

HSS



Being the best through innovation
















TANK-POWER

TANK-POWER FRÄSER

- Very Good Toughness, Good for Exotic Materials like Stainless Steels, Nickel Alloys, Titanium and General Application, Rough & Finish
- Sehr gute Zähigkeit. Für rostfreie Stähle, Nickellegierungen, Titan und allgemeinen Einsatz. Schruppen und schlichten

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E9936 GA936		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ	D1.0	D25.0	876
E9A29 GAA29		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN LANG	D1.0	D25.0	877
E9942 GA942		PREMIUM HSS-PM, 3 FLUTE STUB LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ	D1.0	D25.0	878
E9A30 GAA30		PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN KURZ	D1.0	D25.0	879
E9938 GA938		PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN KURZ	D1.0	D25.0	880
E9A31 GAA31		PREMIUM HSS-PM, 4 FLUTE LONG LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN LANG	D2.0	D25.0	881
E9940 GA940		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R12.5	882
E9A32 GAA32		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R12.5	883
E9941 GA941		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - FEIN	D6.0	D25.0	884
E9A35 GAA35		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN	D6.0	D25.0	885
E9A26 GAA26		PREMIUM HSS-PM, MULTI FLUTE, 45° HELIX SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN	D4.0	D25.0	886
E9A33 GAA33		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB	D6.0	D25.0	887
E9A34 GAA34		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB	D6.0	D25.0	888
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					889

TANK-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
-HB225	HB225-325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

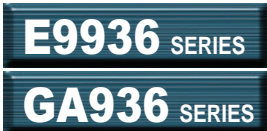
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

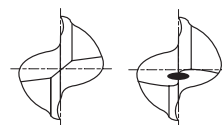


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ

- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9936010	GA936010	1.0	6	2.5	47
E9936020	GA936020	2.0	6	4	48
E9936030	GA936030	3.0	6	5	49
E9936040	GA936040	4.0	6	7	51
E9936050	GA936050	5.0	6	8	52
E9936060	GA936060	6.0	6	8	52
E9936070	GA936070	7.0	10	10	60
E9936080	GA936080	8.0	10	11	61
E9936090	GA936090	9.0	10	11	61
E9936100	GA936100	10.0	10	13	63
E9936120	GA936120	12.0	12	16	73
E9936140	GA936140	14.0	12	16	73
E9936160	GA936160	16.0	16	19	79
E9936180	GA936180	18.0	16	19	79
E9936200	GA936200	20.0	20	22	88
E9936220	GA936220	22.0	20	22	88
E9936250	GA936250	25.0	25	26	102

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

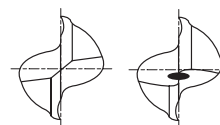
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225-325	HRc30-40	HRc40-45	HRc45-55	HRc55-70							
◎	◎	○				○		◎		○		

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH
PREMIUM HSS-PM, 2 SCHNEIDEN LANG

- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø3mm over Ø3mm

YPM DIN 844 2 30° DIN 1835B P.889

Unit : mm

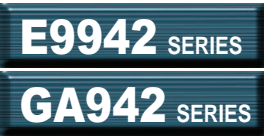
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9A29010	GAA29010	1.0	6	3	47
E9A29020	GAA29020	2.0	6	7	51
E9A29030	GAA29030	3.0	6	8	52
E9A29040	GAA29040	4.0	6	11	55
E9A29050	GAA29050	5.0	6	13	57
E9A29060	GAA29060	6.0	6	13	57
E9A29070	GAA29070	7.0	10	16	66
E9A29080	GAA29080	8.0	10	19	69
E9A29090	GAA29090	9.0	10	19	69
E9A29100	GAA29100	10.0	10	22	72
E9A29120	GAA29120	12.0	12	26	83
E9A29140	GAA29140	14.0	12	26	83
E9A29160	GAA29160	16.0	16	32	92
E9A29180	GAA29180	18.0	16	32	92
E9A29200	GAA29200	20.0	20	38	104
E9A29220	GAA29220	22.0	20	38	104
E9A29250	GAA29250	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

