TURNING

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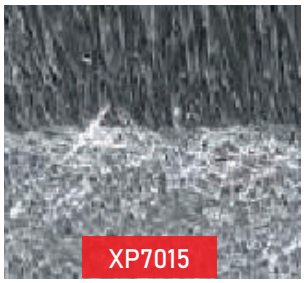
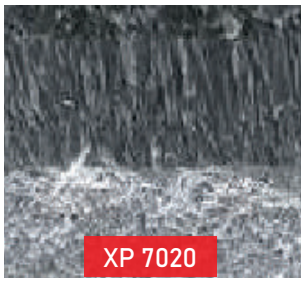
TURNING INDEX

GRADE INFORMATION



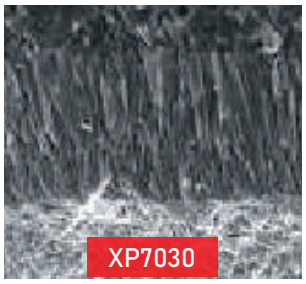
P05-P20

Special layer of TiC (N) coating to increase the temperature resistance of the insert.
Using special grade sintering technology to increase the wear resistance and balance the hardness of the insert.
Extremely effective for mild and Alloy Steels.
Special carbide grade developed to sustain wear resistance.
Helps the insert to perform at high speeds in unstable conditions.



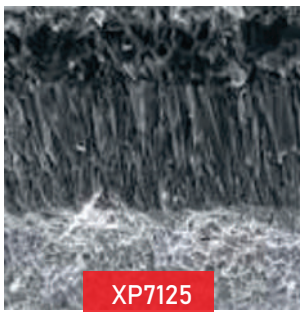
P10-P25

TIALN over TiCN layer with antiwear material abrassion performance lead to the best wear resistance of the face of clearance angle.
Using gradient sintering technology, we increase the impact resistance of insert, so as to improve the ability to resist damage of the insert.
First choice for bearing and preturned/soft automotive steels at high parameters.



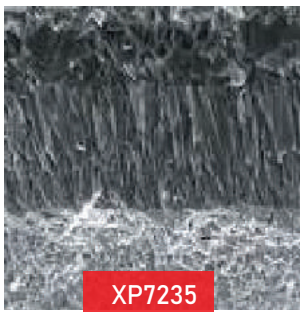
P15-P35

Special structure of Al2O3 settled layer has the best thermal barrier performance, high speed dry cutting, ensure resistance to plastic deformation.
Special layer with antiwear material leads to the best wear resistance of the face of clearance angle.
Special sintering technology, improves the wear resistance of the insert.
First choice for Automotive steels, EN materials and cold forged applications of 16MnCr5 & 20 MnCr5.



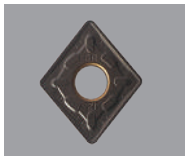
P10-P30 | K10-K20

Special structure of Al2O3 settled layer has the best thermal barrier performance, high speed dry cutting, ensuring resistance to plastic deformation.
TiCN layer with anti wear material abrassion performance lead to the best wear resistance of the face of clearance angle.
Carbide with special structure improves the hardness & strengthened the high temperature resistance performance of insert.
First choice for general and production steel applications with higher feeds and dry machining.

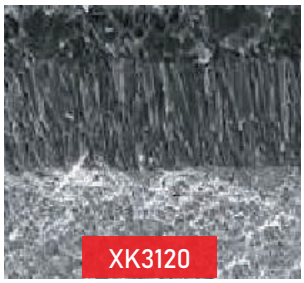


P20-P40

Special structure of Al2O3 settled layer along with TiCN coating which has the best thermal barrier performance, high speed dry cutting, ensure resistance to plastic deformation along with added stability.
TiCN layer with antiwear material abrassion performance lead to the best wear resistant of the face of clearance angle.
Using gradient sintering technology, and increase the impact resistance & wear resistance of insert, so as to improve the ability to resist damage of the insert.
Best suited for heavy roughing and interrupted applications at high feeds in unstable conditions.

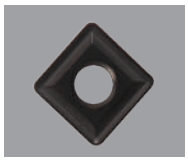


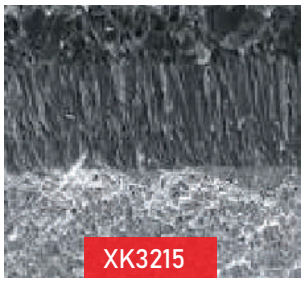
GRADE INFORMATION



K10-K20

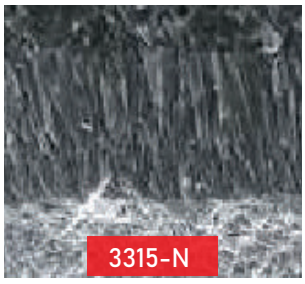
Special Substrate designed for the perfect combination of Wear & Impact resistance.
This special material combined with Al2O3 coating enables high performance at high speed against any competitor





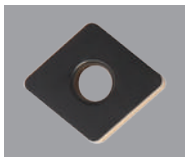
K10-K20 | P05-P15

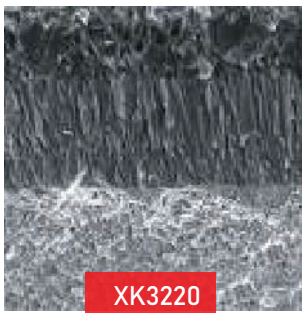
Thick Al2O3 MT-CVD coating combined with strong impact resistance matrix keeps the insert stable at high temperature.
TiCN layer with antiwear material abrasion performance lead to the best wear resistant of the face of clearance angle.
High wear resistance substrate provides added stability to machine Gray & SG Iron.
Can also be used to machine steel at high cutting speed in continuous cuts.



K10-K25

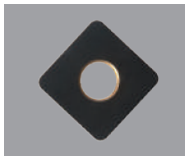
Special structure of Al2O3 settled layer has the best thermal barrier performance, high speed dry cutting, ensure resistance to plastic deformation.
Special layer with antiwear material leads to the best wear resistance of the face of clearance angle.
Special sintering technology, improves the wear resistance of the insert.
Carbide with special crystalline structure improves the temperature resistant performance of insert.



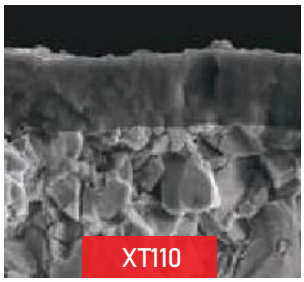


K15-K30

Thick Al2O3 over TiCN coating combined with strong impact resistance matrix keeps the insert stable at high temperature.
TiCN layer with anitwear material abrasion performance lead to the best wear resistant of the face of clearance angle.
High wear resistance substrate provides added stability to machine Gray & Ductile Cast Iron.

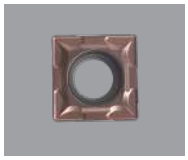


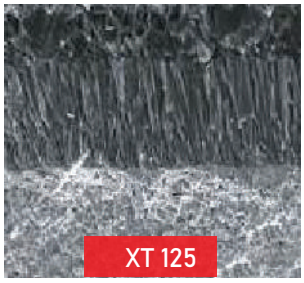
GRADE INFORMATION



P10-P25 | M05-M15 | K10-K25

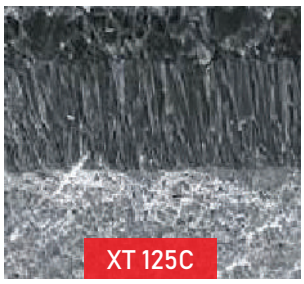
Special coating designed to be able to cater most materials under different machining environments.
Enhanced performance under low end machining conditions.
Substrate and PVD coating designed to improve strength & wear resistance





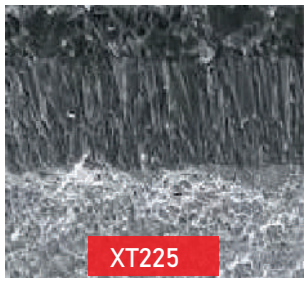
P10-P30 | M10-M25 | K10-K20

2-4 µ ALCrN+AlCrSiN PVD Coated, Combinating with fine particles substrates with High-Toughness, suitable for all materials in light & medium load turning, stainless steel & high-Temperature hardness alloy in finishing, semi-finishing.



