



PLAIN SHANK  
GLATTER ZYLINDERSCHAFT

## CARBIDE, 2 FLUTE MINIATURE VOLLHARTMETALL, 2 SCHNEIDEN MINI

- ▶ High precision milling in medical, optical, electronics and aero space industries.
- ▶ Excellent performance on hardened steel

- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



MG HM 2 30° PLAIN P.885

Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM810004	0.4	3	0.8	40
EM810005	0.5	3	1	40
EM810006	0.6	3	1.2	40
EM810007	0.7	3	1.4	40
EM810008	0.8	3	1.6	40
EM810009	0.9	3	2	40
EM810010	1.0	4	2.5	40
EM810011	1.1	4	2.5	40
EM810012	1.2	4	4	40
EM810013	1.3	4	4	40
EM810014	1.4	4	4	40
EM810015	1.5	4	4	40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel	Acrylic	CFRP
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○				○						



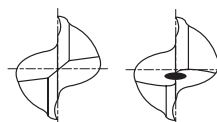
PLAIN SHANK  
GLATTER ZYLINDERSCHAFT

FLAT SHANK  
SEITLICHE MITNAHMEFLÄCHEN

## CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM810120	EM820120	12.0	12	26	75
EM810906	EM820906	13.0	12	26	85
EM810140	EM820140	14.0	14	26	85
EM810905	EM820905	14.0	16	26	85
EM810908	EM820908	15.0	16	26	90
EM810160	EM820160	16.0	16	32	100
EM810909	EM820909	17.0	16	32	100
EM810180	EM820180	18.0	18	32	100
EM810911	EM820911	19.0	20	32	100
EM810200	EM820200	20.0	20	38	105
EM810220	EM820220	22.0	20	38	105
EM810240	EM820240	24.0	25	45	120
EM810250	EM820250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel	Acrylic	CFRP
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○				○		○				

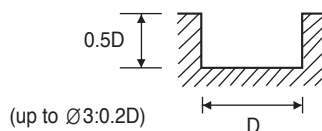


**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDKONDITIONEN**

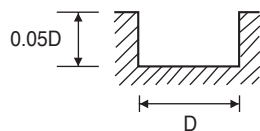
**CARBIDE, 2 FLUTE SHORT - SLOTTING  
VOLLHARTMETALL, 2 SCHNEIDEN KURZ - NUTENFRÄSEN**

**EM810, EM820 SERIES**

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRC30				HRC30 ~ HRC45							
STRENGTH	~ 1000N/mm <sup>2</sup>				1000 ~ 1500N/mm <sup>2</sup>							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9250	190	60	0.010	6050	120	40	0.010	5050	90	30	0.009
3.0	7150	210	65	0.015	4450	140	40	0.016	3700	120	35	0.016
4.0	6050	300	75	0.025	3700	180	45	0.024	3100	150	40	0.024
5.0	5050	320	80	0.032	3020	190	45	0.031	2530	160	40	0.032
6.0	4450	350	85	0.039	2690	220	50	0.041	2270	180	45	0.040
8.0	3360	380	85	0.057	2020	200	50	0.050	1680	180	40	0.054
10.0	2600	330	80	0.063	1600	160	50	0.050	1350	160	40	0.059
12.0	2200	280	85	0.064	1350	130	50	0.048	1090	130	40	0.060
16.0	1760	220	90	0.063	1090	110	55	0.050	850	110	45	0.065
20.0	1350	170	85	0.063	850	80	55	0.047	670	80	40	0.060
25.0	1090	130	85	0.060	670	70	55	0.052	550	60	45	0.055



MATERIAL	HARDENED STEELS				HARDENED STEELS			
HARDNESS	HRc45 ~ HRc55				HRc55 ~ HRc65			
STRENGTH	1500 ~ 2000N/mm <sup>2</sup>				2000N/mm <sup>2</sup> ~			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4030	35	25	0.004				
3.0	2690	40	25	0.007	1900	40	20	0.011
4.0	2350	40	30	0.009	1480	40	20	0.014
5.0	1860	50	30	0.013	1260	40	20	0.016
6.0	1600	55	30	0.017	1100	40	20	0.018
8.0	1350	75	35	0.028	840	40	20	0.024
10.0	1090	60	35	0.028	680	35	20	0.026
12.0	930	55	35	0.030	560	35	20	0.031
16.0	720	40	35	0.028	440	20	20	0.023
20.0	550	30	35	0.027	320	20	20	0.031
25.0	430	20	35	0.023	260	15	20	0.029



RPM = rev./min.  
FEED = mm/min.  
Vc = m/min.  
fz = mm/t

## CARBIDE, 2 FLUTE MINIATURE - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN MINI - NUTENFRÄSEN

### EM810 SERIES

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	HRC30 ~ HRC45				HRC45 ~ HRC55			
STRENGTH	1000 ~ 1500N/mm <sup>2</sup>				1500 ~ 2000N/mm <sup>2</sup>			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.4	30000	90	40	0.002	23000	50	30	0.001
0.8	24000	150	60	0.003	18000	65	45	0.002
1.0	20000	160	65	0.004	15000	75	45	0.003
1.2	16000	160	60	0.005	12000	75	45	0.003
1.5	12000	150	55	0.006	9000	70	40	0.004

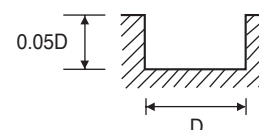
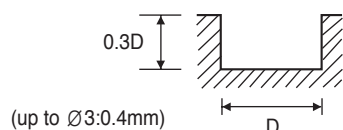
<p>D &lt; 1 Depth=0.15 × D D ≥ 1 Depth=0.25 × D</p>		<p>D &lt; 1 Depth=0.02 × D D ≥ 1 Depth=0.05 × D</p>	
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RPM = rev./min.  
FEED = mm/min.  
Vc = m/min.  
fz = mm/t

## CARBIDE, 2 FLUTE LONG - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN LANG - NUTENFRÄSEN

### EM816, EM826 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~ HRC30				HRC30 ~ HRC45				HRC45 ~ HRC55			
STRENGTH	~ 1000N/mm <sup>2</sup>				1000 ~ 1500N/mm <sup>2</sup>				1500 ~ 2000N/mm <sup>2</sup>			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7560	70	50	0.005	6050	60	40	0.005	3780	30	25	0.004
3.0	5290	85	50	0.008	4280	70	40	0.008	2640	35	25	0.007
4.0	4280	100	55	0.012	3410	85	45	0.012	2150	40	25	0.009
5.0	3660	125	55	0.017	2900	100	45	0.017	1900	45	30	0.012
6.0	3160	150	60	0.024	2520	125	50	0.025	1640	60	30	0.018
8.0	2400	160	60	0.033	1900	125	50	0.033	1260	60	30	0.024
10.0	2020	160	65	0.040	1640	125	50	0.038	1010	60	30	0.030
12.0	1640	125	60	0.038	1390	115	50	0.041	840	45	30	0.027
16.0	1390	115	70	0.041	1070	90	55	0.042	670	40	35	0.030
20.0	1010	85	65	0.042	820	60	50	0.037	500	30	30	0.030



RPM = rev./min.  
FEED = mm/min.  
Vc = m/min.  
fz = mm/t