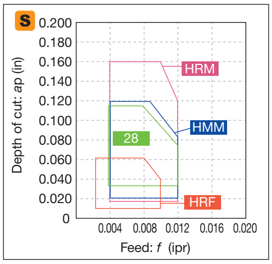
Chip control range









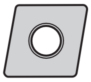


Reference pages: External toolholder → C018 - Internal toolholder → D028 -
J-Series toolholder → G057 TungCap → K008 -

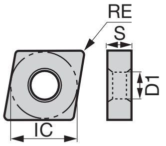
Insert NEGATIVE TYPE

● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

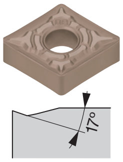
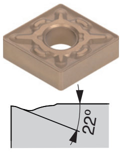
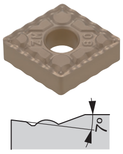
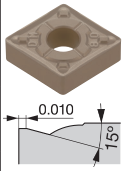
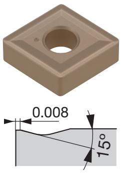
CN



Rhombic, 80°
with hole



		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GT9530	AT9530	GT720	NS9530	NS520	TH10
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠					●	●◖	●◖	●◖	●◖	●◖	●◖	●
M	Stainless		●◖											●	●◖						●
K	Cast iron	●◖	●◖			●◖	●◖			●◖	●	◖	✠	●	●◖	●◖	●◖	●◖	●◖	●◖	●
N	Non-ferrous																				●
S	Superalloy													●	●◖						
H	Hard material																				

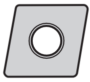
Application	Chipbreaker	Designation		Coated														Coated cermet			Cermet		Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GT9530	AT9530	GT720	NS9530	NS520	TH10	RE	IC	S	D1
Finishing to medium cutting	**TQ**	CNMG 431 TQ	CNMG120404-TQ		●	●												●	●		●			0.016	0.500	0.188	0.203
	 17°	CNMG 432 TQ	CNMG120408-TQ		●	●												●	●		●			0.031	0.500	0.188	0.203
Medium cutting	**TA**	CNMG 432 TA	CNMG120408-TA		●	●																		0.031	0.500	0.188	0.203
	 22°	CNMG 433 TA	CNMG120412-TA		●	●																		0.047	0.500	0.188	0.203
Finishing to medium cutting	**ZM**	CNMG 332E ZM	CNMG090408E-ZM		●	●			▲	▲														0.031	0.375	0.188	0.150
	 7°	CNMG 432 ZM	CNMG120408-ZM		●	●	●		▲	▲	▲							●			●			0.031	0.500	0.188	0.203
		CNMG 433 ZM	CNMG120412-ZM		●	●	●		▲	▲	▲							●						0.047	0.500	0.188	0.203
		CNMG 434 ZM	CNMG120416-ZM		●	●			▲	▲														0.063	0.500	0.188	0.203
Medium cutting	**DM**	CNMG 431 DM	CNMG120404-DM		●	●			▲	▲														0.016	0.500	0.188	0.203
	 0.010 15°	CNMG 432 DM	CNMG120408-DM	●	●	●	●	▲	▲	▲	▲													0.031	0.500	0.188	0.203
		CNMG 433 DM	CNMG120412-DM	●	●	●	●	▲	▲	▲	▲													0.047	0.500	0.188	0.203
		CNMG 543 DM	CNMG160612-DM		●					▲														0.047	0.625	0.250	0.250
	All-round	CNMG 321	CNMG090304		●	●			▲	▲											●			0.016	0.375	0.125	0.150
		CNMG 322	CNMG090308	●	●	●	●	▲	▲	▲	▲									●	●			0.031	0.375	0.125	0.150
		CNMG 431	CNMG120404	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●			●		●	0.016	0.500	0.188	0.203
		CNMG 432	CNMG120408	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●			●	●	●	0.031	0.500	0.188	0.203
		CNMG 433	CNMG120412	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●					●	●	0.047	0.500	0.188	0.203
		CNMG 434	CNMG120416	●	●	●	●	▲	▲	▲	▲	●	●	●	●									0.063	0.500	0.188	0.203
	 0.008 15°	CNMG 542	CNMG160608	●	●	●	●	▲	▲	▲	▲		●	●	●		●							0.031	0.625	0.250	0.250
		CNMG 543	CNMG160612	●	●	●	●	▲	▲	▲	▲	●	●	●	●		●							0.047	0.625	0.250	0.250
		CNMG 544	CNMG160616	●	●	●	●	▲	▲	▲	▲	●	●	●	●									0.063	0.625	0.250	0.250
		CNMG 642	CNMG190608		●	●	●		▲	▲	▲													0.031	0.750	0.250	0.312
		CNMG 643	CNMG190612	●	●	●	●	▲	▲	▲	▲	●	●	●	●		●							0.047	0.750	0.250	0.312
		CNMG 644	CNMG190616		●	●	●		▲	▲	▲	●	●	●	●		●							0.063	0.750	0.250	0.312

● : Line up
▲ : To be discontinued

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

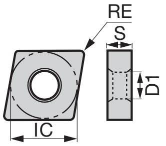
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

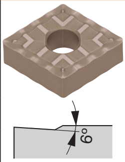
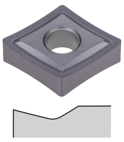
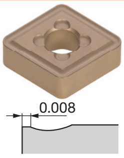
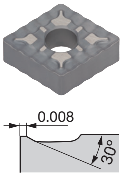
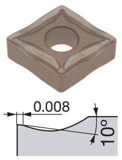
CN



Rhombic, 80° with hole

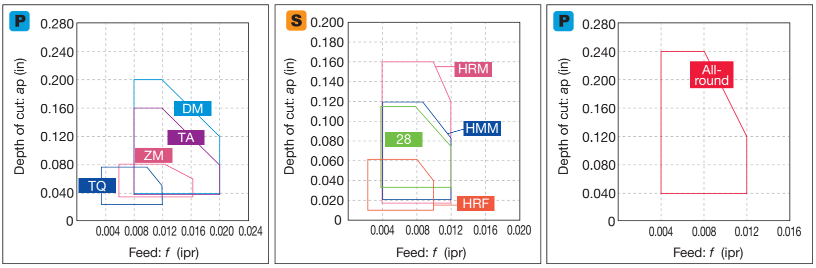
P	Steel	●	●◐	◐✠	✠	●◐	◐✠	✠	●	●◐	◐	●◐			●◐	●◐	●◐	●	
M	Stainless		●◐						●	●◐	◐	●◐	●	◐	●◐			●	
K	Cast iron	●◐	●◐			●◐			●	●◐	◐	●◐			●◐	●◐	●◐	●	●
N	Non-ferrous																	●	●
S	Superalloy								●	●◐	●		●	◐					●
H	Hard material																		



Application	Chipbreaker	Designation		Coated														Coated cermet	Cermet	Un-coated		Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T9135	AH110	AH120	AH725	AH905	AH8005	AH8015	GH330	GT720	NS9530	TH10	KS05F	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
	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
	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
	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

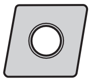
Chip control range



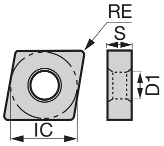
Reference pages: External toolholder → C020 - Internal toolholder → D029 -
J-Series toolholder → G057 TungCap → K008 -

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

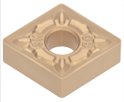
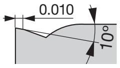
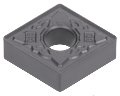
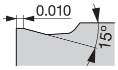
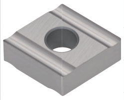
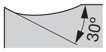
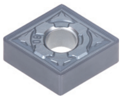
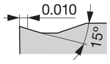
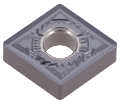
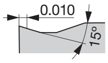
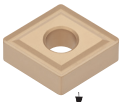
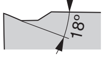
CN



Rhombic, 80°
with hole



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

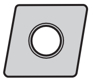
Application	Chipbreaker	Designation		Coated																Coated cermet	Cer-met	Uncoated			Dimension (inch)			
		Inch	Metric	T6120	T6130	AH630	AH645	AH110	AH120	T515	T5105	T5115	T5125	AH725	AH8005	AH8015	AH905	GH110	GH330	GT720	NS9530	TH10	KS05F	KS20	RE	IC	S	D1
Medium cutting	**SM**	CNMG 331E SM	CNMG090404E-SM	●	●	●																			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
	 0.010 10°	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
	 0.010 15°	CNMG 543 CM	CNMG160612-CM							●	●	●	●												0.047	0.625	0.250	0.250
	P	CNGG 431 R-P	CNGG120404R-P															●			●	●			0.016	0.500	0.188	0.203
		CNGG 431 L-P	CNGG120404L-P															●			●	●			0.016	0.500	0.188	0.203
		CNGG 432 R-P	CNGG120408R-P															●				●			0.031	0.500	0.188	0.203
		CNGG 432 L-P	CNGG120408L-P															●				●			0.031	0.500	0.188	0.203
	 30°																											
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
	 0.010 15°	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
	 0.010 15°	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
	 18°	CNMG 644 SA	CNMG190616-SA						●															●	0.063	0.750	0.250	0.312

● : Line up
▲ : To be discontinued

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

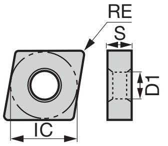
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

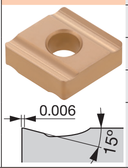
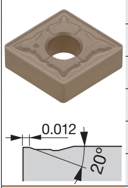
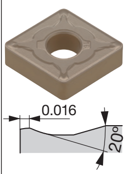
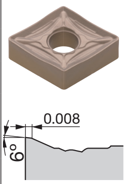
CN



Rhombic, 80° with hole

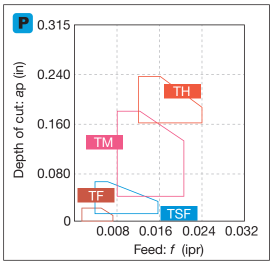
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	AH120	AH630	AH645	AH8015	GH330	GT720		NS9530
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	✠		●◖		✠					
M	Stainless		●◖							◖		●◖	◖	✠	◖				
K	Cast iron	●◖	●◖			●◖	●◖				●◖	●◖				●◖	●◖		●◖
N	Non-ferrous																		
S	Superalloy											●◖			◖				
H	Hard material																		

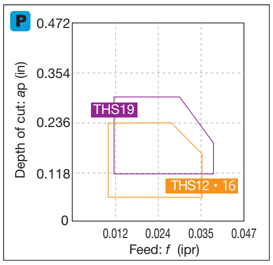


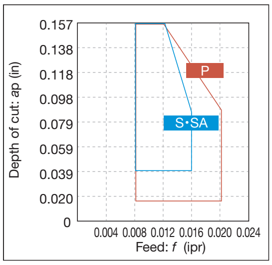
Application	Chipbreaker	Designation		Coated															Coated cermet		Cer-met	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	AH120	AH630	AH645	AH8015	GH330	GT720		NS9530	RE	IC	S	D1
Medium cutting	**S**	CNMG 431 R-S	CNMG120404R-S			●	●			▲	▲	●			●	●		●	●		●	0.016	0.500	0.188	0.203
	 0.006 15°	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
	 0.012 20°	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
	 0.016 20°	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
		CNMG 646 THS	CNMG190624-THS		●	●	●		▲	▲	▲											0.094	0.750	0.250	0.312
		CNMG 866 THS	CNMG250924-THS		●	●	●		▲	▲	▲											0.094	1.000	0.375	0.359
Medium to heavy cutting (single side)	**57**	CNMM 431-57	CNMM120404-57			●				▲												0.016	0.500	0.188	0.203
	 0.008 6°	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

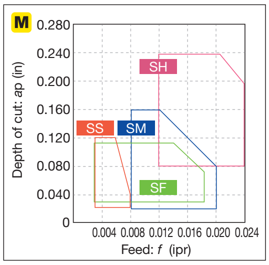
● : Line up
▲ : To be discontinued

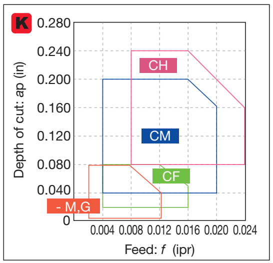
Chip control range

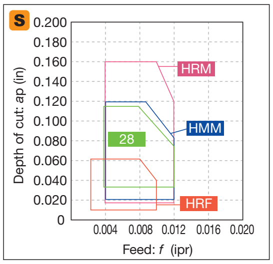












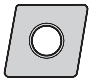
*-M,G: Without chipbreaker

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

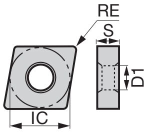
Insert NEGATIVE TYPE

● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

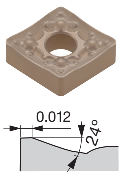
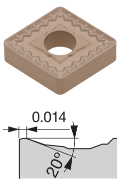
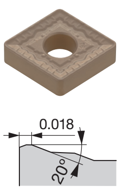
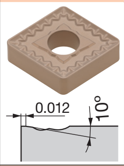
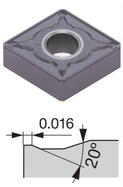
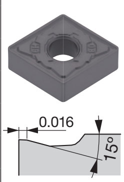
CN



Rhombic, 80°
with hole



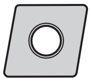
		T9205	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	T515	T5105	T5115	T5125
P	Steel	●	●◖	◖✠	✠	●◖	◖✠	✠	✠	◖✠	✠				
M	Stainless		●◖						◖	◖	✠				
K	Cast iron	●◖	●◖			●◖						●◖	●	◖	✠
N	Non-ferrous														
S	Superalloy														
H	Hard material														

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
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
	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

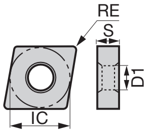
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

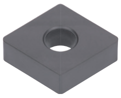
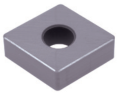
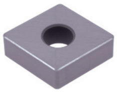
CN



Rhombic, 80°
with hole

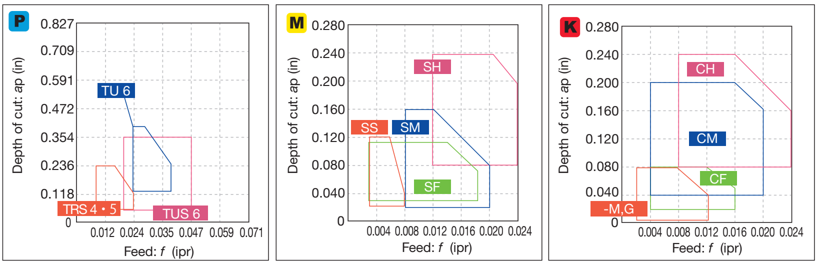
		T9205	T9105	T515	T5105	T5115	T5125	NS520	TH10	TZ120	FX105	LX21	LX11
P	Steel	●	●					●◐	●				
M	Stainless								●				
K	Cast iron	●◐	●◐	●◐	●	◐	✠	●◐	●	●	●◐	●	
N	Non-ferrous								●				
S	Superalloy												
H	Hard material												●



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
	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
	-	CNGA 431	CNGA120404											●	●	0.016	0.500	0.188	0.203
		CNGA 432	CNGA120408							●		●	●	●	●	0.031	0.500	0.188	0.203
		CNGA 433	CNGA120412										●	●	●	0.047	0.500	0.188	0.203
		CNGA 434	CNGA120416										●		●	0.063	0.500	0.188	0.203
		CNGA 435	CNGA120420												●	0.078	0.500	0.188	0.203

● : Line up
▲ : To be discontinued

Chip control range



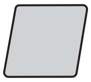
*-M,G: Without chipbreaker

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

Insert NEGATIVE TYPE

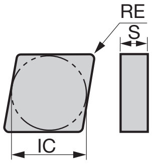
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

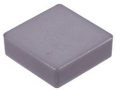
CN



Rhombic, 80°
without hole

		FX105	LX21	LX11	CX710
P	Steel				
M	Stainless				
K	Cast iron	●◐	●		●◐
N	Non-ferrous				
S	Superalloy				
H	Hard material			●	



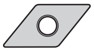
Application	Chipbreaker	Designation Inch	Designation Metric	Ceramic FX105	Ceramic LX21	Ceramic LX11	Ceramic CX710	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	-	**CNGD 453**	**CNGD120712**	●				0.047	0.500	0.313	-
		CNGD 45**4**	CNGD1207**16**	●				0.063	0.500	0.313	-
	-	**CNMN 432**	**CNMN120408**	●				0.031	0.500	0.187	-
		CNMN 43**3**	CNMN1204**12**	●				0.047	0.500	0.187	-
	-	**CNGN 431**	**CNGN120404**			●		0.016	0.500	0.187	-
		CNGN 43**2**	CNGN1204**08**	●		●		0.031	0.500	0.187	-
		CNGN 43**3**	CNGN1204**12**	●		●	●	0.047	0.500	0.187	-
		CNGN 43**4**	CNGN1204**16**	●	●	●		0.063	0.500	0.187	-
		CNGN 43**5**	CNGN1204**20**	●				0.079	0.500	0.187	-
		CNGN 452	**CNGN120708**	●		●		0.031	0.500	0.313	-
		CNGN 45**3**	CNGN1207**12**	●		●		0.047	0.500	0.313	-
		CNGN 45**4**	CNGN1207**16**	●		●		0.063	0.500	0.313	-
		CNGN 45**5**	CNGN1207**20**			●		0.079	0.500	0.313	-

● : Line up

Reference pages: CNGD...: External toolholder → C024

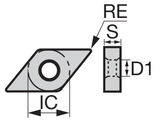
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

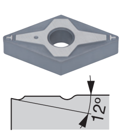
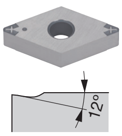
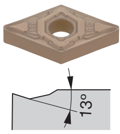
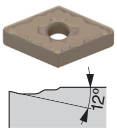
DN



Rhombic, 55°
with hole

		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																		

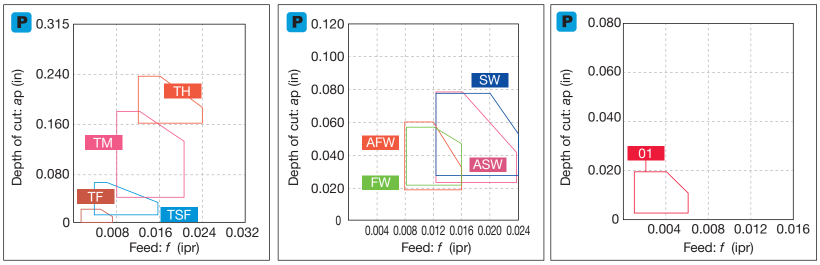


Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9205	Coated T9215	Coated T9225	Coated T9235	Coated T9105	Coated T9115	Coated T9125	Coated T9135	Coated T515	Coated AH120	Coated AH8015	Coated GH110	Coated cermet GT9530	Coated cermet AT9530	Coated cermet GT720	Cermet NS9530	Cermet NS520	Uncoated TH10	Dimension (inch) 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
		*Wiper																							

* 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

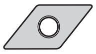
Chip control range



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

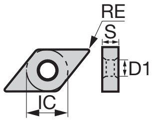
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

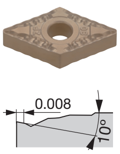
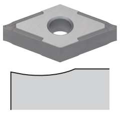
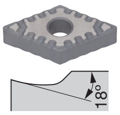
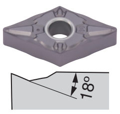
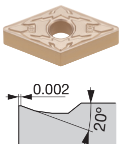
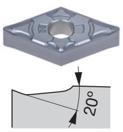
DN



Rhombic, 55°
with hole

		T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	NS520	TH10
P	Steel	●◐	◐✠	✠	●◐	◐✠	✠	◐	✠	◐✠					●◐	●◐	●◐	●◐	●◐	●
M	Stainless	●◐						●	◐	◐			●	◐	●◐					●
K	Cast iron	●◐			●◐						●	◐			●◐	●◐	●◐	●◐	●◐	●
N	Non-ferrous																			●
S	Superalloy												●	◐						
H	Hard material																			

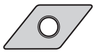


Application	Chipbreaker	Designation Inch	Designation Metric	Coated														Coated cermet		Cer-met		Un-coated	Dimension (inch)			
				T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	NS520	TH10	RE	IC	S	D1
Finishing	ZF	DNMG 331E ZF	DNMG110404E-ZF	●	●		▲	▲															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
		DNMG 433-11	DNMG150412-11	●																			0.047	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
	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

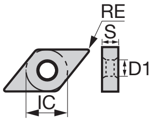
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

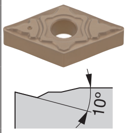
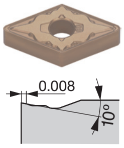
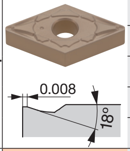
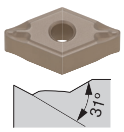
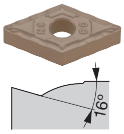
DN



Rhombic, 55°
with hole

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	GT9530	AT9530	NS9530	NS520
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	●◐	●◐	●◐	●◐
M	Stainless		●◐										
K	Cast iron	●◐	●◐			●◐	●◐			●◐	●◐	●◐	●◐
N	Non-ferrous												
S	Superalloy												
H	Hard material												

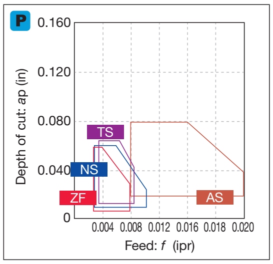


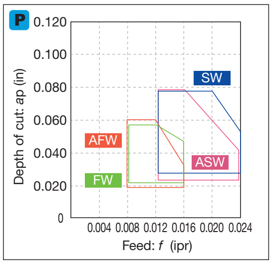
Application	Chipbreaker	Designation		Coated								Coated cermet		Cermet		Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1
Finishing	**TS**	DNMG 332 TS	DNMG110408-TS	●												0.031	0.375	0.187	0.150
		DNMG 431 TS	DNMG150404-TS		●	●	●	▲	▲	▲	▲	●	●	●	●	0.016	0.500	0.187	0.203
		DNMG 432 TS	DNMG150408-TS	●	●	●	●	▲	▲	▲	▲	●	●	●	●	0.031	0.500	0.187	0.203
		DNMG 433 TS	DNMG150412-TS	●	●	●	●	▲	▲	▲	▲					0.047	0.500	0.187	0.203
		DNMG 441 TS	DNMG150604-TS									●	●	●	●	0.016	0.500	0.250	0.203
		DNMG 442 TS	DNMG150608-TS		●	●			▲	▲		●	●	●	●	0.031	0.500	0.250	0.203
		DNMG 443 TS	DNMG150612-TS		●	●			▲	▲						0.047	0.500	0.250	0.203
Finishing to medium cutting (wiper)	**SW**	DNMG 332E SW	DNMG110408E-SW		●				▲							0.031	0.375	0.187	0.150
		DNMG 333E SW	DNMG110412E-SW		●				▲							0.047	0.375	0.187	0.150
		DNMG 432 SW	DNMG150408-SW		●				▲							0.031	0.500	0.187	0.203
		DNMG 433 SW	DNMG150412-SW		●				▲							0.047	0.500	0.187	0.203
		DNMG 442 SW	DNMG150608-SW		●				▲							0.031	0.500	0.250	0.203
		DNMG 443 SW	DNMG150612-SW		●				▲							0.047	0.500	0.250	0.203
		*Wiper																	
High feed, small depth of cut	**AS**	DNMG 431 AS	DNMG150404-AS		●		●		▲		▲			●		0.016	0.500	0.187	0.203
		DNMG 432 AS	DNMG150408-AS		●	●	●		▲	▲	▲			●		0.031	0.500	0.187	0.203
		DNMG 433 AS	DNMG150412-AS		●	●	●		▲	▲	▲					0.047	0.500	0.187	0.203
		DNMG 441 AS	DNMG150604-AS		●				▲							0.016	0.500	0.250	0.203
		DNMG 442 AS	DNMG150608-AS		●	●			▲	▲						0.031	0.500	0.250	0.203
		DNMG 443 AS	DNMG150612-AS		●				▲							0.047	0.500	0.250	0.203
Boring (double side)	**CB**	DNMG 331 CB	DNMG110404-CB									●		●		0.016	0.375	0.187	0.150
		DNMG 332 CB	DNMG110408-CB		●				▲			●		●		0.031	0.375	0.187	0.150
Finishing	**NS**	DNMG 431 NS	DNMG150404-NS			●				▲				●		0.016	0.500	0.187	0.203
		DNMG 432 NS	DNMG150408-NS	●	●	●		▲	▲	▲				●		0.031	0.500	0.187	0.203

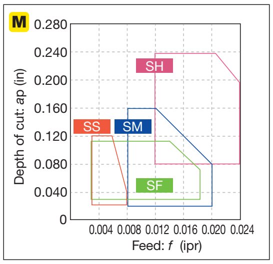
* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

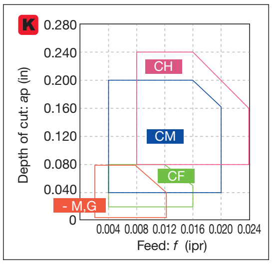
● : Line up
▲ : To be discontinued

Chip control range

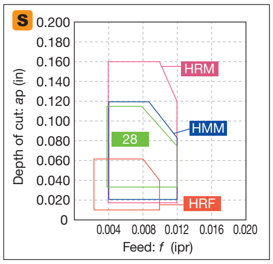








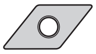
*-M,G: Without chipbreaker



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

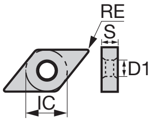
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

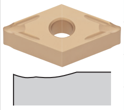
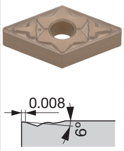
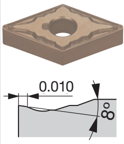
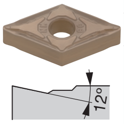
DN



Rhombic, 55°
with hole

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH110	AH120	AH8005	AH8015	GH330	GT9530	NS9530	KS20
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐	✠	◐✠	✠	●	●◐			●◐	●◐	●◐	
M	Stainless		●◐							●	◐	◐	✠	●	●◐	●	◐	●◐			
K	Cast iron	●◐	●◐			●◐	●◐							●	●◐			●◐	●◐	●◐	◐✠
N	Non-ferrous																				◐✠
S	Superalloy													●	●◐	●	◐				◐✠
H	Hard material																				

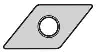


Application	Chipbreaker	Designation		Coated																	Coated cermet	Cermet	Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH110	AH120	AH8005	AH8015	GH330	GT9530	NS9530	KS20	RE	IC	S	D1
Finishing	SS	DNMG 331E SS	DNMG110404E-SS											●	●									0.016	0.375	0.187	0.150
		DNMG 332E SS	DNMG110408E-SS											●	●									0.031	0.375	0.187	0.150
		DNMG 431 SS	DNMG150404-SS									●	●	●	●					●				0.016	0.500	0.187	0.203
		DNMG 432 SS	DNMG150408-SS									●	●	●	●					●			●	0.031	0.500	0.187	0.203
		DNMG 433 SS	DNMG150412-SS									●	●	●	●									0.047	0.500	0.187	0.203
		DNMG 441 SS	DNMG150604-SS									●	●	●	●		●			●				0.016	0.500	0.250	0.203
		DNMG 442 SS	DNMG150608-SS									●	●	●	●		●			●				0.031	0.500	0.250	0.203
		DNMG 443 SS	DNMG150612-SS									●	●	●	●									0.047	0.500	0.250	0.203
Medium cutting	TM	DNMG 331E TM	DNMG110404E-TM		●	●			▲	▲							●		●					0.016	0.375	0.187	0.150
		DNMG 332E TM	DNMG110408E-TM		●	●			▲	▲							●		●					0.031	0.375	0.187	0.150
		DNMG 333E TM	DNMG110412E-TM		●	●			▲	▲							●		●					0.047	0.375	0.187	0.150
		DNMG 331 TM	DNMG110404-TM		●	●	●		▲	▲	▲													0.016	0.375	0.187	0.150
		DNMG 332 TM	DNMG110408-TM		●	●	●		▲	▲	▲													0.031	0.375	0.187	0.150
	 0.008 6°	DNMG 431 TM	DNMG150404-TM	●	●	●	●	▲	▲	▲	▲					●	●							0.016	0.500	0.187	0.203
		DNMG 432 TM	DNMG150408-TM	●	●	●	●	▲	▲	▲	▲					●	●							0.031	0.500	0.187	0.203
		DNMG 433 TM	DNMG150412-TM	●	●	●	●	▲	▲	▲	▲					●	●							0.047	0.500	0.187	0.203
		DNMG 434 TM	DNMG150416-TM		●	●			▲	▲														0.063	0.500	0.187	0.203
		DNMG 441 TM	DNMG150604-TM	●	●	●	●	▲	▲	▲	▲						●							0.016	0.500	0.250	0.203
		DNMG 442 TM	DNMG150608-TM	●	●	●	●	▲	▲	▲	▲						●							0.031	0.500	0.250	0.203
		DNMG 443 TM	DNMG150612-TM	●	●	●	●	▲	▲	▲	▲						●							0.047	0.500	0.250	0.203
		DNMG 444 TM	DNMG150616-TM	●	●	●	●	▲	▲	▲	▲							●						0.063	0.500	0.250	0.203
Finishing to medium cutting	AM	DNMG 432 AM	DNMG150408-AM		●	●			▲	▲														0.031	0.500	0.187	0.203
	 0.010 8°	DNMG 433 AM	DNMG150412-AM		●	●			▲	▲														0.047	0.500	0.187	0.203
		DNMG 434 AM	DNMG150416-AM		●	●			▲	▲														0.063	0.500	0.187	0.203
		DNMG 442 AM	DNMG150608-AM		●	●			▲	▲														0.031	0.500	0.250	0.203
		DNMG 443 AM	DNMG150612-AM		●	●			▲	▲														0.047	0.500	0.250	0.203
		DNMG 444 AM	DNMG150616-AM		●	●			▲	▲														0.063	0.500	0.250	0.203
	NM	DNMG 432 NM	DNMG150408-NM		●	●	●		▲	▲	▲										●	●		0.031	0.500	0.187	0.203
	 12°	DNMG 433 NM	DNMG150412-NM		●	●	●		▲	▲	▲													0.047	0.500	0.187	0.203
		DNMG 442 NM	DNMG150608-NM																		●	●		0.031	0.500	0.250	0.203

● : Line up
▲ : To be discontinued

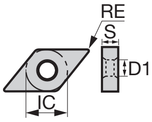
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

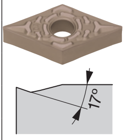
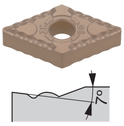
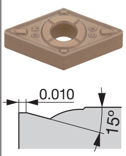
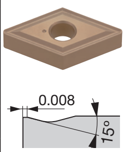
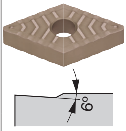
DN



Rhombic, 55°
with hole

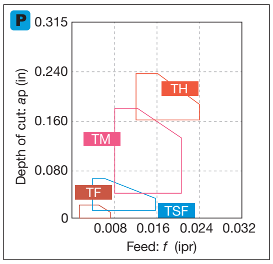
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GT9530	AT9530	NS9530	NS520	TH10
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠					●	●◐	●◐	●◐	●◐	●◐	●
M	Stainless		●◐											●	●◐					●
K	Cast iron	●◐	●◐			●◐	●◐			●◐	●	◐	✠	●	●◐	●◐	●◐	●◐	●◐	●
N	Non-ferrous																			●
S	Superalloy													●	●◐					
H	Hard material																			

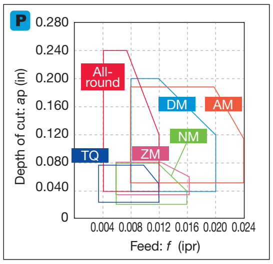


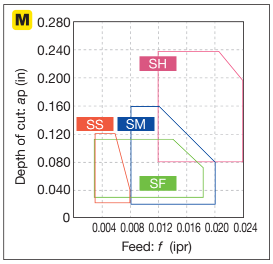
Application	Chipbreaker	Designation		Coated														Coated cermet		Cermet		Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GT9530	AT9530	NS9530	NS520	TH10	RE	IC	S	D1
Finishing to medium cutting	**TQ**	DNMG 431 TQ	DNMG150404-TQ		●	●												●	●	●			0.016	0.500	0.187	0.203
	 17°	DNMG 432 TQ	DNMG150408-TQ		●	●												●	●	●			0.031	0.500	0.187	0.203
	ZM	DNMG 332E ZM	DNMG110408E-ZM		●	●			▲	▲													0.031	0.375	0.187	0.150
	 7°	DNMG 432 ZM	DNMG150408-ZM		●	●	●		▲	▲	▲							●		●			0.031	0.500	0.187	0.203
		DNMG 433 ZM	DNMG150412-ZM		●	●	●		▲	▲	▲												0.047	0.500	0.187	0.203
		DNMG 442 ZM	DNMG150608-ZM		●	●	●		▲	▲	▲												0.031	0.500	0.250	0.203
		DNMG 443 ZM	DNMG150612-ZM		●	●			▲	▲													0.047	0.500	0.250	0.203
Medium cutting	**DM**	DNMG 432 DM	DNMG150408-DM		●	●	●		▲	▲	▲												0.031	0.500	0.187	0.203
	 0.010 15°	DNMG 433 DM	DNMG150412-DM	●	●	●	●	▲	▲	▲	▲												0.047	0.500	0.187	0.203
		DNMG 441 DM	DNMG150604-DM		●				▲														0.016	0.500	0.250	0.203
		DNMG 442 DM	DNMG150608-DM		●	●	●		▲	▲	▲												0.031	0.500	0.250	0.203
		DNMG 443 DM	DNMG150612-DM	●	●	●	●	▲	▲	▲	▲												0.047	0.500	0.250	0.203
		DNMG 444 DM	DNMG150616-DM	●				▲															0.063	0.500	0.250	0.203
	All-round	DNMG 331	DNMG110404		●	●			▲	▲			●	●	●			●		●			0.016	0.375	0.187	0.150
	 0.008 15°	DNMG 332	DNMG110408	●	●	●	●	▲	▲	▲	▲		●	●	●			●		●			0.031	0.375	0.187	0.150
		DNMG 431	DNMG150404		●	●	●		▲	▲	▲		●	●	●	●	●	●		●	●	●	0.016	0.500	0.187	0.203
		DNMG 432	DNMG150408	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●	●		●	●	●	0.031	0.500	0.187	0.203
		DNMG 433	DNMG150412	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●			●	●	●	0.047	0.500	0.187	0.203
		DNMG 434	DNMG150416		●	●			▲	▲			●	●	●								0.063	0.500	0.187	0.203
		DNMG 441	DNMG150604		●	●			▲	▲			●	●	●							●	0.016	0.500	0.250	0.203
		DNMG 442	DNMG150608	●	●	●	●	▲	▲	▲	▲	●	●	●	●							●	0.031	0.500	0.250	0.203
		DNMG 443	DNMG150612	●	●	●	●	▲	▲	▲	▲	●	●	●	●							●	0.047	0.500	0.250	0.203
		DNMG 444	DNMG150616		●	●			▲	▲													0.063	0.500	0.250	0.203
Finishing to medium cutting	**27**	DNMG 431-27	DNMG150404-27			●				▲										●			0.016	0.500	0.187	0.203
	 6°	DNMG 432-27	DNMG150408-27		●	●			▲	▲										●			0.031	0.500	0.187	0.203
		DNMG 433-27	DNMG150412-27			●				▲													0.047	0.500	0.187	0.203

●: Line up
▲: To be discontinued

Chip control range





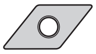


Reference pages:	External toolholder → C040 -	Internal toolholder → D060 -
	J-Series toolholder → G059	TungCap → C048, K012 -

Insert NEGATIVE TYPE

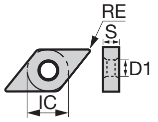
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

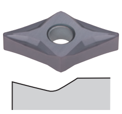
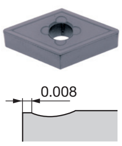
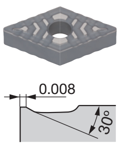
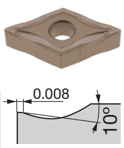
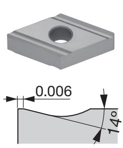
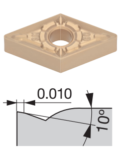
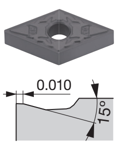
DN



Rhombic, 55°
with hole

		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																		



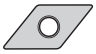
Application	Chipbreaker	Designation		Coated															Coated cermet	Cermet	Uncoated	Dimension (inch)			
		Inch	Metric	T9215	T9115	T6120	T6130	T515	T5105	T5115	T5125	AH630	AH645	AH8005	AH8015	AH110	AH120	GH330	GT9530	NS9530	TH10	RE	IC	S	D1
Medium cutting	**28**	DNMG 431-28	DNMG150404-28											●	●	●	●					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
	38	DNMG 433-38	DNMG150412-38	●	▲																	0.047	0.500	0.187	0.203
																									
	Parallel	DNGG 431 R	DNGG150404R																●	●		0.016	0.500	0.187	0.203
		DNGG 431 L	DNGG150404L																●	●		0.016	0.500	0.187	0.203
		DNGG 432 R	DNGG150408R																	●		0.031	0.500	0.187	0.203
		DNGG 432 L	DNGG150408L																	●		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
		DNMG 442 SM	DNMG150608-SM			●	●					●	●									0.031	0.500	0.250	0.203
		DNMG 443 SM	DNMG150612-SM			●	●					●	●									0.047	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
		DNMG 443 CM	DNMG150612-CM						●	●	●											0.047	0.500	0.250	0.203

● : Line up
▲ : To be discontinued

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

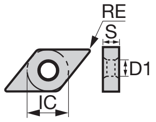
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

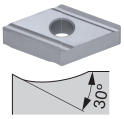
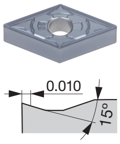
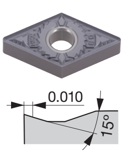
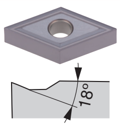
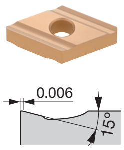
DN



Rhombic, 55°
with hole

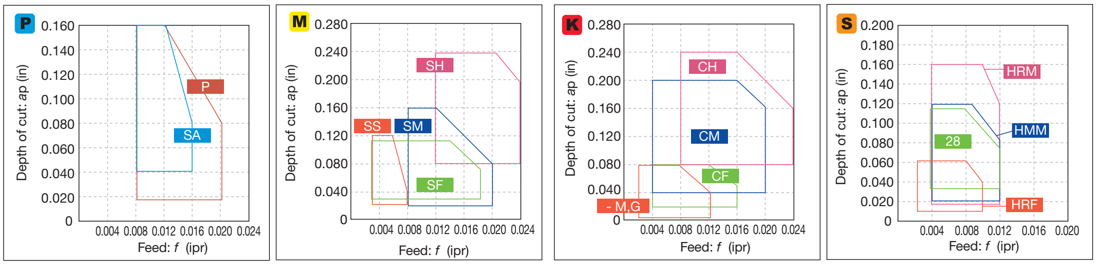
		T9225	T9235	T9125	T9135	T6130	AH630	AH645	AH120	AH8005	AH8015	AH905	GH110	GH330	NS9530	TH10
P	Steel	◐✠	✠	◐✠	✠	✠	◐✠	✠	●◐				●	●◐	●◐	●
M	Stainless					◐	◐	✠	●◐	●	◐		●	●◐		●
K	Cast iron								●◐				●	●◐	●◐	●
N	Non-ferrous															●
S	Superalloy								●◐	●	◐	◐	●			
H	Hard material															



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
	SA 	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
		DNMG 442 SA	DNMG150608-SA								●								0.031	0.500	0.250	0.203
	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

Chip control range

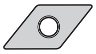


*-M,G: Without chipbreaker

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

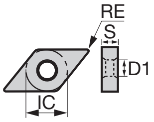
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

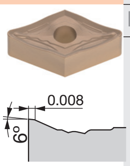
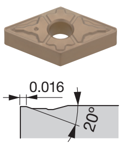
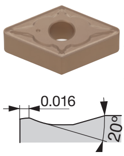
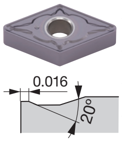
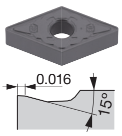
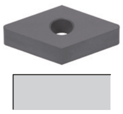
DN



Rhombic, 55°
with hole

		T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	AH8015	T515	T5105	T5115	T5125	AH120	GT720	NS520	TH10
P	Steel	●◐	◐✠	✠	●◐	◐✠	✠	✠	◐✠	✠						●◐	●◐	●◐	●
M	Stainless	●◐						◐	◐	✠						●◐			●
K	Cast iron	●◐			●◐							●◐	●	◐	✠	●◐	●◐	●◐	●
N	Non-ferrous																		●
S	Superalloy															●◐			
H	Hard material																		



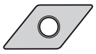
Application	Chipbreaker	Designation		Coated															Coated cermet	Cermet	Un-coated	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	AH8015	T515	T5105	T5115	T5125	AH120	GT720	NS520	TH10	RE	IC	S	D1
Medium to heavy cutting (single side)	**57**	DNMM 442-57	DNMM150608-57		●			▲														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 -

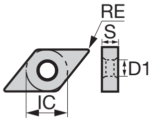
● : Continuous cutting
◐ : Light interrupted cutting
✤ : Heavy interrupted cutting

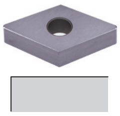
DN



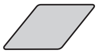
**Rhombic, 55°
with hole**

		NS520	TH10	FX105	LX21	LX11
P	Steel	●◐	●			
M	Stainless		●			
K	Cast iron	●◐	●	●◐	●	
N	Non-ferrous		●			
S	Superalloy					
H	Hard material					●



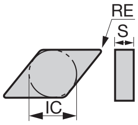
Application	Chipbreaker	Designation		Cermet	Uncoated	Ceramic			Dimension (inch)			
		Inch	Metric	NS520	TH10	FX105	LX21	LX11	RE	IC	S	D1
Finishing to medium cutting	-	DNGA 431	DNGA150404	●	●		●	●	0.016	0.500	0.187	0.203
		DNGA 432	DNGA150408	●	●	●	●	●	0.031	0.500	0.187	0.203
		DNGA 433	DNGA150412			●	●	●	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

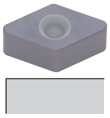
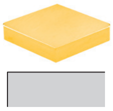
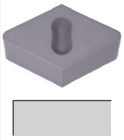
DN



**Rhombic, 55°
without hole**

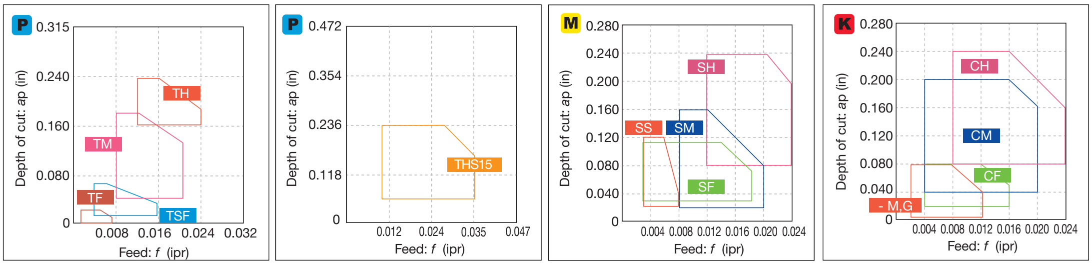
		FX105	LX11
P	Steel		
M	Stainless		
K	Cast iron	●◐	
N	Non-ferrous		
S	Superalloy		
H	Hard material		●



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

Chip control range



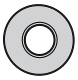
*-M,G: Without chipbreaker

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

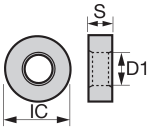
Insert NEGATIVE TYPE

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

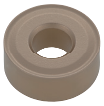
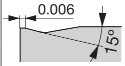
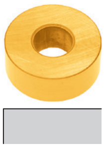
RN



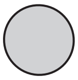
Round, with hole



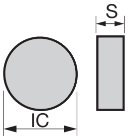
		Coated									Uncoated	Ceramic
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH120	TH10	LX11
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	●◐	●	
M	Stainless		●◐							●◐	●	
K	Cast iron	●◐	●◐			●◐	●◐			●◐	●	
N	Non-ferrous										●	
S	Superalloy									●◐		
H	Hard material											●

Application	Chipbreaker	Designation Inch	Designation 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



		Ceramic				
		FX105	LX11	TW43	TS200	TS300
P	Steel					
M	Stainless					
K	Cast iron	●◐				
N	Non-ferrous					
S	Superalloy			●	●	●
H	Hard material		●			

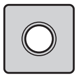
Application	Chipbreaker	Designation Inch	Designation Metric	FX105	LX11	TW43	TS200	TS300	RE	IC	S	D1
Finishing to medium cutting	-	RNGN 43	RNGN120400	●	●				-	0.500	0.187	-
		RNGN 45	RNGN120700	●	●	●			-	0.500	0.313	-
		RNGN 45-E	-				●	●	-	0.500	0.187	-
		RNGN 45-T1	-				●	●	-	0.500	0.187	-
		RNGN 43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

● : Line up
▲ : To be discontinued

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

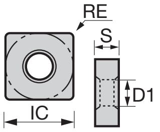
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

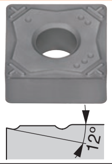
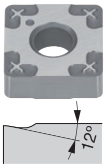
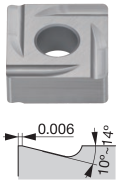
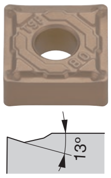
SN



Square, 90°
with hole

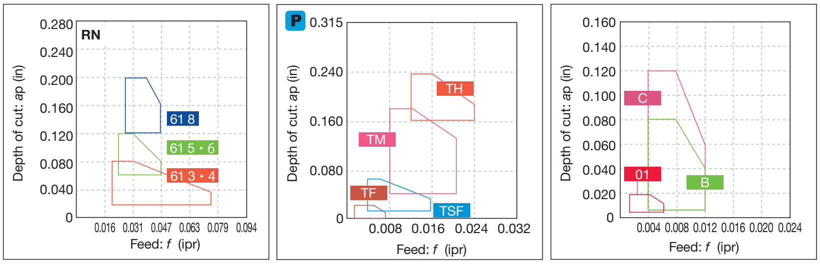
		T9215	T9225	T9115	T9125	GT9530	AT9530	NS9530	NS520	X407
P	Steel	●◐	◐✠	●◐	◐✠	●◐	●◐	●◐	●◐	●
M	Stainless	●◐								
K	Cast iron	●◐		●◐		●◐	●◐	●◐	●◐	●
N	Non-ferrous									
S	Superalloy									
H	Hard material									



Application	Chipbreaker	Designation		Coated				Coated cermet		Cermet			Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	GT9530	AT9530	NS9530	NS520	X407	RE	IC	S	D1
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

● : Line up
▲ : To be discontinued

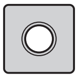
Chip control range



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

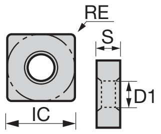
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

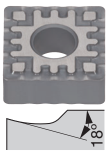
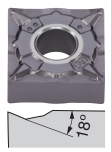
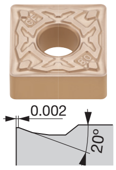
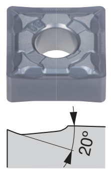
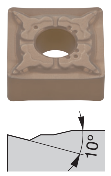
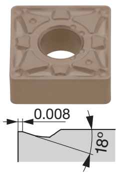
SN



Square, 90° with hole

		P	M	K	N	S	H
		Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material
Coated	T9205	●		●◐			
	T9215	●◐	●◐	●◐			
	T9225	◐✠					
	T9235	✠					
	T9105	●		●◐			
	T9115	●◐		●◐			
	T9125	◐✠					
	T9135	✠					
	T6120	◐	●				
	T6130	✠	◐				
	AH630	◐✠	◐				
	T5105			●			
	T5115			◐			
	AH8005		●			●	
	AH8015		◐			◐	
Coated cermet	GT9530	●◐		●◐			
	AT9530	●◐		●◐			
Cermet	NS9530	●◐		●◐			
Uncoated	TH10	●	●	●	●		



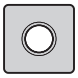
Application	Chipbreaker	Designation Inch	Designation Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	TH10	RE	IC	S	D1
Finishing	**11**	SNMG 431-11	SNMG120404-11																		●		0.016	0.500	0.187	0.203
		SNMG 432-11	SNMG120408-11																		●	●	0.031	0.500	0.187	0.203
Finishing (for mild steel)	**17**	SNMG 432-17	SNMG120408-17																		●		0.031	0.500	0.187	0.203
	 18°																									
Finishing	**SF**	SNMG 431 SF	SNMG120404-SF									●	●	●									0.016	0.500	0.187	0.203
	 18°	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	0.203
	 0.002 20°	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	0.203
	 20°	SNMG 433 HRF	SNMG120412-HRF														●	●					0.047	0.500	0.187	0.203
Finishing	**TS**	SNMG 431 TS	SNMG120404-TS		●	●			▲	▲									●	●	●		0.016	0.500	0.187	0.203
	 10°	SNMG 432 TS	SNMG120408-TS	●	●	●	●	▲	▲	▲	▲								●	●	●		0.031	0.500	0.187	0.203
		SNMG 433 TS	SNMG120412-TS		●	●	●		▲	▲	▲												0.047	0.500	0.187	0.203
High feed, small depth of cut	**AS**	SNMG 431 AS	SNMG120404-AS																		●		0.016	0.500	0.187	0.203
	 0.008 18°	SNMG 432 AS	SNMG120408-AS	●	●			▲	▲												●		0.031	0.500	0.187	0.203

