

# Recommended Cutting Conditions

## Cutting Speed

(mm)

Work Material	Insert			ae			
	Grade Priority		Chip Breaker	≤0.25DC	0.25-0.75DC	DC (Slot)	
	1st	2nd					
P Mild Steels	MP6120	VP15TF	M H	180(140-220)	150(110-180)	120(100-140)	
	MP6130	VP20RT	M H	160(120-200)	130(100-160)	100(80-120)	
	Carbon Steels Alloy Steels, Alloy Tool Steels	MP6120	VP15TF	M H	150(100-200)	120(90-150)	100(80-120)
		MP6130	VP20RT	M H	130(90-170)	90(70-110)	80(60-100)
	Pre-hardened Steels	MP6120	VP15TF	M H	120(80-160)	100(70-130)	90(50-120)
MP6130		VP20RT	M H	100(70-130)	90(60-120)	70(50-100)	
M Stainless Steels	MP7130		M	150(120-180)	120(100-140)	100(80-120)	
K Gray Cast Irons	MC5020		H	200(150-250)	180(150-210)		
	VP15TF		M H	180(120-240)	150(100-200)	100(60-140)	
Ductile Cast Irons	VP15TF		M H	160(120-200)	140(100-180)	80(60-100)	
N Aluminum Alloys	TF15	MP9120	GM M	400(200-800)	400(200-800)	400(200-800)	
S Titanium Alloys	MP9130		M	40(30-60)		40(30-60)	
	MP9120		M	50(40-70)		50(40-70)	
Heat Resistant Alloys	MP9120	VP15TF	M H	40(30-60)		40(30-60)	
	MP9130	VP20RT	M H	30(20-40)		30(20-40)	

## Depth of Cut / Feed per Tooth

(mm)

Work Material	Properties	ae	DC						
			ø20		ø25		ø32-ø50		
			ap	fz (mm/t.)	ap	fz (mm/t.)	ap	fz (mm/t.)	
P Mild Steels	≤180HB	≤0.25DC	≤28	0.15	≤37	0.17	≤55	0.2	
		0.25-0.75DC	≤28	0.12	≤37	0.15	≤55	0.17	
		DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08	
	Carbon Steels Alloy Steels	180-280HB	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17
			0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15
			DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08
	Tool Alloy Steels	≤350HB (Annealing)	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17
			0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15
			DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08
Pre-hardened Steels	35-45HRC	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17	
		0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15	
		DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08	
M Ferritic and Martensitic Stainless Steels	-	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17	
		0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15	
		DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08	
	Duplex Stainless Steels	≤280HB	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17
			0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15
			DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08
Precipitation Hardening Stainless Steels	<450HB	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17	
		0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15	
		DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08	
K Gray Cast Irons	Tensile Strength ≤350MPa	≤0.25DC	≤28	0.15	≤37	0.17	≤55	0.2	
		0.25-0.75DC	≤28	0.12	≤37	0.15	≤55	0.17	
		DC (Slot)	≤18	0.1	≤18	0.1	≤18	0.1	
Ductile Cast Irons	Tensile Strength ≤800MPa	≤0.25DC	≤28	0.12	≤37	0.15	≤55	0.17	
		0.25-0.75DC	≤28	0.1	≤37	0.12	≤55	0.15	
		DC (Slot)	≤18	0.08	≤18	0.08	≤18	0.08	
N Aluminum Alloys		≤0.25DC	≤28	0.15	≤37	0.17	≤55	0.2	
		0.25-0.75DC			≤9	0.17	≤9	0.2	
		DC (Slot)			≤9	0.17	≤9	0.2	
S Titanium Alloys	≤350HB	≤0.25DC	≤28	0.1	≤37	0.1	≤55	0.1	
		0.25-0.75DC							
		DC (Slot)	≤18	0.06	≤18	0.06	≤18	0.06	
Heat Resistant Alloys	-	≤0.25DC	≤28	0.08	≤37	0.08	≤55	0.08	
		0.25-0.75DC							
		DC (Slot)	≤18	0.05	≤18	0.05	≤18	0.05	

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