TANK-POWER END MILLS

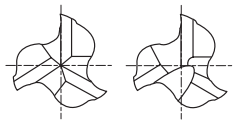
E9A30 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

GAA30 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH
PREMIUM HSS-PM, 3 SCHNEIDEN KURZ

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Well balanced web design to minimize deflection and chattering.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Verstärkter Kern zur Erhöhung der Stabilität.
- 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

YPM | DIN 844 | 3 | 30° | DIN 1835B

P.1152, 1153, 1154, 1155

Unit : mm

EDP No. UNCOATED	EDP No. TANK-POWER COATED	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E9A30010	GAA30010	1.0	6	3	47
E9A30020	GAA30020	2.0	6	7	51
E9A30030	GAA30030	3.0	6	8	52
E9A30040	GAA30040	4.0	6	11	55
E9A30050	GAA30050	5.0	6	13	57
E9A30060	GAA30060	6.0	6	13	57
E9A30070	GAA30070	7.0	10	16	66
E9A30080	GAA30080	8.0	10	19	69
E9A30090	GAA30090	9.0	10	19	69
E9A30100	GAA30100	10.0	10	22	72
E9A30120	GAA30120	12.0	12	26	83
E9A30140	GAA30140	14.0	12	26	83
E9A30160	GAA30160	16.0	16	32	92
E9A30180	GAA30180	18.0	16	32	92
E9A30200	GAA30200	20.0	20	38	104
E9A30220	GAA30220	22.0	20	38	104
E9A30250	GAA30250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm

Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : 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									
◎	◎	○				○		◎		◎				

TANK-POWER END MILLS

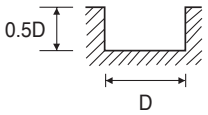
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN

GA942, GAA30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6500	70	40	0.004	5500	55	35	0.003	4800	45	30	0.003
3.0	4600	102	45	0.007	3900	85	35	0.007	3350	52	30	0.005
4.0	4300	140	55	0.011	3600	115	45	0.011	3000	80	40	0.009
5.0	3800	160	60	0.014	3200	130	50	0.014	2600	92	40	0.012
6.0	3350	230	65	0.023	2800	190	55	0.023	2300	140	45	0.020
8.0	2600	240	65	0.031	2200	210	55	0.032	1800	150	45	0.028
10.0	100	250	5	0.833	1800	210	55	0.039	1400	160	45	0.038
12.0	1800	275	70	0.051	1450	230	55	0.053	1200	170	45	0.047
14.0	1600	250	70	0.052	1350	220	60	0.054	1000	160	45	0.053
16.0	1350	240	70	0.059	1150	210	60	0.061	890	150	45	0.056
18.0	1150	240	65	0.070	890	190	50	0.071	790	150	45	0.063
20.0	950	230	60	0.081	790	190	50	0.080	700	140	45	0.067
22.0	840	230	60	0.091	730	195	50	0.089	600	150	40	0.083
25.0	750	240	60	0.107	630	210	50	0.111	490	160	40	0.109

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3000	35	20	0.004	1900	28	10	0.005
3.0	2200	45	20	0.007	1800	45	15	0.008
4.0	1900	52	25	0.009	1500	55	20	0.012
5.0	1700	62	25	0.012	1300	55	20	0.014
6.0	1450	92	25	0.021	1100	75	20	0.023
8.0	1150	102	30	0.030	890	85	20	0.032
10.0	890	115	30	0.043	680	92	20	0.045
12.0	740	115	30	0.052	580	92	20	0.053
14.0	660	110	30	0.056	500	85	20	0.057
16.0	560	102	30	0.061	440	85	20	0.064
18.0	500	95	30	0.063	400	80	25	0.067
20.0	440	92	30	0.070	360	80	25	0.074
22.0	400	95	30	0.079	315	85	20	0.090
25.0	360	102	30	0.094	250	85	20	0.113



※ The FEED, in long & long reach types, should be reduced by around 50%

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

TANK-POWER END MILLS

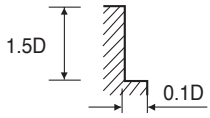
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN

GA942, GAA30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	8200	100	50	0.004	6800	80	45	0.004	5500	65	35	0.004
3.0	5800	145	55	0.008	4800	120	45	0.008	3800	75	35	0.007
4.0	5200	185	65	0.012	4400	155	55	0.012	3500	110	45	0.010
5.0	4700	210	75	0.015	4000	175	65	0.015	2900	125	45	0.014
6.0	4200	300	80	0.024	3600	250	70	0.023	2600	190	50	0.024
8.0	3200	330	80	0.034	2600	270	65	0.035	2000	200	50	0.033
10.0	2500	350	80	0.047	2100	290	65	0.046	1600	210	50	0.044
12.0	2100	350	80	0.056	1800	300	70	0.056	1400	230	55	0.055
14.0	1800	350	80	0.065	1500	285	65	0.063	1150	210	50	0.061
16.0	1600	330	80	0.069	1300	275	65	0.071	1000	200	50	0.067
18.0	1350	310	75	0.077	1150	265	65	0.077	890	195	50	0.073
20.0	1250	300	80	0.080	1050	255	65	0.081	780	190	50	0.081
22.0	1150	310	80	0.090	950	265	65	0.093	740	195	50	0.088
25.0	1000	330	80	0.110	840	275	65	0.109	630	210	50	0.111