Dimension (inch)

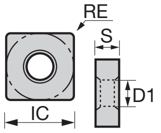
● : Line up
▲ : To be discontinued

● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

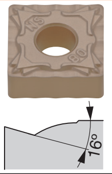
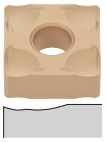
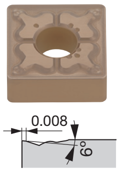
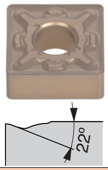
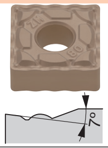
SN



Square, 90°
with hole

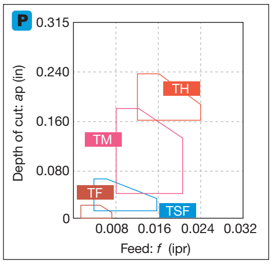


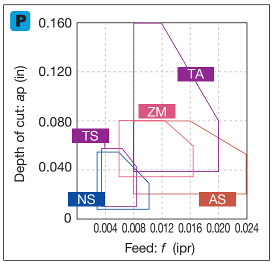
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GH330
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	◖	✠	◖✠	✠	●◖	●◖
M	Stainless		●◖							●	◖	◖	✠	●◖	●◖
K	Cast iron	●◖	●◖			●◖	●◖							●◖	●◖
N	Non-ferrous														
S	Superalloy													●◖	
H	Hard material														

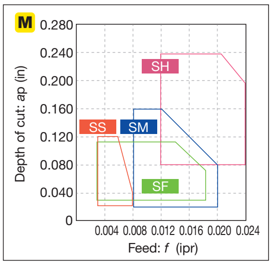
Application	Chipbreaker	Designation		Coated														Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GH330	RE	IC	S	D1
Finishing	**NS** 16°	SNMG 432 NS	SNMG120408-NS		●	●			▲	▲								0.031	0.500	0.187	0.203
	SS 	SNMG 431 SS	SNMG120404-SS									●	●	●	●		●	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** 0.008 6°	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
		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** 22°	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** 7°	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

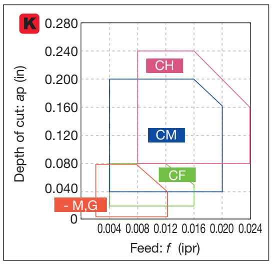
● : Line up
▲ : To be discontinued

Chip control range

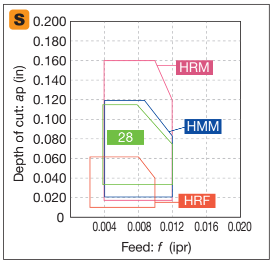








*-M,G: Without chipbreaker

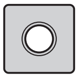


Reference pages: External toolholder → C098 - Internal toolholder → D047 -

Insert NEGATIVE TYPE

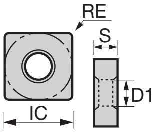
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

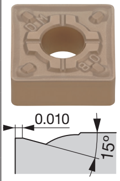
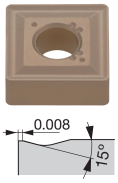
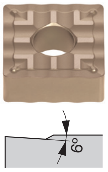
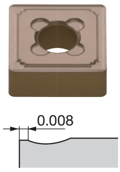
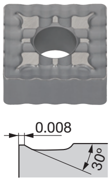
SN



**Square, 90°
with hole**

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



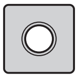
Application	Chipbreaker	Designation		Coated																	Coated cermet	Cer-met		Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6130	T515	T5105	T5115	T5125	AH110	AH120	AH905	GH330	GT720	NS9530	NS520	TH10	RE	IC	S	D1
Medium cutting	**DM**	SNMG 432 DM	SNMG120408-DM		●	●			▲	▲															0.031	0.500	0.187	0.203
	 0.010 15°	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
	 0.008 15°	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
	 6°	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
	 0.008	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
	37	SNMG 432-37	SNMG120408-37		●				▲											●		●			0.031	0.500	0.187	0.203
	 0.008 30°	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 -

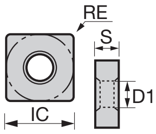
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

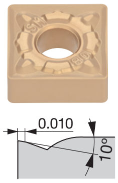
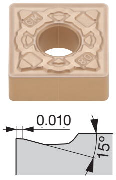
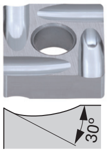
SN



Square, 90°
with hole

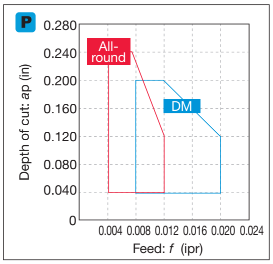
		T6120	T6130	AH630	AH645	AH120	T515	T5105	T5115	T5125	AH8005	AH8015	GH110	AH905	GH330	AH725		TH10	KS20
P	Steel	◐	✠	◐✠	✠	●◐							●		●◐	◐		●◐	
M	Stainless	●	◐	◐	✠	●◐					●	◐	●		●◐	◐			
K	Cast iron					●◐	●◐	●	◐	✠			●		●◐	◐		●◐	◐✠
N	Non-ferrous																		◐✠
S	Superalloy					●◐					●	◐	●	◐		●			◐✠
H	Hard material																		

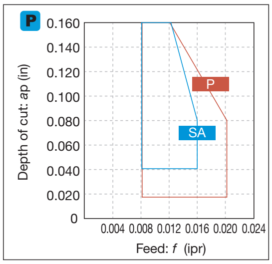


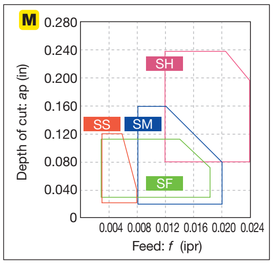
Application	Chipbreaker	Designation		Coated																Un-coated		Dimension (inch)			
		Inch	Metric	T6120	T6130	AH630	AH645	AH120	T515	T5105	T5115	T5125	AH8005	AH8015	GH110	AH905	GH330	AH725		TH10	KS20	RE	IC	S	D1
Medium cutting	**SM**	SNMG 432 SM	SNMG120408-SM	●	●	●	●											●				0.031	0.500	0.187	0.203
	 0.010 10°	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
	 0.010 15°	SNMG 433 CM	SNMG120412-CM						●	●	●	●										0.047	0.500	0.187	0.203
	P	SNGG 321 R-P	SNGG090304R-P												●					●		0.016	0.375	0.125	0.150
	 30°	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

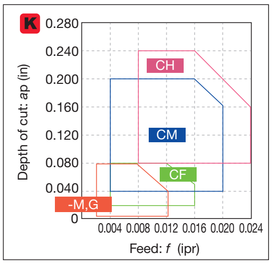
● : Line up

Chip control range

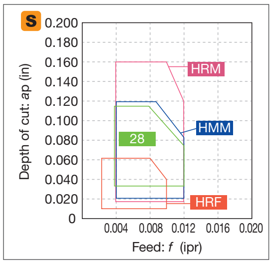








*-M,G: Without chipbreaker

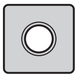


Reference pages: External toolholder → C098 - Internal toolholder → D047 -

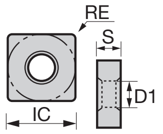
Insert NEGATIVE TYPE

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

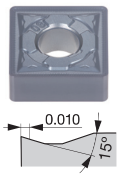
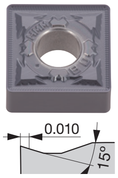
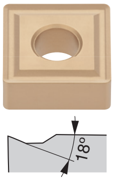
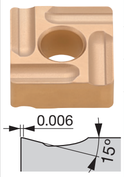
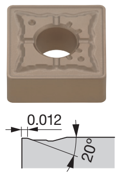
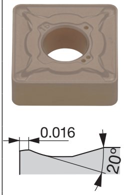
SN



Square, 90°
with hole



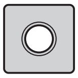
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH8005	AH8015	AH630	AH645	AH120	GH330	AH905	NS9530	KS20
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐	✠			◐✠	✠	●◐	●◐		●◐	
M	Stainless		●◐							●	◐	●	◐	◐	✠	●◐	●◐			
K	Cast iron	●◐	●◐			●◐	●◐									●◐	●◐		●◐	◐✠
N	Non-ferrous																			◐✠
S	Superalloy											●	◐			●◐		◐		◐✠
H	Hard material																			

Application	Chipbreaker	Designation		Coated																	Cer-met	Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH8005	AH8015	AH630	AH645	AH120	GH330	AH905	NS9530	KS20	RE	IC	S	D1
Finishing to medium cutting	**HRM**	SNMG 432 HRM	SNMG120408-HRM											●	●								0.031	0.500	0.187	0.203
		SNMG 433 HRM	SNMG120412-HRM											●	●								0.047	0.500	0.187	0.203
		SNMG 542 HRM	SNMG150608-HRM											●	●								0.031	0.625	0.250	0.250
		SNMG 543 HRM	SNMG150612-HRM											●	●								0.047	0.625	0.250	0.250
		SNMG 643 HRM	SNMG190612-HRM											●	●								0.047	0.750	0.250	0.312
		SNMG 644 HRM	SNMG190616-HRM											●	●								0.063	0.750	0.250	0.312
Medium cutting	**HMM**	SNMG 432 HMM	SNMG120408-HMM																	●			0.031	0.500	0.187	0.203
		SNMG 433 HMM	SNMG120412-HMM																	●			0.047	0.500	0.187	0.203
Medium cutting	**SA**	SNMG 431 SA	SNMG120404-SA									●	●			●	●	●					0.016	0.500	0.187	0.203
		SNMG 432 SA	SNMG120408-SA									●	●			●	●	●				●	0.031	0.500	0.187	0.203
		SNMG 433 SA	SNMG120412-SA									●	●			●	●	●					0.047	0.500	0.187	0.203
		SNMG 643 SA	SNMG190612-SA															●				●	0.047	0.750	0.250	0.312
		SNMG 644 SA	SNMG190616-SA															●					0.063	0.750	0.250	0.312
	S	SNMG 431 R-S	SNMG120404R-S			●	●			▲	▲		●			●	●				●		0.016	0.500	0.187	0.203
		SNMG 431 L-S	SNMG120404L-S			●	●			▲	▲		●			●	●				●		0.016	0.500	0.187	0.203
		SNMG 432 R-S	SNMG120408R-S			●	●			▲	▲		●			●	●		●		●		0.031	0.500	0.187	0.203
		SNMG 432 L-S	SNMG120408L-S			●	●			▲	▲		●			●	●		●		●		0.031	0.500	0.187	0.203
Medium to heavy cutting	**TH**	SNMG 432 TH	SNMG120408-TH		●	●	●		▲	▲	▲							●					0.031	0.500	0.187	0.203
		SNMG 433 TH	SNMG120412-TH		●	●	●		▲	▲	▲							●					0.047	0.500	0.187	0.203
		SNMG 543 TH	SNMG150612-TH	●	●	●		▲	▲	▲								●					0.047	0.625	0.250	0.250
		SNMG 544 TH	SNMG150616-TH	●	●	●		▲	▲	▲								●					0.063	0.625	0.250	0.250
		SNMG 643 TH	SNMG190612-TH	●	●	●	●	▲	▲	▲	▲							●					0.047	0.750	0.250	0.312
		SNMG 644 TH	SNMG190616-TH	●	●	●	●	▲	▲	▲	▲							●					0.063	0.750	0.250	0.312
	THS	SNMG 432 THS	SNMG120408-THS		●	●	●		▲	▲	▲												0.031	0.500	0.187	0.203
		SNMG 433 THS	SNMG120412-THS		●	●	●		▲	▲	▲												0.047	0.500	0.187	0.203
		SNMG 543 THS	SNMG150612-THS		●	●			▲	▲													0.047	0.625	0.250	0.250
		SNMG 544 THS	SNMG150616-THS		●	●			▲	▲													0.063	0.625	0.250	0.250
		SNMG 642 THS	SNMG190608-THS		●	●	●		▲	▲	▲												0.031	0.750	0.250	0.312
		SNMG 643 THS	SNMG190612-THS		●	●	●		▲	▲	▲												0.047	0.750	0.250	0.312
		SNMG 644 THS	SNMG190616-THS		●	●	●		▲	▲	▲												0.063	0.750	0.250	0.312
		SNMG 646 THS	SNMG190624-THS		●	●	●		▲	▲	▲												0.094	0.750	0.250	0.312
		SNMG 854 THS	SNMG250716-THS		●	●	●		▲	▲	▲												0.063	1.000	0.313	0.359
		SNMG 856 THS	SNMG250724-THS		●	●	●		▲	▲	▲												0.094	1.000	0.313	0.359

● : Line up
▲ : To be discontinued

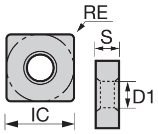
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

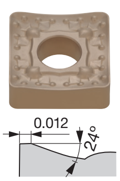
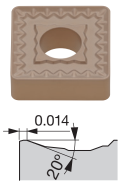
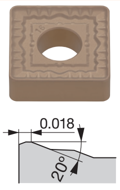
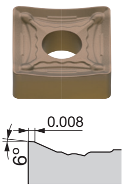
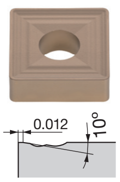
SN



**Square, 90°
with hole**

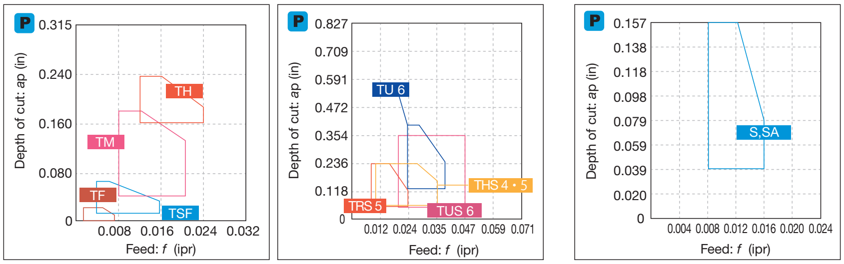
		T9215	T9225	T9235	T9115	T9125	T9135
P	Steel	●◐	◐✠	✠	●◐	◐✠	✠
M	Stainless	●◐					
K	Cast iron	●◐			●◐		
N	Non-ferrous						
S	Superalloy						
H	Hard material						



Application	Chipbreaker	Designation		Coated						Dimension (inch)			
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	RE	IC	S	D1
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

Chip control range

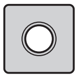


Reference pages: External toolholder → C098 - Internal toolholder → D047 -

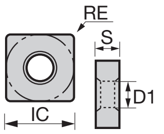
Insert NEGATIVE TYPE

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

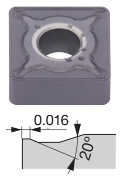
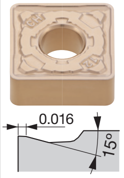
SN



Square, 90°
with hole

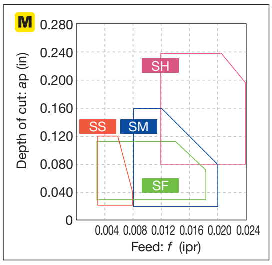


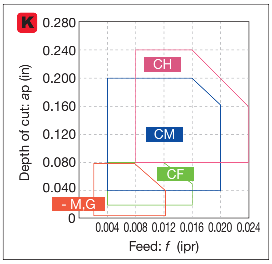
	T6130	AH630	AH645	T515	T5105	T5115	T5125	GT720	NS520	TH10	FX105	LX21	LX11
P Steel	✠	◐✠	✠					●◐	●◐	●			
M Stainless	◐	◐	✠							●			
K Cast iron				●◐	●	◐	✠	●◐	●◐	●	●◐	●	
N Non-ferrous										●			
S Superalloy													
H Hard material													●

Application	Chipbreaker	Designation Inch	Designation Metric	Coated T6130	Coated AH630	Coated AH645	Coated T515	Coated T5105	Coated T5115	Coated T5125	Coated cermet GT720	Cermet NS520	Uncoated TH10	Ceramic FX105	Ceramic LX21	Ceramic LX11	Dimension (inch) 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





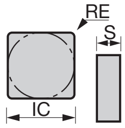
Reference pages: External toolholder → C098 - Internal toolholder → D047 -

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

SN

Square, 90°
without hole

		AH120				TH10				FX105	LX21	LX11	TZ120						
P	Steel	●◐				●													
M	Stainless	●◐				●													
K	Cast iron	●◐				●				●◐	●		●						
N	Non-ferrous					●													
S	Superalloy	●◐																	
H	Hard material											●							



Application	Chipbreaker	Designation		Coated				Uncoated				Ceramic										Dimension (inch)			
		Inch	Metric	AH120				TH10				FX105	LX21	LX11	TZ120							RE	IC	S	D1
Finishing to medium cutting	-	SNGD 453	SNGD120712									●										0.047	0.500	0.313	-
		SNGD 454	SNGD120716									●										0.063	0.500	0.313	-
	-	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.

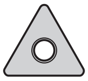
● : Line up

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

Insert NEGATIVE TYPE

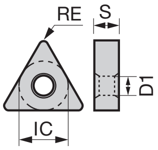
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

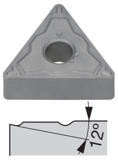
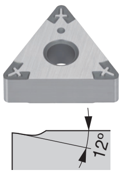
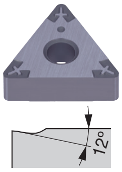
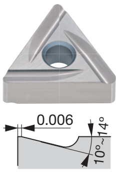
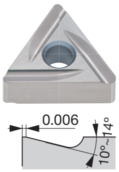
TN



Triangular, 60°
with hole

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



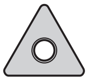
Application	Chipbreaker	Designation		Coated			Coated cermet		Cermet			Uncoated	Dimension (inch)			
		Inch	Metric	GH110	GH330	SH725	GT9530	GT720	NS9530	NS520	X407	TH10	RE	IC	S	D1
Precision finishing	TF	TNMG 331 TF	TNMG160404-TF						●	●		●	0.016	0.375	0.187	0.150
	 12°	TNMG 332 TF	TNMG160408-TF						●	●			0.031	0.375	0.187	0.150
	01	TNGG 220.5-01	TNGG110302-01						●				0.008	0.250	0.125	0.089
	 12°	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
		TNGG 333-01	TNGG160412-01					●	●				0.047	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
	 12°	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
	 0.006 10°~14°	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
	 0.006 10°~14°	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 -**

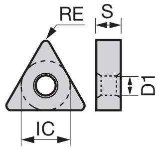
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

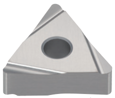
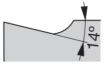
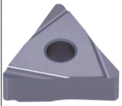
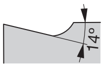
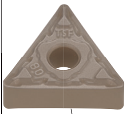
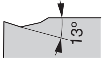
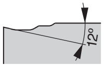
TN



Triangular, 60°
with hole

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH120	SH725	GT9530	AT9530	NS9530	TH10
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	●◖	●◖	●◖	●◖	●◖	●
M	Stainless		●◖							●◖	●◖				●
K	Cast iron	●◖	●◖			●◖	●◖			●◖		●◖	●◖	●◖	●
N	Non-ferrous														●
S	Superalloy									●◖					
H	Hard material														

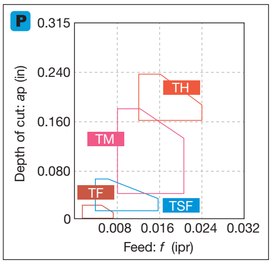


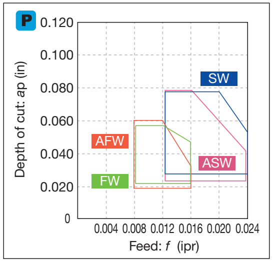
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9205	Coated T9215	Coated T9225	Coated T9235	Coated T9105	Coated T9115	Coated T9125	Coated T9135	Coated AH120	Coated SH725	Coated cermet GT9530	Coated cermet AT9530	Cermet NS9530	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Precision finishing	**W**	TNGG 331 R-W	TNGG160404R-W													●	●	0.016	0.375	0.187	0.150
		TNGG 331 L-W	TNGG160404L-W													●	●	0.016	0.375	0.187	0.150
		TNGG 332 R-W	TNGG160408R-W													●		0.031	0.375	0.187	0.150
		TNGG 332 L-W	TNGG160408L-W													●		0.031	0.375	0.187	0.150
	 14°																				
Precision finishing (sharp edge)	**W**	TNGG 330.5 FR-W	TNGG160402FR-W										●					0.008	0.375	0.187	0.150
		TNGG 330.5 FL-W	TNGG160402FL-W										●					0.008	0.375	0.187	0.150
		TNGG 331 FR-W	TNGG160404FR-W										●					0.016	0.375	0.187	0.150
		TNGG 331 FL-W	TNGG160404FL-W										●					0.016	0.375	0.187	0.150
	 14°	TNGG 332 FR-W	TNGG160408FR-W										●					0.031	0.375	0.187	0.150
		TNGG 332 FL-W	TNGG160408FL-W										●					0.031	0.375	0.187	0.150
Finishing	**TSF**	TNMG 231E TSF	TNMG110404E-TSF		●	●			▲	▲				●	●	●		0.016	0.250	0.187	0.089
		TNMG 232E TSF	TNMG110408E-TSF		●	●			▲	▲				●	●	●		0.031	0.250	0.187	0.089
		TNMG 330.5 TSF	TNMG160402-TSF									●		●	●	●		0.008	0.375	0.187	0.150
		TNMG 331 TSF	TNMG160404-TSF		●	●	●		▲	▲	▲	●		●	●	●		0.016	0.375	0.187	0.150
		TNMG 332 TSF	TNMG160408-TSF	●	●	●	●	▲	▲	▲	▲	●		●	●	●		0.031	0.375	0.187	0.150
	 13°	TNMG 333 TSF	TNMG160412-TSF		●	●	●		▲	▲	▲			●				0.047	0.375	0.187	0.150
Finishing (wiper)	**FW**	TNMG 231E FW	TNMG110404E-FW		●				▲									0.016	0.250	0.187	0.089
		TNMG 232E FW	TNMG110408E-FW		●				▲									0.031	0.250	0.187	0.089
		TNMG 331 FW	TNMG160404-FW		●				▲									0.016	0.375	0.187	0.150
		TNMG 332 FW	TNMG160408-FW		●				▲									0.031	0.375	0.187	0.150
	 12°	*Wiper																			

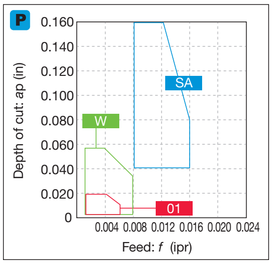
* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

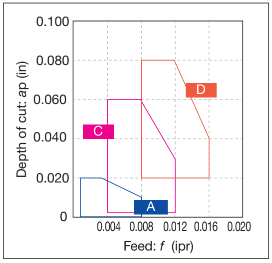
● : Line up
▲ : To be discontinued

Chip control range





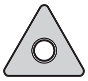




Reference pages: External toolholder → **C029 -** Internal toolholder → **D053 -**
J-Series toolholder → **G058 -**

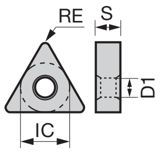
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

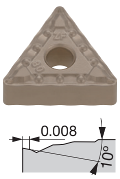
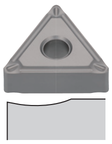
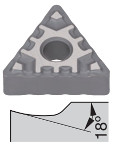
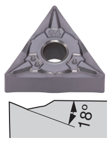
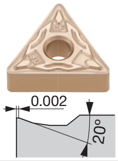
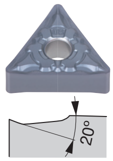
TN



Triangular, 60° with hole

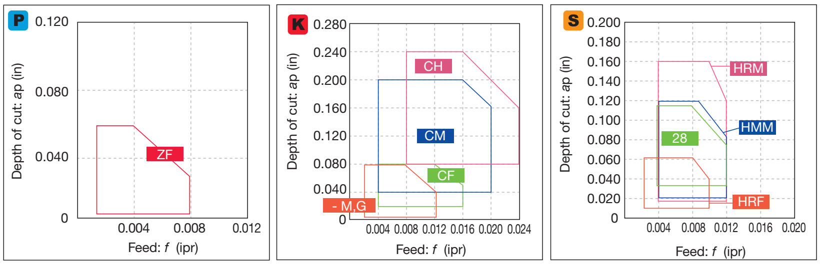
		T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	TH10
P	Steel	◐✠	◐✠	✠	●◐	◐✠	✠	◐	✠	◐✠					●◐	●◐	●◐	●◐	●
M	Stainless							●	◐	◐			●	◐	●◐				●
K	Cast iron				●◐						●	◐			●◐	●◐	●◐	●◐	●
N	Non-ferrous																		●
S	Superalloy												●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



Application	Chipbreaker	Designation Inch	Designation Metric	Coated														Coated cermet	Cermet	Uncoated	Dimension (inch)			
				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
	0.008 10°	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
		TNMG 432-11	TNMG220408-11																	●		0.031	0.500	0.187	0.203
Finishing (for mild steel)	**17**	TNMG 331-17	TNMG160404-17		●			▲									●			●		0.016	0.375	0.187	0.150
	 18°	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
	 18°	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
	 0.002 20°	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
	 20°	TNMG 332 HRF	TNMG160408-HRF												●	●						0.031	0.375	0.187	0.150

● : Line up
▲ : To be discontinued

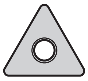
Chip control range



*-M,G: Without chipbreaker

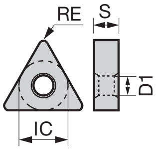
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

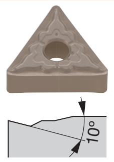
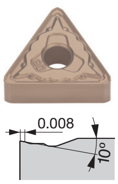
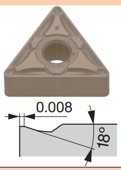
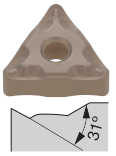
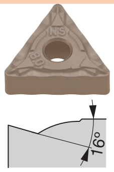
TN



Triangular, 60°
with hole

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135			GT9530	AT9530			NS9530	NS520		
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠			●◐	●◐			●◐	●◐		
M	Stainless		●◐																
K	Cast iron	●◐	●◐			●◐	●◐					●◐	●◐			●◐	●◐		
N	Non-ferrous																		
S	Superalloy																		
H	Hard material																		

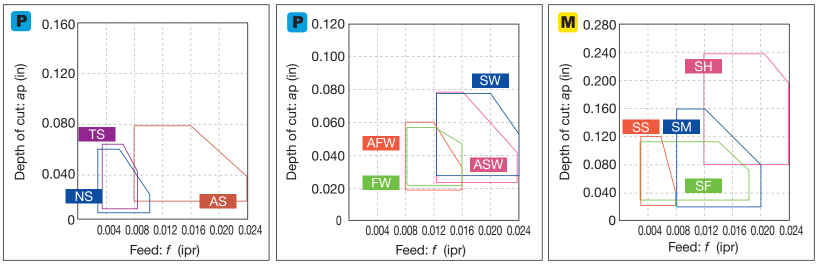


Application	Chipbreaker	Designation		Coated										Coated cermet				Cermet				Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135			GT9530	AT9530			NS9530	NS520			RE	IC	S	D1
Finishing	**TS**	TNMG 331 TS	TNMG160404-TS		●	●	●		▲	▲	▲			●	●			●	●			0.016	0.375	0.187	0.150
		TNMG 332 TS	TNMG160408-TS	●	●	●	●	▲	▲	▲	▲			●	●			●	●			0.031	0.375	0.187	0.150
		TNMG 333 TS	TNMG160412-TS	●	●	●	●	▲	▲	▲	▲											0.047	0.375	0.187	0.150
Finishing to medium cutting (wiper)	**SW**	TNMG 232E SW	TNMG110408E-SW		●				▲													0.031	0.250	0.187	0.089
		TNMG 233E SW	TNMG110412E-SW		●				▲													0.047	0.250	0.187	0.089
		TNMG 332 SW	TNMG160408-SW		●				▲													0.031	0.375	0.187	0.150
		TNMG 333 SW	TNMG160412-SW		●				▲													0.047	0.375	0.187	0.150
		*Wiper																							
High feed, small depth of cut	**AS**	TNMG 331 AS	TNMG160404-AS			●	●			▲	▲							●				0.016	0.375	0.187	0.150
		TNMG 332 AS	TNMG160408-AS	●	●	●	●	▲	▲	▲	▲							●				0.031	0.375	0.187	0.150
		TNMG 333 AS	TNMG160412-AS	●	●	●		▲	▲	▲												0.047	0.375	0.187	0.150
Boring (double side)	**CB**	TNMG 221 CB	TNMG110304-CB		●				▲									●				0.016	0.250	0.125	0.089
		TNMG 222 CB	TNMG110308-CB		●				▲									●				0.031	0.250	0.125	0.089
Finishing	**NS**	TNMG 331 NS	TNMG160404-NS		●	●			▲	▲								●				0.016	0.375	0.187	0.150
		TNMG 332 NS	TNMG160408-NS	●	●	●		▲	▲	▲								●				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
▲ : To be discontinued

Chip control range

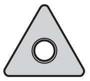


Reference pages: External toolholder → **C029 -** Internal toolholder → **D053 -**
J-Series toolholder → **G058 -**

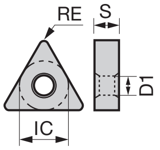
Insert NEGATIVE TYPE

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

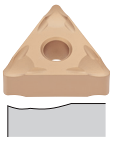
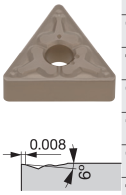
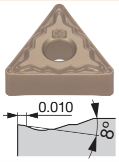
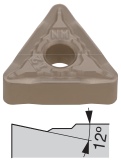
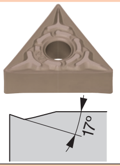
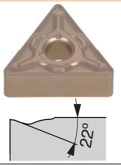
TN



Triangular, 60°
with hole



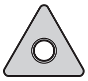
	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH8005	AH630	AH645	AH120	AH725	GH330	GT9530	AT9530	NS9530	KS20
P Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐	✠		◐✠	✠	●◐	◐	●◐	●◐	●◐	●◐	
M Stainless		●◐							●	◐	●	◐	✠	●◐	◐	●◐				
K Cast iron	●◐	●◐			●◐	●◐								●◐	◐	●◐	●◐	●◐	●◐	◐✠
N Non-ferrous																				◐✠
S Superalloy											●			●◐	●					◐✠
H Hard material																				

Application	Chipbreaker	Designation		Coated																Coated cermet		Cer-met	Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH8005	AH630	AH645	AH120	AH725	GH330	GT9530	AT9530	NS9530	KS20	RE	IC	S	D1
Finishing	**SS**	TNMG 231E SS	TNMG110404E-SS												●	●								0.016	0.250	0.187	0.089
		TNMG 232E SS	TNMG110408E-SS												●	●								0.031	0.250	0.187	0.089
		TNMG 331 SS	TNMG160404-SS									●	●		●	●	●		●				●	0.016	0.375	0.187	0.150
		TNMG 332 SS	TNMG160408-SS									●	●		●	●	●		●				●	0.031	0.375	0.187	0.150
		TNMG 333 SS	TNMG160412-SS									●	●		●	●			●					0.047	0.375	0.187	0.150
		TNMG 431 SS	TNMG220404-SS									●	●		●	●			●					0.016	0.500	0.187	0.203
		TNMG 432 SS	TNMG220408-SS									●	●		●	●			●					0.031	0.500	0.187	0.203
		TNMG 433 SS	TNMG220412-SS									●	●		●	●								0.047	0.500	0.187	0.203
Medium cutting	**TM**	TNMG 221 TM	TNMG110304-TM		●	●	●		▲	▲	▲													0.016	0.250	0.125	0.089
	 0.008 6°	TNMG 222 TM	TNMG110308-TM		●	●	●		▲	▲	▲													0.031	0.250	0.125	0.089
		TNMG 231E TM	TNMG110404E-TM		●	●			▲	▲														0.016	0.250	0.187	0.089
		TNMG 232E TM	TNMG110408E-TM		●	●			▲	▲														0.031	0.250	0.187	0.089
		TNMG 233E TM	TNMG110412E-TM		●	●			▲	▲														0.047	0.250	0.187	0.089
		TNMG 321 TM	TNMG160304-TM														●							0.016	0.375	0.125	0.150
		TNMG 322 TM	TNMG160308-TM																					0.031	0.375	0.125	0.150
		TNMG 331 TM	TNMG160404-TM		●	●	●		▲	▲	▲						●	●						0.016	0.375	0.187	0.150
		TNMG 332 TM	TNMG160408-TM	●	●	●	●	▲	▲	▲	▲						●	●						0.031	0.375	0.187	0.150
		TNMG 333 TM	TNMG160412-TM	●	●	●	●	▲	▲	▲	▲						●							0.047	0.375	0.187	0.150
		TNMG 334 TM	TNMG160416-TM											●										0.063	0.375	0.187	0.150
		TNMG 431 TM	TNMG220404-TM		●	●			▲	▲							●							0.016	0.500	0.187	0.203
		TNMG 432 TM	TNMG220408-TM	●	●	●	●	▲	▲	▲	▲						●							0.031	0.500	0.187	0.203
		TNMG 433 TM	TNMG220412-TM		●	●	●		▲	▲	▲						●							0.047	0.500	0.187	0.203
		TNMG 434 TM	TNMG220416-TM		●	●			▲	▲														0.063	0.500	0.187	0.203
Finishing to medium cutting	**AM**	TNMG 332 AM	TNMG160408-AM		●	●			▲	▲														0.031	0.375	0.187	0.150
	 0.010 8°	TNMG 333 AM	TNMG160412-AM		●	●			▲	▲														0.047	0.375	0.187	0.150
	NM	TNMG 332 NM	TNMG160408-NM			●				▲														0.031	0.375	0.187	0.150
	 12°	TNMG 333 NM	TNMG160412-NM		●	●			▲	▲														0.047	0.375	0.187	0.150
	TQ	TNMG 331 TQ	TNMG160404-TQ		●	●														●	●	●		0.016	0.375	0.187	0.150
	 17°	TNMG 332 TQ	TNMG160408-TQ		●	●														●	●	●		0.031	0.375	0.187	0.150
Medium cutting	**TA**	TNMG 331 TA	TNMG160404-TA		●	●																		0.016	0.375	0.187	0.150
	 22°	TNMG 332 TA	TNMG160408-TA		●	●																		0.031	0.375	0.187	0.150
		TNMG 333 TA	TNMG160412-TA		●	●																		0.047	0.375	0.187	0.150

● : Line up
▲ : To be discontinued

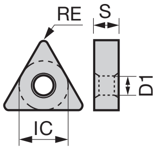
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

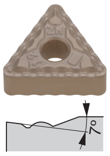
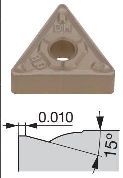
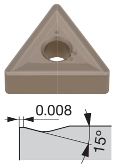
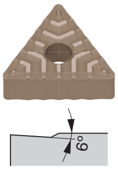
TN



Triangular, 60° with hole

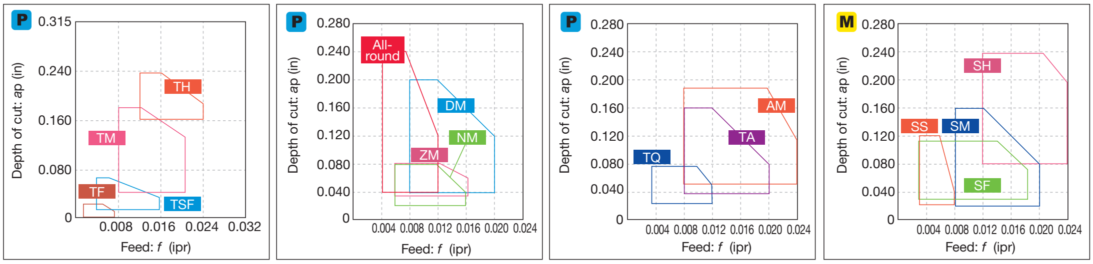
		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	AH630	T515	T5105	T5115	T5125	AH110	AH120	GT9530	GT720	NS9530	NS520	TH10
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐✠					●	●◐	●◐	●◐	●◐	●◐	●
M	Stainless		●◐							◐					●	●◐					●
K	Cast iron	●◐	●◐			●◐	●◐				●◐	●	◐	✠	●	●◐	●◐	●◐	●◐	●◐	●
N	Non-ferrous																	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



Application	Chipbreaker	Designation		Coated															Coated cermet		Cermet		Uncoated	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
	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

●: Line up
▲: To be discontinued

Chip control range

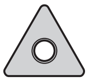


Reference pages: External toolholder → C029 - Internal toolholder → D053 -
J-Series toolholder → G058 -

Insert NEGATIVE TYPE

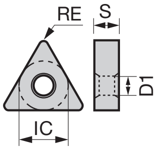
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

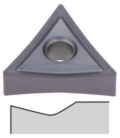
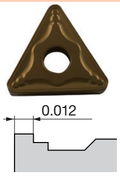
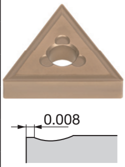
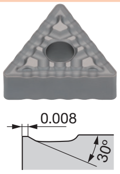
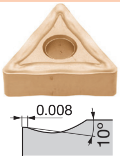
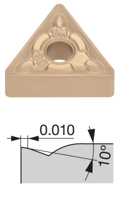
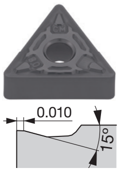
TN



Triangular, 60° with hole

		T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH8005	AH8015	T515	T5105	T5115	T5125	AH110	AH120	AH725	GH330	GT720	NS9530	TH10
P	Steel	●◖	◖✠	✠	●◖	◖✠	✠	◖	✠	◖✠	✠								●◖	◖	●◖	●◖	●◖	●
M	Stainless	●◖						●	◖	◖	✠	●	◖						●◖	◖	●◖			●
K	Cast iron	●◖			●◖									●◖	●	◖	✠		●◖	◖	●◖	●◖	●◖	●
N	Non-ferrous																							●
S	Superalloy											●	◖					●	●◖	●				
H	Hard material																							

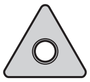


Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH8005	AH8015	T515	T5105	T5115	T5125	AH110	AH120	AH725	GH330	Coated cermet GT720	Cermet NS9530	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Medium cutting	28	TNMG 331-28	TNMG160404-28											●	●					●	●						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	0.203
	32	TNMG 666-32	TNMG330924-32								●										●						0.094	0.750	0.375	0.312
	 0.012																													
	33	TNMG 331-33	TNMG160404-33																							●	0.016	0.375	0.187	0.150
	 0.008	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
		TNMG 434-33	TNMG220416-33		●			▲																			0.063	0.500	0.187	0.203
	37	TNMG 331-37	TNMG160404-37	●			▲																●		●		0.016	0.375	0.187	0.150
	 0.008 30°	TNMG 332-37	TNMG160408-37	●			▲																●		●		0.031	0.375	0.187	0.150
	38	TNMG 331-38	TNMG160404-38																				●				0.016	0.375	0.187	0.150
	 0.008 10°	TNMG 332-38	TNMG160408-38																				●				0.031	0.375	0.187	0.150
	SM	TNMG 231E SM	TNMG110404E-SM							●	●	●															0.016	0.250	0.187	0.089
	 0.010 10°	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
	CM	TNMG 331 CM	TNMG160404-CM													●	●	●	●								0.016	0.375	0.187	0.150
	 0.010 15°	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

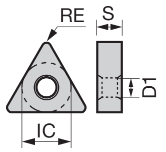
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

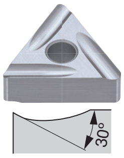
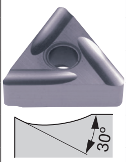
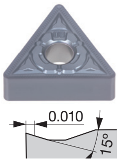
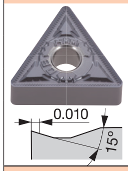
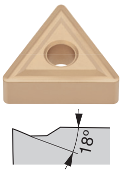
TN



Triangular, 60° with hole

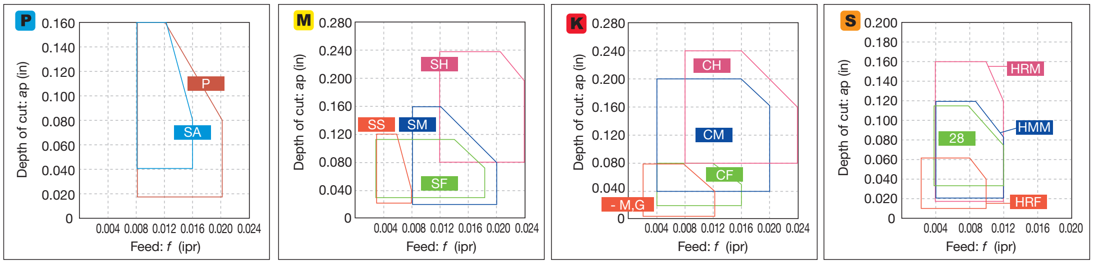
P	Steel	◐	✠	◐✠	✠	●◐				●	●◐	●◐		●◐			●		
M	Stainless	●	◐	◐	✠	●◐	●	◐		●	●◐	●◐					●		
K	Cast iron					●◐				●	●◐			●◐			●	◐✠	
N	Non-ferrous																●	◐✠	
S	Superalloy					●◐	●	◐	◐	●								◐✠	
H	Hard material																		



Application	Chipbreaker	Designation		Coated												Cermet			Uncoated			Dimension (inch)			
		Inch	Metric	T6120	T6130	AH630	AH645	AH120	AH8005	AH8015	AH905	GH110	GH330	SH725		NS9530			TH10	KS20		RE	IC	S	D1
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
	SA	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
		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

Chip control range

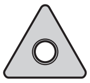


*-M,G: Without chipbreaker

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

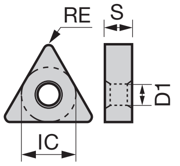
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

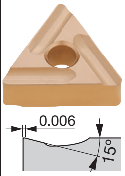
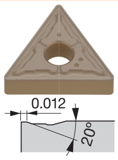
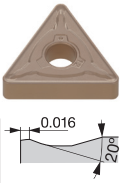
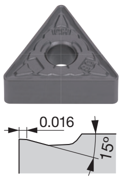
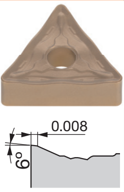
TN



Triangular, 60°
with hole

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



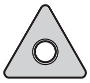
Application	Chipbreaker	Designation		Coated																Cermet		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9235	T9115	T9125	T9135	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH120	AH725	GH330	NS9530		RE	IC	S	D1
Medium cutting	**S** 	**TNMG 331 R-S**	**TNMG160404R-S**	●	●	●	▲	▲	▲	●	●	●						●	●	●		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
		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
Medium to heavy cutting (single side)	**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

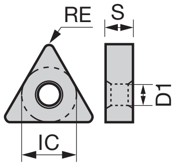
Reference pages: External toolholder → C029 - Internal toolholder → D053 -
J-Series toolholder → G058 -

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

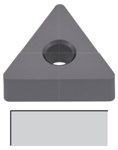
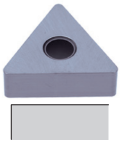
TN



Triangular, 60° with hole

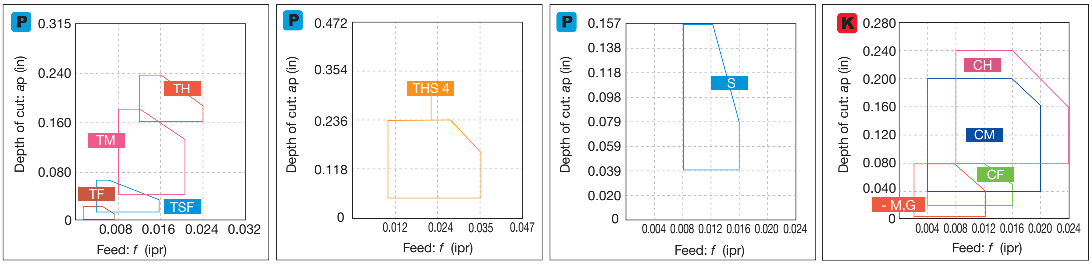


		T515	T5105	T5115	T5125	GH110	GT720	NS520	TH03	TH10	FX105	LX21	LX11
P	Steel					●	●◐	●◐	●	●			
M	Stainless					●			●	●			
K	Cast iron	●◐	●	◐	✠	●	●◐	●◐	●	●	●◐	●	
N	Non-ferrous								●	●			
S	Superalloy					●							
H	Hard material												●

Application	Chipbreaker	Designation Inch	Designation Metric	Coated T515	Coated T5105	Coated T5115	Coated T5125	Coated GH110	Coated cermet GT720	Cermet NS520	Uncoated TH03	Uncoated TH10	Ceramic FX105	Ceramic LX21	Ceramic LX11	Dimension (inch) RE	IC	S	D1
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

Chip control range



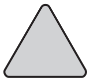
*-M,G: Without chipbreaker

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

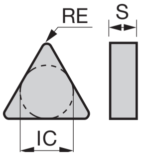
Insert NEGATIVE TYPE

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

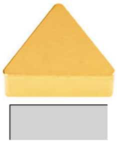
TN



Triangular, 60°
without hole

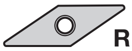


		TH10	FX105	LX21	LX11	TZ120
P	Steel	●				
M	Stainless	●				
K	Cast iron	●	●◐	●		●
N	Non-ferrous	●				
S	Superalloy					
H	Hard material				●	

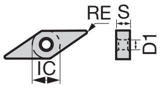
Application	Chipbreaker	Designation		Uncoated	Ceramic				Dimension (inch)			
		Inch	Metric	TH10	FX105	LX21	LX11	TZ120	RE	IC	S	D1
Finishing to medium cutting	-	TNGN 222	TNGN110308	●					0.031	0.250	0.125	-
		TNGN 331	TNGN160404			●	●		0.016	0.375	0.187	-
		TNGN 332	TNGN160408	●		●	●		0.031	0.375	0.187	-
		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

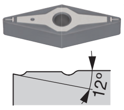
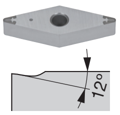
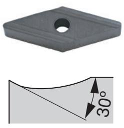
VN



Rhombic, 35°
with hole



		GH110	GT720	NS9530	NS520	TH10
P	Steel	●	●◐	●◐	●◐	●
M	Stainless	●				●
K	Cast iron	●	●◐	●◐	●◐	●
N	Non-ferrous					●
S	Superalloy	●				
H	Hard material					

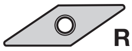
Application	Chipbreaker	Designation		Coated	Coated cermet	Cermet		Uncoated	Dimension (inch)			
		Inch	Metric	GH110	GT720	NS9530	NS520	TH10	RE	IC	S	D1
Precision finishing	TF	VNMG 331 TF	VNMG160404-TF			●			0.016	0.375	0.187	0.150
	 12°	VNMG 332 TF	VNMG160408-TF		●	●			0.031	0.375	0.187	0.150
	01	VNGG 330.5-01	VNGG160402-01	●		●	●	●	0.008	0.375	0.187	0.150
	 12°	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	0.150
	 30°	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 -

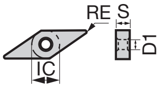
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

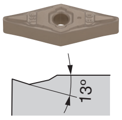
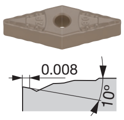
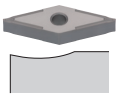
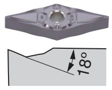
VN



Rhombic, 35°
with hole

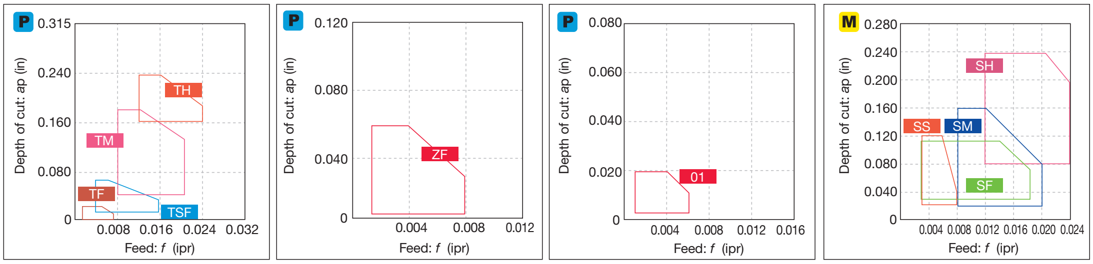
P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	◖	✠	◖✠	●◖	●◖	●◖	●◖	●◖	●	
M	Stainless		●◖							●	◖		●◖	●◖				●	
K	Cast iron	●◖	●◖			●◖	●◖						●◖	●◖	●◖	●◖	●◖	●	
N	Non-ferrous																	●	
S	Superalloy												●◖						
H	Hard material																		



