STANDARD CUTTING CONDITIONS

FOR EXTERNAL TURNING

Applications	ISO	Workpiece materials	Priority	Chip-breaker	Grades	Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
For swiss type automatic lathes	P	Low carbon steel (SS400 / E275A, etc.) Carbon steel (S45C / C45, etc.) Low alloy steel (SCM415, etc.) Alloy steel (SCM440 / 42CrMo4, etc.)	With high sharpness	JSS	SH725	50 - 180	0.1 - 1.5	0.03 - 0.10
			First choice	JTS	AH725	50 - 180	0.1 - 2.0	0.03 - 0.10
	M	Stainless steel (Austenitic) (SUS304 / X5CrNi18-9, etc.) Stainless steel (Martensitic and ferritic) (SUS430 / X6Cr17, etc.) Stainless steel (Precipitation hardened) (SUS630 / X5CrNiCuNb16-4, etc.)	First choice	JSS	SH725	50 - 180	0.1 - 1.5	0.03 - 0.10
			For impact resistance	JTS	AH725	50 - 180	0.1 - 2.0	0.03 - 0.10
For small size CNC lathes	P	Low carbon steel (SS400 / E275A, etc.) Carbon steel (S45C / C45, etc.) Low alloy steel (SCM415, etc.) Alloy steel (SCM440 / 42CrMo4, etc.)	First choice	SS	AH725	50 - 180	0.15 - 1.5	0.05 - 0.2
				TS	AH725	50 - 180	0.3 - 2.0	0.08 - 0.3
			For improved surface finish	SS	NS9530	80 - 200	0.15 - 1.5	0.05 - 0.2
				TS	NS9530	80 - 200	0.3 - 2.0	0.08 - 0.3
			For wear resistance	SS	GT9530	80 - 250	0.15 - 1.5	0.05 - 0.2
				TS	GT9530	80 - 250	0.3 - 2.0	0.08 - 0.3
	M	Stainless steel (Austenitic) (SUS304 / X5CrNi18-9, etc.) Stainless steel (Martensitic and ferritic) (SUS430 / X6Cr17, etc.) Stainless steel (Precipitation hardened) (SUS630 / X5CrNiCuNb16-4, etc.)	First choice	SS	AH725	50 - 150	0.15 - 1.5	0.05 - 0.2
			For impact resistance	TS	AH725	50 - 150	0.3 - 2.0	0.08 - 0.3

FOR INTERNAL TURNING

ISO	Workpiece materials	Grades			Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
		First Choice	For surface finish	For wear resistance (High speed)			
P	Low carbon steel (SS400 / E275A, S25C / C25, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Carbon steel (S45C / C45, S55C / C55, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Low alloy steel (SCM415, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Alloy steel (SCM440 / 42CrMo4, SCr420 / 20Cr4, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
M	Stainless steel (Austenitic) (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.)	AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
	Stainless steel (Martensitic and ferritic) (SUS430 / X6Cr17, SUS416 / X20Cr13, etc.)	AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
	Stainless steel (Precipitation hardening) (SUS630 / X5CrNiCuNb16-4, etc.)	AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
K	Grey cast iron (FC250 / 250 / GG25, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Ductile cast iron (FCD700 / GGG70, etc.)	AH725	-	-	50 - 120	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 150	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 180	0.3 - 2.0	0.08 - 0.3
N	Non ferrous Metal (Aluminum alloy, etc.)	KS05F	-	-	100 - 300	0.3 - 2.0	0.08 - 0.3
	Non ferrous Metal (Cu Alloy, etc.)	KS05F	-	-	100 - 300	0.3 - 2.0	0.08 - 0.3

Note: See page 9 for more information about grades.