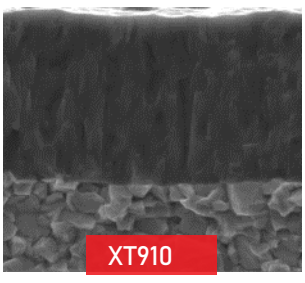
P15-P30 | M15-M30

High adhesion strength to the substrate improves stable tool life.
Due to the excellent heat resistance and oxidation resistance, the XT125-C prevents a failure of tool life even when machining hardened work piece.
Due to the cemented carbide with high wear resistance and fracture resistance, the XT125-C provides stable machining operation.



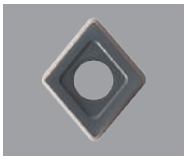
P15-P30 | M15-M30 | S05-S15

2-4 µ ALCrN+AlCrSIN PVD Coated, Combinating with ultra fine Co particles substrates with High-Toughness.
Suitable for all materials in light & medium load turning.
Suitable stainless steel & high-Temprature hardness alloy in finishing, semi finishing.

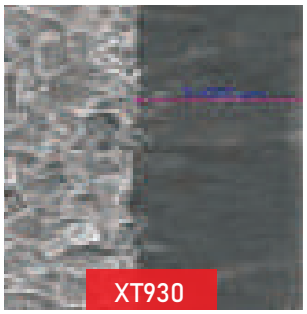


P15-P30 | M10-M20 | K10-K30

Universal Grade for mild cutting conditions
Recommended for mild steel, and cast iron boring application
Harder substrate and special PVD coating for excellent wear resistance

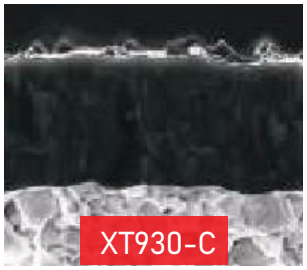


GRADE INFORMATION



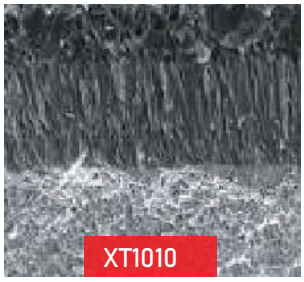
P15-P30 | M15-M30 | S05-S15

Ultra-fine grain matrix, nano-multilayer coating of AlTiMeN with good wear resistance and oxidation resistance.
Stable, long-life turning of steel and stainless steel.
Can also work on softer super alloys.



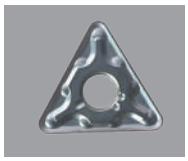
P15-P35 | M15-M35 | H05-H15

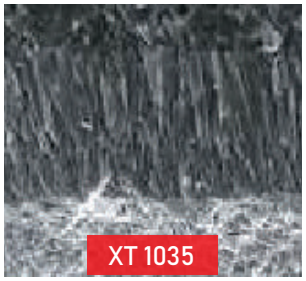
Ultra find grade with Nano coating for high heat resistance and toughness. Special AITIMEN coating gives it a bronze shade and higher temperature resistance! The first choice for general-purpose machining of stainless steel. It can be used for supplementary machining of soft steels.



M10-M25 | S05-S20 | H05-H15

The ultra-fine grain matrix strengthened by the bonding phase has excellent heat resistance and wear resistance.
The Special TiAlN nano-coating helps prevent chipping off.
It is extremely suited for finishing/semi-finishing turning of heat-resistant alloys and hardened materials, and general-purpose milling.

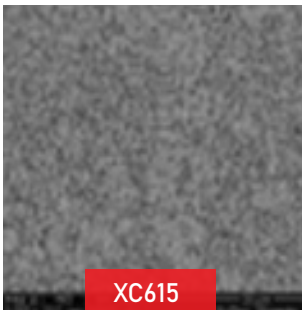




M20-M35 | S15-S35

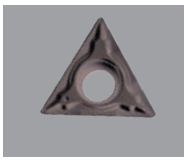
Excellent high-temperature wear resistance and toughness with nano multilayer coating applied.
High lubrication nano coating prevents rapid wear of cutting edges.
Best suited for machining tough stainless steels, inconels and superalloys in difficult conditions.

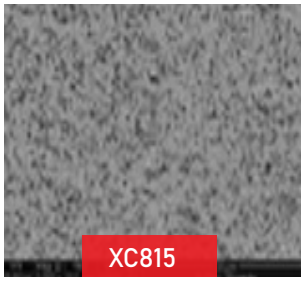
GRADE INFORMATION



P05-P20 | K05-K20

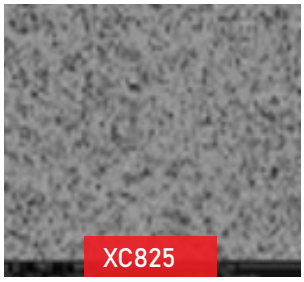
High hardness, good strength and toughness, Fine and uniform hard phase organization, can be processed into a very sharp edge, good wear resistance, not easy to wear during use.
It is suitable for high-speed finishing and semi-finishing of carbon steel, alloy steel, cast iron and stainless steel materials within 45HRC hardness, and the surface of the machined workpiece can reach the mirror surface.





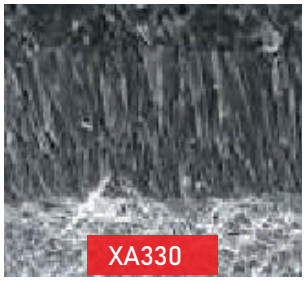
P05-P30 | K05-K30

XC815 is AlCrN Coating, enabling good strength and toughness, moderate hardness, high temperature red hardness and chemical stability, but also has good impact resistance, can be applied to part of the intermitttent processing conditions.
It is suitable for Finishing and semi-Finishing of carbon steel, low alloy steel, cast iron and bearing steel with hardness less than 40HRC, especially for high-speed cutting and large margin machining.



P05-P30 | K05-K30

High hardness, good strength and toughness, Fine and uniform hard phase organization, can be processed into a very sharp edge, good wear resistance, not easy to wear during use.
TiCN layer with antiwear material abrassion performance lead to the best wear resistant of the face of clearance angle.

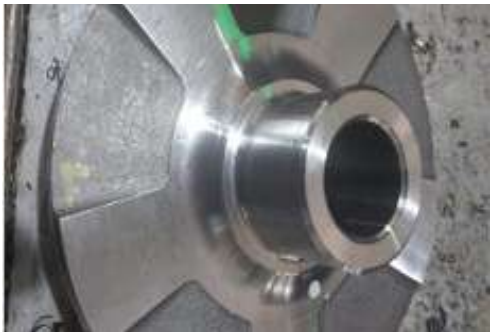


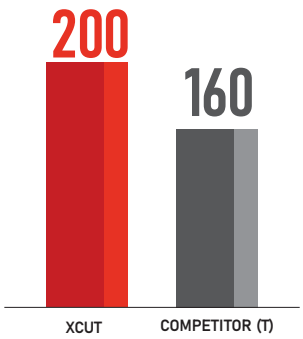
N10-N20 (Si<13%)

Polished rake surface for smoother flow of chips.
Positive & sharp cutting edge for enhanced tooling performance.
Excellent machining & chip flow, reduced built-up edge

CASE STUDIES

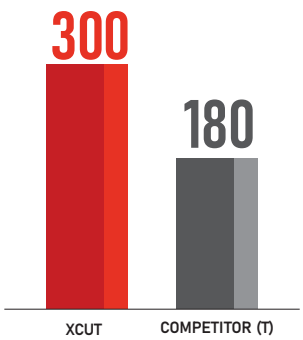
XP7235		
PRODUCT DESCRIPTION	CNMG120416GM-XP7235	
MATERIAL & HARDNESS	Forged steel (25-30 HRC)	
PARAMETERS	COMPETITOR (T)	XCUT
Depth of Cut	3mm	3mm
Vc: m/min	320	270
Fz: mm./tooth	0.35	0.42
Life Increased by 25%		





TOOL LIFE (NO. OF COMPONENTS)

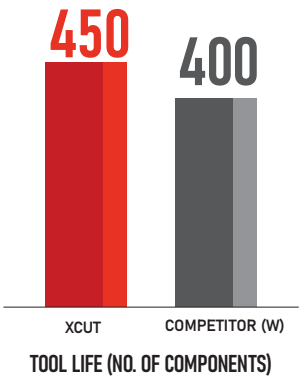
XT1010		
PRODUCT DESCRIPTION	TNMG160408SM-XT1010	
MATERIAL & HARDNESS	HARDENED STEEL & 60HRC	
PARAMETERS	COMPETITOR (T)	XCUT
Depth of Cut	0.2mm	0.2mm
Vc: m/min	70	70
Fz: mm./tooth	0.11	0.12
Life Increased by 60%		