Application	Chipbreaker	Designation		Coated													Coated cermet		Cer-met	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													●			●	●		0.016	0.375	0.187	0.150
		VNMG 332-11	VNMG160408-11																●			0.031	0.375	0.187	0.150
		VNMG 333-11	VNMG160412-11														●		●			0.047	0.375	0.187	0.150
	SF	VNMG 331 SF	VNMG160404-SF									●	●	●								0.016	0.375	0.187	0.150
		VNMG 332 SF	VNMG160408-SF									●	●	●								0.031	0.375	0.187	0.150

●: Line up
▲ : To be discontinued

Chip control range

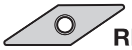


Reference pages: External toolholder → C057 - Internal toolholder → D078 -
TungCap → C064 -, K015 -

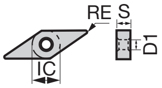
Insert NEGATIVE TYPE

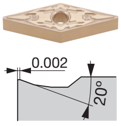
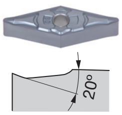
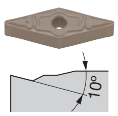
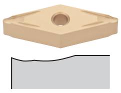
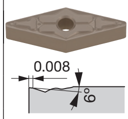
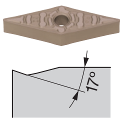
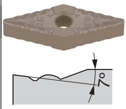
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

VN



Rhombic, 35°
with hole



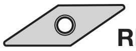
			P Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	◖	✠	◖✠	✠			●	●◖			●◖	●◖	●◖	●◖	●◖				
			M Stainless		●◖							●	◖	◖	✠			●	●◖	●	◖	●◖								
			K Cast iron	●◖	●◖			●◖	●◖							●	◖	●	●◖			●◖	●◖	●◖	●◖	●◖				
			N Non-ferrous																											
			S Superalloy															●	●◖	●	◖									
			H Hard material																											
				Coated																			Coated cermet		Cermet		Dimension (inch)			
Application	Chipbreaker	Designation		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T5105	T5115	AH110	AH120	AH8005	AH8015	GH330	GT9530	AT9530	NS9530	NS520	RE	IC	S	D1
		Inch	Metric																											
Finishing	**CF**  	VNMG 331 CF	VNMG160404-CF													●	●										0.016	0.375	0.187	0.150
		VNMG 332 CF	VNMG160408-CF													●	●										0.031	0.375	0.187	0.150
	HRF  	VNMG 331 HRF	VNMG160404-HRF																	●	●						0.016	0.375	0.187	0.150
		VNMG 332 HRF	VNMG160408-HRF																	●	●						0.031	0.375	0.187	0.150
	TS  	VNMG 331 TS	VNMG160404-TS		●	●	●		▲	▲	▲												●	●	●	●	0.016	0.375	0.187	0.150
		VNMG 332 TS	VNMG160408-TS		●	●	●		▲	▲	▲												●	●	●	●	0.031	0.375	0.187	0.150
		VNMG 333 TS	VNMG160412-TS		●	●	●		▲	▲	▲																0.047	0.375	0.187	0.150
	SS 	VNMG 2.331E SS	VNMG120404E-SS									●	●	●	●												0.016	0.281	0.187	0.150
		VNMG 2.332E SS	VNMG120408E-SS									●	●	●	●												0.031	0.281	0.187	0.150
		VNMG 331 SS	VNMG160404-SS									●	●	●	●				●			●					0.016	0.375	0.187	0.150
		VNMG 332 SS	VNMG160408-SS									●	●	●	●				●			●					0.031	0.375	0.187	0.150
		VNMG 333 SS	VNMG160412-SS									●	●	●	●				●			●					0.047	0.375	0.187	0.150
Medium cutting	**TM**  	VNMG 2.331E TM	VNMG120404E-TM		●	●			▲	▲																	0.016	0.281	0.187	0.150
		VNMG 2.332E TM	VNMG120408E-TM		●	●			▲	▲																	0.031	0.281	0.187	0.150
		VNMG 331 TM	VNMG160404-TM	●	●	●	●	▲	▲	▲	▲		●					●	●								0.016	0.375	0.187	0.150
		VNMG 332 TM	VNMG160408-TM	●	●	●	●	▲	▲	▲	▲		●					●	●								0.031	0.375	0.187	0.150
		VNMG 333 TM	VNMG160412-TM	●	●	●	●	▲	▲	▲	▲							●									0.047	0.375	0.187	0.150
Finishing to medium cutting	**TQ**  	VNMG 331 TQ	VNMG160404-TQ		●	●																	●	●	●		0.016	0.375	0.187	0.150
		VNMG 332 TQ	VNMG160408-TQ		●	●																	●	●	●		0.031	0.375	0.187	0.150
Finishing to medium cutting	**ZM**  	VNMG 332 ZM	VNMG160408-ZM		●	●	●		▲	▲	▲																0.031	0.375	0.187	0.150
		VNMG 333 ZM	VNMG160412-ZM		●	●	●		▲	▲	▲																0.047	0.375	0.187	0.150

● : Line up
▲ : To be discontinued

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

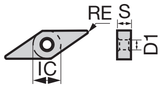
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

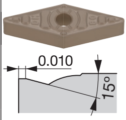
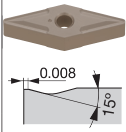
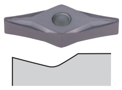
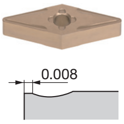
VN



**Rhombic, 35°
with hole**

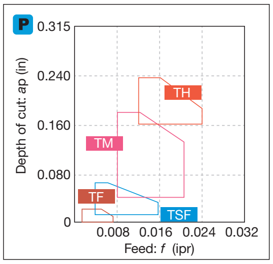
P Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠					●	●◖			●◖	●
M Stainless		●◖											●	●◖	●	◖		●
K Cast iron	●◖	●◖			●◖	●◖			●◖	●	◖	✠	●	●◖			●◖	●
N Non-ferrous																		●
S Superalloy													●	●◖	●	◖		
H Hard material																		

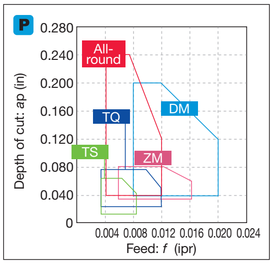


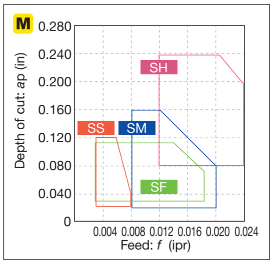
Application	Chipbreaker	Designation		Coated																Cer-met	Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	AH8005	AH8015	NS9530	TH10	RE	IC	S	D1
Medium cutting	**DM**	VNMG 332 DM	VNMG160408-DM	●	●	●	●	▲	▲	▲	▲											0.031	0.375	0.187	0.150
	 0.010 15°	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
	 0.008 15°	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
	 0.008	VNMG 332-33	VNMG160408-33		●	●			▲	▲											●	0.031	0.375	0.187	0.150

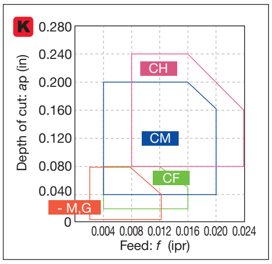
●: Line up
▲ : To be discontinued

Chip control range

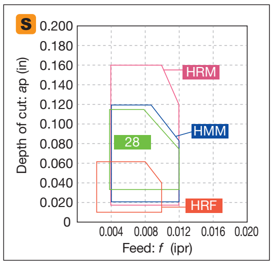








*-M,G: Without chipbreaker

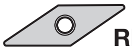


Reference pages: External toolholder → C062 - Internal toolholder → D078 -
TungCap → C064 -, K015 -

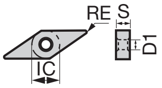
Insert NEGATIVE TYPE

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

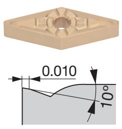
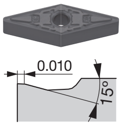
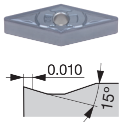
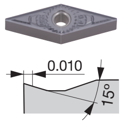
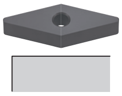
VN



Rhombic, 35°
with hole



		T6120	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH8005	AH8015	AH905		NS520		TH10		LX11	
P	Steel	◐	✥	◐✥	✥									●◐		●			
M	Stainless	●	◐	◐	✥					●	◐					●			
K	Cast iron					●◐	●	◐	✥					●◐		●			
N	Non-ferrous															●			
S	Superalloy									●	◐	◐							
H	Hard material																	●	

Application	Chipbreaker	Designation		Coated												Cer-met		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
Medium cutting	**SM**	VNMG 2.331E SM	VNMG120404E-SM	●	●	●	●															0.016	0.281	0.187	0.150
	 0.010 10°	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
	 0.010 15°	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
	 0.010 15°	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
	 0.010 15°	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.

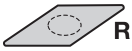
● : Line up

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

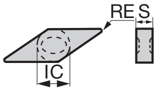
Insert NEGATIVE TYPE

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

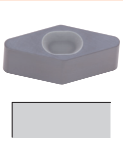
VN



Rhombic, 35°
without hole

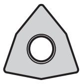


		Ceramic
P	Steel	
M	Stainless	
K	Cast iron	●◐
N	Non-ferrous	
S	Superalloy	
H	Hard material	
		FX105

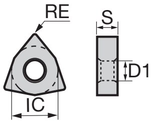
Application	Chipbreaker	Designation Inch	Designation Metric	FX105	RE	IC	S	D1
Finishing to medium cutting	-	VNGD 353	VNGD160712	●	0.047	0.375	0.313	-
								

Dimension (inch)

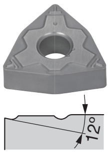
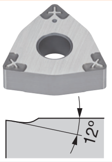
WN



Trigon, 80°
with hole



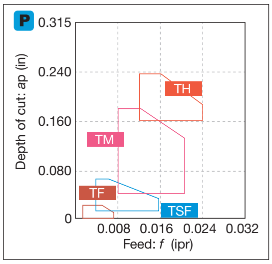
		Coated cermet	Cermet	
		GT720	NS9530	NS520
P	Steel	●◐	●◐	●◐
M	Stainless			
K	Cast iron	●◐	●◐	●◐
N	Non-ferrous			
S	Superalloy			
H	Hard material			

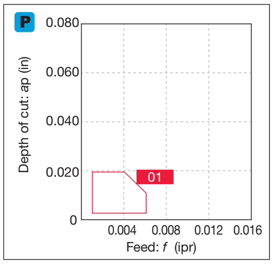
Application	Chipbreaker	Designation Inch	Designation Metric	GT720	NS9530	NS520	RE	IC	S	D1
Precision finishing	TF	WNMG 431 TF	WNMG080404-TF		●		0.016	0.500	0.187	0.203
		WNMG 432 TF	WNMG080408-TF		●		0.031	0.500	0.187	0.203
	01	WNGG 430.5-01	WNGG080402-01		●	●	0.008	0.500	0.187	0.203
		WNGG 431-01	WNGG080404-01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

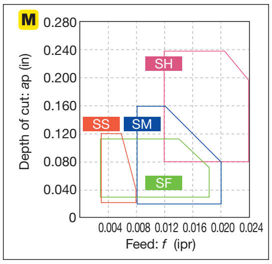
Dimension (inch)

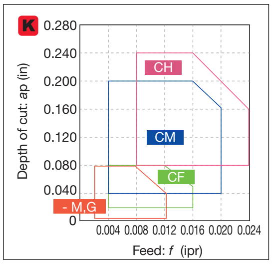
● : Line up

Chip control range

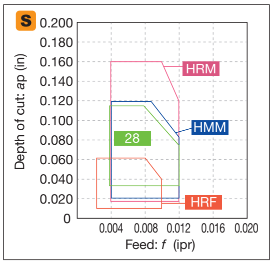








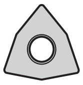
*-M,G: Without chipbreaker



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

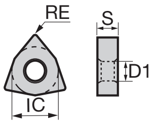
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

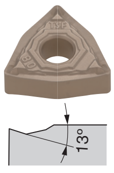
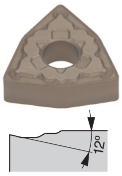
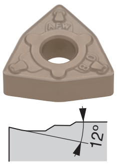
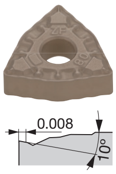
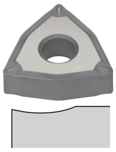
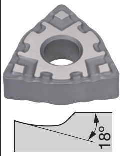
WN



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	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
		*Wiper																							
	AFW	WNMG 331 AFW	WNMG060404-AFW		●	●			▲	▲									●			0.016	0.375	0.187	0.150
		WNMG 332 AFW	WNMG060408-AFW	●	●	●	●	▲	▲	▲	▲								●			0.031	0.375	0.187	0.150
		WNMG 431 AFW	WNMG080404-AFW		●	●			▲	▲									●			0.016	0.500	0.187	0.203
		WNMG 432 AFW	WNMG080408-AFW	●	●	●	●	▲	▲	▲	▲	●							●			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
	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

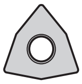
* Please see L034-L038 about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

● : Line up
▲ : To be discontinued

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

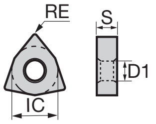
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

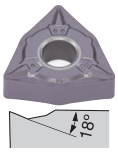
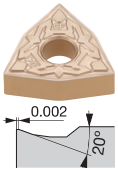
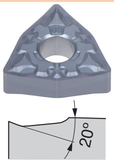
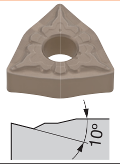
WN



Trigon, 80°
with hole

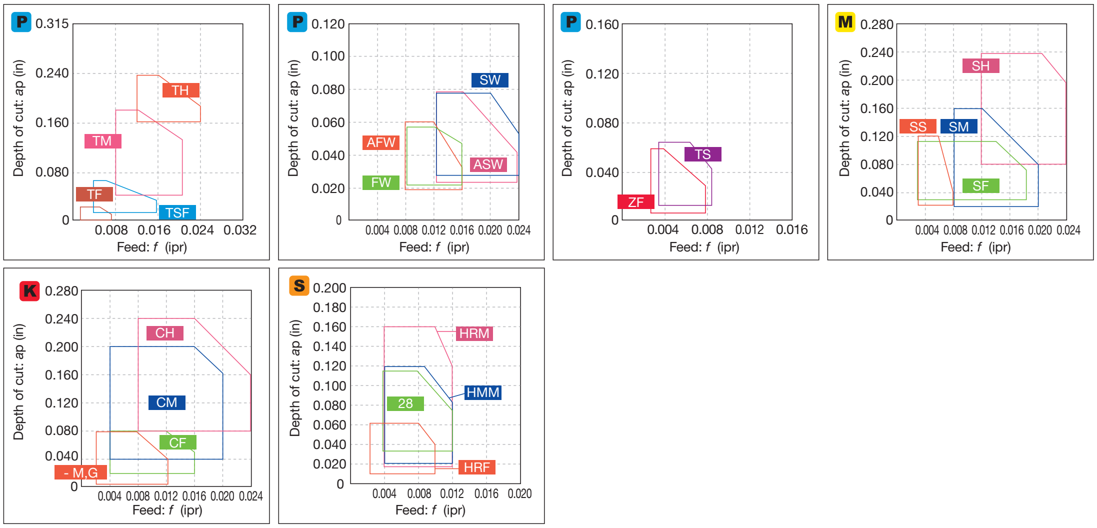
		T9205	T9215	T9225	T9235	T9115	T9125	T9135	T6120	T6130	AH630	T5105	T5115	AH8005	AH8015	GT9530	AT9530	NS9530	NS520
P	Steel	●	●◐	◐✠	✠	●◐	◐✠	✠	◐	✠	◐✠					●◐	●◐	●◐	●◐
M	Stainless		●◐						●	◐	◐			●	◐				
K	Cast iron	●◐	●◐			●◐						●	◐			●◐	●◐	●◐	●◐
N	Non-ferrous																		
S	Superalloy													●	◐				
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								●	●	●									0.016	0.375	0.187	0.150
	 18°	WNMG 332 SF	WNMG060408-SF								●	●	●									0.031	0.375	0.187	0.150
		WNMG 431 SF	WNMG080404-SF								●	●	●									0.016	0.500	0.187	0.203
		WNMG 432 SF	WNMG080408-SF								●	●	●									0.031	0.500	0.187	0.203
	CF	WNMG 431 CF	WNMG080404-CF											●	●							0.016	0.500	0.187	0.203
	 0.002 20°	WNMG 432 CF	WNMG080408-CF											●	●							0.031	0.500	0.187	0.203
		WNMG 433 CF	WNMG080412-CF											●	●							0.047	0.500	0.187	0.203
	HRF	WNMG 431 HRF	WNMG080404-HRF													●	●					0.016	0.500	0.187	0.203
	 20°	WNMG 432 HRF	WNMG080408-HRF													●	●					0.031	0.500	0.187	0.203
	TS	WNMG 431 TS	WNMG080404-TS		●	●	●	▲	▲	▲								●	●	●	●	0.016	0.500	0.187	0.203
	 10°	WNMG 432 TS	WNMG080408-TS		●	●	●	▲	▲	▲								●	●	●	●	0.031	0.500	0.187	0.203
		WNMG 433 TS	WNMG080412-TS		●	●	●	▲	▲	▲												0.047	0.500	0.187	0.203

●: Line up
▲ : To be discontinued

Chip control range



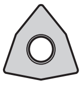
*-M,G: Without chipbreaker

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

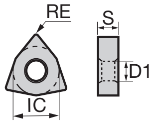
Insert NEGATIVE TYPE

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

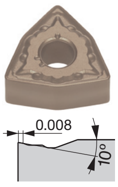
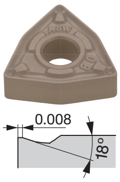
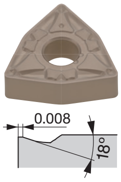
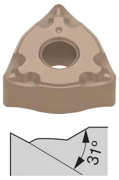
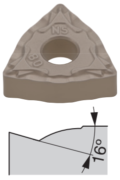
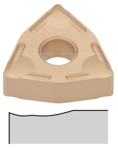
WN



Trigon, 80° with hole



		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T515	T5115	GH330	NS9530
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐	✠	◐✠	✠			●◐	●◐
M	Stainless		●◐							●	◐	◐	✠			●◐	
K	Cast iron	●◐	●◐			●◐	●◐							●◐	◐	●◐	●◐
N	Non-ferrous																
S	Superalloy																
H	Hard material																

Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T515	T5115	GH330	Cer-met NS9530	Dimension (inch) 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																					
	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
	SS	**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

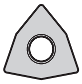
* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

●: Line up
▲ : To be discontinued

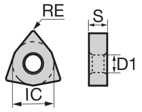
Reference pages: External toolholder → C031 - Internal toolholder → D035 -
TungCap → C038 -, K011 -

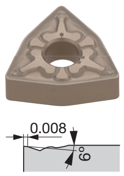
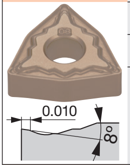
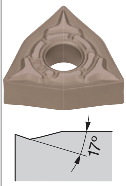
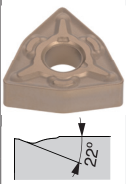
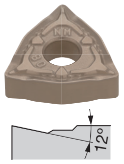
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

WN



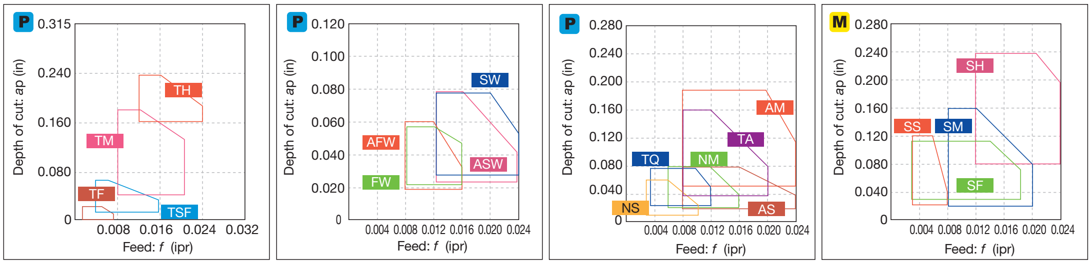
Trigon, 80° with hole



		P	Steel	●	●◖	◖✠	✠	●	●◖	◖✠	✠	●◖	◖			●◖	●◖			●◖					
		M	Stainless		●◖							●◖	◖	◖											
		K	Cast iron	●◖	●◖			●◖	●◖			●◖	◖		●◖	●◖	●◖			●◖					
		N	Non-ferrous																						
		S	Superalloy									●◖	●	◖											
		H	Hard material																						
				Coated												Coated cermet				Cer-met		Dimension (inch)			
Application	Chipbreaker	Designation		**T9205**	**T9215**	**T9225**	**T9235**	**T9105**	**T9115**	**T9125**	**T9135**	**AH120**	**AH725**	**AH8015**	**T515**	**GT9530**	**AT9530**			**NS9530**		**RE**	**IC**	**S**	**D1**
		Inch	Metric																						
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
Finishing to medium cutting	**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

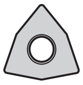
Chip control range



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

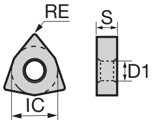
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

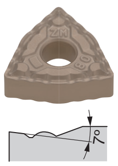
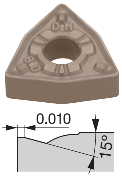
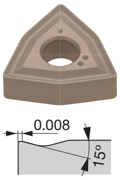
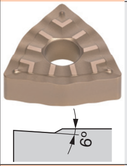
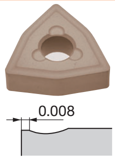
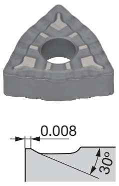
WN



Trigon, 80°
with hole

		T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GH330	GT720	GT9530	NS9530	NS520	TH10
P	Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠					●	●◐	●◐	●◐	●◐	●◐	●◐	●
M	Stainless		●◐											●	●◐	●◐					●
K	Cast iron	●◐	●◐			●◐	●◐			●◐	●	◐	✠	●	●◐	●◐	●◐	●◐	●◐	●◐	●
N	Non-ferrous																				●
S	Superalloy													●	●◐						
H	Hard material																				



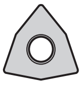
Application	Chipbreaker	Designation		Coated															Coated cermet		Cermet		Un-coated	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T515	T5105	T5115	T5125	AH110	AH120	GH330	GT720	GT9530	NS9530	NS520	TH10	RE	IC	S	D1
Finishing to medium cutting	**ZM**  	WNMG 332E 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
		WNMG 433	WNMG080412	●	●	●	●	▲	▲	▲	▲	●	●	●	●	●	●						●	0.047	0.500	0.187	0.203
		WNMG 434	WNMG080416	●	●	●	●	▲	▲	▲	▲	●	●	●	●									0.063	0.500	0.187	0.203
Finishing to medium cutting	**27**  	WNMG 432-27	WNMG080408-27			●				▲														0.031	0.500	0.187	0.203
Medium cutting	**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

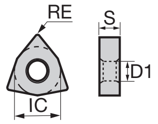
Reference pages: External toolholder → C031 - Internal toolholder → D035 -
TungCap → C038 -, K011 -

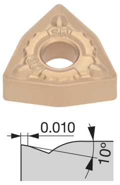
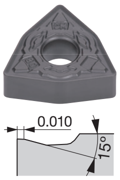
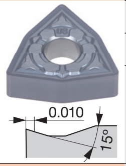
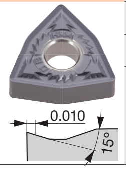
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

WN



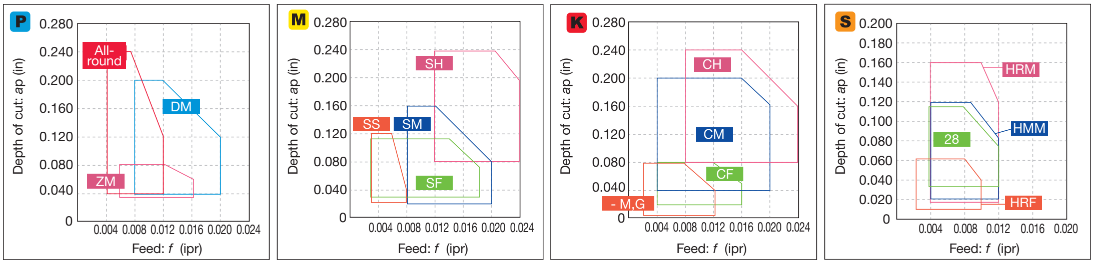
Trigon, 80°
with hole



P	Steel			◐	✠	◐✠	✠					●◐	◐								
M	Stainless			●	◐	◐	✠					●◐	◐	●	◐						
K	Cast iron							●◐	●	◐	✠	●◐	◐				●✠				
N	Non-ferrous																●✠				
S	Superalloy											●◐	●	●	◐	◐	●✠				
H	Hard material																				
Application	Chipbreaker	Designation		Coated													Uncoated	Dimension (inch)			
		Inch	Metric	T6120	T6130	AH630	AH645	T515	T5105	T5115	T5125	AH120	AH725	AH8005	AH8015	AH905	KS20	RE	IC	S	D1
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
	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

Chip control range



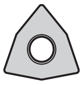
*-M,G: Without chipbreaker

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

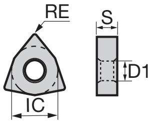
Insert NEGATIVE TYPE

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

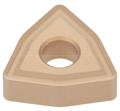
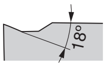
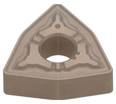
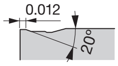
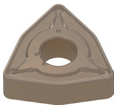
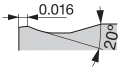
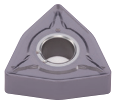
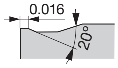
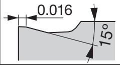
WN



Trigon, 80°
with hole



	T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T5105	T5115	T5125	T515	AH120	AH725	AH8015	KS20
P Steel	●	●◐	◐✠	✠	●	●◐	◐✠	✠	◐	✠	◐✠	✠					●◐	◐		
M Stainless		●◐							●	◐	◐	✠					●◐	◐	◐	
K Cast iron	●◐	●◐			●◐	●◐							●	◐	✠	●◐	●◐	◐		●✠
N Non-ferrous																				●✠
S Superalloy																	●◐	●	◐	●✠
H Hard material																				

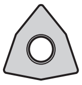
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9205	T9215	T9225	T9235	T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	T5105	T5115	T5125	T515	AH120	AH725	AH8015	Un-coated KS20	Dimension (inch) RE	IC	S	D1
Medium cutting	**SA**	WNMG 432 SA	WNMG080408-SA									●	●	●	●					●	●		●	0.031	0.500	0.187	0.203
		WNMG 433 SA	WNMG080412-SA									●	●	●	●					●				0.047	0.500	0.187	0.203
Medium to heavy cutting	**TH**	WNMG 432 TH	WNMG080408-TH	●	●	●	●	▲	▲	▲	▲		●						●	●		●		0.031	0.500	0.187	0.203
		WNMG 433 TH	WNMG080412-TH	●	●	●	●	▲	▲	▲	▲								●	●		●		0.047	0.500	0.187	0.203
		WNMG 434 TH	WNMG080416-TH	●	●	●		▲	▲	▲									●	●		●		0.063	0.500	0.187	0.203
		WNMG 543 TH	WNMG100612-TH		●	●			▲	▲														0.047	0.625	0.250	0.250
		WNMG 544 TH	WNMG100616-TH		●	●			▲	▲														0.063	0.625	0.250	0.250
	THS	WNMG 432 THS	WNMG080408-THS	●	●	●	●	▲	▲	▲	▲													0.031	0.500	0.187	0.203
		WNMG 433 THS	WNMG080412-THS	●	●	●	●	▲	▲	▲	▲													0.047	0.500	0.187	0.203
		WNMG 434 THS	WNMG080416-THS		●	●			▲	▲														0.063	0.500	0.187	0.203
		WNMG 543 THS	WNMG100612-THS		●	●	●		▲	▲	▲													0.047	0.625	0.250	0.250
		WNMG 544 THS	WNMG100616-THS		●	●	●		▲	▲	▲													0.063	0.625	0.250	0.250
	SH	WNMG 432 SH	WNMG080408-SH										●	●	●									0.031	0.500	0.187	0.203
		WNMG 433 SH	WNMG080412-SH										●	●	●									0.047	0.500	0.187	0.203
	CH	WNMG 432 CH	WNMG080408-CH													●	●	●						0.031	0.500	0.187	0.203
		WNMG 433 CH	WNMG080412-CH													●	●	●						0.047	0.500	0.187	0.203

●: Line up
▲ : To be discontinued

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

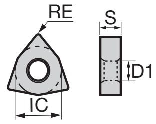
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

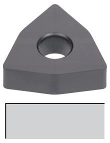
WN



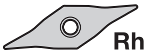
Trigon, 80°
with hole

		T515	T5105	T5115	T5125	AH120	NS520	TH10	LX11
P	Steel					●◐	●◐	●	
M	Stainless					●◐		●	
K	Cast iron	●◐	●	◐	✠	●◐	●◐	●	
N	Non-ferrous							●	
S	Superalloy					●◐			
H	Hard material								●



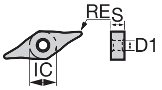
Application	Chipbreaker	Designation		Coated					Cermet	Uncoated	Ceramic	Dimension (inch)			
		Inch	Metric	T515	T5105	T5115	T5125	AH120	NS520	TH10	LX11	RE	IC	S	D1
Finishing to medium cutting	-	WNMA 331E	WNMA060404E	●								0.016	0.375	0.187	0.150
		WNMA 332E	WNMA060408E	●								0.031	0.375	0.187	0.150
		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
											●				

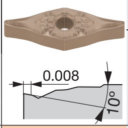
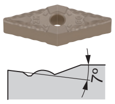
YN



Rhombic, 25°
with hole

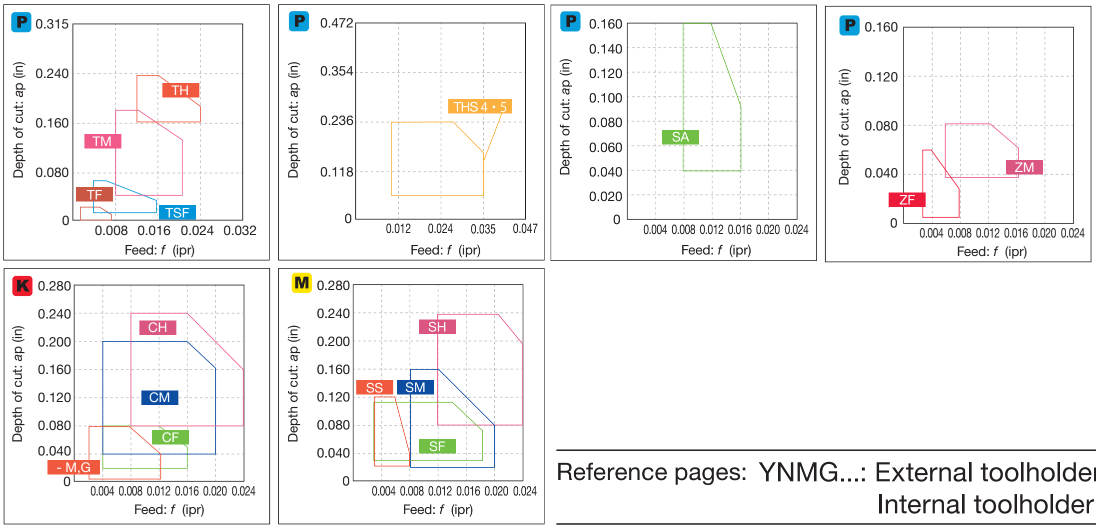
		T9225	T9235	T9125	T9135	GT9530	NS9530
P	Steel	◐✠	✠	◐✠	✠	●◐	●◐
M	Stainless						
K	Cast iron					●◐	●◐
N	Non-ferrous						
S	Superalloy						
H	Hard material						



Application	Chipbreaker	Designation		Coated				Coated cermet	Cermet	Dimension (inch)			
		Inch	Metric	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
	 0.008 10°	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
	 7°	YNMG 332 ZM	YNMG160408-ZM	●	●	▲	▲	●	●	0.031	0.375	0.187	0.150

●: Line up
▲ : To be discontinued

Chip control range



*-M,G: Without chipbreaker

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

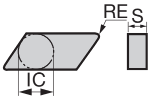
Insert NEGATIVE TYPE

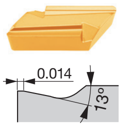
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

KN

Parallelogram, 55°
without hole

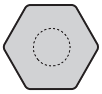
P	Steel	●◖
M	Stainless	●◖
K	Cast iron	●◖
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation Inch	Designation Metric	Coated GH330	Dimension (inch) RE	IC	S	D1
Finishing	**S1**	-	**KNMX160405R-S1**	●	0.020	0.375	0.187	-
		-	KNMX160405L-S1	●	0.020	0.375	0.187	-

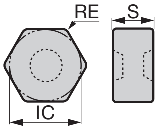
●: Line up

HN



Hexagonal,
120°
without hole

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



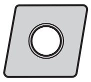
Application	Chipbreaker	Designation Inch	Designation Metric	Ceramic FX105	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	-	**HNGD 453**	**HNGD050712**	●	0.047	0.500	0.313	-
		HNGD 454	HNGD050716	●	0.063	0.500	0.313	-

●: Line up

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

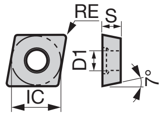
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

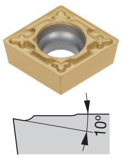
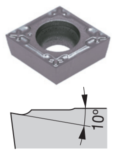
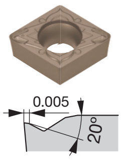
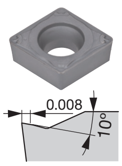
CC



Rhombic, 80°
with hole
Positive 7°

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

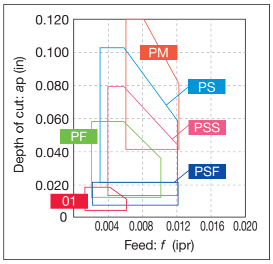


Application	Chipbreaker	Designation		Coated														Coated cermet		Cermet		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH725	AH8005	AH8015	AH110	GH730	SH725	J740		GT9530		NS9530		RE	IC	S	D1
Precision finishing	**01**	**CCGT 21.50.5-01**	**CCGT060202-01**													●						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

Chip control range

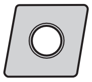


Reference pages: External toolholder → C026 - Internal toolholder → D020 -
J-Series toolholder → G027 -

Insert POSITIVE TYPE

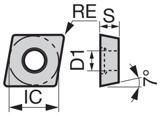
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

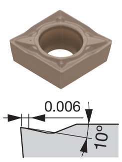
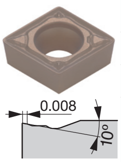
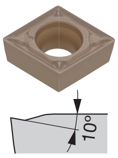
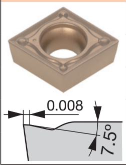
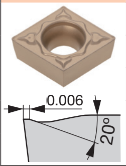
CC



Rhombic, 80°
with hole
Positive 7°

		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	GH730	GT9530	AT9530		NS9530	
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	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

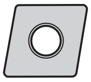
* Please see **L034-L038** about the adjustment of the machining program for rounding or taper machining by using SW/FW.
Please contact a Tungaloy sales representative with questions.

● : Line up
▲ : To be discontinued

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

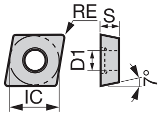
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

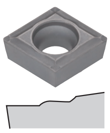
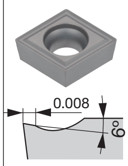
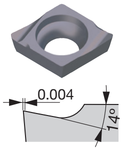
CC



Rhombic, 80°
with hole
Positive 7°

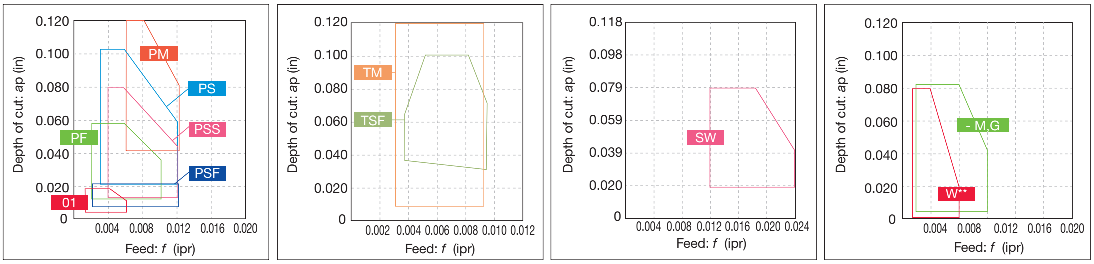
		T9215	T9225	T9115	T9125	T6130	AH120	SH730	NS9530	TH10
P	Steel	●◐	◐✣	●◐	◐✣	✣	●◐	●◐	●◐	●
M	Stainless	●◐				◐	●◐	●◐		●
K	Cast iron	●◐		●◐			●◐		●◐	●
N	Non-ferrous									●
S	Superalloy						●◐	●◐		
H	Hard material									



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								●		0.008	0.250	0.094	0.110
		CCMT 21.51-23	CCMT060204-23		●		▲				●		0.016	0.250	0.094	0.110
		CCMT 21.52-23	CCMT060208-23		●		▲						0.031	0.250	0.094	0.110
		CCMT 32.51-23	CCMT09T304-23		●		▲				●		0.016	0.375	0.156	0.173
		CCMT 32.52-23	CCMT09T308-23		●		▲				●		0.031	0.375	0.156	0.173
Medium cutting	**24**	CCMT 21.50.5-24	CCMT060202-24		●		▲				●		0.008	0.250	0.094	0.110
		CCMT 21.51-24	CCMT060204-24	●	●	▲	▲	●	●		●		0.016	0.250	0.094	0.110
		CCMT 21.52-24	CCMT060208-24	●	●	▲	▲	●	●		●		0.031	0.250	0.094	0.110
		CCMT 32.50.5-24	CCMT09T302-24		●		▲				●		0.008	0.375	0.156	0.173
		CCMT 32.51-24	CCMT09T304-24	●	●	▲	▲	●	●		●		0.016	0.375	0.156	0.173
		CCMT 32.52-24	CCMT09T308-24	●	●	▲	▲	●	●		●		0.031	0.375	0.156	0.173
		CCMT 432-24	CCMT120408-24	●	●	▲	▲	●	●		●		0.031	0.500	0.187	0.217
Finishing	**W08**	CCGT 4.51.8V R-W08	CCGT03X100R-W08							●		●	0.001	0.141	0.055	0.075
		CCGT 4.51.8V L-W08	CCGT03X100L-W08							●		●	0.001	0.141	0.055	0.075
		CCGT 4.51.80 R-W08	CCGT03X101R-W08							●		●	0.004	0.141	0.055	0.075
		CCGT 4.51.80 L-W08	CCGT03X101L-W08							●		●	0.004	0.141	0.055	0.075
		CCGT 4.51.80.5 R-W08	CCGT03X102R-W08							●		●	0.008	0.141	0.055	0.075
		CCGT 4.51.80.5 L-W08	CCGT03X102L-W08							●		●	0.008	0.141	0.055	0.075
		CCGT 4.51.81 R-W08	CCGT03X104R-W08							●		●	0.016	0.141	0.055	0.075
		CCGT 4.51.81 L-W08	CCGT03X104L-W08							●		●	0.016	0.141	0.055	0.075
		CCGT 5.52.2V R-W08	CCGT04T100R-W08							●		●	0.001	0.172	0.070	0.091
		CCGT 5.52.2V L-W08	CCGT04T100L-W08							●		●	0.001	0.172	0.070	0.091
		CCGT 5.52.20 R-W08	CCGT04T101R-W08							●		●	0.004	0.172	0.070	0.091
		CCGT 5.52.20 L-W08	CCGT04T101L-W08							●		●	0.004	0.172	0.070	0.091
		CCGT 5.52.20.5 R-W08	CCGT04T102R-W08							●		●	0.008	0.172	0.070	0.091
		CCGT 5.52.20.5 L-W08	CCGT04T102L-W08							●		●	0.008	0.172	0.070	0.091
		CCGT 5.52.21 R-W08	CCGT04T104R-W08							●		●	0.016	0.172	0.070	0.091
		CCGT 5.52.21 L-W08	CCGT04T104L-W08							●		●	0.016	0.172	0.070	0.091

● : Line up
▲ : To be discontinued

Chip control range



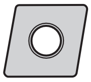
*-M,G: Without chipbreaker

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

Insert POSITIVE TYPE

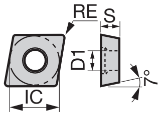
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

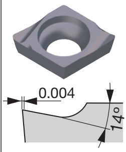
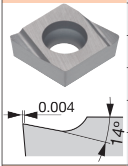
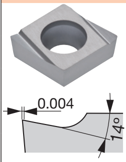
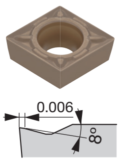
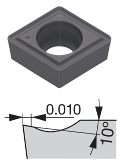
CC



Rhombic, 80°
with hole
Positive 7°

		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH110	AH120	AH725	GH110	GH330	GH730	SH725	GT9530	NS9530	TH10	UX30
P	Steel	●◐	◐✣	●◐	◐✣	◐	✣	◐✣	✣			●	●◐	◐	●	●◐	◐	●◐	●◐	●◐	●	◐
M	Stainless	●◐				●	◐	◐	✣			●	●◐	◐	●	●◐	◐	●◐			●	◐
K	Cast iron	●◐		●◐						●◐	◐	●	●◐	◐	●	●◐	◐		●◐	●◐	●	
N	Non-ferrous																				●	
S	Superalloy											●	●◐	●	●							
H	Hard material																					



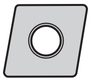
Application	Chipbreaker	Designation		Coated																	Coated cermet	Cermet	Un-coated		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH110	AH120	AH725	GH110	GH330	GH730	SH725	GT9530	NS9530	TH10	UX30	RE	IC	S	D1
Finishing (sharp edge)	**W08**	CCGT 4.51.8V FL-W08	CCGT03X100FL-W08																	●					0.001	0.141	0.055	0.075
		CCGT 4.51.8V FR-W08	CCGT03X100FR-W08																	●					0.001	0.141	0.055	0.075
		CCGT 4.51.80 FL-W08	CCGT03X101FL-W08																	●					0.004	0.141	0.055	0.075
		CCGT 4.51.80 FR-W08	CCGT03X101FR-W08																	●					0.004	0.141	0.055	0.075
		CCGT 4.51.80.5 FL-W08	CCGT03X102FL-W08																	●					0.008	0.141	0.055	0.075
		CCGT 4.51.80.5 FR-W08	CCGT03X102FR-W08																	●					0.008	0.141	0.055	0.075
		CCGT 4.51.81 FL-W08	CCGT03X104FL-W08																	●					0.016	0.141	0.055	0.075
		CCGT 4.51.81 FR-W08	CCGT03X104FR-W08																	●					0.016	0.141	0.055	0.075
		CCGT 5.52.2V FL-W08	CCGT04T100FL-W08																	●					0.001	0.172	0.070	0.091
		CCGT 5.52.2V FR-W08	CCGT04T100FR-W08																	●					0.001	0.172	0.070	0.091
		CCGT 5.52.20 FL-W08	CCGT04T101FL-W08																	●					0.004	0.172	0.070	0.091
		CCGT 5.52.20 FR-W08	CCGT04T101FR-W08																	●					0.004	0.172	0.070	0.091
		CCGT 5.52.20.5 FL-W08	CCGT04T102FL-W08																	●					0.008	0.172	0.070	0.091
		CCGT 5.52.20.5 FR-W08	CCGT04T102FR-W08																	●					0.008	0.172	0.070	0.091
		CCGT 5.52.21 FL-W08	CCGT04T104FL-W08																	●					0.016	0.172	0.070	0.091
		CCGT 5.52.21 FR-W08	CCGT04T104FR-W08																	●					0.016	0.172	0.070	0.091
Finishing	**W15**	CCGT 21.5V R-W15	CCGT060200R-W15																				●		0.001	0.250	0.094	0.110
		CCGT 21.5V L-W15	CCGT060200L-W15																			●	●		0.001	0.250	0.094	0.110
		CCGT 21.50.5 R-W15	CCGT060202R-W15																			●	●		0.008	0.250	0.094	0.110
		CCGT 21.50.5 L-W15	CCGT060202L-W15																		●	●	●		0.008	0.250	0.094	0.110
		CCGT 21.51 R-W15	CCGT060204R-W15														●					●	●		0.016	0.250	0.094	0.110
		CCGT 21.51 L-W15	CCGT060204L-W15													●	●				●	●	●	●	0.016	0.250	0.094	0.110
	W20	CCGT 32.50.5 R-W20	CCGT09T302R-W20																			●	●		0.008	0.375	0.156	0.173
		CCGT 32.50.5 L-W20	CCGT09T302L-W20																		●	●	●		0.008	0.375	0.156	0.173
		CCGT 32.51 R-W20	CCGT09T304R-W20																			●			0.016	0.375	0.156	0.173
		CCGT 32.51 L-W20	CCGT09T304L-W20													●	●				●	●	●		0.016	0.375	0.156	0.173
		CCGT 32.52 R-W20	CCGT09T308R-W20																			●			0.031	0.375	0.156	0.173
		CCGT 32.52 L-W20	CCGT09T308L-W20																		●	●			0.031	0.375	0.156	0.173
Medium cutting	**PM**	CCMT 21.51 PM	CCMT060204-PM	●	●	▲	▲	●	●	●	●			●	●	●			●		●	●			0.016	0.250	0.094	0.110
		CCMT 21.52 PM	CCMT060208-PM	●	●	▲	▲	●	●	●	●			●	●	●			●		●	●			0.031	0.250	0.094	0.110
		CCMT 32.51 PM	CCMT09T304-PM	●	●	▲	▲	●	●	●	●			●	●	●			●		●	●			0.016	0.375	0.156	0.173
		CCMT 32.52 PM	CCMT09T308-PM	●	●	▲	▲	●	●	●	●			●	●	●			●		●	●			0.031	0.375	0.156	0.173
		CCMT 32.53 PM	CCMT09T312-PM	●	●	▲	▲	●	●	●	●					●									0.047	0.375	0.156	0.173
		CCMT 432 PM	CCMT120408-PM					●	●	●	●					●									0.031	0.500	0.187	0.217
		CCMT 433 PM	CCMT120412-PM					●	●	●	●					●									0.047	0.500	0.187	0.217
Finishing to medium cutting	**CM**	CCMT 21.51 CM	CCMT060204-CM									●	●												0.016	0.250	0.094	0.110
		CCMT 21.52 CM	CCMT060208-CM									●	●												0.031	0.250	0.094	0.110
		CCMT 32.51 CM	CCMT09T304-CM									●	●												0.016	0.375	0.156	0.173
		CCMT 32.52 CM	CCMT09T308-CM									●	●												0.031	0.375	0.156	0.173
		CCMT 32.53 CM	CCMT09T312-CM										●												0.047	0.375	0.156	0.173
		CCMT 431 CM	CCMT120404-CM										●												0.016	0.500	0.187	0.217
		CCMT 432 CM	CCMT120408-CM										●												0.031	0.500	0.187	0.217

● : Line up
▲ : To be discontinued

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

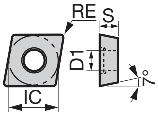
● : Continuous cutting
◐ : Light interrupted cutting
✤ : Heavy interrupted cutting

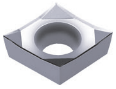
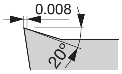
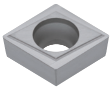
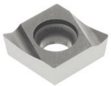
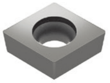
CC



Rhombic, 80°
with hole
Positive 7°

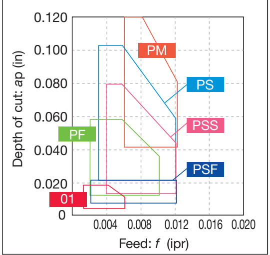
		T5115	GH110	SH725	NS9530	TH10	KS05F
P	Steel		●	●◐	●◐	●	
M	Stainless		●	●◐		●	
K	Cast iron	◐	●		●◐	●	●
N	Non-ferrous					●	●
S	Superalloy		●				●
H	Hard material						

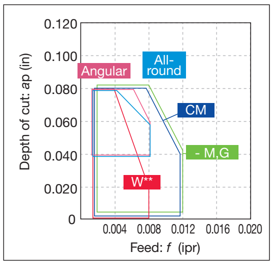


Application	Chipbreaker	Designation Inch	Designation Metric	Coated T5115	Coated GH110	Coated SH725	Cermet NS9530	Uncoated TH10	Uncoated KS05F	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	**AL**	**CCGT 21.50 AL**	**CCGT060201-AL**			●			●	0.004	0.250	0.094	0.110
		**CCGT 21.50.5 AL**	**CCGT060202-AL**			●			●	0.008	0.250	0.094	0.110
	 0.008 20°	**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
	 23°	**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

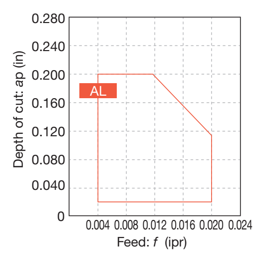
● : Line up

Chip control range





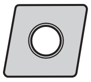
*-M,G: Without chipbreaker



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

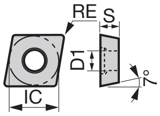
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

