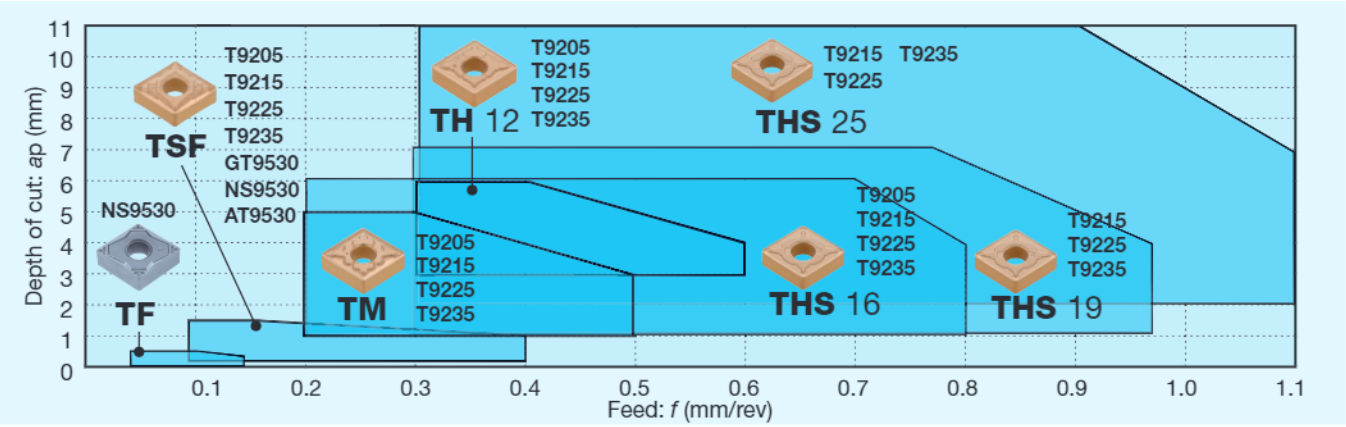
Chipbreaker Guide

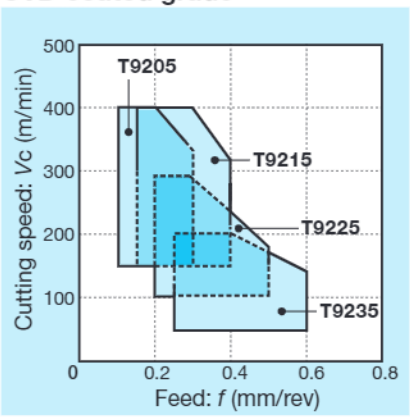
BASIC CHIPBREAKER: NEGATIVE TYPE

P Steel

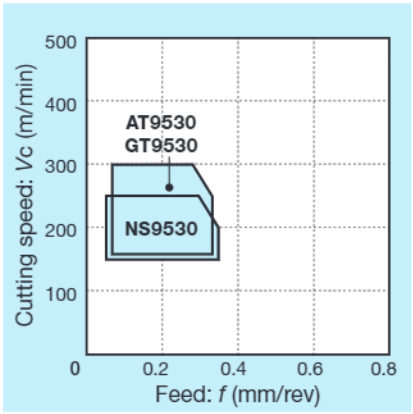
Chipbreaker System for Turning (Negative type)

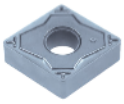


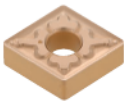
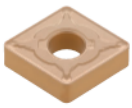
CVD coated grade



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

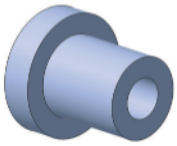
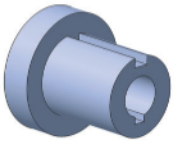
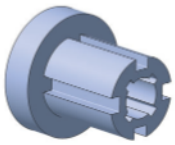
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min) Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous to light interrupted	TF	NS9530	0.05 - 0.5	0.03 - 0.15	150 - 250	100 - 250	100 - 200
	Finishing	Continuous to light interrupted	TSF	GT9530	0.2 - 1.5	0.08 - 0.4	150 - 300	80 - 250	80 - 200
		Continuous to light interrupted	TSF	AT9530	0.2 - 1.5	0.08 - 0.4	150 - 300	80 - 250	80 - 200
		Heavy interrupted	TSF	T9225	0.2 - 1.5	0.08 - 0.4	120 - 300	120 - 300	100 - 250
	Medium cutting	Continuous to heavy interrupted	TM	T9205	1 - 5	0.2 - 0.5	180 - 400	180 - 400	150 - 350
			TM	T9215	1 - 5	0.2 - 0.5	150 - 400	150 - 400	120 - 300
			TM	T9225	1 - 5	0.2 - 0.5	120 - 300	120 - 300	100 - 250
			TM	T9235	1 - 5	0.2 - 0.5	50 - 200	50 - 200	50 - 150
	Medium to heavy cutting	Continuous to heavy interrupted	TH	T9205	3 - 6	0.3 - 0.6	180 - 400	180 - 400	150 - 350
			TH	T9215	3 - 6	0.3 - 0.6	150 - 400	150 - 400	120 - 300
			TH	T9225	3 - 6	0.3 - 0.6	120 - 300	120 - 300	100 - 250
			TH	T9235	3 - 6	0.3 - 0.6	50 - 200	50 - 200	50 - 150

Low carbon steels, Alloy steels: S10C, SCM415, SS400, SCr420H, etc. C10, 18CrMo4, E275A, 20Cr4, etc. Medium carbon steels, Alloy steels: S45C, SCM440, etc. C45, 42CrMo4, etc. High carbon steels, Alloy steels: SNCM439, etc. 41CrNiMo2, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

P Steel

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic **TF NS9530** B030 → Fracture → **TSF GT9530** B030	Basic **TF NS9530** B030 → Fracture → **TSF GT9530** B030	
Finishing [a_p = 0.3 ~ 1.5 mm]	Basic **TSF GT9530** B030 → Chip control → **ZF GT9530** B031	Basic **TSF GT9530** B030 → Fracture → **TSF T9215** B030	Basic **TSF T9225** B030 → Fracture → **TSF T9235** B030
Medium cutting [a_p = 1 ~ 4 mm]	Basic **TM T9215** B032 → Wear → **TM T9205** B032; Chip control → **ZM T9215** B033	Basic **TM T9225** B032 → Fracture → **TM T9235** B032; Wear → **TM T9215** B032	Basic **TM T9235** B032 → Fracture → **DM T9235** B033
Medium to heavy cutting [a_p = 3 ~ 6 mm]	Basic **TH T9215** B036 → Wear → **TH T9205** B036; Chip control → **TM T9215** B032	Basic **TH T9225** B036 → Fracture → **TH T9235** B036; Wear → **TH T9215** B036	Basic **TH T9235** B036 → Fracture → **TUS T9235** B037

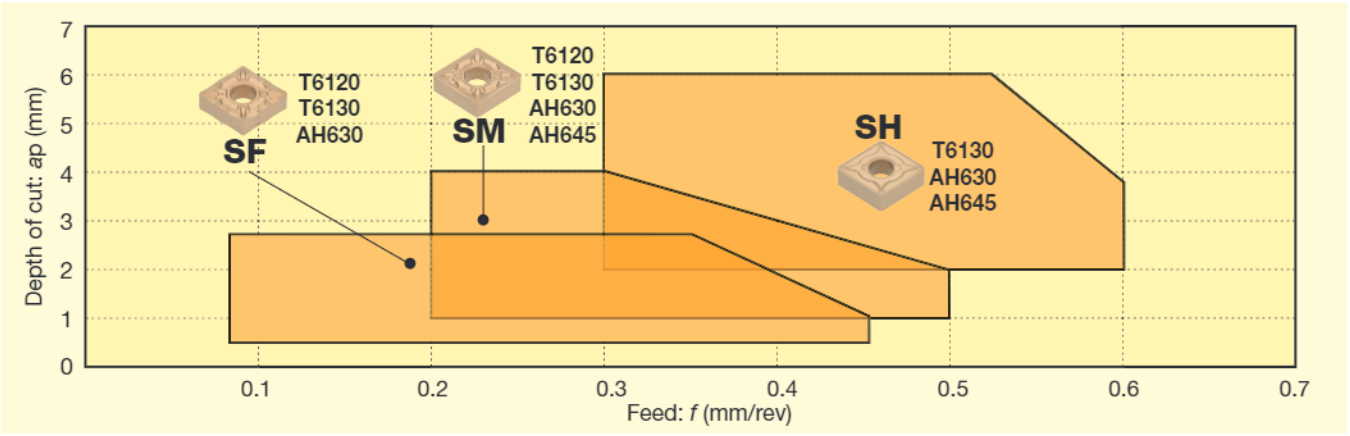
Please see the page B*** for the details.

Chipbreaker Guide

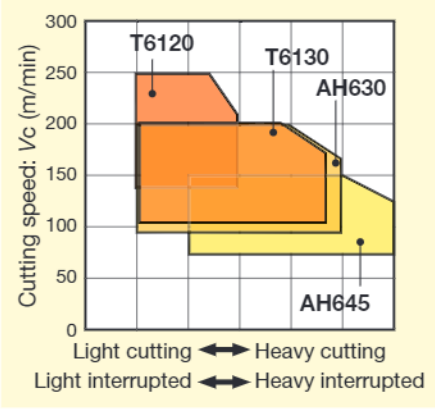
BASIC CHIPBREAKER: NEGATIVE TYPE

M Stainless Steel

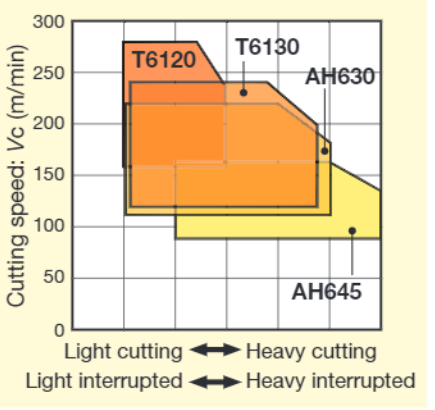
Chipbreaker System for Turning (Negative type)



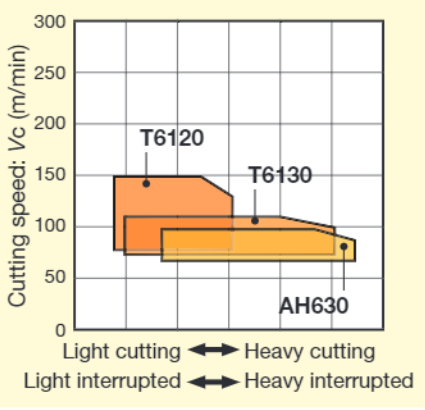
Austenitic stainless steel

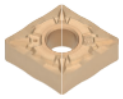
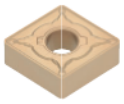


Ferritic / martensite stainless steel



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

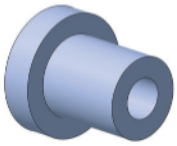
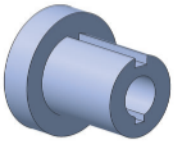
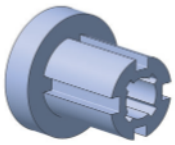
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
M	Finishing	Continuous	SF	T6120	0.5 - 2.5	0.08 - 0.45	140 - 240
		Continuous to light interrupted	SF	T6130	0.5 - 2.5	0.08 - 0.45	100 - 200
		Heavy interrupted	SF	AH630	0.5 - 2.5	0.08 - 0.45	90 - 190
	Medium cutting	Continuous	SM	T6120	1 - 4	0.2 - 0.5	140 - 240
		Continuous to light interrupted	SM	T6130	1 - 4	0.2 - 0.5	100 - 200
		Light interrupted	SM	AH630	1 - 4	0.2 - 0.5	90 - 190
		Heavy interrupted	SM	AH645	1 - 4	0.2 - 0.5	70 - 150
	Medium to heavy cutting	Continuous to light interrupted	SH	T6130	2 - 6	0.3 - 0.6	100 - 200
		Light interrupted	SH	AH630	2 - 6	0.3 - 0.6	90 - 190
		Heavy interrupted	SH	AH645	2 - 6	0.3 - 0.6	70 - 150

Stainless steels: SUS304、SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

M Stainless Steel

	Continuous	Light interrupted	Heavy interrupted
Finishing [a_p = 0.5 ~ 1.5 mm]	Basic **SF T6120** B031 → Fracture → **SF T6130** B031	Basic **SF T6130** B031 → Fracture → **SF AH630** B031; Wear → **SF T6120** B031	Basic **SF AH630** B031 → Fracture → **SF AH645** B031; Wear → **SF T6130** B031
Medium cutting [a_p = 1 ~ 4 mm]	Basic **SM T6130** B035 → Wear → **SM T6120** B035; Chip control → **SF T6130** B031	Basic **SM AH630** B035 → Fracture → **SM AH645** B035; Wear → **SM T6130** B035	Basic **SM AH645** B035 → Fracture → **SH AH645** B037
Medium to heavy cutting [a_p = 2 ~ 6 mm]	Basic **SH T6130** B037 → Fracture → **SH AH630** B037; Wear → **SH T6120** B037; Chip control → **SM T6130** B035	Basic **SH AH630** B037 → Fracture → **SH AH645** B037; Wear → **SH T6130** B037	Basic **SH AH645** B037 → Wear → **SH AH630** B037

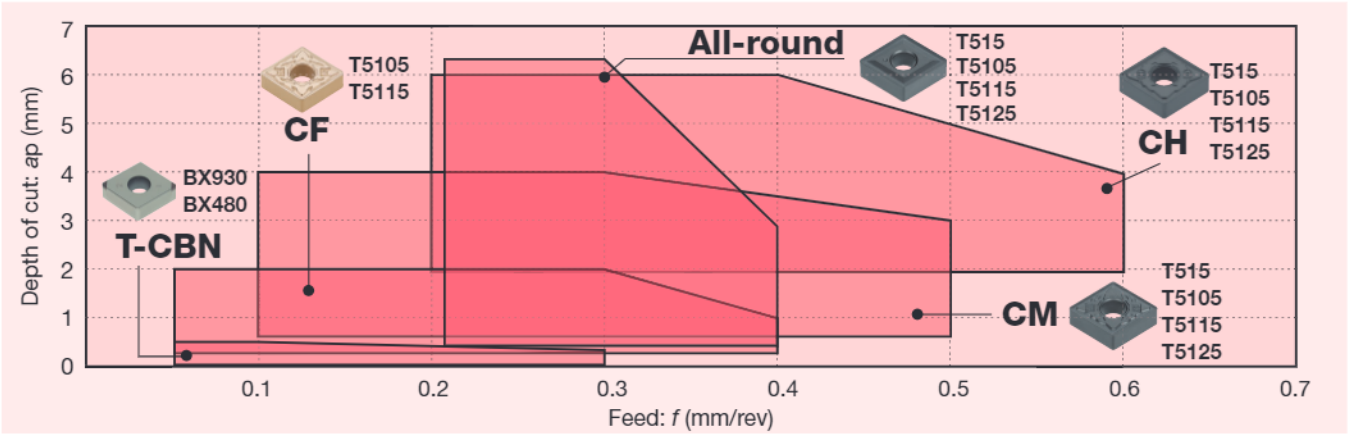
Please see the page B*** for the details.