TOOL LIFE (NO. OF COMPONENTS)

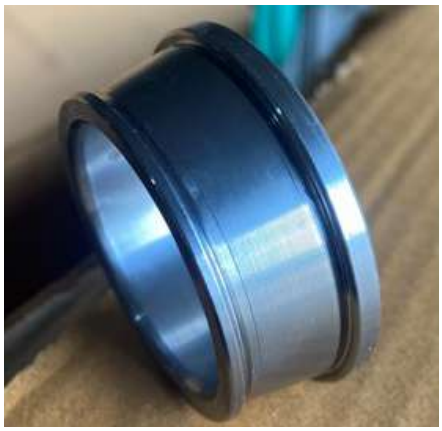
CASE STUDIES

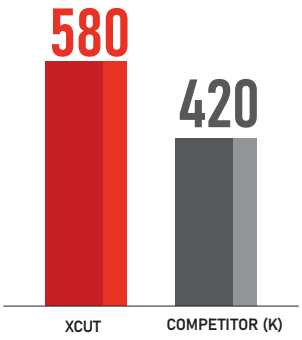
XT930-C		
PRODUCT DESCRIPTION	CNMG120412CR-XT930-C	
MATERIAL & HARDNESS	20MNCR5- (CROWN WHEEL AND PINION)	
PARAMETERS	COMPETITOR (W)	XCUT
Depth of Cut	1.5mm	1.5mm
Vc: m/min	200	220
Fz: mm./tooth	0.22	0.25
Life Increased by 11%		



TOOL LIFE (NO. OF COMPONENTS)

ISP-XP7020		
PRODUCT DESCRIPTION	TNMG 160412 ISP XP7020	
MATERIAL & HARDNESS	BEARING STEEL 52100	
PARAMETERS	COMPETITOR (K)	XCUT
Depth of Cut	2mm	2mm
Vc: m/min	300	300
Fz: mm./tooth	0.28	0.28
Tool Life Increased by 38%		





TOOL LIFE (NO. OF COMPONENTS)

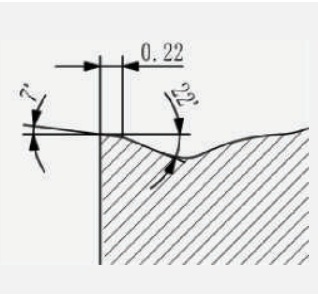
GRADE CHART

MATERIAL	C.V.D					PVD						CERMET	UNC
P05	XP7015											XC615/XC815/XC825	XA330
P10		XP7020		XP7125			XT110	XT125					
P15			XP7030						XT910	XT930/ XT930-C			
P20					XP7235								
P25													
P30													
P35													
P40													
M05							XT110						
M10						XT1010		XT125		XT910			
M15									XT225/ XT930		XT930-C		
M20							XT1035						
M25													
M30													
M35													
M40													
K05												XC615/XC815/XC825	
K10	XK3120	XK3215	XK3315-N				XT110	XT125		XT910			
K15				XK3220					XT125-C				
K20													
K25													
K30													
S05						XT1010			XT225/ XT930	XT930-C			
S10													
S15							XT1035						
S20													
S25													
S30													
S35													
H10													
H10						XT1010							
H15													
H20													
H25													
N10													
N20													

APPLICABLE CHIPBREAKERS

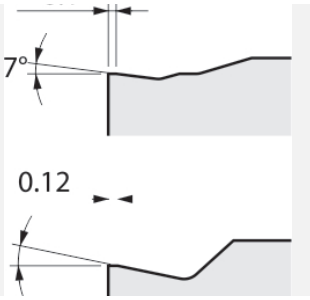
CHIPBREAKERS FOR NEGATIVE INSERTS (CVD-STEEL)

CR



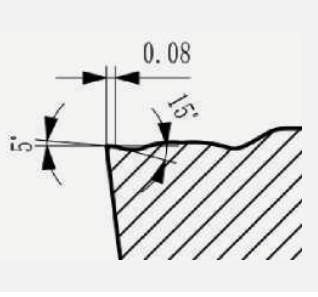
- General Purpose chip-breaker, recommended mainly for Semi Finishing
- Provides excellent cutting edge sharpness due to the positive land geometry.
- Works extremely well for Steel and Stainless Steel applications.

CQ



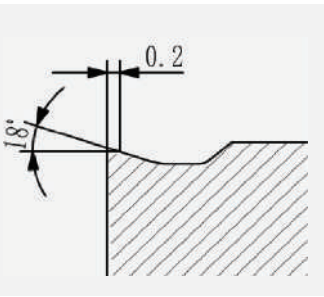
- Semi Finishing chipbreaker
- Good chip control for varied as such as copying
- Very suitable for face turning

GF



- The double positive rake angle design ensures the sharpness of the insert and low cutting resistance.
- The double chip breaker design broadens the chip breaking range.
- Suitable for finishing of steel, stainless steel and cast iron

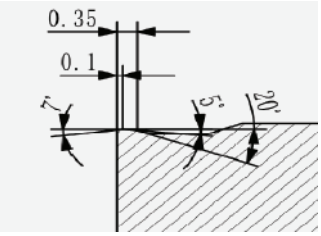
GM



- On the basis of ensuring the sharpness of the cutting edge, the strength of the cutting edge is enhanced.
- General Machining Chipbreaker Suitable for semi-finishing of steel. stainless steel and cast iron.

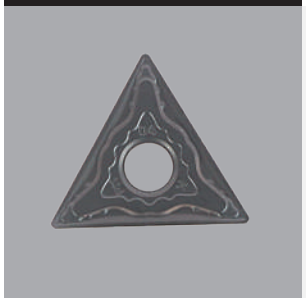
CHIPBREAKERS FOR NEGATIVE INSERTS (CVD-STEEL)

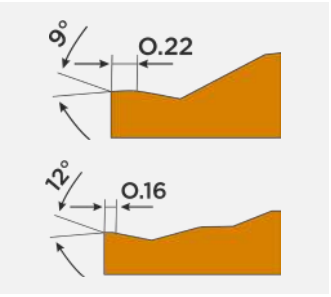
GR



- Negative chamfer design, suitable for large depth of cut and larger feed parameters, to obtain high edge strength and high metal removal rate.
- Effective for heavy interruptions as well

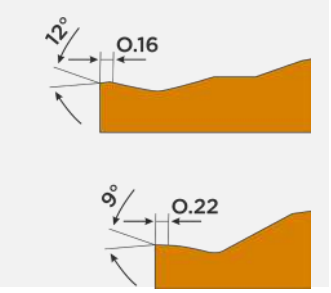
PK





- Double sided chipbreaker combining sharpness with strength
- Suitable for ID roughing and OD semi finishing of steel, stainless steel

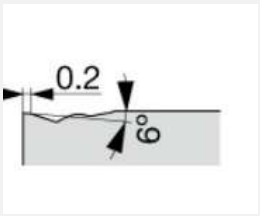
TM



- Preferred chip-breaker for semi-finishing machining of steel to ensure efficient and stable processing.
- Universal chip-breaker with a wide chip-breaking effect and high versatility designed near the tip of the tool, featuring a distinctive shape bulge and front angle.
- This allows the chip-breaker to maintain sharp cutting performance and low cutting force

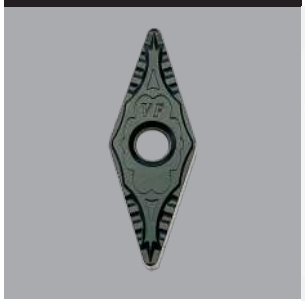
CHIPBREAKERS FOR NEGATIVE INSERTS (CVD-STEEL)

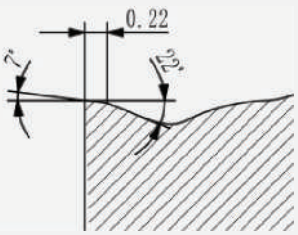
PR



- Strong chip breaking ability , highly suitable for roughing processing of different steels .
- Can take Ap upto 3mm depending on the insert.