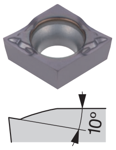
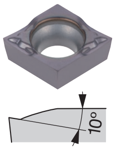
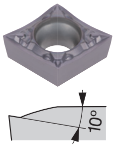
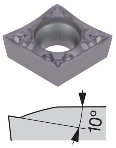
CC



Rhombic, 80°
with hole
Positive 7°

		AH725	SH725	SH730
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
	 10°	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
	 10°	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
	 10°	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
	 10°	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

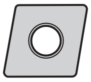
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

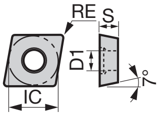
Reference pages: External toolholder → C026 - Internal toolholder → D020 -
J-Series toolholder → G027 -

- ● : Continuous cutting
- ◖ : Light interrupted cutting
- ✠ : Heavy interrupted cutting

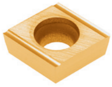
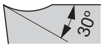
CC



Rhombic, 80°
with hole
Positive 7°

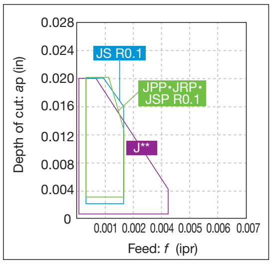


P	Steel	●◖	●◖				●◖				●								
M	Stainless	●◖	●◖								●								
K	Cast iron						●◖				●								
N	Non-ferrous										●								
S	Superalloy																		
H	Hard material																		

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
	 30°	**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



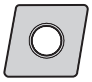
*Chip control range with typical R0.1

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

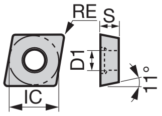
Insert POSITIVE TYPE

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

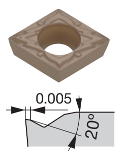
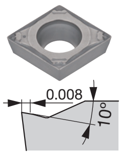
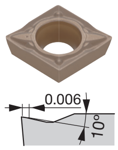
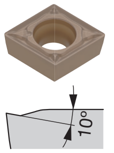
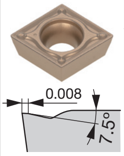
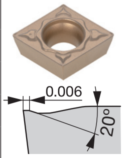
CP



Rhombic, 80°
with hole
Positive 11°



		T9205	T9215	T9225	T9235	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	GH730	GT9530	AT9530	NS9530
P	Steel	●	●◐	◐✠	✠	●◐	◐✠	◐	✠	◐✠	✠	●◐	◐			◐	●◐	●◐	●◐
M	Stainless		●◐					●	◐	◐	✠	●◐	◐	●	◐	◐			
K	Cast iron	●◐	●◐			●◐						●◐	◐			◐	●◐	●◐	●◐
N	Non-ferrous																		
S	Superalloy											●◐	●	●	◐				
H	Hard material																		

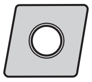
Application	Chipbreaker	Designation		Coated															Coated cermet		Cer-met	Dimension (inch)			
		Inch	Metric	T9205	T9215	T9225	T9235	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	GH730	GT9530	AT9530	NS9530	RE	IC	S	D1
Finishing	**PSF**	CPMT 21.50.5 PSF	CPMT060202-PSF												●							0.008	0.250	0.094	0.110
		CPMT 21.51 PSF	CPMT060204-PSF		●	●		▲	▲						●							0.016	0.250	0.094	0.110
		CPMT 2.51.50.5 PSF	CPMT080202-PSF												●							0.008	0.313	0.094	0.134
		CPMT 2.51.51 PSF	CPMT080204-PSF		●	●		▲	▲						●							0.016	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
	PF	CPMT 320.5 PF	CPMT090302-PF																●		●	0.008	0.375	0.125	0.173
		CPMT 321 PF	CPMT090304-PF																●		●	0.016	0.375	0.125	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
	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
	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

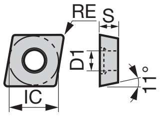
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

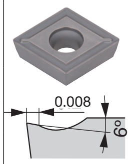
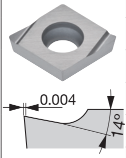
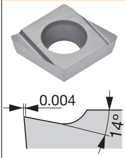
CP



Rhombic, 80°
with hole
Positive 11°

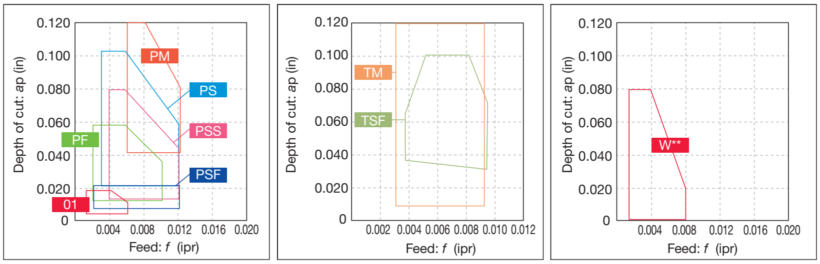
		T9215	T9225	T9115	T9125	NS9530	TH10
P	Steel	●◖	◖✠	●◖	◖✠	●◖	●
M	Stainless	●◖					●
K	Cast iron	●◖		●◖		●◖	●
N	Non-ferrous						●
S	Superalloy						
H	Hard material						



Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	Coated T9225	Coated T9115	Coated T9125	Cermet NS9530	Uncoated TH10	Dimension (inch) 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

Chip control range

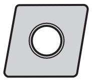


Reference pages: Internal toolholder → D025 -

Insert POSITIVE TYPE

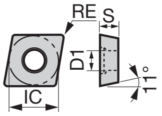
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

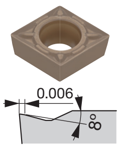
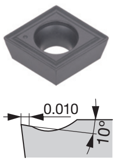
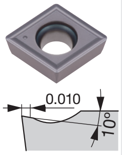
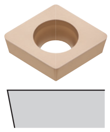
CP



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			Dimension (inch)			
		Inch	Metric	T9225	T9105	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH725	AH8005	AH8015	AH905			NS9530			RE	IC	S	D1
Medium cutting	**PM**	CPMT 21.51 PM	CPMT060204-PM				●	●	●	●			●									0.016	0.250	0.094	0.110
		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
Finishing to medium cutting	**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
Medium cutting	**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

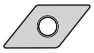
● : Line up
▲ : To be discontinued

Reference pages: Internal toolholder → D025 -

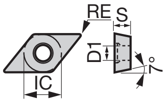
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

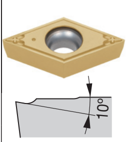
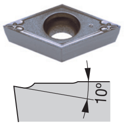
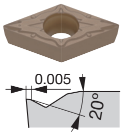
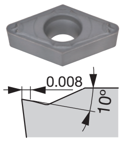
DC

Rhombic, 55°
with hole
Positive 7°



		T9215	T9225	T9115	T9125	AH725	AH8005	AH8015	AH905	GH730	SH725	J740	GT9530	J9530	NS9530
P	Steel	●◐	◐✠	●◐	◐✠	◐				◐	●◐	●◐	●◐	●◐	●◐
M	Stainless	●◐				◐	●	◐		◐	●◐	●◐			
K	Cast iron	●◐		●◐		◐				◐			●◐	●◐	●◐
N	Non-ferrous														
S	Superalloy					●	●	◐	◐						
H	Hard material														

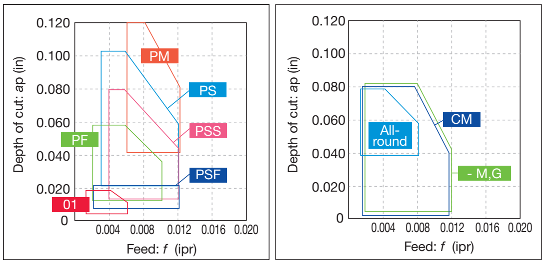


Application	Chipbreaker	Designation		Coated											Coated cermet		Cermet	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	AH725	AH8005	AH8015	AH905	GH730	SH725	J740	GT9530	J9530	NS9530	RE	IC	S	D1
Precision finishing	01	DCGT 21.50.5-01	DCGT070202-01											●		●		0.008	0.250	0.094	0.110
		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
		DCMT 21.52 PF	DCMT070208-PF												●		●	0.031	0.250	0.094	0.110
		DCMT 32.50.5 PF	DCMT11T302-PF									●			●		●	0.008	0.375	0.156	0.173
		DCMT 32.51 PF	DCMT11T304-PF									●			●		●	0.016	0.375	0.156	0.173
		DCMT 32.52 PF	DCMT11T308-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

Chip control range



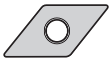
*-M,G: Without chipbreaker

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

Insert POSITIVE TYPE

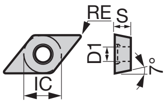
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

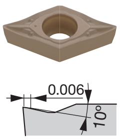
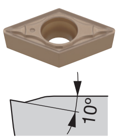
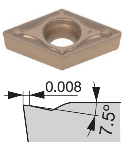
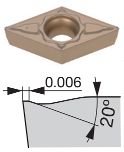
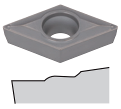
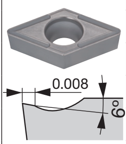
DC



Rhombic, 55°
with hole
Positive 7°

		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	AH905	GH730	GT9530	AT9530	NS9530	
P	Steel	●◖	◖✠	●◖	◖✠	◖	✠	◖✠	✠	●◖	◖				◖	●◖	●◖	●◖	
M	Stainless	●◖				●	◖	◖	✠	●◖	◖	●	◖		◖				
K	Cast iron	●◖		●◖						●◖	◖				◖	●◖	●◖	●◖	
N	Non-ferrous																		
S	Superalloy									●◖	●	●	◖	◖					
H	Hard material																		



Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	Coated T9225	Coated T9115	Coated T9125	Coated T6120	Coated T6130	Coated AH630	Coated AH645	Coated AH120	Coated AH725	Coated AH8005	Coated AH8015	Coated AH905	Coated GH730	Coated cermet GT9530	Coated cermet AT9530	Cer-met NS9530	Cer-met	Dimension (inch) RE	IC	S	D1
Finishing to light cutting	**PSS** 	DCMT 21.51 PSS	DCMT070204-PSS	●	●	▲	▲	●	●	●	●		●					●		●		0.016	0.250	0.094	0.110
		DCMT 21.52 PSS	DCMT070208-PSS	●	●	▲	▲	●	●	●	●		●					●		●		0.031	0.250	0.094	0.110
		DCMT 32.51 PSS	DCMT11T304-PSS	●	●	▲	▲	●	●	●	●		●	●	●	●		●		●		0.016	0.375	0.156	0.173
		DCMT 32.52 PSS	DCMT11T308-PSS	●	●	▲	▲	●	●	●	●		●	●	●	●		●		●		0.031	0.375	0.156	0.173
		DCMT 32.53 PSS	DCMT11T312-PSS	●	●	▲	▲	●	●	●	●		●	●	●	●						0.047	0.375	0.156	0.173
Finishing to medium cutting	**PS** 	DCMT 21.50.5 PS	DCMT070202-PS	●	●	▲	▲	●	●	●	●	●	●	●	●		●	●	●	●		0.008	0.250	0.094	0.110
		DCMT 21.51 PS	DCMT070204-PS	●	●	▲	▲	●	●	●	●	●	●	●	●		●	●	●	●		0.016	0.250	0.094	0.110
		DCMT 21.52 PS	DCMT070208-PS	●	●	▲	▲						●	●	●		●	●	●	●		0.031	0.250	0.094	0.110
		DCMT 32.50.5 PS	DCMT11T302-PS	●	●	▲	▲	●	●	●	●	●	●	●	●		●	●	●	●		0.008	0.375	0.156	0.173
		DCMT 32.51 PS	DCMT11T304-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●		0.016	0.375	0.156	0.173
		DCMT 32.52 PS	DCMT11T308-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●	●	●	●	●		0.031	0.375	0.156	0.173
		DCMT 32.53 PS	DCMT11T312-PS	●	●	▲	▲	●	●	●	●		●	●	●	●						0.047	0.375	0.156	0.173
	TSF 	DCMT 21.50.5 TSF	DCMT070202-TSF	●	●																	0.008	0.250	0.094	0.110
		DCMT 21.51 TSF	DCMT070204-TSF	●	●																	0.016	0.250	0.094	0.110
		DCMT 21.52 TSF	DCMT070208-TSF	●	●																	0.031	0.250	0.094	0.110
		DCMT 32.51 TSF	DCMT11T304-TSF	●	●																	0.016	0.375	0.156	0.173
		DCMT 32.52 TSF	DCMT11T308-TSF	●	●																	0.031	0.375	0.156	0.173
	TM 	DCMT 21.50.5 TM	DCMT070202-TM	●	●																	0.008	0.250	0.094	0.110
		DCMT 21.51 TM	DCMT070204-TM	●	●																	0.016	0.250	0.094	0.110
		DCMT 21.52 TM	DCMT070208-TM	●	●																	0.031	0.250	0.094	0.110
		DCMT 32.51 TM	DCMT11T304-TM	●	●																	0.016	0.375	0.156	0.173
		DCMT 32.52 TM	DCMT11T308-TM	●	●																	0.031	0.375	0.156	0.173
	23 	DCMT 21.51-23	DCMT070204-23																	●		0.016	0.250	0.094	0.110
		DCMT 32.51-23	DCMT11T304-23																	●		0.016	0.375	0.156	0.173
		DCMT 32.52-23	DCMT11T308-23																	●		0.031	0.375	0.156	0.173
Medium cutting	**24** 	DCMT 21.50.5-24	DCMT070202-24																	●		0.008	0.250	0.094	0.110
		DCMT 21.51-24	DCMT070204-24	●	●	▲	▲													●		0.016	0.250	0.094	0.110
		DCMT 21.52-24	DCMT070208-24		●		▲													●		0.031	0.250	0.094	0.110
		DCMT 32.50.5-24	DCMT11T302-24		●		▲													●		0.008	0.375	0.156	0.173
		DCMT 32.51-24	DCMT11T304-24	●	●	▲	▲													●		0.016	0.375	0.156	0.173
		DCMT 32.52-24	DCMT11T308-24	●	●	▲	▲		●											●		0.031	0.375	0.156	0.173

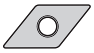
● : Line up
▲ : To be discontinued

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

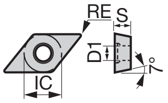
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

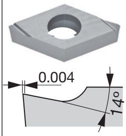
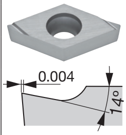
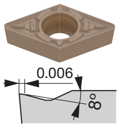
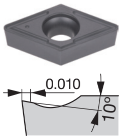
DC

Rhombic, 55°
with hole
Positive 7°



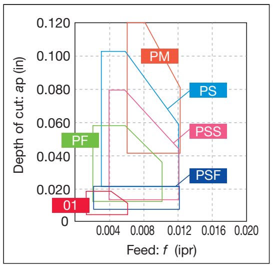
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠			●◐	◐	●◐	◐	●◐		●◐	●
M	Stainless	●◐				●	◐	◐	✠			●◐	◐	●◐	◐				●
K	Cast iron	●◐		●◐						●◐	◐	●◐	◐	●◐	◐	●◐		●◐	●
N	Non-ferrous																		●
S	Superalloy											●◐	●						
H	Hard material																		

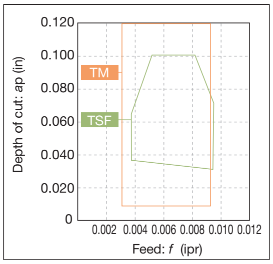


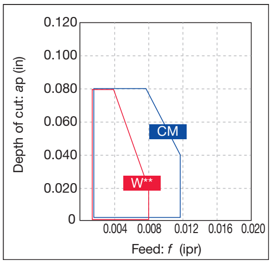
Application	Chipbreaker	Designation		Coated														Coated cermet		Cer-met	Un-coated	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GH330	GH730	GT9530		NS9530	TH10	RE	IC	S	D1
Finishing	**W10**	DCGT 21.5V R-W10	DCGT070200R-W10																		●	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
	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





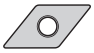


Reference pages: External toolholder → C050 - Internal toolholder → D056 -
J-Series toolholder → G036 -

Insert POSITIVE TYPE

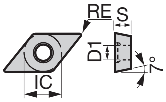
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

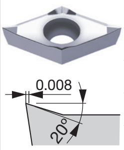
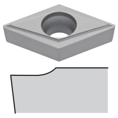
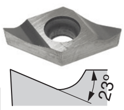
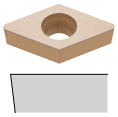
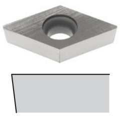
DC



Rhombic, 55°
with hole
Positive 7°

		T9105	T5115	GH110	NS9530	TH10	KS05F
P	Steel	●		●	●◐	●	
M	Stainless			●		●	
K	Cast iron	●◐	◐	●	●◐	●	●
N	Non-ferrous					●	●
S	Superalloy			●			●
H	Hard material						



Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9105	Coated T5115	Coated GH110	Cermet NS9530	Uncoated TH10	Uncoated KS05F	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	**AL**	DCGT 21.50.5 AL	DCGT070202-AL						●	0.008	0.250	0.094	0.110
	 0.008 20°	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
	 23°	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

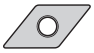
● : Line up
▲ : To be discontinued

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

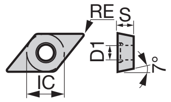
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

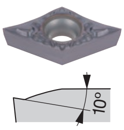
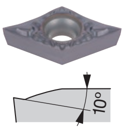
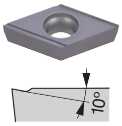
DC

Rhombic, 55°
with hole
Positive 7°



		AH725	SH725	SH730
P	Steel	◐	●◐	●◐
M	Stainless	◐	●◐	●◐
K	Cast iron	◐		
N	Non-ferrous			
S	Superalloy	●		●◐
H	Hard material			

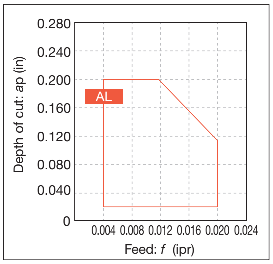


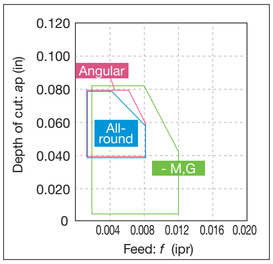
Application	Chipbreaker	Designation Inch	Designation Metric	Coated AH725	Coated SH725	Coated SH730	Dimension (inch) RE	IC	S	D1
For external turning on Swiss lathes (sharp edge)	**JS** 	DCGT 21.5V FN-JS	DCGT070200FN-JS		●	●	0.001	0.250	0.094	0.110
		DCGT 21.50 FN-JS	DCGT070201FN-JS		●	●	<0.004	0.250	0.094	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	**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)	**JPP** 	DCET 21.5X MFR-JPP	DCET0702008MFR-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 21.50.5 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 32.50 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.

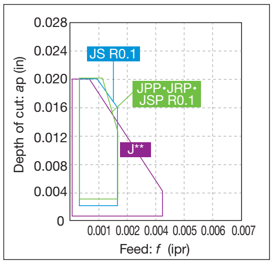
● : Line up

Chip control range





*-M,G: Without chipbreaker

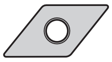


*Chip control range with typical R0.1

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

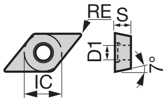
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

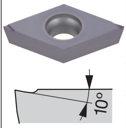
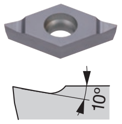
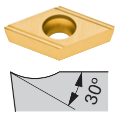
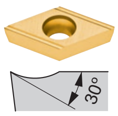
DC



Rhombic, 55°
with hole
Positive 7°

		SH725	SH730	J740	J9530	NS9530	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	SH725	SH730	J740	J9530	NS9530	TH10	RE	IC	S	D1
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 21.50 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
	 10°	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 32.50 MFR-JRP	DCET11T301MFR-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
	 10°	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
	 30°	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
		DCGT 32.50 FR-J10	DCGT11T301FR-J10	●		●		●	●	0.004	0.375	0.156	0.173
		DCGT 32.50 FL-J10	DCGT11T301FL-J10	●		●		●	●	0.004	0.375	0.156	0.173
		DCGT 32.50.5 FR-J10	DCGT11T302FR-J10	●		●		●	●	0.008	0.375	0.156	0.173
		DCGT 32.50.5 FL-J10	DCGT11T302FL-J10	●		●		●	●	0.008	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
	 30°	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.

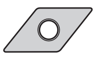
● : Line up

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

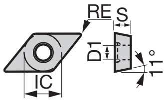
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

Insert POSITIVE TYPE

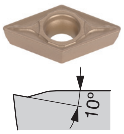
DP



Rhombic, 55°
with hole
Positive 11°



		T9225	T9125	AH8015	NS9530
P	Steel	◐✠	◐✠		●◐
M	Stainless			◐	
K	Cast iron				●◐
N	Non-ferrous				
S	Superalloy			◐	
H	Hard material				

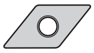
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9225	Coated T9125	Coated AH8015	Cermet NS9530	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	PS  10°	DPMT 21.50.5 PS	DPMT070202-PS	●	▲	●	●	0.008	0.250	0.094	0.110
		DPMT 21.51 PS	DPMT070204-PS	●	▲	●	●	0.016	0.250	0.094	0.110
		DPMT 21.52 PS	DPMT070208-PS	●	▲	●	●	0.031	0.250	0.094	0.110

● : Line up
▲ : To be discontinued

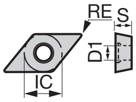
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

Insert POSITIVE TYPE / DOUBLE SIDE

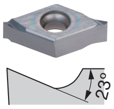
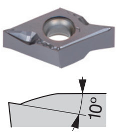
DX



Rhombic, 55°
with hole



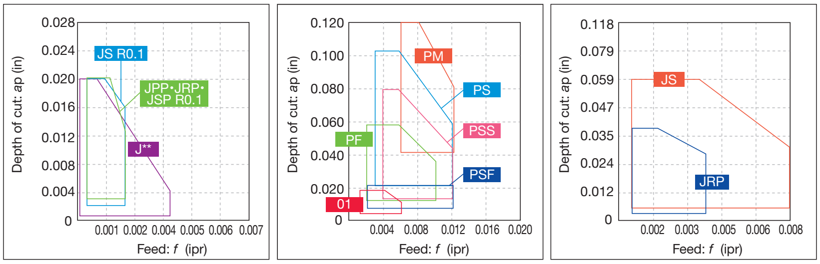
		SH725
P	Steel	●◐
M	Stainless	●◐
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	

Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (inch) RE	IC	S	D1
Finishing (sharp edge)	JRP  23°	DXGU 220MFRE JRP	DXGU070301MFRE-JRP	●	<0.004	0.250	0.125	0.106
		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)	JS  10°	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

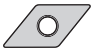


*Chip control range with typical R0.1

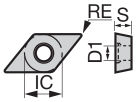
Reference pages: DPMT...: Internal toolholder → D059 -
DXGU...: External toolholder → C042 -, Internal toolholder → D042 -

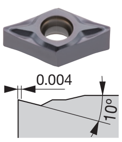
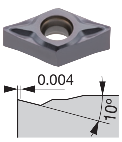
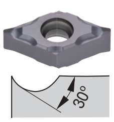
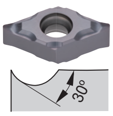
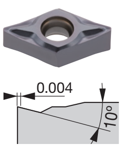
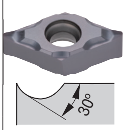
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

DX



Rhombic, 55°
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
Finishing to medium cutting (sharp edge)	**JTS**	DXGU 220MFR JTS	DXGU070301MFR-JTS			●																<0.004	0.250	0.125	0.106
		DXGU 220MFL JTS	DXGU070301MFL-JTS			●																<0.004	0.250	0.125	0.106
		DXGU 220.5MFR JTS	DXGU070302MFR-JTS			●																<0.008	0.250	0.125	0.106
		DXGU 220.5MFL JTS	DXGU070302MFL-JTS			●																<0.008	0.250	0.125	0.106
Finishing to medium cutting	**JTS**	DXGU 220MR JTS	DXGU070301MR-JTS	●																		<0.004	0.250	0.125	0.106
		DXGU 220ML JTS	DXGU070301ML-JTS	●																		<0.004	0.250	0.125	0.106
		DXGU 220.5MR JTS	DXGU070302MR-JTS	●																		<0.008	0.250	0.125	0.106
		DXGU 220.5ML JTS	DXGU070302ML-JTS	●																		<0.008	0.250	0.125	0.106
Finishing (low cutting force) (sharp edge)	**JSS**	DXGU 220MFR JSS	DXGU070301MFR-JSS			●																<0.004	0.250	0.125	0.106
		DXGU 220MFL JSS	DXGU070301MFL-JSS			●																<0.004	0.250	0.125	0.106
		DXGU 220.5MFR JSS	DXGU070302MFR-JSS			●																<0.008	0.250	0.125	0.106
		DXGU 220.5MFL JSS	DXGU070302MFL-JSS			●																<0.008	0.250	0.125	0.106
Finishing (low cutting force)	**JSS**	DXGU 220MR JSS	DXGU070301MR-JSS	●																		<0.004	0.250	0.125	0.106
		DXGU 220ML JSS	DXGU070301ML-JSS	●																		<0.004	0.250	0.125	0.106
		DXGU 220.5MR JSS	DXGU070302MR-JSS	●																		<0.008	0.250	0.125	0.106
		DXGU 220.5ML JSS	DXGU070302ML-JSS	●																		<0.008	0.250	0.125	0.106
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

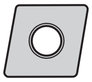
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: External toolholder → C042 - Internal toolholder → D042 -

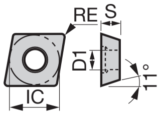
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

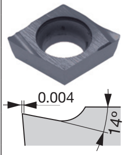
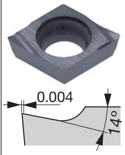
EP



**Rhombic, 75°
with hole
Positive 11°**

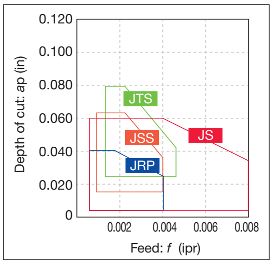
		GH110	SH725	SH730	GT9530	NS9530	TH10	UX30
P	Steel	●	●◖	●◖	●◖	●◖	●	◖
M	Stainless	●	●◖	●◖			●	◖
K	Cast iron	●			●◖	●◖	●	
N	Non-ferrous						●	
S	Superalloy	●		●◖				
H	Hard material							

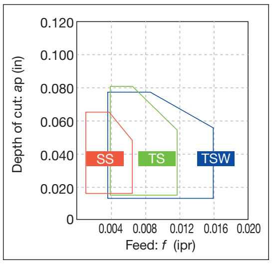


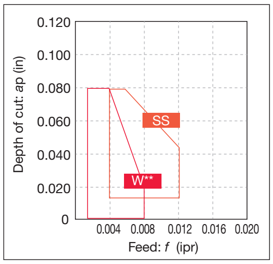
Application	Chipbreaker	Designation Inch	Designation Metric	Coated GH110	Coated SH725	Coated SH730	Coated cermet GT9530	Cermet NS9530	Uncoated TH10	Uncoated UX30	Dimension (inch) RE	IC	S	D1
Finishing	**W08**	EPGT 4.51.8V R-W08	EPGT03X100R-W08			●			●		0.001	0.141	0.055	0.075
		EPGT 4.51.8V L-W08	EPGT03X100L-W08			●			●		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
	 0.004 14°	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
	 0.004 14°	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

Chip control range





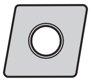


Reference pages: Internal toolholder → D040 -

Insert POSITIVE TYPE

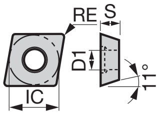
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

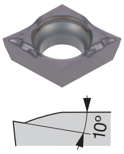
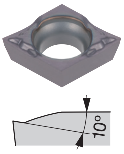
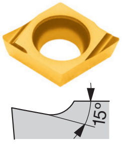
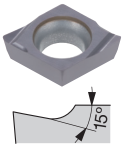
EP



Rhombic, 75°
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	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
	 10°	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
	 10°	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
	 15°	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
	 15°	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

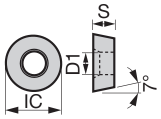
Reference pages: Internal toolholder → D040 -

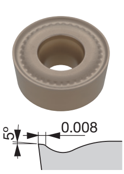
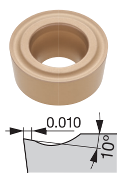
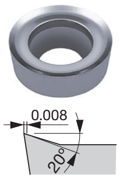
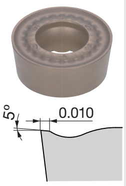
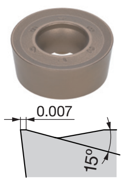
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

RC

Round,
with hole
Positive 7°

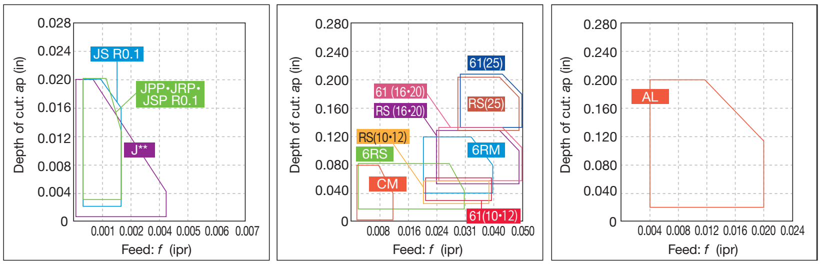
		T9215	T9225	T9115	T9125	T5115	AH120	AH8005	AH8015	AH905	KS05F
P	Steel	●◐	◐✠	●◐	◐✠		●◐				
M	Stainless	●◐					●◐	●	◐		
K	Cast iron	●◐		●◐		◐	●◐				●
N	Non-ferrous										●
S	Superalloy						●◐	●	◐	◐	●
H	Hard material										



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
																	
Medium cutting	**6RM**	-	RCMT1204M0-6RM	●	●	▲	▲							-	0.472	0.187	0.173
																	

● : Line up
▲ : To be discontinued

Chip control range



*Chip control range with typical R0.1

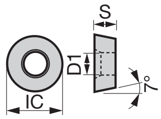
Reference pages: External toolholder → C078 -, C087

Insert POSITIVE TYPE

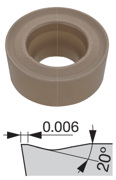
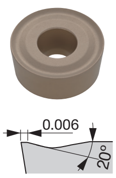
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

RC

Round, with hole Positive 7°



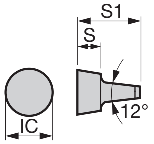
		T9215	T9225	T9115	T9125	AH8005	AH8015	AH905	NS9530	TH10
P	Steel	●◖	◖✠	●◖	◖✠				●◖	●
M	Stainless	●◖				●	◖			●
K	Cast iron	●◖		●◖					●◖	●
N	Non-ferrous									●
S	Superalloy					●	◖	◖		
H	Hard material									

Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	Coated T9225	Coated T9115	Coated T9125	Coated AH8005	Coated AH8015	Coated AH905	Cermet NS9530	Uncoated TH10	Dimension (inch) 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

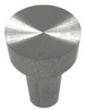
D1 (in) Designation	0502M0	0602M0	0803M0	1003M0	1204M0	1606M0	2006M0	2507M0
RC*T	0.098	0.110	0.134	0.173	0.173	0.217	0.256	0.299
RCMM	-	-	-	0.142	0.165	0.205	0.256	0.283

RT

Special round insert



		TH10	KS20
P	Steel	●	
M	Stainless	●	
K	Cast iron	●	◖✠
N	Non-ferrous	●	◖✠
S	Superalloy		◖✠
H	Hard material		

Application	Chipbreaker	Designation Inch	Designation Metric	Uncoated TH10	Uncoated KS20	Dimension (inch) 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

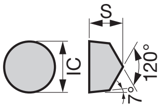
Reference pages: RC...: External toolholder → C078 -

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

RC

Round,
without hole
Positive 7°

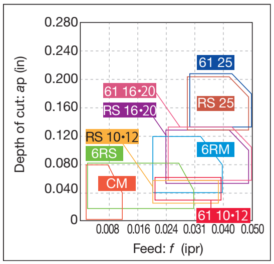
		LX11
P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	●



Application	Chipbreaker	Designation		Ceramic	Dimension (inch)			
		Inch	Metric	LX11	RE	IC	S	D1
Medium cutting	-	-	RCGX090800	●	-	0.375	0.315	-
		-	RCGX120800	●	-	0.500	0.315	-

● : Line up

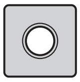
Chip control range



MEMO

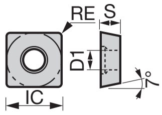
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

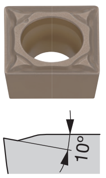
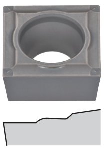
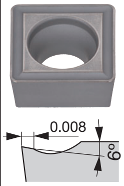
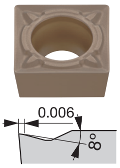
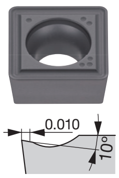
SC



Square, 90°
with hole
Positive 7°

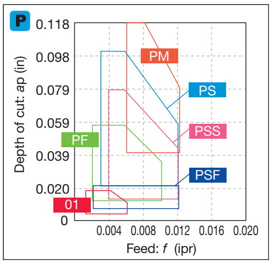
		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GT9530	AT9530			NS9530	
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠			●◐	◐	●◐	●◐			●◐	
M	Stainless	●◐				●	◐	◐	✠			●◐	◐						
K	Cast iron	●◐		●◐						●◐	◐	●◐	◐	●◐	●◐			●◐	
N	Non-ferrous																		
S	Superalloy											●◐	●						
H	Hard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

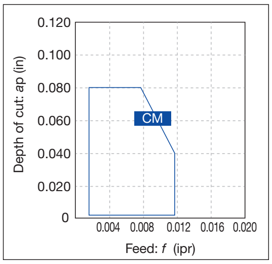


Application	Chipbreaker	Designation		Coated												Coated cermet				Cermet		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GT9530	AT9530			NS9530		RE	IC	S	D1
Finishing to medium cutting	PS	SCMT 32.51 PS	SCMT09T304-PS	●	●	▲	▲	●	●	●	●				●	●	●			●		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
	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
		SCMT 432-24	SCMT120408-24		●		▲							●						●		0.031	0.500	0.187	0.217
	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

Chip control range



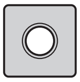


Reference pages: External toolholder → C110 -

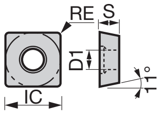
Insert POSITIVE TYPE

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

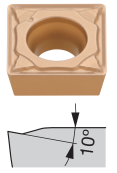
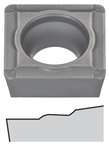
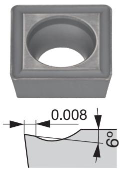
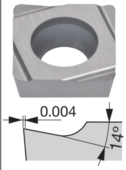
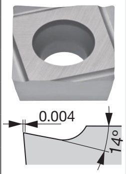
SP



Square, 90°
with hole
Positive 11°



		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725		GT9530	AT9530		NS9530		TH10	
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠	●◐	◐		●◐	●◐		●◐		●	
M	Stainless	●◐				●	◐	◐	✠	●◐	◐							●	
K	Cast iron	●◐		●◐						●◐	◐		●◐	●◐		●◐		●	
N	Non-ferrous																	●	
S	Superalloy									●◐	●								
H	Hard material																		

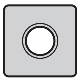
Application	Chipbreaker	Designation		Coated											Coated cermet			Cermet		Un-coated		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725		GT9530	AT9530		NS9530		TH10		RE	IC	S	D1
Finishing to medium cutting	**PS**	SPMT 321 PS	SPMT090304-PS	●	●	▲	▲	●	●	●	●		●		●	●		●				0.016	0.375	0.125	0.173
	 10°	SPMT 322 PS	SPMT090308-PS	●	●	▲	▲	●	●	●	●		●		●	●		●				0.031	0.375	0.125	0.173
		SPMT 431 PS	SPMT120404-PS	●	●	▲	▲	●	●	●	●		●									0.016	0.500	0.187	0.217
		SPMT 432 PS	SPMT120408-PS	●	●	▲	▲	●	●	●	●		●									0.031	0.500	0.187	0.217
	23	SPMT 321 23	SPMT090304-23		●		▲											●				0.016	0.375	0.125	0.173
		SPMT 322-23	SPMT090308-23		●		▲											●				0.031	0.375	0.125	0.173
Medium cutting	**24**	SPMT 321-24	SPMT090304-24		●		▲											●				0.016	0.375	0.125	0.173
	 0.008 6°	SPMT 322-24	SPMT090308-24		●		▲					●						●				0.031	0.375	0.125	0.173
		SPMT 431-24	SPMT120404-24															●				0.016	0.500	0.187	0.217
		SPMT 432-24	SPMT120408-24									●						●				0.031	0.500	0.187	0.217
Finishing	**W15**	SPGT 320.5 L-W15	SPGT090302L-W15															●				0.008	0.375	0.125	0.173
	 0.004 14°	SPGT 321 L-W15	SPGT090304L-W15															●		●		0.016	0.375	0.125	0.173
		SPGT 322 R-W15	SPGT090308R-W15																	●		0.031	0.375	3.18	0.173
		SPGT 322 L-W15	SPGT090308L-W15															●		●		0.031	0.375	3.18	0.173
	W20	SPGT 431 L-W20	SPGT120404L-W20															●				0.016	0.500	0.187	0.217
	 0.004 14°																								

● : Line up
▲ : To be discontinued

Reference pages: Internal toolholder → D045 -

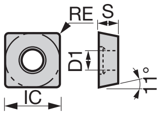
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

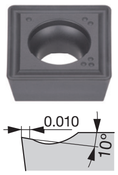
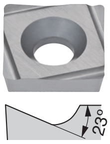
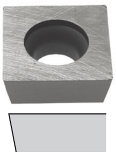
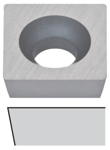
SP



Square, 90°
with hole
Positive 11°

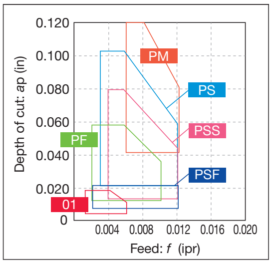
		T515	T5115	NS9530	TH10
P	Steel			●◐	●
M	Stainless				●
K	Cast iron	●◐	◐	●◐	●
N	Non-ferrous				●
S	Superalloy				
H	Hard material				

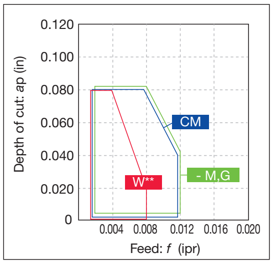


Application	Chipbreaker	Designation Inch	Designation Metric	Coated T515	Coated T5115	Cermet NS9530	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	**CM**	SPMT 321 CM	SPMT090304-CM		●			0.016	0.375	0.125	0.173
		SPMT 322 CM	SPMT090308-CM		●			0.031	0.375	0.125	0.173
		SPMT 431 CM	SPMT120404-CM	●	●			0.016	0.500	0.187	0.217
	 0.010 10°	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
	 23°	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

Chip control range





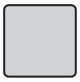
*-M,G: Without chipbreaker

Reference pages: Internal toolholder → D045 -

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

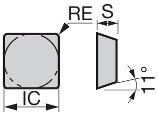
Insert POSITIVE TYPE

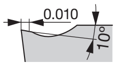
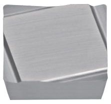
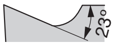
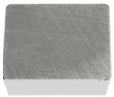
SP



Square, 90°
without hole
Positive 11°

		T9225	T9125	T5115	T3130	AH120	NS9530				TH10	UX30			LX11				
P	Steel	◐✠	◐✠		●◐	●◐	●◐				●	●							
M	Stainless				●◐	●◐					●	●							
K	Cast iron			◐	●◐	●◐	●◐				●								
N	Non-ferrous										●								
S	Superalloy					●◐													
H	Hard material														●				



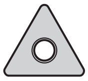
Application	Chipbreaker	Designation		Coated					Cermet				Uncoated				Ceramic					Dimension (inch)			
		Inch	Metric	T9225	T9125	T5115	T3130	AH120	NS9530				TH10	UX30			LX11					RE	IC	S	D1
Finishing to medium cutting	23	SPMR 321-23	SPMR090304-23						●													0.016	0.375	0.125	-
	 	SPMR 322-23	SPMR090308-23	●	▲				●													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	-
	  0.010 10°	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	-
	  23°																								
	-	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

Reference pages: Internal toolholder → D045 -

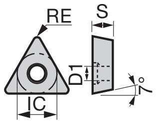
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

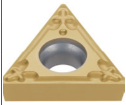
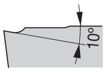
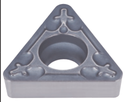
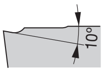
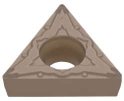
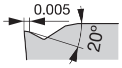
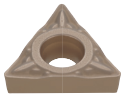
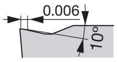
TC



Triangular, 60°
with hole
Positive 7°

		T9215	T9225	T9115	T9125	AH725	SH725	J740	GT9530	NS9530	NS520	TH10
P	Steel	●◖	◖✠	●◖	◖✠	◖	●◖	●◖	●◖	●◖	●◖	●
M	Stainless	●◖				◖	●◖	●◖				●
K	Cast iron	●◖		●◖		◖			●◖	●◖	●◖	●
N	Non-ferrous											●
S	Superalloy					●						
H	Hard material											

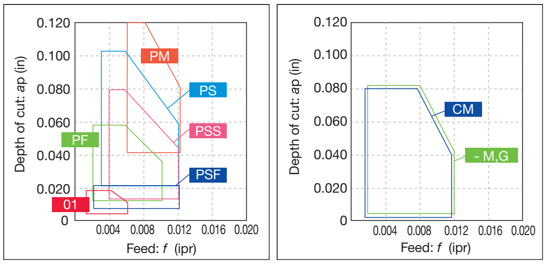


Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	Coated T9225	Coated T9115	Coated T9125	Coated AH725	Coated SH725	Coated J740	Coated cermet GT9530	Cermet NS9530	Cermet NS520	Un-coated TH10	Dimension (inch) RE	IC	S	D1
Precision finishing	**01**	**TCGT 731-01**	**TCGT090204-01**										●	●	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
	 10°	**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
	  10°	**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
	 0.005 20°	**TCMT 221 PSF**	**TCMT110304-PSF**	●	●	▲	▲	●							0.016	0.250	0.125	0.110
		TCMT 32.51 PSF	**TCMT16T304-PSF**	●	●	▲	▲	●							0.016	0.375	0.156	0.173
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
	 0.006 10°	**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

Chip control range



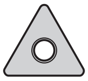
*-M,G: Without chipbreaker

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

Insert POSITIVE TYPE

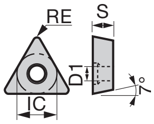
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

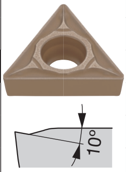
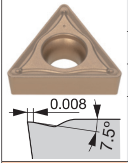
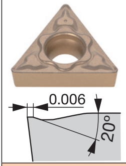
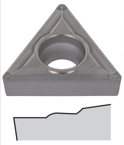
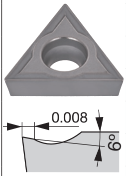
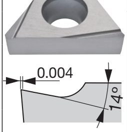
TC



Triangular, 60°
with hole
Positive 7°

		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH725	GH730	GT9530	AT9530			NS9530		TH10	
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠	◐	◐	●◐	●◐			●◐		●	
M	Stainless	●◐				●	◐	◐	✠	◐	◐							●	
K	Cast iron	●◐		●◐						◐	◐	●◐	●◐			●◐		●	
N	Non-ferrous																	●	
S	Superalloy									●									
H	Hard material																		



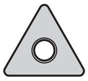
Application	Chipbreaker	Designation		Coated										Coated cermet				Cermet		Un-coated		Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH725	GH730	GT9530	AT9530			NS9530		TH10		RE	IC	S	D1
Finishing to medium cutting	**PS** 	TCMT 731 PS	TCMT090204-PS									●										0.016	0.219	0.094	0.098
		TCMT 732 PS	TCMT090208-PS									●										0.031	0.219	0.094	0.098
		TCMT 21.50.5 PS	TCMT110202-PS	●	●	▲	▲	●	●	●	●	●	●	●	●			●				0.008	0.250	0.094	0.110
		TCMT 21.51 PS	TCMT110204-PS	●	●	▲	▲	●	●	●	●	●	●	●	●			●				0.016	0.250	0.094	0.110
		TCMT 21.52 PS	TCMT110208-PS	●	●	▲	▲	●	●	●	●	●	●	●	●			●				0.031	0.250	0.094	0.110
		TCMT 220.5 PS	TCMT110302-PS	●	●	▲	▲	●	●	●	●											0.008	0.250	0.125	0.110
		TCMT 221 PS	TCMT110304-PS	●	●	▲	▲	●	●	●	●											0.016	0.250	0.125	0.110
		TCMT 222 PS	TCMT110308-PS	●	●	▲	▲	●	●	●	●											0.031	0.250	0.125	0.110
		TCMT 32.50.5 PS	TCMT16T302-PS	●	●	▲	▲	●	●	●	●	●						●				0.008	0.375	0.156	0.173
		TCMT 32.51 PS	TCMT16T304-PS	●	●	▲	▲	●	●	●	●	●						●				0.016	0.375	0.156	0.173
		TCMT 32.52 PS	TCMT16T308-PS	●	●	▲	▲	●	●	●	●	●										0.031	0.375	0.156	0.173
	TSF  0.008 7.5°	TCMT 21.51 TSF	TCMT110204-TSF	●	●																	0.016	0.250	0.094	0.110
		TCMT 21.52 TSF	TCMT110208-TSF	●	●																	0.031	0.250	0.094	0.110
		TCMT 32.51 TSF	TCMT16T304-TSF	●	●																	0.016	0.375	0.156	0.173
		TCMT 32.52 TSF	TCMT16T308-TSF	●	●																	0.031	0.375	0.156	0.173
	TM  0.006 20°	TCMT 21.51 TM	TCMT110204-TM	●	●																	0.016	0.250	0.094	0.110
		TCMT 21.52 TM	TCMT110208-TM	●	●																	0.031	0.250	0.094	0.110
		TCMT 32.51 TM	TCMT16T304-TM	●	●																	0.016	0.375	0.156	0.173
		TCMT 32.52 TM	TCMT16T308-TM	●	●																	0.031	0.375	0.156	0.173
	23 	TCMT 731-23	TCMT090204-23		●		▲											●				0.016	0.219	0.094	0.098
		TCMT 21.51-23	TCMT110204-23															●				0.016	0.250	0.094	0.110
		TCMT 32.51-23	TCMT16T304-23															●				0.016	0.375	0.156	0.173
		TCMT 32.52-23	TCMT16T308-23		●		▲															0.031	0.375	0.156	0.173
Medium cutting	**24**  0.008 6°	TCMT 730.5-24	TCMT090202-24															●				0.008	0.219	0.094	0.098
		TCMT 731-24	TCMT090204-24	●	●	▲	▲											●				0.016	0.219	0.094	0.098
		TCMT 21.50.5-24	TCMT110202-24															●				0.008	0.250	0.094	0.110
		TCMT 21.51-24	TCMT110204-24	●	●	▲	▲											●				0.016	0.250	0.094	0.110
		TCMT 21.52-24	TCMT110208-24		●		▲															0.031	0.250	0.094	0.110
		TCMT 32.51-24	TCMT16T304-24	●	●	▲	▲											●				0.016	0.375	0.156	0.173
		TCMT 32.52-24	TCMT16T308-24	●	●	▲	▲					●										0.031	0.375	0.156	0.173
Finishing	**W15**  0.004 14°	TCGT 32.50.5 L-W15	TCGT16T302L-W15																	●		0.008	0.375	0.156	0.173
		TCGT 32.51 L-W15	TCGT16T304L-W15															●		●		0.016	0.375	0.156	0.173
		TCGT 32.52 L-W15	TCGT16T308L-W15																	●		0.031	0.375	0.156	0.173

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

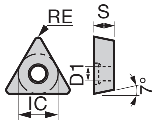
● : Line up
▲ : To be discontinued

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

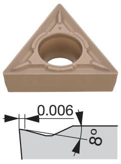
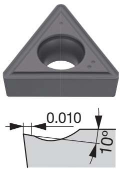
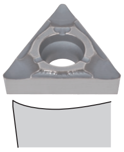
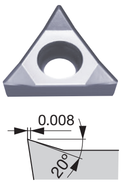
TC



Triangular, 60°
with hole
Positive 7°

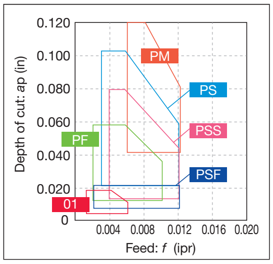


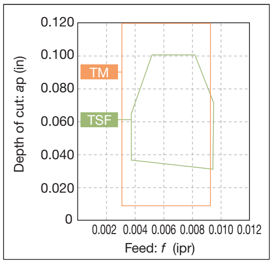
		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH725			NS9530		KS05F		
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠		●◐	◐			●◐				
M	Stainless	●◐				●	◐	◐	✠			◐							
K	Cast iron	●◐		●◐						●◐	●◐	◐			●◐		●		
N	Non-ferrous																●		
S	Superalloy											●					●		
H	Hard material																		

