STANDARD CUTTING CONDITIONS

TPA/EPA/HPA

	Workpiece materials	Hardness HB	Grades	Cutting speed *Vc* (m/min)			Feed per tooth: *fz* (mm/t)				
							MJ			NMJ	AJ
				T/E/HPA06	T/E/HPA10	T/EPA15	T/E/HPA06	T/E/HPA10	T/EPA15	T/EPA15	T/E/HPA10
P	Low carbon steel (SS400, S15C , etc. E275A, C15E4, etc.	- 200	AH3135	100 - 220	100 - 250	100 - 250	0.05 - 0.15	0.08 - 0.2	0.08 - 0.25	0.08 - 0.15	-
P	High carbon steel S45C, etc. C45, etc.	200 - 300	AH3135	100 - 170	100 - 200	100 - 230	0.05 - 0.12	0.08 - 0.15	0.08 - 0.2	0.08 - 0.15	-
P	Alloy steel SCM440, etc. 42CrMo4, etc.	150 - 300	AH3135	100 - 170	100 - 200	100 - 230	0.05 - 0.12	0.08 - 0.15	0.08 - 0.2	0.08 - 0.15	-
P	Tool steel SKD61, etc. X40CrMoV5-1, etc	30 - 40 HRC	AH3135	100 - 120	100 -150	100 - 180	0.05 - 0.12	0.08 - 0.15	0.08 - 0.2	0.08 - 0.15	-
M	Stainless steel SUS304, etc. X5CrNi18-9, etc.	-	AH3135	80 - 150	80 - 200	90 - 200	0.05 - 0.15	0.08 - 0.2	0.08 - 0.2	0.08 - 0.15	-
K	Grey cast iron FC250, etc. 250, etc.	150 - 250	AH120	100 - 200	100 - 250	140 - 250	0.05 - 0.15	0.08 - 0.2	0.08 - 0.25	0.08 - 0.15	-
K			T1215	150 - 250	150 - 300	200 - 300	0.05 - 0.12	0.08 - 0.15	0.08 - 0.18	-	-
K	Ductile cast iron FCD450, etc. 450-10S, etc.	150 - 250	AH120	80 - 150	80 - 200	110 - 200	0.05 - 0.15	0.08 - 0.2	0.08 - 0.25	0.08 - 0.15	-
K			T1215	100 - 200	130 - 250	150 - 250	0.05 - 0.12	0.08 - 0.15	0.08 - 0.18	-	-
N	Aluminium Si < 13%	-	KS05F	-	300 - 1000	-	-	-	-	-	0.08 - 0.22
N	Aluminium Si ≥ 13%	-	KS05F	-	100 - 200	-	-	-	-	-	0.08 - 0.22
S	Titanium alloys Ti-6Al-4V, etc.	-	AH120	20 - 50	20 - 60	20 - 60	0.05 - 0.1	0.08 - 0.15	0.08 - 0.18	0.08 - 0.15	-
S	Heat-resistant alloys Inconel 718, etc.	-	AH120	20 - 35	20 - 40	20 - 40	0.03 - 0.08	0.05 - 0.13	0.07 - 0.15	0.07 - 0.15	-

· When you use the NMJ chipbreaker, please set up the feed less than 0.15 mm/t.
· Remove excessive chip accumulation with an air blast.
· For the operation with depth of cut which varies (ex.casting skin) and machining of workpiece materials with interrupted surface, the feed per tooth (*fz*) should be set to the lower recommended value shown in the above table.
· Cutting conditions maybe limited depending on machine power, workpiece rigidity, and spindle output. When the cutting width, depth, or overhang length is large, set *Vc* and *fz* to the lower recommended values and check the machine power and vibration.

TLA (Roughing type)

ISO	Workpiece materials	Hardness HB	Grades	Cutting speed *Vc* (m/min)		Feed per tooth: *fz* (mm/t)			
						MJ		NMJ	AJ
				TLA10	TLA15	TLA10	TLA15	TLA15	TLA10
P	Low carbon steel SS400, S15C, etc. E275A, C15E4, etc.	- 200	AH3135	100 - 250	100 - 250	0.08 - 0.18	0.08 - 0.22	0.08 - 0.15	-
P	High carbon steel S45C, etc. C45, etc.	200 - 300	AH3135	100 - 200	100 - 270	0.08 - 0.14	0.08 - 0.18	0.08 - 0.15	-
P	Alloy steel SCM440, etc. 42CrMo4, etc.	30 - 40 HRC	AH3135	100 - 150	100 - 180	0.08 - 0.14	0.08 - 0.18	0.08 - 0.15	-
M	Stainless steel SUS304, etc. X5CrNi18-9, etc.	-	AH3135	80 - 200	90 - 200	0.08 - 0.15	0.08 - 0.18	0.08 - 0.15	-
K	Grey cast iron FC250, etc. 250, etc.	150 - 250	AH120	100 - 250	140 - 250	0.08 - 0.18	0.08 - 0.25	0.08 - 0.15	-
K			T1215	150 - 250	150 - 250	0.08 - 0.15	0.08 - 0.18	-	-
K	Ductile cast iron FCD450, etc. 450-10S, etc.	150 - 250	AH120	80 - 200	110 - 200	0.08 - 0.18	0.08 - 0.25	0.08 - 0.15	-
K			T1215	150 - 250	150 - 250	0.08 - 0.15	0.08 - 0.18	-	-
N	Aluminium Si < 13%	-	KS05F	300 - 1000	-	-	-	-	0.08 - 0.22
N	Aluminium Si ≥ 13%	-	KS05F	100 - 200	-	-	-	-	0.08 - 0.22
S	Titanium alloys Ti-6Al-4V, etc.	-	AH120	20 - 60	20 - 60	0.08 - 0.15	0.08 - 0.18	0.08 - 0.15	-
S	Heat-resistant alloys Inconel 718, etc.	-	AH120	20 - 40	20 - 40	0.05 - 0.13	0.07 - 0.15	0.07 - 0.15	-

· When using NMJ chipbreaker, please set up the feed not to exceed 0.15 mm/t.