



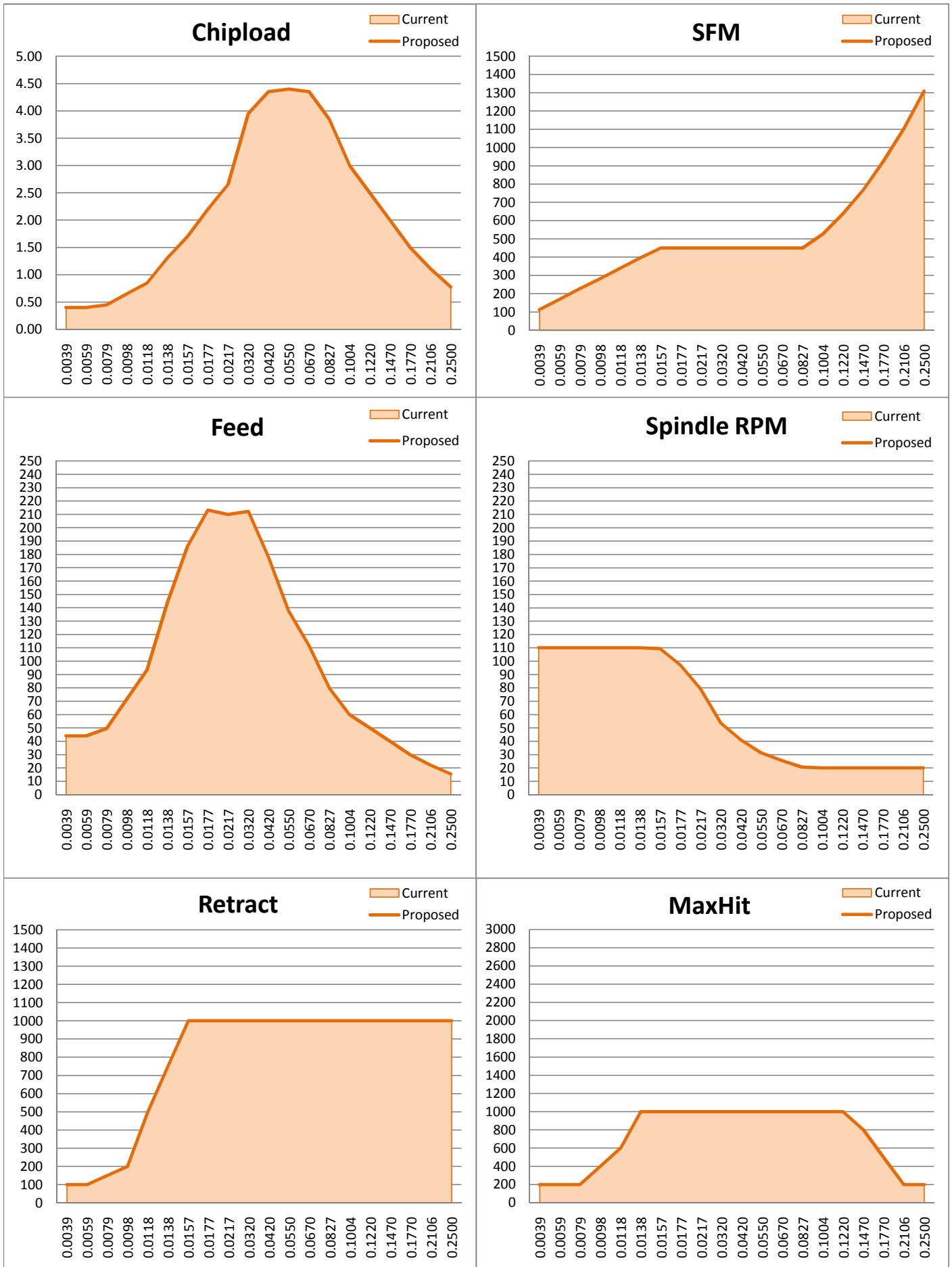
Application:	
Material Type:	Heavy Copper
Drill Designs:	MDBT, UCMT/UCCP, WTCB

Process Parameters:	
Cutting Speed (SFM)	450
Maximum Chipload (0.001"/Revolution)	4.40
Maximum Hit Count	1000
Maximum Spindle RPM	110
Minimum Spindle RPM	20
Z-Offset (1-Point Clearance + Additional Depth; 2-Diameter)	1
Additional Depth (inch)	0.010
Maximum Drill Depth (Inch)	0.040

