

## Drilling Feed & Speed Chart for BT Epoxy PCB Material

Recommended Tycom Drill Series: Series 100, 150, 450, 460, 475, 480

(Note: Chart is based on 160K RPM Spindle Capability. Please use maximum spindle speed if listed RPM is unattainable)

Size	Diameter	Feed	Speed	Retract	Z-Axis Offset	Max Hits	Chipload	SFM
	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
0.10mm	0.0040	14	160	200	-0.011	300	0.09	167
0.13mm	0.0050	21	160	300	-0.011	300	0.13	209
0.15mm	0.0059	27	160	300	-0.011	300	0.17	247
#96	0.0063	29	160	400	-0.011	300	0.18	264
#95	0.0067	32	160	400	-0.012	300	0.20	281
#94	0.0071	37	160	500	-0.012	300	0.23	297
#93	0.0075	43	160	500	-0.012	300	0.27	314
#92	0.0079	46	160	500	-0.012	300	0.29	331
#91	0.0083	53	160	600	-0.012	300	0.33	347
#90	0.0087	61	160	600	-0.012	300	0.38	364
#89	0.0091	63	157	700	-0.012	300	0.40	375
#88	0.0095	63	151	700	-0.012	300	0.42	375
0.25mm	0.0098	67	146	800	-0.012	500	0.46	375
#87	0.0100	67	143	800	-0.012	500	0.47	375
#86	0.0105	68	136	800	-0.012	500	0.50	375
#85	0.0110	70	130	900	-0.013	500	0.54	375
#84	0.0115	71	125	900	-0.013	500	0.57	375
0.30mm	0.0118	70	121	1000	-0.013	500	0.58	375
#83	0.0120	73	119	1000	-0.013	500	0.61	375
#82	0.0125	74	115	1000	-0.013	500	0.64	375
#81	0.0130	78	110	1000	-0.013	500	0.71	375
#80	0.0135	82	106	1000	-0.013	750	0.77	375
0.35mm	0.0138	83	104	1000	-0.013	750	0.80	375
#79	0.0145	87	99	1000	-0.013	750	0.88	375
1/64	0.0156	88	92	1000	-0.014	750	0.96	375
0.40mm	0.0158	89	91	1000	-0.014	750	0.98	375
#78	0.0160	90	90	1000	-0.014	750	1.00	375
0.45mm	0.0177	92	81	1000	-0.014	750	1.14	375
#77	0.0180	94	80	1000	-0.014	750	1.18	375
0.50mm	0.0197	96	73	1000	-0.015	750	1.32	375
#76	0.0200	96	72	1000	-0.015	750	1.33	375
#75	0.0210	98	68	1000	-0.015	1000	1.44	375
0.55mm	0.0217	100	66	1000	-0.015	1000	1.52	375
#74	0.0225	104	64	1000	-0.015	1000	1.63	375
0.60mm	0.0236	106	61	1000	-0.016	1000	1.74	375
#73	0.0240	108	60	1000	-0.016	1000	1.80	375

