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	Mild Steel (SS400, S10C)	≤180HB	**EP6120**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
	Carbon Steel, Alloy Steel (S45C, SCM440)	180—280HB	**EP6120**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
			VP15TF	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
	Carbon Steel, Alloy Steel (SNCM439)	280—350HB	**EP6120**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
	Pre-Hardened Steel (NAK, PX5)	35—45HRC	**EP6120**	150 (80—200)	0.2 (0.1—0.3)	≤0.05D1
			VP15TF	150 (80—200)	0.2 (0.1—0.3)	≤0.05D1
	Alloy Tool Steel (SKD, SKT)	≤350HB	**EP6120**	150 (80—200)	0.2 (0.1—0.3)	≤0.05D1
			VP15TF	150 (80—200)	0.2 (0.1—0.3)	≤0.05D1
K	Gray Cast Iron (FC300)	Tensile Strength ≤350Mpa	**MP8010**	250 (80—450)	0.2 (0.1—0.3)	≤0.05D1
	Ductile Cast Iron (FCD450)	Tensile Strength ≤450Mpa	**MP8010**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
	Ductile Cast Iron (FCD700)	Tensile Strength ≤800Mpa	**MP8010**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
N	Copper, Copper Alloys		**EP6120**	200 (80—300)	0.2 (0.1—0.3)	≤0.05D1
H	Hardened Steel (SKD61, SKT4)	45—55HRC	**MP8010**	100 (60—120)	0.2 (0.1—0.3)	≤0.05D1
	Hardened Steel (SKD11)	55—65HRC	**MP8010**	80 (60—120)	0.2 (0.1—0.3)	≤0.01D1

(Note 1) The above values are average condition values at actual cutting speeds. The values change slightly according to the machine conditions, And method of workholding. Adjust the values depending on the actual conditions, referring to the above values.
(Note 2) For end mills with a carbide shank, set the cutting conditions approx 20% higher.
(Note 3) Please note the following when machining hardened steel with MP8010.

- Please shorten the overhang length as much as possibl
- A carbide shank is recommended.
- Please pay special attention to the depth of cut to prevent fracturin

SUF

RECOMMENDED CUTTING CONDITIONS

SHOULDER MILLING(At small widths 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	Gray Cast Iron	Tensile Strength ≤350MPa	**MP8010**	250 (180—450)	≤0.05D_1	≤0.1D_1	0.3 (≤0.4)
K	Ductile Cast Iron	Tensile Strength ≤800MPa	**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)

SLOTTING•SHOULDER MILLING(At large widths 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	Gray Cast Iron	Tensile Strength ≤350MPa	**MP8010**	250 (180—450)	≤0.03D_1	≤D_1	0.3 (≤0.4)
K	Ductile Cast Iron	Tensile Strength ≤800MPa	**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)

(Note 1) These cutting conditions are standard when using a standard steel shank. If vibration or insert edge chipping occurs, decrease the width and depth of cut and the feed rate accordingly.

(Note 2) The value of cutting speed is calculated at the peripheral diameter of the tool. Please calculate the spindle speed of tool in the following way.

Spindle speed of cutting tool 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.

- Please shorten the overhang length as much as possibl
- A carbide shank is recommended.
- Please pay special attention to the depth of cut to prevent fracturin