Chipbreaker Guide

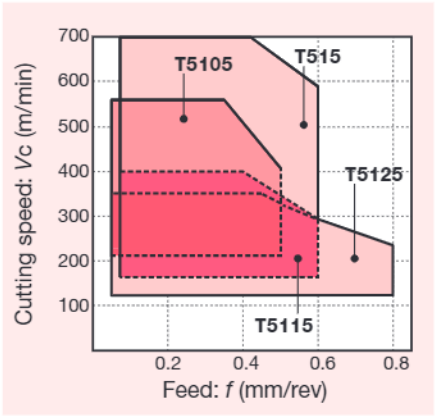
BASIC CHIPBREAKER: NEGATIVE TYPE

K Cast Iron

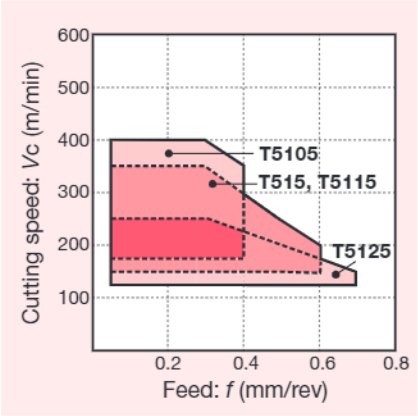
Chipbreaker System for Turning (Negative type)



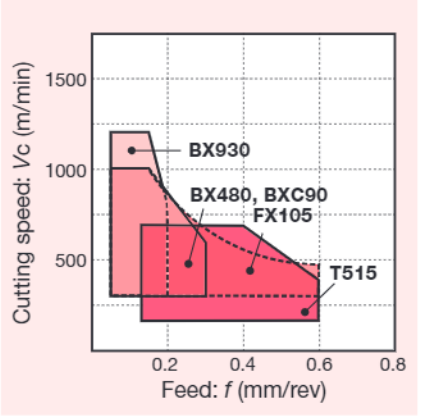
Grey cast iron

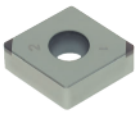
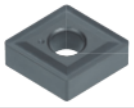


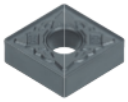
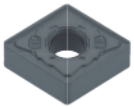
Ductile cast iron



Grey cast iron (high speed cutting)



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

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

STANDARD CUTTING CONDITIONS

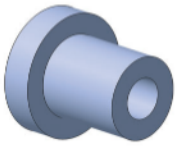
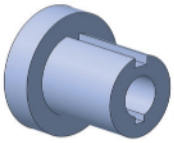
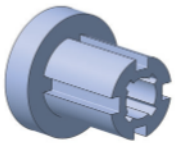
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)	
							Grey cast iron	Ductile cast iron
K	High speed cutting	Continuous	Without	BX930	0.05 - 0.5	0.05 - 0.2	300 - 1200	100 - 500
		Light interrupted	Without	BX480	0.05 - 0.5	0.05 - 0.3	300 - 1000	100 - 300
		Continuous	Without	BXC90	0.08 - 3	0.05 - 0.4	300 - 1000	100 - 300
	Finishing	Continuous	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Light interrupted	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Heavy interrupted	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
	Medium cutting	Continuous	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Light interrupted	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Heavy interrupted	CH	T515	3 - 6	0.2 - 0.6	150 - 700	140 - 370
	Medium to heavy cutting	Continuous	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Light interrupted	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	140 - 370
		Heavy interrupted	CH	T515	3 - 6	0.2 - 0.6	150 - 700	140 - 370

Grey cast iron: FC250, etc. 250, etc. Ductile cast iron: FCD450, etc. 450-10S, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

K Cast Iron

	Continuous	Light interrupted	Heavy interrupted
Finishing [a_p = 0.5 ~ 2 mm]	Basic All-round T515 B033 → Wear: All-round T5105 B033; Burr occurrence: CF T5105 B031	Basic All-round T515 B033 → Wear: All-round T5105 B033; Fracture: CH T515 B037; Burr occurrence: CF T5115 B031	Basic CH T515 B037 → Wear: CH T5105 B037; Fracture: CH T5125 B037; Burr occurrence: All-round T515 B033
Medium cutting [a_p = 1 ~ 5 mm]	Basic All-round T515 B033 → Wear: All-round T5105 B033; Burr occurrence: CF T5105 B031	Basic All-round T515 B033 → Wear: All-round T5105 B033; Fracture: CH T515 B037; Burr occurrence: CF T5115 B031	Basic CH T515 B037 → Wear: CH T5105 B037; Fracture: CH T5125 B037; Burr occurrence: All-round T515 B033
Medium to heavy cutting [a_p = 3 ~ 6 mm]	Basic All-round T515 B033 → Wear: All-round T5105 B033; Burr occurrence: CF T5105 B031	Basic All-round T515 B033 → Wear: All-round T5105 B033; Fracture: CH T515 B037; Burr occurrence: CF T5115 B031	Basic CH T515 B037 → Wear: CH T5105 B037; Fracture: CH T5125 B037; Burr occurrence: All-round T515 B033

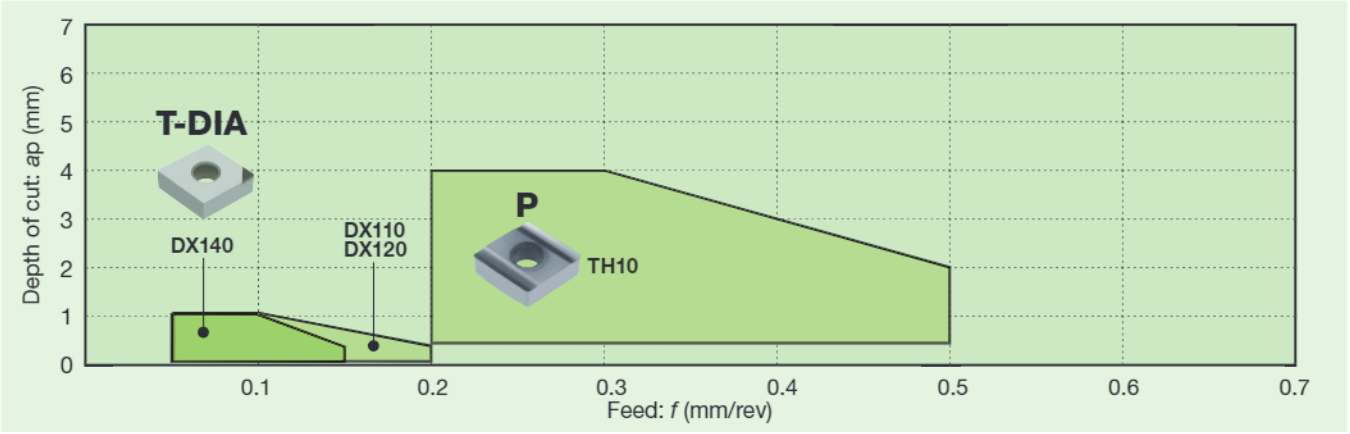
Please see the page B*** for the details.

Chipbreaker Guide

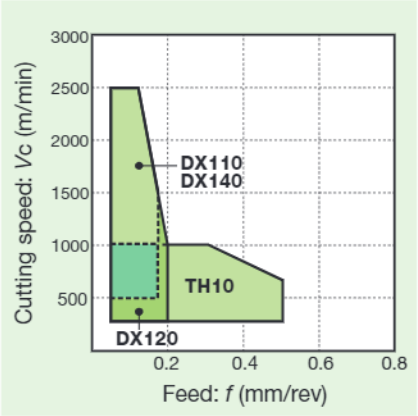
BASIC CHIPBREAKER: NEGATIVE TYPE

N Non-ferrous Metal

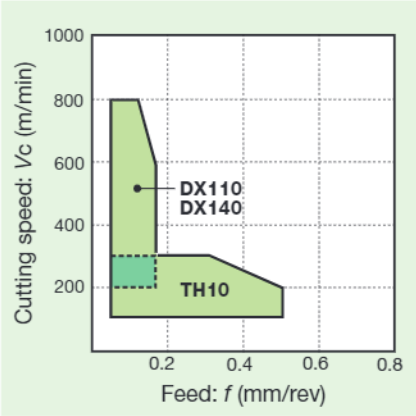
Chipbreaker System for Turning (Negative type)



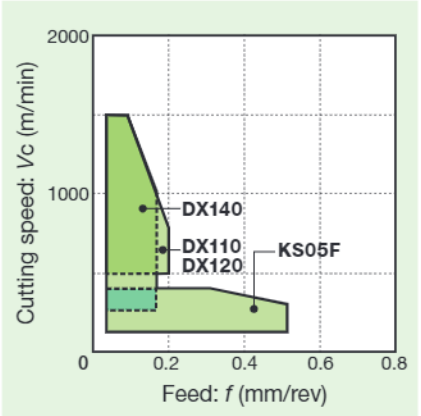
Aluminium alloy (Si < 12%)

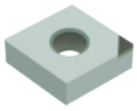
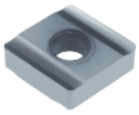


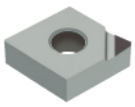
Aluminium alloy (Si ≥ 12%)



Copper alloy



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

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

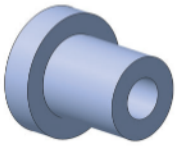
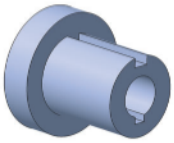
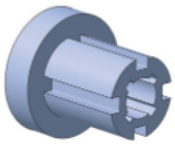
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min) Aluminium alloy (Si < 12%)	Aluminium alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.05 - 0.5	0.05 - 0.15	500 - 2500	400 - 800	500 - 1500
		Light interrupted	Without	DX140	0.05 - 0.5	0.05 - 0.20	300 - 2500	-	500 - 1500
	Finishing	Continuous	Without	DX140	0.05 - 2	0.05 - 0.15	500 - 2500	400 - 800	500 - 1500
		Light interrupted	Without	DX140	0.05 - 2	0.05 - 0.15	300 - 1800	400 - 600	400 - 1200
		Heavy interrupted	P	TH10	0.5 - 4	0.2 - 0.5	100 - 500	100 - 200	100 - 200
	Medium cutting	Continuous	P	TH10	0.5 - 4	0.2 - 0.5	100 - 1000	100 - 300	100 - 300
		Light interrupted	P	TH10	0.5 - 4	0.2 - 0.5	100 - 800	100 - 200	100 - 200
		Heavy interrupted	P	TH10	0.5 - 4	0.2 - 0.5	100 - 500	100 - 200	100 - 200

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

N Non-ferrous Metal

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: With chipbreaker DX110 (B192, B194) → Wear: T-DIA DX140 (B193, B195, B196)	Basic: T-DIA DX140 (B193, B195, B196) → Surface quality: With chipbreaker T-DIA DX110 (B192, B194); Wear: T-DIA DX160 (B193, B196)	
Finishing [a_p = 0.5 ~2 mm]	Basic: T-DIA DX140 (B193, B195, B196) → Surface quality: With chipbreaker T-DIA DX110 (B192, B194); Wear: T-DIA DX160 (B193, B196)	Basic: T-DIA DX140 (B193, B195, B196) → Fracture: P TH10 (B035); Wear: T-DIA DX160 (B193, B196)	Basic: P TH10 (B035)
Medium cutting [a_p = 1 ~ 4 mm]	Basic: P TH10 (B035) → Wear: T-DIA DX140 (B193, B195, B196)	Basic: P TH10 (B035) → Wear: T-DIA DX140 (B193, B195, B196)	Basic: P TH10 (B035)

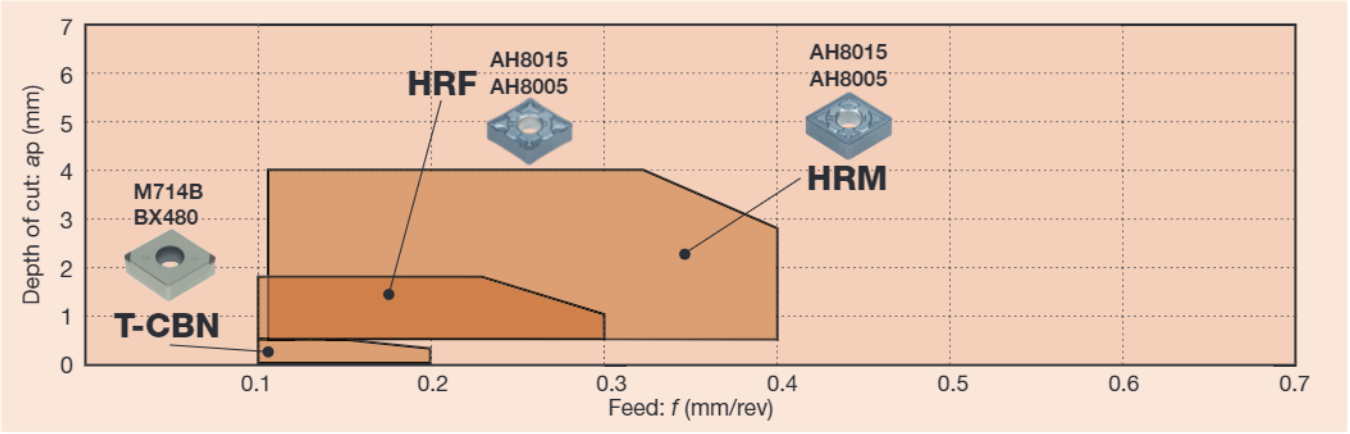
Please see the page B*** for the details.

Chipbreaker Guide

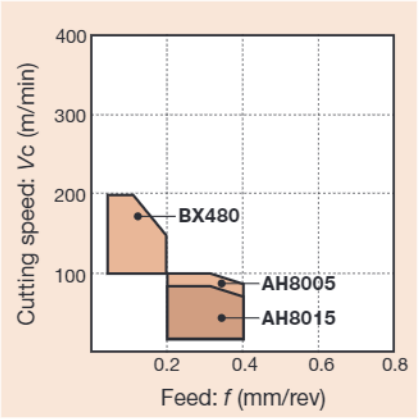
BASIC CHIPBREAKER: NEGATIVE TYPE

S Superalloys and titanium

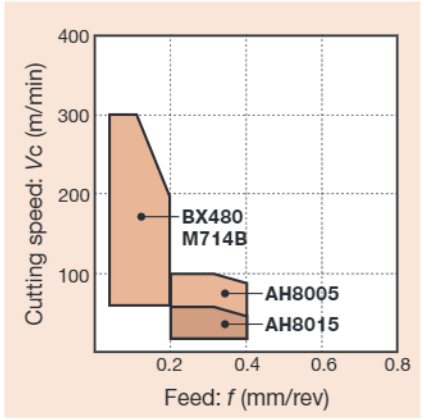
Chipbreaker System for Turning (Negative type)

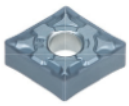
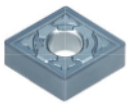


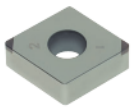
Titanium alloy



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.

STANDARD CUTTING CONDITIONS

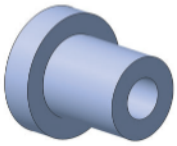
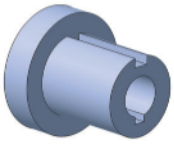
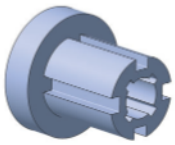
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)	
							Titanium alloy	Ni-base alloy
S	Precision finishing	Continuous	Without	BX480	0.1 - 0.5	0.05 - 0.2	100 - 200	70 - 300
			Without	M714B	0.1 - 0.5	0.05 - 0.2	-	70 - 400
		Light interrupted	Without	BX480	0.1 - 0.5	0.05 - 0.2	100 - 200	-
	Finishing to medium cutting	Continuous	HRF	AH8005	0.5 - 1.5	0.05 - 0.25	20 - 100	20 - 100
		Light interrupted	HRF	AH8015	0.5 - 1.5	0.05 - 0.25	20 - 80	20 - 50
		Heavy interrupted	HRF	AH8015	0.5 - 1.5	0.05 - 0.25	10 - 60	10 - 40
	Medium cutting	Continuous	HRM	AH8005	0.5 - 4	0.1 - 0.4	20 - 100	20 - 100
		Light interrupted	HRM	AH8015	0.5 - 4	0.1 - 0.4	20 - 80	20 - 50
		Heavy interrupted	HRM	AH8015	0.5 - 4	0.1 - 0.4	10 - 60	10 - 40

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

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

S Superalloys and titanium

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: T-CBN BX470 M714B — B170 - B190	Basic: T-CBN BX470 — B170 - B190; Fracture → No chipbreaker TH10 — B038	
Finishing [a_p = 0.5 ~ 1.5 mm]	Basic: HRF AH8005 — B031; Fracture → HRF AH8015 — B031; Chip control → 28 AH8005 — B034	Basic: HRF AH8015 — B031; Fracture → HRM AH8015 — B035; Wear → HRF AH8005 — B031; Chip control → 28 AH8015 — B034	Basic: HRF AH8015 — B031; Fracture → HRM AH8015 — B035; Wear → HRF AH8005 — B031
Medium cutting [a_p = 0.5 ~ 4 mm]	Basic: HRM AH8005 — B035; Fracture → HRM AH8015 — B035; Burr occurrence → HRF AH8015 — B031; Chip control → 28 AH8005 — B034	Basic: HRM AH8015 — B035; Fracture → SM AH630 — B035; Wear → HRM AH8005 — B035; Chip control → 28 AH8015 — B034	Basic: HRM AH8015 — B035; Fracture → SM AH630 — B035; Wear → HRF AH8005 — B031

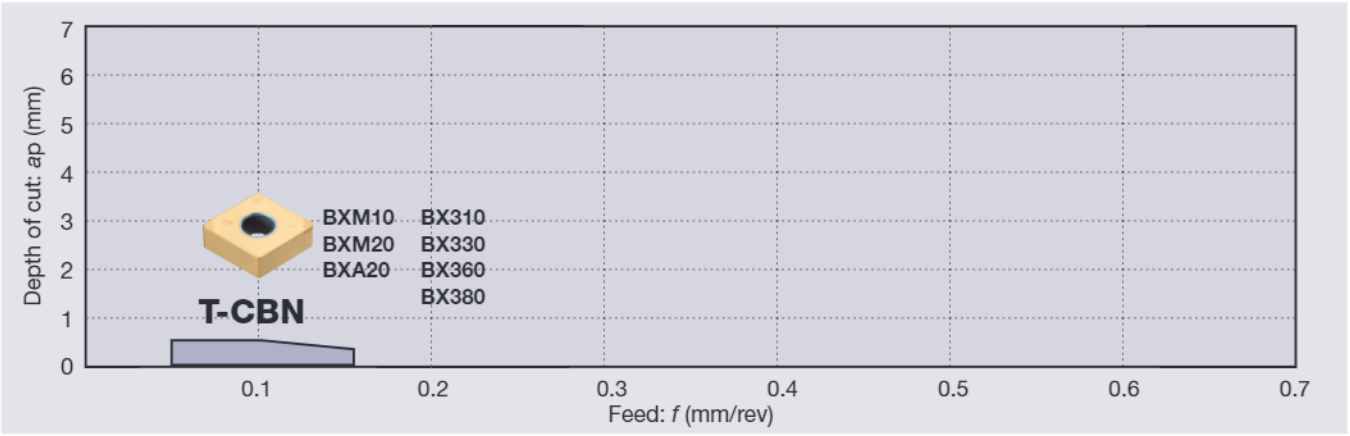
Please see the page B*** for the details.