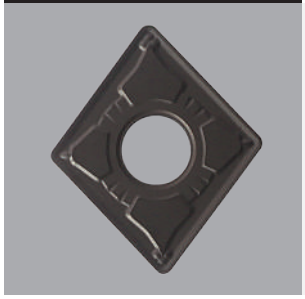
VF

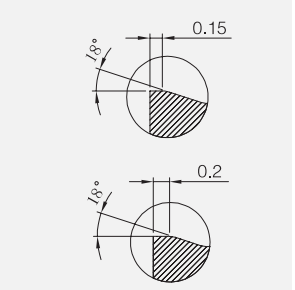




- Good chip control for varied Ap such as copying and undercutting
- Extremely suitable for ball pin turning

XM

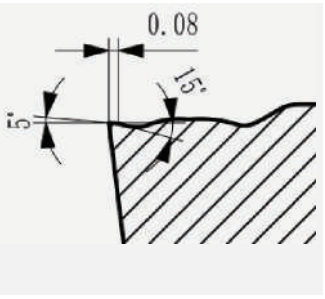




- Medium processing groove type, suitable for steel, forged steel, -EN Series.
- Wide edge and wide chip flute design, high edge strength, good cutting performance, can be used for high feed cutting under unstable conditions.

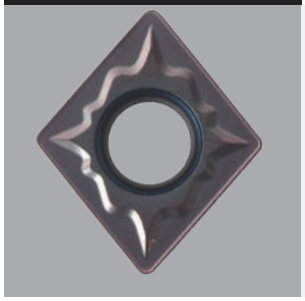
CHIPBREAKERS FOR POSITIVE INSERTS (CVD-STEEL)

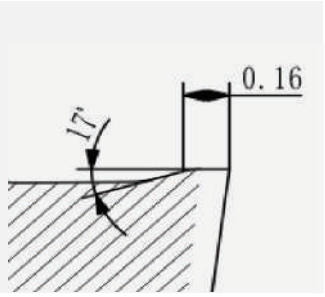
GF



- The double positive rake angle design ensures the sharpness of the insert and low cutting resistance.
- The double chip breaker design broadens the chip breaking range.
- Suitable for finishing of steel, stainless steel and cast iron

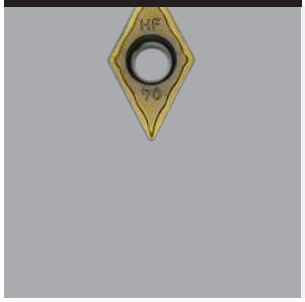
GM

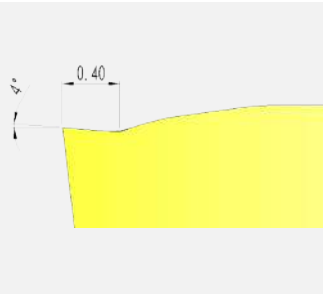




- On the basis of ensuring the sharpness of the cutting edge, the strength of the cutting edge is enhanced.
- General Machining Chipbreaker Suitable for semi - finishing of steel stainless steel and cast iron.

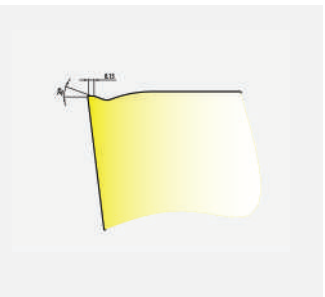
HF





- Chipbreaker for finishing with wide application With M-level tolerance inserts,
- It is suitable for internal and external finishing of various materials such as steel, stainless steel and cast iron.

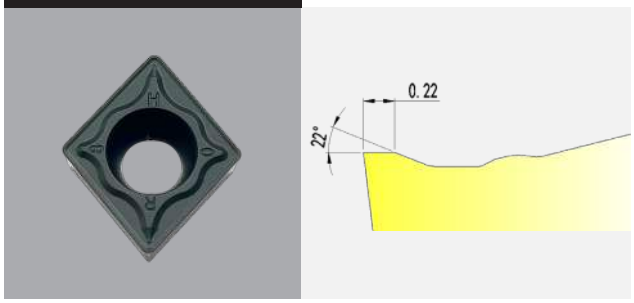
HM



- Chipbreaker for semi-finishing with wide application of positive inserts with M-level tolerance,
- It is suitable for internal and external semi - finishing of materials like steel, stainless steel, cast iron, etc

CHIPBREAKERS FOR POSITIVE INSERTS (CVD-STEEL)

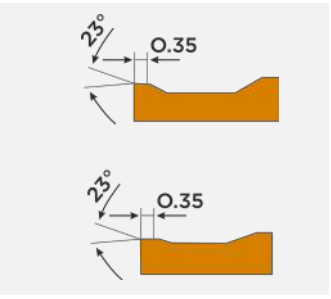
HR



- General chipbreaker for positive inserts for roughing with M-level tolerance,
- It is suitable for both internal and external roughing of materials such as steel, stainless steel, cast iron, etc.

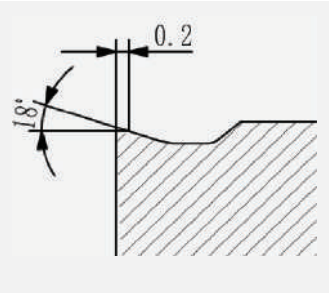
CHIPBREAKERS FOR NEGATIVE INSERTS (CVD-CAST IRON)

GH



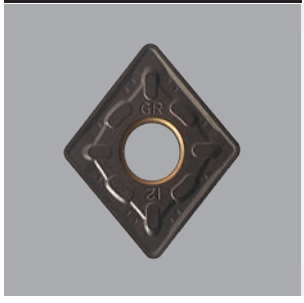
- K type double sided chipbreaker, ensures lighter load on heavy roughing,
- Can achieve both high level metal removal rate and good life on interrupted cutting of Cast Irons also

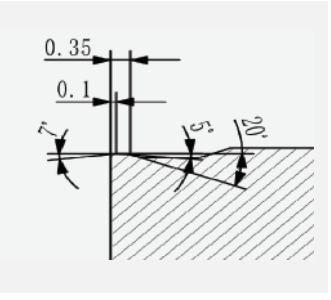
GM



- On the basis of ensuring the sharpness of the cutting edge, the strength of the cutting edge is enhanced.
- General Machining Chipbreaker Suitable for semi-finishing of steel stainless steel and cast iron.

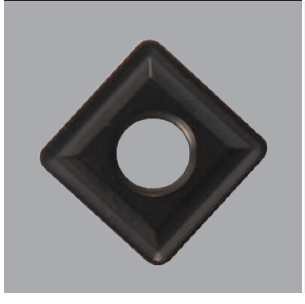
GR

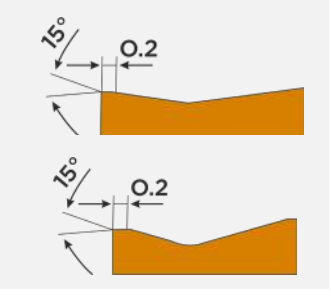




- Negative chamfer design, suitable for large depth of cut and larger feed parameters, to obtain high edge strength and high metal removal rate.
- Effective for heavy interruptions as well

UC

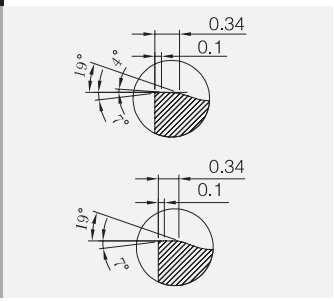




- Double Sided Chipbreaker, good edge strength,
- Recommended for semi finishing of Grey and Ductile Cast Iron

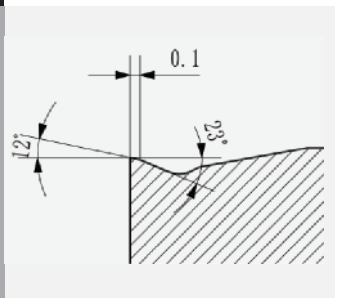
CHIPBREAKERS FOR NEGATIVE INSERTS (MULTI-GRADE PVD)

AR



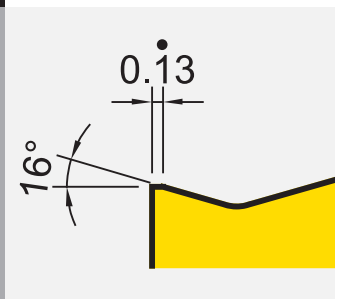
- The cutting edge has high strength and performs a long service life in roughing and harsh working.

