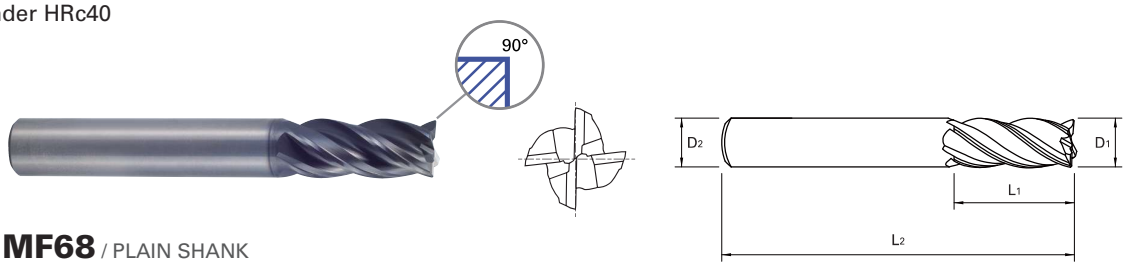
CARBIDE, 4 FLUTE

- Special flute geometry and multiple helix eliminate vibrations
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF68 / PLAIN SHANK
UGMF69 / FLAT SHANK

MG HM | 4 | M-Helix | PLAIN | FLAT

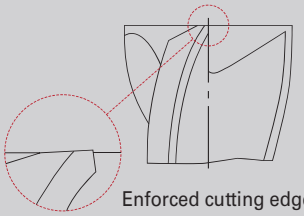
P.30~33

MADE IN USA

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.0012	h6

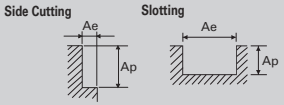
Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
UGMF68008	-	1/8	1/8	1/8	1-1/2
UGMF68901	-		1/8	3/8	1-1/2
UGMF68010	-	5/32	3/16	3/16	2
UGMF68902	-		3/16	7/16	2
UGMF68012	-	3/16	3/16	3/16	2
UGMF68903	-		3/16	7/16	2
UGMF68014	-	7/32	1/4	1/4	2
UGMF68904	-		1/4	7/16	2-1/2
UGMF68016	-	1/4	1/4	3/8	2
UGMF68905	-		1/4	3/4	2-1/2
UGMF68018	-	9/32	5/16	5/8	2-1/2
UGMF68020	-	5/16	5/16	7/16	2
UGMF68906	-		5/16	13/16	2-1/2
UGMF68022	UGMF69022	11/32	3/8	1/2	2-1/2
UGMF68024	UGMF69024	3/8	3/8	1/2	2-1/2
UGMF68907	UGMF69907		3/8	7/8	2-1/2
UGMF68028	UGMF69028	7/16	7/16	5/8	2-1/2
UGMF68908	UGMF69908		7/16	1	2-3/4
UGMF68032	UGMF69032	1/2	1/2	5/8	2-1/2
UGMF68909	UGMF69909		1/2	1	3
UGMF68910	UGMF69910		1/2	1-1/4	3-1/2
UGMF68040	UGMF69040	5/8	5/8	3/4	3
UGMF68911	UGMF69911		5/8	1-1/4	3-1/2
UGMF68048	UGMF69048	3/4	3/4	3/4	3
UGMF68912	UGMF69912		3/4	1-1/2	4
UGMF68064	UGMF69064	1	1	1	4
UGMF68913	UGMF69913		1	1-1/2	4
UGMF68914	UGMF69914		1	2	5



Enforced cutting edge

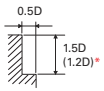
UGMF68, UGMF69, UGMF70, UGMF71, UGMF72, UGMF73, UGMF74, UGMF75, UGMF76, UGMF77 SERIES