Chipbreaker Guide

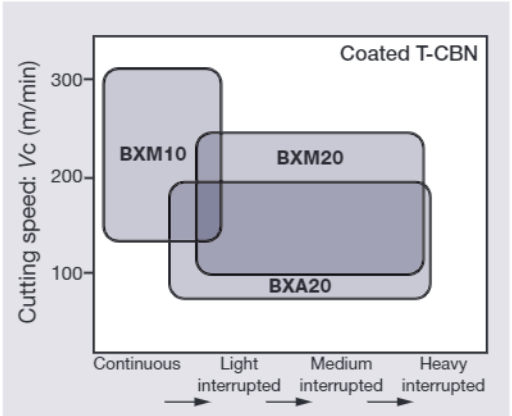
BASIC CHIPBREAKER: NEGATIVE TYPE

H Hard Materials

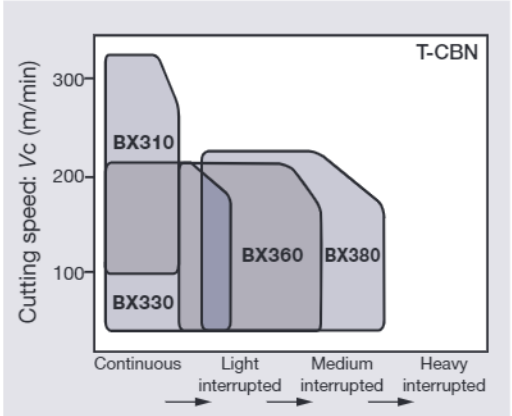
Chipbreaker System for Turning (Negative type)

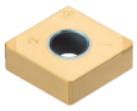


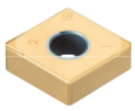
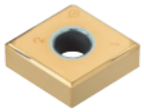
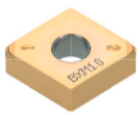
Coated T-CBN



T-CBN



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

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.

STANDARD CUTTING CONDITIONS

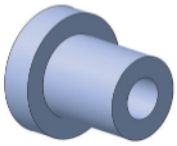
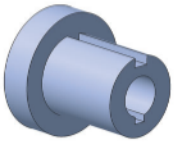
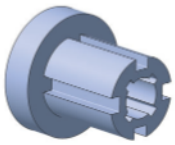
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
H	Precision finishing	Continuous to light interrupted	HP	BXM10 BXA20	0.05 - 0.2	0.03 - 0.18	150 - 350
	Finishing	Continuous to heavy interrupted	Without	BXM10 BXM20 BXA20	0.05 - 0.5	0.05 - 0.25	70 - 220
	Removing of carburized layer	Continuous	HF	BXM20	0.2 - 0.75	0.05 - 0.2	70 - 200
		Continuous	HM	BXM20 BXA20	0.5 - 1	0.05 - 0.2	70 - 200

Hardened steels, Pre-hardened steels: SKD11, SKD61, etc. X153CrMoV12, X40CrMoV5-1, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

H Hard Materials

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.2 mm]	Basic T-CBN HP BXM10 B171 - B179	Basic T-CBN BXA20 B170 - B179 Fracture → -H BXM20 B170 - B179 High-speed wear → T-CBN BXM10 B170 - B179	
Finishing [a_p = ~ 0.5 mm]	Basic T-CBN BXM10 B170 - B179	Basic T-CBN BXA20 B170 - B179 Fracture → -H BXM20 B170 - B179 High-speed wear → T-CBN BXM10 B170 - B179	Basic T-CBN BXM20 B170 - B179 Fracture → -H BXM20 B170 - B179

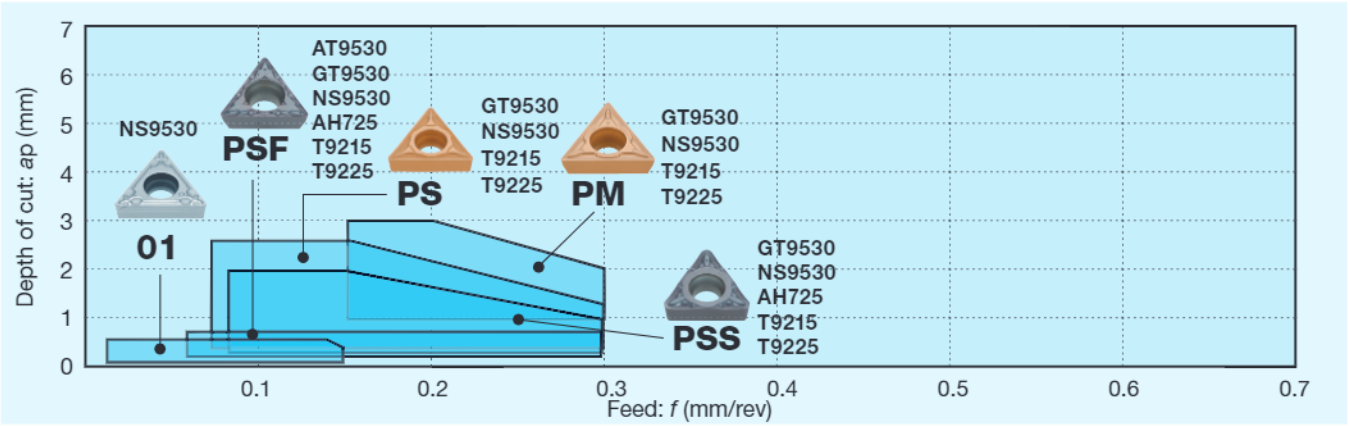
Please see the page B*** for the details.

Chipbreaker Guide

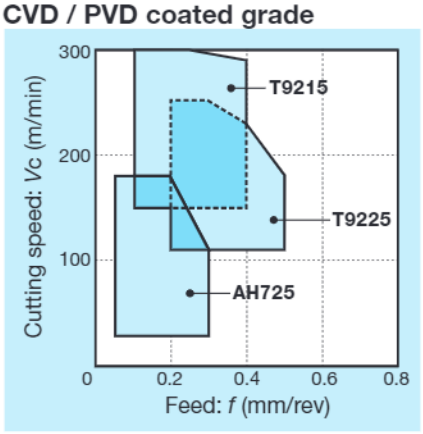
BASIC CHIPBREAKER: POSITIVE TYPE

P Steel

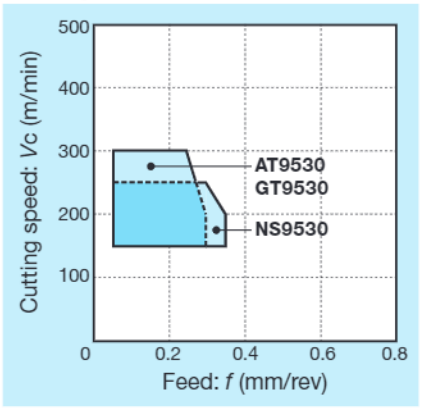
Chipbreaker System for Turning (Positive Type)

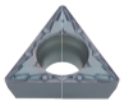
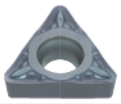


CVD / PVD coated grade



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.

STANDARD CUTTING CONDITIONS

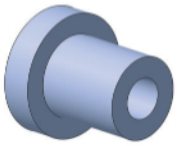
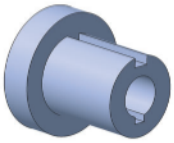
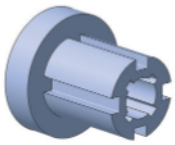
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min) Low carbon steels, Alloy steels	Medium carbon steels, Alloy steels	High carbon steels, Alloy steels
P	Precision finishing	Continuous	01	NS9530	0.05 - 0.5	0.03 - 0.15	150 - 250	80 - 220	80 - 180
		Light interrupted	01	NS9530	0.05 - 0.5	0.03 - 0.15	150 - 250	80 - 220	80 - 180
	Finishing	Continuous	PSS	NS9530	0.1 - 0.5	0.05 - 0.3	150 - 250	80 - 220	80 - 180
		Light interrupted	PSS	NS9530	0.1 - 0.5	0.05 - 0.3	150 - 250	80 - 220	80 - 180
		Heavy interrupted	PSS	NS9530	0.1 - 0.5	0.05 - 0.3	150 - 250	80 - 220	80 - 180
	Finishing to light cutting	Continuous	PS	NS9530	0.3 - 2	0.08 - 0.3	150 - 250	80 - 220	80 - 180
		Light interrupted	PS	NS9530	0.3 - 2	0.08 - 0.3	150 - 250	80 - 220	80 - 180
		Heavy interrupted	PS	NS9530	0.3 - 2	0.08 - 0.3	150 - 250	80 - 220	80 - 180
	Finishing to Medium cutting	Continuous to Heavy interrupted	PS	T9215	0.5 - 2.5	0.08 - 0.3	120 - 350	100 - 350	80 - 250
			PS	T9225	0.5 - 2.5	0.08 - 0.3	100 - 300	80 - 300	80 - 250
	Medium cutting	Continuous to Heavy interrupted	PM	-	1 - 3	0.15 - 0.3	150	100 - 200	80 - 180
			PM	-	1 - 3	0.15 - 0.3	120	80 - 180	80 - 120

Low carbon steels, Alloy steels: S10C, SCM415, SS400, SCr420H, etc. C10, 18CrMo4, E275A, 20Cr4, etc. Medium carbon steels, Alloy steels: S45C, SCM440, etc. C45, 42CrMo4, etc. Hi carbon steels, Alloy steels: SNCM439, etc. 41CrNiMo2, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

P Steel

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: 01 NS9530 — B040, B045	Basic: 01 NS9530 — B040, B045 Fracture: PSF NS9530 — B040, B045, B049	
Finishing [a_p = 0.1 ~ 0.5 mm]	Basic: PSS NS9530 — B040, B045, B049 Wear: PSS GT9530 — B040, B045, B049 Fracture: PS NS9530 — B040, B045, B049 Chip control: PSF NS9530 — B040, B045, B049	Basic: PSS NS9530 — B040, B045, B049 Wear: PSS GT9530 — B040, B045, B049 Fracture: PS NS9530 — B040, B045, B049 Chip control: PSF NS9530 — B040, B045, B049	Basic: PSS NS9530 — B040, B045, B049 Wear: PSS GT9530 — B040, B045, B049 Fracture: PS NS9530 — B040, B045, B049 Chip control: PSF NS9530 — B040, B045, B049
Finishing to medium cutting [a_p = 0.5 ~ 2.5 mm]	Basic: PS T9215 — B040, B045, B049 Fracture: PS T9215 — B040, B045, B049 Wear: PS NS9530 — B040, B045, B049	Basic: PS T9215 — B040, B045, B049 Fracture: PS T9215 — B040, B045, B049 Wear: PS NS9530 — B040, B045, B049	Basic: PS T9215 — B040, B045, B049 Fracture: PM T9215 — B042, B046 Chip control: TSF T9215 — B040, B045
Medium cutting [a_p = 1 ~ 3 mm]	Basic: PM T9215 — B042, B046 Wear: PM NS9530 — B042, B046	Basic: PM T9215 — B042, B046 Fracture: PM T9215 — B042, B046	Basic: PM T9215 — B042, B046 Chip control: TM T9215 — B041, B045

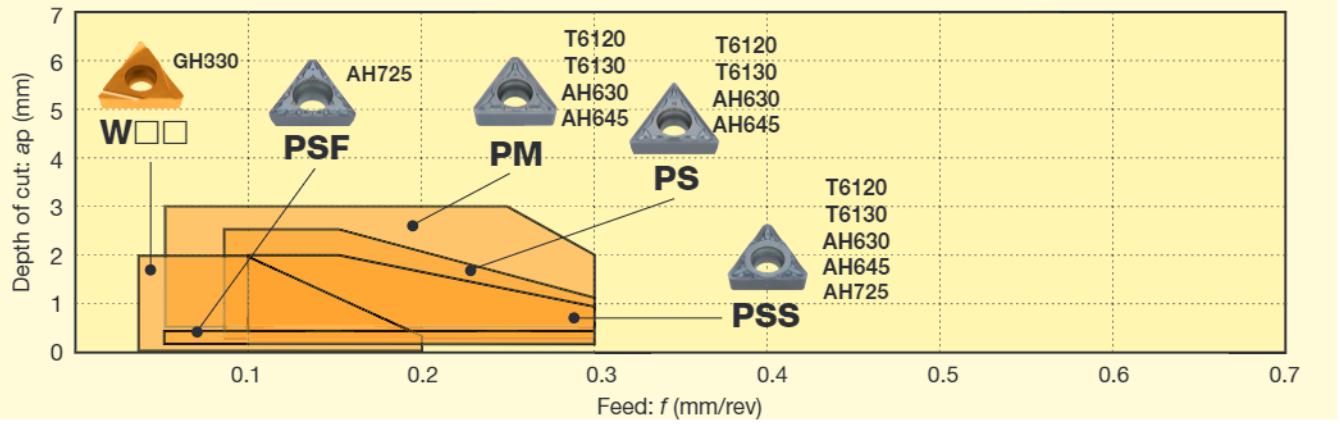
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

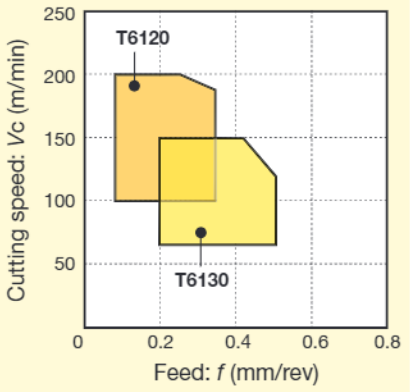
BASIC CHIPBREAKER: POSITIVE TYPE

M Stainless Steel

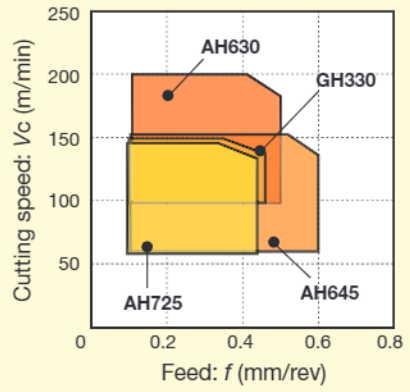
Chipbreaker System for Turning (Positive Type)

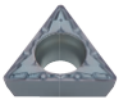


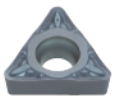
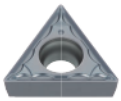
CVD coated grade