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3800	50	25	0.004	2400	40	15	0.006
3.0	2700	65	25	0.008	2200	65	20	0.010
4.0	2300	75	30	0.011	1900	75	25	0.013
5.0	2000	85	30	0.014	1700	75	25	0.015
6.0	1800	125	35	0.023	1500	100	30	0.022
8.0	1300	140	35	0.036	1100	115	30	0.035
10.0	1000	150	30	0.050	890	125	30	0.047
12.0	900	150	35	0.056	740	125	30	0.056
14.0	780	140	35	0.060	630	120	30	0.063
16.0	660	140	35	0.071	550	115	30	0.070
18.0	580	130	35	0.075	500	110	30	0.073
20.0	520	125	35	0.080	440	110	30	0.083
22.0	470	130	30	0.092	400	110	30	0.092
25.0	420	135	35	0.107	360	120	30	0.111



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RPM = rev./min.
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fz = mm/t

TANK-POWER END MILLS

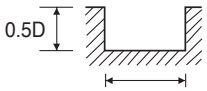
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN

E9942, E9A30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4400	45	30	0.003	3700	35	25	0.003	3300	30	20	0.003
3.0	3150	65	30	0.007	2650	55	25	0.007	3200	30	30	0.003
4.0	2900	85	35	0.010	2400	70	30	0.010	2100	50	25	0.008
5.0	2600	100	40	0.013	2150	80	35	0.012	1800	55	30	0.010
6.0	2300	145	45	0.021	1900	120	35	0.021	1600	85	30	0.018
8.0	1800	150	45	0.028	1500	130	40	0.029	1200	95	30	0.026
10.0	1400	155	45	0.037	1200	130	40	0.036	960	100	30	0.035
12.0	1200	170	45	0.047	1000	145	40	0.048	820	105	30	0.043
14.0	1070	155	45	0.048	930	135	40	0.048	680	100	30	0.049
16.0	930	150	45	0.054	780	130	40	0.056	610	95	30	0.052
18.0	780	150	45	0.064	610	120	35	0.066	530	95	30	0.060
20.0	640	145	40	0.076	530	120	35	0.075	480	85	30	0.059
22.0	570	145	40	0.085	500	120	35	0.080	410	95	30	0.077
25.0	520	150	40	0.096	430	130	35	0.101	340	100	25	0.098

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2100	20	15	0.003	1300	18	10	0.005
3.0	1500	30	15	0.007	1200	28	10	0.008
4.0	1300	35	15	0.009	1000	35	15	0.012
5.0	1100	40	15	0.012	890	35	15	0.013
6.0	1000	55	20	0.018	750	45	15	0.020
8.0	780	65	20	0.028	610	55	15	0.030
10.0	610	70	20	0.038	460	58	15	0.042
12.0	500	70	20	0.047	395	58	15	0.049
14.0	450	65	20	0.048	345	55	15	0.053
16.0	380	65	20	0.057	300	55	15	0.061
18.0	350	60	20	0.057	270	50	15	0.062
20.0	300	55	20	0.061	245	50	15	0.068
22.0	270	60	20	0.074	215	55	15	0.085
25.0	240	65	20	0.090	170	55	15	0.108



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FEED = mm/min.
Vc = m/min.
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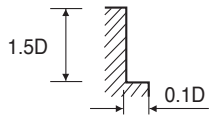
PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN

E9942, E9A30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	60	35	0.004	4600	50	30	0.004	3700	40	25	0.004
3.0	3900	90	35	0.008	3300	75	30	0.008	1600	45	15	0.009
4.0	3600	115	45	0.011	3000	95	40	0.011	2400	68	30	0.009
5.0	3200	130	50	0.014	2700	110	40	0.014	2000	80	30	0.013
6.0	2800	190	55	0.023	2400	155	45	0.022	1800	120	35	0.022
8.0	2100	210	55	0.033	1800	170	45	0.031	1350	125	35	0.031
10.0	1700	210	55	0.041	1400	180	45	0.043	1100	130	35	0.039
12.0	1400	220	55	0.052	1200	185	45	0.051	930	145	35	0.052
14.0	1200	215	55	0.060	1000	180	45	0.060	780	130	35	0.056
16.0	1100	210	55	0.064	890	170	45	0.064	680	125	35	0.061
18.0	930	195	55	0.070	790	165	45	0.070	610	120	35	0.066
20.0	860	185	55	0.072	720	155	45	0.072	540	120	35	0.074
22.0	790	195	55	0.082	650	165	45	0.085	500	120	35	0.080
25.0	680	210	55	0.103	580	170	45	0.098	430	130	35	0.101

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2600	32	15	0.004	1600	25	10	0.005
3.0	1800	40	15	0.007	1500	40	15	0.009
4.0	1600	45	20	0.009	1300	45	15	0.012
5.0	1400	55	20	0.013	1100	45	15	0.014
6.0	1200	80	25	0.022	1000	65	20	0.022
8.0	890	85	20	0.032	710	70	20	0.033
10.0	710	95	20	0.045	610	80	20	0.044
12.0	610	95	25	0.052	500	80	20	0.053
14.0	540	90	25	0.056	430	75	20	0.058
16.0	440	85	20	0.064	370	70	20	0.063
18.0	390	80	20	0.068	340	68	20	0.067
20.0	360	80	25	0.074	300	68	20	0.076
22.0	320	80	20	0.083	270	68	20	0.084
25.0	290	85	25	0.098	240	75	20	0.104



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