

GD SERIES TWIST DRILLS (EXTERNAL COOLANT)

RECOMMENDED CUTTING PARAMETERS FOR GD DRILLS

3D

5D

WORKPIECE MATERIAL	Mild Steel HB≤180	Carbon Steel, Alloy Steel ~30 HRC	Pre-hardened Steel ~40 HRC	Stainless Steel	Cast Iron	Nodular Cast Iron	Heat Resistant Alloy
CUTTING SPEED	200-395 SFPM	200-395 SFPM	135-230 SFPM	85-135 SFPM	200-395 SFPM	165-330 SFPM	50-85 SFPM

Diameter (mm)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)
2	14000	0.0024-0.0031	14000	0.0024-0.0031	9500	0.0024-0.0031	5500	0.0008-0.0020	14000	0.0024-0.0031	11000	0.0024-0.0031	3200	0.0008-0.0020
3	9500	0.0035-0.0047	9500	0.0035-0.0047	6300	0.0035-0.0047	3700	0.0012-0.0028	9500	0.0035-0.0047	7400	0.0035-0.0047	2100	0.0012-0.0028
4	7000	0.0039-0.0059	7000	0.0039-0.0059	4700	0.0039-0.0059	2700	0.0016-0.0031	7000	0.0039-0.0059	5600	0.0039-0.0059	1600	0.0016-0.0031
5	5700	0.0047-0.0071	5700	0.0047-0.0071	3800	0.0047-0.0071	2200	0.0020-0.0039	5700	0.0047-0.0071	4500	0.0047-0.0071	1250	0.0020-0.0039
6	4700	0.0055-0.0079	4700	0.0055-0.0079	3100	0.0055-0.0079	1850	0.0024-0.0047	4700	0.0055-0.0079	3700	0.0055-0.0079	1050	0.0024-0.0047
8	3600	0.0063-0.0094	3600	0.0063-0.0094	2400	0.0063-0.0094	1400	0.0031-0.0063	3600	0.0063-0.0094	2800	0.0063-0.0094	800	0.0031-0.0063
10	2800	0.0071-0.0106	2800	0.0071-0.0106	1900	0.0071-0.0106	1100	0.0039-0.0071	2800	0.0071-0.0106	2200	0.0071-0.0106	600	0.0039-0.0071
12	2400	0.0079-0.0118	2400	0.0079-0.0118	1600	0.0079-0.0118	930	0.0047-0.0079	2400	0.0079-0.0118	1900	0.0079-0.0118	500	0.0047-0.0079
14	2100	0.0087-0.0138	2100	0.0087-0.0138	1400	0.0087-0.0138	800	0.0051-0.0087	2100	0.0087-0.0138	1600	0.0087-0.0138	450	0.0051-0.0087
16	1800	0.0098-0.0142	1800	0.0098-0.0142	1200	0.0098-0.0142	700	0.0055-0.0098	1800	0.0098-0.0142	1400	0.0098-0.0142	400	0.0055-0.0098
18	1600	0.0110-0.0150	1600	0.0110-0.0150	1100	0.0110-0.0150	620	0.0059-0.0110	1600	0.0110-0.0150	1200	0.0110-0.0150	350	0.0059-0.0110
20	1400	0.0118-0.0157	1400	0.0118-0.0157	950	0.0118-0.0157	550	0.0063-0.0118	1400	0.0118-0.0157	1100	0.0118-0.0157	320	0.0063-0.0118

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with water-soluble cutting liquid.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

GD SERIES TWIST DRILLS (INTERNAL COOLANT)

