

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

Work Material	Hardness	Insert				Cutting Width a_e (mm)		
		Grade		Breaker	$\leq 0.15D_1$	0.15–0.3D ₁	D ₁ (Slot)	
		1st Recommendation	2nd Recommendation					
								Cutting Speed v_c (m/min)
P Mild Steel	$\leq 180HB$	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	$\leq 270HB$	MP7130	VP15TF	M H	160(120–200)	120(100–140)	100(80–120)	
K Gray Cast Iron	$\leq 350MPa$	MC5020		H	230(180–280)	190(140–240)	190(140–240)	
	Ductile, Cast Iron	MC5020		H	190(140–220)	170(120–220)	170(120–220)	
S Titanium Alloy	$\leq 350HB$	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	$\leq 180HB$	$\leq 0.3D_1$	<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		
			20–50	0.15	0.15			
			50–80					
Carbon Steel Alloy Steel	180–350HB	$\leq 0.3D_1$	<20	0.25	0.25	0.20		
			20–50	0.20	0.20	0.15		
			50–80			0.10		
		D ₁ (Slot)	<20	0.15	0.15	0.10		
			20–50	0.10	0.10			
			50–80					
M Stainless Steel	$\leq 270HB$	$\leq 0.3D_1$	<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				
	10–50							
	50–80							
K Gray Cast Iron	Tensile Strength $\leq 350MPa$	$\leq 0.15D_1$	<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		
		D ₁ (Slot)	<10	0.25	0.25	0.20		
			10–50	0.20	0.20	0.15		
			50–80					
		Ductile, Cast Iron	Tensile Strength $\leq 800MPa$	$\leq 0.15D_1$	<20	0.25	0.25	0.20
					20–50	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		
D ₁ (Slot)	<10			0.15	0.15	0.10		
	10–50			0.10	0.10			
	50–80							
S Titanium Alloy	$\leq 350HB$			$\leq 0.15D_1$	<20	0.10	0.10	
					20–50	0.10	0.10	
				D ₁ (Slot)	<50	0.08	0.08	
		50–80						
Heat-resistant Alloy	–	$\leq 0.15D_1$	<10	0.07	0.07			
			10–50	0.05	0.05			

(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.