

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

Material	Hardness	Grade	Chipbreaker	Vc (m/min)	fz (mm)	ap (mm)	ae (mm)	
P	Mild Steel	<180HB	MP6120	M	250 (200 – 300)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			VP15TF	MP	250 (200 – 300)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			MP6130	M	220 (170 – 270)	0.4 (0.3 – 0.5)	≤5	≤0.8DC
	Carbon Steel, Alloy Steel	180–280HB	MP6120	M	220 (170 – 270)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			VP15TF	MP	220 (170 – 270)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			MP6130	M	190 (140 – 240)	0.4 (0.3 – 0.5)	≤5	≤0.8DC
	Pre-Hardened Steel Alloy Tool Steel	280–350HB	MP6120	M	140 (100 – 180)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			VP15TF	MP	140 (100 – 180)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			MP6130	M	110 (70 – 150)	0.4 (0.3 – 0.5)	≤5	≤0.8DC
Pre-Hardened Steel Alloy Tool Steel	35–45HRC	MP6120	M	140 (100 – 180)	0.15 (0.1 – 0.2)	≤3	≤0.8DC	
		VP15TF	MP	140 (100 – 180)	0.15 (0.1 – 0.2)	≤3	≤0.8DC	
		MP6130	M	110 (70 – 150)	0.25 (0.2 – 0.3)	≤3	≤0.8DC	
M	Austenitic Stainless Steel	<200HB	MP7030	MM	200 (150 – 250)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
		>200HB	MP7030	MM	150 (100 – 200)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
	Duplex Steel	<280HB	MP7030	MM	140 (100 – 180)	0.15 (0.05 – 0.25)	≤5	≤0.8DC
	Ferritic, Martensitic Stainless Steel	<200HB	MP7030	MM	200 (150 – 250)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
		>200HB	MP7030	MM	150 (100 – 200)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
	PH Stainless Steel	<450HB	MP7030	MM	130 (100 – 160)	0.15 (0.05 – 0.25)	≤5	≤0.8DC
K	Cast Iron	Tensile Strength <350MPa	MC5020	MK,MH	220 (150 – 300)	0.3 (0.2 – 0.4)	≤5	≤0.8DC
			VP15TF, VP20RT	MK,MH	180 (130 – 230)	0.3 (0.2 – 0.4)	≤3	≤0.8DC
			VP15TF	MP	180 (130 – 230)	0.3 (0.2 – 0.4)	≤3	≤0.8DC
	Ductile Cast Iron	Tensile Strength <450MPa	MC5020	MK,MH	200 (150 – 250)	0.2 (0.1 – 0.3)	≤3	≤0.8DC
			VP15TF, VP20RT	MK,MH	170 (120 – 220)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
			VP15TF	MP	170 (120 – 220)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
	Ductile Cast Iron	Tensile Strength <800MPa	MC5020	MK,MH	170 (150 – 200)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
			VP15TF, VP20RT	MK,MH	140 (100 – 180)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
			VP15TF	MP	140 (100 – 180)	0.2 (0.1 – 0.3)	≤5	≤0.8DC
H	Hardened Steel	40–55HRC	VP15TF	MP	80 (60 – 100)	0.15 (0.1 – 0.2)	≤3	≤0.8DC

1. Wet cutting is recommended for good surface finishing of stainless steel. (Tool life is shorter when compared to dry cutting.)
2. With low workpiece clamping rigidity or when a long overhang of the tool is required, reduce the feed and speed by 20 - 30%.

WET CUTTING

Material	Hardness	Grade	Chipbreaker	Vc (m/min)	fz (mm)	ap (mm)	ae (mm)	
M	Austenitic Stainless Steel	<200HB	MP7030	MM	125 (100 – 150)	0.15 (0.1 – 0.2)	≤5	≤0.8DC
		>200HB	MP7030	MM	100 (75 – 125)	0.15 (0.1 – 0.2)	≤5	≤0.8DC
	Duplex Steel	<280HB	MP7030	MM	80 (60 – 100)	0.10 (0.05 – 0.15)	≤5	≤0.8DC
	Ferritic, Martensitic Stainless Steel	<200HB	MP7030	MM	125 (100 – 150)	0.15 (0.1 – 0.2)	≤5	≤0.8DC
		>200HB	MP7030	MM	100 (75 – 125)	0.15 (0.1 – 0.2)	≤5	≤0.8DC
	PH Stainless Steel	<450HB	MP7030	MM	70 (50 – 90)	0.1 (0.05 – 0.15)	≤5	≤0.8DC
S	Titanium Alloy	-	MP7030	MM	40 (20 – 50)	0.15 (0.1 – 0.2)	≤5	≤0.8DC
			MP9120	L	60 (50 – 70)	0.15 (0.1 – 0.2)	≤3	≤0.6DC
			MP9130	L	40 (20 – 50)	0.1 (0.05 – 0.15)	≤3	≤0.6DC
	Heat Resistant Alloy	-	MP7030	MM	40 (20 – 50)	0.15 (0.1 – 0.2)	≤3	≤0.6DC
			MP9120	L	60 (50 – 70)	0.15 (0.1 – 0.2)	≤3	≤0.6DC
			MP9130	L	40 (20 – 50)	0.1 (0.05 – 0.15)	≤3	≤0.6DC

With low workpiece clamping rigidity or when a long overhang of the tool is required, reduce the feed and speed by 20 - 30%.

CUTTING CONDITIONS FOR WIPER INSERT

Material	Hardness	Grade	Chipbreaker * Wiper	Vc (m/min)	fz (mm)	ap (mm)	ae (mm)	
P	Mild Steel	<180HB	VP15TF	MP (WP)*	250 (200 – 300)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
			MP6120	M (M)*	250 (200 – 300)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
	Carbon Steel, Alloy Steel	180–280HB	VP15TF	MP (WP)*	220 (170 – 270)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
			MP6120	M (M)*	220 (170 – 270)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
	Pre-Hardened Steel Alloy Tool Steel	280–350HB	VP15TF	MP (WP)*	140 (100 – 180)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
			MP6120	M (M)*	140 (100 – 180)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
K	Cast Iron	Tensile Strength <350MPa	MC5020	MK, HK (WK)*	320 (250 – 400)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
			VP15TF	MP (WP)*	220 (150 – 300)	0.3 (0.2 – 0.4)	≤0.5	≤0.8DC
	Ductile Cast Iron	Tensile Strength <450MPa	MC5020	MK, HK (WK)*	250 (200 – 300)	0.2 (0.1 – 0.3)	≤0.5	≤0.8DC
			VP15TF	MP (WP)*	200 (150 – 250)	0.2 (0.1 – 0.3)	≤0.5	≤0.8DC
Ductile Cast Iron	Tensile Strength <800MPa	MC5020	MK, HK (WK)*	220 (200 – 250)	0.2 (0.1 – 0.3)	≤0.5	≤0.8DC	
		VP15TF	MP (WP)*	170 (150 – 200)	0.2 (0.1 – 0.3)	≤0.5	≤0.8DC	
S	Heat Resistant Alloy	-	VP15TF	MP (WP)*	40 (20 – 50)	0.15 (0.1 – 0.2)	≤0.5	≤0.8DC
H	Hardened Steel	40–55HRC	VP15TF	MP (WP)*	80 (60 – 100)	0.15 (0.1 – 0.2)	≤0.5	≤0.8DC

With low workpiece clamping rigidity or when a long overhang of the tool is required, reduce the feed and speed by 20 - 30%.