RPM = rev./min.
FEED = inch/min.
SFM = ft/min.
Fz = inch/tooth

Speed and Feed Recommendations						Diameter (inch)			
ISO Hardness (Brinell)	Work Materials	Type of cut	Ap x D1	Ae x D1	Parameters	1/8	5/32	3/16	7/32
P < 380	CARBON STEEL 10**, 11**, 12**, 12L**, 15**	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	499 (400-599)			
					RPM	15249	12200	10166	8714
					Fz	.0002	.0003	.0004	.0005
					Feed	12.01	15.37	17.61	18.53
		Slotting	1 (0.8)	1	SFM (Vc)	499 (400-599)			
					RPM	15249	12200	10166	8714
					Fz	.0002	.0003	.0004	.0005
					Feed	12.01	15.37	17.61	18.53
K < 260	ALLOY STEEL 41**, 43**, 51**, 86**	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	351 (281-422)			351 (281-421)
					RPM	10727	8581	7151	6129
					Fz	.0002	.0003	.0004	.0005
					Feed	8.45	10.81	12.39	13.03
		Slotting	1 (0.8)	1	SFM (Vc)	351 (281-422)			351 (281-421)
					RPM	10727	8581	7151	6129
					Fz	.0002	.0003	.0004	.0005
					Feed	8.45	10.81	12.39	13.03
P < 380	TOOL STEEL A2, D2, H13, P20, T15	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	210 (168-252)			
					RPM	6418	5134	4278	3667
					Fz	.0001	.0002	.0003	.0004
					Feed	3.03	4.85	5.39	5.49
		Slotting	1 (0.8)	1	SFM (Vc)	210 (168-252)			
					RPM	6418	5134	4278	3667
					Fz	.0001	.0002	.0003	.0004
					Feed	3.03	4.85	5.39	5.49
K < 260	CAST IRON Gray, Mallable, Ductile	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	367 (294-440)			
					RPM	11216	8972	7477	6409
					Fz	.0002	.0004	.0006	.0007
					Feed	10.60	14.13	16.48	17.16
		Slotting	1 (0.8)	1	SFM (Vc)	367 (294-440)			
					RPM	11216	8972	7477	6409
					Fz	.0002	.0004	.0006	.0007
					Feed	10.60	14.13	16.48	17.16

CUTTING CONDITION

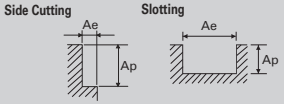
*Axial cutting depth			
Length of Cut	<1.5D	0.8D	1.2D
	≥1.5D	D	1.5D

RPM = rev./min.
FEED = inch/min.
SFM = ft/min.
Fz = inch/tooth

Diameter (inch)									
1/4	9/32	5/16	11/32	3/8	7/16	1/2	5/8	3/4	1
499 (400-599)			525 (420-630)	551 (441-662)	551 (441-661)	551 (441-662)			
7625	6778	6100	5834	5613	4811	4210	3368	2806	2105
.0006	.0008	.0011	.0013	.0015	.0017	.0019	.0021	.0026	.0025
19.21	22.95	25.94	29.86	33.59	32.20	31.16	28.11	28.73	21.21
499 (400-598)			525 (420-630)	551 (441-662)	551 (441-661)	551 (441-662)			
7625	6778	6100	5834	5613	4811	4210	3368	2806	2105
.0006	.0008	.0011	.0013	.0015	.0017	.0019	.0021	.0026	.0025
19.21	22.95	25.94	29.86	33.59	32.20	31.16	28.11	28.73	21.21
351 (281-422)	351 (281-421)	351 (281-422)	368 (295-441)	384 (308-461)	384 (308-460)	384 (308-461)			
5363	4767	4291	4089	3912	3353	2934	2347	1956	1467
.0006	.0008	.0011	.0013	.0015	.0017	.0019	.0021	.0026	.0025
13.51	16.14	18.24	20.93	23.41	22.44	21.71	19.59	20.02	14.78
351 (281-422)	351 (281-421)	351 (281-422)	368 (295-441)	384 (308-461)	384 (308-460)	384 (308-461)			
5363	4767	4291	4089	3912	3353	2934	2347	1956	1467
.0006	.0008	.0011	.0013	.0015	.0017	.0019	.0021	.0023	.0025
13.51	16.14	18.24	20.93	23.41	22.44	21.71	19.59	18.17	14.78
210 (168-252)			220 (176-264)	230 (184-276)					
3209	2852	2567	2445	2343	2008	1757	1406	1171	879
.0004	.0006	.0007	.0009	.0011	.0012	.0013	.0015	.0018	.0018
5.56	6.74	7.68	8.86	9.96	9.33	8.86	8.19	8.30	6.23
210 (168-252)			220 (176-264)	230 (184-276)					
3209	2852	2567	2445	2343	2008	1757	1406	1171	879
.0004	.0006	.0007	.0009	.0011	.0012	.0013	.0015	.0018	.0018
5.56	6.74	7.68	8.86	9.96	9.33	8.86	8.19	8.30	6.23
367 (294-440)			386 (309-463)	404 (324-484)					
5608	4985	4486	4290	4115	3527	3087	2469	2058	1543
.0008	.0011	.0013	.0016	.0019	.0021	.0023	.0026	.0032	.0031
17.66	21.19	24.02	27.70	31.11	29.44	28.19	25.28	26.25	19.20
367 (294-440)			386 (309-463)	404 (324-484)					
5608	4985	4486	4290	4115	3527	3087	2469	2058	1543
.0008	.0011	.0013	.0016	.0019	.0021	.0023	.0026	.0032	.0031
17.66	21.19	24.02	27.70	31.11	29.44	28.19	25.28	26.25	19.20