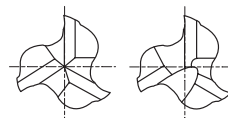
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225-325	HRC30-40	HRc40-45	HRc45-55	HRc55-70							
◎	◎	○				○		◎		○		



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
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SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE STUB LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ

- ▶ 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.
- ▶ 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



P.890, 891

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9942010	GA942010	1.0	6	2.5	47
E9942020	GA942020	2.0	6	4	48
E9942030	GA942030	3.0	6	5	49
E9942040	GA942040	4.0	6	7	51
E9942050	GA942050	5.0	6	8	52
E9942060	GA942060	6.0	6	8	52
E9942070	GA942070	7.0	10	10	60
E9942080	GA942080	8.0	10	11	61
E9942090	GA942090	9.0	10	11	61
E9942100	GA942100	10.0	10	13	63
E9942120	GA942120	12.0	12	16	73
E9942140	GA942140	14.0	12	16	73
E9942160	GA942160	16.0	16	19	79
E9942180	GA942180	18.0	16	19	79
E9942200	GA942200	20.0	20	22	88
E9942220	GA942220	22.0	20	22	88
E9942250	GA942250	25.0	25	26	102

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

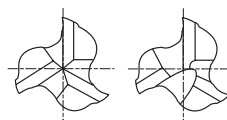
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225-325	HRc30-40	HRc40-45	HRc45-55	HRc55-70							
◎	◎	○				○		◎		○		

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

- ▶ 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.

- ▶ 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.890, 891

Unit : mm

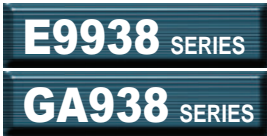
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9A30010	GAA30010	1.0	6	3	47
E9A30020	GAA30020	2.0	6	7	51
E9A30030	GAA30030	3.0	6	8	52
E9A30040	GAA30040	4.0	6	11	55
E9A30050	GAA30050	5.0	6	13	57
E9A30060	GAA30060	6.0	6	13	57
E9A30070	GAA30070	7.0	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

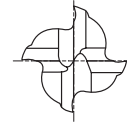
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225-325	HRC30-40	HRC40-45	HRC45-55	HRC55-70							
◎	◎	○				○		◎		○		



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
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PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN KURZ

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



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

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○		○		

◎ : Excellent ○ : Good

PREMIUM HSS-PM, 4 FLUTE LONG LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN LANG

- ▶ 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.

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



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED				
E9A31020	GAA31020	2.0	6	10	54
E9A31030	GAA31030	3.0	6	12	56
E9A31040	GAA31040	4.0	6	19	63
E9A31050	GAA31050	5.0	6	24	68
E9A31060	GAA31060	6.0	6	24	68
E9A31070	GAA31070	7.0	10	30	80
E9A31080	GAA31080	8.0	10	38	88
E9A31090	GAA31090	9.0	10	38	88
E9A31100	GAA31100	10.0	10	45	95
E9A31120	GAA31120	12.0	12	53	110
E9A31140	GAA31140	14.0	12	53	110
E9A31160	GAA31160	16.0	16	63	123
E9A31180	GAA31180	18.0	16	63	123
E9A31200	GAA31200	20.0	20	75	141
E9A31220	GAA31220	22.0	20	75	141
E9A31250	GAA31250	25.0	25	90	166

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
-HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
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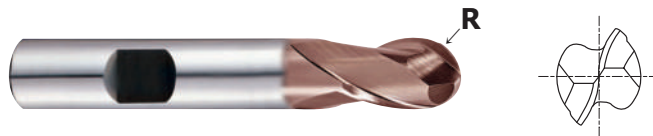