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

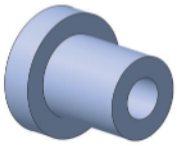
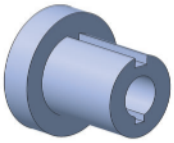
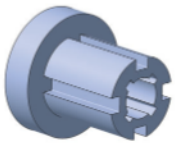
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
M	Precision finishing	Continuous	W□□	GH330	0.05 - 2.0	0.03 - 0.2	100 - 150
	Finishing	Continuous	PSF	AH725	0.1 - 0.5	0.05 - 0.3	50 - 150
		Light interrupted	PSF	AH725	0.1 - 0.5	0.05 - 0.3	50 - 150
		Heavy interrupted	PSF	AH725	0.1 - 0.5	0.05 - 0.3	50 - 120
	Finishing to light cutting	Continuous	PSS	AH630	0.3 - 2	0.08 - 0.3	90 - 190
		Light interrupted	PSS	AH630	0.3 - 2	0.08 - 0.3	90 - 190
		Heavy interrupted	PSS	AH630	0.3 - 2	0.08 - 0.3	90 - 190
	Finishing to medium cutting	Continuous	PS	T6130	0.5 - 2.5	0.08 - 0.3	100 - 200
		Light interrupted	PS	AH630	0.5 - 2.5	0.08 - 0.3	90 - 190
		Heavy interrupted	PS	AH630	0.5 - 2.5	0.08 - 0.3	90 - 190
	Medium cutting	Continuous	PM	T6130	1 - 3*	0.15 - 0.3	100 - 200
		Light interrupted	PM	AH630	1 - 3*	0.15 - 0.3	90 - 190
		Heavy interrupted	PM	AH630	1 - 3*	0.15 - 0.3	90 - 190

* For CCMT0602 and DCMT0702 type inserts, *ap* = 0.5 - 2.5
Stainless steels: SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

M Stainless Steel

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: W□□ GH330 — B041, B046, B049	Basic: W□□ GH330 — B041, B046, B049	
Finishing [a_p = 0.3 ~ 1.5 mm]	Basic: PSF AH725 — B040, B045, B049 Wear: PSS T6130 — B040, B045, B049	Basic: PSF AH725 — B040, B045, B049 Fracture: PSS AH630 — B040, B045, B049 Wear: PSS T6130 — B040, B045, B049	Basic: PSF AH725 — B040, B045, B049 Fracture: PSS AH630 — B040, B045, B049
Finishing to medium cutting [a_p = 0.5 ~ 2.5 mm]	Basic: PSS AH630 — B040, B045, B049 Wear: PS T6130 — B040, B045, B049	Basic: PS AH630 — B040, B045, B049 Fracture: PM AH645 — B042, B046 Wear: PS T6130 — B040, B045, B049	Basic: PS AH630 — B040, B045, B049 Fracture: PM AH645 — B042, B046 Wear: PS T6130 — B040, B045, B049
Medium cutting [a_p = 1 ~ 3 mm]	Basic: PM T6130 — B042, B046	Basic: PM AH630 — B042, B046 Fracture: PM AH645 — B042, B046 Wear: PM T6130 — B042, B046	Basic: PM AH630 — B042, B046 Fracture: PM AH645 — B042, B046

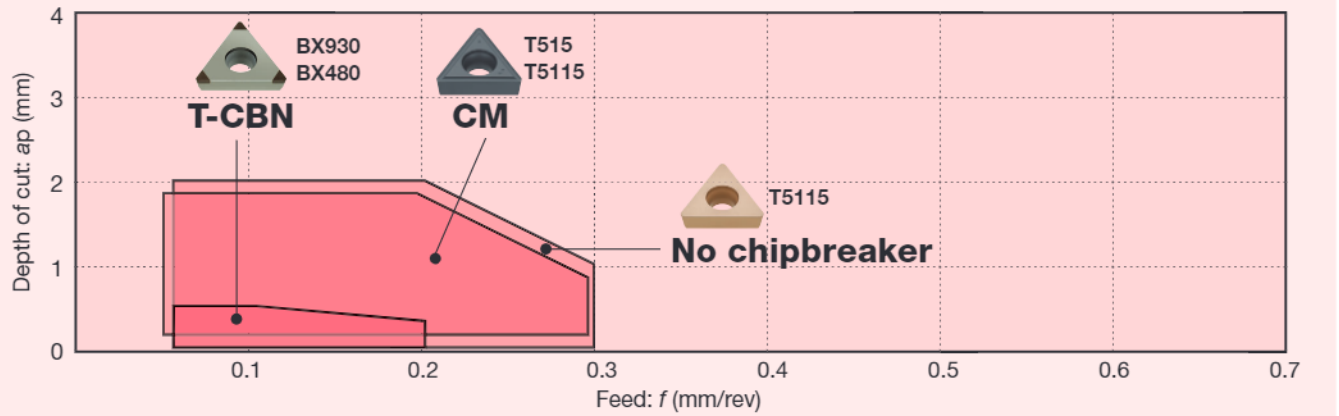
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

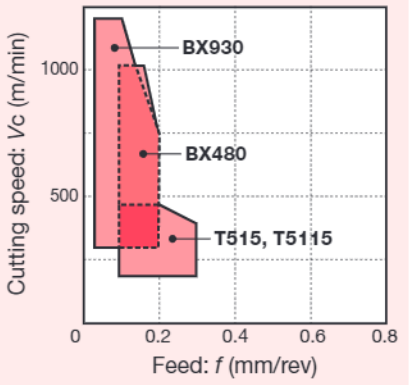
BASIC CHIPBREAKER: POSITIVE TYPE

K Cast Iron

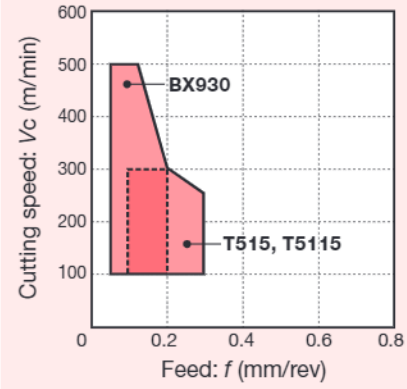
Chipbreaker System for Turning (Positive Type)

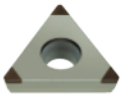


Grey cast iron



Ductile cast iron



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

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

STANDARD CUTTING CONDITIONS

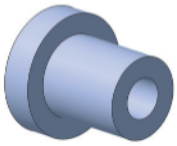
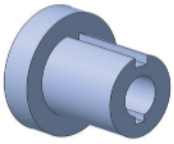
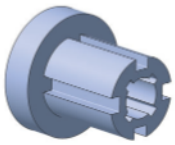
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)	
							Grey cast iron	Ductile cast iron
K	Precision finishing	Continuous	Without	BX930	0.05 - 0.5	0.05 - 0.2	300 - 1200	100 - 500
		Light interrupted	Without	BX480	0.05 - 0.5	0.05 - 0.2	300 - 800	100 - 300
		Light interrupted	Without	BX470	0.05 - 0.5	0.05 - 0.2	300 - 800	100 - 300
	Finishing	Continuous	CM	T515	0.05 - 2	0.05 - 0.3	150 - 700	150 - 300
		Heavy interrupted	CM	T515	0.05 - 2	0.05 - 0.3	100 - 200	100 - 200
	Medium cutting	Light interrupted	CM	T515	0.05 - 2	0.05 - 0.3	100 - 300	100 - 250

Grey cast iron: FC250, etc. 250, etc.
Ductile cast iron: FCD450, etc. 450-10S, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

K Cast Iron

	Continuous	Light interrupted	Heavy interrupted
Finishing to Medium cutting [a_p = 0.5 ~ 3 mm]	Basic CM T515 B042, B046, B049 Wear → T-CBN BX930 B184 -	Basic CM T515 B042, B046, B049	Basic CM T515 B042, B046, B049

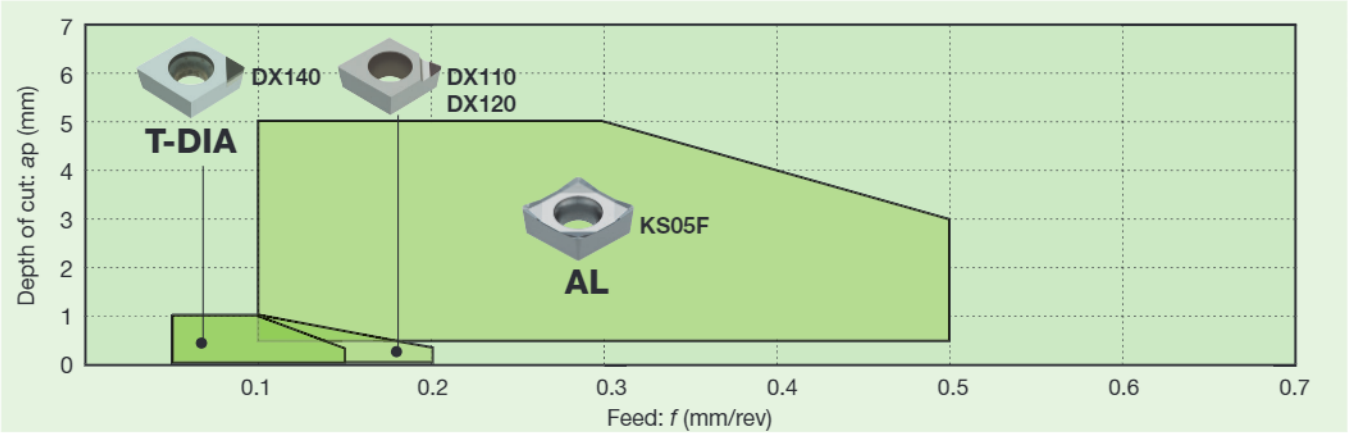
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

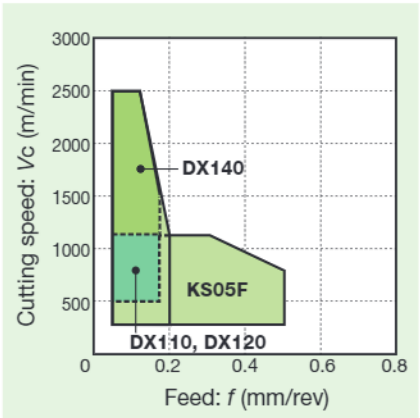
BASIC CHIPBREAKER: POSITIVE TYPE

N Non-ferrous Metal

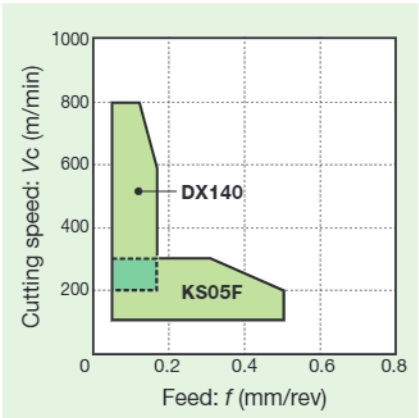
Chipbreaker System for Turning (Positive Type)



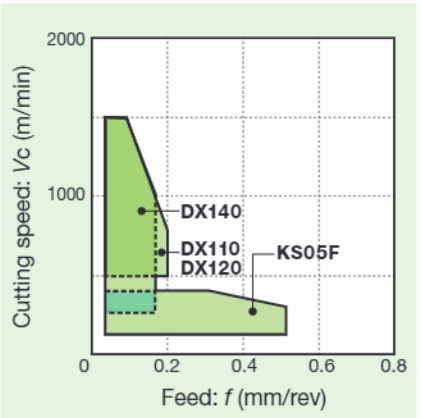
Aluminium alloy (Si < 12%)

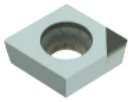


Aluminium alloy (Si ≥ 12%)



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.

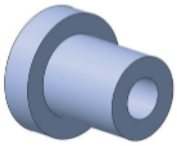
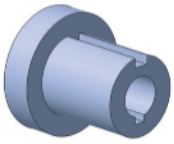
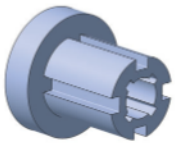
STANDARD CUTTING CONDITIONS

ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)		
							Aluminium alloy (Si < 12%)	Aluminium alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	With	DX110	0.05 - 1	0.05 - 0.15	500 - 2500	400 - 800	500 - 1500
		Light interrupted	Without	DX140	0.05 - 1	0.05 - 0.2	300 - 2500	-	500 - 1500
	Finishing	Continuous	Without	DX140	0.05 - 1	0.05 - 0.15	500 - 2500	400 - 800	500 - 1500
		Light interrupted	Without	DX140	0.05 - 1	0.05 - 0.15	300 - 1800	400 - 600	400 - 1200
		Heavy interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 600	100 - 200	-
	Medium cutting	Continuous	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 1200	100 - 300	100 - 300
		Light interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 900	100 - 200	100 - 200
		Heavy interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 600	100 - 200	-

Selection System

SELECTION SYSTEM: POSITIVE TYPE

N Non-ferrous Metal

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: With chipbreaker DX110 (B192, B194) → Wear: T-DIA DX140 (B193, B195, B196)	Basic: With chipbreaker DX110 (B192, B194) → Wear: T-DIA DX140 (B193, B195, B196)	
Finishing [a_p = 0.5 ~ 2 mm]	Basic: T-DIA DX140 (B193, B195, B196) → Wear: T-DIA DX160 (B193, B196); Chip control: With chipbreaker T-DIA DX110 (B192, B194)	Basic: T-DIA DX140 (B193, B195, B196) → Fracture: AL KS05F (B042); Wear: T-DIA DX160 (B193, B196)	Basic: AL KS05F (B042)
Medium cutting [a_p = 1 ~ 5 mm]	Basic: AL KS05F (B042) → Wear: With chipbreaker T-DIA DX120 (B192, B194 - B193)	Basic: AL KS05F (B042) → Wear: T-DIA DX140 (B193, B195, B196)	Basic: AL KS05F (B042)

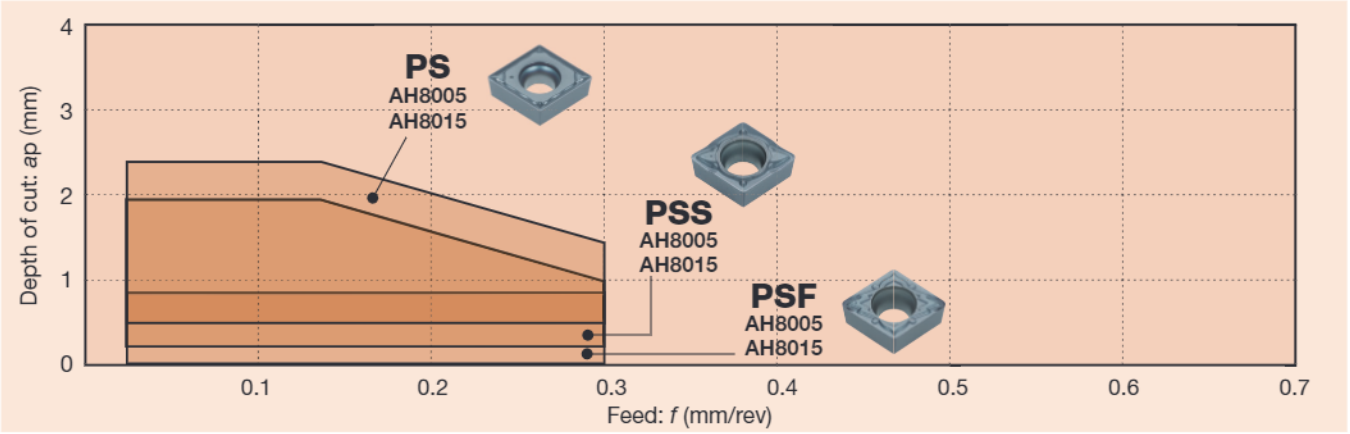
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

