SRF,SRB

RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Grade	Cutting Speed **vc** (m/min)	Feed per Tooth **fz** (mm/tooth)	Depth of Cut **ap** (mm)
P	Carbon Steel Alloy Steel	180—280HB	**EP6120** **VP15TF**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D_1
	Pre-Hardened Steel	≤45HRC	**EP6120** **VP15TF**	150 (80—200)	0.2 (0.1—0.3)	≤0.05D_1
	Alloy Tool Steel	180—380HB	**EP6120** **VP15TF**	150 (80—200)	0.2 (0.1—0.3)	≤0.05D_1
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MP8010**	250 (180—450)	0.2 (0.1—0.3)	≤0.05D_1
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MP8010**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D_1
H	Hardened Steel	45—55HRC	**MP8010**	100 (60—120)	0.2 (0.1—0.3)	≤0.05D_1
	Hardened Steel	55—65HRC	**MP8010**	80 (60—120)	0.2 (0.1—0.3)	≤0.01D_1

(Note 1) The above values are average condition values at actual cutting speeds. The values change slightly according to the state of a machine to be used and method of workholding. Adjust the values depending on an actual machine condition, referring to the above values.
(Note 2) For end mills with a carbide shank, you will be able to set about 20 percent higher cutting conditions.
(Note 3) Please note the following when machining hardened steel with MP8010.

- Shorten tool overhang as much as possible.
- Use a carbide shank type.
- Depth of cut setting is important to prevent fracture.

SUF

RECOMMENDED CUTTING CONDITIONS

SHOULDER MILLING (At a small width of cut.*)

	Work Material	Hardness	Grade	Cutting Speed **vc** (m/min)	Depth of Cut **ap** (mm)	Cutting Width **ae** (mm)	Feed per Tooth **fz** (mm/tooth)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	200 (80—300)	≤0.05D_1	≤0.05D_1	0.2 (≤0.4)
P	Pre-Hardened Steel	≤45HRC	**VP15TF**	150 (80—200)	≤0.05D_1	≤0.05D_1	0.15 (≤0.3)
P	Alloy Tool Steel	180—380HB	**VP15TF**	150 (80—200)	≤0.05D_1	≤0.05D_1	0.15 (≤0.3)
M	Stainless Steel	≤270HB	**VP15TF**	150 (100—200)	≤0.05D_1	≤0.05D_1	0.2 (≤0.4)
K	Cast Iron	Tensile Strength ≤350MPa	**MP8010**	250 (180—450)	≤0.05D_1	≤0.05D_1	0.3 (≤0.4)
K	Ductile Cast Iron	Tensile Strength ≤350MPa	**MP8010**	200 (80—300)	≤0.05D_1	≤0.1D_1	0.3 (≤0.4)
H	Hardened Steel	45—55HRC	**MP8010**	100 (80—120)	≤0.05D_1	≤0.02D_1	0.1 (≤0.2)
H	Hardened Steel	55—65HRC	**MP8010**	80 (60—100)	≤0.05D_1	≤0.02D_1	0.1 (≤0.2)

* When the pick feed direction is along the axis of the tool such as finish machining at the wall part.

SLOTTING•SHOULDER MILLING (At a large width of cut.*)

	Work Material	Hardness	Grade	Cutting Speed **vc** (m/min)	Depth of Cut **ap** (mm)	Cutting Width **ae** (mm)	Feed per Tooth **fz** (mm/tooth)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	200 (80—300)	≤0.02D_1	≤D_1	0.2 (≤0.4)
P	Pre-Hardened Steel	≤45HRC	**VP15TF**	150 (80—200)	≤0.02D_1	≤D_1	0.15 (≤0.3)
P	Alloy Tool Steel	180—380HB	**VP15TF**	150 (80—200)	≤0.02D_1	≤D_1	0.15 (≤0.3)
M	Stainless Steel	≤270HB	**VP15TF**	150 (100—200)	≤0.02D_1	≤D_1	0.2 (≤0.4)
K	Cast Iron	Tensile Strength ≤350MPa	**MP8010**	250 (180—450)	≤0.03D_1	≤D_1	0.3 (≤0.4)
K	Ductile Cast Iron	Tensile Strength ≤350MPa	**MP8010**	200 (80—300)	≤0.03D_1	≤D_1	0.3 (≤0.4)
H	Hardened Steel	45—55HRC	**MP8010**	100 (80—120)	≤0.01D_1	≤D_1	0.1 (≤0.2)
H	Hardened Steel	55—65HRC	**MP8010**	70 (60—80)	≤0.01D_1	≤D_1	0.1 (≤0.2)

* When the feed is in the radial axis of the tool. E.g. machining a side wall.

(Note 1) Cutting conditions are for a standard steel shank type. If vibration or chipping of the insert occurs, reduce the cutting conditions appropriately.

(Note 2) Cutting speed is calculated at the peripheral edge of the tool. Calculate spindle speed in the following way.
Spindle speed n(min^{-1})=1000×Cutting speed vc ÷Diameter of cutting tool D_1÷3.14

(Note 3) Please note the following when machining hardened steel with MP8010.
- Shorten tool overhang as much as possible.
- Use a carbide shank type.
- Depth of cut setting is important to prevent fracture.