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS KURZ

- ▶ Excellent performance on wide materials from carbon steels and stainless steels to aluminum.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	R (±0.02)				
E9940010	GA940010	R0.5	1.0	6	2.5	47
E9940020	GA940020	R1.0	2.0	6	4	48
E9940030	GA940030	R1.5	3.0	6	5	49
E9940040	GA940040	R2.0	4.0	6	7	51
E9940050	GA940050	R2.5	5.0	6	8	52
E9940060	GA940060	R3.0	6.0	6	8	52
E9940070	GA940070	R3.5	7.0	10	10	60
E9940080	GA940080	R4.0	8.0	10	11	61
E9940090	GA940090	R4.5	9.0	10	11	61
E9940100	GA940100	R5.0	10.0	10	13	63
E9940120	GA940120	R6.0	12.0	12	16	73
E9940140	GA940140	R7.0	14.0	12	16	73
E9940160	GA940160	R8.0	16.0	16	19	79
E9940180	GA940180	R9.0	18.0	16	19	79
E9940200	GA940200	R10.0	20.0	20	22	88
E9940220	GA940220	R11.0	22.0	20	22	88
E9940250	GA940250	R12.5	25.0	25	26	102

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

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○				

◎ : Excellent ○ : Good

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS LANG

- ▶ Excellent performance on wide materials from carbon steels and stainless steels to aluminum.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



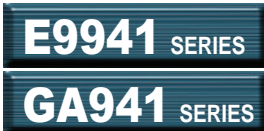
Unit : mm

EDP No.		Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED					
E9A32020	GAA32020	R1.0	2.0	6	7	54
E9A32030	GAA32030	R1.5	3.0	6	8	56
E9A32040	GAA32040	R2.0	4.0	6	11	63
E9A32050	GAA32050	R2.5	5.0	6	13	68
E9A32060	GAA32060	R3.0	6.0	6	13	68
E9A32070	GAA32070	R3.5	7.0	10	16	80
E9A32080	GAA32080	R4.0	8.0	10	19	88
E9A32090	GAA32090	R4.5	9.0	10	19	88
E9A32100	GAA32100	R5.0	10.0	10	22	95
E9A32120	GAA32120	R6.0	12.0	12	26	110
E9A32140	GAA32140	R7.0	14.0	12	26	110
E9A32160	GAA32160	R8.0	16.0	16	32	123
E9A32180	GAA32180	R9.0	18.0	16	32	123
E9A32200	GAA32200	R10.0	20.0	20	38	141
E9A32220	GAA32220	R11.0	22.0	20	38	141
E9A32250	GAA32250	R12.5	25.0	25	45	166

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
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

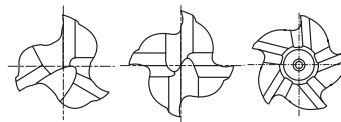


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9941060	GA941060	6.0	6	13	57	3
E9941070	GA941070	7.0	10	16	66	3
E9941080	GA941080	8.0	10	19	69	3
E9941090	GA941090	9.0	10	19	69	3
E9941100	GA941100	10.0	10	22	72	4
E9941120	GA941120	12.0	12	26	83	4
E9941140	GA941140	14.0	12	26	83	4
E9941160	GA941160	16.0	16	32	92	4
E9941180	GA941180	18.0	16	32	92	4
E9941200	GA941200	20.0	20	38	104	4
E9941220	GA941220	22.0	20	38	104	5
E9941250	GA941250	25.0	25	45	121	5

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	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

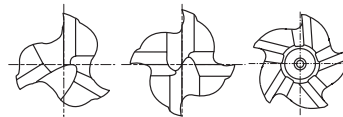
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels..
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$

P.894

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A35060	GAA35060	6.0	6	24	68	3
E9A35070	GAA35070	7.0	10	30	80	3
E9A35080	GAA35080	8.0	10	38	88	3
E9A35090	GAA35090	9.0	10	38	88	3
E9A35100	GAA35100	10.0	10	45	95	4
E9A35120	GAA35120	12.0	12	53	110	4
E9A35140	GAA35140	14.0	12	53	110	4
E9A35160	GAA35160	16.0	16	63	123	4
E9A35180	GAA35180	18.0	16	63	123	4
E9A35200	GAA35200	20.0	20	75	141	4
E9A35220	GAA35220	22.0	20	75	141	5
E9A35250	GAA35250	25.0	25	90	166	5

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	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{matrix} 0 \\ -6 \end{matrix}$	$\begin{matrix} 0 \\ -8 \end{matrix}$	$\begin{matrix} 0 \\ -9 \end{matrix}$	$\begin{matrix} 0 \\ -11 \end{matrix}$	$\begin{matrix} 0 \\ -13 \end{matrix}$	$\begin{matrix} 0 \\ -16 \end{matrix}$

