



ISO	General turning							Threading	Parting and grooving			
	Code	Coating		Cermet	Coated cermet	Ceramic	Cemented carbide	PCBN	PCD	Coating		Cemented carbide
		CVD	PVD							PVD	CVD	
P Steel	01											
	10	YBC151										
	20	YBC251	YBC152									
	30		YBC252							YBG202	YBC151	YBG205
	40		YBC351								YBC251	YBG302
M Stainless steel	01											
	10	YBM151	YBM153									
	20	YBM251										
	30	YBM253										
	40											
K Cast iron	01											
	10	YBD052	YBD102									
	20		YBD152									
	30		YBD252									
	40											
N Non ferrous metal	01											
	10											
	20											
	30											
	40											
S Heat resistant alloy & Ti alloy	01											
	10											
	20		YBS103	YBG102								
	30		YBG105	YBG202								
	40											
H Super hard material	01											
	10											
	20											
	30											
	40											

General turning

Recommended overview for turning inserts



Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For finishing	SF	M			<p>Recommended chipbreaker for finishing of P-type materials</p> <p>Double-sided chipbreaker with M-level tolerance has outstanding performance in finishing, achieving good surface quality.</p>
	DF	M			<p>Recommended chipbreaker for finishing of P-type materials</p> <p>Double-sided chipbreaker with M-level tolerance has sharp edges, which can effectively cut off stainless steel and avoid adhering and surface hardening, achieving high surface quality.</p>
	EF	M			<p>Recommended chipbreaker for finishing of M-type materials</p> <p>Double-sided chipbreaker with M-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.</p>
	NF	E			<p>Recommended chipbreaker for finishing of S-type materials</p> <p>Double-sided chipbreaker with E-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.</p>
	NGF	E			<p>Recommended chipbreaker for finishing of S-materials</p> <p>E-class double side chip breaker with excellent sharp edge. High positioning accuracy, light cutting force.-NGF is recommended chip breaker for S series material general finishing.</p>
	WGF	M			<p>Recommended chipbreaker for finishing of S-materials</p> <p>E-class double side chip breaker with excellent sharp edge. High positioning accuracy, light cutting force.-NGF is recommended chip breaker for S series material general finishing.</p>
For semi-finishing	DM	M			<p>Recommended chipbreaker for semi-finishing of P-type materials</p> <p>Double-sided chipbreaker with M-level tolerance produces small cutting forces and has large chip breaking range, which ensures good performance for machining highly adhesive alloy steel.</p>
	PM	M			<p>Recommended chipbreaker for semi-finishing of P-type materials</p> <p>Double-sided chipbreaker with M-level tolerance has higher strength of cutting edge than chipbreaker DM. It is suitable for semi-finishing under unstable working conditions as well as machining cast iron with small cutting forces.</p>

General turning

General turning inserts overview

For finishing

For semi-finishing



Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	NM	M			<p>Recommended chipbreaker for semi-finishing of S-type materials</p> <p>Double-sided chipbreaker with M-class tolerance keeps high precision after inserts are turned, with good capability to prevent wear and hardening to achieve higher machining efficiency than chipbreaker NF.</p>
	EM	M			<p>Recommended chipbreaker for semi-finishing of M-type materials</p> <p>Double-sided chipbreaker with M-level tolerance can solve the processing problems such as chip breaking and adhering of stainless steel, achieving higher machining efficiency than chipbreaker EF.</p>
	WGM	M			<p>Wiper chipbreaker for semi-finishing</p> <p>Double-sided chipbreaker with M-level tolerance, semi-finishing chipbreaker with wiper designed, perfect combination of good wiper result and sturdy cutting edge structure, which perfectly meet the requirement of high efficiency and good surface quality.</p>
	All round	M			<p>From semi-finishing to roughing of P-type, M-type, K-type materials</p> <p>Double-sided chipbreaker with M-level tolerance has good cutting edge strength and wide application.</p>
Light-load roughing	DR Double-side	M			<p>Recommended chipbreaker for light roughing of P-type and K-type materials</p> <p>Double-sided chipbreaker with M-level tolerance is the first choice for light roughing, can achieve high evacuation rate and efficiency of cutting edge.</p>
	LR Single-side	M			<p>Recommended chipbreaker for light-load roughing of P-type materials</p> <p>Single-sided general chipbreaker with M-level tolerance, has wide chip breaking range and sharp cutting edge is designed with inclined angle, which enables it to cut lightly and easily and control the chipping flow direction. Chip-leaded-stages can reduce the contact area with chips, so that heat can easily be dissipated.</p>
For roughing	ER Single/Double side	M			<p>Recommended chipbreaker for roughing of M-type materials</p> <p>Single / double-sided chipbreaker with M-level tolerance has good capacity of impact-resistance. It is designed to achieve balance between security and sharpness of the cutting edge, and it can achieve high efficiency by preventing the problems of adhering and high cutting heat when roughing stainless steel.</p>