Size	Diameter	Feed	Speed	Retract	Z-Axis Offset	Hits	Chipload	SFM
	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
#72	0.0250	112	57	1000	-0.016	1000	1.96	375
0.65mm	0.0256	116	56	1000	-0.016	1000	2.07	375
#71	0.0260	118	55	1000	-0.016	1000	2.15	375
0.70mm	0.0276	124	52	1000	-0.016	1000	2.38	375
#70	0.0280	126	51	1000	-0.017	1000	2.47	375
#69	0.0292	123	49	1000	-0.017	1000	2.51	375
0.75mm	0.0295	123	49	1000	-0.017	1000	2.51	375
#68	0.0310	115	46	1000	-0.017	1000	2.50	375
1/32	0.0312	115	46	1000	-0.017	1000	2.50	375
0.80mm	0.0315	113	45	1000	-0.017	1000	2.51	375
#67	0.0320	113	45	1000	-0.017	1000	2.51	375
#66	0.0330	108	43	1000	-0.018	1000	2.51	375
0.85mm	0.0335	108	43	1000	-0.018	1000	2.51	375
#65	0.0350	103	41	1000	-0.018	1000	2.51	375
0.90mm	0.0354	100	40	1000	-0.018	1000	2.50	375
#64	0.0360	100	40	1000	-0.018	1000	2.50	375
#63	0.0370	98	39	1000	-0.019	1000	2.51	375
0.95mm	0.0374	95	38	1000	-0.019	1000	2.50	375
#62	0.0380	95	38	1000	-0.019	1000	2.50	375
#61	0.0390	93	37	1000	-0.019	1000	2.51	375
1.00mm	0.0394	90	36	1000	-0.019	1000	2.50	375
#60	0.0400	90	36	1000	-0.019	1000	2.50	375
#59	0.0410	88	35	1000	-0.020	1000	2.51	375
1.05mm	0.0413	88	35	1000	-0.020	1000	2.51	375
#58	0.0420	85	34	1000	-0.020	1000	2.50	375
#57	0.0430	83	33	1000	-0.020	1000	2.52	375
1.10mm	0.0433	83	33	1000	-0.020	1000	2.52	375
1.15mm	0.0453	80	32	1000	-0.021	1000	2.50	375
#56	0.0465	78	31	1000	-0.021	1000	2.52	375
3/64	0.0469	78	31	1000	-0.021	1000	2.52	375
1.20mm	0.0472	75	30	1000	-0.021	1000	2.50	375
1.25mm	0.0492	73	29	1000	-0.021	1000	2.52	375
1.30mm	0.0512	70	28	1000	-0.022	1000	2.50	375
#55	0.0520	70	28	1000	-0.022	1000	2.50	375
1.35mm	0.0531	68	27	1000	-0.022	1000	2.52	375
#54	0.0550	65	26	1000	-0.023	1000	2.50	375
1.40mm	0.0551	65	26	1000	-0.023	1000	2.50	375
1.45mm	0.0571	63	25	1000	-0.023	1000	2.52	375
1.50mm	0.0591	60	24	1000	-0.024	1000	2.50	375
#53	0.0595	60	24	1000	-0.024	1000	2.50	375
1.55mm	0.0610	58	23	1000	-0.024	1000	2.52	375
1/16	0.0625	58	23	1000	-0.025	1000	2.52	375
1.60mm	0.0630	58	23	1000	-0.025	1000	2.52	375
#52	0.0635	58	23	1000	-0.025	1000	2.52	375
1.65mm	0.0650	55	22	1000	-0.025	1000	2.50	375
1.70mm	0.0669	53	21	1000	-0.026	1000	2.52	375
#51	0.0670	53	21	1000	-0.026	1000	2.52	375
1.75mm	0.0689	52	21	1000	-0.026	1000	2.48	379