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

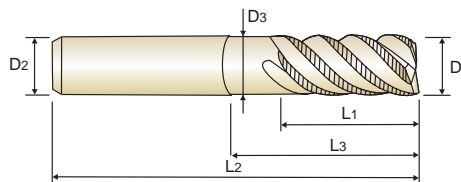
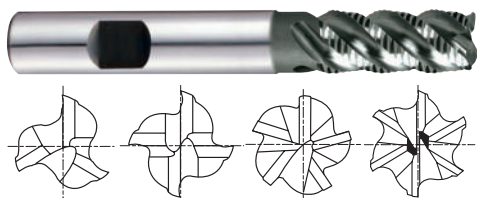


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN

- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting

- ▶ Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM DIN 844 3-6 45° DIN 1835B FINE P.894

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
UNCOATED	TANK-POWER COATED	D(js12)	D2(h6)	L1	L3	L2	D3	
E9A26040	GAA26040	4.0	6	11	-	57	-	3
E9A26050	GAA26050	5.0	6	13	-	57	-	4
E9A26060	GAA26060	6.0	6	13	-	57	-	4
E9A26070	GAA26070	7.0	10	16	-	66	-	4
E9A26080	GAA26080	8.0	10	19	-	69	-	4
E9A26090	GAA26090	9.0	10	19	-	69	-	4
E9A26100	GAA26100	10.0	10	22	31	72	9.5	4
E9A26120	GAA26120	12.0	12	26	37	83	11.5	4
E9A26140	GAA26140	14.0	12	26	-	83	-	5
E9A26160	GAA26160	16.0	16	32	44	92	15	5
E9A26180	GAA26180	18.0	16	32	-	92	-	6
E9A26200	GAA26200	20.0	20	38	54	104	19	6
E9A26250	GAA26250	25.0	25	45	63	121	24	6

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

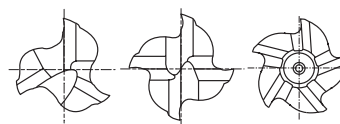
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

© : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225-325	HRc30-40	HRc40-45	HRc45-55	HRc55-70							
○	○	○				○		○				

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB

- ▶ Suitable for high-feed roughing milling.
 - ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
 - ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
 - ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut
- ▶ Geeignet zum HSC - Schrupp - Fräsen.
 - ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
 - ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
 - ▶ Bis $D \leq 20\text{mm}$: mit Zentrumschnitt, über $D > 20\text{mm}$: Ohne Zentrumschnitt.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$

YPM DIN 844 COARSE 3-5 30° DIN 1835B $\sim \varnothing 20$ $\varnothing 22 \sim$ P.894

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A33060	GAA33060	6.0	6	13	57	3
E9A33070	GAA33070	7.0	10	16	66	3
E9A33080	GAA33080	8.0	10	19	69	3
E9A33090	GAA33090	9.0	10	19	69	3
E9A33100	GAA33100	10.0	10	22	72	4
E9A33120	GAA33120	12.0	12	26	83	4
E9A33140	GAA33140	14.0	12	26	83	4
E9A33160	GAA33160	16.0	16	32	92	4
E9A33180	GAA33180	18.0	16	32	92	4
E9A33200	GAA33200	20.0	20	38	104	4
E9A33220	GAA33220	22.0	20	38	104	5
E9A33250	GAA33250	25.0	25	45	121	5

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	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

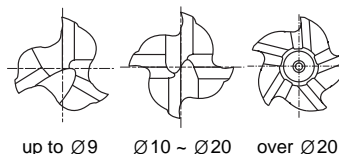
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE
PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut
- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis $D \leq 20\text{mm}$: mit Zentrumschnitt, über $D > 20\text{mm}$: Ohne Zentrumschnitt.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A34060	GAA34060	6.0	6	24	68	3
E9A34070	GAA34070	7.0	10	30	80	3
E9A34080	GAA34080	8.0	10	38	88	3
E9A34090	GAA34090	9.0	10	38	88	3
E9A34100	GAA34100	10.0	10	45	95	4
E9A34120	GAA34120	12.0	12	53	110	4
E9A34140	GAA34140	14.0	12	53	110	4
E9A34160	GAA34160	16.0	16	63	123	4
E9A34180	GAA34180	18.0	16	63	123	4
E9A34200	GAA34200	20.0	20	75	141	4
E9A34220	GAA34220	22.0	20	75	141	5
E9A34250	GAA34250	25.0	25	90	166	5