	Diameter		Chipload	SFM	Retract	MaxHit
1	0.0039	0.10MM	0.40		100	200
2	0.0059	#97 - 0.15MM	0.40		100	200
3	0.0079	#92 - 0.20MM	0.45		150	200
4	0.0098	0.25MM	0.65		200	400
5	0.0118	0.30MM	0.85		500	600
6	0.0138	0.35MM	1.30		750	1000
7	0.0157	0.40MM	1.70		1000	1000
8	0.0177	0.45MM	2.20		1000	1000
9	0.0217	0.55MM	2.65		1000	1000
10	0.0320	#67	3.95		1000	1000
11	0.0420	#58	4.35		1000	1000
12	0.0550	#54	4.40		1000	1000
13	0.0670	#51	4.35		1000	1000
14	0.0827	2.10MM	3.85		1000	1000
15	0.1004	2.55MM	3.00		1000	1000
16	0.1220	3.10MM	2.50		1000	1000
17	0.1470	#26	2.00		1000	800
18	0.1770	#16	1.50		1000	500
19	0.2106	5.35MM	1.11		1000	200
20	0.2500	1/4 - 6.35MM	0.78		1000	200

# Heavy Copper

## MDBT, UCMT/UCCP, WTCB





## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter		Feed	Speed	Retract	MaxHit	Z-offset	SFM	Chipload
	(in.)		(IPM)	(K-RPM)	(IPM)		(in.)		(0.001"/Rev.)
MDBT	0.0039	0.10MM	44	110	100	200	-0.011	112	0.40
	0.0051	0.13MM	44	110	100	200	-0.011	147	0.40
	0.0059	#97 - 0.15MM	44	110	100	200	-0.011	170	0.40
	0.0063	#96	45	110	110	200	-0.011	181	0.41
	0.0067	#95	46	110	120	200	-0.012	193	0.42
	0.0071	#94	47	110	130	200	-0.012	204	0.43
	0.0075	#93	48	110	140	200	-0.012	216	0.44
UCMT / UCCP	0.0079	#92 - 0.20MM	50	110	150	200	-0.012	228	0.45
	0.0083	#91	54	110	161	250	-0.012	239	0.49
	0.0087	#90	59	110	171	300	-0.012	251	0.53
	0.0091	#89	63	110	182	350	-0.012	262	0.58
	0.0095	#88	68	110	192	375	-0.012	274	0.62
	0.0098	0.25MM	72	110	200	400	-0.012	282	0.65
	0.0100	#87	74	110	230	425	-0.012	288	0.67
	0.0105	#86	79	110	305	475	-0.012	302	0.72
	0.0110	#85	85	110	380	525	-0.013	317	0.77
	0.0115	#84	90	110	455	575	-0.013	331	0.82
	0.0118	0.30MM	94	110	500	600	-0.013	340	0.85
	0.0120	#83	98	110	525	650	-0.013	346	0.90
	0.0125	#82	111	110	588	750	-0.013	360	1.01
	0.0130	#81	123	110	650	850	-0.013	374	1.12
	0.0135	#80	136	110	713	950	-0.013	389	1.24
	0.0138	0.35MM	143	110	750	1000	-0.013	397	1.30
	0.0145	#79	159	110	842	1000	-0.013	417	1.45
	0.0156	1/64	184	110	987	1000	-0.014	447	1.68
	0.0157	0.40MM	186	109	1000	1000	-0.014	450	1.70
	0.0160	#78	191	107	1000	1000	-0.014	450	1.77
	0.0177	0.45MM	213	97	1000	1000	-0.014	450	2.20
	0.0180	#77	213	95	1000	1000	-0.014	450	2.23
	0.0197	0.50MM	211	87	1000	1000	-0.015	450	2.42
0.0200	#76	211	86	1000	1000	-0.015	450	2.46	
MDBT	0.0210	#75	210	82	1000	1000	-0.015	450	2.57
	0.0217	0.55MM	210	79	1000	1000	-0.015	450	2.65
	0.0225	#74	210	76	1000	1000	-0.015	450	2.75
	0.0236	0.60MM	210	73	1000	1000	-0.016	450	2.89



## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter		Feed	Speed	Retract	MaxHit	Z-offset	SFM	Chipload
	(in.)		(IPM)	(K-RPM)	(IPM)		(in.)		(0.001"/Rev.)
MDBT	0.0240	#73	211	72	1000	1000	-0.016	450	2.94
	0.0250	#72	211	69	1000	1000	-0.016	450	3.07
	0.0256	0.65MM	211	67	1000	1000	-0.016	450	3.14
	0.0260	#71	211	66	1000	1000	-0.016	450	3.19
	0.0276	0.70MM	211	62	1000	1000	-0.016	450	3.39
	0.0280	#70	211	61	1000	1000	-0.017	450	3.45
	0.0292	#69	212	59	1000	1000	-0.017	450	3.60
	0.0295	0.75MM	212	58	1000	1000	-0.017	450	3.63
	0.0310	#68	212	55	1000	1000	-0.017	450	3.82
	0.0312	1/32	212	55	1000	1000	-0.017	450	3.85
	0.0315	0.80MM	212	55	1000	1000	-0.017	450	3.89
	0.0320	#67	212	54	1000	1000	-0.017	450	3.95
	0.0330	#66	208	52	1000	1000	-0.018	450	3.99
	0.0335	0.85MM	206	51	1000	1000	-0.018	450	4.01
	0.0350	#65	200	49	1000	1000	-0.018	450	4.07
	0.0354	0.90MM	198	49	1000	1000	-0.018	450	4.09
	0.0360	#64	196	48	1000	1000	-0.018	450	4.11
	0.0370	#63	193	46	1000	1000	-0.019	450	4.15
	0.0374	0.95MM	191	46	1000	1000	-0.019	450	4.17
	0.0380	#62	190	45	1000	1000	-0.019	450	4.19
	0.0390	#61	186	44	1000	1000	-0.019	450	4.23
	0.0394	1.00MM	185	44	1000	1000	-0.019	450	4.25
	0.0400	#60	183	43	1000	1000	-0.019	450	4.27
	0.0410	#59	181	42	1000	1000	-0.020	450	4.31
	0.0413	1.05MM	180	42	1000	1000	-0.020	450	4.32
	0.0420	#58	178	41	1000	1000	-0.020	450	4.35
	0.0430	#57	174	40	1000	1000	-0.020	450	4.35
	0.0433	1.10MM	173	40	1000	1000	-0.020	450	4.36
	0.0441	1.12MM	170	39	1000	1000	-0.020	450	4.36
	0.0453	1.15MM	166	38	1000	1000	-0.021	450	4.36
	0.0465	#56	161	37	1000	1000	-0.021	450	4.37
	0.0469	3/64	160	37	1000	1000	-0.021	450	4.37
0.0472	1.20MM	159	36	1000	1000	-0.021	450	4.37	
0.0492	1.25MM	153	35	1000	1000	-0.021	450	4.38	
0.0512	1.30MM	147	34	1000	1000	-0.022	450	4.39	



## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter (in.)		Feed (IPM)	Speed (K-RPM)	Retract (IPM)	MaxHit	Z-offset (in.)	SFM	Chipload (0.001"/Rev.)
MDBT	0.0520	#55	145	33	1000	1000	-0.022	450	4.39
	0.0531	1.35MM	142	32	1000	1000	-0.022	450	4.39
	0.0550	#54	138	31	1000	1000	-0.023	450	4.40
	0.0551	1.40MM	137	31	1000	1000	-0.023	450	4.40
	0.0571	1.45MM	132	30	1000	1000	-0.023	450	4.39
	0.0591	1.50MM	127	29	1000	1000	-0.024	450	4.38
	0.0595	#53	127	29	1000	1000	-0.024	450	4.38
	0.0610	1.55MM	123	28	1000	1000	-0.024	450	4.38
	0.0625	1/16	120	28	1000	1000	-0.025	450	4.37
	0.0630	1.60MM	119	27	1000	1000	-0.025	450	4.37
	0.0635	#52	118	27	1000	1000	-0.025	450	4.36
	0.0650	1.65MM	115	26	1000	1000	-0.025	450	4.36
	0.0669	1.70MM	112	26	1000	1000	-0.026	450	4.35
	0.0670	#51	112	26	1000	1000	-0.026	450	4.35
	0.0689	1.75MM	107	25	1000	1000	-0.026	450	4.29
	0.0700	#50	104	25	1000	1000	-0.026	450	4.25
	0.0709	1.80MM	102	24	1000	1000	-0.027	450	4.23
	0.0728	1.85MM	98	24	1000	1000	-0.027	450	4.17
	0.0730	#49	98	24	1000	1000	-0.027	450	4.16
	0.0748	1.90MM	94	23	1000	1000	-0.027	450	4.10
	0.0760	#48	92	23	1000	1000	-0.028	450	4.06
	0.0768	1.95MM	90	22	1000	1000	-0.028	450	4.04
	0.0781	5/64	88	22	1000	1000	-0.028	450	4.00
	0.0785	#47	87	22	1000	1000	-0.028	450	3.98
	0.0787	2.00MM	87	22	1000	1000	-0.028	450	3.98
	0.0807	2.05MM	83	21	1000	1000	-0.029	450	3.91
	0.0810	#46	83	21	1000	1000	-0.029	450	3.90
	0.0820	#45	81	21	1000	1000	-0.029	450	3.87
	0.0827	2.10MM	80	21	1000	1000	-0.029	450	3.85
	0.0846	2.15MM	78	21	1000	1000	-0.030	458	3.76
	0.0860	#44	76	21	1000	1000	-0.030	464	3.69
	0.0866	2.20MM	75	21	1000	1000	-0.030	467	3.66
	0.0886	2.25MM	73	20	1000	1000	-0.031	475	3.57
0.0890	#43	73	20	1000	1000	-0.031	477	3.55	
0.0906	2.30MM	71	20	1000	1000	-0.031	484	3.47	



## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter		Feed	Speed	Retract	MaxHit	Z-offset	SFM	Chipload
	(in.)		(IPM)	(K-RPM)	(IPM)		(in.)		(0.001"/Rev.)
MDBT	0.0925	2.35MM	69	20	1000	1000	-0.032	492	3.38
	0.0935	#42	68	20	1000	1000	-0.032	496	3.33
	0.0938	3/32	67	20	1000	1000	-0.032	497	3.32
	0.0945	2.40MM	66	20	1000	1000	-0.032	500	3.28
	0.0960	#41	65	20	1000	1000	-0.032	507	3.21
	0.0965	2.45MM	64	20	1000	1000	-0.032	509	3.19
	0.0980	#40	63	20	1000	1000	-0.033	515	3.12
	0.0984	2.50MM	62	20	1000	1000	-0.033	517	3.10
	0.0995	#39	61	20	1000	1000	-0.033	522	3.04
	0.1004	2.55MM	60	20	1000	1000	-0.033	526	3.00
	0.1015	#38	59	20	1000	1000	-0.034	531	2.97
	0.1024	2.60MM	59	20	1000	1000	-0.034	536	2.95
	0.1040	#37	58	20	1000	1000	-0.034	545	2.92
	0.1043	2.65MM	58	20	1000	1000	-0.034	546	2.91
	0.1063	2.70MM	57	20	1000	1000	-0.035	557	2.86
	0.1065	#36	57	20	1000	1000	-0.035	558	2.86
	0.1083	2.75MM	56	20	1000	1000	-0.035	567	2.82
	0.1094	7/64	56	20	1000	1000	-0.036	573	2.79
	0.1100	#35	56	20	1000	1000	-0.036	576	2.78
	0.1102	2.80MM	55	20	1000	1000	-0.036	577	2.77
	0.1110	#34	55	20	1000	1000	-0.036	581	2.75
	0.1122	2.85MM	55	20	1000	1000	-0.036	587	2.73
	0.1130	#33	54	20	1000	1000	-0.036	592	2.71
	0.1142	2.90MM	54	20	1000	1000	-0.037	598	2.68
	0.1160	#32	53	20	1000	1000	-0.037	607	2.64
	0.1161	2.95MM	53	20	1000	1000	-0.037	608	2.64
	0.1181	3.00MM	52	20	1000	1000	-0.038	618	2.59
	0.1200	#31	51	20	1000	1000	-0.038	628	2.55
0.1201	3.05MM	51	20	1000	1000	-0.038	629	2.54	
0.1220	3.10MM	50	20	1000	1000	-0.038	639	2.50	
0.1240	3.15MM	49	20	1000	1000	-0.039	649	2.46	
0.1250	1/8	49	20	1000	1000	-0.039	654	2.44	
WTCB	0.1260	3.20MM	48	20	1000	975	-0.018	660	2.42
	0.1280	3.25MM	48	20	1000	975	-0.018	670	2.38
	0.1285	#30	47	20	1000	950	-0.018	673	2.37



## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter		Feed	Speed	Retract	MaxHit	Z-offset	SFM	Chipload
	(in.)		(IPM)	(K-RPM)	(IPM)		(in.)		(0.001"/Rev.)
WTCB	0.1299	3.30MM	47	20	1000	950	-0.019	680	2.34
	0.1319	3.35MM	46	20	1000	925	-0.019	691	2.30
	0.1339	3.40MM	45	20	1000	925	-0.019	701	2.26
	0.1358	3.45MM	44	20	1000	900	-0.019	711	2.22
	0.1360	#29	44	20	1000	900	-0.019	712	2.22
	0.1378	3.50MM	44	20	1000	875	-0.019	722	2.18
	0.1398	3.55MM	43	20	1000	875	-0.019	732	2.14
	0.1405	#28	43	20	1000	875	-0.019	736	2.13
	0.1406	9/64	43	20	1000	875	-0.019	736	2.13
	0.1417	3.60MM	42	20	1000	850	-0.019	742	2.11
	0.1437	3.65MM	41	20	1000	850	-0.019	752	2.07
	0.1440	#27	41	20	1000	825	-0.019	754	2.06
	0.1457	3.70MM	41	20	1000	825	-0.020	763	2.03
	0.1470	#26	40	20	1000	800	-0.020	770	2.00
	0.1476	3.75MM	40	20	1000	800	-0.020	773	1.99
	0.1495	#25	39	20	1000	775	-0.020	783	1.96
	0.1496	3.80MM	39	20	1000	775	-0.020	783	1.96
	0.1516	3.85MM	38	20	1000	775	-0.020	794	1.92
	0.1520	#24	38	20	1000	750	-0.020	796	1.92
	0.1535	3.90MM	38	20	1000	750	-0.020	804	1.89
	0.1540	#23	38	20	1000	750	-0.020	806	1.88
	0.1555	3.95MM	37	20	1000	725	-0.020	814	1.86
	0.1562	5/32	37	20	1000	725	-0.020	818	1.85
	0.1570	#22	37	20	1000	700	-0.020	822	1.83
	0.1575	4.00MM	37	20	1000	700	-0.020	825	1.83
	0.1590	#21	36	20	1000	700	-0.020	833	1.80
	0.1594	4.05MM	36	20	1000	700	-0.020	835	1.79
	0.1610	#20	35	20	1000	675	-0.021	843	1.77
	0.1614	4.10MM	35	20	1000	675	-0.021	845	1.76
	0.1634	4.15MM	35	20	1000	650	-0.021	856	1.73
	0.1654	4.20MM	34	20	1000	625	-0.021	866	1.69
	0.1660	#19	34	20	1000	625	-0.021	869	1.68
0.1673	4.25MM	33	20	1000	600	-0.021	876	1.66	
0.1693	4.30MM	33	20	1000	600	-0.021	886	1.63	
0.1695	#18	33	20	1000	575	-0.021	887	1.63	



## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter		Feed	Speed	Retract	MaxHit	Z-offset	SFM	Chipload
	(in.)		(IPM)	(K-RPM)	(IPM)		(in.)		(0.001"/Rev.)
WTCB	0.1713	4.35MM	32	20	1000	575	-0.021	897	1.60
	0.1719	11/64	32	20	1000	575	-0.021	900	1.59
	0.1730	#17	31	20	1000	550	-0.021	906	1.57
	0.1732	4.40MM	31	20	1000	550	-0.021	907	1.56
	0.1752	4.45MM	31	20	1000	525	-0.022	917	1.53
	0.1770	#16	30	20	1000	500	-0.022	927	1.50
	0.1772	4.50MM	30	20	1000	500	-0.022	928	1.50
	0.1791	4.55MM	30	20	1000	500	-0.022	938	1.48
	0.1800	#15	29	20	1000	475	-0.022	942	1.47
	0.1811	4.60MM	29	20	1000	475	-0.022	948	1.45
	0.1820	#14	29	20	1000	475	-0.022	953	1.44
	0.1831	4.65MM	29	20	1000	450	-0.022	959	1.43
	0.1850	4.70MM	28	20	1000	450	-0.022	969	1.41
	0.1870	4.75MM	28	20	1000	425	-0.022	979	1.38
	0.1875	3/16	28	20	1000	425	-0.022	982	1.38
	0.1890	#12 - 4.80MM	27	20	1000	400	-0.022	990	1.36
	0.1909	4.85MM	27	20	1000	400	-0.023	1000	1.34
	0.1910	#11	27	20	1000	375	-0.023	1000	1.34
	0.1929	4.90MM	26	20	1000	375	-0.023	1010	1.32
	0.1935	#10	26	20	1000	375	-0.023	1013	1.31
	0.1949	4.95MM	26	20	1000	350	-0.023	1020	1.29
	0.1960	#9	26	20	1000	350	-0.023	1026	1.28
	0.1969	5.00MM	25	20	1000	325	-0.023	1031	1.27
	0.1988	5.05MM	25	20	1000	325	-0.023	1041	1.25
	0.1990	#8	25	20	1000	325	-0.023	1042	1.25
	0.2008	5.10MM	24	20	1000	300	-0.023	1051	1.22
	0.2010	#7	24	20	1000	300	-0.023	1052	1.22
	0.2028	5.15MM	24	20	1000	275	-0.023	1062	1.20
	0.2031	13/64	24	20	1000	275	-0.023	1063	1.20
	0.2040	#6	24	20	1000	275	-0.023	1068	1.19
	0.2047	5.20MM	24	20	1000	275	-0.023	1072	1.18
	0.2055	#5	23	20	1000	250	-0.024	1076	1.17
0.2067	5.25MM	23	20	1000	250	-0.024	1082	1.16	
0.2087	5.30MM	23	20	1000	225	-0.024	1093	1.13	
0.2090	#4	23	20	1000	225	-0.024	1094	1.13	





## Heavy Copper MDBT, UCMT/UCCP, WTCB

Series	Diameter (in.)		Feed (IPM)	Speed (K-RPM)	Retract (IPM)	MaxHit	Z-offset (in.)	SFM	Chipload (0.001"/Rev.)
WTCB	0.2106	5.35MM	22	20	1000	200	-0.024	1103	1.11
	0.2126	5.40MM	22	20	1000	200	-0.024	1113	1.09
	0.2130	#3	22	20	1000	200	-0.024	1115	1.09
	0.2146	5.45MM	22	20	1000	200	-0.024	1124	1.08
	0.2165	5.50MM	21	20	1000	200	-0.024	1134	1.06
	0.2185	5.55MM	21	20	1000	200	-0.024	1144	1.04
	0.2188	7/32	21	20	1000	200	-0.024	1146	1.04
	0.2205	5.60MM	21	20	1000	200	-0.025	1155	1.03
	0.2210	#2	20	20	1000	200	-0.025	1157	1.02
	0.2224	5.65MM	20	20	1000	200	-0.025	1164	1.01
	0.2244	5.70MM	20	20	1000	200	-0.025	1175	0.99
	0.2264	5.75MM	20	20	1000	200	-0.025	1185	0.98
	0.2280	#1	19	20	1000	200	-0.025	1194	0.96
	0.2283	5.80MM	19	20	1000	200	-0.025	1195	0.96
	0.2303	5.85MM	19	20	1000	200	-0.025	1206	0.94
	0.2323	5.90MM	19	20	1000	200	-0.025	1216	0.93
	0.2340	#A	18	20	1000	200	-0.025	1225	0.91
	0.2343	5.95MM	18	20	1000	200	-0.025	1227	0.91
	0.2344	15/64	18	20	1000	200	-0.025	1227	0.91
	0.2362	6.00MM	18	20	1000	200	-0.026	1237	0.89
	0.2380	#B	18	20	1000	200	-0.026	1246	0.88
	0.2382	6.05MM	18	20	1000	200	-0.026	1247	0.88
	0.2402	6.10MM	17	20	1000	200	-0.026	1258	0.86
	0.2420	#C	17	20	1000	200	-0.026	1267	0.85
	0.2421	6.15MM	17	20	1000	200	-0.026	1268	0.84
	0.2441	6.20MM	17	20	1000	200	-0.026	1278	0.83
	0.2460	#D	16	20	1000	200	-0.026	1288	0.81
	0.2461	6.25MM	16	20	1000	200	-0.026	1289	0.81
	0.2480	6.30MM	16	20	1000	200	-0.026	1299	0.79
	0.2500	1/4 - 6.35MM	16	20	1000	200	-0.026	1309	0.78