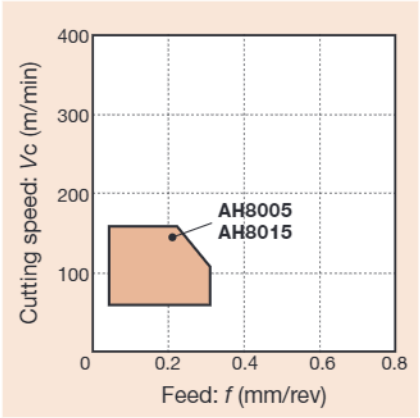
BASIC CHIPBREAKER: POSITIVE TYPE

S Superalloys and titanium

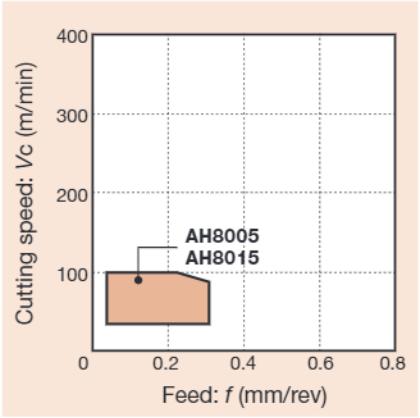
Chipbreaker System for Turning (Positive Type)

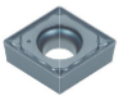


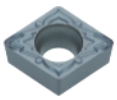
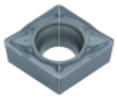
Titanium alloy



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

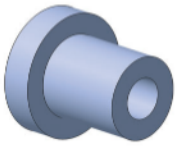
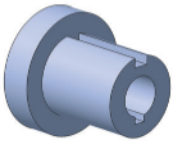
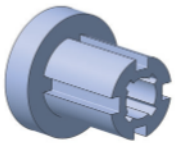
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)	
							Titanium alloy	Ni-base alloy
S	Finishing	Continuous	PSS	AH8015	0.3 - 2	0.02 - 0.3	20 - 150	20 - 100
		Light interrupted	PSS	AH8015	0.3 - 2	0.02 - 0.3	20 - 150	20 - 100
	Finishing to medium cutting	Continuous	PS	AH8015	0.5 - 2.5	0.02 - 0.3	20 - 150	20 - 100
		Light interrupted	PS	AH8015	0.5 - 2.5	0.02 - 0.3	20 - 150	20 - 100

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

Selection System

SELECTION SYSTEM: POSITIVE TYPE

S Superalloys and titanium

	Continuous	Light interrupted	Heavy interrupted
Finishing [a_p = 0.3 ~ 2 mm]	Basic: PSS AH8015 (B040, B045, B049) → Wear: PSS AH8005 (B042, B045, B049)	Basic: PSS AH8015 (B040, B045, B049) → Wear: PSS AH8005 (B040, B045, B049); Fracture: PS AH8015 (B040, B045, B049)	
Finishing to medium cutting [a_p = 0.5 ~ 2.5 mm]	Basic: PS AH8015 (B040, B045, B049) → Wear: PSS AH8005 (B040, B045, B049)	Basic: PS AH8015 (B040, B045, B049) → Fracture: All-round AH8015 (B042, B047)	Basic: PS AH8015 (B040, B045, B049) → Fracture: All-round AH8015 (B042, B047)

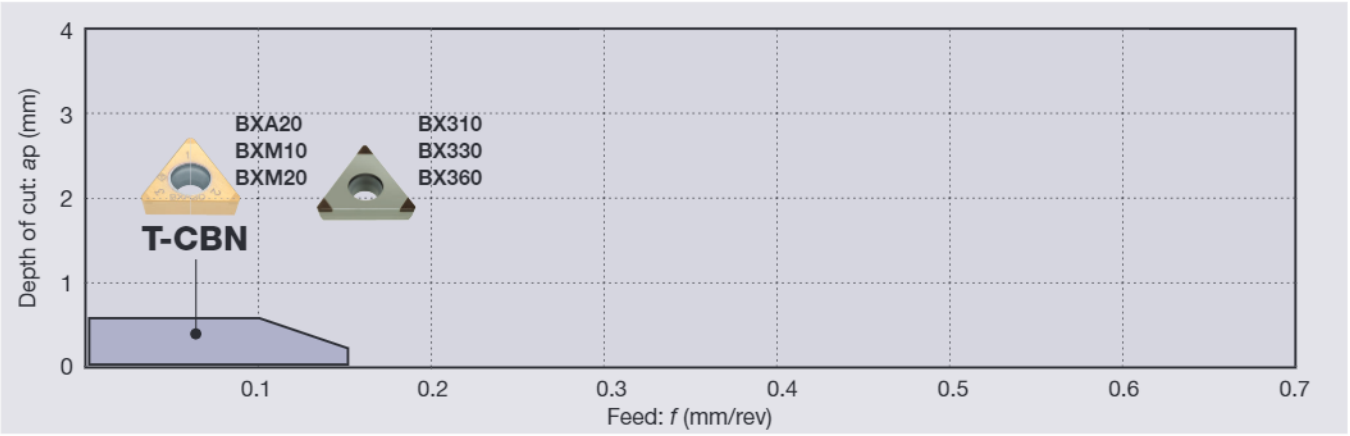
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

Chipbreaker Guide

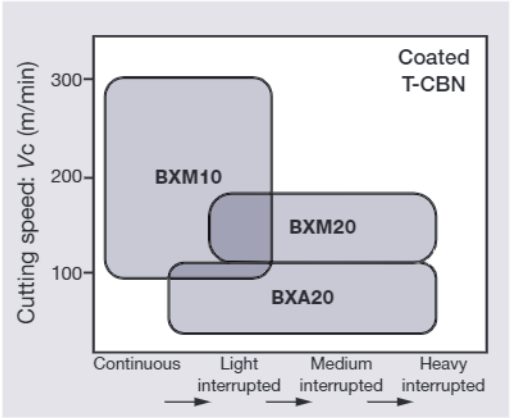
BASIC CHIPBREAKER: POSITIVE TYPE

H Hard Materials

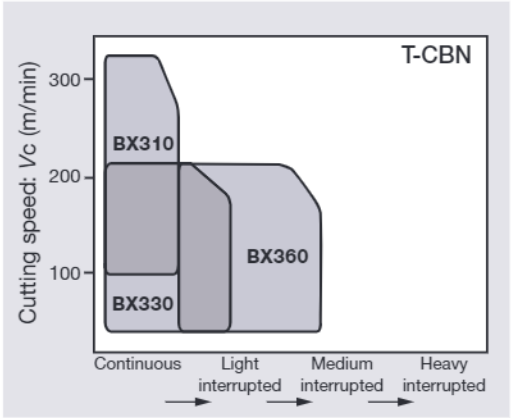
Chipbreaker System for Turning (Positive Type)



Coated T-CBN



T-CBN



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.

STANDARD CUTTING CONDITIONS

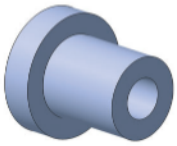
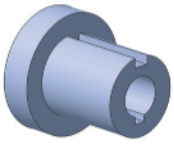
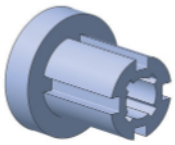
ISO	Operation	Work condition	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
H	Precision finishing	Continuous	HP	BXM10	0.05 - 0.2	0.03 - 0.15	150 - 350
		Light interrupted	Without	BXM20 BXA20	0.05 - 0.2	0.03 - 0.15	70 - 220
	Finishing	Continuous to heavy interrupted	Without	BXM20 BXA20	0.07 - 0.5	0.05 - 0.3	70 - 220

Hardened steels, Pre-hardened steels: SKD11, SKD61, etc. X153CrMoV12, X40CrMoV5-1, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

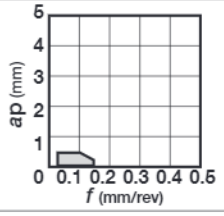
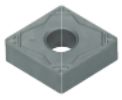
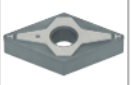
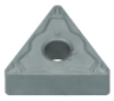
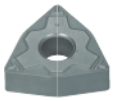
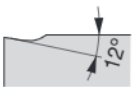
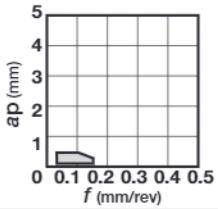
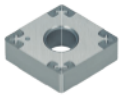
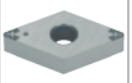
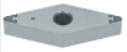
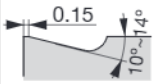
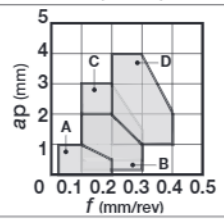
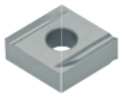
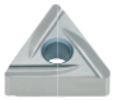
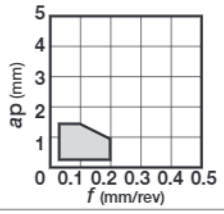
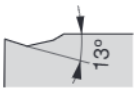
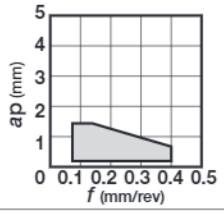
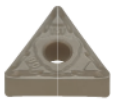
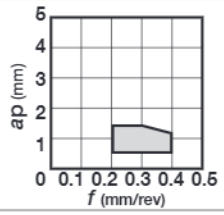
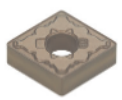
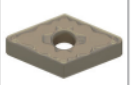
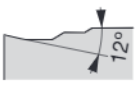
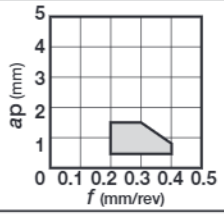
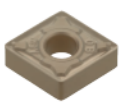
H Hard Materials

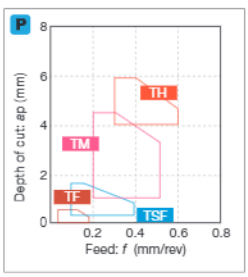
	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.3 mm]	Basic T-CBN HP BXM10 B180 - B190	Basic T-CBN BXM10 B180 - B190 Fracture T-CBN BXA20 B180 -	
Finishing [a_p = ~ 0.5 mm]	Basic T-CBN BXM10 B180 - B190	Basic T-CBN BXM10 B180 - B190 Fracture T-CBN BXA20 B180 - B190	Basic T-CBN BXM20 B180 - B190 Fracture T-CBN BXA20 B180 - B190

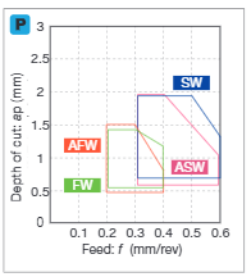
Please find the details on the pages: B***/7° relief angle, B***/11° relief angle, B***/5° relief angle.

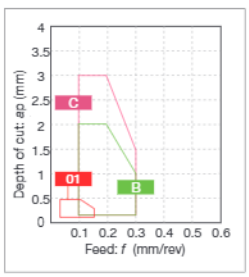
Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Precision finishing	TF  	 B054	 B065	 B075	 B084	 B094	 B099	
	01  	 B054	 B065	 B075	 B084	 B094	 B099	
	A~D  	 B054		 B075	 B084			
	W  				 B085			
Finishing	TSF  	 B054	 B065	 B075	 B085	 B095	 B100	
Finishing (wiper)	FW  	 B054	 B065		 B085		 B100	
	AFW  	 B054					 B100	

Chip control range





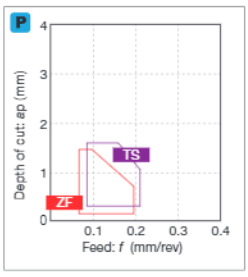


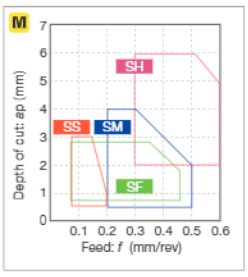
Please see the page B*** for the product details.

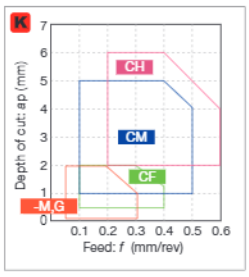
Chipbreaker Overview

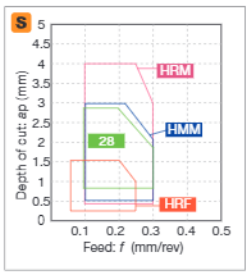
Application	Negative type with hole	C	D	S	T	V	W	Y
		80°	55°	90°	60°	35°	80°	25°
Finishing	ZF	B055	B066		B085	B095	B100	B107
Finishing	11	B055	B066	B076	B086	B095	B100	
Finishing (for mild steel)	17	B055	B066	B076	B086		B100	
Finishing	SF	B055	B066	B076	B086	B095	B101	
Finishing	CF	B055	B066	B076	B086	B096	B101	
Finishing	HRF	B056	B066	B076	B086	B096	B101	
Finishing	TS	B056	B067	B076	B087	B096	B101	

Chip control range





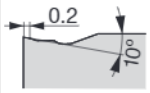
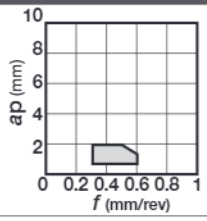
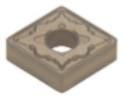
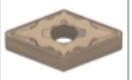
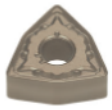
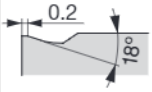
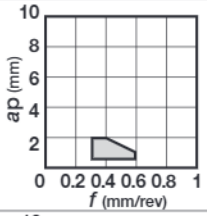
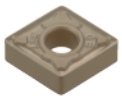
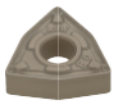
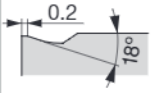
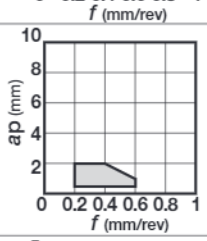
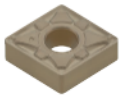
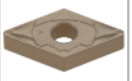
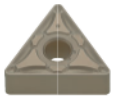
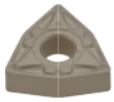
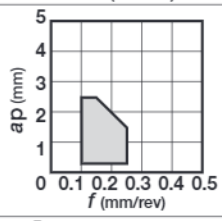
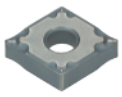
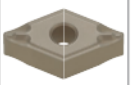
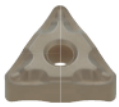
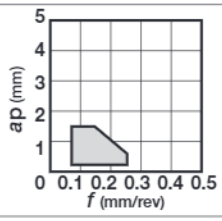
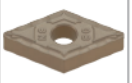
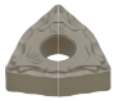
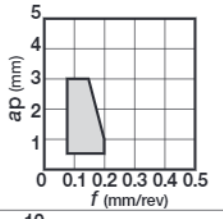
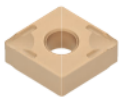
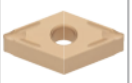
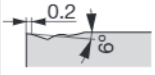
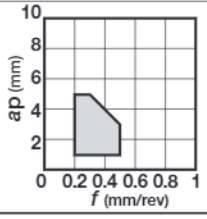
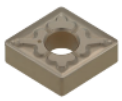
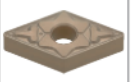
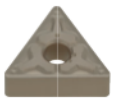
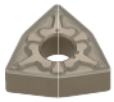




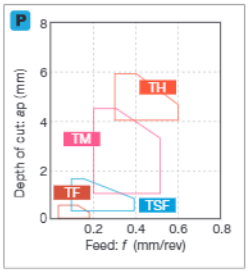
Please see the page B*** for the product details.