BF



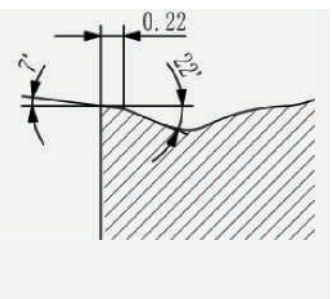
- M-level double-sided chipbreaker, small edge width + double positive rake angle, sharp blade edge.
- Low cutting resistance, special edge inclination design, can obtain high-quality machined surface.

BM



- M-level double-sided chipbreaker, double positive rake angle.
- Higher edge strength than BF.
- Widely application for the general processing of stainless steel.

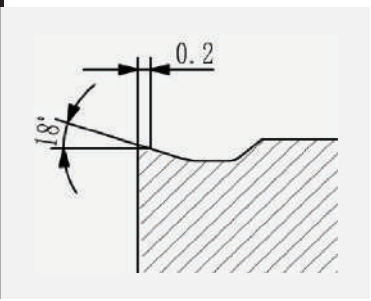
CR



- General Purpose chip-breaker; recommended mainly for Semi - Finishing
- Provides excellent cutting edge sharpness due to the positive land geometry.
- Works extremely well for Steel and Stainless Steel applications.

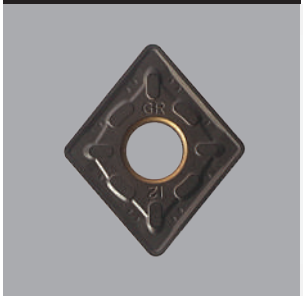
CHIPBREAKERS FOR NEGATIVE INSERTS (MULTI-GRADE PVD)

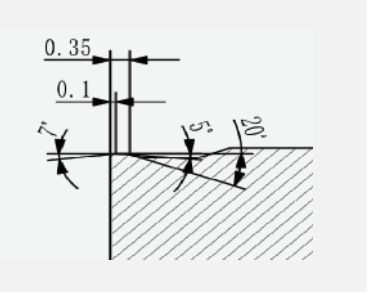
GM



- On the basis of ensuring the sharpness of the cutting edge, the strength of the cutting edge is enhanced.
- General Machining Chipbreaker Suitable for semi-finishing of steel stainless steel and cast iron.

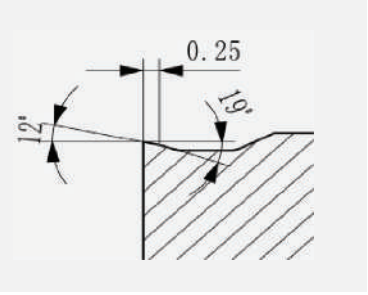
GR





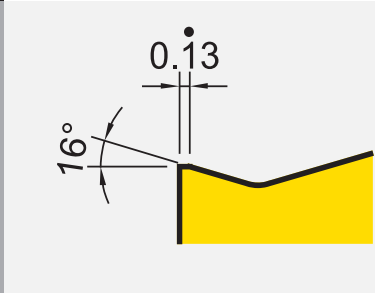
- Negative chamfer design, suitable for large depth of cut and larger feed
  parameters, to obtain high edge strength and high metal removal rate.
- Effective for heavy interruptions as well.

MS



- Superior cutting edge sharpness and strength achieved by a large positive land
- Extra strength of cutting edge inhibits damage from chipping and improves impact resistance

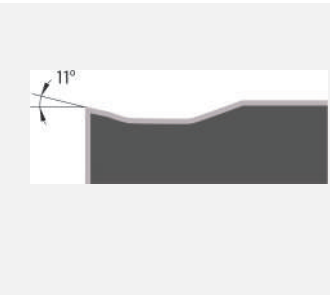
NN



- All purpose chipbreaker with combination of sharpness andstrength suitable for semi finish, especially on difficult to cut materials

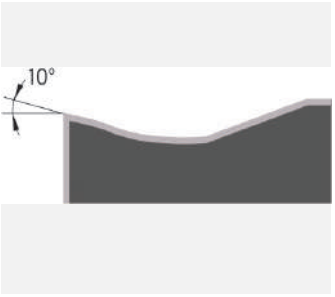
CHIPBREAKERS FOR NEGATIVE INSERTS (MULTI-GRADE PVD)

NM



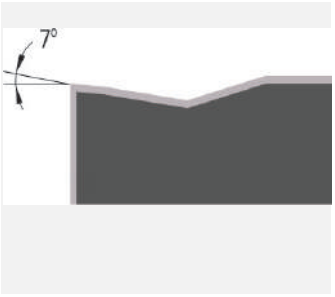
- Shape designed for stable chip processing
- Optimised chipbreaker for ISO S, M machining
- Sharp edges prevents welding
- Variable land helps in delaying crater wear

NR



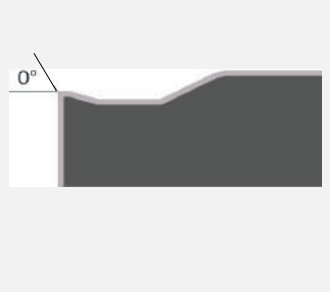
- Optimised geometry for S Series semi roughing
- Applies sharp cutting edge to reduce the load and ensure good finish
- Stable processing possible with wide land

NR1



- Designed for heavy roughing of S, M type materials
- Reinforced edge helps for managing high load
- Large land ensures in stable machining and avoiding early chip off

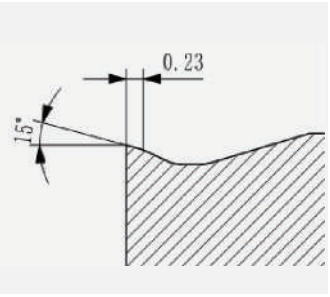
NR2



- Chipbreaker for roughing of larger inserts
- Wide chip pocket enables high speed roughing
- High DoC possible due to reinforced cutting edge

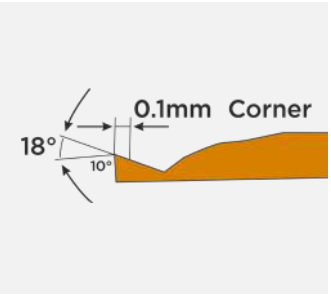
CHIPBREAKERS FOR NEGATIVE INSERTS (MULTI-GRADE PVD)

SM



- M-level double-sided chipbreaker.
- Adopting the double positive rake angle combines the sharpness and strength of the insert.
- The cutting resistance is small, and the wider chipbreaker ensures enough space for chip deformation, reducing groove wear.

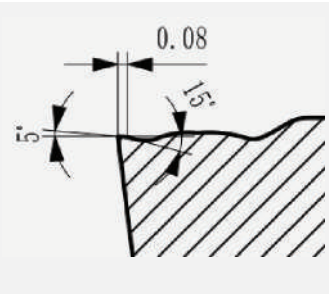
XS



- Single sided chipbreaker
- Mainly for general use in semi finishing of Steel, Stainless Steel and Cast Iron

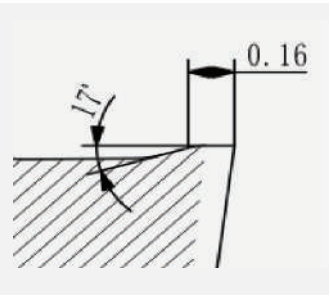
CHIPBREAKERS FOR POSITIVE INSERTS (MULTI-GRADE PVD)

GF



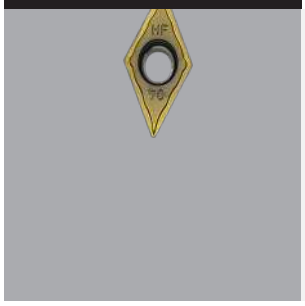
- The double positive rake angle design ensures the sharpness of the insert and low cutting resistance.
- The double chip breaker design broadens the chip breaking range.
- Suitable for finishing of steel, stainless steel and cast iron

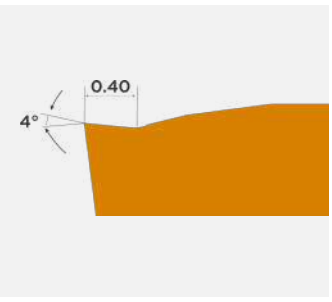
GM



- On the basis of ensuring the sharpness of the cutting edge, the strength of the cutting edge is enhanced.
- General Machining Chipbreaker Suitable for semi-finishing of steel stainless steel and cast iron.

