

RECOMMENDED CUTTING CONDITIONS

Work material	Structural steel Aluminium alloy		Carbon steel AISI 1049 Alloy steel SCM Cast iron FCD		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	
	Drill Dia. DC (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)
2.0	5600	0.07	4800	0.07	3200	0.07	2800	0.04
3.0	3700	0.10	3200	0.10	2100	0.10	1900	0.05
4.0	2800	0.12	2400	0.12	1600	0.12	1400	0.06
5.0	2200	0.14	1900	0.14	1300	0.14	1150	0.07
6.0	1850	0.15	1600	0.15	1050	0.15	950	0.08
8.0	1400	0.20	1200	0.20	800	0.20	720	0.10
10.0	1100	0.23	960	0.23	640	0.21	570	0.11
12.0	950	0.26	800	0.26	530	0.24	470	0.12
14.0	800	0.27	680	0.27	450	0.25	410	0.13
16.0	700	0.28	500	0.28	360	0.26	300	0.14
18.0	620	0.29	450	0.29	320	0.27	260	0.15
20.0	560	0.30	400	0.30	290	0.27	240	0.15
22.0	510	0.32	360	0.32	260	0.29	220	0.16
24.0	460	0.33	330	0.33	240	0.30	200	0.16
26.0	430	0.35	310	0.35	220	0.31	180	0.17
28.0	400	0.36	290	0.36	210	0.33	170	0.18
30.0	370	0.37	270	0.37	190	0.34	160	0.18
32.0	350	0.38	250	0.38	180	0.35	150	0.19

- 1) The above cutting conditions are for drilling 3xDC hole depths without a pilot hole. When drilling holes smaller than 1xDC hole depths, it is possible to increase the revolution speed by 20%.
- 2) Drilling without a pilot hole is recommended. If there is a pilot hole, chips are not broken. Use a pick feed when chip breaking is necessary.
- 3) For counter boring of a sloped face, a carbide end mill is recommended.
- 4) When machining austenitic stainless steels (JIS SUS304, SUS316), set the revolution at 40%-70% and the feed rate 40%-60%.
- 5) Please use a collet type drill chuck or a milling chuck.
- 6) Please reduce the revolution and feed rate depending on the drilling situation when the installation of workpiece or machine lacks rigidity.
- 7) Use sufficient cutting fluid.

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