TURNING General Turning Inserts

General turning inserts overview

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For roughing	DR Single-side	M			<p>Recommended chipbreaker for roughing of P-type materials</p> <p>Single-sided chipbreaker with M-level tolerance has high security of cutting edge, which can achieve high feed rate and low cutting forces at great cutting depth and high feed rate.</p>
	SNR				<p>Recommended chipbreaker for S-material high efficiency roughing</p> <p>M-level double-sided chipbreaker perfectly combines sharpness and strength of the cutting edge, with small cutting resistance and high edge strength can effectively reduce groove wear. SNR is recommended chipbreaker for high depth roughing of S- materials.</p>
Heavy-load machining	HDR Single-side	M			<p>Recommended chipbreaker for heavy lad machining of P materials</p> <p>M level single-sided chip breaker with strengthen cutting edges, high safety and excellent plastic deformation resistance under high metal removal rate.</p>
	HPR Single-side				<p>Recommended chipbreaker for heavy-load machining of P-type materials</p> <p>Single-sided chipbreaker with M-level tolerance, strong cutting edge. Multi-stages chipbreaker ensures the flowing of chip and heat dissipation of insert. It is suitable for machining under unstable and relatively bad working condition, especially for external roughing of work piece with a rough oxidized surfaces.</p>
Cast iron machining	Without chipbreaker	M			<p>For cast iron machining</p> <p>Double-sided chipbreaker with M-level tolerance has high cutting edge strength. It can overcome inferior factors such as intetruption and vibration, etc. when machining cast iron.</p>
Super hard inserts	Without chipbreaker	G			<p>For machining of non-ferrous metal and high-hardness metal</p> <p>G-level tolerance is the best choice for machining non-ferrous metals and high-hardness material by welding PCBN and PCD material to cemented carbide substrate.</p>
Ceramic inserts	Without chipbreaker	G			<p>For roughing of K-, H- high-temperature alloy roughing</p> <p>Sialon Ceramics, V-positioning, solution for high-speed machining of cast iron, hardened steel and superalloy.</p>

General turning

General turning inserts overview

Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For extra finishing	USF 	G			Precision turning chipbreaker With G-level tolerance, large rake angle, sharp cutting edge, for soft cutting action, this is the first choice for precision turning of small shaft parts.
	R/L 	G			Recommended chipbreaker for precise boring inserts With G-level tolerance, sharp cutting edge and small nose radius, it can effectively reduce the vibration in machining and is suitable for boring and external turning.
	SF 	G			First choice for finishing with high requirements on chipbreaker With G-level tolerance, it is the first choice for precise finishing due to its excellent performance on chip breaking.
For finishing	HF 	M			Chipbreaker for finishing with wide application With M-level tolerance, it is suitable for internal and external finishing of various materials such as steel and cast iron.
	EF 	M			Recommended chipbreaker for finishing of M-type materials With M-level tolerance, it has sharp cutting edges and is suitable for cutting adhesive materials such as stainless steel, soft steel, etc.
	NF 	E G			Recommended chipbreaker for finishing S-type materials With E and G-level tolerance and sharp cutting edges, it is suitable for internal and external finishing of high-temperature alloy materials.
	NGF 	E G			Recommended chipbreaker for S-material general finishing E, G grade accuracy, for inner hole finishing of S materials.
	HM 	M			Chipbreaker for semi-finishing with wide application With M-level tolerance, it is suitable for internal and external semi-finishing of materials like steel, cast iron, etc.
For semi-finishing	EM 	M			Recommended chipbreaker for semi-finishing of M-Type materials With M-level tolerance, it has higher hardness of cutting edge than EF and can achieve higher efficiency.

