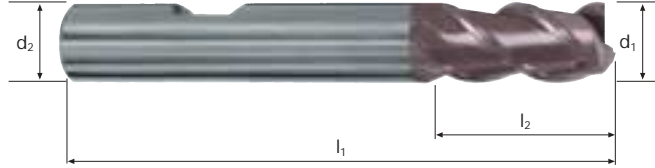


# Zylindrische Fräser

Glattschneidig, normale Ausführung



**HM**  
**MG10**     $\lambda$  45°  
                   $\gamma$  15°



Schruppen



Schichten

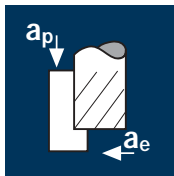


<b>Rm</b> < 850	<b>Rm</b> 850-1100	<b>Rm</b> 1100-1300					<b>Inox</b> Stainless		<b>GG(G)</b> Copper
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Ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	UNICUT-4X	
								5330	U5330
.138*	2.0	2.0	42	6	0.10	0.0°	3	●	●
.140	2.0	6.0	54	6	0.10	7.0°	3	●	●
.158*	2.5	2.5	42	7	0.10	0.0°	3	●	●
.160	2.5	6.0	54	6	0.10	6.5°	3	●	●
.178*	3.0	3.0	45	7	0.10	0.0°	3	●	●
.180	3.0	6.0	57	7	0.10	5.5°	3	●	●
.198*	3.5	3.5	50	7	0.10	0.0°	3	●	●
.200	3.5	6.0	57	7	0.10	5.0°	3	●	●
.218*	4.0	4.0	50	8	0.10	0.0°	3	●	●
.220	4.0	6.0	57	8	0.10	4.0°	3	●	●
.238*	4.5	4.5	50	8	0.15	0.0°	3	●	●
.240	4.5	6.0	57	8	0.10	3.5°	3	●	●
.258*	5.0	5.0	50	10	0.15	0.0°	3	●	●
.260	5.0	6.0	57	10	0.15	2.0°	3	●	●
.278*	5.5	5.5	57	10	0.15	0.0°	3	●	●
.280	5.5	6.0	57	10	0.15	1.5°	3	●	●
.300	6.0	6.0	57	10	0.15	0.0°	3	●	●
.322	6.5	8.0	63	13	0.15	2.5°	3	●	●
.331	7.0	8.0	63	13	0.15	2.0°	3	●	●
.362	7.5	8.0	63	16	0.15	1.0°	3	●	●
.391	8.0	8.0	63	16	0.15	0.0°	3	●	●
* nur ohne Seitenspannfläche									



## Anwendung



## Werkstoff

Stahl  
< 850 N/mm<sup>2</sup>

Stahl  
850 - 1100 N/mm<sup>2</sup>

Nichtrostender Stahl  
[Cr-Ni/1.4301]

Gusseisen  
GG(G)

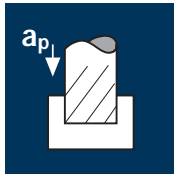
d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> [mm/min]	Q [cm <sup>3</sup> /min]
2.0	3	120	0.005	3.0	0.2	19100	285	0.2
2.5	3	120	0.010	3.8	0.3	15280	460	0.4
3.0	3	120	0.010	4.5	0.3	12735	380	0.5
3.5	3	120	0.010	5.3	0.4	10915	325	0.6
4.0	3	120	0.015	6.0	0.4	9550	430	1.0
5.0	3	120	0.015	7.5	0.5	7640	345	1.3
6.0	3	120	0.020	9.0	0.6	6365	380	2.1
7.0	3	120	0.025	10.5	0.7	5455	410	3.0
8.0	3	120	0.025	12.0	0.8	4775	360	3.5

2.0	3	80	0.005	3.0	0.2	12735	190	0.1
2.5	3	80	0.010	3.8	0.3	10185	305	0.3
3.0	3	80	0.010	4.5	0.3	8490	255	0.3
3.5	3	80	0.010	5.3	0.4	7275	220	0.4
4.0	3	80	0.015	6.0	0.4	6365	285	0.7
5.0	3	80	0.015	7.5	0.5	5095	230	0.9
6.0	3	80	0.020	9.0	0.6	4245	255	1.4
7.0	3	80	0.025	10.5	0.7	3640	275	2.0
8.0	3	80	0.025	12.0	0.8	3185	240	2.3

2.0	3	60	0.005	3.0	0.2	9550	145	0.1
2.5	3	60	0.010	3.8	0.3	7640	230	0.2
3.0	3	60	0.010	4.5	0.3	6365	190	0.3
3.5	3	60	0.010	5.3	0.4	5455	165	0.3
4.0	3	60	0.015	6.0	0.4	4775	215	0.5
5.0	3	60	0.015	7.5	0.5	3820	170	0.6
6.0	3	60	0.020	9.0	0.6	3185	190	1.0
7.0	3	60	0.025	10.5	0.7	2730	205	1.5
8.0	3	60	0.025	12.0	0.8	2385	180	1.7

