

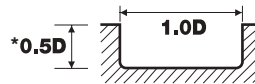
2 FLUTE

MM812, MM852 MMR829 Series

CUTTING DATA

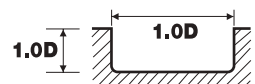
Slotting

MATERIAL	NON-ALLOYED STEEL ALLOY STEEL & TOOL STEEL				ALLOY STEEL & HEAT RESISTANT STEEL				STAINLESS STEEL			
Hardness	~ HRC30				HRC30 ~ HRC45				-			
Strength	~ 1000N/mm ²				1000 ~ 1500N/mm ²				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	14300	105	45	0.004	8500	65	25	0.004	7150	50	20	0.003
1.5	9350	150	45	0.008	5550	85	25	0.008	5600	80	25	0.007
2	7850	160	50	0.010	5150	100	30	0.010	4300	80	25	0.009
3	6100	180	55	0.015	3800	120	35	0.016	3150	100	30	0.016
4	5150	255	65	0.025	3150	155	40	0.025	2650	130	35	0.025
5	4300	270	70	0.031	2550	160	40	0.031	2150	135	35	0.031
6	3800	300	70	0.039	2300	190	45	0.041	1950	155	35	0.040
8	2850	325	70	0.057	1700	170	45	0.050	1450	155	35	0.053
10	2200	280	70	0.064	1350	135	40	0.050	1150	135	35	0.059
12	1850	240	70	0.065	1150	110	45	0.048	950	110	35	0.058
14	1700	215	75	0.063	1050	100	45	0.048	850	100	35	0.059
16	1500	185	75	0.062	950	95	50	0.050	700	95	35	0.068
20	1150	145	70	0.063	700	70	45	0.050	550	70	35	0.064



*up to 3mm Diameter 0.2D

MATERIAL	CAST IRON				ALUMINIUM ALLOYS				COPPER. BRASS NON-FERROUS METALS			
Hardness	-				-				-			
Strength	-				-				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	18700	205	60	0.005	44000	330	140	0.004	24700	200	80	0.004
1.5	12100	205	55	0.008	27500	385	130	0.007	20300	300	95	0.007
2	9350	220	60	0.012	22000	460	140	0.010	16500	340	105	0.010
3	6050	220	55	0.018	15400	460	145	0.015	11000	340	105	0.015
4	4600	220	60	0.024	11000	460	140	0.021	8800	340	110	0.019
5	3650	220	55	0.030	9150	460	145	0.025	6800	340	105	0.025
6	2950	255	55	0.043	7600	485	145	0.032	5700	375	105	0.033
8	2200	275	55	0.063	5700	485	145	0.043	4400	375	110	0.043
10	1850	285	60	0.077	4600	485	145	0.053	3400	375	105	0.055
12	1450	295	55	0.102	3750	485	140	0.065	2850	375	105	0.066
14	1300	310	55	0.119	3300	485	145	0.073	2400	375	105	0.078
16	1100	320	55	0.145	2850	485	145	0.085	2200	375	110	0.085
20	900	340	55	0.189	2200	485	140	0.110	1700	375	105	0.110



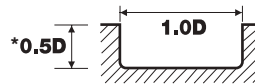
NOTE: For long & extra long types the feed should be reduced by around 50%.

RPM: revolutions per minute Feed: mm per minute Vc: surface speed (metres per minute) Fz: feed per tooth

