CARBIDE

Being the best through innovation

ALU-POWER

ALU-POWER FRÄSER

- Aluminium Alloys and Silent Cutting
- Für Aluminiumlegierungen in schwerem und ruhigem Schnitt

SELECTION GUIDE

◎ : 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							
						○			◎			
						○			◎			
						○			◎			
						○			◎			
						○			◎			
						○		○	◎			
						○		○	◎			

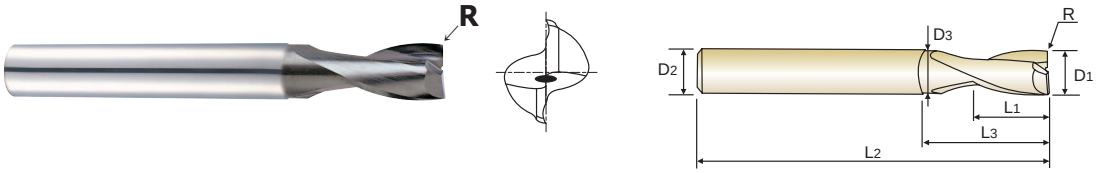
ALU-POWER END MILLS

EG930 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS TiCN-BESCHICHTET

- Designed for the machining aluminum and its alloys, non-ferrous materials.
- Increased tool life and higher cutting accuracy.
- Maximum-stock removal, chip ejection, stability.
- Corner Radius for avoiding the chipping.

- Geeignet zum Fräsen von Aluminium, Aluminiunlegierungen und NE-Metallen.
- Höhere standzeit und höhere Schneidgenauigkeit.
- Sehr gute Spanabfuhr.
- Eckenradius zur Vermeidung von Abbröckelungen.



MG HM | 2 | 25° | PLAIN

P.733

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D_1	D_2	L_1	L_3	L_2	D_3
EG930020	R0.2	2.0	3	3	6	40	1.9
EG930030	R0.2	3.0	3	4	8	40	2.9
EG930040	R0.2	4.0	4	5	12	50	3.8
EG930050	R0.2	5.0	5	8	14	50	4.8
EG930060	R0.2	6.0	6	8	18	65	5.7
EG930080	R0.2	8.0	8	10	22	70	7.7
EG930100	R0.2	10.0	10	14	28	80	9.7
EG930120	R0.2	12.0	12	16	35	90	11.5
EG930160	R0.2	16.0	16	20	40	90	15.5
EG930200	R0.2	20.0	20	25	50	100	19.5

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							
						○			◎			

ALU-POWER END MILLS

E5522 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

E5521 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE 45° HELIX
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

▶ Suitable for high speed machining in aluminum and other non-ferrous materials, excellent surface finishes, superior chip removal.

▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.

MG HM | 2 | 45° | PLAIN | FLAT

P.734

Unit : mm

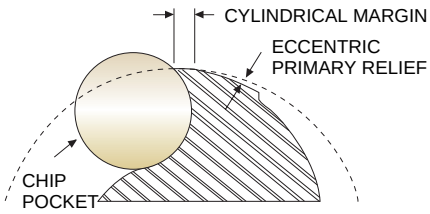
EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E5522030	E5521030	3.0	6	8	57
E5522040	E5521040	4.0	6	11	57
E5522050	E5521050	5.0	6	13	57
E5522060	E5521060	6.0	6	13	57
E5522080	E5521080	8.0	8	19	63
E5522100	E5521100	10.0	10	22	72
E5522120	E5521120	12.0	12	26	83
E5522140	E5521140	14.0	14	26	83
E5522160	E5521160	16.0	16	32	92
E5522180	E5521180	18.0	18	32	92
E5522200	E5521200	20.0	20	38	104

▶ TiN, TiCN - coating & TiAlN - coating is available on your request.

- High performance in machining aluminum and non-ferrous materials
- Special designed geometry with high rigidity cutting edge
- Improved surface roughness - cylindrical margin which is controlled tightly.
- Excellent chip removal - higher rake angle, higher helix angle(45°), bigger chip pocket.

- Corner radius, Corner chamfer, Neck design is available on your request.
- TiN, TiCN & TiAlN coating is available on your request.