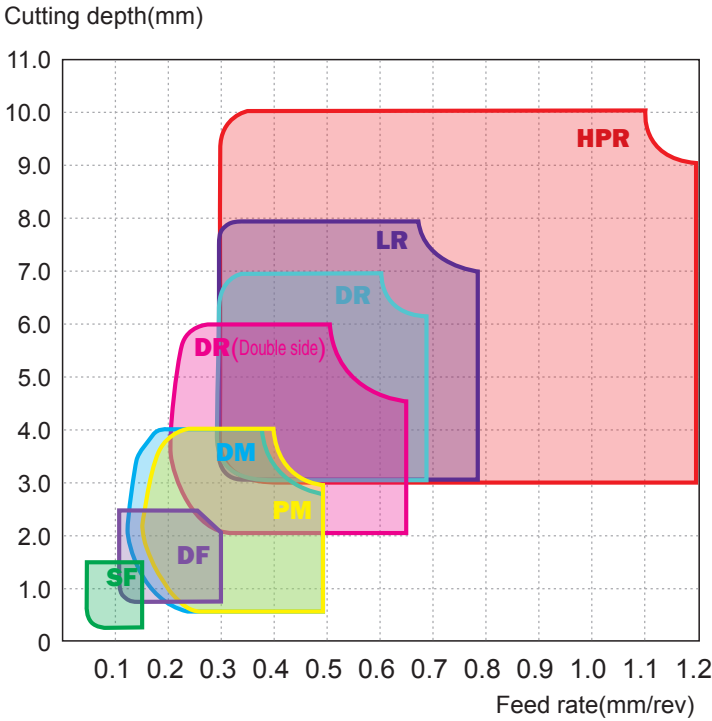


Positive inserts with hole

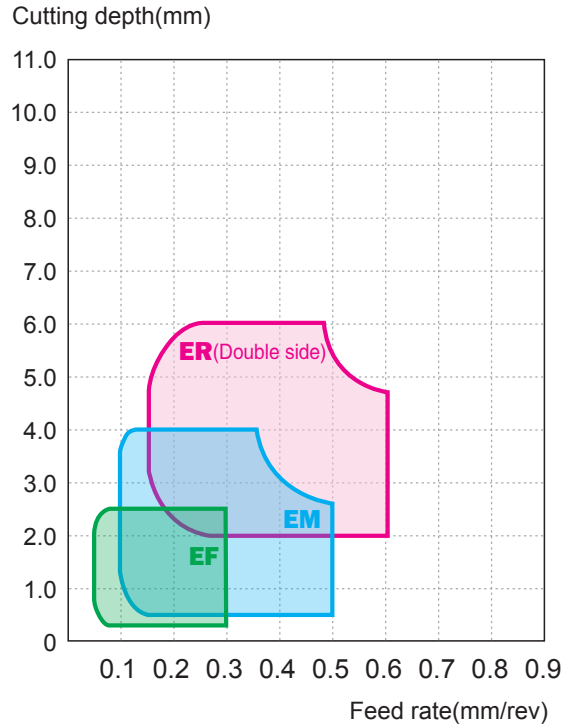
Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature/Shape of insert
For semi-finishing	All round	M			<p>Recommended chipbreaker for semi-finishing of M-type materials</p> <p>With M-level tolerance, it is suitable for profile machining materials like steel, cast iron, etc.</p>
	Without chipbreaker	M G			<p>Chipbreaker for machining of cast iron</p> <p>With M- and G- level tolerance, it has high cutting edge strength and is suitable for internal and external machining of cast iron.</p>
For roughing	HR	M			<p>General chipbreaker for roughing</p> <p>With M-level tolerance, it is suitable for both internal and external roughing of materials such as steel, stainless steel, cast iron, etc.</p>
	Special chipbreaker	M			<p>Recommended chipbreaker for heavy machining of P-type materials</p> <p>Single-sided with M-level tolerance, it has good cutting edge strength with high security. It is the first choice for profile roughing.</p>
	SNR	M			<p>Recommended chipbreaker for S-material high-efficiency roughing</p> <p>M-level accuracy, for inner hole roughing of S materials.</p>
For Al machining	LC	G			<p>Chipbreaker for machining of Al alloy</p> <p>With G-level tolerance, large rake angle and clearance angle make the cutting edge sharper, ensuring easy and fast cutting while remaining effective chip breaking.</p>
	LH	G			<p>Special chipbreaker for machining of Al alloy</p> <p>With G-level tolerance, large rake angle and polishing treatment on surface, it can effectively prevent built-up edge and achieve high workpiece surface quality while maintaining long life.</p>
Super hard inserts	Without chipbreaker	G			<p>Special chipbreaker for non-ferrous metals and materials with high hardness</p> <p>With G-level tolerance, it is the best choice for machining of non-ferrous metals and materials with high-hardness by welding PCBN and PCD material to cemented carbide substrate.</p>

Chip breaking range reference for general turning inserts

Negative inserts



▶ Workpiece material: 45# steel

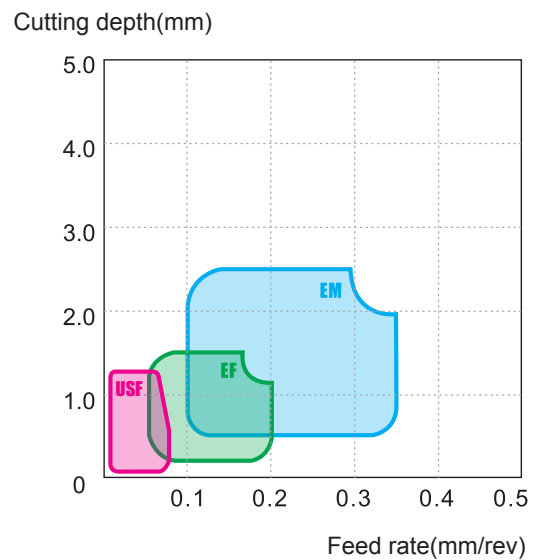


▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

Positive inserts



▶ Workpiece material: 45# steel



▶ Workpiece material: stainless steel (1Cr18Ni9Ti)



Cutting test for chip breaking range of general turning inserts

Case

Insert: CNMG120408-DF
 Toolholder: PCLNL2525M12
 Workpiece material: 45# steel
 Cutting speed: 200m/min