3 FLUTE
MM813 Series

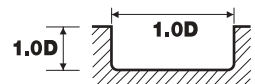
CUTTING DATA
Slotting

MATERIAL	NON-ALLOYED STEEL ALLOY STEEL & TOOL STEEL				ALLOY STEEL & HEAT RESISTANT STEEL				STAINLESS STEEL			
	~ HRC30				HRC30 ~ HRC45				-			
Hardness	~ 1000N/mm ²				1000 ~ 1500N/mm ²				-			
Strength												
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	14300	75	45	0.002	8500	45	25	0.002	7150	35	20	0.002
1.5	12750	105	60	0.003	5550	60	25	0.004	5600	55	25	0.003
2	7850	110	50	0.005	5150	70	30	0.005	4300	55	25	0.004
3	6100	125	55	0.007	3800	85	35	0.007	3150	70	30	0.007
4	5150	180	65	0.012	3150	110	40	0.012	2650	90	35	0.011
5	4300	190	70	0.015	2550	110	40	0.014	2150	95	35	0.015
6	3800	210	70	0.018	2300	135	45	0.020	1950	110	35	0.019
8	2850	230	70	0.027	1700	120	45	0.024	1450	110	35	0.025
10	2200	195	70	0.030	1350	95	40	0.023	1150	95	35	0.028
12	1850	170	70	0.031	1150	75	45	0.022	950	75	35	0.026
14	1700	150	75	0.029	1050	70	45	0.022	850	70	35	0.027
16	1500	130	75	0.029	950	65	50	0.023	700	65	35	0.031
20	1150	100	70	0.029	700	50	45	0.024	550	50	35	0.030



*up to 3mm Diameter 0.2D

MATERIAL	CAST IRON				ALUMINIUM ALLOYS				COPPER. BRASS NON-FERROUS METALS			
	-				-				-			
Hardness	-				-				-			
Strength	-				-				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	18700	185	60	0.003	44000	300	140	0.002	24700	180	80	0.002
1.5	12100	185	55	0.005	27500	345	130	0.004	20300	270	95	0.004
2	9350	200	60	0.007	22000	420	140	0.006	16500	310	105	0.006
3	6050	200	55	0.011	15400	430	145	0.009	11000	310	105	0.009
4	4600	185	60	0.013	11000	420	140	0.013	8800	310	110	0.012
5	3650	200	55	0.018	9150	420	145	0.015	6800	310	105	0.015
6	2950	230	55	0.026	7600	440	145	0.019	5700	340	105	0.020
8	2200	240	55	0.036	5700	440	145	0.026	4400	330	110	0.025
10	1850	255	60	0.046	4600	440	145	0.032	3400	330	105	0.032
12	1450	275	55	0.063	3750	430	140	0.038	2850	330	105	0.039
14	1300	285	55	0.073	3300	430	145	0.043	2400	330	105	0.046
16	1100	285	55	0.086	2850	430	145	0.050	2200	330	110	0.050
20	900	310	55	0.115	2200	430	140	0.065	1700	330	105	0.065



NOTE: For long & extra long types the feed should be reduced by around 50%.

RPM: revolutions per minute Feed: mm per minute Vc: surface speed (metres per minute) Fz: feed per tooth

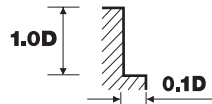
4 FLUTE

MM814, MM853, MMR849 Series

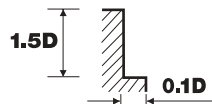
CUTTING DATA

Side Cutting

MATERIAL	NON-ALLOYED STEEL, ALLOY STEEL & TOOL STEEL				ALLOY STEEL & HEAT RESISTANT STEEL				STAINLESS STEEL			
Hardness	~ HRC30				HRC30 ~ HRC45				-			
Strength	~ 1000N/mm ²				1000 ~ 1500N/mm ²				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	17600	150	55	0.002	10250	85	30	0.002	8650	75	25	0.002
1.5	11800	215	55	0.005	7050	115	35	0.004	7050	120	35	0.004
2	9850	240	60	0.006	6450	145	40	0.006	5350	120	35	0.006
3	7600	270	70	0.009	4750	170	45	0.009	3950	145	35	0.009
4	6450	485	80	0.019	3950	300	50	0.019	3300	240	40	0.018
5	5350	510	85	0.024	3200	305	50	0.024	2700	255	40	0.024
6	4750	560	90	0.029	2850	350	55	0.031	2400	280	45	0.029
8	3550	605	90	0.043	2150	325	55	0.038	1800	300	45	0.042
10	2750	520	85	0.047	1700	255	55	0.038	1450	255	45	0.044
12	2350	440	90	0.047	1450	215	55	0.037	1150	205	45	0.045
14	2100	395	90	0.047	1300	195	55	0.038	1050	190	45	0.045
16	1850	350	95	0.047	1150	170	60	0.037	950	170	50	0.045
20	1450	270	90	0.047	900	135	55	0.038	700	130	45	0.046