2.0	3	160	0.005	3.0	0.2	25465	380	0.2
2.5	3	160	0.010	3.8	0.3	20370	610	0.6
3.0	3	160	0.010	4.5	0.3	16975	510	0.7
3.5	3	160	0.010	5.3	0.4	14550	435	0.8
4.0	3	160	0.015	6.0	0.4	12735	575	1.4
5.0	3	160	0.015	7.5	0.5	10185	460	1.7
6.0	3	160	0.020	9.0	0.6	8490	510	2.8
7.0	3	160	0.025	10.5	0.7	7275	545	4.0
8.0	3	160	0.025	12.0	0.8	6365	475	4.6

## Anwendung



## Werkstoff

Stahl  
< 850 N/mm<sup>2</sup>

Stahl  
850 - 1100 N/mm<sup>2</sup>

Nichtrostender Stahl  
[Cr-Ni/1.4301]

Gusseisen  
GG(G)

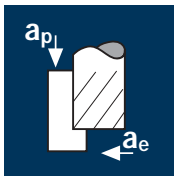
d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> [mm/min]	Q [cm <sup>3</sup> /min]
2.0	3	100	0.005	1.0	2	15915	240	0.5
2.5	3	100	0.005	1.3	3	12735	190	0.5
3.0	3	100	0.010	1.5	3	10610	320	1.5
3.5	3	100	0.010	1.8	4	9095	275	1.5
4.0	3	100	0.010	2.0	4	7960	240	2.0
5.0	3	100	0.015	2.5	5	6365	285	3.5
6.0	3	100	0.015	3.0	6	5305	240	4.5
7.0	3	100	0.020	3.5	7	4545	275	6.5
8.0	3	100	0.020	4.0	8	3980	240	7.5

2.0	3	70	0.005	1.0	2	11140	165	0.5
2.5	3	70	0.005	1.3	3	8915	135	0.5
3.0	3	70	0.010	1.5	3	7425	225	1.0
3.5	3	70	0.010	1.8	4	6365	190	1.0
4.0	3	70	0.010	2.0	4	5570	165	1.5
5.0	3	70	0.015	2.5	5	4455	200	2.5
6.0	3	70	0.015	3.0	6	3715	165	3.0
7.0	3	70	0.020	3.5	7	3185	190	4.5
8.0	3	70	0.020	4.0	8	2785	165	5.5

2.0	3	40	0.005	1.0	2	6365	95	0.2
2.5	3	40	0.005	1.3	3	5095	75	0.2
3.0	3	40	0.010	1.5	3	4245	125	0.5
3.5	3	40	0.010	1.8	4	3640	110	0.5
4.0	3	40	0.010	2.0	4	3185	95	1.0
5.0	3	40	0.015	2.5	5	2545	115	1.5
6.0	3	40	0.015	3.0	6	2120	95	1.5
7.0	3	40	0.020	3.5	7	1820	110	2.5
8.0	3	40	0.020	4.0	8	1590	95	3.0

2.0	3	120	0.005	1.0	2	19100	285	0.5
2.5	3	120	0.010	1.3	3	15280	460	1.5
3.0	3	120	0.010	1.5	3	12735	380	1.5
3.5	3	120	0.010	1.8	4	10915	325	2.0
4.0	3	120	0.010	2.0	4	9550	285	2.5
5.0	3	120	0.015	2.5	5	7640	345	4.5
6.0	3	120	0.020	3.0	6	6365	380	7.0
7.0	3	120	0.020	3.5	7	5455	325	8.0
8.0	3	120	0.025	4.0	8	4775	360	11.5

## Anwendung



## Werkstoff

Stahl  
< 850 N/mm<sup>2</sup>

Stahl  
850 - 1100 N/mm<sup>2</sup>

Nichtrostender Stahl  
[Cr-Ni/1.4301]

Gusseisen  
GG(G)

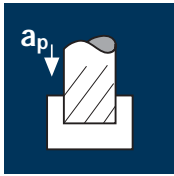
d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> [mm/min]	Q [cm <sup>3</sup> /min]
9	3	120	0.030	13.5	0.9	4245	380	4.5
10	3	120	0.035	15.0	1.0	3820	400	6.0
12	3	120	0.040	18.0	1.2	3185	380	8.0
14	3	120	0.045	21.0	1.4	2730	370	11.0
16	3	120	0.055	24.0	1.6	2385	395	15.0
18	3	120	0.060	27.0	1.8	2120	380	18.5
20	3	120	0.065	30.0	2.0	1910	370	22.0
22	3	120	0.075	33.0	2.2	1735	390	28.5
25	3	120	0.085	37.5	2.5	1530	390	36.5