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	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

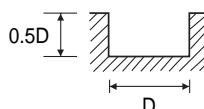
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

GA936, GAA29 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS	~ 500N/mm ²		~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7000	115	5900	90	4900	80	3150	65	2000	40
3.0	5000	160	4100	135	3350	115	2300	80	1800	62
4.0	4300	230	3600	175	3150	160	2000	92	1600	75
5.0	3900	255	3250	200	2600	185	1700	102	1350	75
6.0	3500	265	2900	210	2300	190	1450	110	1150	85
8.0	2600	275	2200	240	1800	200	1150	115	890	85
10.0	2100	300	1800	265	1450	230	900	125	700	102
12.0	1800	275	1450	240	1150	210	740	115	580	85
14.0	1600	265	1250	210	1000	195	630	110	500	80
16.0	1350	265	1150	195	890	180	560	102	440	80
18.0	1150	240	950	195	790	160	500	100	400	75
20.0	950	220	780	165	700	150	440	92	360	70
22.0	840	185	710	150	600	125	400	80	320	55
25.0	750	155	630	140	490	115	360	75	250	52

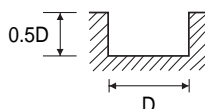


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

E9936, E9A29 SERIES

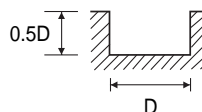
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS	~ 500N/mm ²		~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	4800	70	4000	55	3300	50	2100	40	1300	25
3.0	3300	100	2800	85	2200	75	1600	50	1200	40
4.0	2900	140	2400	110	2100	100	1300	60	1050	45
5.0	2600	160	2200	125	1800	115	1100	65	900	45
6.0	2300	160	2000	135	1600	120	1000	65	750	55
8.0	1800	170	1500	150	1200	125	750	70	600	55
10.0	1400	180	1200	165	1000	140	600	80	480	65
12.0	1200	170	1000	150	800	130	500	70	400	55
14.0	1100	160	850	140	680	120	430	65	340	50
16.0	900	160	750	135	600	110	380	65	300	50
18.0	800	150	640	120	530	100	340	55	270	45
20.0	640	130	540	100	480	95	300	55	240	40
22.0	570	110	480	90	400	75	270	50	210	35
25.0	510	95	430	85	340	70	240	45	175	30



RPM = rev./min.
FEED = mm/min.

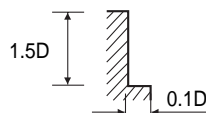

**PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN**
GA942, GAA30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6500	70	5500	55	4800	45	3000	35	1900	28
3.0	4600	102	3900	85	3350	52	2200	45	1800	45
4.0	4300	140	3600	115	3000	80	1900	52	1500	55
5.0	3800	160	3200	130	2600	92	1700	62	1300	55
6.0	3350	230	2800	190	2300	140	1450	92	1100	75
8.0	2600	240	2200	210	1800	150	1150	102	890	85
10.0	100	250	1800	210	1400	160	890	115	680	92
12.0	1800	275	1450	230	1200	170	740	115	580	92
14.0	1600	250	1350	220	1000	160	660	110	500	85
16.0	1350	240	1150	210	890	150	560	102	440	85
18.0	1150	240	890	190	790	150	500	95	400	80
20.0	950	230	790	190	700	140	440	92	360	80
22.0	840	230	730	195	600	150	400	95	315	85
25.0	750	240	630	210	490	160	360	102	250	85


 RPM = rev./min.
FEED = mm/min.

**PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN**
GA942, GAA30 SERIES

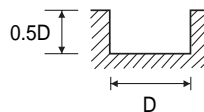
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	8200	100	6800	80	5500	65	3800	50	2400	40
3.0	5800	145	4800	120	3800	75	2700	65	2200	65
4.0	5200	185	4400	155	3500	110	2300	75	1900	75
5.0	4700	210	4000	175	2900	125	2000	85	1700	75
6.0	4200	300	3600	250	2600	190	1800	125	1500	100
8.0	3200	330	2600	270	2000	200	1300	140	1100	115
10.0	2500	350	2100	290	1600	210	1000	150	890	125
12.0	2100	350	1800	300	1400	230	900	150	740	125
14.0	1800	350	1500	285	1150	210	780	140	630	120
16.0	1600	330	1300	275	1000	200	660	140	550	115
18.0	1350	310	1150	265	890	195	580	130	500	110
20.0	1250	300	1050	255	780	190	520	125	440	110
22.0	1150	310	950	265	740	195	470	130	400	110
25.0	1000	330	840	275	630	210	420	135	360	120


 RPM = rev./min.
FEED = mm/min.

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		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	4400	45	3700	35	3300	30	2100	20	1300	18
3.0	3150	65	2650	55	3200	30	1500	30	1200	28
4.0	2900	85	2400	70	2100	50	1300	35	1000	35
5.0	2600	100	2150	80	1800	55	1100	40	890	35
6.0	2300	145	1900	120	1600	85	1000	55	750	45
8.0	1800	150	1500	130	1200	95	780	65	610	55
10.0	1400	155	1200	130	960	100	610	70	460	58
12.0	1200	170	1000	145	820	105	500	70	395	58
14.0	1070	155	930	135	680	100	450	65	345	55
16.0	930	150	780	130	610	95	380	65	300	55
18.0	780	150	610	120	530	95	350	60	270	50
20.0	640	145	530	120	480	85	300	55	245	50
22.0	570	145	500	120	410	95	270	60	215	55
25.0	520	150	430	130	340	100	240	65	170	55

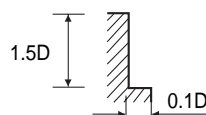


RPM = rev./min.
FEED = mm/min.

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		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	60	4600	50	3700	40	2600	32	1600	25
3.0	3900	90	3300	75	1600	45	1800	40	1500	40
4.0	3600	115	3000	95	2400	68	1600	45	1300	45
5.0	3200	130	2700	110	2000	80	1400	55	1100	45
6.0	2800	190	2400	155	1800	120	1200	80	1000	65
8.0	2100	210	1800	170	1350	125	890	85	710	70
10.0	1700	210	1400	180	1100	130	710	95	610	80
12.0	1400	220	1200	185	930	145	610	95	500	80
14.0	1200	215	1000	180	780	130	540	90	430	75
16.0	1100	210	890	170	680	125	440	85	370	70
18.0	930	195	790	165	610	120	390	80	340	68
20.0	860	185	720	155	540	120	360	80	300	68
22.0	790	195	650	165	500	120	320	80	270	68
25.0	680	210	580	170	430	130	290	85	240	75



RPM = rev./min.
FEED = mm/min.



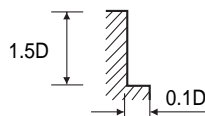
TANK-POWER END MILLS

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		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	9200	290	8400	240	6100	170	4100	125	3300	85
3.0	6600	410	6000	350	4400	250	2700	180	2400	125
4.0	5300	480	4700	400	3600	300	2300	200	2000	150
5.0	4400	510	4000	420	2900	320	2000	220	1700	160
6.0	3900	540	3600	450	2600	330	1800	230	1450	180
8.0	3100	570	2600	480	2000	370	1400	240	1150	185
10.0	2300	630	2100	530	1600	380	1000	265	890	200
12.0	2000	570	1800	480	1400	370	890	240	720	185
14.0	1800	550	1600	460	1100	350	790	230	630	170
16.0	1600	510	1400	430	1000	340	680	220	550	165
18.0	1500	460	1250	400	890	310	630	195	500	150
20.0	1250	440	1050	370	780	275	530	175	440	140
22.0	1050	410	950	320	680	255	470	160	400	130
25.0	1000	370	840	305	630	230	420	150	360	125

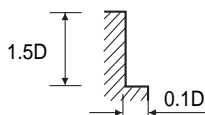


RPM = rev./min.
FEED = mm/min.