Size	Diameter	Feed	Speed	Retract	Z-Axis Offset	Hits	Chipload	SFM
	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
#50	0.0700	52	21	1000	-0.026	1000	2.48	385
1.80mm	0.0709	52	20	1000	-0.027	1000	2.60	371
1.85mm	0.0728	50	20	1000	-0.027	1000	2.50	381
#49	0.0730	50	20	1000	-0.027	1000	2.50	382
1.90mm	0.0748	50	20	1000	-0.027	1000	2.50	391
#48	0.0760	50	20	1000	-0.028	1000	2.50	398
1.95mm	0.0768	50	20	1000	-0.028	1000	2.50	402
5/64	0.0781	50	20	1000	-0.028	1000	2.50	409
#47	0.0785	50	20	1000	-0.028	1000	2.50	411
2.00mm	0.0787	50	20	1000	-0.028	1000	2.50	412
2.05mm	0.0807	50	20	1000	-0.029	1000	2.50	422
#46	0.0810	50	20	1000	-0.029	1000	2.50	424
#45	0.0820	50	20	1000	-0.029	1000	2.50	429
2.10mm	0.0827	50	20	1000	-0.029	1000	2.50	433
2.15mm	0.0846	50	20	1000	-0.030	1000	2.50	443
#44	0.0860	50	20	1000	-0.030	1000	2.50	450
2.20mm	0.0866	50	20	1000	-0.030	1000	2.50	453
2.25mm	0.0886	50	20	1000	-0.031	1000	2.50	464
#43	0.0890	50	20	1000	-0.031	1000	2.50	466
2.30mm	0.0906	50	20	1000	-0.031	1000	2.50	474
2.35mm	0.0925	50	20	1000	-0.032	1000	2.50	484
#42	0.0935	50	20	1000	-0.032	1000	2.50	489
3/32	0.0938	50	20	1000	-0.032	1000	2.50	491
2.40mm	0.0945	50	20	1000	-0.032	1000	2.50	495
#41	0.0960	50	20	1000	-0.032	1000	2.50	502
2.45mm	0.0965	50	20	1000	-0.033	1000	2.50	505
#40	0.0980	50	20	1000	-0.033	1000	2.50	513
2.50mm	0.0984	50	20	1000	-0.033	1000	2.50	515
#39	0.0995	50	20	1000	-0.033	1000	2.50	521
2.55mm	0.1004	50	20	1000	-0.033	800	2.50	525
#38	0.1015	50	20	1000	-0.034	800	2.50	531
2.60mm	0.1024	50	20	1000	-0.034	800	2.50	536
#37	0.1040	50	20	1000	-0.034	800	2.50	544
2.65mm	0.1043	50	20	1000	-0.034	800	2.50	546
2.70mm	0.1063	50	20	1000	-0.035	800	2.50	556
#36	0.1065	50	20	1000	-0.035	800	2.50	557
2.75mm	0.1083	50	20	1000	-0.035	800	2.50	567
7/64	0.1094	50	20	1000	-0.036	800	2.50	573
#35	0.1100	50	20	1000	-0.036	800	2.50	576
2.80mm	0.1102	50	20	1000	-0.036	800	2.50	577
#34	0.1110	50	20	1000	-0.036	800	2.50	581
2.85mm	0.1122	50	20	1000	-0.036	800	2.50	587
#33	0.1130	50	20	1000	-0.036	800	2.50	591
2.90mm	0.1142	50	20	1000	-0.037	800	2.50	598
#32	0.1160	50	20	1000	-0.037	800	2.50	607
2.95mm	0.1161	50	20	1000	-0.037	800	2.50	608
3.00mm	0.1181	50	20	1000	-0.038	800	2.50	618
#31	0.1200	50	20	1000	-0.038	800	2.50	628