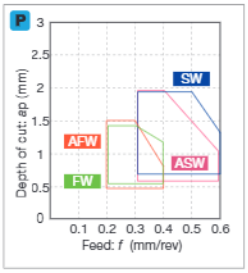
*-M,G: Without chipbreaker

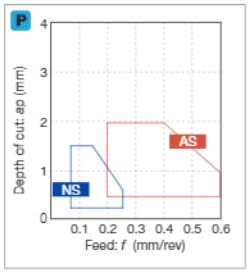
Chipbreaker Overview

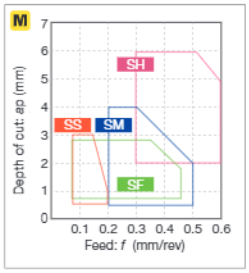
Application	Negative type with hole	C	D	S	T	V	W	Y
								
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting (wiper)	**SW**  	 B056	 B067		 B087		 B102	
	ASW  	 B056					 B102	
High feed, small depth of cut	**AS**  	 B056	 B067	 B076	 B087		 B102	
Boring (double side)	**CB**  	 B056	 B067		 B087		 B102	
Finishing	**NS**  	 B056	 B067	 B077	 B087		 B102	
	SS  	 B057	 B068	 B077	 B088	 B096	 B102	
Medium cutting	**TM**  	 B057	 B068	 B077	 B088	 B096	 B103	

Chip control range





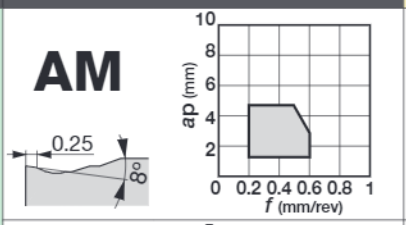




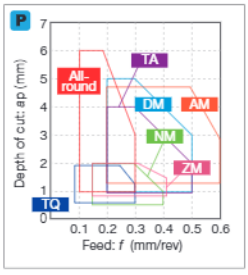
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Negative type with hole	C	D	S	T	V	W	Y
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting	AM	B057	B068		B088		B103	
	NM	B057	B068		B088		B103	
	TQ	B058	B069		B088	B096	B103	
	ZM	B058	B069	B077	B089	B097	B104	B107
Medium cutting	TA	B058		B077	B088		B103	
	DM	B058	B069	B078	B089	B097	B104	
	All-round	B058	B069	B078	B089	B097	B104	

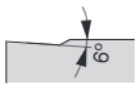
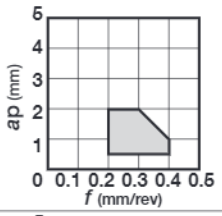
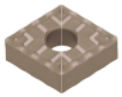
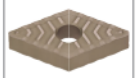
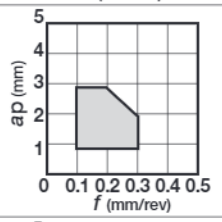
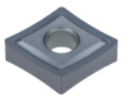
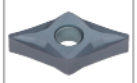
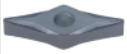
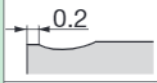
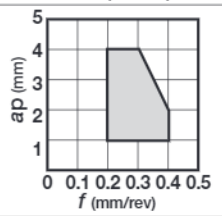
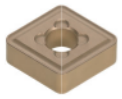
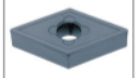
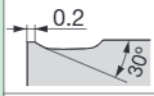
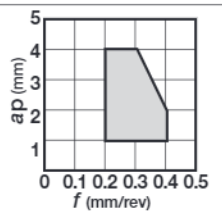
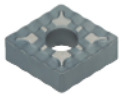
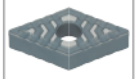
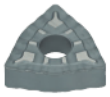
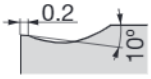
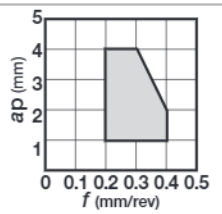
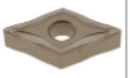
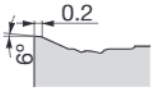
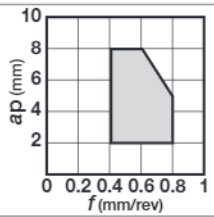
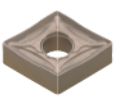
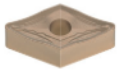
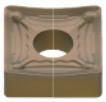
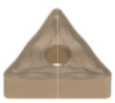
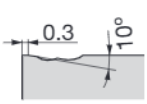
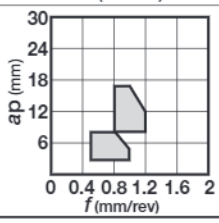


Chip control range



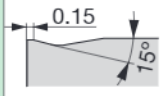
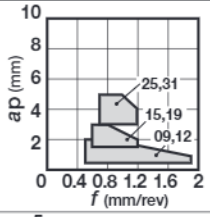
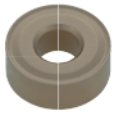
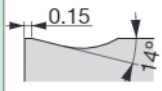
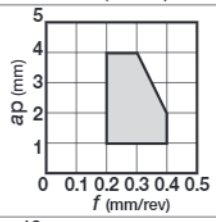
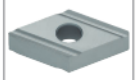
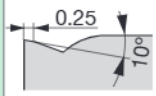
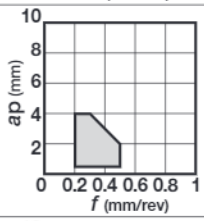
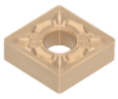
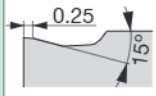
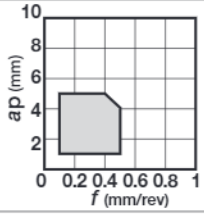
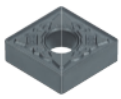
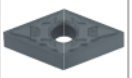
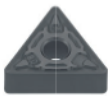
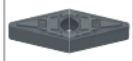
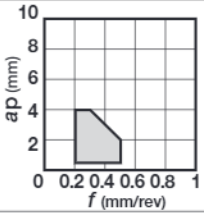
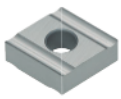
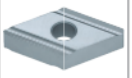
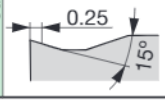
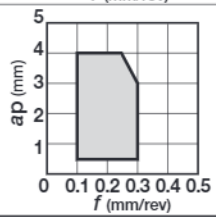
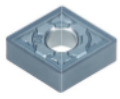
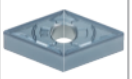
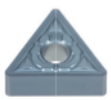
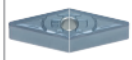
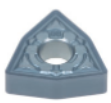
Please see the page B*** for the product details.

Chipbreaker Overview

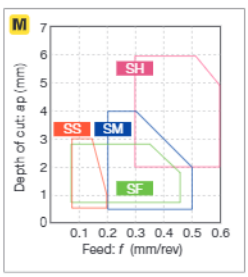
Application	Negative type with hole	C	D	S	T	V	W	Y
		80°	55°	90°	60°	35°	80°	25°
Finishing to medium cutting	27  	 B059	 B069	 B078	 B089		 B104	
Medium cutting	28  	 B059	 B070		 B090	 B097		
	33  	 B059	 B070	 B078	 B090	 B097	 B104	
	37  	 B059	 B070	 B078	 B090		 B104	
	38  	 B059	 B070		 B090			
	57  	 B061	 B072	 B081	 B092			
	65  	 B062		 B081				

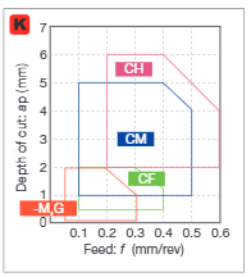
Please see the page B*** for the product details.

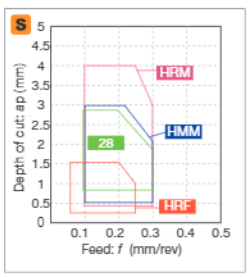
Chipbreaker Overview

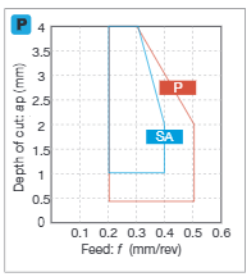
Application	Negative type with hole	C	D	R	S	T	V	W
								
		80°	55°		90°	60°	35°	80°
Heavy cutting	**61**  			 B074				
Medium cutting	**Parallel**  		 B070					
	SM  	 B060	 B070		 B078	 B090	 B098	 B105
	CM  	 B060	 B070		 B079	 B090	 B098	 B105
	P  	 B060	 B071		 B079	 B091		
Finishing to medium cutting	**HRM**  	 B060	 B071		 B079	 B091	 B098	 B105

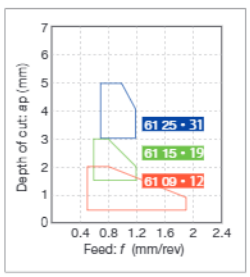
Chip control range









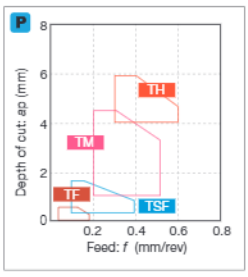


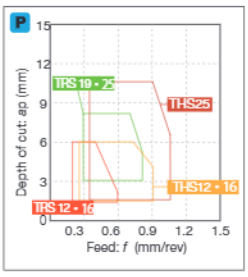
Please see the page B*** for the product details. *-M,G: Without chipbreaker

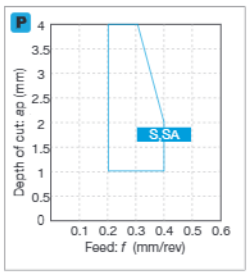
Chipbreaker Overview

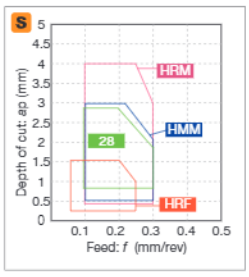
Application	Negative type with hole	C	D	R	S	T	V	W
		80°	55°		90°	60°	35°	80°
Medium cutting	HMM (0.25, 15°)	B060	B071		B079	B091	B098	B105
Medium cutting	SA (18°)	B060	B071		B079	B091		B105
Medium cutting	S (0.15, 15°)	B060	B071		B080	B092		
Medium to heavy cutting	TH (0.3, 20°)	B061	B072		B080	B092		B106
Medium to heavy cutting	THS (0.4, 20°)	B061	B072		B080	B092		B106
Medium to heavy cutting (single side)	TRS (0.3, 24°)	B062			B080			

Chip control range



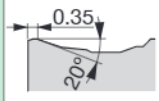
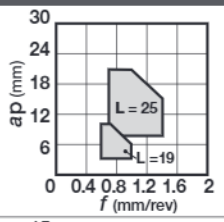
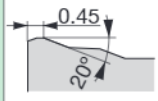
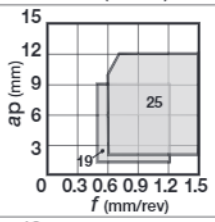
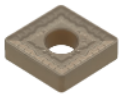
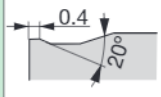
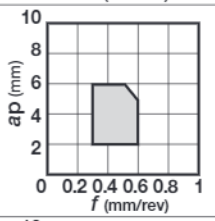
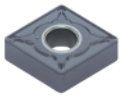
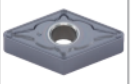
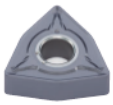
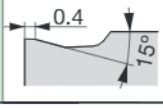
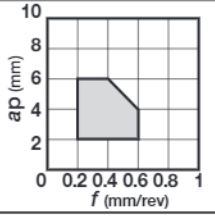
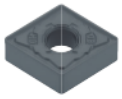
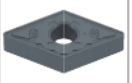
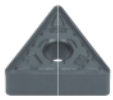




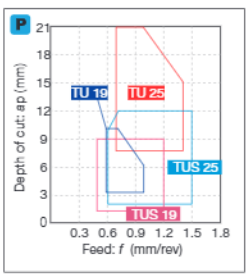


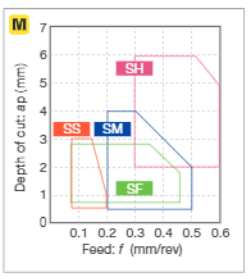
Please see the page B*** for the product details.

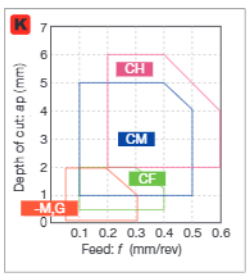
Chipbreaker Overview

Application	Negative type with hole	C	D	R	S	T	V	W
								
		80°	55°		90°	60°	35°	80°
Heavy cutting (single side)	**TU**  	 B062			 B080			
	TUS  	 B062			 B081			
Medium to heavy cutting	**SH**  	 B062	 B072		 B081			 B106
	CH  	 B062	 B072		 B081	 B092		 B106

Chip control range



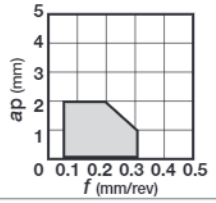
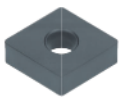
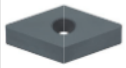
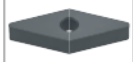
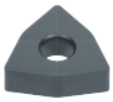
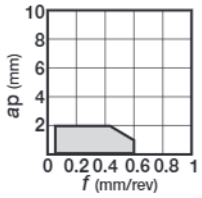
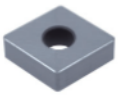


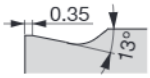
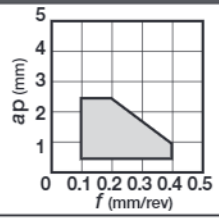


Please see the page B*** for the product details.

*-M,G: Without chipbreaker

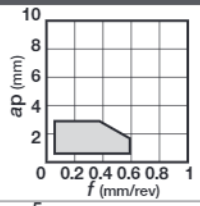
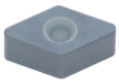
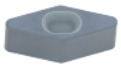
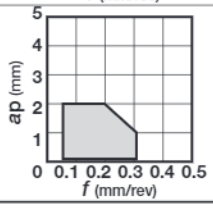
Chipbreaker Overview

Application	Negative type with hole	C	D	R	S	T	V	W
		80°	55°		90°	60°	35°	80°
Finishing to medium cutting	— M,G-class  	 B063	 B072	 B074	 B082	 B093	 B098	 B106
	Wiper M-class  	 B063						

Application	Negative type with hole	C	D	KNMX	LNGN	R	S	T
		80°	55°	55°	90°		90°	60°
Finishing	S1  			 B108				

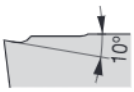
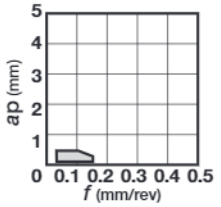
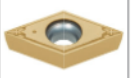
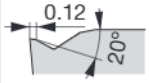
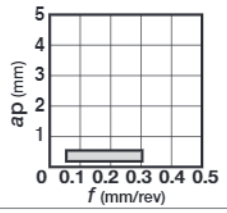
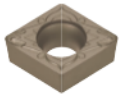
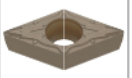
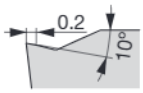
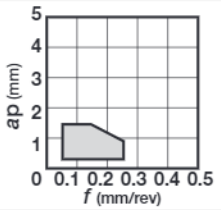
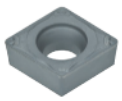
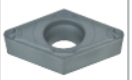
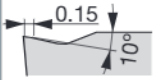
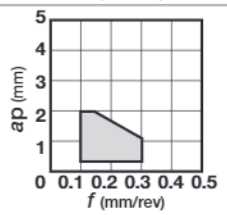
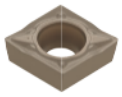
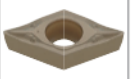
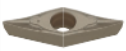
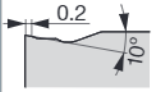
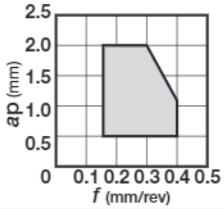
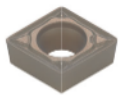
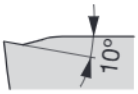
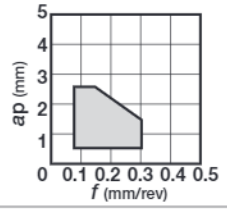
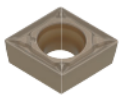
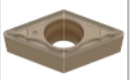
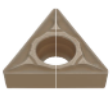
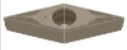
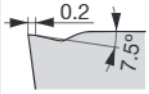
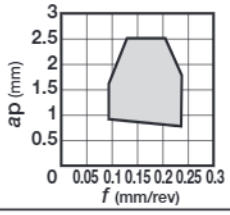
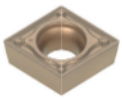
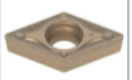
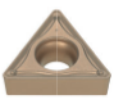
Please see the page B*** for the product details.

Chipbreaker Overview

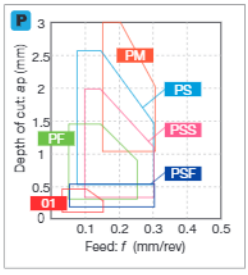
Application	Negative type without hole	C	D	H	R	S	T	V
								
		80°	55°	120°		90°	60°	35°
Finishing to medium cutting	— G-class  	 B064	 B073	 B108		 B082		 B099
	— M,G-class  	 B064	B073		 B074	 B082	 B094	

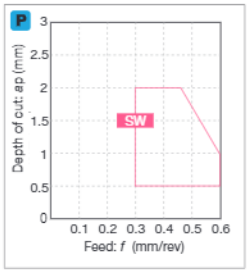
Please see the page B*** for the product details.