RECOMMENDED CUTTING PARAMETERS FOR GD DRILLS

3D

5D

WORKPIECE MATERIAL	Mild Steel HB≤180		Carbon Steel, Alloy Steel ~30 HRC		Pre-hardened Steel ~40 HRC		Stainless Steel		Cast Iron		Nodular Cast Iron		Heat Resistant Alloy	
CUTTING SPEED	265-500 SFPM		265-500 SFPM		165-265 SFPM		165-265 SFPM		265-500 SFPM		200-395 SFPM		50-85 SFPM	
Diameter (mm)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)
3	12700	0.0035-0.0047	12700	0.0035-0.0047	7400	0.0035-0.0047	6300	0.0012-0.0028	12700	0.0035-0.0047	9500	0.0035-0.0047	2100	0.0012-0.0024
4	9600	0.0039-0.0059	9600	0.0039-0.0059	5600	0.0039-0.0059	4700	0.0016-0.0031	9600	0.0039-0.0059	7000	0.0039-0.0059	1600	0.0016-0.0028
5	7600	0.0047-0.0071	7600	0.0047-0.0071	4500	0.0047-0.0071	3800	0.0020-0.0039	7600	0.0047-0.0071	5700	0.0047-0.0071	1250	0.0020-0.0035
6	6400	0.0055-0.0079	6400	0.0055-0.0079	3700	0.0055-0.0079	3200	0.0024-0.0047	6400	0.0055-0.0079	4700	0.0055-0.0079	1050	0.0024-0.0043
8	4800	0.0063-0.0094	4800	0.0063-0.0094	2800	0.0063-0.0094	2400	0.0031-0.0063	4800	0.0063-0.0094	3600	0.0063-0.0094	800	0.0031-0.0055
10	3800	0.0071-0.0106	3800	0.0071-0.0106	2200	0.0071-0.0106	1900	0.0039-0.0071	3800	0.0071-0.0106	2800	0.0071-0.0106	600	0.0039-0.0063
12	3200	0.0079-0.0118	3200	0.0079-0.0118	1900	0.0079-0.0118	1600	0.0047-0.0079	3200	0.0079-0.0118	2400	0.0079-0.0118	500	0.0047-0.0071
14	2700	0.0087-0.0138	2700	0.0087-0.0138	1600	0.0087-0.0138	1350	0.0051-0.0087	2700	0.0087-0.0138	2100	0.0087-0.0138	450	0.0051-0.0079
16	2400	0.0098-0.0142	2400	0.0098-0.0142	1400	0.0098-0.0142	1200	0.0055-0.0098	2400	0.0098-0.0142	1800	0.0098-0.0142	400	0.0055-0.0091
18	2100	0.0110-0.0150	2100	0.0110-0.0150	1200	0.0110-0.0150	1050	0.0059-0.0110	2100	0.0110-0.0150	1600	0.0110-0.0150	350	0.0059-0.0098
20	1900	0.0118-0.0157	1900	0.0118-0.0157	1100	0.0118-0.0157	950	0.0063-0.0118	1900	0.0118-0.0157	1400	0.0118-0.0157	320	0.0063-0.0110

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with water-soluble cutting liquid.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

GD SERIES TWIST DRILLS (INTERNAL COOLANT)

RECOMMENDED CUTTING PARAMETERS FOR GD DRILLS

8D

WORKPIECE MATERIAL	Mild Steel HB≤180		Carbon Steel, Alloy Steel ~30 HRC		Pre-hardened Steel ~40 HRC		Stainless Steel		Cast Iron		Nodular Cast Iron		Heat Resistant Alloy	
CUTTING SPEED	265-500 SFPM		265-500 SFPM		165-265 SFPM		135-200 SFPM		265-500 SFPM		200-395 SFPM		50-85 SFPM	
Diameter (mm)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)	Rotating Speed (r/min)	Feed Rate (in/rev)
3	12700	0.0024-0.0039	12700	0.0024-0.0039	7400	0.0024-0.0039	5300	0.0012-0.0028	12700	0.0024-0.0039	9500	0.0024-0.0039	2100	0.0012-0.0024
4	9600	0.0031-0.0047	9600	0.0031-0.0047	5600	0.0031-0.0047	4000	0.0016-0.0031	9600	0.0031-0.0047	7000	0.0031-0.0047	1600	0.0016-0.0028
5	7600	0.0039-0.0055	7600	0.0039-0.0055	4500	0.0039-0.0055	3200	0.0020-0.0039	7600	0.0039-0.0055	5700	0.0039-0.0055	1250	0.0020-0.0035
6	6400	0.0043-0.0063	6400	0.0043-0.0063	3700	0.0043-0.0063	2700	0.0024-0.0047	6400	0.0043-0.0063	4700	0.0043-0.0063	1050	0.0024-0.0043
8	4800	0.0051-0.0075	4800	0.0051-0.0075	2800	0.0051-0.0075	2000	0.0031-0.0063	4800	0.0051-0.0075	3600	0.0051-0.0075	800	0.0031-0.0055
10	3800	0.0055-0.0087	3800	0.0055-0.0087	2200	0.0055-0.0087	1600	0.0039-0.0071	3800	0.0055-0.0087	2800	0.0055-0.0087	600	0.0039-0.0063
12	3200	0.0063-0.0094	3200	0.0063-0.0094	1900	0.0063-0.0094	1300	0.0047-0.0079	3200	0.0063-0.0094	2400	0.0063-0.0094	500	0.0047-0.0071
14	2700	0.0071-0.0110	2700	0.0071-0.0110	1600	0.0071-0.0110	1100	0.0051-0.0087	2700	0.0071-0.0110	2100	0.0071-0.0110	450	0.0051-0.0079
16	2400	0.0079-0.0114	2400	0.0079-0.0114	1400	0.0079-0.0114	1000	0.0055-0.0098	2400	0.0079-0.0114	1800	0.0079-0.0114	400	0.0055-0.0091
18	2100	0.0094-0.0126	2100	0.0094-0.0126	1200	0.0094-0.0126	880	0.0059-0.0110	2100	0.0094-0.0126	1600	0.0094-0.0126	350	0.0059-0.0098

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 8D.