Size	Diameter	Feed	Speed	Retract	Z-Axis Offset	Hits	Chipload	SFM
	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
3.05mm	0.1201	50	20	1000	-0.038	800	2.50	629
3.10mm	0.1220	50	20	1000	-0.038	800	2.50	638
3.15mm	0.1240	50	20	1000	-0.039	800	2.50	649
1/8	0.1250	50	20	1000	-0.039	800	2.50	654
3.20mm	0.1260	45	20	1000	-0.018	500	2.25	659
3.25mm	0.1280	45	20	1000	-0.018	500	2.25	670
#30	0.1285	45	20	1000	-0.019	500	2.25	672
3.30mm	0.1299	45	20	1000	-0.019	500	2.25	680
3.35mm	0.1319	45	20	1000	-0.019	500	2.25	690
3.40mm	0.1339	45	20	1000	-0.019	500	2.25	701
3.45mm	0.1358	45	20	1000	-0.019	500	2.25	711
#29	0.1360	45	20	1000	-0.019	500	2.25	712
3.50mm	0.1378	45	20	1000	-0.019	500	2.25	721
3.55mm	0.1398	45	20	1000	-0.019	500	2.25	732
#28	0.1405	45	20	1000	-0.019	500	2.25	735
9/64	0.1406	45	20	1000	-0.019	500	2.25	736
3.60mm	0.1417	45	20	1000	-0.019	500	2.25	742
3.65mm	0.1437	45	20	1000	-0.020	500	2.25	752
#27	0.1440	45	20	1000	-0.020	500	2.25	754
3.70mm	0.1457	45	20	1000	-0.020	500	2.25	762
#26	0.1470	45	20	1000	-0.020	500	2.25	769
3.75mm	0.1476	45	20	1000	-0.020	500	2.25	772
#25	0.1495	45	20	1000	-0.020	500	2.25	782
3.80mm	0.1496	45	20	1000	-0.020	500	2.25	783
3.85mm	0.1516	45	20	1000	-0.020	500	2.25	793
#24	0.1520	45	20	1000	-0.020	250	2.25	795
3.90mm	0.1535	45	20	1000	-0.020	250	2.25	803
#23	0.1540	45	20	1000	-0.020	250	2.25	806
3.95	0.1555	45	20	1000	-0.020	250	2.25	814
5/32	0.1562	45	20	1000	-0.020	250	2.25	817
#22	0.1570	45	20	1000	-0.020	250	2.25	822
4.00mm	0.1575	45	20	1000	-0.020	250	2.25	824
#21	0.1590	40	20	1000	-0.021	250	2.00	832
4.05mm	0.1594	40	20	1000	-0.021	250	2.00	834
#20	0.1610	40	20	1000	-0.021	250	2.00	843
4.10mm	0.1614	40	20	1000	-0.021	250	2.00	845
4.15mm	0.1634	40	20	1000	-0.021	250	2.00	855
4.20mm	0.1654	40	20	1000	-0.021	250	2.00	866
#19	0.1660	40	20	1000	-0.021	250	2.00	869
4.25mm	0.1673	40	20	1000	-0.021	250	2.00	876
4.30mm	0.1693	40	20	1000	-0.021	250	2.00	886
#18	0.1695	40	20	1000	-0.021	250	2.00	887
4.35mm	0.1713	40	20	1000	-0.021	250	2.00	896
11/64	0.1719	40	20	1000	-0.021	250	2.00	900
#17	0.1730	40	20	1000	-0.021	200	2.00	905
4.40mm	0.1732	40	20	1000	-0.021	200	2.00	906
4.45mm	0.1752	40	20	1000	-0.022	200	2.00	917
#16	0.1770	40	20	1000	-0.022	200	2.00	926

