

DRILLING (SOLID CARBIDE)

CARBIDE

MSE

- Wide flute for preventing chip jamming.
- Stable, small diameter machining.

RECOMMENDED CUTTING CONDITIONS

Work Material	Austenitic Stainless Steel (≤200HB)						Gray Cast Iron (≤350MPa)					
	X5CrNi1810, X5CrNiMo17-12-2						GG30					
Drill Dia. (mm)	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed rate (Min.—Max.) (mm/rev)	Step (mm)	Table Feed (mm/min)		Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed rate (Min.—Max.) (mm/rev)	Step (mm)	Table Feed (mm/min)	
0.1	6	20000	0.002 (0.001—0.003)	0.02	40		6	20000	0.002 (0.001—0.003)	0.02	40	
0.12	8	20000	0.002 (0.001—0.003)	0.02	40		8	20000	0.002 (0.001—0.003)	0.02	40	
0.16	10	20000	0.002 (0.001—0.003)	0.02	40		10	20000	0.002 (0.001—0.003)	0.02	40	
0.2	11	18000	0.003 (0.002—0.004)	0.04	54		13	20000	0.003 (0.002—0.004)	0.04	60	
0.25	14	18000	0.003 (0.002—0.004)	0.04	54		16	20000	0.003 (0.002—0.004)	0.04	60	
0.32	15	15000	0.004 (0.003—0.005)	0.05	60		20	20000	0.004 (0.003—0.005)	0.05	80	
0.4	19	15000	0.004 (0.003—0.005)	0.05	60		25	20000	0.004 (0.003—0.005)	0.05	80	
0.5	16	10000	0.006 (0.005—0.007)	0.1	60		31	20000	0.006 (0.005—0.007)	0.1	120	
0.63	20	10000	0.008 (0.006—0.01)	0.1	80		40	20000	0.008 (0.006—0.01)	0.1	160	
0.8	15	6000	0.015 (0.012—0.018)	0.2	90		50	20000	0.02 (0.015—0.025)	0.3	400	
0.99	19	6000	0.02 (0.015—0.025)	0.2	120		62	20000	0.04 (0.03—0.05)	0.3	800	

Work Material	Aluminium Alloy (Si<5%)						Heat Resistant Alloy					
							Inconel718					
Drill Dia. (mm)	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed rate (Min.—Max.) (mm/rev)	Step (mm)	Table Feed (mm/min)		Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed rate (Min.—Max.) (mm/rev)	Step (mm)	Table Feed (mm/min)	
0.1	6	20000	0.002 (0.001—0.003)	0.05	40		2	7000	0.001 (0.0005—0.001)	0.02	7	
0.12	8	20000	0.003 (0.002—0.004)	0.05	60		3	7000	0.001 (0.0005—0.001)	0.02	7	
0.16	10	20000	0.004 (0.003—0.005)	0.05	80		4	7000	0.001 (0.0005—0.001)	0.02	7	
0.2	13	20000	0.006 (0.005—0.007)	0.1	120		3	5000	0.002 (0.001—0.002)	0.04	10	
0.25	16	20000	0.008 (0.006—0.01)	0.1	160		4	5000	0.002 (0.001—0.002)	0.04	10	
0.32	20	20000	0.01 (0.008—0.012)	0.3	200		4	4000	0.002 (0.001—0.002)	0.05	8	
0.4	25	20000	0.02 (0.015—0.025)	0.3	400		5	4000	0.002 (0.001—0.002)	0.05	8	
0.5	31	20000	0.03 (0.025—0.035)	0.5	600		5	3000	0.003 (0.001—0.003)	0.1	9	
0.63	40	20000	0.04 (0.035—0.045)	0.5	800		6	3000	0.004 (0.002—0.004)	0.1	12	
0.8	50	20000	0.05 (0.045—0.055)	0.8	1000		5	1800	0.006 (0.004—0.006)	0.2	10.8	
0.99	62	20000	0.06 (0.055—0.065)	0.8	1200		6	1800	0.01 (0.008—0.01)	0.2	18	

(Notes)

- When drilling holes up to $\phi 0.3\text{mm}$, the use of a spot drill is recommended.
- Change the cutting conditions depending on your machine and workpiece rigidity.
- When machining holes over 5D, reduce the peck distance stated above.
- The use of water-soluble fluid (diluted 20 times) is recommended for drilling using the cutting conditions above.
- Lower the revolutions if oil fluid or mist is used.
- Work materials marked by "—" in the tables above are difficult to drill with external coolant.
- The use of internal coolant type MWS or VAPDSSUS is recommended.

DRILLING