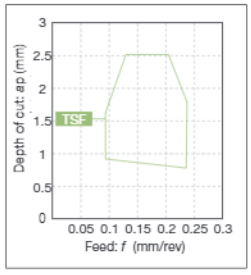
Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
Precision finishing	01  	 B109	 B119			 B137		
Finishing	PSF  	 B109	 B119			 B137	 B153	
Finishing	PF  	 B109	 B119				 B153	
Finishing to light cutting	PSS  	 B110	 B120			 B137	 B153	
Medium cutting (wiper)	SW  	 B110						
Finishing to medium cutting	PS  	 B110	 B120		 B133	 B138	 B153	
Finishing to medium cutting	TSF  	 B110	 B120			 B138	 B153	

Chip control range

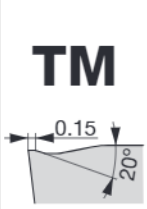
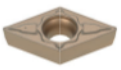
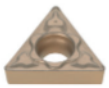
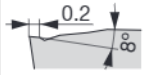
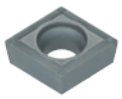
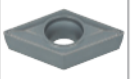
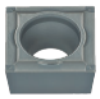
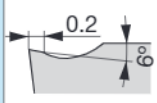
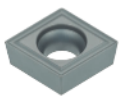
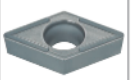
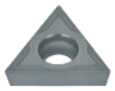
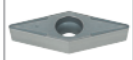
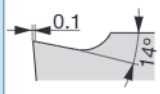
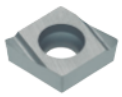
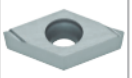
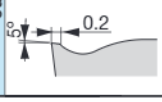
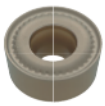




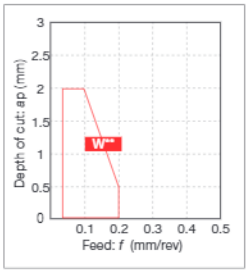


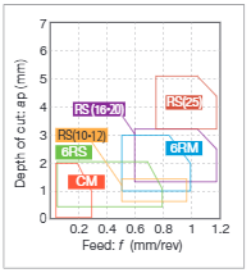
Please see the page B*** for the product details.

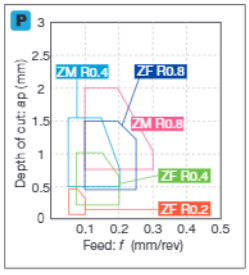
Chipbreaker Overview

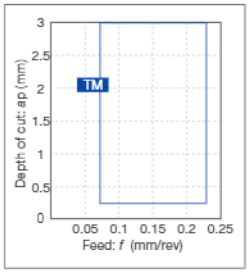
Application	Positive 7° with hole	C	D	R	S	T	V	Y
		80°	55°		90°	60°	35°	25°
Finishing to medium cutting	**TM** 	 B110	 B120			 B138	 B153	
	ZF 							 B160
	ZM 							 B160
	23 	 B111	 B120		 B133	 B138		
Medium cutting	**24** 	 B111	 B120		 B133	 B138	 B154	
Finishing	**W**** 	 B111, B112	 B121			 B138		
Finishing to medium cutting	**RS** 			 B129				

Chip control range



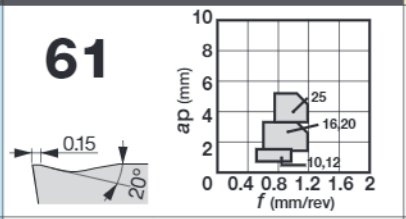
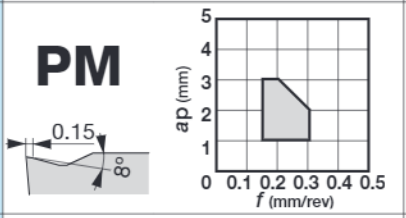
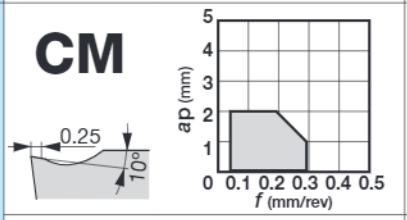
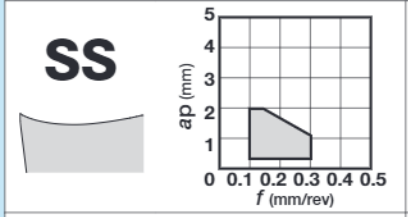
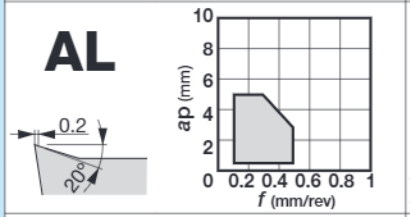
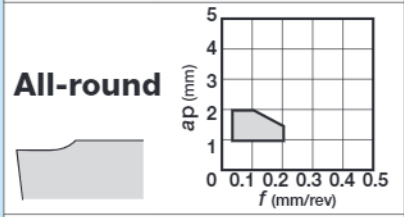
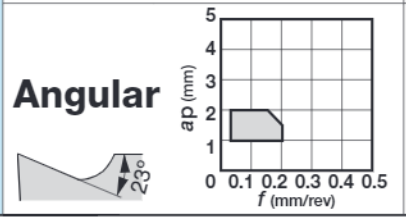




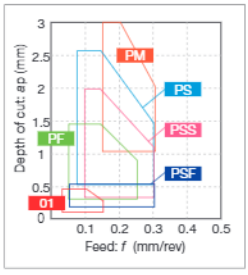


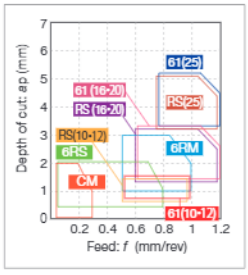
Please see the page B*** for the product details.

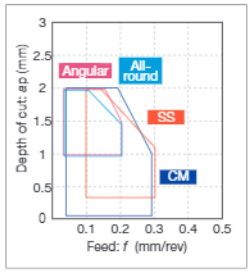
Chipbreaker Overview

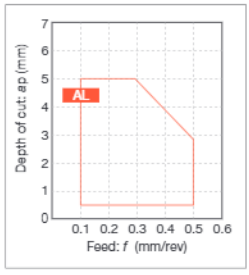
Application	Positive 7° with hole	C	D	R	S	T	V	Y
		80°	55°		90°	60°	35°	25°
Heavy cutting	**61** 			B130				
Medium cutting	**PM** 	B112	B121		B133	B139		
Finishing to medium cutting	**CM** 	B112	B121	B129	B133	B139	B154	
	SS 					B139		
	AL 	B113	B122	B129		B139	B154	
	All-round 	B113	B122				B154	
	Angular 	B113	B122					

Chip control range



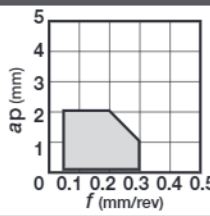
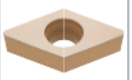
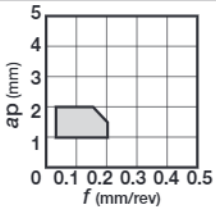
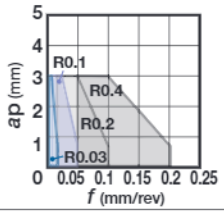
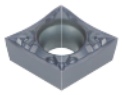
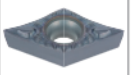
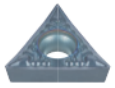
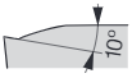
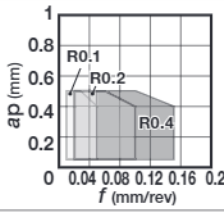
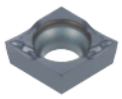
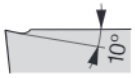
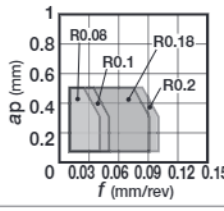
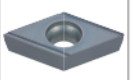
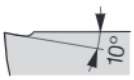
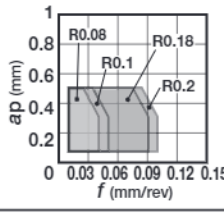
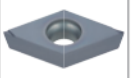




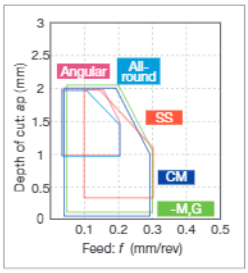


Please see the page B*** for the product details.

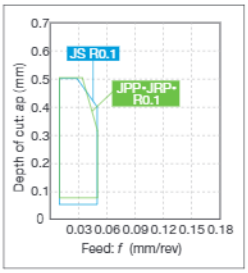
Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
Finishing to medium cutting	— M,G-class  	 B113	 B122					
Finishing	— (with hand)  					 B140		
For external turning on Swiss lathes (including sharp edge type)	JS  	 B114	 B123			 B140		
	JS  	 B114						
For external turning on Swiss lathes (sharp edge)	JPP  		 B123					
	JRP  		 B124					

Chip control range



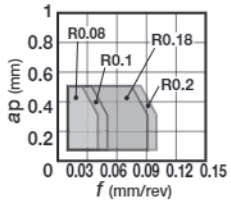
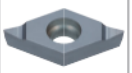
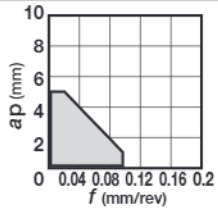
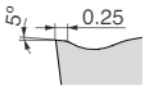
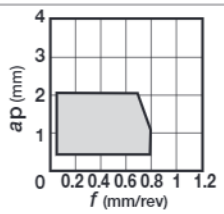
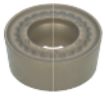
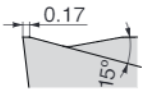
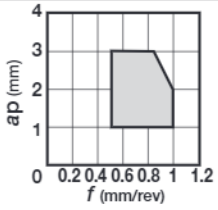
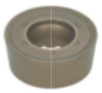
*-M,G: Without chipbreaker



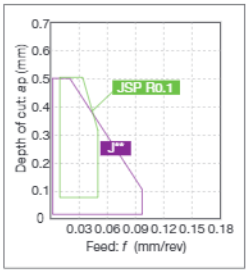
*Chip control range with typical R0.1

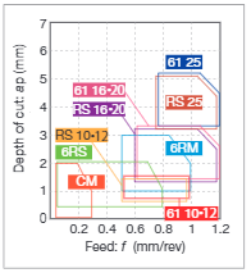
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Positive 7° with hole	C	D	R	S	T	V	Y
								
		80°	55°		90°	60°	35°	25°
For external turning on Swiss lathes (sharp edge)	**JSP**  		 B124					
	J**  	 B115	 B124			 B140, B141		
Low cutting force	**6RS**  			 B129				
Medium cutting	**6RM**  			 B129				

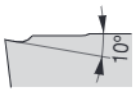
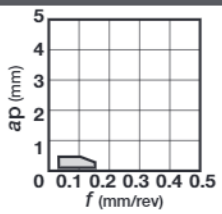
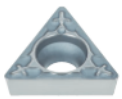
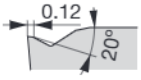
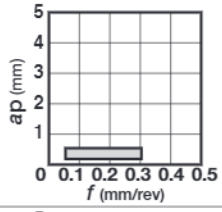
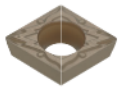
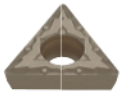
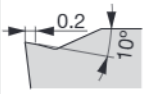
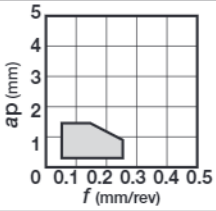
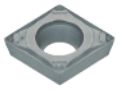
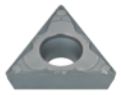
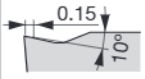
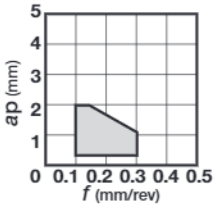
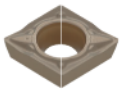
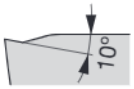
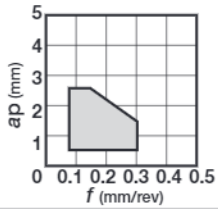
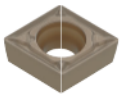
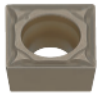
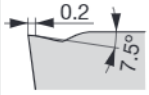
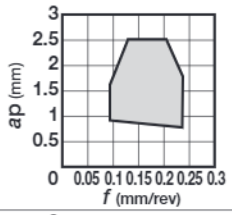
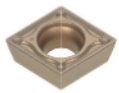
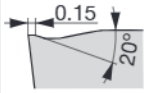
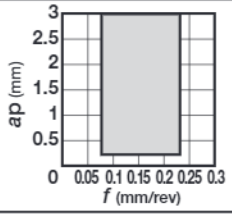
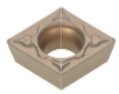
Chip control range



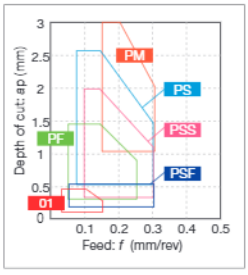


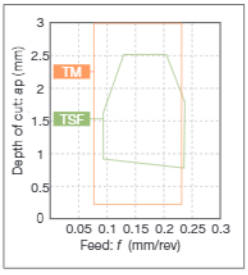
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
						
		80°	75°	90°	60°	35°
Precision finishing	**01**  				 B142	
Finishing	**PSF**  	 B116			 B142	
	PF  	 B116			 B142	
Finishing to light cutting	**PSS**  	 B116			 B143	
Finishing to medium cutting	**PS**  	 B116		 B134	 B143	
	TSF  	 B116			 B143	
	TM  	 B116			 B144	

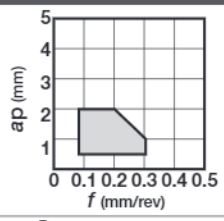
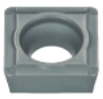
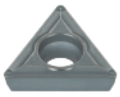
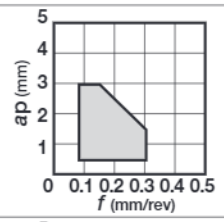
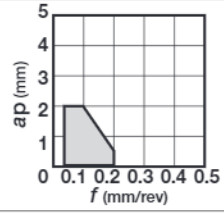
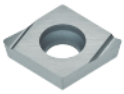
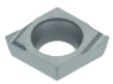
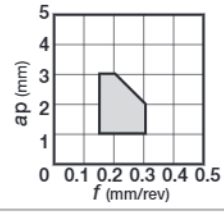
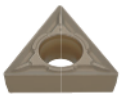
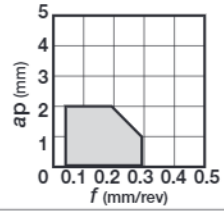
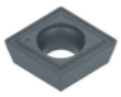
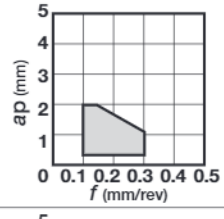
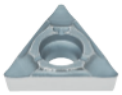
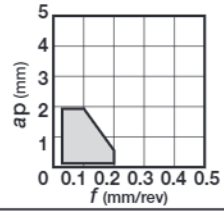
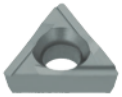
Chip control range



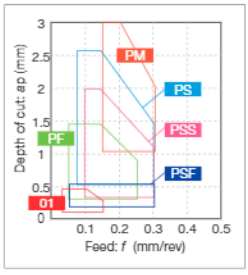


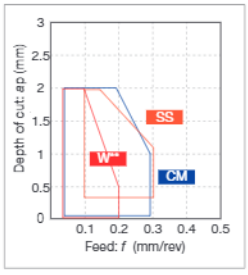
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
						
		80°	75°	90°	60°	35°
Finishing to medium cutting	**23**  			 B134	 B144	
Medium cutting	**24** 0.2 6° 	 B117		 B134	 B144	
Finishing	**W**** 0.1 14° 	 B117	 B127	 B134	 B144, B145	
Medium cutting	**PM** 0.15 8° 	 B118			 B146	
Finishing to medium cutting	**CM** 0.25 10° 	 B118		 B135	 B146	
	SS 				 B146	
	H** 4.5° 				 B146	

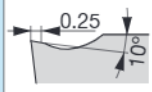
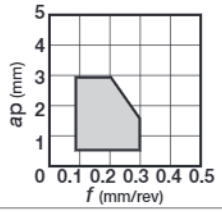
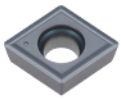
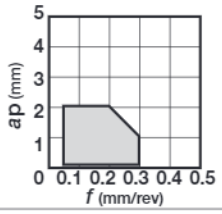
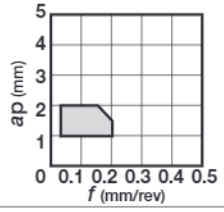
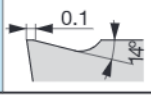
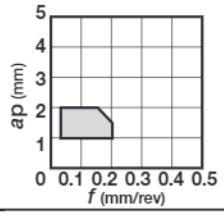
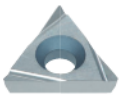
Chip control range



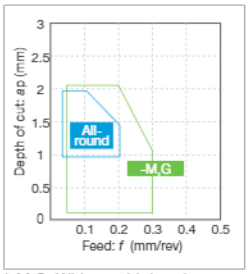


Please see the page B*** for the product details.

