



E9938 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

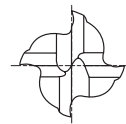
GA938 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH
PREMIUM HSS-PM, 4 SCHNEIDEN KURZ

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Recommended for pocketing, cam milling, die sinking and slotting..
- ▶ Designed for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM DIN 844 4 30° DIN 1835B P.1156, 1157

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED				
E9938010	GA938010	1.0	6	3	49
E9938020	GA938020	2.0	6	7	51
E9938030	GA938030	3.0	6	8	52
E9938040	GA938040	4.0	6	11	55
E9938050	GA938050	5.0	6	13	57
E9938060	GA938060	6.0	6	13	57
E9938070	GA938070	7.0	10	16	66
E9938080	GA938080	8.0	10	19	69
E9938090	GA938090	9.0	10	19	69
E9938100	GA938100	10.0	10	22	72
E9938120	GA938120	12.0	12	26	83
E9938140	GA938140	14.0	12	26	83
E9938160	GA938160	16.0	16	32	92
E9938180	GA938180	18.0	16	32	92
E9938200	GA938200	20.0	20	38	104
E9938220	GA938220	22.0	20	38	104
E9938250	GA938250	25.0	25	45	121

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									
◎	◎	○				○		◎		◎				



TANK-POWER END MILLS

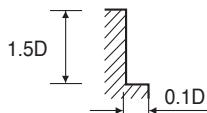
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN

GA938, GAA31 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRC20				HRC20 ~ HRC30			
STRENGTH	~ 500N/mm ²				500 ~ 800N/mm ²				800 ~ 1000N/mm ²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9200	290	60	0.008	8400	240	55	0.007	6100	170	40	0.007
3.0	6600	410	60	0.016	6000	350	55	0.015	4400	250	40	0.014
4.0	5300	480	65	0.023	4700	400	60	0.021	3600	300	45	0.021
5.0	4400	510	70	0.029	4000	420	65	0.026	2900	320	45	0.028
6.0	3900	540	75	0.035	3600	450	70	0.031	2600	330	50	0.032
8.0	3100	570	80	0.046	2600	480	65	0.046	2000	370	50	0.046
10.0	2300	630	70	0.068	2100	530	65	0.063	1600	380	50	0.059
12.0	2000	570	75	0.071	1800	480	70	0.067	1400	370	55	0.066
14.0	1800	550	80	0.076	1600	460	70	0.072	1100	350	50	0.080
16.0	1600	510	80	0.080	1400	430	70	0.077	1000	340	50	0.085
18.0	1500	460	85	0.077	1250	400	70	0.080	890	310	50	0.087
20.0	1250	440	80	0.088	1050	370	65	0.088	780	275	50	0.088
22.0	1050	410	75	0.098	950	320	65	0.084	680	255	45	0.094
25.0	1000	370	80	0.093	840	305	65	0.091	630	230	50	0.091

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRC30 ~ HRC35				HRC35 ~ HRC40			
STRENGTH	1000 ~ 1100N/mm ²				1100 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4100	125	25	0.008	3300	85	20	0.006
3.0	2700	180	25	0.017	2400	125	25	0.013
4.0	2300	200	30	0.022	2000	150	25	0.019
5.0	2000	220	30	0.028	1700	160	25	0.024
6.0	1800	230	35	0.032	1450	180	25	0.031
8.0	1400	240	35	0.043	1150	185	30	0.040
10.0	1000	265	30	0.066	890	200	30	0.056
12.0	890	240	35	0.067	720	185	25	0.064
14.0	790	230	35	0.073	630	170	30	0.067
16.0	680	220	35	0.081	550	165	30	0.075
18.0	630	195	35	0.077	500	150	30	0.075
20.0	530	175	35	0.083	440	140	30	0.080
22.0	470	160	30	0.085	400	130	30	0.081
25.0	420	150	35	0.089	360	125	30	0.087



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

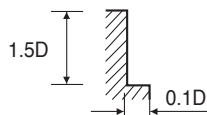
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN

E9938, E9A31 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS CAST IRONS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRC20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm ²				500 ~ 800N/mm ²				800 ~ 1000N/mm ²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6300	180	40	0.007	5700	150	35	0.007	4000	110	25	0.007
3.0	4500	260	40	0.014	4000	210	40	0.013	3000	155	30	0.013
4.0	3600	300	45	0.021	3200	250	40	0.020	2400	190	30	0.020
5.0	3000	310	45	0.026	2700	265	40	0.025	2000	195	30	0.024
6.0	2600	330	50	0.032	2400	275	45	0.029	1800	205	35	0.028
8.0	2100	360	55	0.043	1800	300	45	0.042	1400	230	35	0.041
10.0	1600	390	50	0.061	1400	330	45	0.059	1100	235	35	0.053
12.0	1300	360	50	0.069	1200	300	45	0.063	900	230	35	0.064
14.0	1200	340	55	0.071	1100	285	50	0.065	780	215	35	0.069
16.0	1100	310	55	0.070	900	265	45	0.074	680	205	35	0.075
18.0	1000	280	55	0.070	850	250	50	0.074	600	190	35	0.079
20.0	850	270	55	0.079	710	230	45	0.081	540	175	35	0.081
22.0	710	260	50	0.092	640	200	45	0.078	460	160	30	0.087
25.0	680	230	55	0.085	570	190	45	0.083	430	140	35	0.081

MATERIAL	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	1000 ~ 1100N/mm ²				1100 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2800	75	20	0.007	2300	55	15	0.006
3.0	2000	110	20	0.014	1650	80	15	0.012
4.0	1600	125	20	0.020	1350	95	15	0.018
5.0	1400	135	20	0.024	1125	100	20	0.022
6.0	1200	140	25	0.029	975	110	20	0.028
8.0	900	150	25	0.042	750	115	20	0.038
10.0	710	165	20	0.058	600	125	20	0.052
12.0	600	150	25	0.063	495	115	20	0.058
14.0	530	140	25	0.066	430	105	20	0.061
16.0	450	135	25	0.075	375	100	20	0.067
18.0	430	120	25	0.070	340	95	20	0.070
20.0	360	110	25	0.076	300	85	20	0.071
22.0	320	100	20	0.078	270	80	20	0.074
25.0	280	95	20	0.085	240	80	20	0.083



※ 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