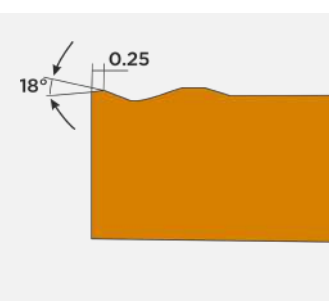
HF





- Chipbreaker for finishing with wide application with M-level tolerance inserts, it is suitable for internal and external finishing of various materials such as steel, stainless steel and cast iron.

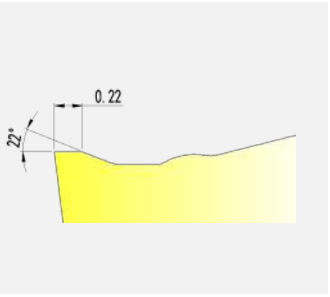
HM



- Chipbreaker for semi-finishing with wide application of positive inserts with M-level tolerance,
- It is suitable for internal and external semi - finishing of materials like steel, stainless steel, cast iron, etc

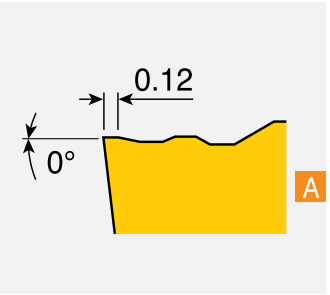
CHIPBREAKERS FOR POSITIVE INSERTS (MULTI-GRADE PVD)

HR



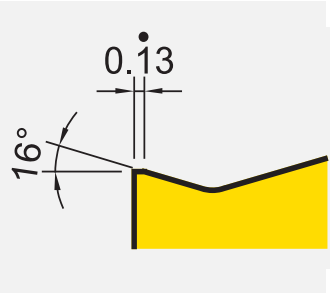
- General chipbreaker for positive inserts for roughing with M-level tolerance,
- It is suitable for both internal and external roughing of materials such as steel, stainless steel, cast iron, etc.

MT



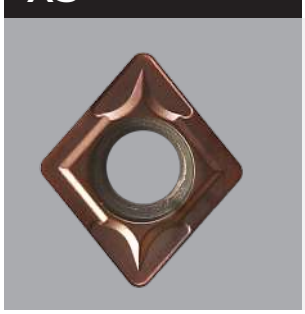
- Negative rake geometry for general use
- For medium to medium rough applications of Steel, stainless steel and cast iron machining

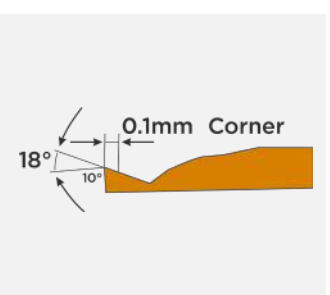
NN



- All purpose chipbreaker with combination of sharpness and strength suitable for semi finish, especially on difficult to cut materials

XS

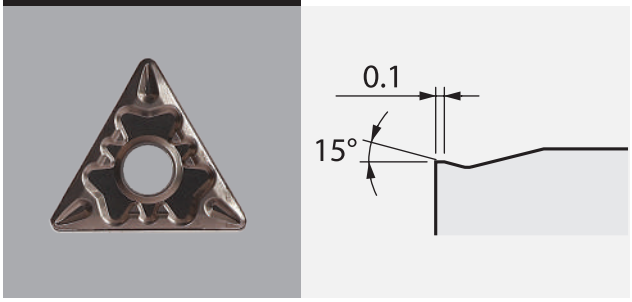




- Single sided chipbreaker
- Mainly for general use in semi finishing of Steel, Stainless Steel and Cast Iron

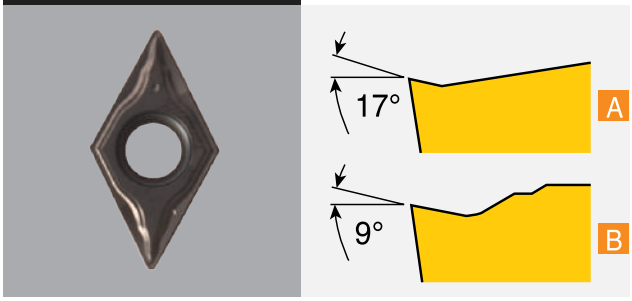
CHIPBREAKERS FOR CERMET INSERTS

FQ



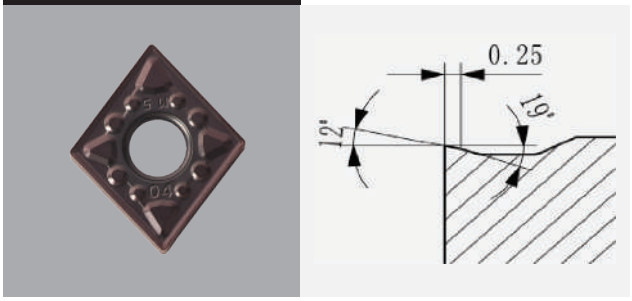
- Used for semi finish to finish applications
- Double sided chipbreaker with bulged rake angle enables sharp cutting

FG



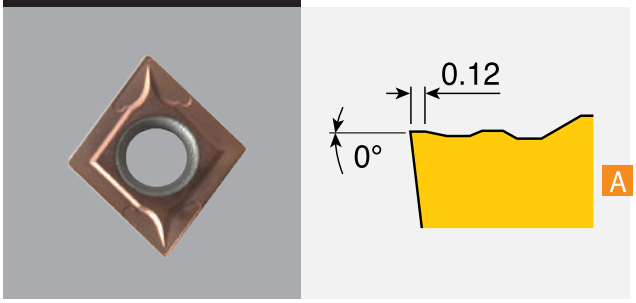
- Used mainly for finishing
- Low cutting forces
- Excellent chip control
- For finish and semi finish applications for Steel, stainless steel and cast iron machining

MS



- Superior cutting edge sharpness and strength achieved by a large positive land
- Extra strength of cutting edge inhibits damage from chipping and improves impact resistance

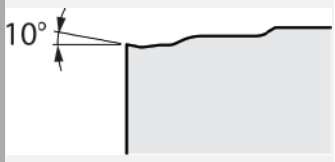
MT



- Negative rake geometry for general use
- For medium to medium rough applications of Steel, stainless steel and cast iron machining

CHIPBREAKERS FOR CERMET INSERTS

PP



- 3 step dot structure realizes stables chip control at a wide range of feed rate.
- Less cutting forced due to sharp cutting.

Turning Insert Identification System

Symbol	Shape
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Rhombic
D	55° Rhombic
E	75° Rhombic
F	50° Rhombic
M	86° Rhombic
V	35° Rhombic
W	Hexagon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stand for acute angle for rhombic and parallelogram inserts.

(1) Shape Symbol

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

(2) Relief Angle Symbol

Symbol (class)	Tolerance(mm)		
	Corner Height	Thickness	I.C. Size
A	± 0.05	±0.025	±0.025
F			±0.013
C	± 0.013		±0.025
H			±0.013
E	± 0.025		±0.025
G		± 0.13	
J	± 0.005	±0.025	±0.05~ ±0.15
K*	± 0.013		
L*	± 0.025		
M*	± 0.08~ ± 0.18	±0.13	
M*		±0.025	
U*	± 0.13~ ± 0.38	±0.13	±0.08~ ±0.25

*Insert's Periphery is as fired
Tolerances differences is depending on insert size

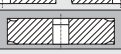
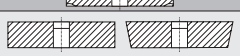
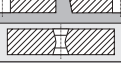
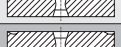
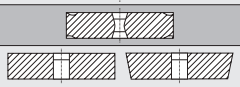
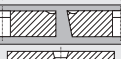
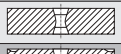
(3) Tolerance Symbol

ISO (METRIC)

C	N	M	G
(1)	(2)	(3)	(4)

(5) Edge Length Symbol (ISO)							I.C. Size (mm)
C	D	R	S	T	V	W	
03	04		03	06			3.97
04	05		04	08	08		4.76
		05					5
05	06		05	09		03	5.56
		06					6
06	07		06	11	11	04	6.35
08	09		07	13		05	7.94
		08					8
09	11	09	09	16	16	06	9.525
	12	10					10
		12					12
12	15	12	12	22	22	08	12.7
16	19	15	15	27	27	10	15.857
		16					16
19	23	19	19	33	33	13	19.05
		20					20
22	27		22	38			22.225
		25					25
25	31	25	25	44	44	17	25.4
32	38	21	21	54	54	21	31.75
		32					32