	UNCOATED	TiN	TiCN	TiAlN
PLAIN SHANK	E5522	E6522	EG522	EH522
FLAT SHANK	E5521	E6521	EG521	EH521



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							
						○			◎			

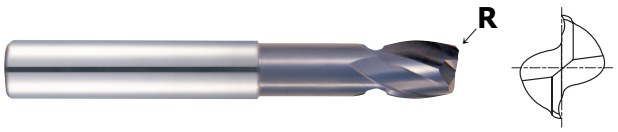
ALU-POWER END MILLS

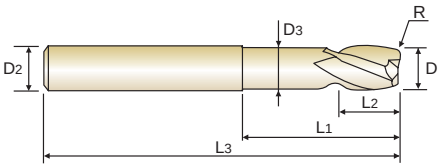
EG909 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS TiCN-BESCHICHTET

- ▶Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶Increased tool life and higher cutting accuracy.

- ▶ Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.





MG HM | 2 | 30° | PLAIN

P.735

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length Below Shank	Length of Cut	Overall Length	Neck Diameter
PLAIN	R	D	D_2	L_1	L_2	L_3	D_3
EG909040	R0.3	**4.0**	6	10	5	50	3.6
EG909060	R0.5	**6.0**	6	20	8	60	5.4
EG909080	R0.6	**8.0**	8	30	10	70	7.2
EG909100	R0.8	**10.0**	10	36	12	80	9
EG909120	R1.0	**12.0**	12	40	14	90	11
EG909160	R1.3	**16.0**	16	45	18	100	14.5
EG909200	R1.6	**20.0**	20	45	24	100	18

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							
						○			◎			

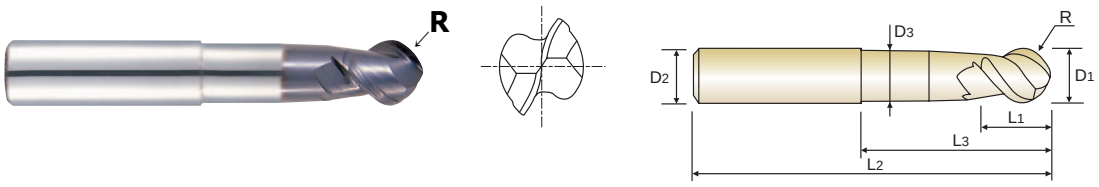
ALU-POWER END MILLS

EG910 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

- ▶Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶Increased tool life and higher cutting accuracy.

- ▶Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶Höhere standzeit und höhere Schneidgenauigkeit.



MG HM | 2 | 50° | R ±0.01 | PLAIN

P.735

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EG910060	R3.0	**6.0**	6	5.5	25	55	5.4
EG910080	R4.0	**8.0**	8	7	30	65	7.2
EG910100	R5.0	**10.0**	10	8.5	35	75	9
EG910120	R6.0	**12.0**	12	10.5	40	75	11
EG910160	R8.0	**16.0**	16	14	50	90	14.5
EG910200	R10.0	**20.0**	20	17	50	100	18

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
±0.02	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							
						○			◎			

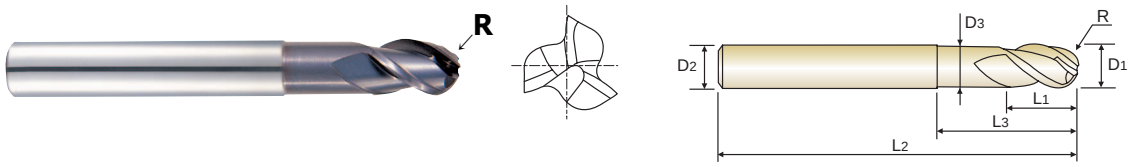
ALU-POWER END MILLS

EG908 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

- ▶Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶Increased tool life and higher cutting accuracy.

- ▶ Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.