9	3	80	0.030	13.5	0.9	2830	255	3.0
10	3	80	0.035	15.0	1.0	2545	265	4.0
12	3	80	0.040	18.0	1.2	2120	255	5.5
14	3	80	0.045	21.0	1.4	1820	245	7.0
16	3	80	0.055	24.0	1.6	1590	260	10.0
18	3	80	0.060	27.0	1.8	1415	255	12.5
20	3	80	0.065	30.0	2.0	1275	250	15.0
22	3	80	0.075	33.0	2.2	1160	260	19.0
25	3	80	0.085	37.5	2.5	1020	260	24.5

9	3	60	0.030	13.5	0.9	2120	190	2.5
10	3	60	0.035	15.0	1.0	1910	200	3.0
12	3	60	0.040	18.0	1.2	1590	190	4.0
14	3	60	0.045	21.0	1.4	1365	185	5.5
16	3	60	0.055	24.0	1.6	1195	195	7.5
18	3	60	0.060	27.0	1.8	1060	190	9.0
20	3	60	0.065	30.0	2.0	955	185	11.0
22	3	60	0.075	33.0	2.2	870	195	14.0
25	3	60	0.085	37.5	2.5	765	195	18.5

9	3	160	0.030	13.5	0.9	5660	510	6.0
10	3	160	0.035	15.0	1.0	5095	535	8.0
12	3	160	0.040	18.0	1.2	4245	510	11.0
14	3	160	0.045	21.0	1.4	3640	490	14.5
16	3	160	0.055	24.0	1.6	3185	525	20.0
18	3	160	0.060	27.0	1.8	2830	510	25.0
20	3	160	0.065	30.0	2.0	2545	495	29.5
22	3	160	0.075	33.0	2.2	2315	520	38.0
25	3	160	0.085	37.5	2.5	2035	520	49.0

## Anwendung



## Werkstoff

Stahl  
< 850 N/mm<sup>2</sup>

Stahl  
850 - 1100 N/mm<sup>2</sup>

Nichtrostender Stahl  
[Cr-Ni/1.4301]

Gusseisen  
GG(G)

d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> [mm/min]	Q [cm <sup>3</sup> /min]
9	3	100	0.025	4.5	9	3535	265	10.5
10	3	100	0.030	5.0	10	3185	285	14.5
12	3	100	0.035	6.0	12	2655	280	20.0
14	3	100	0.040	7.0	14	2275	275	27.0
16	3	100	0.045	8.0	16	1990	270	34.5
18	3	100	0.050	9.0	18	1770	265	43.0
20	3	100	0.055	10.0	20	1590	260	52.0
22	3	100	0.060	11.0	22	1445	260	63.0
25	3	100	0.070	12.5	25	1275	270	84.5

9	3	70	0.025	4.5	9	2475	185	7.5
10	3	70	0.025	5.0	10	2230	165	8.5
12	3	70	0.030	6.0	12	1855	165	12.0
14	3	70	0.035	7.0	14	1590	165	16.0
16	3	70	0.040	8.0	16	1395	165	21.0
18	3	70	0.045	9.0	18	1240	165	26.5
20	3	70	0.050	10.0	20	1115	165	33.0
22	3	70	0.055	11.0	22	1015	165	40.0
25	3	70	0.065	12.5	25	890	175	54.5

9	3	40	0.025	4.5	9	1415	105	4.5
10	3	40	0.025	5.0	10	1275	95	5.0
12	3	40	0.030	6.0	12	1060	95	7.0
14	3	40	0.035	7.0	14	910	95	9.5
16	3	40	0.040	8.0	16	795	95	12.0
18	3	40	0.045	9.0	18	705	95	15.5
20	3	40	0.050	10.0	20	635	95	19.0
22	3	40	0.055	11.0	22	580	95	23.0
25	3	40	0.065	12.5	25.0	510	100	31.5

9	3	120	0.030	4.5	9	4245	380	15.5
10	3	120	0.030	5.0	10	3820	345	17.5
12	3	120	0.035	6.0	12	3185	335	24.0
14	3	120	0.045	7.0	14	2730	370	36.5
16	3	120	0.050	8.0	16	2385	360	46.0
18	3	120	0.055	9.0	18	2120	350	56.5
20	3	120	0.060	10.0	20	1910	345	69.0
22	3	120	0.065	11.0	22	1735	340	82.5
25	3	120	0.075	12.5	25	1530	345	108.0