MATERIAL	CAST IRON				ALUMINIUM ALLOYS				COPPER. BRASS NON-FERROUS METALS			
Hardness	-				-				-			
Strength	-				-				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
1	18700	620	60	0.008	44000	1050	140	0.006	24700	605	80	0.006
1.5	12100	620	55	0.013	27500	1160	130	0.011	20300	910	95	0.011
2	9350	640	60	0.017	22000	1320	140	0.015	16500	1035	105	0.016
3	6050	640	55	0.026	15400	1320	145	0.021	11000	1035	105	0.024
4	4600	640	60	0.035	11000	1320	140	0.030	8800	1035	110	0.029
5	3650	640	55	0.044	9150	1320	145	0.036	6800	1035	105	0.038
6	2950	770	55	0.065	7600	1430	145	0.047	5700	1100	105	0.048
8	2200	815	55	0.093	5700	1430	145	0.063	4400	1100	110	0.063
10	1850	860	60	0.116	4600	1430	145	0.078	3400	1100	105	0.081
12	1450	900	55	0.155	3750	1430	140	0.095	2850	1100	105	0.096
14	1300	945	55	0.182	3300	1430	145	0.108	2400	1100	105	0.115
16	1100	970	55	0.220	2850	1430	145	0.125	2200	1100	110	0.125
20	900	1035	55	0.288	2200	1430	140	0.163	1700	1100	105	0.162



NOTE: For long & extra long types the feed should be reduced by around 50%.

RPM: revolutions per minute Feed: mm per minute Vc: surface speed (metres per minute) Fz: feed per tooth



6 FLUTE 45° HELIX

MMT451 Series

CUTTING DATA

Side Cutting

MATERIAL	NON-ALLOYED STEEL, ALLOY STEEL				ALLOY STEEL & HEAT RESISTANT STEEL				HARDENED STEEL				CAST IRON			
Hardness	~ HRC30				HRC30 ~ HRC50				HRC50 ~ HRC60				~ HRC30			
Strength	~ 1000N/mm ²				1000 ~ 1750N/mm ²				1750 ~ 2080N/mm ²				~ 1000N/mm ²			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
3	8650	825	82	0.024	5750	555	54	0.024	4750	344	45	0.018	8650	825	82	0.024
4	6600	858	83	0.033	4400	581	55	0.033	3600	357	45	0.025	6600	858	83	0.033
5	6250	990	98	0.026	4150	660	65	0.027	3200	383	50	0.02	6250	990	98	0.026
6	5175	924	98	0.03	3450	627	65	0.03	2650	369	50	0.023	5175	924	98	0.03
8	3900	891	98	0.038	2600	594	65	0.038	2000	344	50	0.029	3900	891	98	0.038
10	3075	831	97	0.045	2050	555	64	0.045	1600	317	50	0.033	3075	831	97	0.045
12	2625	831	99	0.053	1750	555	66	0.053	1825	317	69	0.029	2625	831	99	0.053
14	2230	770	98	0.058	1500	515	66	0.057	1130	280	50	0.041	2230	770	98	0.058
16	1950	726	98	0.062	1300	482	65	0.062	1000	278	50	0.046	1950	726	98	0.062
18	1720	670	97	0.065	1150	455	65	0.066	880	265	50	0.05	1720	670	97	0.065
20	1550	641	97	0.069	1025	429	64	0.07	800	251	50	0.052	1550	641	97	0.069

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RPM: revolutions per minute Feed: mm per minute Vc: surface speed (metres per minute) Fz: feed per tooth

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*Exclusions apply.