MG HM | 3 | 40° | R ±0.01 | PLAIN

P.736

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EG908020	R1.0	**2.0**	6	3	5	60	1.9
EG908025	R1.25	**2.5**	6	4	6	60	2.4
EG908030	R1.5	**3.0**	6	4.5	6.5	60	2.8
EG908035	R1.75	**3.5**	6	5	7	65	3.2
EG908040	R2.0	**4.0**	6	6	8	65	3.7
EG908050	R2.5	**5.0**	6	7.5	10	65	4.6
EG908060	R3.0	**6.0**	6	9	12	75	5.6
EG908080	R4.0	**8.0**	8	12	25	75	7.4
EG908100	R5.0	**10.0**	10	15	30	80	9.4
EG908120	R6.0	**12.0**	12	18	36	90	11.4
EG908160	R8.0	**16.0**	16	24	40	100	15.4

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							
						○			◎			

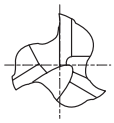
ALU-POWER END MILLS

EP922 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

EP923 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING SHORT LENGTH TiAlN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFRÄSER KURZ TiAlN-BESCHICHTET

- Maximum stock removal rates at High Speed Condition.
- Reduces vibrations and improves surface roughness.
- Sehr gute Spanabfuhr auch bei Hochgeschwindigkeitsfräsen.
- Reduziert Vibrieren und verbessert Oberflächenrauheit.



YPM | ALU | 3 | 42° | PLAIN | FLAT

P.736

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length
EP922120	EP923120	12.0	12	26	83
EP922140	EP923140	14.0	12	26	83
EP922160	EP923160	16.0	16	32	92
EP922180	EP923180	18.0	16	32	92
EP922200	EP923200	20.0	20	38	104
EP922220	EP923220	22.0	20	38	104
EP922250	EP923250	25.0	25	45	121
EP922280	EP923280	28.0	25	45	121
EP922320	EP923320	32.0	32	53	133

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							
						○		○	◎			

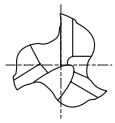
ALU-POWER END MILLS

EP924 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

EP925 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING LONG LENGTH TiAlN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFRÄSER LANG TiAlN-BESCHICHTET

- Maximum stock removal rates at High Speed Condition.
- Reduces vibrations and improves surface roughness.
- Sehr gute Spanabfuhr auch bei Hochgeschwindigkeitfräsen.
- Reduziert Vibrieren und verbessert Oberflächenrauheit.



YPM | ALU | 3 | 42° | PLAIN | FLAT

P.736

EDP No. PLAIN	EDP No. FLAT	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length
EP924120	EP925120	12.0	12	53	110
EP924140	EP925140	14.0	12	53	110
EP924160	EP925160	16.0	16	63	123
EP924180	EP925180	18.0	16	63	123
EP924200	EP925200	20.0	20	75	141
EP924220	EP925220	22.0	20	75	141
EP924250	EP925250	25.0	25	90	166
EP924280	EP925280	28.0	25	90	166
EP924320	EP925320	32.0	32	106	186

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

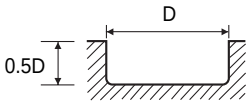
◎ : Excellent ○ : Good

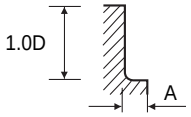
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○		○	◎			

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS TiCN-BESCHICHTET

EG930 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3.0	13000	900	13000	1200
4.0	13000	1200	13000	1400
5.0	13000	1300	13000	1700
6.0	13000	1500	13000	2000
8.0	10000	1800	10000	2300
10.0	10000	2200	10000	2700
12.0	10000	2700	10000	3400
16.0	8000	2500	8000	3100
20.0	5000	2000	5000	2500





A : Ø3 ~ Ø10 = 0.25 × D
Ø12 ~ Ø20 = 0.5 × D

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

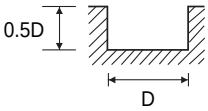
ALU-POWER END MILLS

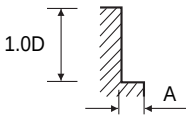
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE 45° HELIX
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

E5522, E5521 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3.0	10000	700	10000	900
4.0	10000	900	10000	1100
5.0	10000	1000	10000	1300
6.0	10000	1200	10000	1500
8.0	8000	1400	8000	1800
10.0	8000	1700	8000	2100
12.0	8000	2100	8000	2600
14.0	6000	1800	6000	2200
16.0	6000	1900	6000	2400
18.0	4000	1400	4000	1800
20.0	4000	1600	4000	1900





