

STANDARD CUTTING CONDITIONS

S/ASG type

ISO	Work piece materials	Hardness (HB)	Insert	Cutting speed V_c (m/min)	Chip thickness t (mm)
P	Low carbon steel (SS400, S15C, etc.)	- 200	SSM...	150 - 230	0.05 - 0.15
	High carbon steel (S45C, S55C, etc.)	200 - 300	SSM...	100 - 170	0.04 - 0.13
	Alloy steels (SCM440, SCr415, etc.)	150 - 300	SSM...	90 - 160	0.04 - 0.13
	Tool steel (SKD11, SKD61, etc.)	- 300	SSM...	70 - 120	0.04 - 0.13
M	Stainless steel (SUS304, SUS316, etc.)	-	SSS...	90 - 200	0.04 - 0.13
K	Grey cast iron (FC250, FC300, etc.)	150 - 250	SSM...	100 - 200	0.05 - 0.15
	Ductile cast iron (FCD400, etc.)	150 - 250	SSM...	80 - 130	0.05 - 0.15



STANDARD CUTTING CONDITIONS

ASV, ASW / TSW, ASN / TSN type

ISO	Workpiece materials	Hardness (HB)	Priority	Grades	Cutting speed Vc (m/min)	Feed per edge line: fz (mm/t)	
						ASV	
						ae / øDc (mm)	
						10%	20%
P	Low carbon steel (SS400 / E275A, etc.)	- 200	First choice	AH725	90 - 180	0.08 - 0.25	0.06 - 0.19
		- 200	For impact resistance	AH130, AH140	90 - 180	0.08 - 0.25	0.06 - 0.19
	High carbon steel (S45C / C45, etc.)	200 - 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16
		200 - 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16
	Alloy steel (SCM440 / 42CrMo4, etc.)	150 - 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16
		150 - 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16
Tool steel (SKD61 / X40CrMoV5-1, etc.)	- 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16	
	- 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16	
M	Stainless steel (SUS304 / X5CrNi18-9, etc.)	-	-	AH130, AH140	90 - 200	0.07 - 0.22	0.05 - 0.16
K	Grey cast iron (FC250 / 250, etc.)	150 - 250	-	AH120	120 - 230	0.08 - 0.25	0.06 - 0.19
	Ductile cast iron (FCD400, etc.)	150 - 250	-	AH120	90 - 150	0.08 - 0.25	0.06 - 0.19
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH725	30 - 40	0.07 - 0.12	0.05 - 0.09
		-	For impact resistance	AH130	30 - 40	0.07 - 0.12	0.05 - 0.09
	Nickel-based alloys (Inconel 718, etc.)	-	First choice	AH725	20 - 35	0.07 - 0.12	0.05 - 0.09
		-	For impact resistance	AH130	20 - 35	0.07 - 0.12	0.05 - 0.09

■ Chip thickness “t”

- Chip thickness “t” is one of the most important factors for chip evacuation in slot milling.
- Therefore, setup feed per edge line (fz) should be calculated according to chip thickness (t).

Slotting with a slot milling cutter

$$t \cong 2 \times fz \times \sqrt{(ae / \phi Dc) \times (1 - (ae / \phi Dc))}$$

$$fz \cong t / 2 / \sqrt{(ae / \phi Dc) \times (1 - (ae / \phi Dc))}$$

øDc: Tool diameter (mm)
fz : Feed per edge line (mm/t)
ae : Depth of slot (mm)

