RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

	Work Material	Hardness	Insert Grade 1st Recommenedation	Insert Grade 2nd Recommenedation	Breaker		Cutting Width **ae** (inch) ≤0.15DC	0.15—0.3DC	DC (Slot)
							Cutting Speed **vc** (SFM)		
P	Mild Steel	≤180HB	MP6120	VP15TF	M	H	655(525—820)	525(395—655)	460(395—525)
			MP6130	VP20RT	M	H	560(425—720)	425(295—560)	360(295—425)
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	M	H	525(395—655)	395(330—460)	330(260—395)
			MP6130	VP20RT	M	H	425(295—560)	295(230—360)	230(165—295)
M	Stainless Steel	≤270HB	MP7130	VP15TF	M	H	525(395—655)	395(330—460)	330(260—395)
K	Gray Cast Iron	≤350MPa	MC5020	VP15TF	H		755(590—920)	620(460—785)	620(460—785)
	Ductile, Cast Iron	≤800MPa	MC5020	VP15TF	H		620(460—720)	560(395—720)	560(395—720)
S	Titanium Alloy	≤350HB	MP9120	VP15TF	H	M	165(130—230)		165(130—230)
			MP9130	VP20RT	H	M	130(100—195)		130(100—195)
	Heat-resistant Alloy	—	MP9120	VP15TF	H	M	130(100—195)		130(100—195)
			MP9130	VP20RT	H	M	100(65—130)		100(65—130)

DEPTH OF CUT / FEED PER TOOTH

	Work Material	Hardness	Cutting Width **ae** (inch)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (IPT) Cutter Diameter (inch) ϕ1.5"(Max.ap=2.2") ϕ2.0"(Max.ap=1.65") ϕ40(Max.ap=56mm(2.205") ϕ50 (Max.ap=42mm(1.654")	ϕ2.0"(Max.ap=2.2") ϕ2.5"(Max.ap=2.2") ϕ50(Max.ap=56mm(2.205") ϕ63 (Max.ap=56mm(2.205")	ϕ2.0"(Max.ap=3.3") ϕ50(Max.ap=84mm(3.307")
P	Mild Steel	≤180HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.787	.008	.008	.006
				.787—1.969	.006	.006	
	Carbon Steel Alloy Steel	180—350HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.787	.006	.006	.004
				.787—1.969	.004	.004	
M	Stainless Steel	≤270HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.394	.004	.004	.003
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.15DC	≤.394	.012	.012	.010
				.394—1.969	.010	.010	.008
				1.969—3.150			.006
			.15—.3DC	≤.394	.010	.010	.008
				.394—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.394	.010	.010	.008
				.394—1.969	.008	.008	.006
	Ductile, Cast Iron	Tensile Strength ≤800MPa	≤.15DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			.15—.3DC	≤.787	.008	.008	.006
				.787—1.969	.006	.006	.004
				1.969—3.150			.003
			DC (Slot)	≤.394	.006	.006	.004
				.394—1.969	.004	.004	
S	Titanium Alloy	≤350HB	≤.15DC	≤.787	.004	.004	
				.787—1.969	.004	.004	
			DC (Slot)	≤1.969	.003	.003	
	Heat-resistant Alloy	—	≤.15DC	≤.394	.003	.003	
			DC (Slot)	≤.787	.002	.002	

(Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece, where no vibration occurred.
Please adjust processing conditions if the vibration is generated.

OPERATIONAL GUIDANCE

- Use only specified inserts and parts.
- Clamp the inserts at a specified torque of only.
- The maximum allowable spindle speeds are shown in Table 1. Ensure that the cutter operates under the maximum allowable spindle speed.
  The maximum allowable spindle speeds for safety purposes are determined in accordance with ISO15641 (Milling Cutters for high speed machining–Safety requirements).

(Table 1) Maximum allowable spindle speed

Cutting Edge Diameter (inch)	ϕ.500"	ϕ.625"	ϕ.750"	ϕ1.000"	ϕ1.250"	ϕ1.500"	ϕ2.000"	ϕ2.500"	ϕ3.000"	ϕ4.000"
Max. Allowable Spindle Speed (min^{-1})	9900	19000	16000	12000	9500	7600	6000	4800	3800	3100

Cutting Edge Diameter **DC**(mm)	ø12	ø14	ø16	ø18	ø20	ø22	ø25	ø28	ø30
Max. Allowable Spindle Speed (min^{-1})	—	—	19000	17000	15000	14000	12000	11000	10000

Cutting Edge Diameter **DC**(mm)	ø32	ø35	ø40	ø50	ø63	ø80	ø100	ø125	ø160
Max. Allowable Spindle Speed (min^{-1})	9500	9000	7500	6000	5000	3500	3000	2500	1500