

RECOMMENDED CUTTING CONDITIONS (SHELL TYPE)

CUTTING CONDITIONS FOR SHOULDER MILLING

	Work Material	Hardness	Grade Breaker	Cutting Speed vc (m/min)	Depth of Cut ap (mm)	Cutting Width ae (mm)	Feed per Tooth fz (mm/tooth)
P	Mild Steel	≤180HB	VP15TF JM	120 (100-140)	-0.5D ₁	-10	0.15-0.30
				120 (100-140)	0.5D ₁ -	-10	0.15-0.25
	Carbon Steel Alloy Steel	180-350HB	VP15TF JM	120 (80-130)	-0.5D ₁	-10	0.15-0.30
				100 (80-120)	0.5D ₁ -	-10	0.15-0.25
Alloy Tool Steel	≤300HB	VP15TF JM	100 (60-110)	-0.5D ₁	-10	0.10-0.20	
			80 (60-100)	0.5D ₁ -	-10	0.10-0.15	
M	Stainless Steel	≤200HB	VP20RT JM	140 (100-150)	-0.5D ₁	-10	0.10-0.25
				120 (100-140)	0.5D ₁ -	-10	0.10-0.20
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP15TF WH	120 (80-130)	-0.5D ₁	-10	0.25-0.40
				100 (80-120)	0.5D ₁ -	-10	0.25-0.40
			VP15TF JM	120 (80-130)	-0.5D ₁	-10	0.15-0.30
				100 (80-120)	0.5D ₁ -	-10	0.15-0.25
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP15TF WH	100 (60-110)	-0.5D ₁	-10	0.20-0.35
				80 (60-110)	0.5D ₁ -	-10	0.20-0.35
VP15TF JM	100 (60-120)	-0.5D ₁	-10	0.15-0.30			
	80 (60-120)	0.5D ₁ -	-10	0.15-0.30			
S	Ti Alloy	≤350HB	VP20RT JM	45 (35-50)	-0.5D ₁	-10	0.08-0.10
				40 (35-50)	0.5D ₁ -	-10	0.08-0.10

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

SLOT MILLING

	Work Material	Hardness	Grade Breaker	Cutting Speed vc (m/min)	Depth of Cut ap (mm)	Cutting Width ae (mm)	Feed per Tooth fz (mm/tooth)
P	Mild Steel	≤180HB	VP15TF JM	120 (100-140)	-10	D ₁	0.15-0.25
	Carbon Steel Alloy Steel	180-350HB	VP15TF JM	100 (80-120)	-0.25D ₁	D ₁	0.15-0.25
	Alloy Tool Steel	≤300HB	VP15TF JM	80 (60-100)	-10	D ₁	0.10-0.20
M	Stainless Steel	≤200HB	VP20RT JM	100 (80-140)	-10	D ₁	0.10-0.15
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP15TF WH	80 (60-100)	-0.25D ₁	D ₁	0.10-0.25
				60 (50-100)	-0.6D ₁	D ₁	0.10-0.20
			VP15TF JM	80 (60-100)	-0.25D ₁	D ₁	0.10-0.20
				60 (50-100)	-0.6D ₁	D ₁	0.10-0.15
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP15TF WH	80 (60-100)	-0.25D ₁	D ₁	0.10-0.25
				60 (50-100)	-0.5D ₁	D ₁	0.10-0.20
VP15TF JM	80 (60-100)	-0.25D ₁	D ₁	0.10-0.20			
	60 (50-100)	-0.5D ₁	D ₁	0.10-0.15			
S	Ti Alloy	≤350HB	VP20RT JM	40 (35-50)	-0.25D ₁	D ₁	0.06-0.10

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