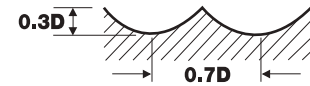
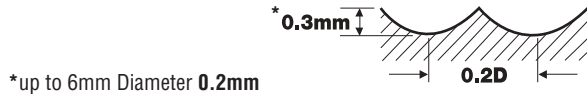
2 FLUTE BALL NOSE

MM934, MM935 Series

CUTTING DATA

Stepover Cutting

MATERIAL		CARBON STEEL, ALLOY STEEL & TOOL STEELS				CARBON STEEL, ALLOY STEEL & TOOL STEELS				HARDENED STEEL				CAST IRON				ALUMINIUM ALLOY			
Hardness		~ HRc30				HRc30 ~ HRc45				HRc45 ~ HRc50				-				-			
Strength		~ 1000N/mm ²				1000 ~ 1500N/mm ²				1500N/mm ² ~				-				-			
Dia.	Rad.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
2	1	12350	640	80	0.026	9150	415	55	0.023	4000	125	25	0.016	10500	220	65	0.010	30800	395	195	0.006
3	1.5	11400	575	105	0.025	8550	390	80	0.023	3800	125	35	0.016	7050	230	65	0.016	20500	395	195	0.010
4	2	8950	630	110	0.035	7150	450	90	0.031	3600	150	45	0.021	5150	285	65	0.028	15400	395	195	0.013
5	2.5	7800	700	125	0.045	6200	490	95	0.040	3100	150	50	0.024	4150	330	65	0.040	12100	470	190	0.019
6	3	7250	870	135	0.060	5900	705	110	0.060	2700	160	50	0.030	3400	360	65	0.053	10300	470	195	0.023
8	4	6100	1090	155	0.089	4900	785	125	0.080	2050	190	50	0.046	2500	460	65	0.092	7900	540	200	0.034
10	5	5450	1330	170	0.122	4350	870	135	0.100	1750	190	55	0.054	2050	460	65	0.112	6150	540	195	0.044
12	6	4990	1500	190	0.150	3950	950	150	0.120	1500	210	55	0.070	1750	460	65	0.131	5150	630	195	0.061
14	7	4530	1495	200	0.165	3600	925	160	0.128	1300	210	55	0.081	1400	460	60	0.164	4300	630	190	0.073
16	8	4085	1470	205	0.180	3200	905	160	0.141	1150	210	60	0.091	1300	460	65	0.177	3850	540	195	0.070
18	9	3800	1425	215	0.188	3000	890	170	0.148	1050	210	60	0.100	1100	460	60	0.209	3400	540	190	0.079
20	10	3550	1425	225	0.201	2800	885	175	0.158	950	210	60	0.111	1050	420	65	0.200	2950	540	185	0.092



NOTE: For long & extra long types the feed should be reduced by around 50%.

4 FLUTE COARSE PITCH ROUGHER

MMR43 Series

CUTTING DATA

Side Cutting

MATERIAL	NON-ALLOYED STEEL ALLOY STEEL & TOOL STEEL				ALLOY STEEL & HEAT RESISTANT STEEL				STAINLESS STEEL				INCONEL			
Hardness	~ HRc30				HRc30 ~ HRc38				HRc38 ~ HRc45				-			
Strength	~ 1000N/mm ²				1000 ~ 1200N/mm ²				1200 ~ 1400N/mm ²				-			
Dia.	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz	RPM	Feed	Vc	Fz
6	13250	1970	250	0.050	10550	710	200	0.022	7150	480	135	0.022	2050	160	40	0.026
8	9850	1970	250	0.067	7800	710	195	0.023	5350	480	135	0.022	1550	150	40	0.024
10	7800	1970	245	0.063	6450	710	205	0.028	4350	480	135	0.028	1100	160	35	0.036
12	6800	2040	255	0.075	5100	680	190	0.033	3550	480	135	0.034	1000	160	40	0.040
14	5800	2040	255	0.088	4400	710	195	0.040	3050	480	135	0.039	750	110	35	0.037
16	5100	2040	255	0.100	4100	650	205	0.040	2800	430	140	0.038	700	90	35	0.032
18	4400	1970	250	0.112	3750	610	210	0.041	2300	360	130	0.039	600	90	35	0.038
20	4100	1840	260	0.112	3050	480	190	0.039	2050	310	130	0.038	550	90	35	0.041
25	3650	1830	285	0.100	2700	530	210	0.039	1850	350	145	0.038	500	90	40	0.060

1.5D
0.3D

1.0D
0.05D

NOTE: For long & extra long types the feed should be reduced by around 50%.

RPM: revolutions per minute Feed: mm per minute Vc: surface speed (metres per minute) Fz: feed per tooth