

Dry Cutting

Work Material	Properties	Grade		vc (SFM)	Finish Cutting		
					fz (IPT)	ap	
					L Breaker		
P					L Breaker		
Mild Steels	≤180HB	MP6120	VP15TF	820 (655–985)	.006 (.004–.008)	≤.039	
		MP6130	VP20RT	785 (620–950)	.006 (.004–.008)	≤.039	
		MX3030	–	590 (425–755)	.006 (.004–.008)	≤.039	
Carbon Steels Alloy Steels	180–350HB	MP6120	VP15TF	720 (560–885)	.006 (.004–.008)	≤.039	
		MP6130	VP20RT	655 (490–820)	.006 (.004–.008)	≤.039	
		MX3030	–	490 (395–590)	.006 (.004–.008)	≤.039	
Alloy Tool Steels	≤ 350HB (Annealing)	MP6120	VP15TF	720 (560–885)	.006 (.004–.008)	≤.039	
		MP6130	VP20RT	655 (490–820)	.006 (.004–.008)	≤.039	
		MX3030	–	490 (395–590)	.006 (.004–.008)	≤.039	
Pre-hardened Steels	35–45HRC	MP6120	VP15TF	460 (330–590)	.006 (.004–.008)	≤.039	
		MP6130	VP20RT	395 (295–490)	.006 (.004–.008)	≤.039	
M					L Breaker		
Austenitic Stainless Steels	≤200HB	MP7130	VP15TF	655 (490–820)	.006 (.004–.008)	≤.039	
		MP7140	VP20RT	655 (490–820)	.006 (.004–.008)	≤.039	
		MX3030	–	425 (330–590)	.006 (.004–.008)	≤.039	
Austenitic Stainless Steels	>200HB	MP7130	VP15TF	560 (395–720)	.006 (.004–.008)	≤.039	
		MP7140	VP20RT	560 (395–720)	.006 (.004–.008)	≤.039	
Duplex Stainless Steels	≤ 280HB	MP7130	VP15TF	525 (360–690)	.006 (.004–.008)	≤.039	
		MP7140	VP20RT	525 (360–690)	.006 (.004–.008)	≤.039	
Precipitation Hardening Stainless Steels	< 450HB	MP7130	VP15TF	490 (330–655)	.006 (.004–.008)	≤.039	
		MP7140	VP20RT	490 (330–655)	.006 (.004–.008)	≤.039	
K					L Breaker		
Gray Cast Irons	Tensile Strength ≤350MPa	MC5020	–	220 (200–270)	.006 (.004–.008)	≤.039	
		VP15TF	–	180 (130–250)	.006 (.004–.008)	≤.039	
		VP20RT	–	170 (120–240)	.006 (.004–.008)	≤.039	
		MX3030	–	150 (120–180)	.006 (.004–.008)	≤.039	
Ductile Cast Irons	Tensile Strength ≤450MPa	MC5020	–	200 (180–250)	.006 (.004–.008)	≤.039	
		VP15TF	VP20RT	160 (110–240)	.006 (.004–.008)	≤.039	
Ductile Cast Irons	Tensile Strength ≤800MPa	MC5020	–	200 (180–250)	.006 (.004–.008)	≤.039	
		VP15TF	–	160 (110–240)	.006 (.004–.008)	≤.039	
		VP20RT	–	150 (100–200)	.006 (.004–.008)	≤.039	
H					M Breaker		
Hardened Steels	40–55HRC	VP15TF	–	50 (30–70)	.002 (.002–.004)	≤.039	
Hardened Steels	55–62HRC	VP15TF	–	40 (20–50)	.002 (.002–.004)	≤.039	

