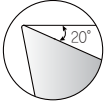
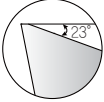
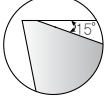


Application and Features of Chip Breakers

Chip breakers		Cutting-edge	Application	Features
ML			For hard-to-cut materials For Ti & inconel	Ensures superior machining quality by applying a low cutting resistance chip breaker and high-strength cutting edge design suitable for machining hard-to-cut materials
MF			For light cutting	Suitable for light cutting with a low cutting resistance chip breaker design
MM			For multi-purpose	Available for most cutting area with its exclusive design suitable for general high feed machining

Recommended Cutting Conditions

※ Recommended chip breaker: ● 1st ○ 2nd



Workpiece						Grade	Cutting conditions				Available chip breaker		
ISO	Workpiece materials	ISO (DIN)*	AISI	KS	HB (HRC)		vc (m/min)	fz (mm/t)	ap (mm)	ae	ML	MF	MM
P	Mild steel	C25 (CK22)*	1020	SM20C	120-180	PC5400 (PC5300)	100-220	0.3-1.2	0.2-1.0	0.7D-0.1D	○	●	-
	Carbon steel	C45/C45E4 (C45/CK45)*	1042 1045	SM45C	200	PC5400 (PC5300)	100-200	0.3-1.2	0.2-1.0	0.7D-0.1D	○	●	-
	Alloy steel	41CrMo4	4140	SCM440	270(28)	PC3700 (PC5300)	100-200	0.3-1.2	0.2-1.0	0.7D-0.1D	○	●	-
	Pre-hardened steel	- (1,2738)*	P20 (Improved)	KP4M	300(32)	PC3700 (PC5300)	100-180	0.3-1.0	0.2-0.8	0.7D-0.1D	-	●	○
		-	P21 (Improved)	NIMAX	370(40)	PC3700 (PC5300)	100-180	0.3-1.0	0.2-0.8	0.7D-0.1D	-	●	○
		-	P21 (Improved)	CENA1	370(40)	PC3700 (PC5300)	100-180	0.3-1.0	0.2-0.8	0.7D-0.1D	-	●	○
		-	P21 (Improved)	NAK80	400(43)	PC3700 (PC5300)	100-180	0.3-1.0	0.2-0.8	0.7D-0.1D	-	●	○
	Alloy tool steel	- (X165CrV Mo12-1 X40CrMoV5-1)*	420	STAVAX	510(52)	PC3700 (PC2510)	80-150	0.3-0.7	0.2-0.8	0.7D-0.1D	-	●	○
M	Stainless steel	- (X5CrNiMo17-12-2)*	316	STS316	Under 270	PC5400 (UNC840)	90-180	0.3-0.8	0.2-0.8	0.7D-0.1D	●	○	-
K	Grey cast iron, Ductile cast iron	450-10 (GGG40.3)*	65-45-12	GCD450	Tensile Strength Over 450Mpa	PC5300 (PC5400)	130-220	0.3-0.9	0.2-1.0	0.7D-0.1D	-	●	○
S	HRSA	Fe series (WS 2.4662)*	N09901	Incoroy901	- (25-35)	UNC840 (PC5300)	30-100	0.3-0.6	0.2-0.6	0.4D-0.7D	●	○	-
		Ni or Co series (WS 2.4668)*	N07718	Inconel718	- (35-45)	UNC840 (PC5300)	30-45	0.3-0.7	0.2-0.6	0.4D-0.7D	○	●	-
	Titanium	- (TiAl6V4)*	R56400	Ti-6AL-4V	- (40-45)	UNC840 (PC5300)	30-50	0.3-1.0	0.2-0.6	0.7D-0.1D	●	○	-