

**RECOMMENDED CUTTING CONDITIONS** (Standard drilling depth : 3 times or below the drill diameter)

Work material	Structural steel		Carbon steel AISI 1049 Alloy steel SCM Cast iron FC		Alloy tool steel AISI D2 (Low-hardness materials) Ferritic stainless steel AISI 430, AISI 405 Martensitic stainless steel AISI 420, AISI 440		Alloy tool steel AISI H13 (-40HRC) Precipitation hardening stainless steel ASTM 630, ASTM 631	
	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)
<b>0.5</b>	18000	0.02	16000	0.02	9000	0.02	8200	0.02
<b>1.0</b>	12000	0.05	10000	0.05	6300	0.05	5500	0.04
<b>2.0</b>	6400	0.09	5500	0.09	3200	0.09	2900	0.05
<b>3.0</b>	4300	0.13	3700	0.13	2100	0.13	1900	0.06
<b>4.0</b>	3200	0.15	2800	0.15	1600	0.15	1400	0.08
<b>5.0</b>	2600	0.18	2200	0.18	1300	0.18	1100	0.10
<b>6.0</b>	2100	0.19	1800	0.19	1100	0.20	950	0.11
<b>8.0</b>	1600	0.24	1400	0.24	800	0.22	720	0.13
<b>10.0</b>	1300	0.28	1100	0.28	640	0.25	570	0.15
<b>12.0</b>	1100	0.34	930	0.34	530	0.30	480	0.17
<b>13.0</b>	980	0.36	860	0.36	490	0.32	440	0.19

- 1) Please reduce the revolution and feed rate depending on the drilling situation when the installation of workpiece or machine lacks rigidity.
- 2) Please use a collet type drill chuck or a milling chuck.
- 3) Use sufficient cutting fluid.
- 4) VAPDSSUS are recommended for austenitic stainless steels (AISI 304).
- 5) When drilling holes greater than 4 x drill diameter hole depths, please use a peck feed.

The above-mentioned cutting condition is standard when using water-soluble cutting fluid.  
Please reduce the revolution when using non-water-soluble cutting fluid.