Wet Cutting

Work Material	Properties	Grade		vc (SFM)	Finish Cutting		
					fz (IPT)	ap	
					L Breaker		
P					L Breaker		
Mild Steels	≤ 180HB	MP6120	VP15TF	490 (330–655)	.006 (.004–.008)	≤ .039	
		MP6130	VP20RT	490 (330–655)	.006 (.004–.008)	≤ .039	
Carbon Steels Alloy Steels	180–350HB	MP6120	VP15TF	395 (260–525)	.006 (.004–.008)	≤ .039	
		MP6130	VP20RT	395 (260–525)	.006 (.004–.008)	≤ .039	
Alloy Tool Steels	≤ 350HB (Annealing)	MP6120	VP15TF	395 (260–525)	.006 (.004–.008)	≤ .039	
		MP6130	VP20RT	395 (260–525)	.006 (.004–.008)	≤ .039	
Pre-hardened Steels	35–45HRC	MP6120	VP15TF	330 (260–395)	.006 (.004–.008)	≤ .039	
		MP6130	VP20RT	330 (260–395)	.006 (.004–.008)	≤ .039	
M					L Breaker		
Austenitic Stainless Steels	≤ 200HB	MP7130	VP15TF	425 (260–590)	.006 (.004–.008)	≤ .039	
		MP7140	VP20RT	425 (260–590)	.006 (.004–.008)	≤ .039	
Austenitic Stainless Steels	> 200HB	MP7130	VP15TF	330 (260–490)	.006 (.004–.008)	≤ .039	
		MP7140	VP20RT	330 (260–490)	.006 (.004–.008)	≤ .039	
Duplex Stainless Steels	≤ 280HB	MP7130	VP15TF	330 (260–490)	.006 (.004–.008)	≤ .039	
		MP7140	VP20RT	330 (260–490)	.006 (.004–.008)	≤ .039	
Precipitation Hardening Stainless Steels	< 450HB	MP7130	VP15TF	295 (165–460)	.006 (.004–.008)	≤ .039	
		MP7140	VP20RT	295 (165–460)	.006 (.004–.008)	≤ .039	
K					L Breaker		
Gray Cast Irons	Tensile Strength ≤ 350MPa	MC5020	–	590 (525–655)	.006 (.004–.008)	≤ .039	
		VP15TF	VP20RT	425 (330–525)	.006 (.004–.008)	≤ .039	
Ductile Cast Irons	Tensile Strength ≤ 450MPa	MC5020	–	590 (525–655)	.006 (.004–.008)	≤ .039	
		VP15TF	VP20RT	425 (330–525)	.006 (.004–.008)	≤ .039	
Ductile Cast Irons	Tensile Strength ≤ 800MPa	MC5020	–	590 (525–655)	.006 (.004–.008)	≤ .039	
		VP15TF	VP20RT	360 (260–460)	.006 (.004–.008)	≤ .039	
N					L Breaker		
Aluminum Alloys	–	TF15	–	1640 (655–3280)	.006 (.004–.008)	≤ .039	
S					L Breaker		
Titanium Alloys	–	MP9120	VP15TF	165 (130–195)	.002 (.002–.004)	≤ .039	
		MP9130	VP20RT	165 (130–195)	.002 (.002–.004)	≤ .039	
Heat Resistant Alloys	–	MP9120	VP15TF	130 (65–165)	.002 (.002–.004)	≤ .039	
		MP9130	VP20RT	130 (65–165)	.002 (.002–.004)	≤ .039	

(inch)

Light Cutting		Medium Cutting		Rough Cutting		Heavy Cutting	
fz (IPT)	ap	fz (IPT)	ap	fz (IPT)	ap	fz (IPT)	ap
L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
L,M Breaker		M Breaker					
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	—	—	—	—
L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
.006 (.004-.008)	≤.079	.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
L Breaker		L Breaker		L Breaker		L Breaker	
.006 (.004-.008)	≤.079	.008 (.006-.010)	≤.118	.008 (.006-.010)	≤.157	.010 (.008-.012)	≤.197
L,M Breaker		M Breaker					
.002 (.002-.004)	≤.059	.004 (.002-.006)	≤.079	—	—	—	—
.002 (.002-.004)	≤.059	.004 (.002-.006)	≤.079	—	—	—	—
.002 (.002-.004)	≤.059	.004 (.002-.006)	≤.079	—	—	—	—
.002 (.002-.004)	≤.059	.004 (.002-.006)	≤.079	—	—	—	—