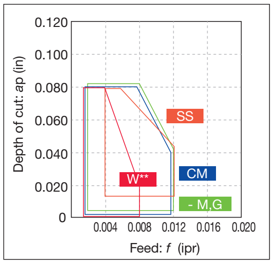
Application	Chipbreaker	Designation		Coated													Cer-met		Uncoated			Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH725			NS9530		KS05F			RE	IC	S	D1
Medium cutting	**PM**	TCMT 21.50.5 PM	TCMT110202-PM					●	●	●	●			●								0.008	0.250	0.094	0.110
		TCMT 21.51 PM	TCMT110204-PM	●	●	▲	▲	●	●	●	●			●			●					0.016	0.250	0.094	0.110
		TCMT 21.52 PM	TCMT110208-PM	●	●	▲	▲	●	●	●	●			●			●					0.031	0.250	0.094	0.110
		TCMT 220.5 PM	TCMT110302-PM					●	●	●	●											0.008	0.250	0.125	0.110
		TCMT 221 PM	TCMT110304-PM					●	●	●	●											0.016	0.250	0.125	0.110
		TCMT 222 PM	TCMT110308-PM					●	●	●	●											0.031	0.250	0.125	0.110
		TCMT 32.51 PM	TCMT16T304-PM	●	●	▲	▲	●	●	●	●			●			●					0.016	0.375	0.156	0.173
		TCMT 32.52 PM	TCMT16T308-PM	●	●	▲	▲	●	●	●	●			●			●					0.031	0.375	0.156	0.173
		TCMT 32.53 PM	TCMT16T312-PM	●	●	▲	▲	●	●	●	●			●								0.047	0.375	0.156	0.173
Finishing to medium cutting	**CM**	TCMT 731 CM	TCMT090204-CM										●									0.016	0.219	0.094	0.098
		TCMT 732 CM	TCMT090208-CM										●									0.031	0.219	0.094	0.098
		TCMT 21.51 CM	TCMT110204-CM										●									0.016	0.250	0.094	0.110
		TCMT 21.52 CM	TCMT110208-CM										●									0.031	0.250	0.094	0.110
		TCMT 221 CM	TCMT110304-CM										●									0.016	0.250	0.125	0.110
		TCMT 222 CM	TCMT110308-CM										●									0.031	0.250	0.125	0.110
		TCM T32.51 CM	TCMT16T304-CM									●	●									0.016	0.375	0.156	0.173
		TCMT 32.52 CM	TCMT16T308-CM									●	●									0.031	0.375	0.156	0.173
		TCMT 32.53 CM	TCMT16T312-CM									●	●									0.047	0.375	0.156	0.173
	SS	TCGT 21.50.5 SS	TCGT110202-SS														●					0.008	0.250	0.094	0.110
		TCGT 21.51 SS	TCGT110204-SS														●					0.016	0.250	0.094	0.110
		TCGT 21.52 SS	TCGT110208-SS														●					0.031	0.250	0.094	0.110
		TCGT 32.51 SS	TCGT16T304-SS														●					0.016	0.375	0.156	0.173
	AL	TCGT 21.50.5 AL	TCGT110202-AL																●			0.008	0.250	0.094	0.110
		TCGT 21.51 AL	TCGT110204-AL																●			0.016	0.250	0.094	0.110
		TCGT 32.50.5 AL	TCGT16T302-AL																●			0.008	0.375	0.156	0.173
		TCGT 32.51 AL	TCGT16T304-AL																●			0.016	0.375	0.156	0.173
		TCGT 32.52 AL	TCGT16T308-AL																●			0.031	0.375	0.156	0.173

● : Line up
▲ : To be discontinued

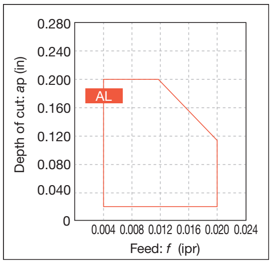
Chip control range







*-M,G: Without chipbreaker

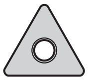


Reference pages: External toolholder → C080 - Internal toolholder → D049
J-Series toolholder → G051 -

Insert POSITIVE TYPE

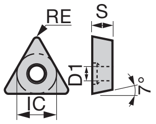
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

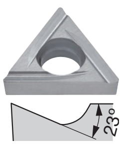
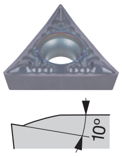
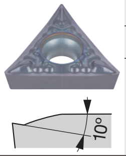
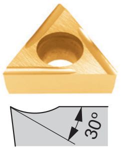
TC



Triangular, 60°
with hole
Positive 7°

		AH725	SH725	SH730	J740	NS9530	TH10
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	AH725	SH725	SH730	J740	NS9530	TH10	RE	IC	S	D1
Finishing	-  23°	TCGT 620.5 R	TCGT080102R					●	●	0.008	0.187	0.063	0.106
For external turning on Swiss lathes (sharp edge)	JS  10°	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
		TCGT 21.51 FN-JS	TCGT110204FN-JS		●	●				<0.016	0.250	0.094	0.110
For external turning on Swiss lathes (honed edge)	JS  10°	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 (sharp edge)	J08  30°	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

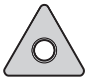
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: J-Series toolholder → G051

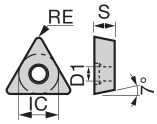
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

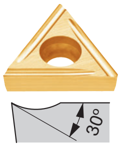
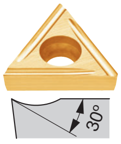
TC



Triangular, 60°
with hole
Positive 7°

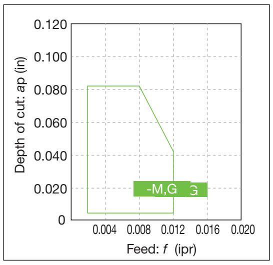
		SH725	J740	J9530	NS9530	TH10
P	Steel	●◐	●◐	●◐	●◐	●
M	Stainless	●◐	●◐			●
K	Cast iron			●◐	●◐	●
N	Non-ferrous					●
S	Superalloy					
H	Hard material					



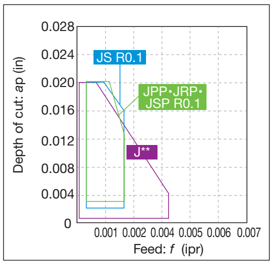
Application	Chipbreaker	Designation		Coated		Coated cermet	Cermet	Uncoated	Dimension (inch)			
		Inch	Metric	SH725	J740	J9530	NS9530	TH10	RE	IC	S	D1
For external turning on Swiss lathes (sharp edge)	J10	TCGT 21.5V FR-J10	TCGT110200FR-J10	●	●			●	0.001	0.250	0.094	0.110
		TCGT 21.5V FL-J10	TCGT110200FL-J10	●	●			●	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

Chip control range



*-M,G: Without chipbreaker



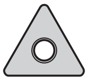
*Chip control range with typical R0.1

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

Insert POSITIVE TYPE

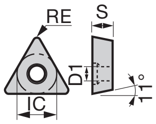
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

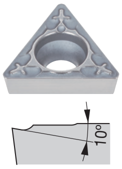
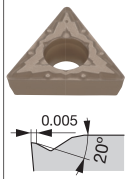
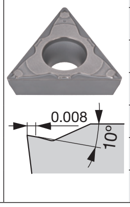
TP



Triangular, 60°
with hole
Positive 11°

		T9215	T9225	T9115	T9125	AH725	GH730	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	T9215	T9225	T9115	T9125	AH725	GH730	GT9530	GT720	NS9530	NS520	TH10	RE	IC	S	D1
Precision finishing	**01**	TPGT 730.5-01	TPGT090202-01							●		●			0.008	0.219	0.094	0.098
	 	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					●				●			0.008	0.219	0.094	0.098
	 	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
		TPMT 32.51 PF	TPMT16T304-PF							●		●			0.016	0.375	0.156	0.173

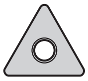
● : Line up
▲ : To be discontinued

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

Insert POSITIVE TYPE

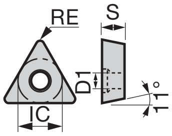
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

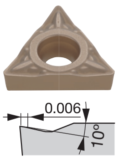
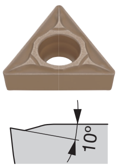
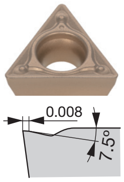
TP



Triangular, 60°
with hole
Positive 11°

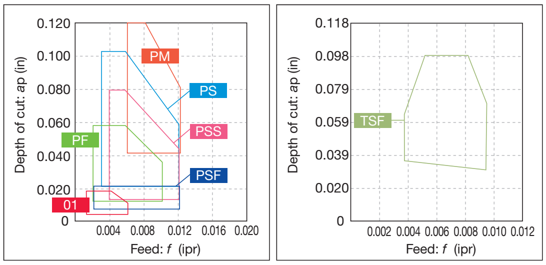
P	Steel	●◐	◐✠	●◐	◐✠	◐	✠	◐✠	✠	●◐	◐	◐	●◐	●◐			●◐		
M	Stainless	●◐				●	◐	◐	✠	●◐	◐	◐							
K	Cast iron	●◐		●◐						●◐	◐	◐	●◐	●◐			●◐		
N	Non-ferrous																		
S	Superalloy									●◐	●								
H	Hard material																		



Application	Chipbreaker	Designation		Coated											Coated cermet				Cermet			Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	GH730	GT9530	AT9530			NS9530			RE	IC	S	D1
Finishing to light cutting	**PSS**	TPMT 731 PSS	TPMT090204-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.016	0.219	0.094	0.098
		TPMT 732 PSS	TPMT090208-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.031	0.219	0.094	0.098
		TPMT 21.51 PSS	TPMT110204-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.016	0.250	0.094	0.110
		TPMT 21.52 PSS	TPMT110208-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.031	0.250	0.094	0.110
		TPMT 221 PSS	TPMT110304-PSS	●	●	▲	▲	●	●	●	●		●									0.016	0.250	0.125	0.134
		TPMT 222 PSS	TPMT110308-PSS	●	●	▲	▲	●	●	●	●		●									0.031	0.250	0.125	0.134
		TPMT 2.521 PSS	TPMT130304-PSS	●	●	▲	▲	●	●	●	●		●									0.016	0.313	0.125	0.134
		TPMT 2.522 PSS	TPMT130308-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.031	0.313	0.125	0.134
		TPMT 32.51 PSS	TPMT16T304-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.016	0.375	0.156	0.173
		TPMT 32.52 PSS	TPMT16T308-PSS	●	●	▲	▲	●	●	●	●		●		●				●			0.031	0.375	0.156	0.173
Finishing to medium cutting	**PS**	TPMT 730.5 PS	TPMT090202-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.008	0.219	0.094	0.098
		TPMT 731 PS	TPMT090204-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.016	0.219	0.094	0.098
		TPMT 732 PS	TPMT090208-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.031	0.219	0.094	0.098
		TPMT 21.50.5 PS	TPMT110202-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.008	0.250	0.094	0.110
		TPMT 21.51 PS	TPMT110204-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●			●			0.016	0.250	0.094	0.110
		TPMT 21.52 PS	TPMT110208-PS	●	●	▲	▲	●	●	●	●	●	●	●	●	●			●			0.031	0.250	0.094	0.110
		TPMT 221 PS	TPMT110304-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.016	0.250	0.125	0.134
		TPMT 222 PS	TPMT110308-PS	●	●	▲	▲	●	●	●	●		●	●	●	●			●			0.031	0.250	0.125	0.134
		TPMT 2.520.5 PS	TPMT130302-PS	●	●	▲	▲						●		●	●			●			0.008	0.313	0.125	0.134
		TPMT 2.521 PS	TPMT130304-PS	●	●	▲	▲	●	●	●	●		●		●	●			●			0.016	0.313	0.125	0.134
		TPMT 2.522 PS	TPMT130308-PS	●	●	▲	▲	●	●	●	●		●		●	●			●			0.031	0.313	0.125	0.134
		TPMT 32.51 PS	TPMT16T304-PS	●	●	▲	▲	●	●	●	●		●		●	●			●			0.016	0.375	0.156	0.173
		TPMT 32.52 PS	TPMT16T308-PS	●	●	▲	▲	●	●	●	●		●		●	●			●			0.031	0.375	0.156	0.173
	TSF	TPMT 21.51 TSF	TPMT110204-TSF	●	●																	0.016	0.250	0.094	0.110
		TPMT 21.52 TSF	TPMT110208-TSF	●	●																	0.031	0.250	0.094	0.110
		TPMT 221 TSF	TPMT110304-TSF	●	●																	0.016	0.250	0.125	0.134
		TPMT 222 TSF	TPMT110308-TSF	●	●																	0.031	0.250	0.125	0.134
		TPMT 32.51 TSF	TPMT16T304-TSF	●	●																	0.016	0.375	0.156	0.173
		TPMT 32.52 TSF	TPMT16T308-TSF	●	●																	0.031	0.375	0.156	0.173

● : Line up
▲ : To be discontinued

Chip control range

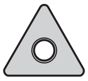


Reference pages: Mounting hole specification → B149
Internal toolholder → D050 -

Insert POSITIVE TYPE

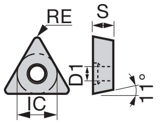
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

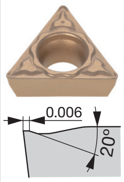
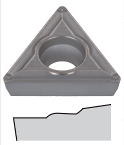
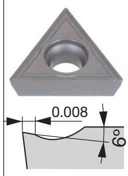
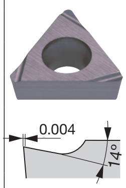
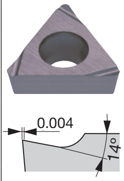
TP



Triangular, 60°
with hole
Positive 11°

		T9215	T9225	T9125	GH110	SH725	SH730	GT9530	NS9530	TH10	UX30
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

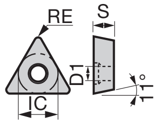
Reference pages: Mounting hole specification → B149
Internal toolholder → D050 -

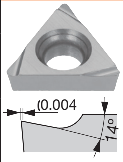
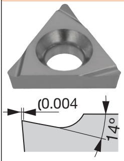
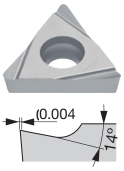
● : Continuous cutting
◖ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular, 60°
with hole
Positive 11°

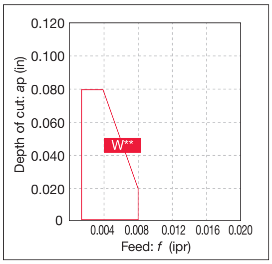
		GH110	GH330	GT9530	NS9530	TH10	UX30
P	Steel	●	●◖	●◖	●◖	●	◖
M	Stainless	●	●◖			●	◖
K	Cast iron	●	●◖	●◖	●◖	●	
N	Non-ferrous					●	
S	Superalloy	●					
H	Hard material						

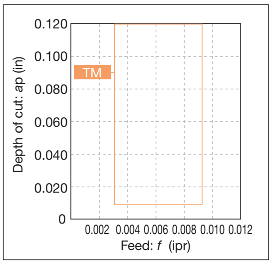


Application	Chipbreaker	Designation Inch	Designation Metric	Coated GH110	Coated GH330	Coated cermet GT9530	Cermet NS9530	Uncoated TH10	Uncoated UX30	Dimension (inch) RE	IC	S	D1
Finishing	**W10**	TPGH 630.5 L-W10	TPGH080202L-W10			●	●			0.008	0.187	0.094	0.091
		TPGH 631 L-W10	TPGH080204L-W10			●	●			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

Chip control range



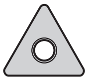


Reference pages: Mounting hole specification → B149
Internal toolholder → D050 -

Insert POSITIVE TYPE

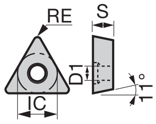
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

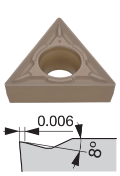
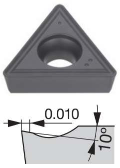
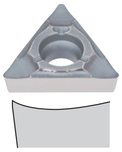
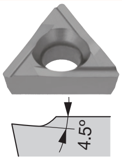
TP



Triangular, 60°
with hole
Positive 11°

		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GH330	GH730	GT9530		NS9530	
P	Steel	●◖	◖✠	●◖	◖✠	◖	✠	◖✠	✠			●◖	◖	●◖	◖	●◖		●◖	
M	Stainless	●◖				●	◖	◖	✠			●◖	◖	●◖	◖				
K	Cast iron	●◖		●◖						●◖	◖	●◖	◖	●◖	◖	●◖		●◖	
N	Non-ferrous																		
S	Superalloy											●◖	●						
H	Hard material																		



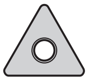
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	GH330	GH730	Coated cermet GT9530		Cermet NS9530		Dimension (inch) RE	IC	S	D1
Medium cutting	**PM**	TPMT 731 PM	TPMT090204-PM					●	●	●	●				●							0.016	0.219	0.094	0.098
	 0.006 8°	TPMT 732 PM	TPMT090208-PM					●	●	●	●				●							0.031	0.219	0.094	0.098
		TPMT 21.51 PM	TPMT110204-PM	●	●	▲	▲	●	●	●	●				●		●	●		●		0.016	0.250	0.094	0.110
		TPMT 21.52 PM	TPMT110208-PM	●	●	▲	▲	●	●	●	●			●	●		●					0.031	0.250	0.094	0.110
		TPMT 221 PM	TPMT110304-PM	●	●	▲	▲	●	●	●	●				●		●	●		●		0.016	0.250	0.125	0.134
		TPMT 222 PM	TPMT110308-PM	●	●	▲	▲	●	●	●	●				●		●					0.031	0.250	0.125	0.134
		TPMT 2.521 PM	TPMT130304-PM		●		▲	●	●	●	●				●					●		0.016	0.313	0.125	0.134
		TPMT 2.522 PM	TPMT130308-PM		●		▲	●	●	●	●				●			●		●		0.031	0.313	0.125	0.134
		TPMT 32.51 PM	TPMT16T304-PM		●		▲	●	●	●	●				●					●		0.016	0.375	0.156	0.173
		TPMT 32.52 PM	TPMT16T308-PM		●		▲	●	●	●	●				●							0.031	0.375	0.156	0.173
		TPMT 32.53 PM	TPMT16T312-PM		●		▲	●	●	●	●				●							0.047	0.375	0.156	0.173
Finishing to medium cutting	**CM**	TPMT 731 CM	TPMT090204-CM										●									0.016	0.219	0.094	0.098
	 0.010 10°	TPMT 732 CM	TPMT090208-CM										●									0.031	0.219	0.094	0.098
		TPMT 21.51 CM	TPMT110204-CM										●									0.016	0.250	0.094	0.110
		TPMT 21.52 CM	TPMT110208-CM										●									0.031	0.250	0.094	0.110
		TPMT 221 CM	TPMT110304-CM										●									0.016	0.250	0.125	0.134
		TPMT 222 CM	TPMT110308-CM										●									0.031	0.250	0.125	0.134
		TPMT 2.521 CM	TPMT130304-CM										●									0.016	0.313	0.125	0.134
		TPMT 2.522 CM	TPMT130308-CM										●									0.031	0.313	0.125	0.134
		TPMT 32.51 CM	TPMT16T304-CM									●	●									0.016	0.375	0.156	0.173
		TPMT 32.52 CM	TPMT16T308-CM									●	●									0.031	0.375	0.156	0.173
		TPMT 32.53 CM	TPMT16T312-CM									●	●									0.047	0.375	0.156	0.173
	SS	TPGT 21.50.5 SS	TPGT110202-SS																	●		0.008	0.250	0.094	0.110
		TPGT 21.51 SS	TPGT110204-SS													●				●		0.016	0.250	0.094	0.110
		TPGT 2.520.5 SS	TPGT130302-SS																	●		0.008	0.313	0.125	0.134
		TPGT 2.521 SS	TPGT130304-SS													●				●		0.016	0.313	0.125	0.134
		TPGT 32.51 SS	TPGT16T304-SS													●				●		0.016	0.375	0.156	0.173
	H11	TPGH 220.5 L-H11	TPGH110302L-H11															●		●		0.008	0.250	0.125	0.134
	 4.5°	TPGH 221 L-H11	TPGH110304L-H11															●		●		0.016	0.250	0.125	0.134

● : Line up
▲ : To be discontinued

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

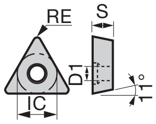
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

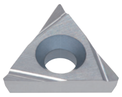
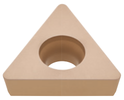
TP



Triangular, 60°
with hole
Positive 11°

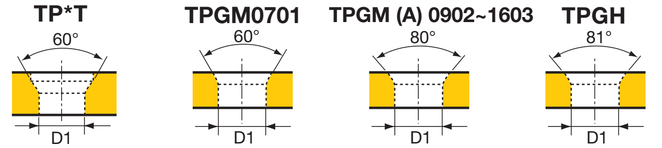
		T5115	NS9530	TH10	UX30
P	Steel		●◖	●	◖
M	Stainless			●	◖
K	Cast iron	◖	●◖	●	
N	Non-ferrous			●	
S	Superalloy				
H	Hard material				



Application	Chipbreaker	Designation		Coated	Cermet	Uncoated		Dimension (inch)			
		Inch	Metric	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
	(Tungaloy standard hole specification) ISO non-compliant	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...R/L	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

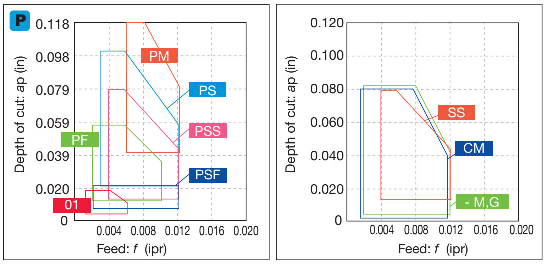
● : Line up

Mounting hole specification



		0701**	0802**	0902**	1102**	1103**	1303**	1603**	16T3**
D1 (in)	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	-

Chip control range

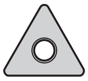


*-M,G: Without chipbreaker

Reference pages: Internal toolholder → D050 -

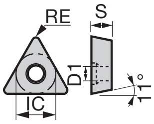
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

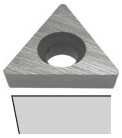
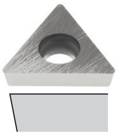
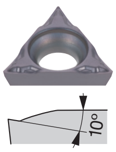
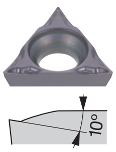
TP



Triangular, 60°
with hole
Positive 11°

		GH110	SH725	SH730	NS9530	TH10
P	Steel	●	●◖	●◖	●◖	●
M	Stainless	●	●◖	●◖		●
K	Cast iron	●			●◖	●
N	Non-ferrous					●
S	Superalloy	●		●◖		
H	Hard material					



Application	Chipbreaker	Designation Inch	Designation Metric	Coated GH110	Coated SH725	Coated SH730	Cermet NS9530	Uncoated TH10	Dimension (inch) 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

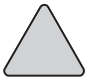
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

Reference pages: Internal toolholder → D050 -

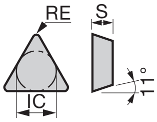
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

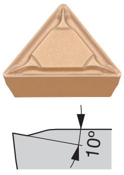
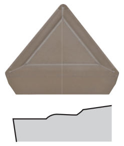
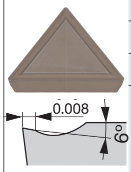
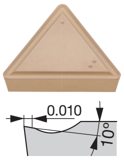
TP



Triangular, 60°
without hole
Positive 11°

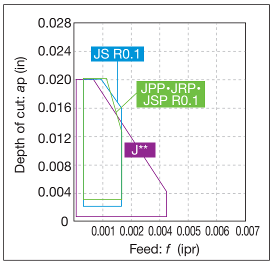
		T9215	T9225	T9115	T9125	T5115	AH725	NS9530	TH10
P	Steel	●◖	◖✠	●◖	◖✠		◖	●◖	●
M	Stainless	●◖					◖		●
K	Cast iron	●◖		●◖		◖	◖	●◖	●
N	Non-ferrous								●
S	Superalloy						●		
H	Hard material								



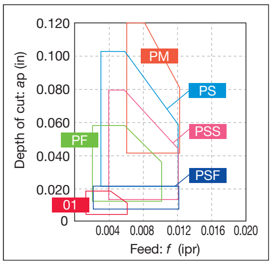
Application	Chipbreaker	Designation		Coated						Cermet	Uncoated	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T5115	AH725	NS9530	TH10	RE	IC	S	D1
Finishing to medium cutting	**PS**	**TPMR 221 PS**	**TPMR110304-PS**		●		▲					0.016	0.250	0.125	-
		**TPMR 222 PS**	**TPMR110308-PS**		●		▲					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	-
	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	-

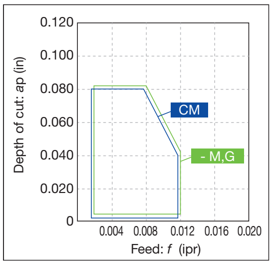
● : Line up
▲ : To be discontinued

Chip control range



*Chip control range with typical R0.1





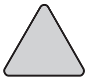
*-M,G: Without chipbreaker

Reference pages: Internal toolholder → D051 -

Insert POSITIVE TYPE

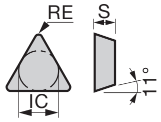
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

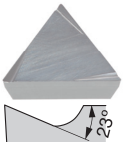
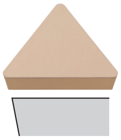
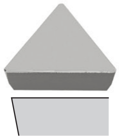
TP



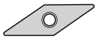
Triangular, 60°
without hole
Positive 11°

		Coated				Cermet		Uncoated		Ceramic	
		T5115	GH110	AH120	T3130	NS9530	NS740	TH10	UX30	LX21	LX11
P	Steel		●	●◖	●◖	●◖	◖	●	◖		
M	Stainless		●	●◖	●◖			●	◖		
K	Cast iron	◖	●	●◖	●◖	●◖	◖	●		●	
N	Non-ferrous							●			
S	Superalloy		●	●◖							
H	Hard material										●



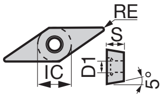
Application	Chipbreaker	Designation Inch	Designation Metric	Coated T5115	Coated GH110	Coated AH120	Coated T3130	Cermet NS9530	Cermet NS740	Uncoated TH10	Uncoated UX30	Ceramic LX21	Ceramic LX11	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting	-	TPGR 220.5 L	TPGR110302L					●						0.008	0.250	0.125	-
		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	-
	23°	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	-

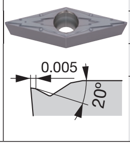
VB



Rhombic, 35°
with hole
Positive 5°

		Coated					Coated cermet	Cermet
		T9215	T9225	T9115	T9125	AH725	GT9530	NS9530
P	Steel	●◖	◖✠	●◖	◖✠	◖	●◖	●◖
M	Stainless	●◖				◖		
K	Cast iron	●◖		●◖		◖	●◖	●◖
N	Non-ferrous							
S	Superalloy					●		
H	Hard material							



Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9215	Coated T9225	Coated T9115	Coated T9125	Coated AH725	Coated cermet GT9530	Cermet NS9530	Dimension (inch) RE	IC	S	D1
Finishing	PSF	VBMT 220.5 PSF	VBMT110302-PSF					●	●	●	0.008	0.250	0.125	0.110
	 0.005 20°	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

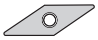
● : Line up
▲ : To be discontinued

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

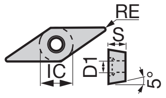
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

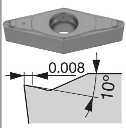
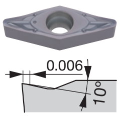
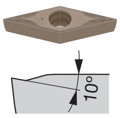
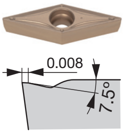
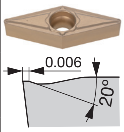
VB

Rhombic, 35°
with hole
Positive 5°



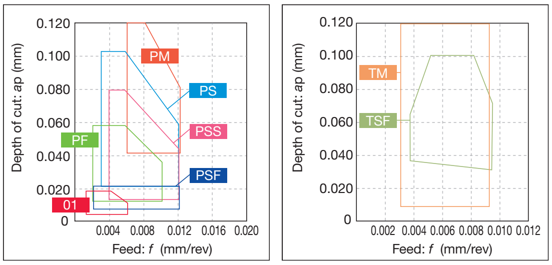
		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	AH8005	AH8015	GT9530	AT9530	NS9530	
P	Steel	●◖	◖✠	●◖	◖✠	◖	✠	◖✠	✠			●◖	◖			●◖	●◖	●◖	
M	Stainless	●◖				●	◖	◖	✠			●◖	◖	●	◖				
K	Cast iron	●◖		●◖						●◖	◖	●◖	◖			●◖	●◖	●◖	
N	Non-ferrous																		
S	Superalloy											●◖	●	●	◖				
H	Hard material																		



Application	Chipbreaker	Designation		Coated														Coated cermet		Cermet	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	T515	T5115	AH120	AH725	AH8005	AH8015	GT9530	AT9530	NS9530	RE	IC	S	D1
Finishing	**PF**	VBMT 220.5 PF	VBMT110302-PF															●		●	0.008	0.250	0.125	0.110
	 0.008 10°	VBMT 221 PF	VBMT110304-PF															●		●	0.016	0.250	0.125	0.110
		VBMT 222 PF	VBMT110308-PF															●		●	0.031	0.250	0.125	0.110
		VBMT 331 PF	VBMT160404-PF															●		●	0.016	0.375	0.187	0.173
		VBMT 332 PF	VBMT160408-PF		●		▲											●		●	0.031	0.375	0.187	0.173
Finishing to light cutting	**PSS**	VBMT 221 PSS	VBMT110304-PSS	●	●	▲	▲	●	●	●	●				●			●		●	0.016	0.250	0.125	0.110
	 0.006 10°	VBMT 222 PSS	VBMT110308-PSS	●	●	▲	▲	●	●	●	●				●			●		●	0.031	0.250	0.125	0.110
		VBMT 331 PSS	VBMT160404-PSS	●	●	▲	▲	●	●	●	●				●			●		●	0.016	0.375	0.187	0.173
		VBMT 332 PSS	VBMT160408-PSS	●	●	▲	▲	●	●	●	●				●			●		●	0.031	0.375	0.187	0.173
		VBMT 333 PSS	VBMT160412-PSS	●	●	▲	▲								●						0.047	0.375	0.187	0.173
Finishing to medium cutting	**PS**	VBMT 220.5 PS	VBMT110302-PS	●	●	▲	▲	●	●	●	●				●	●	●	●	●	●	0.008	0.250	0.125	0.110
	 10°	VBMT 221 PS	VBMT110304-PS	●	●	▲	▲	●	●	●	●			●	●	●	●	●	●	●	0.016	0.250	0.125	0.110
		VBMT 222 PS	VBMT110308-PS	●	●	▲	▲	●	●	●	●			●	●	●	●	●	●	●	0.031	0.250	0.125	0.110
		VBMT 330.5 PS	VBMT160402-PS	●	●	▲	▲	●	●	●	●				●	●	●	●	●	●	0.008	0.375	0.187	0.173
		VBMT 331 PS	VBMT160404-PS	●	●	▲	▲	●	●	●	●			●	●	●	●	●	●	●	0.016	0.375	0.187	0.173
		VBMT 332 PS	VBMT160408-PS	●	●	▲	▲	●	●	●	●			●	●	●	●	●	●	●	0.031	0.375	0.187	0.173
	TSF	VBMT 220.5 TSF	VBMT110302-TSF	●	●																0.008	0.250	0.125	0.110
	 0.008 7.5°	VBMT 221 TSF	VBMT110304-TSF	●	●																0.016	0.250	0.125	0.110
		VBMT 222 TSF	VBMT110308-TSF	●	●																0.031	0.250	0.125	0.110
		VBMT 331 TSF	VBMT160404-TSF	●	●																0.016	0.375	0.187	0.173
		VBMT 332 TSF	VBMT160408-TSF	●	●																0.031	0.375	0.187	0.173
	TM	VBMT 220.5 TM	VBMT110302-TM	●	●																0.008	0.250	0.125	0.110
	 0.006 20°	VBMT 221 TM	VBMT110304-TM	●	●																0.016	0.250	0.125	0.110
		VBMT 222 TM	VBMT110308-TM	●	●																0.031	0.250	0.125	0.110
		VBMT 331 TM	VBMT160404-TM	●	●																0.016	0.375	0.187	0.173
		VBMT 332 TM	VBMT160408-TM	●	●																0.031	0.375	0.187	0.173

● : Line up
▲ : To be discontinued

Chip control range



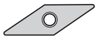
Reference pages: External toolholder → **C065** Internal toolholder → **D043 -**
J-Series toolholder → **G044 -**

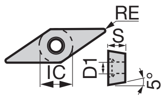
Negative
Positive
PCD / CBN
C
D
G
R
S
T
V
W
Y
OTHERS

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

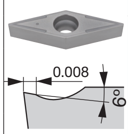
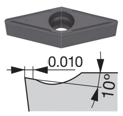
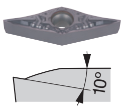
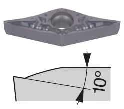
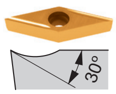
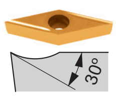
VB

Rhombic, 35°
with hole
Positive 5°





		T9215	T9225	T9115	T9125	T515	T5115	AH725	SH725	SH730	J740		J9530		NS9530			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	T9215	T9225	T9115	T9125	T515	T5115	AH725	SH725	SH730	J740		J9530		NS9530			TH10		RE	IC	S	D1
Medium cutting	**24**	VBMT 331-24	VBMT160404-24	●	●	▲	▲										●					0.016	0.375	0.187	0.173
		VBMT 332-24	VBMT160408-24	●	●	▲	▲										●					0.031	0.375	0.187	0.173
Finishing to medium cutting	**CM**	VBMT 221 CM	VBMT110304-CM						●													0.016	0.250	0.125	0.110
		VBMT 222 CM	VBMT110308-CM						●													0.031	0.250	0.125	0.110
		VBMT 331 CM	VBMT160404-CM					●	●													0.016	0.375	0.187	0.173
		VBMT 332 CM	VBMT160408-CM					●	●													0.031	0.375	0.187	0.173
		VBMT 333 CM	VBMT160412-CM					●	●													0.047	0.375	0.187	0.173
For external turning on Swiss lathes (sharp edge)	**JS**	VBGT 22V FN-JS	VBGT110300FN-JS								●	●										0.001	0.250	0.125	0.110
		VBGT 220 FN-JS	VBGT110301FN-JS								●	●										<0.004	0.250	0.125	0.110
		VBGT 220.5 FN-JS	VBGT110302FN-JS								●	●										<0.003	0.250	0.125	0.110
		VBGT 221 FN-JS	VBGT110304FN-JS								●	●										<0.016	0.250	0.125	0.110
For external turning on Swiss lathes	**JS**	VBGT 220 N-JS	VBGT110301N-JS							●												0.004	0.250	0.125	0.110
		VBGT 220.5 N-JS	VBGT110302N-JS							●												0.008	0.250	0.125	0.110
		VBGT 221 N-JS	VBGT110304N-JS							●												0.016	0.250	0.125	0.110
For external turning on Swiss lathes (sharp edge)	**J10**	VBGT 22V FR-J10	VBGT110300FR-J10								●		●							●		0.001	0.250	0.125	0.110
		VBGT 22V FL-J10	VBGT110300FL-J10								●		●							●		0.001	0.250	0.125	0.110
		VBGT 220 FR-J10	VBGT110301FR-J10								●		●				●			●		0.004	0.250	0.125	0.110
		VBGT 220 FL-J10	VBGT110301FL-J10								●		●				●			●		0.004	0.250	0.125	0.110
		VBGT 220.5 FR-J10	VBGT110302FR-J10								●		●				●			●		0.008	0.250	0.125	0.110
		VBGT 220.5 FL-J10	VBGT110302FL-J10								●		●				●			●		0.008	0.250	0.125	0.110
		VBGT 221 FR-J10	VBGT110304FR-J10								●		●				●			●		0.016	0.250	0.125	0.110
		VBGT 221 FL-J10	VBGT110304FL-J10								●		●				●			●		0.016	0.250	0.125	0.110
For external turning on Swiss lathes (honed edge)	**J10**	VBGT 220.5 R-J10	VBGT110302R-J10												●							0.008	0.250	0.125	0.110
		VBGT 220.5 L-J10	VBGT110302L-J10												●							0.008	0.250	0.125	0.110
		VBGT 221 R-J10	VBGT110304R-J10												●							0.016	0.250	0.125	0.110
		VBGT 221 L-J10	VBGT110304L-J10												●							0.016	0.250	0.125	0.110

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

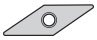
● : Line up
▲ : To be discontinued

Reference pages: External toolholder → C065 Internal toolholder → D043 -
J-Series toolholder → G044 -

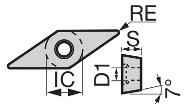
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

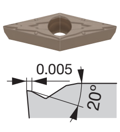
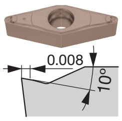
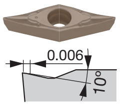
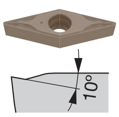
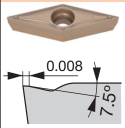
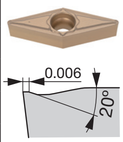
VC

Rhombic, 35°
with hole
Positive 7°



		T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	AH905	GT9530	AT9530	NS9530
P	Steel	●◖	◖✠	●◖	◖✠	◖	✠	◖✠	✠	●◖	◖				●◖	●◖	●◖
M	Stainless	●◖				●	◖	◖	✠	●◖	◖	●	◖				
K	Cast iron	●◖		●◖						●◖	◖				●◖	●◖	●◖
N	Non-ferrous																
S	Superalloy									●◖	●	●	◖	◖			
H	Hard material																

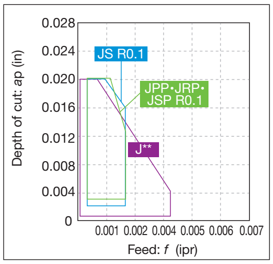


Application	Chipbreaker	Designation		Coated													Coated cermet		Cermet	Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T6120	T6130	AH630	AH645	AH120	AH725	AH8005	AH8015	AH905	GT9530	AT9530	NS9530	RE	IC	S	D1
Finishing	**PSF** 	VCMT 630.5 PSF	VCMT080202-PSF										●				●		●	0.008	0.187	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

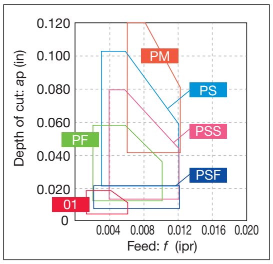
PSF: 0.005, 20°
PF: 0.008, 10°
PSS: 0.006, 10°
PS: 10°
TSF: 0.008, 7.5°
TM: 0.006, 20°

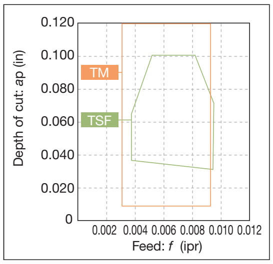
● : Line up
▲ : To be discontinued

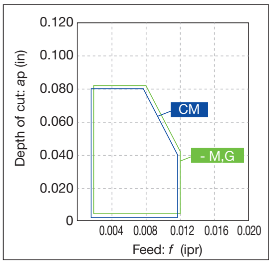
Chip control range



*Chip control range with typical R0.1







*-M,G: Without chipbreaker

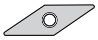
Reference pages: External toolholder → C068 - Internal toolholder → D044 -

Insert POSITIVE TYPE

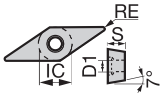
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

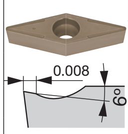
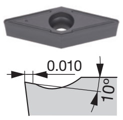
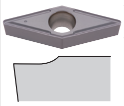
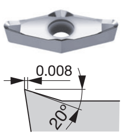
VC

Rhombic, 35°
with hole
Positive 7°



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



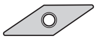
Application	Chipbreaker	Designation		Coated											Cermet				Un-coated			Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	T515	T5115	AH8005	AH8015	AH905			NS9530				KS05F			RE	IC	S	D1
Finishing to medium cutting	**24** 	VCMT 331-24	VCMT160404-24	●	●	▲	▲								●							0.016	0.375	0.187	0.173
		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
		VCMT 332 CM	VCMT160408-CM					●	●													0.031	0.375	0.187	0.173
		VCMT 333 CM	VCMT160412-CM						●													0.047	0.375	0.187	0.173
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
		VCMT 333	VCMT160412							●	●	●										0.047	0.375	0.187	0.173
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
		VCGT 333 AL	VCGT160412-AL																●			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 -

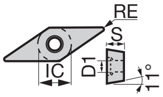
● : Continuous cutting
◐ : Light interrupted cutting
✤ : Heavy interrupted cutting

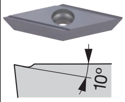
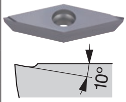
VP



Rhombic, 35°
with hole
Positive 11°

		SH725	SH730
P	Steel	●◐	●◐
M	Stainless	●◐	●◐
K	Cast iron		
N	Non-ferrous		
S	Superalloy		●◐
H	Hard material		

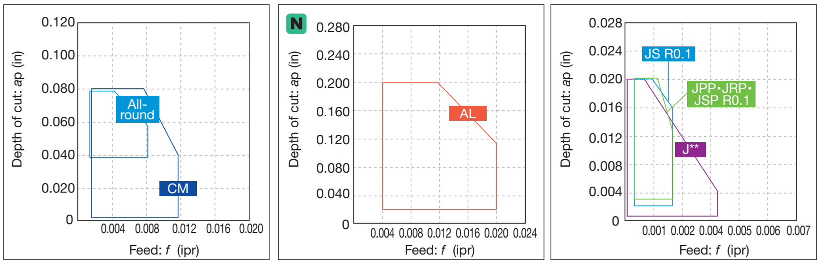


Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Coated SH730	Dimension (inch) RE	IC	S	D1
For external turning on Swiss lathes (sharp edge)	**JPP**	VPET 63X MFR-JPP	VPET0802008MFR-JPP	●	●	<0.003	0.187	0.094	0.091
		VPET 63X MFL-JPP	VPET0802008MFL-JPP	●		<0.003	0.187	0.094	0.091
		VPET 630 MFR-JPP	VPET080201MFR-JPP	●	●	<0.004	0.187	0.094	0.091
		VPET 630 MFL-JPP	VPET080201MFL-JPP	●	●	<0.004	0.187	0.094	0.091
		VPET 630.4 MFR-JPP	VPET0802018MFR-JPP	●		<0.007	0.187	0.094	0.091
		VPET 630.4 MFL-JPP	VPET0802018MFL-JPP	●		<0.007	0.187	0.094	0.091
	 10°	VPET 630.5 MFR-JPP	VPET080202MFR-JPP	●	●	<0.008	0.187	0.094	0.091
		VPET 630.5 MFL-JPP	VPET080202MFL-JPP	●	●	<0.008	0.187	0.094	0.091
		VPET 22X MFR-JPP	VPET1103008MFR-JPP	●	●	<0.003	0.250	0.125	0.110
		VPET 220 MFR-JPP	VPET110301MFR-JPP	●	●	<0.004	0.250	0.125	0.110
		VPET 220 MFL-JPP	VPET110301MFL-JPP	●		<0.004	0.250	0.125	0.110
		VPET 220.4 MFR-JPP	VPET1103018MFR-JPP	●	●	<0.007	0.250	0.125	0.110
		VPET 220.5 MFR-JPP	VPET110302MFR-JPP	●	●	<0.008	0.250	0.125	0.110
		VPET 220.5 MFL-JPP	VPET110302MFL-JPP	●	●	<0.008	0.250	0.125	0.110
	JRP	VPET 63X MFR-JRP	VPET0802008MFR-JRP	●	●	<0.003	0.187	0.094	0.091
		VPET 630 MFR-JRP	VPET080201MFR-JRP	●	●	<0.004	0.187	0.094	0.091
		VPET 630 MFL-JRP	VPET080201MFL-JRP	●	●	<0.004	0.187	0.094	0.091
		VPET 630.4 MFR-JRP	VPET0802018MFR-JRP	●		<0.007	0.187	0.094	0.091
		VPET 630.4 MFL-JRP	VPET0802018MFL-JRP	●		<0.007	0.187	0.094	0.091
		VPET 630.5 MFR-JRP	VPET080202MFR-JRP	●	●	<0.008	0.187	0.094	0.091
		VPET 630.5 MFL-JRP	VPET080202MFL-JRP	●	●	<0.008	0.187	0.094	0.091
	 10°	VPET 22X MFR-JRP	VPET1103008MFR-JRP	●	●	<0.003	0.250	0.125	0.110
		VPET 22X MFL-JRP	VPET1103008MFL-JRP		●	<0.003	0.250	0.125	0.110
		VPET 220 MFR-JRP	VPET110301MFR-JRP	●	●	<0.004	0.250	0.125	0.110
		VPET 220 MFL-JRP	VPET110301MFL-JRP	●	●	<0.004	0.250	0.125	0.110
		VPET 220.4 MFR-JRP	VPET1103018MFR-JRP	●	●	<0.007	0.250	0.125	0.110
		VPET 220.4 MFL-JRP	VPET1103018MFL-JRP	●		<0.007	0.250	0.125	0.110
		VPET 220.5 MFR-JRP	VPET110302MFR-JRP	●	●	<0.008	0.250	0.125	0.110
		VPET 220.5 MFL-JRP	VPET110302MFL-JRP	●	●	<0.008	0.250	0.125	0.110

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

● : Line up

Chip control range



*Chip control range with typical R0.1

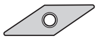
Reference pages: VPET...: J-Series toolholder → G030 -

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

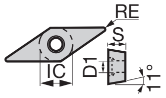
Insert POSITIVE TYPE

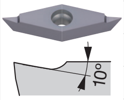
VP

Rhombic, 35°
with hole
Positive 11°



		SH725	SH730
P	Steel	●◐	●◐
M	Stainless	●◐	●◐
K	Cast iron		
N	Non-ferrous		
S	Superalloy		●◐
H	Hard material		



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Coated SH730	Dimension (inch) RE	IC	S	D1
For external turning on Swiss lathes (sharp edge)	**JSP**	VPET 63X MFN-JSP	VPET0802008MFN-JSP	●	●	<0.003	0.187	0.094	0.091
	 10°	VPET 630 MFN-JSP	VPET080201MFN-JSP	●	●	<0.004	0.187	0.094	0.091
		VPET 630.4 MFN-JSP	VPET0802018MFN-JSP	●	●	<0.007	0.187	0.094	0.091
		VPET 630.5 MFN-JSP	VPET080202MFN-JSP	●	●	<0.008	0.187	0.094	0.091
		VPET 22X MFN-JSP	VPET1103008MFN-JSP	●	●	<0.003	0.250	0.125	0.110
		VPET 220 MFN-JSP	VPET110301MFN-JSP	●	●	<0.004	0.250	0.125	0.110
		VPET 220.4 MFN-JSP	VPET1103018MFN-JSP	●	●	<0.007	0.250	0.125	0.110
		VPET 220.5 MFN-JSP	VPET110302MFN-JSP	●	●	<0.008	0.250	0.125	0.110

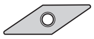
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

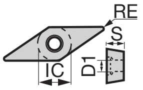
Insert POSITIVE TYPE / DOUBLE SIDE

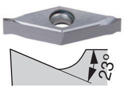
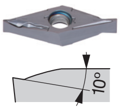
VX

Rhombic, 35°
with hole



		SH725
P	Steel	●◐
M	Stainless	●◐
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	

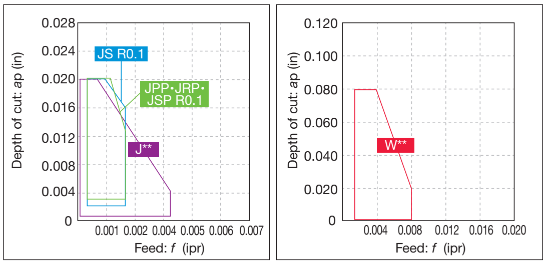


Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (inch) RE	IC	S	D1
Finishing (sharp edge)	**JRP**	VXGU 73.50MFRE-JRP	VXGU09T201MFRE-JRP	●	<0.004	0.219	0.109	0.098
	 23°	VXGU 73.50MFLE-JRP	VXGU09T201MFLE-JRP	●	<0.004	0.219	0.109	0.098
		VXGU 73.50.5MFRE-JRP	VXGU09T202MFRE-JRP	●	<0.008	0.219	0.109	0.098
		VXGU 73.50.5MFLE-JRP	VXGU09T202MFLE-JRP	●	<0.008	0.219	0.109	0.098
Finishing to medium cutting (sharp edge)	**JS**	VXGU 73.50MFR-JS	VXGU09T201MFR-JS	●	<0.004	0.219	0.109	0.098
	 10°	VXGU 73.50MFL-JS	VXGU09T201MFL-JS	●	<0.004	0.219	0.109	0.098
		VXGU 73.50.5MFR-JS	VXGU09T202MFR-JS	●	<0.008	0.219	0.109	0.098
		VXGU 73.50.5MFL-JS	VXGU09T202MFL-JS	●	<0.008	0.219	0.109	0.098
		VXGU 73.51MFR-JS	VXGU09T204MFR-JS	●	<0.016	0.219	0.109	0.098
		VXGU 73.51MFL-JS	VXGU09T204MFL-JS	●	<0.016	0.219	0.109	0.098

