

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

Work Material		Hardness	Insert				Cutting Width ae (mm)		
			Grade		Breaker		≤0.15D1	0.15—0.3D1	D1 (Slot)
			1st Recommendation	2nd Recommendation					
P	Mild Steel	≤180HB	MP6120	VP15TF	M	H	200(160—250)	160(120—200)	140(120—160)
			MP6130	VP20RT	M	H	170(130—220)	130(90—170)	110(90—130)
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	M	H	160(120—200)	120(100—140)	100(80—120)
			MP6130	VP20RT	M	H	130(90—170)	90(70—110)	70(50—90)
M	Stainless Steel	≤270HB	MP7130	VP15TF	M	H	160(120—200)	120(100—140)	100(80—120)
K	Gray Cast Iron	≤350MPa	MC5020		H		230(180—280)	190(140—240)	190(140—240)
	Ductile, Cast Iron	≤800MPa	MC5020		H		190(140—220)	170(120—220)	170(120—220)
S	Titanium Alloy	≤350HB	MP9120	VP15TF	H	M	50(40—70)		50(40—70)
			MP9130	VP20RT	H	M	40(30—60)		40(30—60)
	Heat-resistant Alloy	—	MP9120	VP15TF	H	M	40(30—60)		40(30—60)
			MP9130	VP20RT	H	M	30(20—40)		30(20—40)

DEPTH OF CUT / FEED PER TOOTH

Work Material	Hardness	Cutting Width a_e (mm)	Depth of Cut a_p (mm)	Feed per Tooth f_z (mm/tooth)		
				Cutter Diameter (mm)		
				$\phi 40$ Length of cut 56mm $\phi 50$ Length of cut 42mm	$\phi 50$ Length of cut 56mm $\phi 63$ Length of cut 56mm	$\phi 50$ Length of cut 84mm
P	Mild Steel	$\leq 0.3D_1$	<20	0.25	0.25	0.20
			20–50	0.20	0.20	0.15
			50–80			0.10
		D ₁ (Slot)	<20	0.20	0.20	0.15
	Carbon Steel Alloy Steel	$\leq 0.3D_1$	20–50	0.15	0.15	
			<20	0.25	0.25	0.20
			20–50	0.20	0.20	0.15
			50–80			0.10
M	Stainless Steel	$\leq 0.3D_1$	<20	0.25	0.25	0.20
			20–50	0.20	0.20	0.15
			50–80			0.10
		D ₁ (Slot)	<10	0.10	0.10	0.07
K	Gray Cast Iron	$\leq 0.15D_1$	<10	0.30	0.30	0.25
			10–50	0.25	0.25	0.20
			50–80			0.15
		0.15–0.3D ₁	<10	0.25	0.25	0.20
			10–50	0.20	0.20	0.15
			50–80			0.10
	Ductile, Cast Iron	$\leq 0.15D_1$	<10	0.25	0.25	0.20
			10–50	0.20	0.20	0.15
			50–80			0.10
		0.15–0.3D ₁	<20	0.20	0.20	0.15
			20–50	0.15	0.15	0.10
			50–80			0.07
S	Titanium Alloy	$\leq 0.15D_1$	<20	0.10	0.10	
			20–50	0.10	0.10	
		D ₁ (Slot)	<50	0.08	0.08	
	Heat-resistant Alloy	$\leq 0.15D_1$	<10	0.07	0.07	
			<20	0.05	0.05	
		D ₁ (Slot)	<20			

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