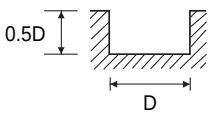
A : Ø3 ~ Ø10 = 0.25 × D
Ø12 ~ Ø20 = 0.5 × D

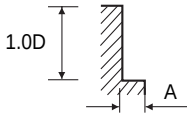
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE 45° HELIX TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE TICN-BESCHICHTET

EG522, EG521 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3.0	13000	900	13000	1200
4.0	13000	1200	13000	1400
5.0	13000	1300	13000	1700
6.0	13000	1500	13000	2000
8.0	10000	1800	10000	2300
10.0	10000	2200	10000	2700
12.0	10000	2700	10000	3400
14.0	8000	2300	8000	2800
16.0	8000	2500	8000	3100
18.0	5000	1800	5000	2300
20.0	5000	2000	5000	2500





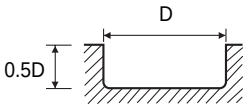
A : Ø3 ~ Ø10 = 0.25 × D
Ø12 ~ Ø20 = 0.5 × D

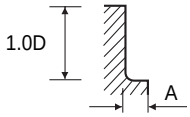
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS TiCN-BESCHICHTET

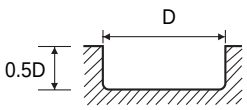
EG909 SERIES

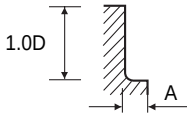
MATERIAL	ALUMINUM ALUMINUM ALLOY				COPPER ALLOY			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4.0	13000	1200	13000	1400	3900	300	3900	350
6.0	13000	1500	13000	2000	3900	380	3900	500
8.0	10000	1800	10000	2300	3000	450	3000	580
10.0	10000	2200	10000	2700	3000	550	3000	680
12.0	10000	2700	10000	3400	3000	680	3000	850
16.0	8000	2500	8000	3100	2400	630	2400	780
20.0	5000	2000	5000	2500	1500	500	1500	630





A : ~Ø10=0.25D
Ø12~Ø20=0.5D





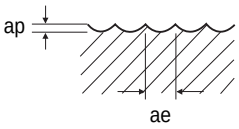
A : ~Ø10=0.25D
Ø12~Ø20=0.5D

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

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

EG910 SERIES

MATERIAL	ALUMINUM ALUMINUM ALLOY		COPPER ALLOY	
DIAMETER	RPM	FEED	RPM	FEED
R3.0 × 6.0	18000	1750	5500	440
R4.0 × 8.0	14000	2000	4200	500
R5.0 × 10.0	14000	2350	4200	580
R6.0 × 12.0	14000	3000	4200	750
R8.0 × 16.0	11000	2700	3300	670
R10.0 × 20.0	7000	2200	2100	550



ap=0.2×D
ae=0.5×D

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

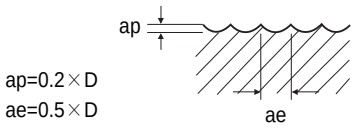
ALU-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

EG908 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM		COPPER ALLOY	
DIAMETER	RPM	FEED	RPM	FEED
R1.0 × 2.0	27000	950	8000	240
R1.25 × 2.5	22000	950	6500	240
R1.5 × 3.0	18000	950	5500	240
R2.0 × 4.0	18000	1250	5500	310
R2.5 × 5.0	18000	1350	5500	340
R3.0 × 6.0	18000	1750	5500	440
R4.0 × 8.0	14000	2000	4200	500
R5.0 × 10.0	14000	2350	4200	580
R6.0 × 12.0	14000	3000	4200	750
R8.0 × 16.0	11000	2700	3300	670

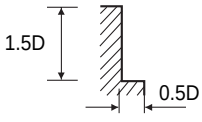


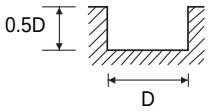
RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING TiAlN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFRÄSER TiAlN-BESCHICHTET

EP922, EP923, EP924, EP925 SERIES

MATERIAL	ALUMINUM ALUMINUM ALLOY			
DIAMETER	RPM	FEED	RPM	FEED
12.0	2800	550	2800	410
16.0	2200	625	2200	465
20.0	1700	700	1700	525
25.0	1400	625	1400	465
32.0	1100	700	1100	525





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