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

● : Line up

Chip control range

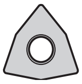


*Chip control range with typical R0.1

Reference pages: WPMT...: External toolholder → C104 VXGU...: External toolholder → C059 -
VPET... : J-Series toolholder → G030 -

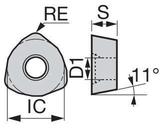
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

WP



Trigon, 80°
with hole
Positive 11°

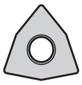
		T9215	T9225	T9115	T9125	AH120
P	Steel	●◐	◐✠	●◐	◐✠	●◐
M	Stainless	●◐				●◐
K	Cast iron	●◐		●◐		●◐
N	Non-ferrous					
S	Superalloy					●◐
H	Hard material					



Application	Chipbreaker	Designation		Coated					Dimension (inch)			
		Inch	Metric	T9215	T9225	T9115	T9125	AH120	RE	IC	S	D1
Heavy cutting	**ML**	-	WPMT090725ZPR-ML	●	●	▲	▲	●	0.098	0.591	0.276	0.217
	  10°	-	WPMT090725ZPL-ML	●	●	▲	▲	●	0.098	0.591	0.276	0.217

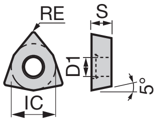
● : Line up
▲ : To be discontinued

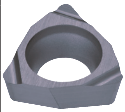
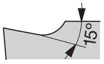
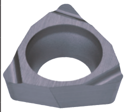
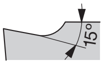
WB



Trigon, 80°
with hole
Positive 5°

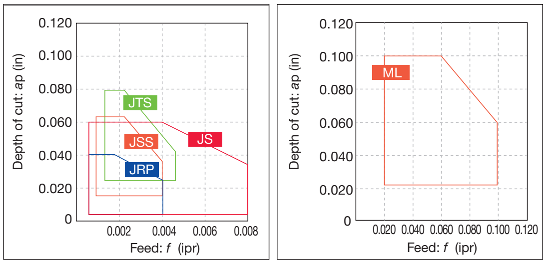
		GH110	SH725	SH730	NS9530	TH10	UX30
P	Steel	●	●◐	●◐	●◐	●	◐
M	Stainless	●	●◐	●◐		●	◐
K	Cast iron	●			●◐	●	
N	Non-ferrous					●	
S	Superalloy	●		●◐			
H	Hard material						



Application	Chipbreaker	Designation		Coated			Cermet	Uncoated		Dimension (inch)			
		Inch	Metric	GH110	SH725	SH730	NS9530	TH10	UX30	RE	IC	S	D1
Finishing	**W08**	WBGT 52V R-W08	WBGT030100R-W08			●				0.001	0.156	0.063	0.091
	  15°	WBGT 52V L-W08	WBGT030100L-W08			●	●	●	●	0.001	0.156	0.063	0.091
		WBGT 520 R-W08	WBGT030101R-W08			●				0.004	0.156	0.063	0.091
		WBGT 520 L-W08	WBGT030101L-W08			●		●		0.004	0.156	0.063	0.091
		WBGT 520.5 R-W08	WBGT030102R-W08			●				0.008	0.156	0.063	0.091
		WBGT 520.5 L-W08	WBGT030102L-W08	●		●	●	●	●	0.008	0.156	0.063	0.091
		WBGT 521 R-W08	WBGT030104R-W08			●				0.016	0.156	0.063	0.091
		WBGT 521 L-W08	WBGT030104L-W08	●		●	●	●	●	0.016	0.156	0.063	0.091
Finishing (sharp edge)	**W08**	WBGT 52V FR-W08	WBGT030100FR-W08		●					0.001	0.156	0.063	0.091
	  15°	WBGT 52V FL-W08	WBGT030100FL-W08		●					0.001	0.156	0.063	0.091
		WBGT 520 FR-W08	WBGT030101FR-W08		●					0.004	0.156	0.063	0.091
		WBGT 520 FL-W08	WBGT030101FL-W08		●					0.004	0.156	0.063	0.091
		WBGT 520.5 FR-W08	WBGT030102FR-W08		●					0.008	0.156	0.063	0.091
		WBGT 520.5 FL-W08	WBGT030102FL-W08		●					0.008	0.156	0.063	0.091
		WBGT 521 FR-W08	WBGT030104FR-W08		●					0.016	0.156	0.063	0.091
		WBGT 521 FL-W08	WBGT030104FL-W08		●					0.016	0.156	0.063	0.091

● : Line up

Chip control range

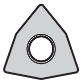


Reference pages: Internal toolholder → D083

Insert POSITIVE TYPE

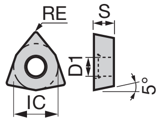
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

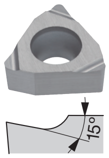
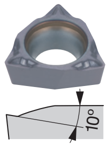
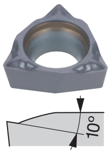
WB



Trigon, 80°
with hole
Positive 5°

		GH110	SH725	SH730	NS9530
P	Steel	●	●◐	●◐	●◐
M	Stainless	●	●◐	●◐	
K	Cast iron	●			●◐
N	Non-ferrous				
S	Superalloy	●		●◐	
H	Hard material				



Application	Chipbreaker	Designation Inch	Designation Metric	Coated GH110	Coated SH725	Coated SH730	Cermet NS9530	Dimension (inch) RE	IC	S	D1
Finishing (sharp edge)	**W11**	WBGT 520.5 L-W11	WBGT060102L-W11	●			●	0.008	0.156	0.063	0.091
	 15°	WBGT 521 L-W11	WBGT060104L-W11				●	0.016	0.156	0.063	0.091
		WBGT 630.5 L-W11	WBGT080202L-W11				●	0.008	0.187	0.094	0.091
		WBGT 631 L-W11	WBGT080204L-W11				●	0.016	0.187	0.094	0.091
For internal turning on Swiss lathes	**JS**	WBGT 520 R-JS	WBGT030101R-JS			●		<0.004	0.156	0.063	0.091
	 10°	WBGT 520 L-JS	WBGT030101L-JS			●		<0.004	0.156	0.063	0.091
		WBGT 520.5 R-JS	WBGT030102R-JS			●		<0.008	0.156	0.063	0.091
		WBGT 520.5 L-JS	WBGT030102L-JS			●		<0.008	0.156	0.063	0.091
		WBGT 521 R-JS	WBGT030104R-JS			●		<0.016	0.156	0.063	0.091
		WBGT 521 L-JS	WBGT030104L-JS			●		<0.016	0.156	0.063	0.091
For internal turning on Swiss lathes (sharp edge)	**JS**	WBGT 520 FR-JS	WBGT030101FR-JS		●			<0.004	0.156	0.063	0.091
	 10°	WBGT 520 FL-JS	WBGT030101FL-JS		●			<0.004	0.156	0.063	0.091
		WBGT 520.5 FR-JS	WBGT030102FR-JS		●			<0.008	0.156	0.063	0.091
		WBGT 520.5 FL-JS	WBGT030102FL-JS		●			<0.008	0.156	0.063	0.091
		WBGT 521 FR-JS	WBGT030104FR-JS		●			<0.016	0.156	0.063	0.091
		WBGT 521 FL-JS	WBGT030104FL-JS		●			<0.016	0.156	0.063	0.091

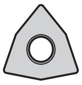
*Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : Line up

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

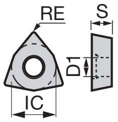
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

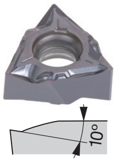
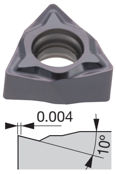
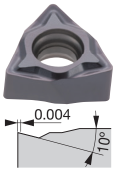
WX



Trigon, 80°
with hole

		AH725	SH725
P	Steel	◐	●◐
M	Stainless	◐	●◐
K	Cast iron	◐	
N	Non-ferrous		
S	Superalloy	●	
H	Hard material		

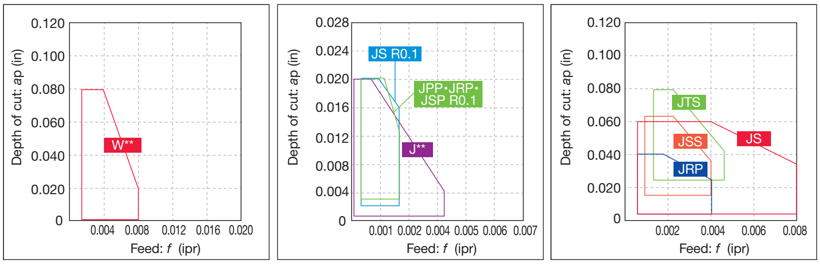


Application	Chipbreaker	Designation Inch	Designation Metric	Coated AH725	Coated SH725	Dimension (inch) RE	IC	S	D1
Finishing to medium cutting (sharp edge)	**JS** 	WXGU 220MFR JS	WXGU040301MFR-JS		●	<0.004	0.250	0.125	0.106
		WXGU 220MFL JS	WXGU040301MFL-JS		●	<0.004	0.250	0.125	0.106
		WXGU 220.5MFR 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



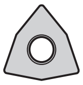
*Chip control range with typical R0.1

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

Insert POSITIVE TYPE

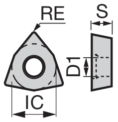
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

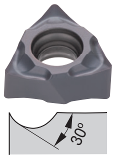
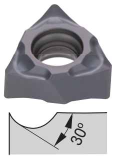
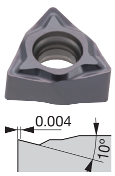
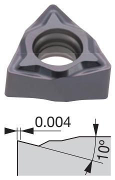
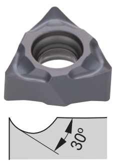
WX



Trigon, 80°
with hole

		AH725	AH8015	SH725	GT9530	NS9530	KS05F
P	Steel	◐	●◐	●◐	●◐	●◐	
M	Stainless	◐	●◐	●◐			
K	Cast iron	◐			●◐	●◐	●
N	Non-ferrous						●
S	Superalloy	●					●
H	Hard material						

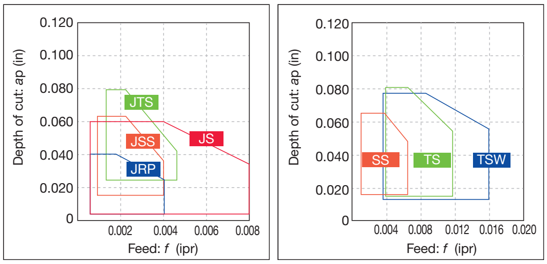


Application	Chipbreaker	Designation Inch	Designation Metric	Coated AH725	Coated AH8015	Coated SH725	Coated cermet GT9530	Cermet NS9530	Uncoated KS05F	Dimension (inch) RE	Dimension (inch) IC	Dimension (inch) S	Dimension (inch) D1
Finishing (low cutting force) (sharp edge)	**JSS**	WXGU 220MFR JSS	WXGU040301MFR-JSS			●				<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
		WXGU 222L TS	WXGU040308L-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

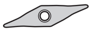
Chip control range



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

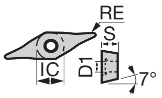
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

YW

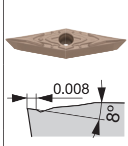


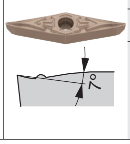
Rhombic, 25°
with hole
Positive 7°

		Coated		Coated cermet
		T9225	T9125	GT9530
P	Steel	◖✠	◖✠	●◖
M	Stainless			
K	Cast iron			●◖
N	Non-ferrous			
S	Superalloy			
H	Hard material			



Application	Chipbreaker	Designation Inch	Designation Metric	Coated T9225	Coated T9125	Coated cermet GT9530	Dimension (inch) 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
		-	YWMT16T304-ZM	●	▲	●	0.016	0.276	0.156	0.113
		-	YWMT16T308-ZM	●	▲	●	0.031	0.276	0.156	0.113

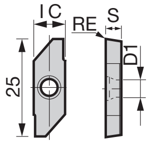




JXF

Front turning

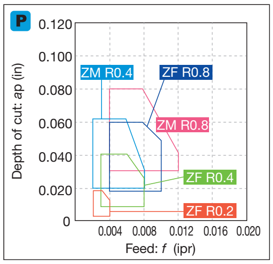
		Coated	Uncoated
		J740	TH10
P	Steel	●◖	●
M	Stainless	●◖	●
K	Cast iron		●
N	Non-ferrous		●
S	Superalloy		
H	Hard material		



Application	Chipbreaker	Designation Inch	Designation Metric	Coated J740	Uncoated TH10	Dimension (inch) 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

Chip control range



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

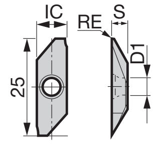
Insert POSITIVE TYPE

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

JXR

Reverse turning

		J740	TH10
P	Steel	●◐	●
M	Stainless	●◐	●
K	Cast iron		●
N	Non-ferrous		●
S	Superalloy		
H	Hard material		

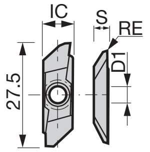


Application	Chipbreaker	Designation Inch	Designation Metric	Coated J740	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Reverse turning	-	-	JXRR8000F	●	●	0.001	0.315	0.156	0.173
		-	JXRR8010F	●	●	0.004	0.315	0.156	0.173
									

JXB

Back turning

		J740	TH10
P	Steel	●◐	●
M	Stainless	●◐	●
K	Cast iron		●
N	Non-ferrous		●
S	Superalloy		
H	Hard material		



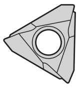
Application	Chipbreaker	Designation Inch	Designation Metric	Coated J740	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Back turning	-	-	JXBR8000F	●	●	0.001	0.315	0.156	0.173
		-	JXBL8000F	●	●	0.001	0.315	0.156	0.173
		-	JXBR8005F	●	●	0.002	0.315	0.156	0.173
		-	JXBL8005F	●	●	0.002	0.315	0.156	0.173
		-	JXBR8005	●		0.002	0.315	0.156	0.173
		-	JXBL8005	●		0.002	0.315	0.156	0.173
		-	JXBR8010F	●	●	0.004	0.315	0.156	0.173
		-	JXBL8010F	●	●	0.004	0.315	0.156	0.173
		-	JXBR8010	●		0.004	0.315	0.156	0.173
		-	JXBL8010	●		0.004	0.315	0.156	0.173
		-	JXBR8015F	●	●	0.006	0.315	0.156	0.173
		-	JXBL8015F	●	●	0.006	0.315	0.156	0.173
		-	JXBR8015	●		0.006	0.315	0.156	0.173
		-	JXBL8015	●		0.006	0.315	0.156	0.173

● : Line up

Reference pages: JXF..., JXR..., JXB...: J-Series toolholder → G056 -

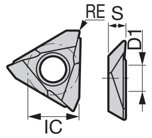
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

JTB*



Back turning

		SH725	J740	J9530	NS9530	TH10
P	Steel	●◐	●◐	●◐	●◐	●
M	Stainless	●◐	●◐			●
K	Cast iron			●◐	●◐	●
N	Non-ferrous					●
S	Superalloy					
H	Hard material					

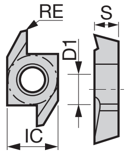


Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Coated J740	Coated cermet J9530	Cermet NS9530	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Back turning	- 	-	JTBR3000F	●	●			●	0.001	0.374	0.125	0.173
		-	JTBL3000F	●	●			●	0.001	0.374	0.125	0.173
		-	JTBR3005F	●	●			●	0.002	0.374	0.125	0.173
		-	JTBL3005F	●	●			●	0.002	0.374	0.125	0.173
		-	JTBR3005		●	●			0.002	0.374	0.125	0.173
		-	JTBL3005		●				0.002	0.374	0.125	0.173
		-	JTBR3010F	●	●		●	●	0.004	0.374	0.125	0.173
		-	JTBL3010F	●	●		●	●	0.004	0.374	0.125	0.173
		-	JTBR3010		●	●			0.004	0.374	0.125	0.173
		-	JTBL3010		●				0.004	0.374	0.125	0.173
		-	JTBR3015F	●	●				0.006	0.374	0.125	0.173
		-	JTBL3015F	●					0.006	0.374	0.125	0.173

J10E*

Back turning

		SH725	J740	J9530	NS9530	TH10
P	Steel	●◐	●◐	●◐	●◐	●
M	Stainless	●◐	●◐			●
K	Cast iron			●◐	●◐	●
N	Non-ferrous					●
S	Superalloy					
H	Hard material					



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Coated J740	Coated cermet J9530	Cermet NS9530	Uncoated TH10	Dimension (inch) RE	IC	S	D1
Back turning	- 	-	J10ER005BF	●	●		●	●	0.002	0.250	0.125	0.118
		-	J10EL005BF	●	●			●	0.002	0.250	0.125	0.118
		-	J10ER005B		●	●			0.002	0.250	0.125	0.118
		-	J10EL005B		●				0.002	0.250	0.125	0.118
		-	J10ER010BF	●	●		●	●	0.004	0.250	0.125	0.118
		-	J10EL010BF	●	●			●	0.004	0.250	0.125	0.118
		-	J10ER010B		●	●			0.004	0.250	0.125	0.118
		-	J10EL010B		●				0.004	0.250	0.125	0.118
		-	J10EL015BF	●					0.006	0.250	0.125	0.118
		-	J10ER015BF	●					0.006	0.250	0.125	0.118

● : Line up

Reference pages: JTB...: J-Series toolholder → G061 J10E...: J-Series toolholder → G064

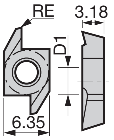
Insert POSITIVE TYPE

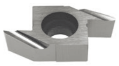
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

10E*

Back turning

		TH10
P	Steel	●
M	Stainless	●
K	Cast iron	●
N	Non-ferrous	●
S	Superalloy	
H	Hard material	

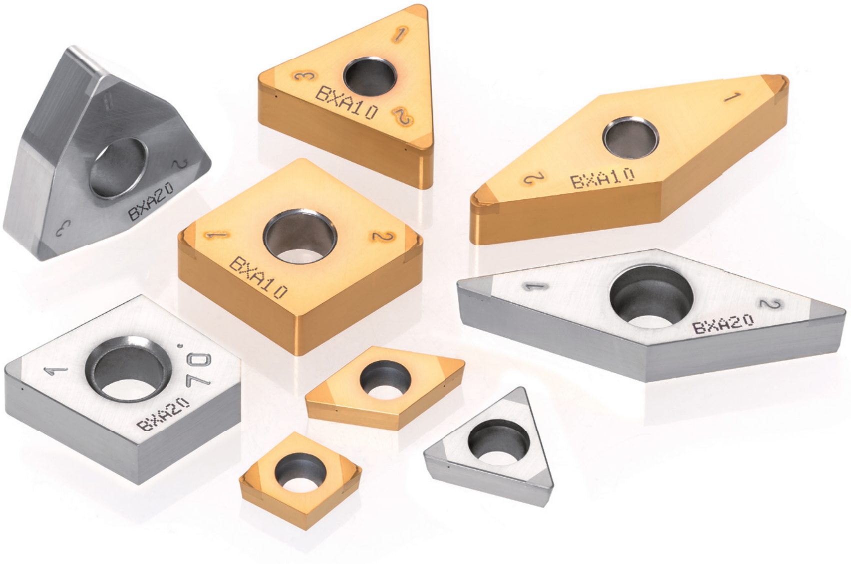


Application	Chipbreaker	Designation		Uncoated	Dimension (inch)			
		Inch	Metric	TH10	RE	IC	S	D1
Back turning	-	-	10ER100B	●	0.001	0.250	0.125	0.118
		-	10EL100B	●	0.001	0.250	0.125	0.118
		-	10ER150B	●	0.001	0.250	0.125	0.118
		-	10EL150B	●	0.001	0.250	0.125	0.118
		-	10ER300	●	-	0.250	0.125	0.118
		-	10EL300	●	-	0.250	0.125	0.118

● : Line up

BXA10, BXA20

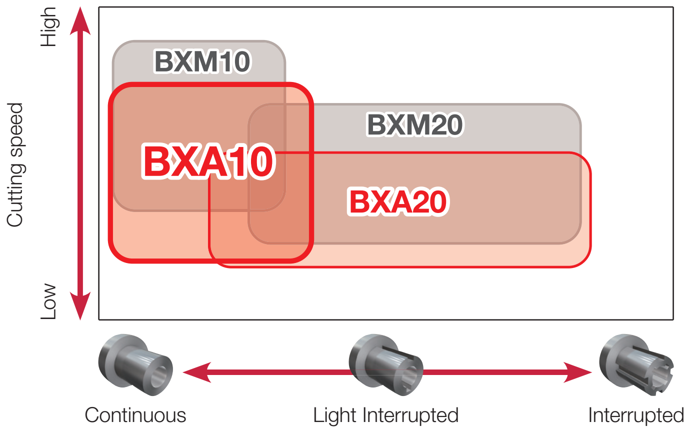
- Coated CBN grade for hardened steel



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 *Vc* = 230 m/min or less

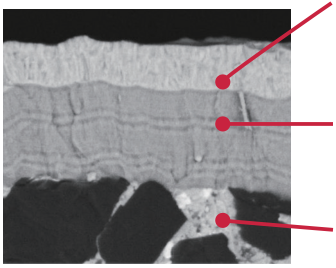
BXA20
First choice for light to heavy interrupted cuts
For *Vc* = 180 m/min or less

BXM10
Complementary grade for continuous to light interrupted cuts
For extremely high cutting speeds of *Vc* = 300 m/min

BXM20
Complementary grade for light to heavy interrupted cuts
For high cutting speeds of *Vc* = 200 m/min

GRADE PROPERTIES

BXA10

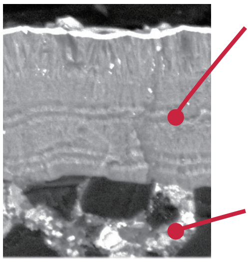


TiCN layer with high thermal stability and wear resistance

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

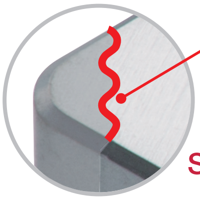
T-CBN SERIES

- 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



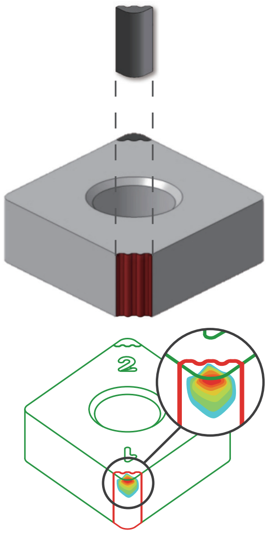
The "wavy" contact surface enhances the brazing strength.

Strong joint

WavyJoint BXA20

Vs.

Standard

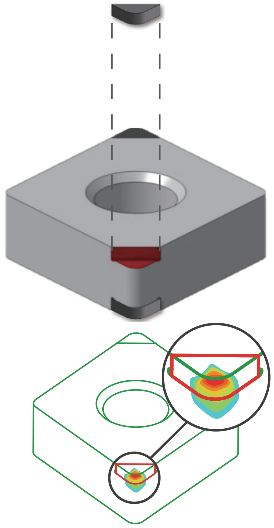


CBN tip size:
Using the CBN tip in a mass as large as **200%** provides increased thermal conductivity and helps reduce the temperature at the cutting edge

Brazing area:
Increased **160%** for enhanced brazing strength

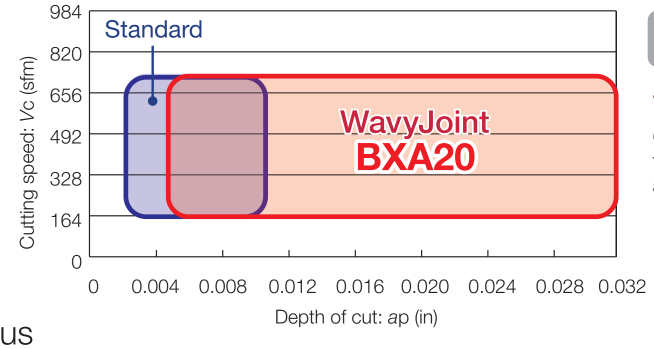
Temperature during machining is concentrated on the CBN tip, reducing temperature issues in the brazing zone.

Workpiece material : 4140 (60HRC)
Cutting speed : *Vc* = 492 sfm
Feed : *fz* = 0.008 ipr
Depth of cut : *ap* = 0.030"
Coolant : Dry



APPLICATION AREA

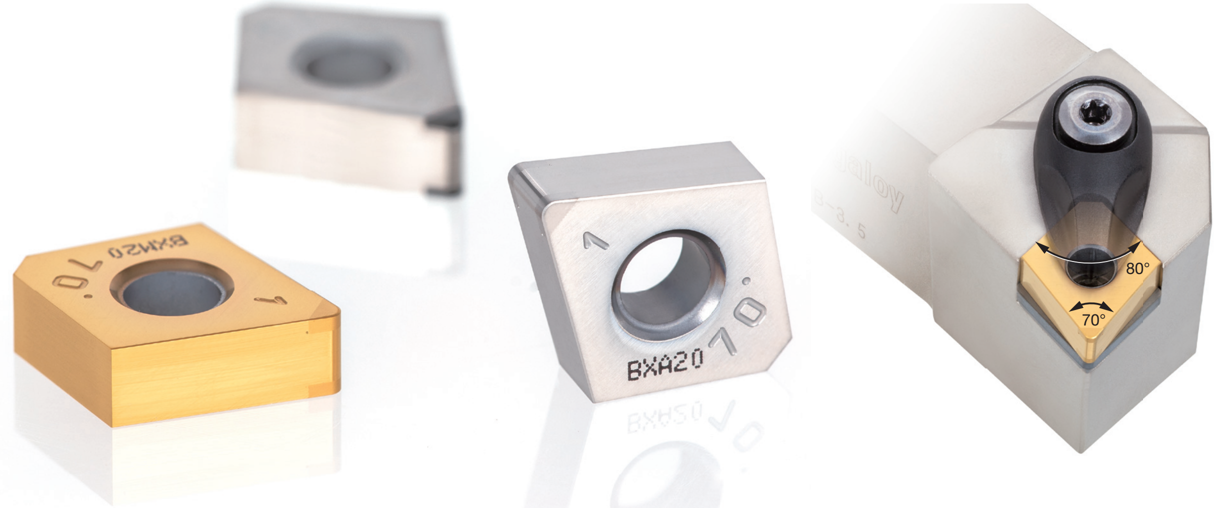
Hard Turning



H

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

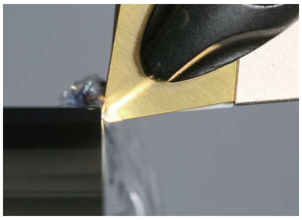
T-CBN SERIES - GNGA type CBN



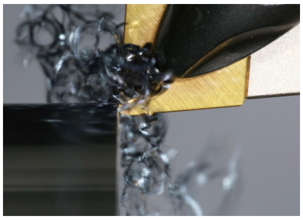
For **high efficiency in finishing** hardened steel, cast iron and sintered metals

Chip control in face turning

Continuous cutting



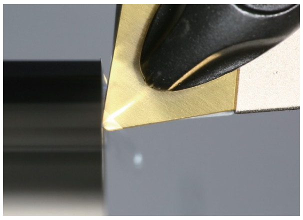
GNGA type
Corner angle: 70°



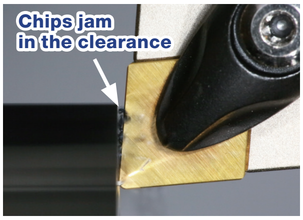
CNGA type
Corner angle: 80°

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°

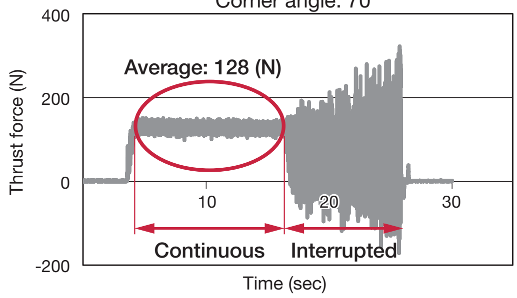
H

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

CUTTING PERFORMANCE

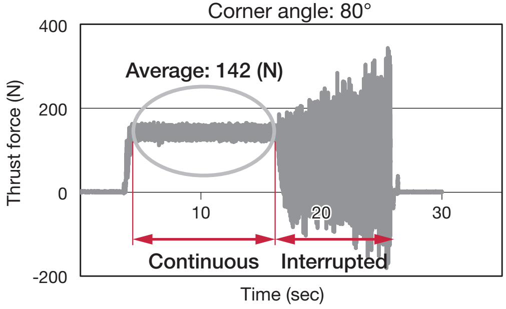
Cutting force (Thrust force)

GNGA type
Corner angle: 70°



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

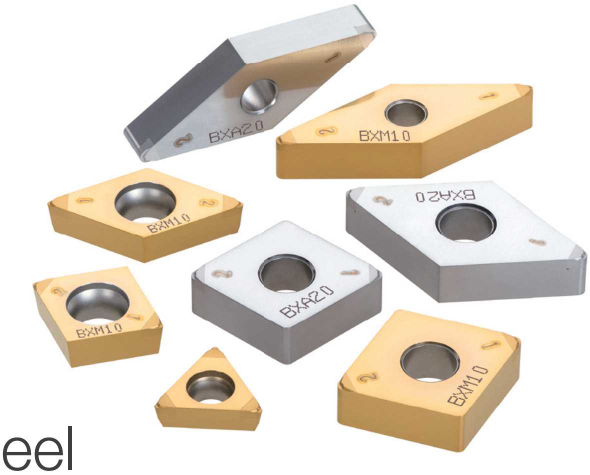
CNGA type
Corner angle: 80°



H

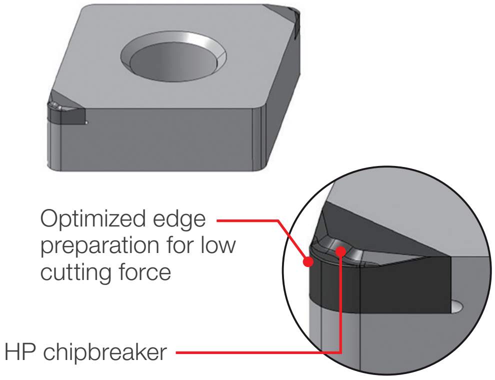
Toolholder : ACLNL2525M12-A
Insert : 2QP-GNGA 432 BXM20
2QP-CNGA 432 BXM20
Workpiece material : 4140 (59HRC)
Cutting speed : Vc = 492 sfm
Feed : *f* = 0.006 ipr
Depth of cut : *ap* = 0.005"
Machining : Face turning
Coolant : Dry

HARDBREAKER HP



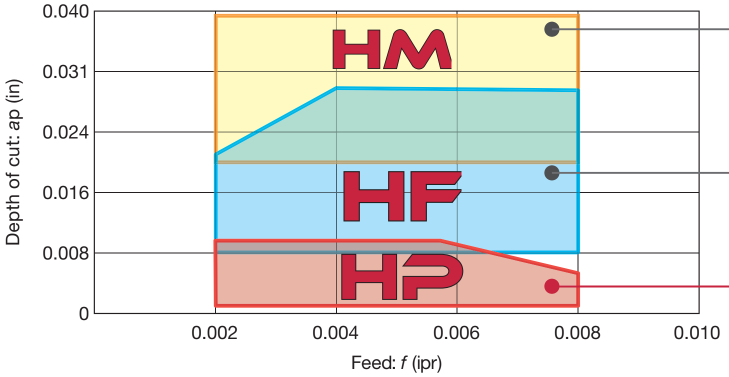
New HP Chipbreaker for Finishing Hardened Steel

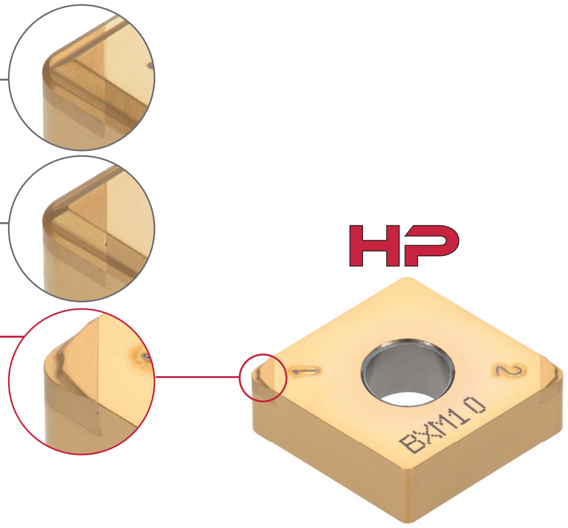
1. By separating the chipbreaker from the cutting edge, the cutting force imposed on the cutting edge during machining is significantly reduced, thus providing long tool life.
2. The cutting edge preparation is designed to ensure easy cutting at low cutting forces, while maintaining close tolerances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



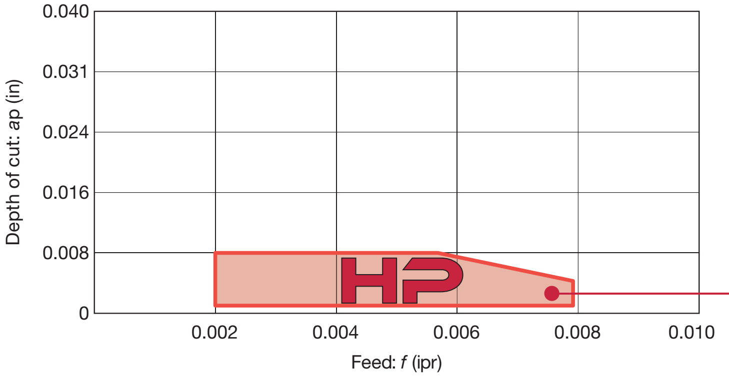
APPLICATION AREA

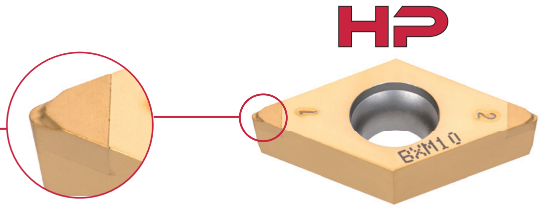
For negative insert





For positive insert





Designation System for T-CBN (PCBN) Inserts

One-use type

2	QP	-	CNGA120404	-L
①	②		③	④

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				

① "T" means 10 pieces per package.

Regrindable type

TNGA160402	-	QBN
①		②

① ISO symbol

② CBN inserts

T-CBN (PCBN tipped) grooving inserts

XG	R	63	10	S	-	QBN
①	②		③	④		⑤

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	②	③	④		⑤

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	②		③

① Number of corners

② Type	
QP	One-use inserts

③ ISO symbol

Regrindable type

TPGW110204	-	DIA
①		②

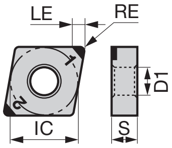
① ISO symbol

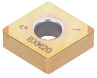
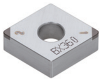
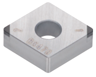
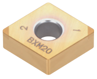
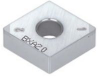
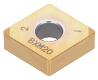
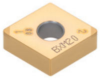
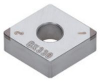
② PCD inserts

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930
P	Steel											
M	Stainless											
K	Cast iron									●◐	✠	●◐
N	Non-ferrous											
S	Superalloy											
H	Hard material	●	●◐	●	●◐	●	●◐	●◐	✠			
	Sintered metal									●◐	◐✠	



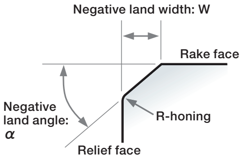
Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930	Dimension (inch)						Edge prep.						Wiper
	Inch	Metric												No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	
2QP-CNGA	2QP-CNGA 430.5	2QP-CNGA120402			●	●								2	0.091	0.008	0.500	0.187	0.203	○						
	2QP-CNGA 431	2QP-CNGA120404	●	●	●	●	●	●	●	●	●	●	●	2	0.091	0.016	0.500	0.187	0.203	○						
	2QP-CNGA 432	2QP-CNGA120408	●	●	●	●	●	●	●	●	●	●	●	2	0.087	0.031	0.500	0.187	0.203	○						
	2QP-CNGA 433	2QP-CNGA120412	●	●	●	●	●	●	●	●	●	●	●	2	0.094	0.047	0.500	0.187	0.203	○						
	2QP-CNGA 434	2QP-CNGA120416			●	●								2	0.130	0.063	0.500	0.187	0.203	○						
	2QP-CNGA 435	2QP-CNGA120420			●	●								2	0.126	0.079	0.500	0.187	0.203	○						
	2QP-CNGA 436	2QP-CNGA120424			●	●								2	0.122	0.094	0.500	0.187	0.203	○						
T2QP-CNGA	T2QP-CNGA 431	T2QP-CNGA120404							●					2	0.091	0.016	0.500	0.187	0.203	○						
	T2QP-CNGA 432	T2QP-CNGA120408							●					2	0.087	0.031	0.500	0.187	0.203	○						
2QP-CNGAF**	2QP-CNGA 431-F	2QP-CNGA120404F									●			2	0.091	0.016	0.500	0.187	0.203		○					
	2QP-CNGA 432-F	2QP-CNGA120408F									●			2	0.087	0.031	0.500	0.187	0.203		○					
2QP-CNGA-L**	2QP-CNGA 430.5-L	2QP-CNGA120402-L			●	●								2	0.091	0.008	0.500	0.187	0.203			○				
	2QP-CNGA 431-L	2QP-CNGA120404-L	●	●	●	●		●						2	0.091	0.016	0.500	0.187	0.203			○				
	2QP-CNGA 432-L	2QP-CNGA120408-L	●	●	●	●		●						2	0.087	0.031	0.500	0.187	0.203			○				
	2QP-CNGA 433-L	2QP-CNGA120412-L	●	●	●	●		●						2	0.094	0.047	0.500	0.187	0.203			○				
2QP-CNGA-LF**	2QP-CNGA 430.5-LF	2QP-CNGA120402-LF	●		●	●								2	0.091	0.008	0.500	0.187	0.203				○			
	2QP-CNGA 431-LF	2QP-CNGA120404-LF	●		●	●								2	0.091	0.016	0.500	0.187	0.203				○			
	2QP-CNGA 432-LF	2QP-CNGA120408-LF	●		●	●								2	0.087	0.031	0.500	0.187	0.203				○			
	2QP-CNGA 433-LF	2QP-CNGA120412-LF	●		●	●								2	0.094	0.047	0.500	0.187	0.203				○			
2QP-CNGA-LC**	2QP-CNGA 430.5-LC	2QP-CNGA120402-LC			●	●								2	0.091	0.008	0.500	0.187	0.203					○		
	2QP-CNGA 431-LC	2QP-CNGA120404-LC			●	●								2	0.091	0.016	0.500	0.187	0.203					○		
	2QP-CNGA 432-LC	2QP-CNGA120408-LC			●	●								2	0.087	0.031	0.500	0.187	0.203					○		
	2QP-CNGA 433-LC	2QP-CNGA120412-LC			●	●								2	0.094	0.047	0.500	0.187	0.203					○		
2QP-CNGA-H**	2QP-CNGA 431-H	2QP-CNGA120404-H		●	●	●			●	●				2	0.091	0.016	0.500	0.187	0.203						○	
	2QP-CNGA 432-H	2QP-CNGA120408-H		●	●	●			●	●				2	0.087	0.031	0.500	0.187	0.203						○	
	2QP-CNGA 433-H	2QP-CNGA120412-H		●	●	●			●	●				2	0.094	0.047	0.500	0.187	0.203						○	
2QP-CNGAWL**	2QP-CNGA 431-WL	2QP-CNGA120404WL	●	●	●	●								2	0.091	0.016	0.500	0.187	0.203							○
	2QP-CNGA 432-WL	2QP-CNGA120408WL	●	●	●	●								2	0.087	0.031	0.500	0.187	0.203							○
	2QP-CNGA 433-WL	2QP-CNGA120412WL	●	●	●	●								2	0.094	0.047	0.500	0.187	0.203							○
2QP-CNMAW**	2QP-CNMA 431-W	2QP-CNMA120404W						●						2	0.091	0.016	0.500	0.187	0.203							○
	2QP-CNMA 432-W	2QP-CNMA120408W						●						2	0.087	0.031	0.500	0.187	0.203							○
	2QP-CNMA 433-W	2QP-CNMA120412W						●						2	0.094	0.047	0.500	0.187	0.203							○

*Please see the page **B201** about the toolholders recommended for wiper inserts of the designation with W, WL, and WJ 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

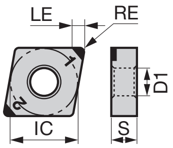
Edge prep. ID — Negative land width W — Negative land angle α

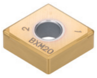
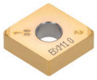
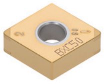
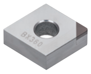
T … Chamfered
S … Chamfered + R-honing
E … R-honing alone
F … Sharp edge

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BXC50	BX360	BXC90	
P	Steel								
M	Stainless								
K	Cast iron							●◐	
N	Non-ferrous								
S	Superalloy								
H	Hard material	●	●◐	●	●◐	✣	●◐		
	Sintered metal								



Shape	Designation		BXM10	BXM20	BXA10	BXA20	BXC50	BX360	BXC90		Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric									No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-CNGM-H***	2QP-CNGM 432-HF	2QP-CNGM120408-HF		●							2	0.087	0.031	0.500	0.187	0.203								○
	2QP-CNGM 433-HF	2QP-CNGM120412-HF		●							2	0.094	0.047	0.500	0.187	0.203								○
	2QP-CNGM 432-HM	2QP-CNGM120408-HM		●		●					2	0.087	0.031	0.500	0.187	0.203								○
	2QP-CNGM 433-HM	2QP-CNGM120412-HM		●		●					2	0.094	0.047	0.500	0.187	0.203								○
	2QP-CNGM431-HP	2QP-CNGM120404-HP	●		●	●					2	0.091	0.016	0.500	0.187	0.203								○
	2QP-CNGM432-HP	2QP-CNGM120408-HP	●		●	●					2	0.087	0.031	0.500	0.187	0.203								○
	2QP-CNGM433-HP	2QP-CNGM120412-HP	●		●	●					2	0.094	0.047	0.500	0.187	0.203								○
2QP-CNGMWL-HP**	2QP-CNGM432WLHP	2QP-CNGM120408WL-HP	●		●	●					2	0.087	0.031	0.500	0.187	0.203							○	○
																								
4QP-CNGA	4QP-CNGA 431	4QP-CNGA120404					●				4	0.091	0.016	0.500	0.187	0.203	○							
	4QP-CNGA 432	4QP-CNGA120408					●				4	0.087	0.031	0.500	0.187	0.203	○							
	4QP-CNGA 433	4QP-CNGA120412					●				4	0.094	0.047	0.500	0.187	0.203	○							
4QP-CNMAW**	4QP-CNMA 431-W	4QP-CNMA120404W					●				4	0.091	0.016	0.500	0.187	0.203							○	
	4QP-CNMA 432-W	4QP-CNMA120408W					●				4	0.087	0.031	0.500	0.187	0.203							○	
	4QP-CNMA 433-W	4QP-CNMA120412W					●				4	0.094	0.047	0.500	0.187	0.203							○	
4QS-CNGA	4QS-CNGA 432	4QS-CNGA120408				●					4	0.059	0.031	0.500	0.187	0.203	○							
WavyJoint 	4QS-CNGA 433	4QS-CNGA120412				●					4	0.067	0.047	0.500	0.187	0.203	○							
4QS-CNGA-H**	4QS-CNGA432-H	4QS-CNGA120408-H				●					4	0.059	0.031	0.500	0.187	0.203						○		
WavyJoint 	4QS-CNGA433-H	4QS-CNGA120412-H				●					4	0.067	0.047	0.500	0.187	0.203						○		
4QS-CNGG-HM**	4QS-CNGG432-HM	4QS-CNGG120408-HM				●					4	0.059	0.031	0.500	0.187	0.203								○
WavyJoint 	4QS-CNGG433-HM	4QS-CNGG120412-HM				●					4	0.067	0.047	0.500	0.187	0.203								○
CNGA-QBN**	CNGA 430.5-QBN	CNGA120402-QBN						●			1	0.161	0.008	0.500	0.187	0.203	○							
	CNGA 431-QBN	CNGA120404-QBN						●			1	0.157	0.016	0.500	0.187	0.203	○							
	CNGA 431-QBN	CNGA120408-QBN						●			1	0.154	0.031	0.500	0.187	0.203	○							
	CNGA 433-QBN	CNGA120412-QBN						●			1	0.154	0.047	0.500	0.187	0.203	○							
S-CNGN	S-CNGN 322	S-CNGN090308							●		4	-	0.031	0.375	0.125	-	○							
Solid CBN 	S-CNGN 323	S-CNGN090312							●		4	-	0.047	0.375	0.125	-	○							
	S-CNGN 432	S-CNGN120408							●		4	-	0.031	0.500	0.187	-	○							
	S-CNGN 433	S-CNGN120412							●		4	-	0.047	0.500	0.187	-	○							

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

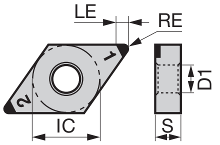
● : Line up

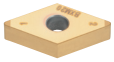
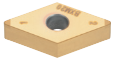
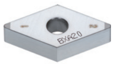
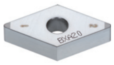
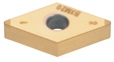
Reference pages:	External toolholder → **C020 -**	Internal toolholder → **D028 -**
	J-Series toolholder → **G057**	TungCap → **K008 -**

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930
P	Steel											
M	Stainless											
K	Cast iron									●◐	✠	●◐
N	Non-ferrous											
S	Superalloy											
H	Hard material	●	●◐	●	●◐	●	●◐	●◐	✠			
	Sintered metal									●◐	◐✠	



Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930	No. of corners	Dimension (inch)					Edge prep.						Wiper
	Inch	Metric													LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	
2QP-DNGA	2QP-DNGA 331	2QP-DNGA110404			●	●								2	0.098	0.016	0.375	0.187	0.150	○						
	2QP-DNGA 332	2QP-DNGA110408			●	●								2	0.083	0.031	0.375	0.187	0.150	○						
	2QP-DNGA 333	2QP-DNGA110412			●	●								2	0.079	0.047	0.375	0.187	0.150	○						
	2QP-DNGA 430.5	2QP-DNGA150402			●	●								2	0.106	0.079	0.500	0.187	0.203	○						
	2QP-DNGA 431	2QP-DNGA150404	●	●	●	●	●	●	●	●	●	●	●	2	0.098	0.016	0.500	0.187	0.203	○						
	2QP-DNGA 432	2QP-DNGA150408	●	●	●	●	●	●	●	●	●	●	●	2	0.083	0.031	0.500	0.187	0.203	○						
	2QP-DNGA 433	2QP-DNGA150412	●	●	●	●	●	●	●	●		●	●	2	0.079	0.047	0.500	0.187	0.203	○						
	2QP-DNGA 434	2QP-DNGA150416			●	●								2	0.134	0.063	0.500	0.187	0.203	○						
	2QP-DNGA 435	2QP-DNGA150420			●	●								2	0.118	0.079	0.500	0.187	0.203	○						
	2QP-DNGA 436	2QP-DNGA150424			●	●								2	0.102	0.094	0.500	0.187	0.203	○						
	2QP-DNGA 441	2QP-DNGA150604	●	●	●	●								2	0.098	0.016	0.500	0.250	0.203	○						
	2QP-DNGA 442	2QP-DNGA150608	●	●	●	●								2	0.083	0.031	0.500	0.250	0.203	○						
	2QP-DNGA 443	2QP-DNGA150612	●	●	●	●								2	0.079	0.047	0.500	0.250	0.203	○						
2QP-DNGA-L**	2QP-DNGA 430.5-L	2QP-DNGA150402-L			●	●								2	0.106	0.079	0.500	0.187	0.203			○				
	2QP-DNGA 431-L	2QP-DNGA150404-L	●	●	●	●		●						2	0.098	0.016	0.500	0.187	0.203			○				
	2QP-DNGA 432-L	2QP-DNGA150408-L	●	●	●	●		●						2	0.083	0.031	0.500	0.187	0.203			○				
	2QP-DNGA 433-L	2QP-DNGA150412-L		●	●	●		●						2	0.079	0.047	0.500	0.187	0.203			○				
	2QP-DNGA 441-L	2QP-DNGA150604-L			●	●								2	0.098	0.016	0.500	0.250	0.203			○				
	2QP-DNGA 442-L	2QP-DNGA150608-L			●	●								2	0.083	0.031	0.500	0.250	0.203			○				
	2QP-DNGA 443-L	2QP-DNGA150612-L			●	●								2	0.079	0.047	0.500	0.250	0.203			○				
2QP-DNGA-LF**	2QP-DNGA 430.5-LF	2QP-DNGA150402-LF			●	●								2	0.106	0.079	0.500	0.187	0.203				○			
	2QP-DNGA 431-LF	2QP-DNGA150404-LF			●	●								2	0.098	0.016	0.500	0.187	0.203				○			
	2QP-DNGA 432-LF	2QP-DNGA150408-LF			●	●								2	0.083	0.031	0.500	0.187	0.203				○			
	2QP-DNGA 433-LF	2QP-DNGA150412-LF			●	●								2	0.079	0.047	0.500	0.187	0.203				○			
	2QP-DNGA 441-LF	2QP-DNGA150604-LF			●	●								2	0.098	0.016	0.500	0.250	0.203				○			
	2QP-DNGA 442-LF	2QP-DNGA150608-LF			●	●								2	0.083	0.031	0.500	0.250	0.203				○			
	2QP-DNGA 443-LF	2QP-DNGA150612-LF			●	●								2	0.079	0.047	0.500	0.250	0.203				○			
2QP-DNGA-LC**	2QP-DNGA 430.5-LC	2QP-DNGA150402-LC			●	●								2	0.106	0.079	0.500	0.187	0.203					○		
	2QP-DNGA 431-LC	2QP-DNGA150404-LC			●	●								2	0.098	0.016	0.500	0.187	0.203					○		
	2QP-DNGA 432-LC	2QP-DNGA150408-LC			●	●								2	0.083	0.031	0.500	0.187	0.203					○		
	2QP-DNGA 433-LC	2QP-DNGA150412-LC			●	●								2	0.079	0.047	0.500	0.187	0.203					○		
	2QP-DNGA 441-LC	2QP-DNGA150604-LC			●	●								2	0.098	0.016	0.500	0.250	0.203					○		
	2QP-DNGA 442-LC	2QP-DNGA150608-LC			●	●								2	0.083	0.031	0.500	0.250	0.203					○		
	2QP-DNGA 443-LC	2QP-DNGA150612-LC			●	●								2	0.079	0.047	0.500	0.250	0.203					○		
2QP-DNGA-H**	2QP-DNGA 431-H	2QP-DNGA150404-H		●	●	●			●	●				2	0.098	0.016	0.500	0.187	0.203						○	
	2QP-DNGA 432-H	2QP-DNGA150408-H		●	●	●			●	●				2	0.083	0.031	0.500	0.187	0.203						○	
	2QP-DNGA 433-H	2QP-DNGA150412-H		●	●	●			●	●				2	0.079	0.047	0.500	0.187	0.203						○	
	2QP-DNGA 441-H	2QP-DNGA150604-H			●	●								2	0.098	0.016	0.500	0.250	0.203						○	
	2QP-DNGA 442-H	2QP-DNGA150608-H			●	●								2	0.083	0.031	0.500	0.250	0.203						○	
	2QP-DNGA 443-H	2QP-DNGA150612-H			●	●								2	0.079	0.047	0.500	0.250	0.203						○	
2QP-DNGAWJ**	2QP-DNGA 431-WJ	2QP-DNGA150404WJ	●	●		●								2	0.091	0.016	0.500	0.187	0.203							○
	2QP-DNGA 432-WJ	2QP-DNGA150408WJ	●	●		●								2	0.083	0.031	0.500	0.187	0.203							○

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

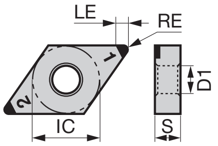
● : Line up

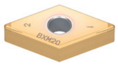
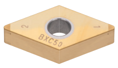
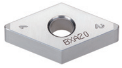
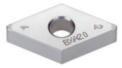
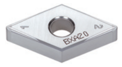
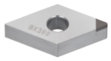
Reference pages: External toolholder → **C046 -** Internal toolholder → **D060 -**
J-Series toolholder → **G059 -**

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BXC50	BX360			
P	Steel									
M	Stainless									
K	Cast iron									
N	Non-ferrous									
S	Superalloy									
H	Hard material	●	●◐	●	●◐	✤	●◐			
	Sintered metal									

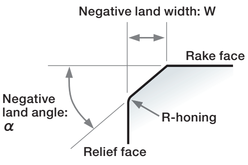


Shape	Designation		BXM10	BXM20	BXA10	BXA20	BXC50	BX360				Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric										No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-DNGM**-H*	2QP-DNGM 432-HF	2QP-DNGM150408-HF		●								2	0.083	0.031	0.500	0.187	0.203								○
	2QP-DNGM 433-HF	2QP-DNGM150412-HF		●								2	0.079	0.047	0.500	0.187	0.203								○
	2QP-DNGM 432-HM	2QP-DNGM150408-HM		●								2	0.083	0.031	0.500	0.187	0.203								○
	2QP-DNGM 433-HM	2QP-DNGM150412-HM		●								2	0.079	0.047	0.500	0.187	0.203								○
	2QP-DNGM 431-HP	2QP-DNGM150404-HP	●		●	●						2	0.098	0.016	0.500	0.187	0.203								○
	2QP-DNGM 432-HP	2QP-DNGM150408-HP	●		●	●						2	0.083	0.031	0.500	0.187	0.203								○
	2QP-DNGM 433-HP	2QP-DNGM150412-HP			●	●						2	0.079	0.047	0.500	0.187	0.203								○
	2QP-DNGM 442-HP	2QP-DNGM150608-HP	●		●	●						2	0.083	0.031	0.500	0.250	0.203								○
4QP-DNGA	4QP-DNGA 431	4QP-DNGA150404					●					4	0.098	0.016	0.500	0.187	0.203	○							
	4QP-DNGA 432	4QP-DNGA150408					●					4	0.083	0.031	0.500	0.187	0.203	○							
	4QP-DNGA 433	4QP-DNGA150412					●					4	0.079	0.047	0.500	0.187	0.203	○							
4QS-DNGA	4QS-DNGA 432	4QS-DNGA150408				●						4	0.063	0.031	0.500	0.187	0.203	○							
WavyJoint 	4QS-DNGA 433	4QS-DNGA150412				●						4	0.063	0.047	0.500	0.187	0.203	○							
4QS-DNGA**-H	4QS-DNGA 432-H	4QS-DNGA150408-H				●						4	0.063	0.031	0.500	0.187	0.203						○		
WavyJoint 	4QS-DNGA 433-H	4QS-DNGA150412-H				●						4	0.063	0.047	0.500	0.187	0.203						○		
4QS-DNGG**-HM	4QS-DNGG 432-HM	4QS-DNGG150408-HM				●						4	0.063	0.031	0.500	0.187	0.203								○
WavyJoint 																									
DNGA**-QBN	DNGA 430.5 QBN	DNGA150402-QBN						●				1	0.169	0.008	0.500	0.187	0.203	○							
	DNGA 431 QBN	DNGA150404-QBN						●				1	0.161	0.016	0.500	0.187	0.203	○							
	DNGA 432 QBN	DNGA150408-QBN						●				1	0.150	0.031	0.500	0.187	0.203	○							
	DNGA 433 QBN	DNGA150412-QBN						●				1	0.134	0.047	0.500	0.187	0.203	○							

● : 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
S	0 1 3	2 5

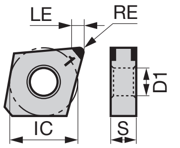
T ··· Chamfered
S ··· Chamfered + R-honing
E ··· R-honing alone
F ··· Sharp edge

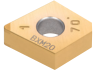
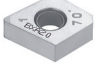
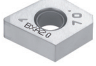
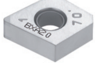
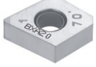
Reference pages: Internal toolholder → D060 -

CBN Insert NEGATIVE TYPE

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

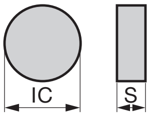
		BXM10	BXM20	BXA10	BXA20	BX360	BX470	BX930
P	Steel							
M	Stainless							
K	Cast iron						●◐	●◐
N	Non-ferrous							
S	Superalloy							
H	Hard material	●	●◐	●	●◐	●◐		
	Sintered metal						●◐	



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

		BXC90
P	Steel	
M	Stainless	
K	Cast iron	●◐
N	Non-ferrous	
S	Superalloy	
H	Hard material	

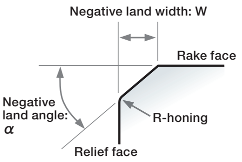


Shape	Designation			Dimension (inch)						Edge prep.							
	Inch	Metric	BXC90	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
S-RNGN	S-RNGN 32	S-RNGN090300	●	-	-	-	0.375	0.125	-	○							
	S-RNGN 43	S-RNGN120400	●	-	-	-	0.500	0.187	-	○							

● : 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	-	-	-	-	-



S 0 1 3 2 5

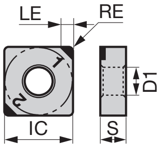
Edge prep. ID: S
Negative land width W: 0 1 3
Negative land angle α: 2 5

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

CBN Insert NEGATIVE TYPE

● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

		BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX910	BX930	BXC90
P	Steel												
M	Stainless												
K	Cast iron									✠	●	●◖	●◖
N	Non-ferrous												
S	Superalloy												
H	Hard material	●◖	●	●◖	✠	●	●◖	●◖	✠				
	Sintered metal									◖✠			



Shape	Designation Inch	Designation Metric	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX910	BX930	BXC90	Dimension (inch) No. of corners	LE	RE	IC	S	D1	Edge prep. Standard	Sharp edge	L	LF	LC	H
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	-	○					

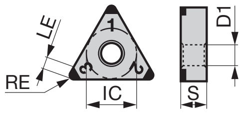
● : Line up

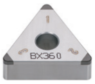
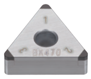
Reference pages: External toolholder → C098 - Internal toolholder → D047 -

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930
P	Steel											
M	Stainless											
K	Cast iron									●◐	✠	●◐
N	Non-ferrous											
S	Superalloy											
H	Hard material	●	●◐	●	●◐	●	●◐	●◐	✠			
	Sintered metal									●◐	◐✠	



Shape	Designation Inch	Designation Metric	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX380	BX470	BX480	BX930	No. of corners	Dimension (inch) LE	RE	IC	S	D1	Edge prep. Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
3QP-TNGA	3QP-TNGA 330.5	3QP-TNGA160402			●	●								3	0.091	0.080	0.375	0.187	0.150	○							
	3QP-TNGA 331	3QP-TNGA160404	●	●	●	●	●	●	●	●	●	●	●	3	0.087	0.016	0.375	0.187	0.150	○							
	3QP-TNGA 332	3QP-TNGA160408	●	●	●	●	●	●	●	●	●	●	●	3	0.075	0.031	0.375	0.187	0.150	○							
	3QP-TNGA 333	3QP-TNGA160412	●	●	●	●	●	●	●	●	●	●	●	3	0.094	0.047	0.375	0.187	0.150	○							
	3QP-TNGA 334	3QP-TNGA160416			●	●								3	0.130	0.063	0.375	0.187	0.150	○							
	3QP-TNGA 335	3QP-TNGA160420			●	●								3	0.118	0.079	0.375	0.187	0.150	○							
	3QP-TNGA 336	3QP-TNGA160424			●	●								3	0.106	0.094	0.375	0.187	0.150	○							
T3QP-TNGA	T3QP-TNGA 331	T3QP-TNGA160404							●					3	0.087	0.016	0.375	0.187	0.150	○							
	T3QP-TNGA 332	T3QP-TNGA160408							●					3	0.075	0.031	0.375	0.187	0.150	○							
3QP-TNGAF**	3QP-TNGA 331-F	3QP-TNGA160404F									●			3	0.087	0.016	0.375	0.187	0.150		○						
	3QP-TNGA 332-F	3QP-TNGA160408F									●			3	0.075	0.031	0.375	0.187	0.150		○						
3QP-TNGA-L**	3QP-TNGA 330.5-L	3QP-TNGA160402-L			●	●								3	0.091	0.080	0.375	0.187	0.150			○					
	3QP-TNGA 331-L	3QP-TNGA160404-L	●	●	●	●		●						3	0.087	0.016	0.375	0.187	0.150			○					
	3QP-TNGA 332-L	3QP-TNGA160408-L	●	●	●	●		●						3	0.075	0.031	0.375	0.187	0.150			○					
	3QP-TNGA 333-L	3QP-TNGA160412-L	●	●	●	●		●						3	0.094	0.047	0.375	0.187	0.150			○					
3QP-TNGA-LF**	3QP-TNGA 330.5-LF	3QP-TNGA160402-LF			●	●								3	0.091	0.080	0.375	0.187	0.150				○				
	3QP-TNGA 331-LF	3QP-TNGA160404-LF			●	●								3	0.087	0.016	0.375	0.187	0.150				○				
	3QP-TNGA 332-LF	3QP-TNGA160408-LF			●	●								3	0.075	0.031	0.375	0.187	0.150				○				
	3QP-TNGA 333-LF	3QP-TNGA160412-LF			●	●								3	0.094	0.047	0.375	0.187	0.150				○				
3QP-TNGA-LC**	3QP-TNGA 330.5-LC	3QP-TNGA160402-LC			●	●								3	0.091	0.080	0.375	0.187	0.150					○			
	3QP-TNGA 331-LC	3QP-TNGA160404-LC			●	●								3	0.087	0.016	0.375	0.187	0.150					○			
	3QP-TNGA 332-LC	3QP-TNGA160408-LC			●	●								3	0.075	0.031	0.375	0.187	0.150					○			
	3QP-TNGA 333-LC	3QP-TNGA160412-LC			●	●								3	0.094	0.047	0.375	0.187	0.150					○			
3QP-TNGA-H**	3QP-TNGA 331-H	3QP-TNGA160404-H		●	●	●			●	●				3	0.087	0.016	0.375	0.187	0.150						○		
	3QP-TNGA 332-H	3QP-TNGA160408-H		●	●	●			●	●				3	0.075	0.031	0.375	0.187	0.150						○		
	3QP-TNGA 333-H	3QP-TNGA160412-H		●	●	●			●	●				3	0.094	0.047	0.375	0.187	0.150						○		
3QP-TNGAWG**	3QP-TNGA 331-WG	3QP-TNGA160404WG		●	●	●								3	0.094	0.016	0.375	0.187	0.150							○	
	3QP-TNGA 332-WG	3QP-TNGA160408WG	●	●	●	●								3	0.087	0.031	0.375	0.187	0.150							○	
3QP-TNGM-H***	3QP-TNGM 332-HF	3QP-TNGM160408-HF		●										3	0.075	0.031	0.375	0.187	0.150								○
	3QP-TNGM 333-HF	3QP-TNGM160412-HF		●										3	0.094	0.047	0.375	0.187	0.150								○
	3QP-TNGM 332-HM	3QP-TNGM160408-HM		●										3	0.075	0.031	0.375	0.187	0.150								○
	3QP-TNGM 333-HM	3QP-TNGM160412-HM		●										3	0.094	0.047	0.375	0.187	0.150								○
	3QP-TNGM331-HP	3QP-TNGM160404-HP	●		●	●								3	0.087	0.016	0.375	0.187	0.150								○
	3QP-TNGM332-HP	3QP-TNGM160408-HP	●		●	●								3	0.075	0.031	0.375	0.187	0.150								○
	3QP-TNGM333-HP	3QP-TNGM160412-HP			●	●								3	0.094	0.047	0.375	0.187	0.150								

*T at the beginning of the designation means 10 pieces per package.
Please see the page **B201** about the toolholders recommended for wiper inserts of the designation with WG at the end.

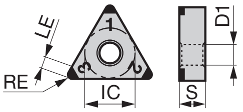
● : Line up

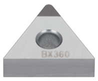
Reference pages:	External toolholder	→ C121 -	Internal toolholder	→ D052 -
	J-Series toolholder	→ G058 -	TungCap	→ K014 -

CBN Insert NEGATIVE TYPE

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

		BXA20	BXC50	BX360	BXC90
P	Steel				
M	Stainless				
K	Cast iron				●◐
N	Non-ferrous				
S	Superalloy				
H	Hard material	●◐	✠	●◐	
	Sintered metal				

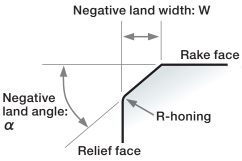


Shape	Designation		BXA20	BXC50	BX360	BXC90	Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric					No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
6QP-TNGA	6QP-TNGA 331	6QP-TNGA160404		●			6	0.087	0.016	0.375	0.187	0.150	○							
	6QP-TNGA 332	6QP-TNGA160408		●			6	0.075	0.031	0.375	0.187	0.150	○							
	6QP-TNGA 333	6QP-TNGA160412		●			6	0.094	0.047	0.375	0.187	0.150	○							
6QS-TNGA	6QS-TNGA 332	6QS-TNGA160408	●				6	0.063	0.031	0.375	0.187	0.150	○							
WavyJoint 	6QS-TNGA 333	6QS-TNGA160412	●				6	0.071	0.047	0.375	0.187	0.150	○							
6QS-TNGA-H**	6QS-TNGA 332-H	6QS-TNGA160408-H	●				6	0.063	0.031	0.375	0.187	0.150						○		
WavyJoint 	6QS-TNGA 333-H	6QS-TNGA160412-H	●				6	0.071	0.047	0.375	0.187	0.150						○		
6QS-TNGG-HM**	6QS-TNGG 332-HM	6QS-TNGG160408-HM	●				6	0.063	0.031	0.375	0.187	0.150								○
WavyJoint 																				
TNGA-QBN**	TNGA 330.5 QBN	TNGA160402-QBN			●		1	0.173	0.008	0.375	0.187	0.150	○							
	TNGA 331 QBN	TNGA160404-QBN			●		1	0.165	0.016	0.375	0.187	0.150	○							
	TNGA 332 QBN	TNGA160408-QBN			●		1	0.157	0.031	0.375	0.187	0.150	○							
	TNGA 333 QBN	TNGA160412-QBN			●		1	0.146	0.047	0.375	0.187	0.150	○							
S-TNGN	S-TNGN 222	S-TNGN110308				●	6	-	0.031	0.250	0.125	-	○							
Solid CBN 	S-TNGN 223	S-TNGN110312				●	6	-	0.047	0.250	0.125	-	○							
	S-TNGN 322	S-TNGN160408				●	6	-	0.031	0.375	0.187	-	○							
	S-TNGN 333	S-TNGN160412				●	6	-	0.047	0.375	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	-	-	-	-	-



S 0 1 3 2 5

Edge prep. ID: S
Negative land width W: 013
Negative land angle α: 25

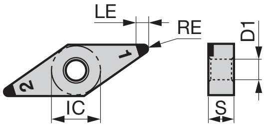
T ··· Chamfered
S ··· Chamfered + R-honing
E ··· R-honing alone
F ··· Sharp edge

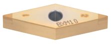
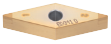
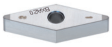
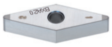
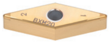
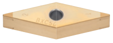
Reference pages: External toolholder → C121 - Internal toolholder → D052 -
J-Series toolholder → G058 - TungCap → K014 -

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX930
P	Steel												
M	Stainless												
K	Cast iron										●◐	✠	●◐
N	Non-ferrous												
S	Superalloy												
H	Hard material	●	●◐	●	●◐	✠	●	●◐	●◐	✠			
	Sintered metal										●◐	◐✠	



Shape	Designation Inch	Designation Metric	BXM10	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX930	No. of corners	Dimension (inch) LE	RE	IC	S	D1	Edge prep. Standard	Sharp edge	L	LF	LC	H	Chipbreaker
2QP-VNGA	2QP-VNGA 330.5	2QP-VNGA160402			●	●									2	0.138	0.080	0.375	0.187	0.150	○						
	2QP-VNGA 331	2QP-VNGA160404	●	●	●	●		●	●	●	●	●	●	●	2	0.122	0.016	0.375	0.187	0.150	○						
	2QP-VNGA 332	2QP-VNGA160408	●	●	●	●		●	●	●	●	●	●	●	2	0.087	0.031	0.375	0.187	0.150	○						
	2QP-VNGA 333	2QP-VNGA160412		●	●	●									2	0.118	0.047	0.375	0.187	0.150	○						
2QP-VNGA-L**	2QP-VNGA 330.5-L	2QP-VNGA160402-L			●	●									2	0.138	0.080	0.375	0.187	0.150			○				
	2QP-VNGA 331-L	2QP-VNGA160404-L	●	●	●	●			●						2	0.122	0.016	0.375	0.187	0.150			○				
	2QP-VNGA 332-L	2QP-VNGA160408-L	●	●	●	●			●						2	0.087	0.031	0.375	0.187	0.150			○				
	2QP-VNGA 333-L	2QP-VNGA160412-L			●	●									2	0.118	0.047	0.375	0.187	0.150			○				
2QP-VNGA-LF**	2QP-VNGA 330.5-LF	2QP-VNGA160402-LF			●	●									2	0.138	0.080	0.375	0.187	0.150				○			
	2QP-VNGA 331-LF	2QP-VNGA160404-LF			●	●									2	0.122	0.016	0.375	0.187	0.150				○			
	2QP-VNGA 332-LF	2QP-VNGA160408-LF			●	●									2	0.087	0.031	0.375	0.187	0.150				○			
	2QP-VNGA 333-LF	2QP-VNGA160412-LF			●	●									2	0.118	0.047	0.375	0.187	0.150				○			
2QP-VNGA-LC**	2QP-VNGA 330.5-LC	2QP-VNGA160402-LC			●	●									2	0.138	0.080	0.375	0.187	0.150					○		
	2QP-VNGA 331-LC	2QP-VNGA160404-LC			●	●									2	0.122	0.016	0.375	0.187	0.150					○		
	2QP-VNGA 332-LC	2QP-VNGA160408-LC			●	●									2	0.087	0.031	0.375	0.187	0.150					○		
	2QP-VNGA 333-LC	2QP-VNGA160412-LC			●	●									2	0.118	0.047	0.375	0.187	0.150					○		
2QP-VNGA-H**	2QP-VNGA 331-H	2QP-VNGA160404-H		●	●	●				●	●				2	0.122	0.016	0.375	0.187	0.150						○	
	2QP-VNGA 332-H	2QP-VNGA160408-H		●	●	●				●	●				2	0.087	0.031	0.375	0.187	0.150						○	
	2QP-VNGA 333-H	2QP-VNGA160412-H			●	●									2	0.118	0.047	0.375	0.187	0.150						○	
2QP-VNGM-H***	2QP-VNGM 332-HF	2QP-VNGM160408-HF		●											2	0.087	0.031	0.375	0.187	0.150							○
	2QP-VNGM 332-HM	2QP-VNGM160408-HM		●											2	0.087	0.031	0.375	0.187	0.150							○
	2QP-VNGM 331-HP	2QP-VNGM160404-HP			●	●									2	0.122	0.016	0.375	0.187	0.150							○
	2QP-VNGM 332-HP	2QP-VNGM160408-HP	●		●	●									2	0.087	0.031	0.375	0.187	0.150							○
4QP-VNGA	4QP-VNGA 331	4QP-VNGA160404					●								4	0.122	0.016	0.375	0.187	0.150	○						
	4QP-VNGA 332	4QP-VNGA160408					●								4	0.087	0.031	0.375	0.187	0.150	○						
4QS-VNGA	4QS-VNGA 332	4QS-VNGA160408				●									4	0.067	0.031	0.375	0.187	0.150	○						
WavyJoint 																											
4QS-VNGA-H**	4QS-VNGA 332-H	4QS-VNGA160408-H				●									4	0.067	0.031	0.375	0.187	0.150						○	
WavyJoint 																											
4QS-VNGG-HM**	4QS-VNGG 332-HM	4QS-VNGG160408-HM				●									4	0.067	0.031	0.375	0.187	0.150							○
WavyJoint 																											

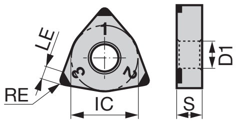
● : Line up

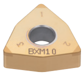
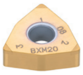
Reference pages: External toolholder → C062 - Internal toolholder → D078 -
TungCap → K015 -

CBN Insert NEGATIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX930
P	Steel											
M	Stainless											
K	Cast iron										✣	●◐
N	Non-ferrous											
S	Superalloy											
H	Hard material	●	●◐	●	●◐	✣	●	●◐	●◐	✣		
	Sintered metal										◐✣	



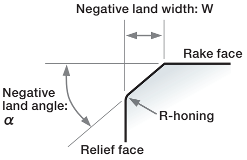
Shape	Designation Inch	Designation Metric	BXM10	BXM20	BXA10	BXA20	BXC50	BX310	BX330	BX360	BX380	BX480	BX930	No. of corners	Dimension (inch) LE	RE	IC	S	D1	Edge prep. Standard	Sharp edge	L	LF	LC	H	Wiper
3QP-WNGA	3QP-WNGA 431	3QP-WNGA080404			●	●								3	0.091	0.016	0.500	0.187	0.203	○						
	3QP-WNGA 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-WNGAWL**	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 WavyJoint	6QS-WNGA 432	6QS-WNGA080408				●								6	0.059	0.031	0.500	0.187	0.203	○						
																										
6QS-WNGA-H** WavyJoint	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	

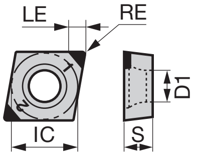
T ··· Chamfered
S ··· Chamfered + R-honing
E ··· R-honing alone
F ··· Sharp edge

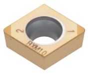
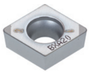
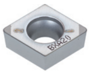
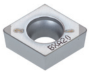
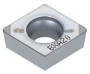
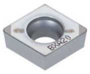
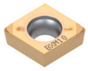
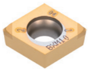
Reference pages: External toolholder → **C037 -** Internal toolholder → **D035 -**
TungCap → **C038 -**, **K011 -**

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930
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	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
2QP-CCGW	2QP-CCGW 21.50.5	2QP-CCGW060202	●	●	●	●							2	0.091	0.008	0.250	0.094	0.110	○							
	2QP-CCGW 21.51	2QP-CCGW060204	●	●	●	●				●	●		2	0.091	0.016	0.250	0.094	0.110	○							
	2QP-CCGW 21.52	2QP-CCGW060208			●	●							2	0.087	0.031	0.250	0.094	0.110	○							
	2QP-CCGW 32.50.5	2QP-CCGW09T302			●	●							2	0.091	0.008	0.375	0.156	0.173	○							
	2QP-CCGW 32.51	2QP-CCGW09T304	●	●	●	●				●	●		2	0.091	0.016	0.375	0.156	0.173	○							
	2QP-CCGW 32.52	2QP-CCGW09T308	●	●	●	●				●			2	0.087	0.031	0.375	0.156	0.173	○							
2QP-CCGW-L**	2QP-CCGW 21.50.5-L	2QP-CCGW060202-L			●	●							2	0.091	0.008	0.250	0.094	0.110			○					
	2QP-CCGW 21.51-L	2QP-CCGW060204-L			●	●							2	0.091	0.016	0.250	0.094	0.110			○					
	2QP-CCGW 21.52-L	2QP-CCGW060208-L			●	●							2	0.087	0.031	0.250	0.094	0.110			○					
	2QP-CCGW 32.51-L	2QP-CCGW09T304-L			●	●							2	0.091	0.016	0.375	0.156	0.173			○					
	2QP-CCGW 32.52-L	2QP-CCGW09T308-L			●	●							2	0.087	0.031	0.375	0.156	0.173			○					
2QP-CCGW-LF**	2QP-CCGW 21.50.5-LF	2QP-CCGW060202-LF			●	●							2	0.091	0.008	0.250	0.094	0.110				○				
	2QP-CCGW 21.51-LF	2QP-CCGW060204-LF			●	●							2	0.091	0.016	0.250	0.094	0.110				○				
	2QP-CCGW 21.52-LF	2QP-CCGW060208-LF			●	●							2	0.087	0.031	0.250	0.094	0.110				○				
	2QP-CCGW 32.50.5-LF	2QP-CCGW09T302-LF			●	●							2	0.091	0.008	0.375	0.156	0.173				○				
	2QP-CCGW 32.51-LF	2QP-CCGW09T304-LF			●	●							2	0.091	0.016	0.375	0.156	0.173				○				
	2QP-CCGW 32.52-LF	2QP-CCGW09T308-LF			●	●							2	0.087	0.031	0.375	0.156	0.173				○				
2QP-CCGW-LC**	2QP-CCGW 21.50.5-LC	2QP-CCGW060202-LC			●	●							2	0.091	0.008	0.250	0.094	0.110					○			
	2QP-CCGW 21.51-LC	2QP-CCGW060204-LC			●	●							2	0.091	0.016	0.250	0.094	0.110					○			
	2QP-CCGW 21.52-LC	2QP-CCGW060208-LC			●	●							2	0.087	0.031	0.250	0.094	0.110					○			
	2QP-CCGW 32.50.5-LC	2QP-CCGW09T302-LC			●	●							2	0.091	0.008	0.375	0.156	0.173					○			
	2QP-CCGW 32.51-LC	2QP-CCGW09T304-LC			●	●							2	0.091	0.016	0.375	0.156	0.173					○			
	2QP-CCGW 32.52-LC	2QP-CCGW09T308-LC			●	●							2	0.087	0.031	0.375	0.156	0.173					○			
2QP-CCGW-H**	2QP-CCGW 32.51-H	2QP-CCGW09T304-H				●							2	0.091	0.016	0.375	0.156	0.173						○		
	2QP-CCGW 32.52-H	2QP-CCGW09T308-H				●							2	0.087	0.031	0.375	0.156	0.173						○		
2QP-CCGWWL**	2QP-CCGW 32.51-WL	2QP-CCGW09T304WL			●	●							2	0.091	0.016	0.375	0.156	0.173							○	
	2QP-CCGW 32.52-WL	2QP-CCGW09T308WL			●	●							2	0.087	0.031	0.375	0.156	0.173							○	
2QP-CCGT-HP**	2QP-CCGT21.51-HP	2QP-CCGT060204-HP	●		●	●							2	0.091	0.016	0.250	0.094	0.110								○
	2QP-CCGT32.51-HP	2QP-CCGT09T304-HP	●		●	●							2	0.091	0.016	0.375	0.156	0.173								○
	2QP-CCGT32.52-HP	2QP-CCGT09T308-HP	●		●	●							2	0.087	0.031	0.375	0.156	0.173								○
2QP-CCGTWL-HP**	2QP-CCGT32.51WL-HP	2QP-CCGT09T304WL-HP	●		●								2	0.091	0.016	0.375	0.156	0.173							○	○
	2QP-CCGT32.52WL-HP	2QP-CCGT09T308WL-HP	●		●								2	0.087	0.031	0.375	0.156	0.173							○	○

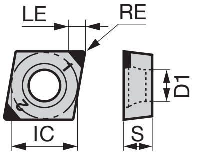
● : Line up

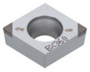
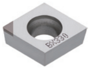
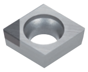
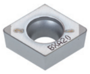
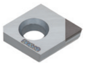
Reference pages: External toolholder → C026 - Internal toolholder → D020 -
J-Series toolholder → G027 -

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930
P	Steel										
M	Stainless										
K	Cast iron								●◐	✠	●◐
N	Non-ferrous										
S	Superalloy										
H	Hard material	●	●◐	●	●◐	●	●◐	●◐			
	Sintered metal								●◐	◐✠	



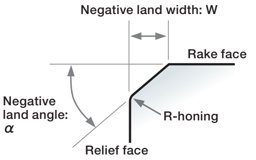
Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930	No. of corners	Dimension (inch)					Edge prep.						Wiper	Chipbreaker
	Inch	Metric												LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-CCMW	2QP-CCMW 21.50.5	2QP-CCMW060202					●	●	●				2	0.091	0.008	0.250	0.094	0.110	○							
	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	-	-	-



S	0	1	3	2	5
Edge prep. ID	Negative land width W			Negative land angle α	

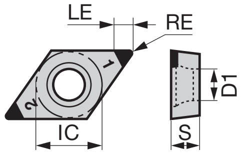
T … Chamfered
S … Chamfered + R-honing
E … R-honing alone
F … Sharp edge

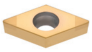
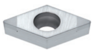
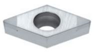
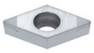
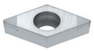
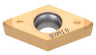
Reference pages: External toolholder → C026 - Internal toolholder → D020 -
J-Series toolholder → G027 -

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX930
P	Steel										
M	Stainless										
K	Cast iron								●◐	✠	●◐
N	Non-ferrous										
S	Superalloy										
H	Hard material	●	●◐	●	●◐	●	●◐	●◐			
	Sintered metal								●◐	◐✠	



Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	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-DCGW 	2QP-DCGW 21.50	2QP-DCGW070202	●	●	●	●							2	0.106	0.008	0.250	0.094	0.110	○							
	2QP-DCGW 21.51	2QP-DCGW070204	●	●	●	●				●	●		2	0.098	0.016	0.250	0.094	0.110	○							
	2QP-DCGW 21.52	2QP-DCGW070208			●	●				●			2	0.083	0.031	0.250	0.094	0.110	○							
	2QP-DCGW 32.50.2	2QP-DCGW11T301			●	●							2	0.110	0.004	0.375	0.156	0.173	○							
	2QP-DCGW 32.50.5	2QP-DCGW11T302	●	●	●	●							2	0.106	0.008	0.375	0.156	0.173	○							
	2QP-DCGW 32.51	2QP-DCGW11T304	●	●	●	●				●	●		2	0.098	0.016	0.375	0.156	0.173	○							
	2QP-DCGW 32.52	2QP-DCGW11T308	●	●	●	●				●			2	0.083	0.031	0.375	0.156	0.173	○							
2QP-DCGW-L** 	2QP-DCGW 21.50.5-L	2QP-DCGW070202-L			●	●							2	0..106	0.008	0.250	0.094	0.110			○					
	2QP-DCGW 21.51-L	2QP-DCGW070204-L			●	●							2	0.098	0.016	0.250	0.094	0.110			○					
	2QP-DCGW 21.52-L	2QP-DCGW070208-L			●	●							2	0.083	0.031	0.250	0.094	0.110			○					
	2QP-DCGW 32.50.5-L	2QP-DCGW11T302-L			●	●							2	0..106	0.008	0.375	0.156	0.173			○					
	2QP-DCGW 32.51-L	2QP-DCGW11T304-L			●	●							2	0.098	0.016	0.375	0.156	0.173			○					
	2QP-DCGW 32.52-L	2QP-DCGW11T308-L			●	●							2	0.083	0.031	0.375	0.156	0.173			○					
2QP-DCGW-LF** 	2QP-DCGW 21.50.5-LF	2QP-DCGW070202-LF			●	●							2	0..106	0.008	0.250	0.094	0.110				○				
	2QP-DCGW 21.51-LF	2QP-DCGW070204-LF			●	●							2	0.098	0.016	0.250	0.094	0.110				○				
	2QP-DCGW 21.52-LF	2QP-DCGW070208-LF			●	●							2	0.083	0.031	0.250	0.094	0.110				○				
	2QP-DCGW 32.50.5-LF	2QP-DCGW11T302-LF			●	●							2	0..106	0.008	0.375	0.156	0.173				○				
	2QP-DCGW 32.51-LF	2QP-DCGW11T304-LF			●	●							2	0.098	0.016	0.375	0.156	0.173				○				
	2QP-DCGW 32.52-LF	2QP-DCGW11T308-LF			●	●							2	0.083	0.031	0.375	0.156	0.173				○				
2QP-DCGW-LC** 	2QP-DCGW 21.50.5-LC	2QP-DCGW070202-LC			●	●							2	0..106	0.008	0.250	0.094	0.110					○			
	2QP-DCGW 21.51-LC	2QP-DCGW070204-LC			●	●							2	0.098	0.016	0.250	0.094	0.110					○			
	2QP-DCGW 21.52-LC	2QP-DCGW070208-LC			●	●							2	0.083	0.031	0.250	0.094	0.110					○			
	2QP-DCGW 32.50.5-LC	2QP-DCGW11T302-LC			●	●							2	0..106	0.008	0.375	0.156	0.173					○			
	2QP-DCGW 32.51-LC	2QP-DCGW11T304-LC			●	●							2	0.098	0.016	0.375	0.156	0.173					○			
	2QP-DCGW 32.52-LC	2QP-DCGW11T308-LC			●	●							2	0.083	0.031	0.375	0.156	0.173					○			
2QP-DCGW-H** 	2QP-DCGW 32.51-H	2QP-DCGW11T304-H				●							2	0.098	0.016	0.375	0.156	0.173						○		
	2QP-DCGW 32.52-H	2QP-DCGW11T308-H				●							2	0.083	0.031	0.375	0.156	0.173						○		
2QP-DCGT-HP** 	2QP-DCGT21.51-HP	2QP-DCGT070204-HP	●		●	●							2	0.098	0.016	0.250	0.094	0.110								○
	2QP-DCGT32.51-HP	2QP-DCGT11T304-HP	●		●	●							2	0.098	0.016	0.375	0.156	0.173								○
	2QP-DCGT32.52-HP	2QP-DCGT11T308-HP	●		●	●							2	0.083	0.031	0.375	0.156	0.173								○

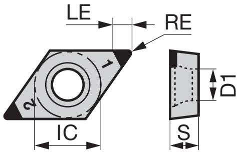
● : Line up

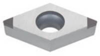
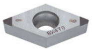
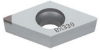
Reference pages: External toolholder → C050 - Internal toolholder → D056 -
J-Series toolholder → G036 -

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA20	BX310	BX330	BX360	BX470	BX480	BX930
P	Steel									
M	Stainless									
K	Cast iron							●◐	✠	●◐
N	Non-ferrous									
S	Superalloy									
H	Hard material	●	●◐	●◐	●	●◐	●◐			
	Sintered metal							●◐	◐✠	



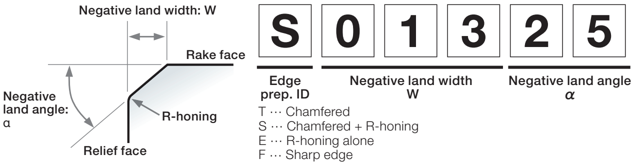
Shape	Designation		BXM10	BXM20	BXA20	BX310	BX330	BX360	BX470	BX480	BX930	Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric										No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-DCMW	2QP-DCMW 21.50.5	2QP-DCMW070202				●	●	●				2	0.106	0.008	0.250	0.094	0.110	○							
	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-DCGWF**	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	-	-	-



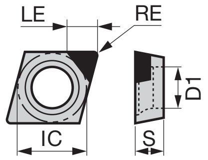
T ··· Chamfered
S ··· Chamfered + R-honing
E ··· R-honing alone
F ··· Sharp edge

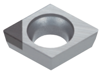
Reference pages: External toolholder → C050 - Internal toolholder → D056 -
J-Series toolholder → G036 -

CBN Insert POSITIVE TYPE

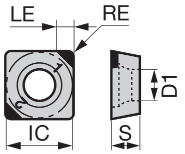
● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

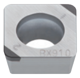
P	Steel									
M	Stainless									
K	Cast iron		●◐							
N	Non-ferrous									
S	Superalloy		●◐							
H	Hard material	●								
	Sintered metal		●◐							



Shape	Designation		BX310	BX470								Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric										No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
1QP-EPGW	1QP-EPGW 4.51.80.5	1QP-EPGW03X102	●	●								1	0.055	0.008	0.141	0.055	0.075								
	1QP-EPGW 4.51.81	1QP-EPGW03X104	●	●								1	0.051	0.016	0.141	0.055	0.075								
	1QP-EPGW 520.5	1QP-EPGW040102	●	●								1	0.067	0.008	0.156	0.063	0.091								
	1QP-EPGW 521	1QP-EPGW040104	●	●								1	0.063	0.016	0.156	0.063	0.091								

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



Shape	Designation		BX330	BX360	BX910	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-SPGN	2QP-SPGN 322	2QP-SPGN090308			●							2	0.094	0.031	0.375	0.125	-	○							
	2QP-SPGN 323	2QP-SPGN090312			●							2	0.094	0.047	0.375	0.125	-	○							
																									
2QP-SPMN	2QP-SPMN 321	2QP-SPMN090304	●	●		●						2	0.094	0.016	0.375	0.125	-	○							
	2QP-SPMN 322	2QP-SPMN090308	●	●		●						2	0.094	0.031	0.375	0.125	-	○							
																									
Q-SPGN	Q-SPGN 321	Q-SPGN090304	●									1	0.110	0.016	0.375	0.125	-	○							
	Q-SPGN 322	Q-SPGN090308	●									1	0.110	0.031	0.375	0.125	-	○							
																									
SPGN-QBN**	SPG 321 QBN	SPGN090304-QBN		●								1	0.161	0.016	0.375	0.125	-	○							
	SPG 322 QBN	SPGN090308-QBN		●								1	0.161	0.031	0.375	0.125	-	○							
	SPG 323 QBN	SPGN090312-QBN		●								1	0.161	0.047	0.375	0.125	-	○							
	SPG 422 QBN	SPGN120308-QBN		●								1	0.161	0.031	0.500	0.125	-	○							
	SPG 423 QBN	SPGN120312-QBN		●								1	0.161	0.047	0.500	0.125	-	○							
2QP-SPGW	2QP-SPGW 32.52	2QP-SPGW09T308			●							2	0.094	0.031	0.375	0.156	0.173	○							
	2QP-SPGW 32.53	2QP-SPGW09T312			●							2	0.094	0.047	0.375	0.156	0.173	○							
	2QP-SPGW 432	2QP-SPGW120408			●							2	0.094	0.031	0.500	0.187	0.217	○							
	2QP-SPGW 433	2QP-SPGW120412			●							2	0.094	0.047	0.500	0.187	0.217	○							
	2QP-SPGW 434	2QP-SPGW120416			●							2	0.094	0.063	0.500	0.187	0.217	○							

Q-SPGN: 2 pieces per package

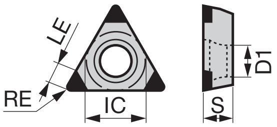
● : Line up

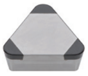
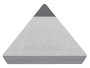
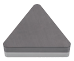
Reference pages: Internal toolholder → D040 -

CBN Insert POSITIVE TYPE

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

		BX330	BX360	BX480	BX910	BX930
P	Steel					
M	Stainless					
K	Cast iron			✠	●	●◐
N	Non-ferrous					
S	Superalloy					
H	Hard material	●◐	●◐			
	Sintered metal			◐✠		



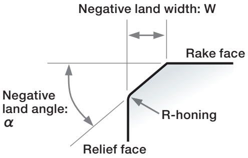
Shape	Designation		BX330	BX360	BX480	BX910	BX930	Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric						No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
3QP-TPGN	3QP-TPGN22.5	3QP-TPGN110302			●			3	0.091	0.008	0.250	0.125	-	○							
	3QP-TPGN221	3QP-TPGN110304			●			3	0.087	0.016	0.250	0.125	-	○							
	3QP-TPGN 222	3QP-TPGN110308			●	●		3	0.075	0.031	0.250	0.125	-	○							
	3QP-TPGN 223	3QP-TPGN110312				●		3	0.094	0.047	0.250	0.125	-	○							
	3QP-TPGN 321	3QP-TPGN160304			●			3	0.087	0.016	0.375	0.125	-	○							
	3QP-TPGN 322	3QP-TPGN160308			●			3	0.075	0.031	0.375	0.125	-	○							
3QP-TPMN	3QP-TPMN 220.5	3QP-TPMN110302	●	●			●	3	0.091	0.008	0.250	0.125	-	○							
	3QP-TPMN 221	3QP-TPMN110304	●	●			●	3	0.087	0.016	0.250	0.125	-	○							
	3QP-TPMN 222	3QP-TPMN110308	●	●			●	3	0.075	0.031	0.250	0.125	-	○							
	3QP-TPMN 321	3QP-TPMN160304	●	●			●	3	0.087	0.016	0.375	0.125	-	○							
	3QP-TPMN 322	3QP-TPMN160308	●	●			●	3	0.075	0.031	0.375	0.125	-	○							
Q-TPGN	Q-TPGN221	Q-TPGN110304	●					1	0.087	0.016	0.250	0.125	-	○							
	Q-TPGN 222	Q-TPGN110308	●					1	0.079	0.031	0.250	0.125	-	○							
	Q-TPGN 321	Q-TPGN160304	●					1	0.091	0.016	0.375	0.125	-	○							
	Q-TPGN 332	Q-TPGN160308	●					1	0.079	0.031	0.375	0.125	-	○							
TPGN-QBN**	TPG 221 QBN	TPGN110304-QBN		●				1	0.146	0.016	0.250	0.125	-	○							
	TPG 222 QBN	TPGN110308-QBN		●				1	0.138	0.031	0.250	0.125	-	○							
	TPG 321 QBN	TPGN160304-QBN		●				1	0.165	0.016	0.375	0.125	-	○							
	TPG 322 QBN	TPGN160308-QBN		●				1	0.157	0.031	0.375	0.125	-	○							
TBGN-QBN**	TBGN 521 QBN	TBGN060104-15-QBN		●				3	-	0.016	0.156	0.063	-	○							
	TBGN 522 QBN	TBGN060108-15-QBN		●				3	-	0.031	0.156	0.063	-	○							

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	-	-	-



S 0 1 3 2 5

Edge prep. ID	Negative land width W	Negative land angle α
S	0 1 3	2 5

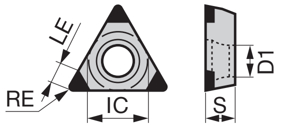
T ··· Chamfered
S ··· Chamfered + R-honing
E ··· R-honing alone
F ··· Sharp edge

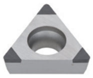
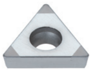
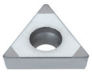
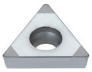
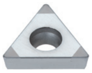
Reference pages: Internal toolholder → D050 -

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX910
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	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX470	BX480	BX910	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	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 322	3QP-TPGW160408		●	●	●							3	0.075	0.031	0.375	0.187	0.173	○							
3QP-TPGWF**	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						○		

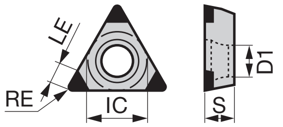
● : Line up

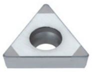
Reference pages: Internal toolholder → D050 -

CBN Insert POSITIVE TYPE

● : Continuous cutting
◖ : Light interrupted cutting
✣ : Heavy interrupted cutting

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX930	
P	Steel									
M	Stainless									
K	Cast iron								●◖	
N	Non-ferrous									
S	Superalloy									
H	Hard material	●	●◖	●	●◖	●	●◖	●◖		
	Sintered metal									

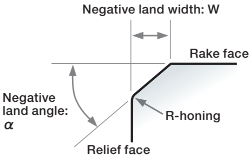


Shape	Designation											Dimension (inch)						Edge prep.							
	Inch	Metric	BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX930		No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
3QP-TPGT	3QP-TPGT221-HP	3QP-TPGT110304-HP	●			●						3	0.087	0.016	0.250	0.125	0.134								○
	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-TPMW 331	3QP-TPMW160404					●	●	●	●		3	0.087	0.016	0.375	0.187	0.173	○							
	3QP-TPMW 332	3QP-TPMW160408					●	●	●	●		3	0.075	0.031	0.375	0.187	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	-	-	-



S	0	1	3	2	5
Edge prep. ID	Negative land width W			Negative land angle α	

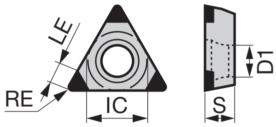
T … Chamfered
S … Chamfered + R-honing
E … R-honing alone
F … Sharp edge

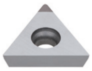
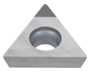
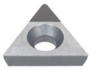
Reference pages: Internal toolholder → D050 -

CBN Insert POSITIVE TYPE

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

		BX330	BX360
P	Steel		
M	Stainless		
K	Cast iron		
N	Non-ferrous		
S	Superalloy		
H	Hard material	●◐	●◐



Shape	Designation Inch	Designation Metric	BX330	BX360	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker
Q-TPMW 	Q-TPMW 631	Q-TPMW080204	●		1	0.087	0.016	0.187	0.094	0.091	○							
	Q-TPMW 730.5	Q-TPMW090202	●		1	0.094	0.008	0.219	0.094	0.098	○							
	Q-TPMW 731	Q-TPMW090204	●		1	0.091	0.016	0.219	0.094	0.098	○							
	Q-TPMW 21.50.5	Q-TPMW110202	●		1	0.094	0.008	0.250	0.094	0.110	○							
	Q-TPMW 21.51	Q-TPMW110204	●		1	0.087	0.016	0.250	0.094	0.110	○							
	Q-TPMW 221	Q-TPMW110304	●		1	0.087	0.016	0.250	0.125	0.134	○							
	Q-TPMW 222	Q-TPMW110308	●		1	0.079	0.031	0.250	0.125	0.134	○							
	Q-TPMW 2.520.5	Q-TPMW130302	●		1	0.094	0.008	0.313	0.125	0.134	○							
	Q-TPMW 2.521	Q-TPMW130304	●		1	0.091	0.016	0.313	0.125	0.134	○							
	Q-TPMW 32.51	Q-TPMW16T304	●		1	0.091	0.016	0.375	0.156	0.173	○							
	Q-TPMW 331	Q-TPMW160404	●		1	0.091	0.016	0.375	0.187	0.173	○							
	Q-TPMW 332	Q-TPMW160408	●		1	0.079	0.031	0.375	0.187	0.173	○							
TPGW-QBN** 	TPGW 730.5 QBN	TPGW090202-QBN		●	1	0.130	0.008	0.219	0.094	0.098	○							
	TPGW 731 QBN	TPGW090204-QBN		●	1	0.126	0.016	0.219	0.094	0.098	○							
	TPGW 21.50.5 QBN	TPGW110202-QBN		●	1	0.154	0.008	0.250	0.094	0.110	○							
	TPGW 21.51 QBN	TPGW110204-QBN		●	1	0.146	0.016	0.250	0.094	0.110	○							
	TPGW 2.520.5 QBN	TPGW130302-QBN		●	1	0.154	0.008	0.313	0.125	0.134	○							
	TPGW 2.521 QBN	TPGW130304-QBN		●	1	0.146	0.016	0.313	0.125	0.134	○							
	TPGW 32.50.5 QBN	TPGW16T302-QBN		●	1	0.173	0.008	0.375	0.156	0.173	○							
	TPGW 32.51 QBN	TPGW16T304-QBN		●	1	0.165	0.016	0.375	0.156	0.173	○							
	TPGW 32.52 QBN	TPGW16T308-QBN		●	1	0.157	0.031	0.375	0.156	0.173	○							
TPGA-QBN** 	TPGA 730.5 QBN	TPGA090202-QBN		●	1	0.122	0.008	0.219	0.094	0.126	○							
	TPGA 731 QBN	TPGA090204-QBN		●	1	0.114	0.016	0.219	0.094	0.126	○							
	TPGA 21.50.5 QBN	TPGA110202-QBN		●	1	0.154	0.008	0.250	0.094	0.118	○							
	TPGA 21.51 QBN	TPGA110204-QBN		●	1	0.146	0.016	0.250	0.094	0.118	○							
	TPGA 220.5 QBN	TPGA110302-QBN		●	1	0.154	0.008	0.250	0.125	0.118	○							
	TPGA 221 QBN	TPGA110304-QBN		●	1	0.146	0.016	0.250	0.125	0.118	○							
	TPGA 320.5 QBN	TPGA160302-QBN		●	1	0.173	0.008	0.375	0.125	0.157	○							
	TPGA 321 QBN	TPGA160304-QBN		●	1	0.165	0.016	0.375	0.125	0.157	○							
	TPGA 322 QBN	TPGA160308-QBN		●	1	0.157	0.031	0.375	0.125	0.157	○							

Dimension (inch): No. of corners, LE, RE, IC, S, D1. Edge prep.: Standard, Sharp edge, L, LF, LC, H.