Chipbreaker Overview

Application	Positive 11° with hole	C	E	S	T	V
						
		80°	75°	90°	60°	35°
Medium cutting	**All-round**  	 B118				
Finishing to medium cutting	— M,G-class  	 B118		 B135	 B147, B148	
Finishing to medium cutting	— (with hand)  			 (Tungaloy standard hole specification) ISO non-compliant B135		
Finishing to medium cutting	— (with hand) 0.1  				 (Tungaloy standard hole specification) ISO non-compliant B147	

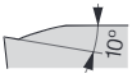
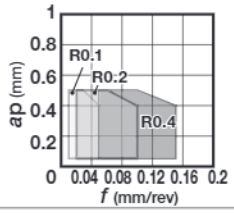
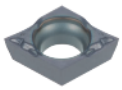
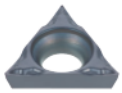
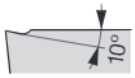
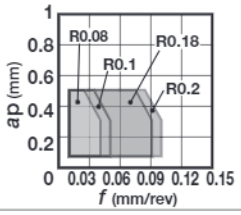
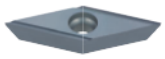
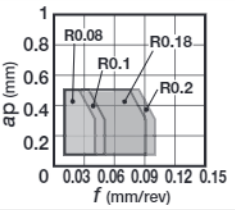
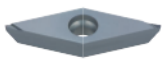
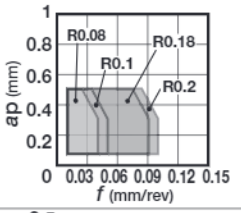
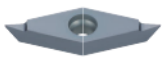
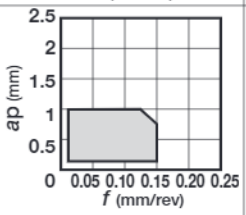
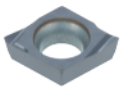
Chip control range

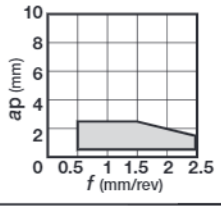


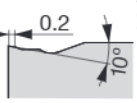
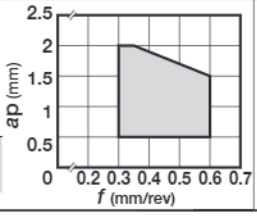
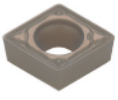
*-M,G: Without chipbreaker

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

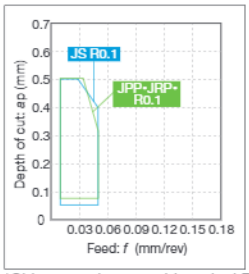
Chipbreaker Overview

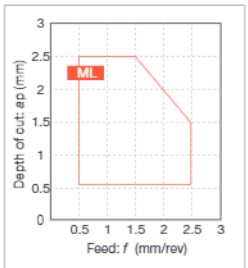
Application	Positive 11° with hole	C	E	S	T	V
		80°	75°	90°	60°	35°
For internal turning on Swiss lathes	**JS**  		 B128		 B148	
For external turning on Swiss lathes (sharp edge)	**JPP**  					 B155
	JRP  					 B155
	JSP  					 B156
Finishing	**J08**  		 B128			

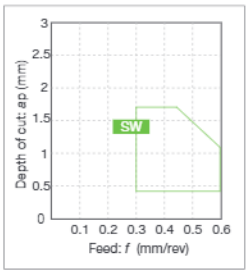
Application	Positive 11° with hole	W
		80°
Heavy cutting	**ML**  	 B156

Application	Positive 7° with hole	C
		80°
Medium cutting (wiper)	**SW**  	 B110

Chip control range



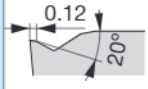
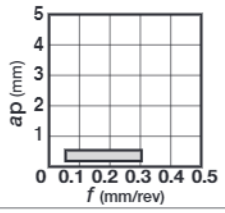
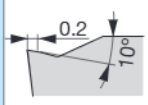
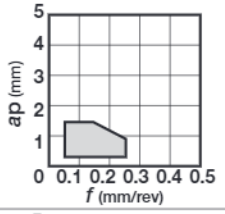
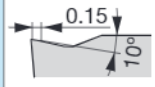
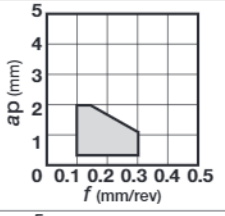
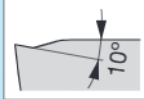
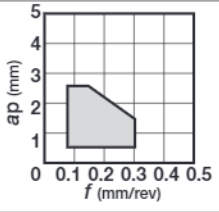
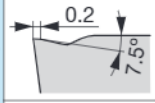
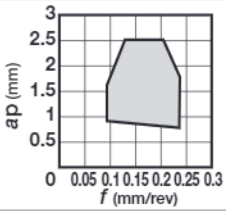
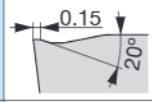
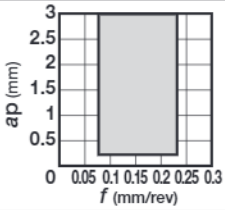
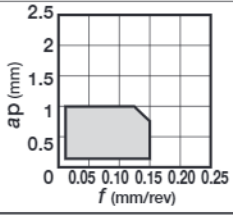
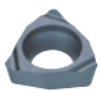


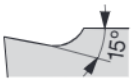
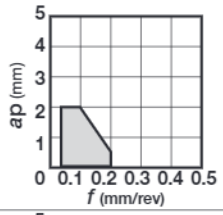
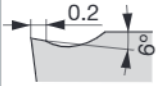
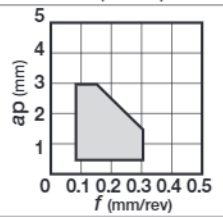
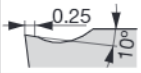
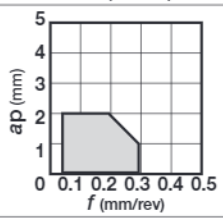
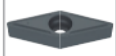
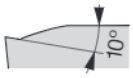
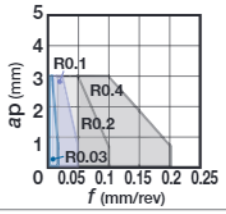
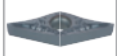
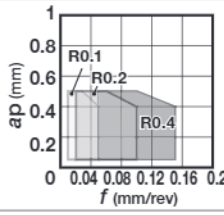
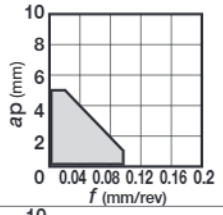
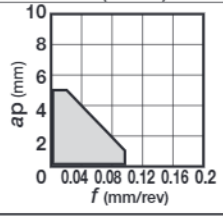


*Chip control range with typical R0.1

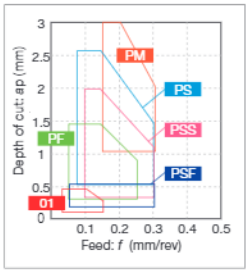
Please see the page B*** for the product details.

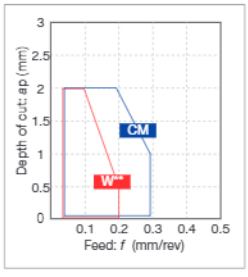
Chipbreaker Overview

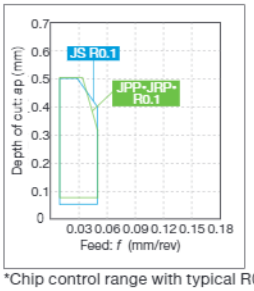
Application	Positive 5° with hole	V 35°	W 80°
Finishing	**PSF**  	 B150	
Finishing	**PF**  	 B151	
Finishing to light cutting	**PSS**  	 B151	
Finishing to medium cutting	**PS**  	 B151	
Finishing to medium cutting	**TSF**  	 B151	
Finishing to medium cutting	**TM**  	 B151	
Finishing	**W08**  		 B157

Application	Positive 5° with hole	V 35°	W 80°
Finishing	**W11**  		 B158
Medium cutting	**24**  	 B152	
Finishing to medium cutting	**CM**  	 B152	
For external turning on Swiss lathes (sharp edge)	**JS**  	 B152	
For internal turning on Swiss lathes	**JS**  		 B158
For external turning on Swiss lathes (sharp edge)	**J10**  	 B152	
For external turning on Swiss lathes (honed edge)	**J10**  	 B152	

Chip control range



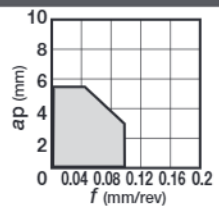
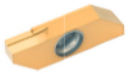


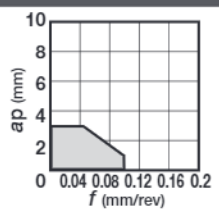


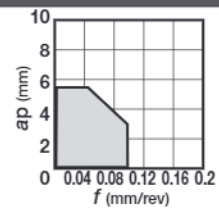
Please see the page B*** for the product details.

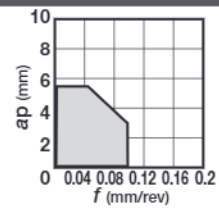
*Chip control range with typical R0.1

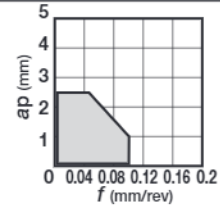
Chipbreaker Overview

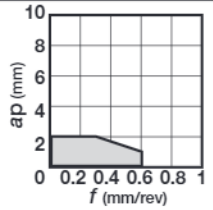
Application	Positive type with hole	JXF
Front turning	— 	 B160

Application	Positive type with hole	J10E
Back turning	— 	 B162, B163

Application	Positive type with hole	JXB
Back turning	— 	 B161

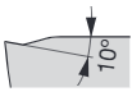
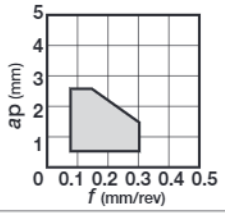
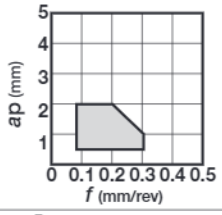
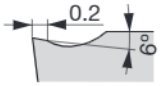
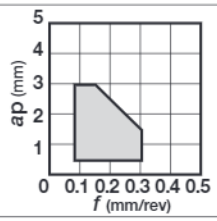
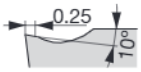
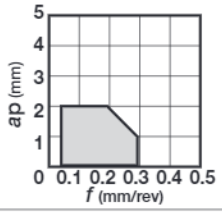
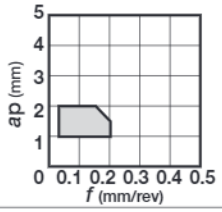
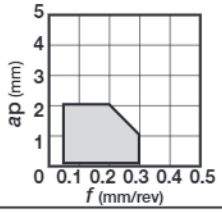
Application	Positive type with hole	JXR
Reverse turning	— 	 B161

Application	Positive type with hole	JTB
Back turning	— 	 B162

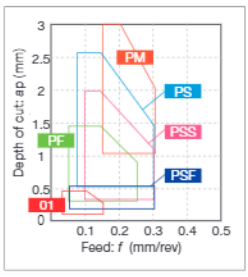
Application	Round	RT
Medium cutting	— 	 Special round insert  B130

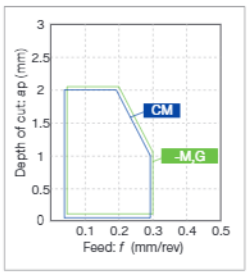
Please see the page B*** for the product details.

Chipbreaker Overview

Application	Positive 11° without hole	R	S	T
			90°	60°
Finishing to medium cutting	**PS**  			 B149
	23  		 B136	 B149
Medium cutting	**24**  			 B149
Finishing to medium cutting	**CM**  		 B136	 B149
	— (with hand)  		 B136	 B150
	— M,G-class  		 B136	 B150

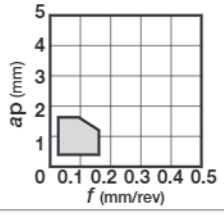
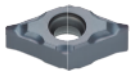
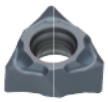
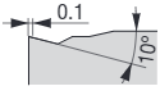
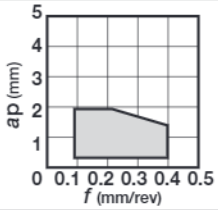
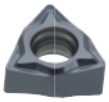
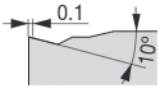
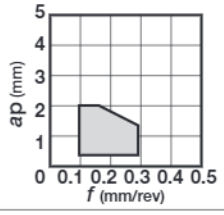
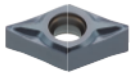
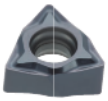
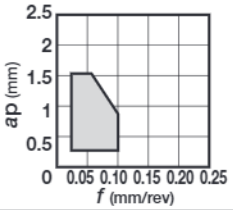
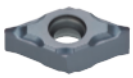
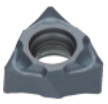
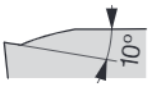
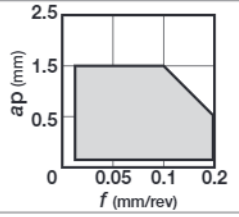
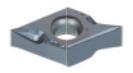
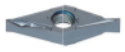
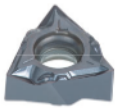
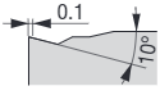
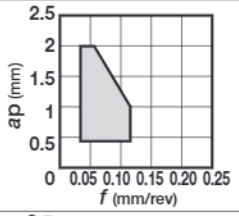
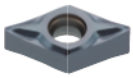
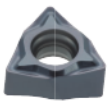
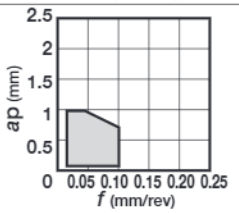
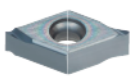
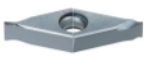
Chip control range



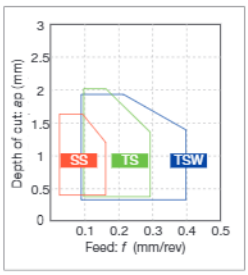


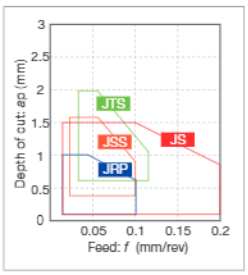
Please see the page B*** for the product details. *-M,G: Without chipbreaker

Chipbreaker Overview

Application	Double-sided positive type with hole	D	V	W
				
		55°	35°	80°
Finishing (low cutting force)	**SS**  	 B126		 B159
Finishing (wiper)	**TSW**  			 B159
Finishing to medium cutting	**TS**  	 B126		 B159
Finishing (low cutting force) (sharp edge)	**JSS**  	 B126		 B159
Finishing to medium cutting (sharp edge)	**JS**  	 B125	 B156	 B158
Finishing to medium cutting (sharp edge)	**JTS**  	 B126		 B158
Finishing (sharp edge)	**JRP**  	 B125	 B156	

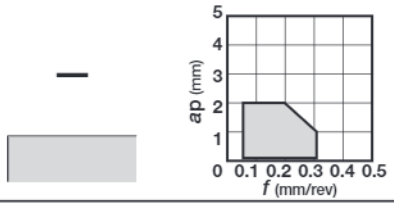
Chip control range





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

Chipbreaker Overview

Application	Positive 7° without hole	RCGX
		Special round insert
Medium cutting		 B131

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