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

E9938, E9A31 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6300	180	5700	150	4000	110	2800	75	2300	55
3.0	4500	260	4000	210	3000	155	2000	110	1650	80
4.0	3600	300	3200	250	2400	190	1600	125	1350	95
5.0	3000	310	2700	265	2000	195	1400	135	1125	100
6.0	2600	330	2400	275	1800	205	1200	140	975	110
8.0	2100	360	1800	300	1400	230	900	150	750	115
10.0	1600	390	1400	330	1100	235	710	165	600	125
12.0	1300	360	1200	300	900	230	600	150	495	115
14.0	1200	340	1100	285	780	215	530	140	430	105
16.0	1100	310	900	265	680	205	450	135	375	100
18.0	1000	280	850	250	600	190	430	120	340	95
20.0	850	270	710	230	540	175	360	110	300	85
22.0	710	260	640	200	460	160	320	100	270	80
25.0	680	230	570	190	430	140	280	95	240	80

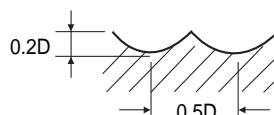


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

GA940, GAA32 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	7300	340	5800	230	3900	125	2000	55
R2.0 × 4.0	6000	430	4620	290	3000	160	1600	75
R3.0 × 6.0	4400	480	3500	320	2300	180	1200	85
R4.0 × 8.0	3350	530	2600	350	1800	200	890	85
R5.0 × 10.0	2750	600	2100	400	1400	230	680	102
R6.0 × 12.0	2300	530	1800	350	1200	200	580	85
R8.0 × 16.0	1700	480	1300	320	890	180	440	80
R10.0 × 20.0	1350	420	1000	280	680	150	360	70
R12.5 × 25.0	950	310	740	210	470	115	250	52

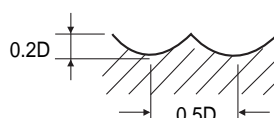


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

E9940, E9A32 SERIES

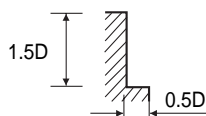
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	5000	210	3900	140	2600	80	1300	35
R2.0 × 4.0	4000	260	3100	180	2100	100	1000	45
R3.0 × 6.0	3000	300	2300	200	1600	110	820	55
R4.0 × 8.0	2300	330	1800	220	1200	125	600	55
R5.0 × 10.0	1800	370	1400	250	1000	140	480	65
R6.0 × 12.0	1500	330	1200	220	820	125	400	55
R8.0 × 16.0	1100	300	900	200	600	110	300	50
R10.0 × 20.0	930	260	710	170	480	95	240	45
R12.5 × 25.0	640	190	500	130	340	70	175	30



RPM = rev./min.
FEED = mm/min.


**PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN**
GA941, GAA35, GAA33, GAA34, GAA26 SERIES

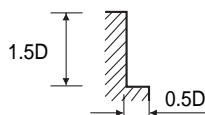
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2800	230	2200	180	1600	115	1300	105
8.0	2400	290	1900	230	1400	160	1050	125
10.0	1900	415	1500	315	1050	195	890	160
12.0	1600	415	1200	330	900	230	740	180
14.0	1400	415	1050	330	760	230	630	180
16.0	1200	415	950	330	660	230	550	180
18.0	1050	415	890	330	610	230	490	180
20.0	960	425	760	330	530	230	440	180
22.0	890	425	650	330	470	230	400	180
25.0	790	415	600	315	420	220	360	180



RPM = rev./min.
FEED = mm/min.

**PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN**
E9941, E9A35, E9A33, E9A34, E9A26 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1900	140	1500	110	1050	70	900	65
8.0	1600	180	1300	140	900	100	740	80
10.0	1300	260	1000	195	710	125	600	100
12.0	1100	260	820	205	600	140	500	110
14.0	930	260	710	205	510	140	430	110
16.0	820	260	640	205	450	140	370	110
18.0	710	260	610	205	410	140	330	110
20.0	660	265	510	205	360	140	300	110
22.0	610	265	440	205	320	140	270	110
25.0	540	260	400	195	280	135	240	110



RPM = rev./min.
FEED = mm/min.