Q-TPMW: 2 pieces per package

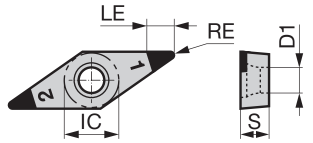
● : Line up

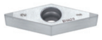
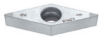
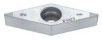
Reference pages: Internal toolholder → D050 -

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20
P	Steel				
M	Stainless				
K	Cast iron				
N	Non-ferrous				
S	Superalloy				
H	Hard material	●	●◐	●	●◐
	Sintered metal				

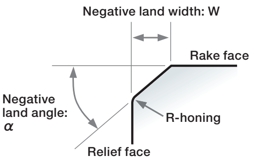


Shape	Designation		BXM10	BXM20	BXA10	BXA20	Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric					No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-VBGW	2QP-VBGW 21.50.5	2QP-VBGW110202			●	●	2	0.138	0.008	0.250	0.094	0.110	○							
	2QP-VBGW 21.51	2QP-VBGW110204			●	●	2	0.122	0.016	0.250	0.094	0.110	○							
	2QP-VBGW 21.52	2QP-VBGW110208			●	●	2	0.087	0.031	0.250	0.094	0.110	○							
	2QP-VBGW 220.2	2QP-VBGW110301			●	●	2	0.146	0.004	0.250	0.125	0.110	○							
	2QP-VBGW 220.5	2QP-VBGW110302			●	●	2	0.138	0.008	0.250	0.125	0.110	○							
	2QP-VBGW 221	2QP-VBGW110304	●	●	●	●	2	0.122	0.016	0.250	0.125	0.110	○							
	2QP-VBGW 222	2QP-VBGW110308	●	●	●	●	2	0.087	0.031	0.250	0.125	0.110	○							
	2QP-VBGW 330.5	2QP-VBGW160402			●	●	2	0.138	0.008	0.375	0.187	0.173	○							
	2QP-VBGW 331	2QP-VBGW160404	●	●	●	●	2	0.122	0.016	0.375	0.187	0.173	○							
	2QP-VBGW 332	2QP-VBGW160408	●	●	●	●	2	0.087	0.031	0.375	0.187	0.173	○							
	2QP-VBGW 333	2QP-VBGW160412			●	●	2	0.118	0.047	0.375	0.187	0.173	○							
2QP-VBGW-L**	2QP-VBGW 220.5-L	2QP-VBGW110302-L			●	●	2	0.138	0.008	0.250	0.125	0.110			○					
	2QP-VBGW 221-L	2QP-VBGW110304-L			●	●	2	0.122	0.016	0.250	0.125	0.110			○					
	2QP-VBGW 222-L	2QP-VBGW110308-L			●	●	2	0.087	0.031	0.250	0.125	0.110			○					
	2QP-VBGW 330.5-L	2QP-VBGW160402-L			●	●	2	0.138	0.008	0.375	0.187	0.173			○					
	2QP-VBGW 331-L	2QP-VBGW160404-L			●	●	2	0.122	0.016	0.375	0.187	0.173			○					
	2QP-VBGW 332-L	2QP-VBGW160408-L			●	●	2	0.087	0.031	0.375	0.187	0.173			○					
2QP-VBGW-LF**	2QP-VBGW 220.5-LF	2QP-VBGW110302-LF			●	●	2	0.138	0.008	0.250	0.125	0.110				○				
	2QP-VBGW 221-LF	2QP-VBGW110304-LF			●	●	2	0.122	0.016	0.250	0.125	0.110				○				
	2QP-VBGW 222-LF	2QP-VBGW110308-LF			●	●	2	0.087	0.031	0.250	0.125	0.110				○				
	2QP-VBGW 330.5-LF	2QP-VBGW160402-LF			●	●	2	0.138	0.008	0.375	0.187	0.173				○				
	2QP-VBGW 331-LF	2QP-VBGW160404-LF			●	●	2	0.122	0.016	0.375	0.187	0.173				○				
	2QP-VBGW 332-LF	2QP-VBGW160408-LF			●	●	2	0.087	0.031	0.375	0.187	0.173				○				
2QP-VBGW-LC**	2QP-VBGW 220.5-LC	2QP-VBGW110302-LC			●	●	2	0.138	0.008	0.250	0.125	0.110								
	2QP-VBGW 221-LC	2QP-VBGW110304-LC			●	●	2	0.122	0.016	0.250	0.125	0.110					○			
	2QP-VBGW 222-LC	2QP-VBGW110308-LC			●	●	2	0.087	0.031	0.250	0.125	0.110					○			
	2QP-VBGW 330.5-LC	2QP-VBGW160402-LC			●	●	2	0.138	0.008	0.375	0.187	0.173					○			
	2QP-VBGW 331-LC	2QP-VBGW160404-LC			●	●	2	0.122	0.016	0.375	0.187	0.173					○			
	2QP-VBGW 332-LC	2QP-VBGW160408-LC			●	●	2	0.087	0.031	0.375	0.187	0.173					○			
2QP-VBGW-H**	2QP-VBGW 331-H	2QP-VBGW160404-H				●	2	0.122	0.016	0.375	0.187	0.173						○		
	2QP-VBGW 332-H	2QP-VBGW160408-H				●	2	0.087	0.031	0.375	0.187	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	-	-	-



S	0	1	3	2	5
Edge prep. ID	Negative land width W			Negative land angle α	

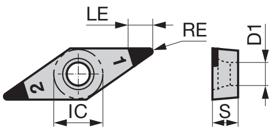
T … Chamfered
S … Chamfered + R-honing
E … R-honing alone
F … Sharp edge

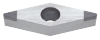
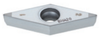
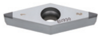
Reference pages: External toolholder → C065 - Internal toolholder → D043 -
J-Series toolholder → G044 - TungCap → K021

CBN Insert POSITIVE TYPE

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

		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX930
P	Steel								
M	Stainless								
K	Cast iron								●◐
N	Non-ferrous								
S	Superalloy								
H	Hard material	●	●◐	●	●◐	●	●◐	●◐	
	Sintered metal								

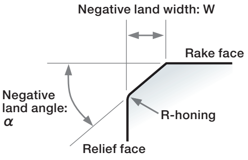


Shape	Designation		BXM10	BXM20	BXA10	BXA20	BX310	BX330	BX360	BX930	Dimension (inch)						Edge prep.						Wiper	Chipbreaker
	Inch	Metric									No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H		
2QP-VBGT-HP**	2QP-VBGT221-HP	2QP-VBGT110304-HP	●		●	●					2	0.118	0.016	0.250	0.125	0.110								○
	2QP-VBGT222-HP	2QP-VBGT110308-HP	●		●	●					2	0.087	0.031	0.250	0.125	0.110								○
	2QP-VBGT331-HP	2QP-VBGT160404-HP	●		●	●					2	0.118	0.016	0.375	0.187	0.173								○
	2QP-VBGT332-HP	2QP-VBGT160408-HP	●		●	●					2	0.087	0.031	0.375	0.187	0.173								○
2QP-VBMW	2QP-VBMW221	2QP-VBMW110304					●	●	●	●	2	0.122	0.016	0.250	0.125	0.110	○							
	2QP-VBMW222	2QP-VBMW110308					●	●	●	●	2	0.087	0.031	0.250	0.125	0.110	○							
	2QP-VBMW331	2QP-VBMW160404					●	●	●		2	0.122	0.016	0.375	0.187	0.173	○							
	2QP-VBMW332	2QP-VBMW160408					●	●	●		2	0.087	0.031	0.375	0.187	0.173	○							
2QP-VCGW	2QP-VCGW 630.5	2QP-VCGW080202			●	●					2	0.138	0.080	0.187	0.094	0.091	○							
	2QP-VCGW 631	2QP-VCGW080204			●	●					2	0.122	0.016	0.187	0.094	0.091	○							
	2QP-VCGW 632	2QP-VCGW080208			●	●					2	0.087	0.031	0.187	0.094	0.091	○							
	2QP-VCGW 330.5	2QP-VCGW160402			●	●					2	0.138	0.080	0.375	0.187	0.173	○							
	2QP-VCGW 331	2QP-VCGW160404	●	●	●	●					2	0.122	0.016	0.375	0.187	0.173	○							
	2QP-VCGW 332	2QP-VCGW160408			●	●					2	0.087	0.031	0.375	0.187	0.173	○							
2QP-VCGW-H**	2QP-VCGW 330.5-H	2QP-VCGW160402-H			●	●					2	0.138	0.080	0.375	0.187	0.173						○		
	2QP-VCGW 331-H	2QP-VCGW160404-H			●	●					2	0.122	0.016	0.375	0.187	0.173						○		
	2QP-VCGW 332-H	2QP-VCGW160408-H			●	●					2	0.087	0.031	0.375	0.187	0.173						○		
2QP-VCMW 	2QP-VCMW331	2QP-VCMW160404						●	●	●	2	0.122	0.016	0.375	0.187	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	-	-	-



S 0 1 3 2 5

Edge prep. ID	Negative land width W	Negative land angle α
S	0 1 3	2 5

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

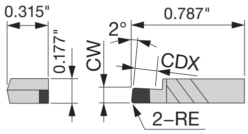
Reference pages: External toolholder → C065 - Internal toolholder → D043 -
J-Series toolholder → G044 - TungCap → K016 -

CBN Insert NEGATIVE TYPE

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

For GX-RE

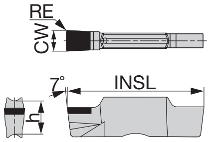
		BX360
P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	●◐

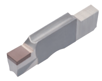
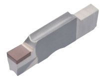
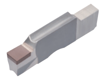


Shape	Designation	BX360	Dimension (inch) CW±0.05	RE	CDX
XGR-QBN**	**XGR6310S-QBN**		0.039	0.008	0.059
	**XGR6315S-QBN**	●	0.059	0.008	0.091
	XGR6320S-QBN	●	0.079	0.008	0.118
	XGR6325S-QBN	●	0.098	0.008	0.150
	XGR6330S-QBN	●	0.118	0.008	0.177
	XGR6335S-QBN	●	0.138	0.008	0.209
	XGR6340S-QBN	●	0.157	0.008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

For TungCut

		BX360
P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	●◐

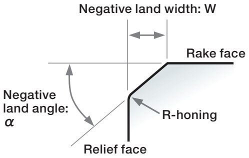


Shape	Designation	BX360	Dimension (inch)					Edge prep.		
			Seat size	CW±0.025	RE	INSL	h	Standard	S	H
SGN	**SGN200-020**	●	2	0.079	0.008	0.787	0.197	○		
	**SGN300-020**	●	3	0.118	0.008	0.787	0.197	○		
	SGN400-020	●	4	0.157	0.008	0.787	0.197	○		
SGN-S**	**SGN200-020-S**	●	2	0.079	0.008	0.787	0.197		○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

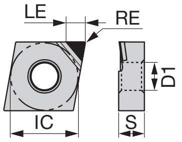
Reference pages: XGR...: Toolholder → F100 - SGN...: Toolholder → F013 -

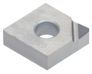
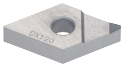
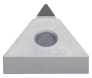
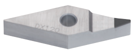
PCD Insert

● : 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										Dimension (inch)						Edge prep.						
	Inch	Metric	DX110	DX120							No. of corners	LE	RE	IC	S	D1	Sharp edge				Rake angle		
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

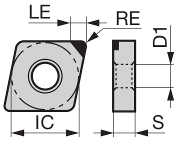
Reference pages: External toolholder → C018 - Internal toolholder → D028 -
J-Series toolholder → G057 - TungCap → K008 -

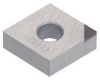
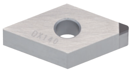
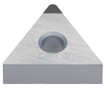
PCD Insert

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

Negative type

		DX140	DX160
P	Steel		
M	Stainless		
K	Cast iron		
N	Non-ferrous	●◐	●◐
S	Superalloy		
H	Hard material		



Shape	Designation Inch	Designation Metric	DX140	DX160	No. of corners	LE	RE	IC	S	D1	Sharp edge
CNGA-DIA** 	CNGA 431 DIA	CNGA120404-DIA	●		1	0.138	0.016	0.500	0.187	0.203	○
	CNGA 432 DIA	CNGA120408-DIA	●		1	0.110	0.031	0.500	0.187	0.203	○
DNGA-DIA** 	DNGA 431 DIA	DNGA150404-DIA	●	●	1	0.122	0.016	0.500	0.187	0.203	○
	DNGA 432 DIA	DNGA150408-DIA	●		1	0.110	0.031	0.500	0.187	0.203	○
SNGA-DIA** 	SNGA 431 DIA	SNGA120404-DIA	●		1	0.142	0.016	0.500	0.187	0.203	○
	SNGA 432 DIA	SNGA120408-DIA	●		1	0.142	0.031	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	TNGA160404-DIA	●	●	1	0.126	0.016	0.375	0.187	0.150	○
	TNGA 332 DIA	TNGA160408-DIA	●	●	1	0.031	0.031	0.375	0.187	0.150	○

Dimension (inch) · Edge prep.

● : Line up

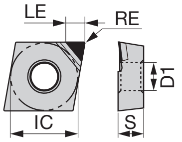
Reference pages: External toolholder → C018 - Internal toolholder → D028 -
J-Series toolholder → G057 - TungCap → K008 -

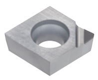
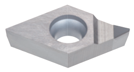
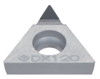
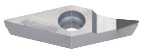
PCD Insert

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

Positive type with rake

		DX110	DX120
P	Steel		
M	Stainless		
K	Cast iron		
N	Non-ferrous	●◐	●◐
S	Superalloy		
H	Hard material		



Shape	Designation		DX110	DX120	Dimension (inch)						Edge prep.				Rake angle	
	Inch	Metric			No. of corners	LE	RE	IC	S	D1	Sharp edge					
CCMT-DIA**	CCMT 21.50.5-DIA	CCMT060202-DIA		●	1	0.094	0.008	0.250	0.094	0.110	○				○	
	CCMT 21.51-DIA	CCMT060204-DIA		●	1	0.094	0.016	0.250	0.094	0.110	○				○	
	CCMT 32.50.5-DIA	CCMT09T302-DIA		●	1	0.094	0.008	0.375	0.156	0.173	○				○	
	CCMT 32.51-DIA	CCMT09T304-DIA		●	1	0.094	0.016	0.375	0.156	0.173	○				○	
	1QP-CCMT 21.51	1QP-CCMT060204	●		1	0.094	0.016	0.250	0.094	0.110	○				○	
	1QP-CCMT 32.51	1QP-CCMT09T304	●		1	0.094	0.016	0.250	0.156	0.173	○				○	
DCMT-DIA**	DCMT 21.50.5-DIA	DCMT070202-DIA		●	1	0.094	0.008	0.250	0.094	0.110	○				○	
	DCMT 21.51-DIA	DCMT070204-DIA		●	1	0.016	0.016	0.250	0.094	0.110	○				○	
	DCMT 32.50.5-DIA	DCMT11T302-DIA		●	1	0.126	0.008	0.375	0.156	0.173	○				○	
	DCMT 32.51-DIA	DCMT11T304-DIA		●	1	0.118	0.016	0.375	0.156	0.173	○				○	
TCMT-DIA**	TCMT 630.5-DIA	TCMT080202-DIA		●	1	0.087	0.008	0.187	0.094	0.106	○				○	
	TCMT 631-DIA	TCMT080204-DIA		●	1	0.075	0.016	0.187	0.094	0.106	○				○	
	TCMT 21.50.5-DIA	TCMT110202-DIA		●	1	0.094	0.008	0.250	0.094	0.110	○				○	
	TCMT 21.51-DIA	TCMT110204-DIA		●	1	0.087	0.016	0.250	0.094	0.110	○				○	
	TCMT 220.5-DIA	TCMT110302-DIA		●	1	0.094	0.008	0.250	0.125	0.110	○				○	
	TCMT 221-DIA	TCMT110304-DIA		●	1	0.087	0.016	0.250	0.125	0.110	○				○	
	1QP-TCMT 221	1QP-TCMT110304	●		1	0.087	0.016	0.250	0.125	0.110	○				○	
VCMT-DIA**	VCMT 330.5-DIA	VCMT160402-DIA		●	1	0.189	0.008	0.375	0.187	0.173	○				○	
	VCMT 331-DIA	VCMT160404-DIA		●	1	0.173	0.016	0.375	0.187	0.173	○				○	
																

● : Line up

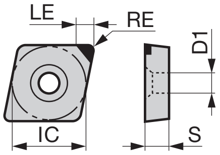
Reference pages:	External toolholder → **C026 -**	Internal toolholder → **D028 -**
	J-Series toolholder → **G027 -**	TungCap → **K016 -**

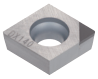
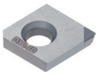
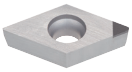
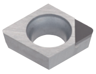
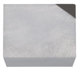
PCD Insert

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

Positive type

		DX120	DX140	DX160
P	Steel			
M	Stainless			
K	Cast iron			
N	Non-ferrous	●◐	●◐	●◐
S	Superalloy			
H	Hard material			



Shape	Designation					Dimension (inch)						Edge prep.
	Inch	Metric	DX120	DX140	DX160	No. of corners	LE	RE	IC	S	D1	Sharp edge
CCGW-DIA**	CCGW 21.5V-DIA	CCGW060200-DIA		●		1	0.094	0.002	0.250	0.094	0.110	○
	CCGW 21.50.5-DIA	CCGW060202-DIA		●		1	0.094	0.008	0.250	0.094	0.110	○
	CCGW 21.51-DIA	CCGW060204-DIA		●		1	0.094	0.016	0.250	0.094	0.110	○
	CCGW 32.50.5-DIA	CCGW09T302-DIA		●		1	0.138	0.008	0.375	0.156	0.173	○
	CCGW 32.51-DIA	CCGW09T304-DIA		●	●	1	0.138	0.016	0.375	0.156	0.173	○
	CCGW 32.52-DIA	CCGW09T308-DIA		●		1	0.134	0.031	0.375	0.156	0.173	○
CPGA-DIA**	CPGA080202-DIA	CPGA080202-DIA		●		1	0.094	0.008	0.375	0.094	0.157	○
	CPGA 31.51 DIA	CPGA090204-DIA		●		1	0.138	0.016	0.375	0.094	0.157	○
DCGW-DIA**	DCGW 21.5V-DIA	DCGW070200-DIA		●		1	0.094	0.002	0.250	0.094	0.110	○
	DCGW 21.50.5-DIA	DCGW070202-DIA	●	●		1	0.094	0.008	0.250	0.094	0.110	○
	DCGW 21.51-DIA	DCGW070204-DIA		●		1	0.016	0.016	0.250	0.094	0.110	○
	DCGW 32.50.5-DIA	DCGW11T302-DIA		●		1	0.126	0.008	0.375	0.156	0.173	○
	DCGW 32.51-DIA	DCGW11T304-DIA		●		1	0.118	0.016	0.375	0.156	0.173	○
	DCGW 32.52-DIA	DCGW11T308-DIA		●		1	0.106	0.031	0.375	0.156	0.173	○
EPGW-DIA**	EPGW 520.5-DIA	EPGW040102-DIA		●		1	0.075	0.008	0.125	0.063	0.091	○
	EPGW 521-DIA	EPGW040104-DIA		●		1	0.075	0.016	0.125	0.063	0.091	○
SPGN-DIA**	SPGN 322-DIA	SPGN090308-DIA		●		1	0.142	0.031	0.375	0.125	-	○
	SPGN 420.5-DIA	SPGN120302-DIA		●		1	0.142	0.008	0.500	0.125	-	○
	SPGN 421-DIA	SPGN120304-DIA		●		1	0.142	0.016	0.500	0.125	-	○
	SPGN 422-DIA	SPGN120308-DIA		●	●	1	0.142	0.031	0.500	0.125	-	○

● : Line up

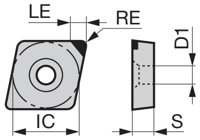
Reference pages: External toolholder → C026 - Internal toolholder → D028 -

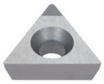
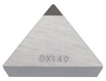
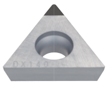
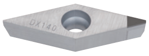
PCD Insert

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

Positive type

		DX120	DX140
P	Steel		
M	Stainless		
K	Cast iron		
N	Non-ferrous	● ◐	● ◐
S	Superalloy		
H	Hard material		



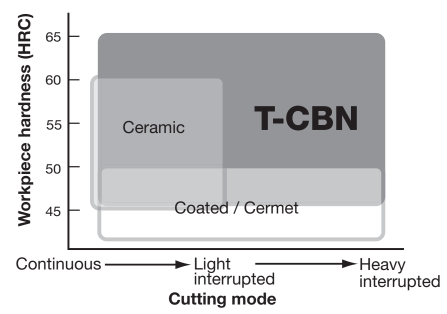
Shape	Designation Inch	Designation Metric	DX120	DX140	No. of corners	Dimension (inch) LE	RE	IC	S	D1	Edge prep. Sharp edge
TPGA-DIA**	TPGA730.5-DIA	TPGA090202-DIA		●	1	0.094	0.008	0.219	0.094	0.098	○
	TPGA731-DIA	TPGA090204-DIA		●	1	0.087	0.016	0.219	0.094	0.098	○
	TPGA21.50.5-DIA	TPGA110202-DIA		●	1	0.094	0.008	0.250	0.094	0.110	○
	TPGA21.51-DIA	TPGA110204-DIA		●	1	0.087	0.016	0.250	0.094	0.110	○
	TPGA220.5-DIA	TPGA110302-DIA		●	1	0.094	0.008	0.250	0.125	0.118	○
	TPGA221-DIA	TPGA110304-DIA		●	1	0.087	0.016	0.250	0.125	0.118	○
	TPGA222-DIA	TPGA110308-DIA		●	1	0.031	0.031	0.250	0.125	0.118	○
	TPGA320.5-DIA	TPGA160302-DIA		●	1	0.130	0.008	0.375	0.125	0.157	○
	TPGA321-DIA	TPGA160304-DIA		●	1	0.126	0.016	0.375	0.125	0.157	○
	TPGA322-DIA	TPGA160308-DIA		●	1	0.031	0.031	0.375	0.125	0.157	○
TPGN-DIA**	TPGN 731-DIA	TPGN090204-DIA		●	1	0.087	0.016	0.219	0.094	-	○
	TPGN 221-DIA	TPGN110304-DIA	●	●	1	0.126	0.016	0.250	0.125	-	○
	TPGN 222-DIA	TPGN110308-DIA		●	1	0.031	0.031	0.250	0.125	-	○
	TPGN 320.5-DIA	TPGN160302-DIA		●	1	0.130	0.008	0.375	0.125	-	○
	TPGN 321-DIA	TPGN160304-DIA	●	●	1	0.126	0.016	0.375	0.125	-	○
	TPGN 322-DIA	TPGN160308-DIA		●	1	0.031	0.031	0.375	0.125	-	○
TPGW-DIA**	TPGW 630.5-DIA	TPGW080202-DIA		●	1	0.094	0.008	0.187	0.094	0.091	○
	TPGW 631-DIA	TPGW080204-DIA		●	1	0.094	0.016	0.187	0.094	0.091	○
	TPGW 730.5-DIA	TPGW090202-DIA	●	●	1	0.094	0.008	0.219	0.094	0.098	○
	TPGW 731-DIA	TPGW090204-DIA		●	1	0.087	0.016	0.219	0.094	0.098	○
	TPGW 21.50.5-DIA	TPGW110202-DIA	●	●	1	0.094	0.008	0.250	0.094	0.110	○
	TPGW 21.51-DIA	TPGW110204-DIA		●	1	0.087	0.016	0.250	0.094	0.110	○
	TPGW 2.520.5-DIA	TPGW130302-DIA	●	●	1	0.130	0.008	0.313	0.125	0.134	○
	TPGW 2.521-DIA	TPGW130304-DIA		●	1	0.126	0.016	0.313	0.125	0.134	○
	TPGW 32.50.5-DIA	TPGW16T302-DIA		●	1	0.130	0.008	0.375	0.156	0.173	○
	TPGW 32.51-DIA	TPGW16T304-DIA		●	1	0.126	0.016	0.375	0.156	0.173	○
	TPGW 32.52-DIA	TPGW16T308-DIA		●	1	0.031	0.031	0.375	0.156	0.173	○
VCGW-DIA**	VCGW 330.5-DIA	VCGW160402-DIA		●	1	0.189	0.008	0.375	0.187	0.173	○
	VCGW 331-DIA	VCGW160404-DIA		●	1	0.173	0.016	0.375	0.187	0.173	○
											

● : Line up

Reference pages: External toolholder → C075 - Internal toolholder → D050 -

H T-CBN series for hardened steel and hard material

Application area



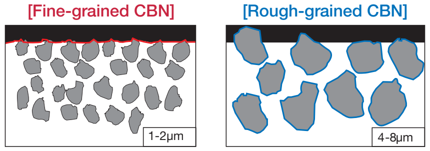
Necessity of PCBN grades

The condition necessary to cut the work

Material is:
Hardness of tool ≥ Hardness of tool X 3

- ● Hardened steel (60HRC) → 700 Hv ● Cemented carbide → 1600 Hv
- ● PCBN (BX360) → 3300 Hv

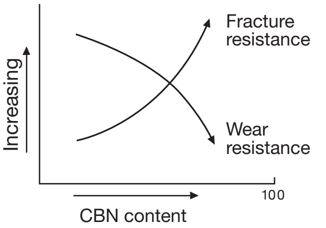
Relation of CBN grain size, surface roughness, and cutting speed



Fine grained PCBN provided with sharp cutting edge.
Good surface roughness

Rough grained PCBN. CBN particles are hold firmly.
Allows high speed machining

● Features of CBN grades for machining hardened steel and other hard materials



Fewer CBN content ⇨ Increasing wear resistance
Much CBN content ⇨ Increasing impact resistance

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

● Coated T-CBN grades

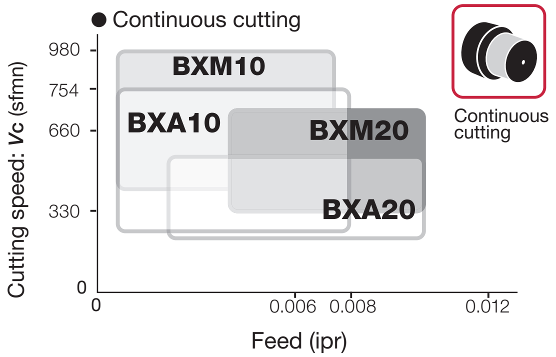
BXA10	For continuous and light interrupted cutting
BXA20	For general purpose, less than *Vc* = 591 sfm
BXM10	For high speeds cutting
BXM20	For general purpose, more than *Vc* = 591 sfm

● Uncoated T-CBN grades

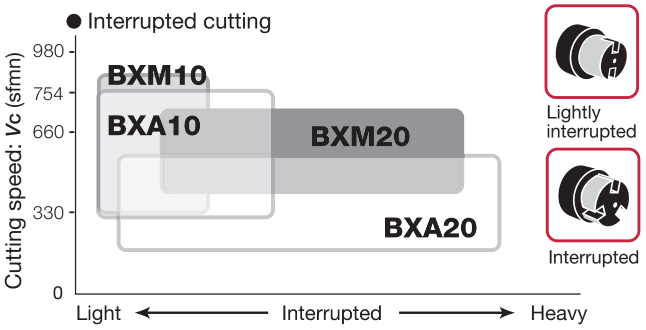
BX310	For high speeds / Priority on wear resistance in continuous cutting
BX330	For medium speeds / Priority on surface quality
BX360	For low to medium speeds / General purpose grade with excellent fracture resistance
BX380	For low to medium speeds / Priority on fracture resistance in heavy interrupted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

Application area of coated T-CBN grades

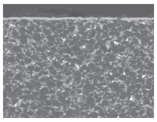
● Continuous cutting



● Interrupted cutting



Effects of Coated T-CBN grades



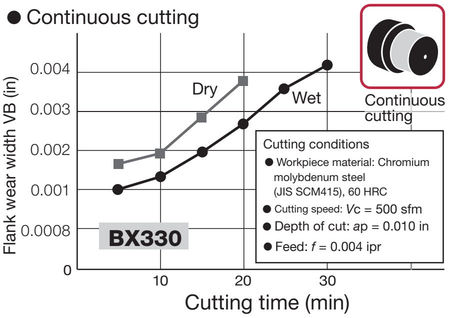
Coated on hard CBN
Hardness:
CBN > Coating layer

- **● 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**

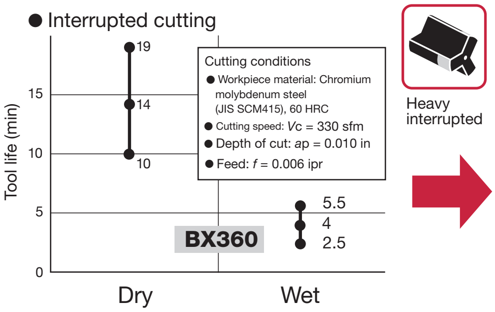
Effects of coolant in machining of hardened steel

● Continuous cutting



Cutting conditions
- ● Workpiece material: Chromium molybdenum steel (JIS SCM415), 60 HRC
- ● Cutting speed: *Vc* = 500 sfm
- ● Depth of cut: *ap* = 0.010 in
- ● Feed: *f* = 0.004 ipr

● Interrupted cutting

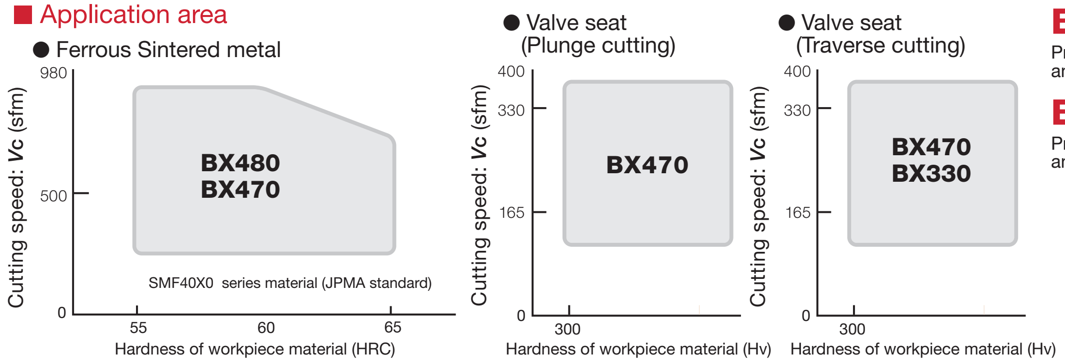


Cutting conditions
- ● Workpiece material: Chromium molybdenum steel (JIS SCM415), 60 HRC
- ● Cutting speed: *Vc* = 330 sfm
- ● Depth of cut: *ap* = 0.010 in
- ● Feed: *f* = 0.006 ipr

- ● In continuous cutting, wet cutting is superior to dry cutting in tool life for wear.
- ● In interrupted cutting, dry cutting is superior to wet cutting in tool life for fracture.

T-CBN series for sintered metal

Application area

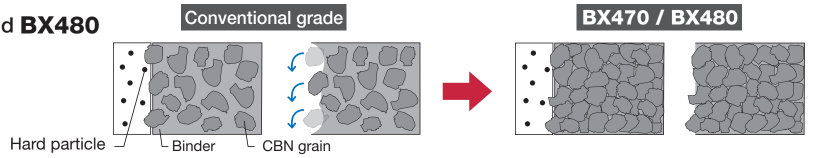


BX470
Priority on burr prevention and surface finish

BX480
Priority on wear resistance and versatility

Features of BX470 and BX480

- Machining of sintered metal with hard particles



Binder phase are selectively worn away by hard particles.
⇨ Wear proceeds with falling-out of CBN grains,

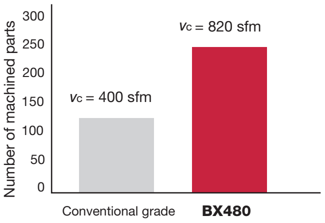
By increasing CBN content, wear of binder layer is suppressed.
⇨Improved wear resistance

- Features of **BX470** and **BX480**

CBN content: 95 vol%
Hv = 4100 ~ 4300

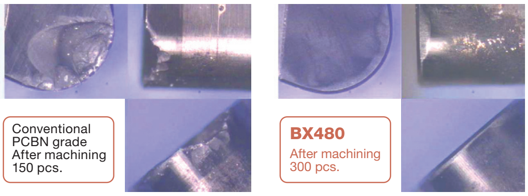
The world highest CBN content as a commercially available material.

BX480 (Facing of gears)



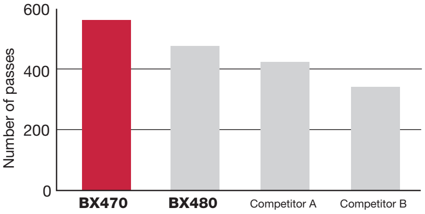
Cutting conditions
- Workpiece material: Sintered metal (> HRA60)
- Insert: DCMW11T308
- Depth of cut: ap = 0.008 ~ 0.020 in
- Feed : *f* = 0.003 ipr
- Coolant : Water soluble type
- Interrupted cutting

BX470/BX480 Tool failure after machining sintered metal



Cutting conditions
- Workpiece material: Sintered metal (> HRA60), Nitriding, Hard particles included
- Cutting speed: *Vc* = 330 sfm
- Depth of cut: *ap* = 0.006 in
- Feed: *f* = 0.004 ipr
- Coolant : Water soluble type
- Interrupted cutting

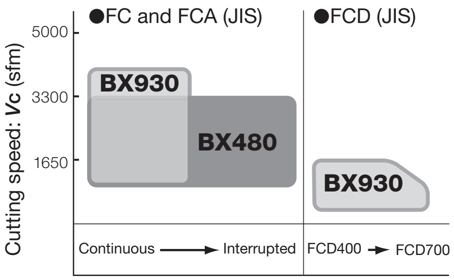
BX470 (Tool life criterion: Burr occurrence)



Cutting conditions
- Workpiece material: Ferrous Sintered metal
- Cutting speed: *Vc* = 330 sfm
- Depth of cut: *ap* = 0.006 ~ 0.012 in
- Feed: *f* = 0.003 ~ 0.009 ipr
- Dry and interrupted cutting

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

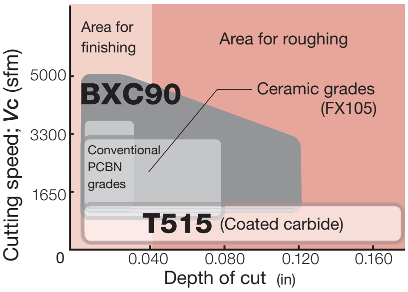
Application area



BX930
- General purpose, first choice grade.
- Dedicated grade for machining ductile Cast iron

BX480
- Suitable for interrupted machining
- Excellent fracture resistance

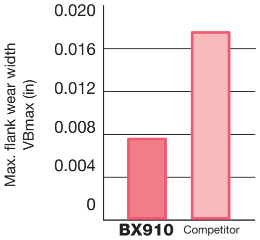
- FC Solid coated T-CBN grades



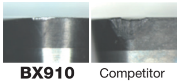
BXC90
- One-piece solid structure
- Applicable for small to large depths of cut

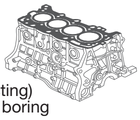
Machining of cylinder liners (Machining example of BX910)

- Wear width after machining 120 pcs.



- Tool failure after machining 120 pcs.

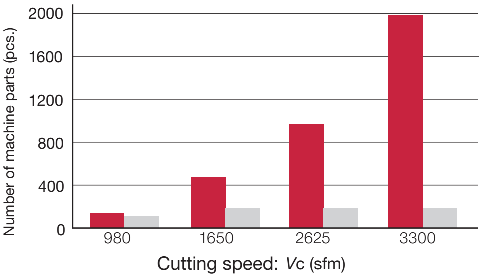




Cutting conditions
- Workpiece material: Cylinder liner (Spin casting) Machining type: Finish boring
- Cutting speed: *Vc* = 3200 sfm
- Machine: Special purpose machine
- Coolant: Wet

BX910 For machining cylinder liners

Tool life comparison in machining of disc brakes



🟥	BXC90
⬜	Ceramic

Cutting conditions
- Workpiece material: Disc rotor (JIS FC250)
- Insert: SNGN 120412 BXC90
- Depth of cut: *ap* = 0.028 in
- Feed: *f* = 0.014 ipr
- Coolant: Dry
- Tool life criterion: Conditions of finished surface

T-CBN Series

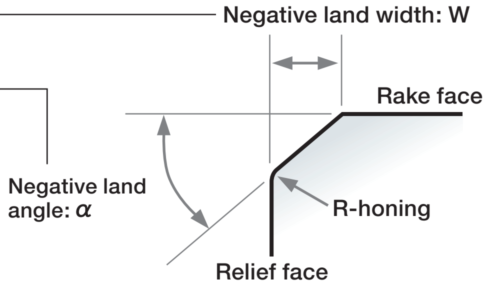
Edge preparation specifications

● 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

S 0 1 3 2 5



Shape	Negative land width: W	Negative land angle: α

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

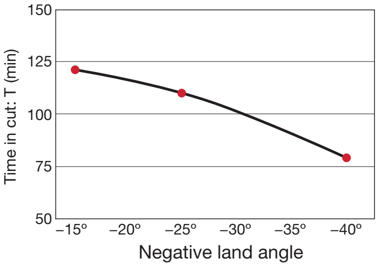
● Symbol

W	Negative land width (mm)
005	0.05
010	0.10
013	0.13
015	0.15
018	0.18

α	Negative land angle
10°	-10°
15°	-15°
20°	-20°
25°	-25°
30°	-30°
35°	-35°
40°	-40°

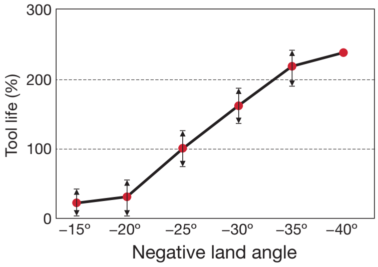
- Edge specification can be selected in combination of items described here.
- Inserts with "R" honing alone are available.

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



Cutting conditions
Workpiece material:
Chromium molybdenum steel
(JIS SCM415), 60 HRC
Insert: TNGN160404 BX360
Cutting speed: *Vc* = 100 m/min
Feed: *f* = 0.15 mm/rev
Depth of cut: *ap* = 0.25 mm
Coolant: Dry
Tool life criterion: VBmax = 0.15 mm
Edge preparation: -□□°+ R-honing

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



Cutting conditions
Workpiece material:
Chromium molybdenum steel
(JIS SCM415), 60 HRC
Insert: TNGN160404 BX360
Cutting speed: *Vc* = 100 m/min
Feed: *f* = 0.15 mm/rev
Depth of cut: *ap* = 0.25 mm
Coolant: Dry
Tool life criterion: Fracture
Edge preparation:
-□□°+ R-honing

•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

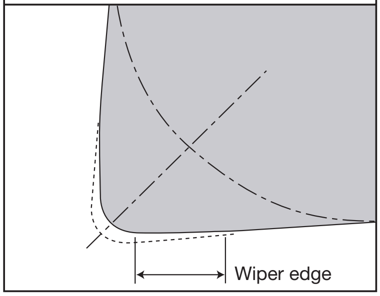
Wiper insert

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

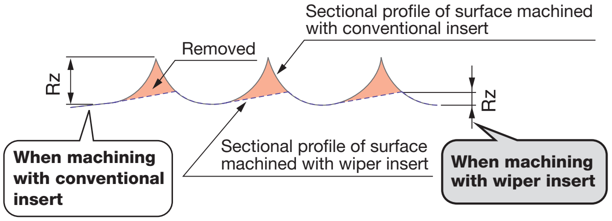
■ Effect of wiper edge

- 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.

Wiper edge geometry



■ 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 ATFNR/L**16-A
	DCLNR/L**12	DWLNR/L**08	DDJNR/L**15	DTGNR/L**16 DTFNR/L**16
Internal toolholder	A**-ACLNR/L12-D...	A**-AWLNR/L08-D...	A**-ADUNR/L15-D...	A**-ATFNR/L16-D...

T-CBN Series

5 edge preparation options covering various hard

Edge preparations turning applications

Negative land angle → Large

Negative land width ↓ Wide

α W (in)	15°	25°	35°
0.002	LF	-	LC
0.005	L	Standard	-
0.007	-	-	H

BXA10 inserts

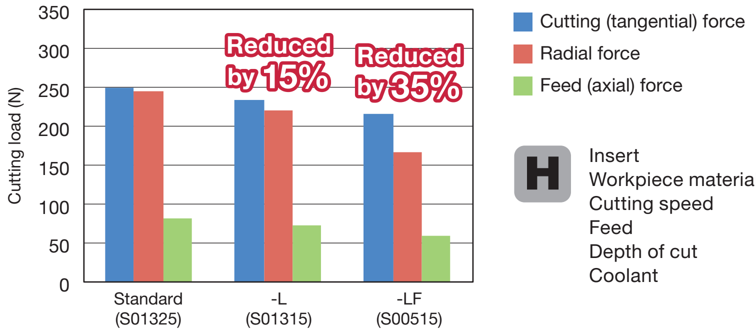
Selections of edge preparations

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

	Problem	Solution
Standard (S01325)	Generates burrs	-LF (S00515)
	Generates flank wear	-L (S01315)
	Generates crater wear	-LC (S00535)
	Generates fractures	-H (S01835)

Cutting loads

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

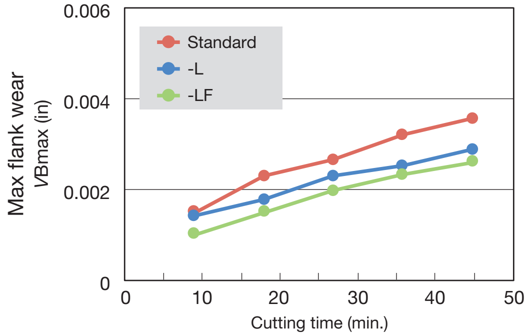


H

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

Flank wear

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

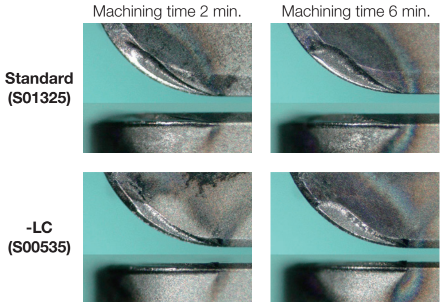


H

Insert : 2QP-CNGA 432
Workpiece material : 4140 (Alloy steel, 60HRC)
Cutting speed : *Vc* = 427 sfm
Feed : *f* = 0.006 ipr
Depth of cut : *ap* = 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

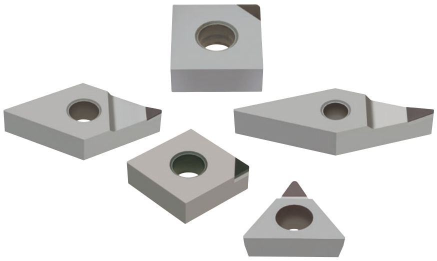


H

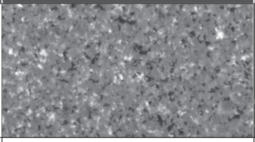
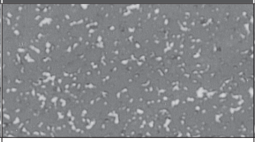
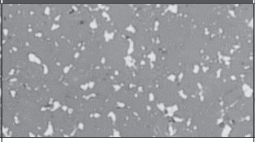
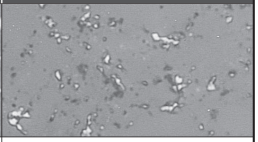
Insert : 2QP-CNGA 432
Workpiece material : 4140 (Alloy steel, 60HRC)
Cutting speed : *Vc* = 656 sfm
Feed : *f* = 0.004 ipr
Depth of cut : *ap* = 0.008"
Coolant : Wet

PCD grade, T-DIA series

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

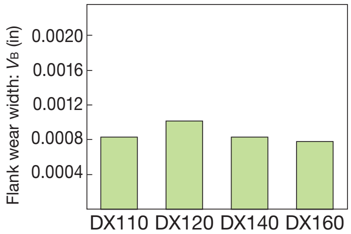


Features and applications (Physical and mechanical properties)

	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)

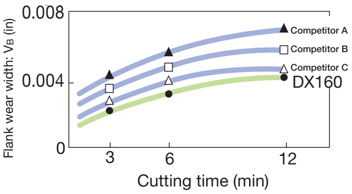
When machining aluminum alloy:



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

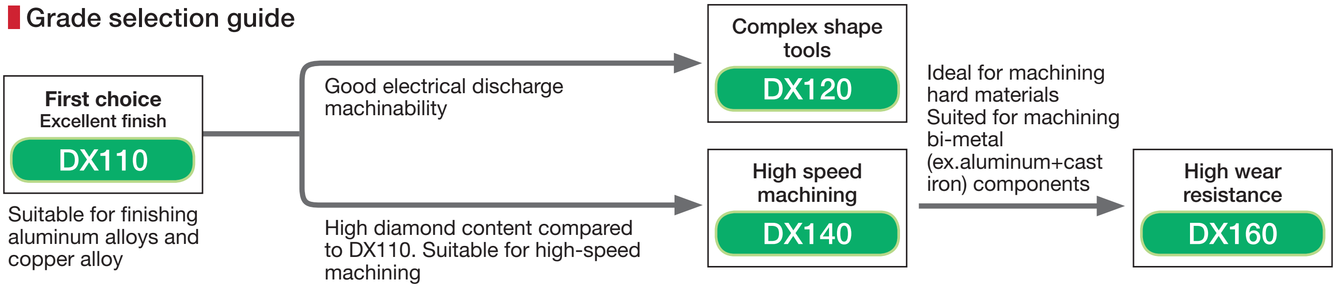
When machining FRP:



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



First choice
Excellent finish
DX110

Suitable for finishing aluminum alloys and copper alloy

Good electrical discharge machinability

High diamond content compared to DX110. Suitable for high-speed machining

Complex shape tools
DX120

High speed machining
DX140

Ideal for machining hard materials
Suited for machining bi-metal (ex.aluminum+cast iron) components

High wear resistance
DX160

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

MEMO