Size	Diameter	Feed	Speed	Retract	Z-Axis Offset	Hits	Chipload	SFM
	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
4.50mm	0.1772	40	20	1000	-0.022	200	2.00	927
4.55mm	0.1792	40	20	1000	-0.022	200	2.00	938
#15	0.1800	40	20	1000	-0.022	200	2.00	942
4.60mm	0.1811	40	20	1000	-0.022	200	2.00	948
#14	0.1820	40	20	1000	-0.022	200	2.00	952
4.65mm	0.1831	40	20	1000	-0.022	200	2.00	958
#13	0.1850	40	20	1000	-0.022	200	2.00	968
4.70mm	0.1850	40	20	1000	-0.022	200	2.00	968
4.75mm	0.1870	40	20	1000	-0.022	200	2.00	979
3/16	0.1875	40	20	1000	-0.022	200	2.00	981
4.80mm	0.1890	35	20	1000	-0.023	200	1.75	989
#12	0.1890	35	20	1000	-0.023	200	1.75	989
4.85mm	0.1909	35	20	1000	-0.023	200	1.75	999
#11	0.1910	35	20	1000	-0.023	200	1.75	1000
4.90mm	0.1929	35	20	1000	-0.023	200	1.75	1010
#10	0.1935	35	20	1000	-0.023	200	1.75	1013
4.95mm	0.1949	35	20	1000	-0.023	200	1.75	1020
#9	0.1960	35	20	1000	-0.023	200	1.75	1026
5.00mm	0.1968	35	20	1000	-0.023	200	1.75	1030
5.05mm	0.1988	35	20	1000	-0.023	200	1.75	1040
#8	0.1990	35	20	1000	-0.023	200	1.75	1041
5.10mm	0.2008	35	20	1000	-0.023	200	1.75	1051
#7	0.2010	35	20	1000	-0.023	200	1.75	1052
5.15mm	0.2028	35	20	1000	-0.023	200	1.75	1061
13/64	0.2031	35	20	1000	-0.023	200	1.75	1063
#6	0.2040	35	20	1000	-0.024	200	1.75	1068
5.20mm	0.2047	35	20	1000	-0.024	200	1.75	1071
#5	0.2055	35	20	1000	-0.024	200	1.75	1075
5.25mm	0.2067	35	20	1000	-0.024	200	1.75	1082
5.30mm	0.2087	30	20	1000	-0.024	200	1.50	1092
#4	0.2090	30	20	1000	-0.024	200	1.50	1094
5.35mm	0.2106	30	20	1000	-0.024	200	1.50	1102
5.40mm	0.2126	30	20	1000	-0.024	200	1.50	1113
#3	0.2130	30	20	1000	-0.024	200	1.50	1115
5.45mm	0.2146	30	20	1000	-0.024	200	1.50	1123
5.50mm	0.2165	30	20	1000	-0.024	200	1.50	1133
5.55mm	0.2185	30	20	1000	-0.024	200	1.50	1143
7/32	0.2188	30	20	1000	-0.024	200	1.50	1145
5.60mm	0.2205	30	20	1000	-0.025	200	1.50	1154
#2	0.2210	30	20	1000	-0.025	200	1.50	1157
5.65mm	0.2224	30	20	1000	-0.025	200	1.50	1164
5.70mm	0.2244	30	20	1000	-0.025	200	1.50	1174
5.75mm	0.2264	30	20	1000	-0.025	200	1.50	1185
#1	0.2280	30	20	1000	-0.025	200	1.50	1193
5.80mm	0.2283	30	20	1000	-0.025	200	1.50	1195
5.85mm	0.2302	30	20	1000	-0.025	200	1.50	1205
5.90mm	0.2323	30	20	1000	-0.025	200	1.50	1216
A	0.2340	30	20	1000	-0.025	200	1.50	1225

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	(inch)	(Inches/min)	(k-rpm)	(inches/min)	(inches)		(mils/rev)	
5.95mm	0.2343	30	20	1000	-0.026	200	1.50	1226
15/64	0.2344	30	20	1000	-0.026	200	1.50	1227
6.00mm	0.2362	30	20	1000	-0.026	200	1.50	1236
B	0.2380	30	20	1000	-0.026	200	1.50	1246
6.05mm	0.2382	30	20	1000	-0.026	200	1.50	1247
6.10mm	0.2402	30	20	1000	-0.026	200	1.50	1257
C	0.2420	30	20	1000	-0.026	200	1.50	1266
6.15mm	0.2421	30	20	1000	-0.026	200	1.50	1267
6.20mm	0.2441	30	20	1000	-0.026	200	1.50	1277
D	0.2460	30	20	1000	-0.026	200	1.50	1287
6.25mm	0.2461	30	20	1000	-0.026	200	1.50	1288
6.30mm	0.2480	30	20	1000	-0.026	200	1.50	1298
6.35mm	0.2500	30	20	1000	-0.027	200	1.50	1308
6.40mm	0.2520	30	20	1000	-0.027	200	1.50	1319
6.50mm	0.2559	30	20	1000	-0.027	200	1.50	1339
F	0.2570	30	20	1000	-0.027	200	1.50	1345
6.60mm	0.2598	30	20	1000	-0.027	200	1.50	1360

In some cases, there may be an opportunity to increase the chipload based on the application's robustness. Variables such as machine technology and condition, stack support materials, and Tycom design selection may allow the increased throughput with higher chiploads. Multiply the recommended chipload by 1.15 to reach the higher chipload.

If the application is not as robust due to heavy glass, high copper content, tight annular ring requirements, or similar, multiply the recommended chipload by 0.85.

