

RECOMMENDED CUTTING CONDITIONS

SB/LB/XB/DB Type Drill (l/d<10)

Drill Dia. (mm)	Mild Steel ($\leq 180\text{HB}$)				Carbon Steel, Alloy Steel (180–280HB)			
	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
0.5	40	25400	0.01 (0.005–0.015)	250	40	25400	0.01 (0.005–0.015)	250
1.0	50	15900	0.035 (0.020–0.050)	555	50	15900	0.035 (0.020–0.050)	555
1.5	50	10600	0.055 (0.035–0.080)	580	50	10600	0.055 (0.035–0.080)	580
2.0	50	7900	0.07 (0.040–0.100)	550	50	7900	0.07 (0.040–0.100)	550
2.5	60	7600	0.085 (0.050–0.125)	645	60	7600	0.085 (0.050–0.125)	645
2.95	90	9500	0.10 (0.060–0.130)	950	80	8400	0.10 (0.060–0.130)	840

Drill Dia. (mm)	Carbon Steel, Alloy Steel (280–350HB)				Austenitic Stainless Steel ($\leq 200\text{HB}$)			
	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
0.5	30	19000	0.01 (0.005–0.015)	190	20	12700	0.008 (0.005–0.010)	100
1.0	40	12700	0.035 (0.020–0.050)	440	30	9500	0.03 (0.020–0.044)	285
1.5	40	8400	0.055 (0.035–0.080)	460	30	6300	0.05 (0.035–0.070)	315
2.0	40	6300	0.07 (0.040–0.100)	440	30	4700	0.06 (0.040–0.080)	280
2.5	50	6300	0.085 (0.050–0.125)	535	40	5000	0.075 (0.050–0.100)	375
2.95	70	7400	0.10 (0.060–0.130)	740	40	4200	0.08 (0.060–0.100)	335

Work Material	Gray Cast Iron ($\leq 350\text{MPa}$)					Ductile Cast Iron ($\leq 450\text{MPa}$)				
	GG30					GGG45				
Drill Dia. (mm)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)		
0.5	40	25400	0.01 (0.005—0.015)	250	30	19000	0.01 (0.005—0.015)	190		
1.0	50	15900	0.035 (0.020—0.050)	555	40	12700	0.035 (0.020—0.050)	440		
1.5	50	10600	0.055 (0.035—0.080)	580	40	8400	0.055 (0.035—0.080)	460		
2.0	50	7900	0.07 (0.040—0.100)	550	40	6300	0.07 (0.040—0.100)	440		
2.5	60	7600	0.085 (0.050—0.125)	645	50	6300	0.085 (0.050—0.125)	535		
2.95	90	9500	0.10 (0.060—0.130)	950	65	6800	0.10 (0.060—0.130)	680		

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)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)		
0.5	40	25400	0.014 (0.008—0.020)	355	10	6300	0.006 (0.004—0.008)	35		
1.0	60	19000	0.05 (0.030—0.075)	950	10	3100	0.02 (0.016—0.027)	60		
1.5	80	16900	0.085 (0.053—0.120)	1435	10	2100	0.03 (0.025—0.040)	60		
2.0	90	14300	0.105 (0.060—0.150)	1500	15	2300	0.04 (0.032—0.050)	90		
2.5	100	12700	0.135 (0.075—0.200)	1710	15	1900	0.05 (0.040—0.060)	95		
2.95	120	12700	0.23 (0.100—0.350)	2920	20	2100	0.07 (0.050—0.090)	145		

RECOMMENDED CUTTING CONDITIONS

DB Type Drill ($l/d \geq 10$)

Drill Dia. (mm)	Mild Steel ($\leq 180\text{HB}$)				Carbon Steel, Alloy Steel ($180-280\text{HB}$)			
	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
1.0	50	15900	0.02 (0.010—0.030)	320	40	12700	0.02 (0.010—0.030)	255
1.5	50	10600	0.055 (0.032—0.080)	580	40	8400	0.055 (0.032—0.080)	460
2.0	60	9500	0.07 (0.040—0.100)	665	50	7900	0.07 (0.040—0.100)	550
2.5	60	7600	0.09 (0.063—0.125)	685	50	6300	0.09 (0.055—0.125)	565
2.95	90	9500	0.10 (0.060—0.130)	950	80	8400	0.10 (0.060—0.130)	840

Drill Dia. (mm)	Carbon Steel, Alloy Steel ($280-350\text{HB}$)				AusteniticStainless Steel ($\leq 200\text{HB}$)			
	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
1.0	30	9500	0.015 (0.009—0.028)	140	30	9500	0.015 (0.009—0.028)	140
1.5	30	6300	0.05 (0.027—0.076)	315	30	6300	0.045 (0.025—0.065)	280
2.0	50	7900	0.065 (0.034—0.095)	515	30	4700	0.055 (0.030—0.080)	255
2.5	50	6300	0.08 (0.045—0.120)	505	40	5000	0.06 (0.035—0.085)	300
2.95	70	7400	0.09 (0.050—0.120)	665	40	4200	0.07 (0.050—0.090)	290

Work Material	Gray Cast Iron ($\leq 350\text{MPa}$)				Ductile Cast Iron ($\leq 450\text{MPa}$)			
	GG30				GGG45			
Drill Dia. (mm)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
1.0	40	12700	0.02 (0.010—0.030)	255	30	9500	0.015 (0.009—0.028)	140
1.5	40	8400	0.055 (0.032—0.080)	460	30	6300	0.05 (0.027—0.076)	315
2.0	50	7900	0.07 (0.040—0.100)	550	50	7900	0.065 (0.034—0.095)	515
2.5	50	6300	0.09 (0.055—0.125)	565	50	6300	0.08 (0.045—0.120)	505
2.95	90	9500	0.10 (0.060—0.130)	950	50	5300	0.09 (0.050—0.120)	475

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)	Table Feed (mm/min)	Cutting Speed (m/min)	Revolution (min^{-1})	Feed rate (Min.—Max.) (mm/rev)	Table Feed (mm/min)
1.0	50	15900	0.05 (0.030—0.075)	795	10	3100	0.02 (0.016—0.027)	60
1.5	70	14800	0.085 (0.053—0.120)	1255	10	2100	0.03 (0.025—0.040)	60
2.0	80	12700	0.105 (0.060—0.150)	1335	15	2300	0.04 (0.032—0.050)	90
2.5	90	11400	0.135 (0.075—0.200)	1540	15	1900	0.05 (0.040—0.060)	95
2.95	100	10600	0.23 (0.100—0.350)	2435	20	2100	0.07 (0.050—0.090)	145