▶ NEXT PAGE

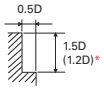
UGMF68, UGMF69, UGMF70, UGMF71, UGMF72, UGMF73, UGMF74, UGMF75, UGMF76, UGMF77 SERIES



RPM = rev./min.
FEED = inch/min.
SFM = ft/min.
Fz = inch/tooth

Speed and Feed Recommendations						Diameter (inch)			
ISO Hardness (Brinell)	Work Materials	Type of cut	Ap x D1	Ae x D1	Parameters	1/8	5/32	3/16	7/32
M	STAINLESS STEELS 300 304, 316, 304L, 316LSUS316	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	377 (302-452)			
					RPM	11521	9217	7681	6583
					Fz	.0002	.0003	.0005	.0006
					Feed	9.07	11.61	15.72	16.07
		Slotting	1 (0.8)	1	SFM (Vc)	377 (302-452)			
					RPM	11521	9217	7681	6583
					Fz	.0002	.0003	.0005	.0006
					Feed	9.07	11.61	15.72	16.07
M	STAINLESS STEELS 400 416, 420F, 430F, 440F	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	528 (423-633)			
					RPM	16136	12909	10757	9220
					Fz	.0002	.0002	.0004	.0004
					Feed	10.16	12.20	15.25	15.97
		Slotting	1 (0.8)	1	SFM (Vc)	528 (423-633)			
					RPM	16136	12909	10757	9220
					Fz	.0002	.0002	.0004	.0004
					Feed	10.16	12.20	15.25	15.97
M	STAINLESS STEELS(PH) 17-4PH, 15-5PH, 13-8PH	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	341 (273-409)			
					RPM	10421	8337	6947	5955
					Fz	.0002	.0003	.0005	.0006
					Feed	8.21	10.50	14.22	14.54
		Slotting	1 (0.8)	1	SFM (Vc)	341 (273-409)			
					RPM	10421	8337	6947	5955
					Fz	.0002	.0003	.0005	.0006
					Feed	8.21	10.50	14.22	14.54
S	TITANIUM Ti6Al4V, Ti5Al5V5Mo, Ti7Al4Mo	Side Cutting	1	0.35	SFM (Vc)	266 (213-319)			
					RPM	8129	6503	5419	4645
					Fz	.0002	.0003	.0004	.0005
					Feed	5.12	7.17	9.39	9.88
		Slotting	0.5	1	SFM (Vc)	266 (213-319)			
					RPM	8129	6503	5419	4645
					Fz	.0002	.0003	.0004	.0005
					Feed	5.12	7.17	9.39	9.88
S	HIGH TEMPERATURE ALLOY INCONEL, HASTELLOY, RENE	Side Cutting	1	0.25	SFM (Vc)	102 (82-122)			
					RPM	3117	2494	2078	1781
					Fz	.0002	.0003	.0005	.0006
					Feed	2.45	2.75	3.93	4.21
		Slotting	0.5	1	SFM (Vc)	102 (82-122)			
					RPM	3117	2494	2078	1781
					Fz	.0002	.0003	.0005	.0006
					Feed	2.45	2.75	3.93	4.21

