RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

(inch)

	Workpiece Material	Properties	Grade	vc (SFM)
P	Mild Steel	Hardness ≤180HB	**MV1020**	720 (560–885)
			MP6120	490 (330–655)
			MV1030	460 (260–655)
			MP6130	425 (260–590)
	Carbon Steel, Alloy Steel	Hardness 180–280HB	**MV1020**	655 (490–820)
			MP6120	425 (260–590)
			MV1030	395 (195–590)
			MP6130	360 (195–525)
	Carbon Steel, Alloy Steel	Hardness 280–350HB	**MV1020**	490 (330–655)
			MP6120	330 (165–490)
			MV1030	295 (100–490)
			MP6130	260 (100–425)
	Alloy Tool Steel	Hardness ≤350HB (annealing)	**MP6120**	330 (165–490)
			MP6130	260 (100–395)
	Pre-hardened Steel	Hardness 35–45HRC	**MP6120**	330 (230–425)
			MP6130	260 (165–360)
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	490 (330–655)
			VP15TF	395 (260–525)
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020**	655 (490–820)
			MC5020	490 (330–655)
			MV1030	460 (260–655)
			VP15TF	395 (260–525)
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MV1020**	590 (425–755)
			MC5020	490 (330–655)
			MV1030	460 (260–655)
			VP15TF	395 (260–525)
H	Hardened Steel	Hardness 40–55HRC	**VP15TF**	230 (165–295)

■ Dry Cutting

(inch)

	Workpiece Material	Properties	Grade	ap	Width of Cut ae					
					≤0.5DC		0.5DC–0.8DC		0.8DC–DC	
					Breaker	fz (IPT)	Breaker	fz (IPT)	Breaker	fz (IPT)
P	Mild Steel	Hardness ≤180HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Carbon Steel, Alloy Steel	Hardness 180–280HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Carbon Steel, Alloy Steel	Hardness 280–350HB	**MV1020 MV1030 MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
	Alloy Tool Steel	Hardness ≤350HB (annealing)	**MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
	Pre-hardened Steel	Hardness 35-45HRC	**MP6120 MP6130**	≤.063	**R**	.020	**R**	.024	**R**	.028
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	≤.063	**R**	.024	**R**	.031	**M**	.039
			VP15TF	≤.063	**M**	.024	**M**	.031	**M**	.039
	Ductile Cast Iron	Tensile Strength ≤450MPa	**MV1020 MV1030 MC5020 VP15TF**	≤.063	**R**	.024	**R**	.031	**M**	.039
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MV1020 MV1030 MC5020 VP15TF**	≤.063	**R**	.020	**R**	.024	**R**	.028
H	Hardened Steel	Hardness 40–55HRC	**VP15TF**	≤.063	**R**	.016	**R**	.020	**R**	.024

Recommended Cutting Conditions

■ AHX475S
Dry Cutting

(inch)

Workpiece Material		Properties	Breaker	Cutting Speed **vc** (SFM)		Feed **fz** (IPT)	Depth of Cut **ap**	Width of Cut **ae**
				MV1020	**MV1030**			
P	Mild Steel	Hardness ≤180HB	R	720(560—885)	460(260—655)	.024	≤.063	≤0.5DC
			R	720(560—885)	460(260—655)	.031	≤.063	0.5DC<ae≤0.8DC
			M	720(560—885)	460(260—655)	.039	≤.063	0.8DC<ae≤DC
	Carbon Steel Alloy Steel	Hardness 180—280HB	R	655(490—820)	395(195—590)	.024	≤.063	≤0.5DC
			R	655(490—820)	395(195—590)	.031	≤.063	0.5DC<ae≤0.8DC
			M	655(490—820)	395(195—590)	.039	≤.063	0.8DC<ae≤DC
	Carbon Steel Alloy Steel	Hardness 280—350HB	R	490(330—655)	295(100—490)	.020	≤.063	≤0.5DC
			R	490(330—655)	295(100—490)	.024	≤.063	0.5DC<ae≤0.8DC
			R	490(330—655)	295(100—490)	.028	≤.063	0.8DC<ae≤DC
K	Ductile Cast Iron	Tensile Strength ≤450MPa	R	655(490—820)	460(260—655)	.024	≤.063	≤0.5DC
			R	655(490—820)	460(260—655)	.031	≤.063	0.5DC<ae≤0.8DC
			M	655(490—820)	460(260—655)	.039	≤.063	0.8DC<ae≤DC
		Tensile Strength ≤800MPa	R	590(425—755)	460(260—655)	.020	≤.063	≤0.5DC
			R	590(425—755)	460(260—655)	.024	≤.063	0.5DC<ae≤0.8DC
			R	590(425—755)	460(260—655)	.028	≤.063	0.8DC<ae≤DC

(Note 1) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.