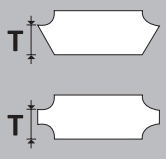
·Expressed as edge length for ISO.
·ANSI expresses the inscribed circle diameter in inches

Symbol (class)	Hole	Hole Shape	Insert Chipbreaker	Shape
N	NO		No	
R			One Sides	
F			Two Sides	
A	YES	White Hole	No	
M			One Sides	
G			Two Sides	
W		With Hole and One Countersink 40°-60°	No	
T			One Sides	
Q		With Hole and Two Countersink 40°-60°	No	
U			Two Sides	
B		With Hole and One Countersink 70°-90°	No	
H			One Sides	
C		With Hole and Two Countersink 70°-90°	No	
J			Two Sides	
X	-	-		
(4) How/ Chipbreaker Symbol				

12	04	08	GM
(5)	(6)	(7)	(8)

(6) Thickness Symbol

ISO	
Thickness (mm)	Symbol
1.59	01
1.98	T1
2.38	T2
3.18	03
3.97	T3
4.76	04
5.56	05
6.35	06
7.94	07
9.525	09



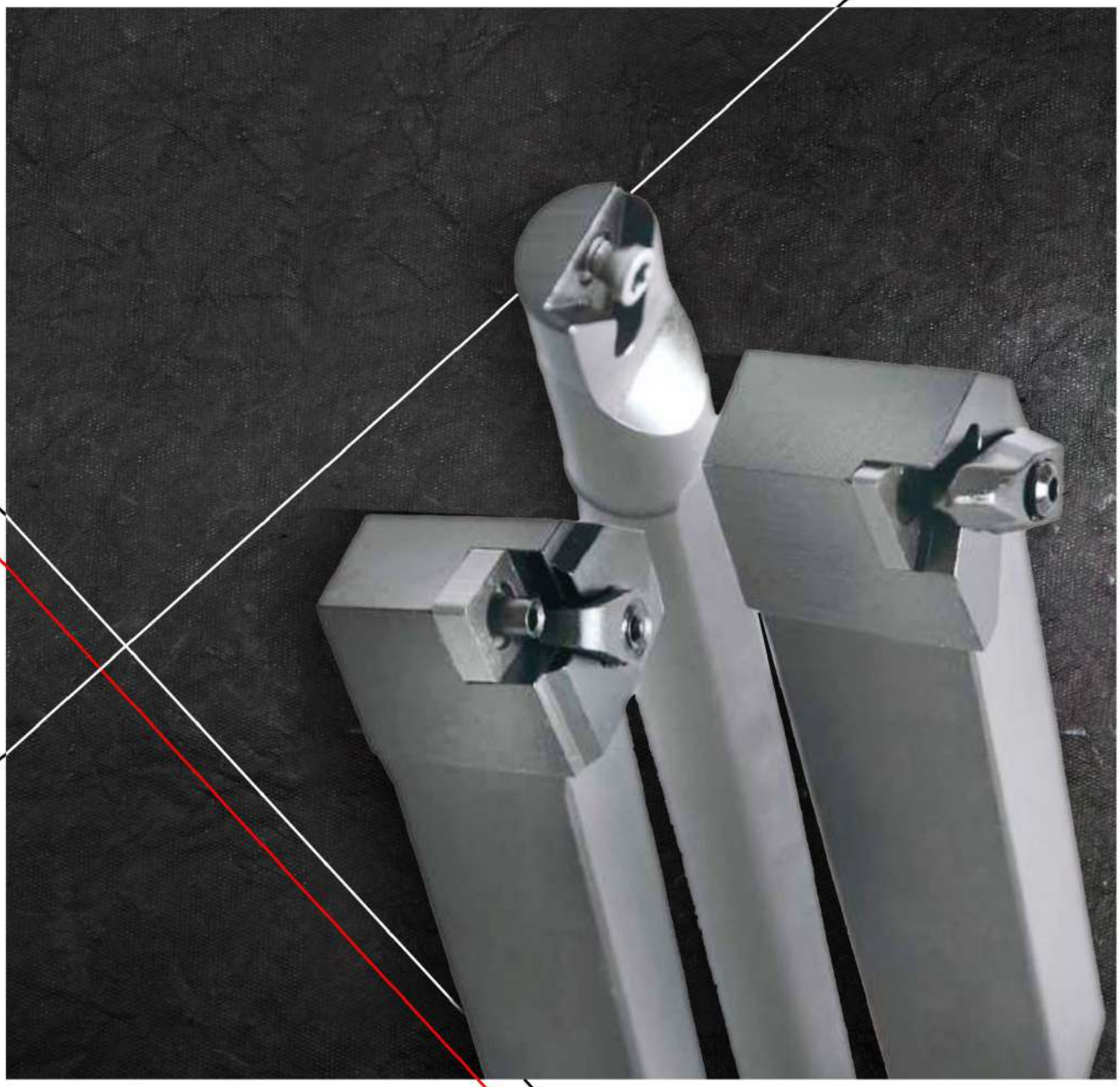
Thickness displayed as the distance between bottom surface & highest point on cutting edge.

(7) Corner-R() Symbol

ISO	
Corner-R(mm)	Symbol
Sharp Corner	00
0.03	003
0.05	005
0.1	01
0.2	02
0.4	04
0.8	08
1.2	12
1.6	16
2.0	20
2.4	24
2.8	28
3.2	32
Round insert	00 (inch) or M0 (metric)

(8) Manufacture's Option

Hans Symbol Chipbreaker Symbol, etc.



TURNING HOLDER

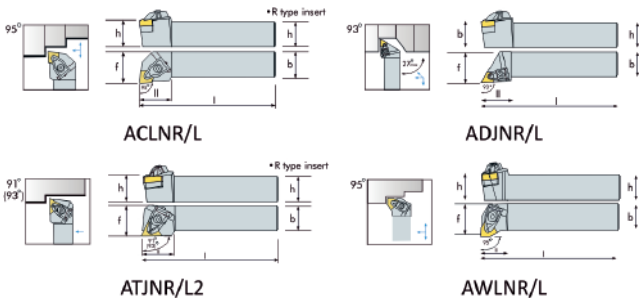
Best quality screw type and double clamp turning holders & boring bars , which apart from being economically priced and readily available, will increase your tool life as well.

TURNING HOLDERS & BORING BARS

Tool Holders for General Purpose Machining.

A - Type Holders

Designation	b	h	l	l1	F	Inserts	Shim	Clamp	Clamp Screw	Insert Screw	Wrench	Spring	Availability
X-ACLNR/L2525-M12	25	25	150	30	32	CNMG12	TC1203	DLM4	DLS4	M5x12T	L3.0 / T20	DSP4	o
X-ADJNR/L2525-M15	25	25	150	39	32	DNMG1506	TD1503	DLM4	DLS4	M5x12T	L3.0 / T20	DSP4	o
X-ATJNR/L2525-M16	25	25	150	25	32	TNMG16	MT1603	DLM3	DLS3	A-M4	L2.5	DSP3	o
X-AWLNR/L2525-M08	25	25	150	25	32	WNMG08	TW0803	DLM4	DLS4	M5x12T	L3.0 / T20	DSP4	o

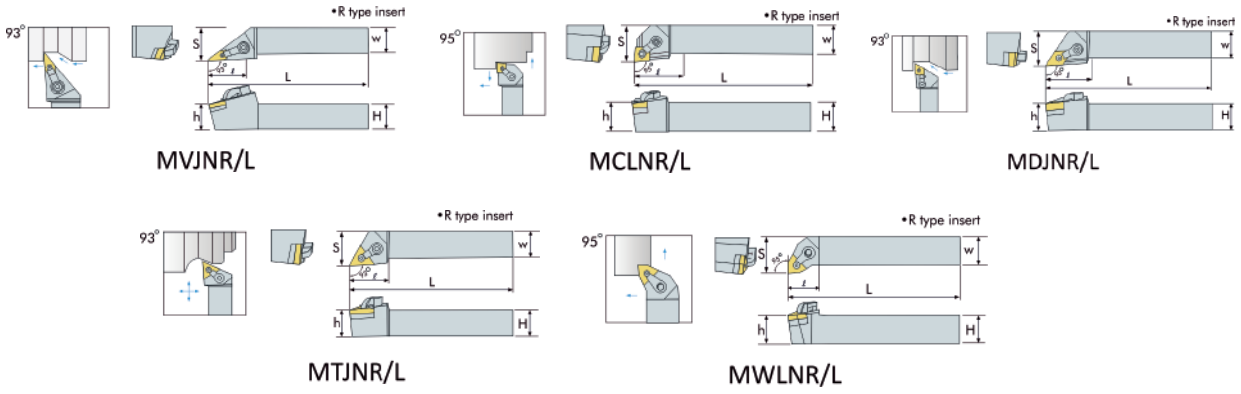


TURNING HOLDERS & BORING BARS

Tool Holders for General Purpose Machining.