CUTTING CONDITION

*Axial cutting depth			
		D(0.8D)* / D	0.5D / 1.5D (1.2D)*
Length of Cut	<1.5D	0.8D	1.2D
	≥1.5D	D	1.5D

RPM = rev./min.
FEED = inch/min.
SFM = ft/min.
Fz = inch/tooth

Diameter (inch)									
1/4	9/32	5/16	11/32	3/8	7/16	1/2	5/8	3/4	1
377 (302-452)									
5761	5120	4608	4189	3840	3292	2880	2304	1920	1440
.0007	.0009	.0011	.0015	.0019	.0020	.0022	.0025	.0030	.0031
16.33	18.55	20.32	25.07	29.03	26.96	25.40	22.86	23.28	17.69
377 (302-452)									
5761	5120	4608	4189	3840	3292	2880	2304	1920	1440
.0007	.0009	.0011	.0015	.0019	.0020	.0022	.0025	.0030	.0031
16.33	18.55	20.32	25.07	29.03	26.96	25.40	22.86	23.28	17.69
528 (423-633)									
8068	7171	6454	5868	5379	4610	4034	3227	2689	2017
.0005	.0007	.0009	.0011	.0013	.0015	.0016	.0018	.0022	.0022
16.52	20.08	22.36	25.87	28.80	26.86	25.41	22.87	23.29	17.47
528 (423-633)									
8068	7171	6454	5868	5379	4610	4034	3227	2689	2017
.0005	.0007	.0009	.0011	.0013	.0015	.0016	.0018	.0022	.0022
16.52	19.76	22.36	25.87	28.80	26.86	25.41	22.87	23.29	17.47
341 (273-409)									
5210	4632	4168	3789	3474	2977	2605	2084	1737	1303
.0007	.0009	.0011	.0015	.0019	.0020	.0022	.0024	.0030	.0031
14.77	16.78	18.38	22.68	26.26	24.15	22.57	20.35	21.06	16.00
341 (273-409)									
5210	4632	4168	3789	3474	2977	2605	2084	1737	1303
.0007	.0009	.0011	.0015	.0019	.0020	.0022	.0024	.0030	.0031
14.77	16.78	18.38	22.68	26.26	24.15	22.57	20.35	21.06	16.00
266 (213-319)									
4064	3613	3252	2956	2710	2323	2032	1626	1355	1016
.0006	.0008	.0010	.0013	.0017	0.0018	.0020	.0022	.0027	.0028
10.24	11.66	12.80	15.83	18.35	17.01	16.00	14.34	14.72	11.20
266 (213-319)									
4064	3613	3252	2956	2710	2323	2032	1626	1355	1016
.0006	.0008	.0010	.0013	.0017	.0018	.0020	.0022	.0027	.0028
10.24	11.66	12.80	15.83	18.35	17.01	16.00	14.34	14.72	11.20
102 (82-122)									
1559	1385	1247	1133	1039	891	779	623	520	390
.0007	.0010	.0012	.0015	.0019	.0020	.0022	.0025	.0030	.0031
4.42	5.35	6.09	6.96	7.69	7.15	6.75	6.28	6.30	4.85
102 (82-122)									
1559	1385	1247	1133	1039	891	779	623	520	390
.0007	.0010	.0012	.0015	.0019	.0020	.0022	.0025	.0030	.0031
4.42	5.35	6.09	6.96	7.69	7.15	6.75	6.28	6.30	4.85