

RECOMMENDED CUTTING CONDITIONS

Cutting Speed

Workpiece Material	Insert			ae (mm)			
	Grade Priority		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 Aluminium 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

Workpiece Material	Characteristics	ae (mm)	DC (mm)						
			ø20		ø25		ø32–ø50		
			ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	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 Steel	<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 Aluminium 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 workpiece materials, where no vibration occurred. Please adjust machining conditions if the vibration is generated.