

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Cutting speed: V_c (sfm)			Feed: f (ipr)			Grade
			$\phi 0.118" \sim \phi 0.236"$	$\phi 0.236" \sim \phi 0.394"$	$\phi 0.394" \sim \phi 0.630"$	$\phi 0.118" \sim \phi 0.236"$	$\phi 0.236" \sim \phi 0.394"$	$\phi 0.394" \sim \phi 0.630"$	
P	Mild steels, Low carbon steels	< 180HB	131 - 328	197 - 394	197 - 427	0.006 - 0.012	0.006 - 0.014	0.008 - 0.020	A
	Carbon steels, Alloy steels	180 ~ 300HB	131 - 295	164 - 394	197 - 427	0.006 - 0.012	0.006 - 0.014	0.006 - 0.016	B
	High alloy steels, etc.	250 ~ 350HB	131 - 262	164 - 328	164 - 328	0.004 - 0.008	0.006 - 0.010	0.006 - 0.014	C
M	Stainless steels	< 200HB	33 - 66	33 - 66	33 - 66	0.002 - 0.006	0.002 - 0.006	0.002 - 0.006	D
K	Gray cast irons	< 200HB	131 - 295	164 - 312	164 - 328	0.006 - 0.012	0.008 - 0.016	0.008 - 0.016	E
	Ductile cast irons	< 300HB	115 - 262	131 - 279	148 - 295	0.006 - 0.012	0.008 - 0.016	0.008 - 0.016	F
S	Titanium alloys		66 - 131	66 - 131	66 - 131	0.004 - 0.008	0.006 - 0.010	0.006 - 0.016	G
	Heat-resistant alloys	250HB <	33 - 98	33 - 98	33 - 98	0.001 - 0.003	0.002 - 0.004	0.003 - 0.005	H
H	High hardened steels	< 40HRC	66 - 131	66 - 131	66 - 131	0.002 - 0.006	0.002 - 0.006	0.003 - 0.008	I

Because the cutting conditions may be changed depending on the material type, hardness, machinability, machine tool, and coolant, the most appropriate conditions must be decided based on the chip control condition and tool failure mode.
 When using the smaller diameter tools in each range, set the feed "f" to the lower recommended values.
 When drilling difficult-to-cut materials, coolant supplying conditions are critical for successful drilling. So, the use of constant and flood coolant is highly recommended.
 When work material is austenitic stainless steel and the hole depth is over L/D = 2, using a step drilling program or a DSX drill with an oil hole is recommended.

Grade	A
Insert	B
Ext. Toolholder	C
Int. Toolholder	D
Threading	E
Grooving	F
Miniature Tool	G
Milling Cutter	H
Endmill	I
Drilling Tool	J
Tooling System	K
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