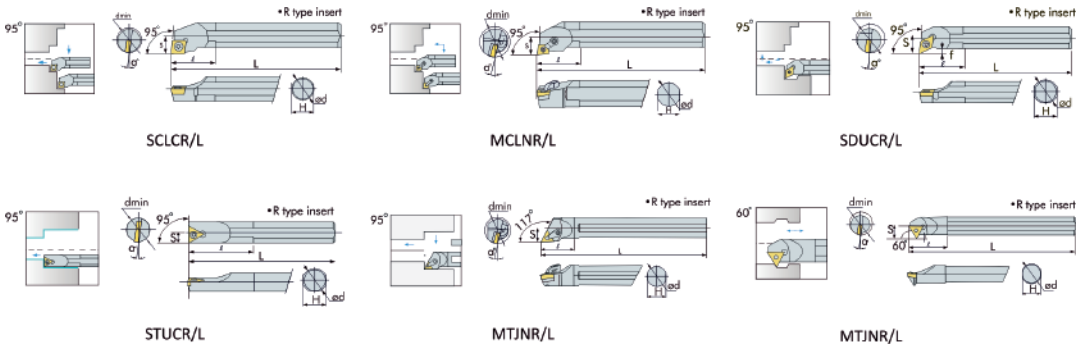
M - Type Holders

Designation	H	W	L	l	H	S	Inserts	Shim	Pin	Clamp	Clamp Screw	Wrench
X-MCLNR/L2020-K12	20	20	125	32	20	25	CNMG12	MC1204	CTM617	HL1814	ML0625	L2.5 / L3.0
X-MCLNR/L2525-M12	25	25	150	32	25	32	CNMG12	MC1204	CTM617	HL1814	ML0625	L2.5 / L3.0
X-MCLNR/L2525-M16	25	25	150	32	25	32	CNMG16	MC1604	CTM822	HL2217	ML0830	L3.0 / L4.0
X-MDJNR/L2525-M15	25	25	150	38	25	32	DNMG1506	MD1506	CTM619	HL2114	ML0625	L2.5 / L3.0
X-MTJNR/L2020-K16	20	20	125	28	20	25	TNMG16	MC1204	CTM617	HL1814	ML0625	L2.5 / L3.0
X-MTJNR/L2525-M16	25	25	150	28	25	32	TNMG16	MC1204	CTM617	HL1814	ML0625	L2.5 / L3.0
X-MVJNR/L2525-M16	25	25	150	42	25	32	VNMG16	MC1604	CTM822	HL2114	ML0625	L2.5 / L3.0
X-MWLNR/L2020-K06	20	20	125	27	20	25	WNMG06	MD1506	CTM619	HL1814	ML0625	L2.5 / L3.0
X-MWLNR/L2020-K08	20	20	125	27	20	25	WNMG06	MC1604	CTM617	HL1814	ML0625	L2.5 / L3.0
X-MWLNRL2525-M06	25	25	150	27	25	32	WNMG06	MD1506	CTM822	HL1814	ML0625	L2.5 / L3.0
X-MWLNR/L2525-M08	25	25	150	27	25	32	WNMG06	MD1506	CTM619	HL1814	ML0625	L2.5 / L3.0



S - Type Boring Bars

Designation	D MIN	Ø D	S	L	l	H	F	a°	INSERTS
X-S08K-SCLCR/L06	9	8	5.5	125	18	7	-	13°	CCMT06
X-S10K-SCLCR/L06	11	10	7	125	22	9	-	12°	CCMT06
X-S12M-SCLCR/L06	13	12	8	150	25	11	-	10°	CCMT06
X-S16Q-SCLCR/L09	17	16	11	180	34	15	-	10°	CCMT09
X-S20Q-SCLCR/L09	21	20	13	180	38	18	-	8°	CCMT09
X-S20Q-MCLNR/L12	23	20	13	180	45	18	-	15°	CNMG12
X-S25R-MCLNR/L12	30	25	17	200	45	23	-	12°	CNMG12
X-S32S-MCLNR/L12	38	32	22.5	250	50	30	-	17°	CNMG12
X-S20Q-SDUCR/L11	23	20	13	180	40	18	2.7	6°	DCMT11
X-S25R-SDUCR/L11	29	25	17	200	42	23	4	5°	DCMT11
X-S10K-STUCR/L11	11	10	6	125	24	9	-	12°	TCMT11
X-S16Q-STUCR/L11	13	12	8	150	27	11	-	10°	TCMT11
X-S20Q-STUCR/L11	17	16	9	180	32	15	-	8°	TCMT11
X-S25R-STUCR/L16	21	20	11	180	37	18	-	6°	TCMT11
X-S25R-MTJNR/L16	26	25	14	200	45	23	-	6°	TCMT16
X-S32S-MTJNR/L16	30	25	17	200	45	23	-	12°	TNMG16
X-S32S-MCLNR/L12	38	32	22	250	54	30	-	17°	TNMG16
X-S20Q-SDUCR/L11	29	20	19	200	45	18	8.5	8°	VBMT16
X-S25R-SDUCR/L11	32	25	20	200	50	23	7	6°	VBMT16
X-S10K-STUCR/L11	38	32	22	200	50	30	5.5	6°	VBMT16



Boring Bar Spares P.T.O

Spares List For S-Type Boring Bar

Designation	Shim	Pin	Clamp	Clamp Screw	Insert Screw	Anvil Screw	Wrench
X-S08K-SCLCR/L06	-	-	-	-	18	-	T-8
X-S10K-SCLCR/L06	-	-	-	-	22	-	T-8
X-S12M-SCLCR/L06	-	-	-	-	25	-	T-8
X-S16Q-SCLCR/L09	-	-	-	-	34	-	T-15
X-S20Q-SCLCR/L09	-	-	-	-	38	-	T-15
X-S20Q-MCLNR/L12	-	CTM613	HL1814	ML0625	-	-	L2.5 / L3.0
X-S25R-MCLNR/L12	-	CTM613	HL1814	ML0625	-	-	L2.5 / L3.0
X-S32S-MCLNR/L12	MC1204	CTM617	HL1814	ML0625	-	-	L2.5 / L3.0
X-S20Q-SDUCR/L11	-	-	13	180	40	-	T-15
X-S25R-SDUCR/L11	-	-	17	200	42	-	T-15
X-S10K-STUCR/L11	-	-	6	125	24	-	T-8
X-S12M-STUCR/L11	-	-	8	150	27	-	T-8
X-S16Q-STUCR/L11	-	-	9	180	32	-	T-8
X-S20Q-STUCR/L11	-	-	11	180	37	-	T-8
X-S25R-STUCR/L16	-	-	14	200	45	-	T-8
X-S25R-MTJNR/L16	-	CTM510	HL1814	ML0625	45	-	L2.5 / L3.0
X-S32S-MTJNR/L16	-	CTM513	HL1814	ML0625	54	-	L2.5 / L3.0
X-S20R-SVUBR/L16	-	-	-	-	M3.5x9	-	T-15
X-S25R-SVUBR/L16	-	-	-	-	M3.5x9	-	T-15
X-S32R-SVUBR/L16	-	-	-	-	M3.5x9	-	T-15

Spares Kit All Type

M Type Holders Spare Kit
SPARE KIT M TYPE CNMG12
SPARE KIT M TYPE CNMG16
SPARE KIT M TYPE DNMG15
SPARE KIT M TYPE TNMG16
SPARE KIT M TYPE VNMG16
SPARE KIT M TYPE WNMG06
SPARE KIT M TYPE WNMG08

A Type Holders Spare Kit
SPARE KIT A TYPE CNMG12
SPARE KIT A TYPE DNMG15
SPARE KIT A TYPE TNMG16
SPARE KIT A TYPE WNMG08

Boring Bar Spare Kit
SPARE KIT BORING BAR CCMT06
SPARE KIT BORING BAR CCMT09
SPARE KIT BORING BAR CNMG12
SPARE KIT BORING BAR DCMT11
SPARE KIT BORING BAR TCMT11
SPARE KIT BORING BAR TNMG16
SPARE KIT BORING BAR VBMT16