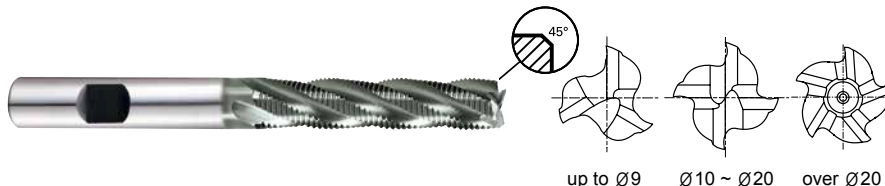


HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE

- HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE LONGUE
- MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSS PM

- ▶ 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 - Schrump - 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.



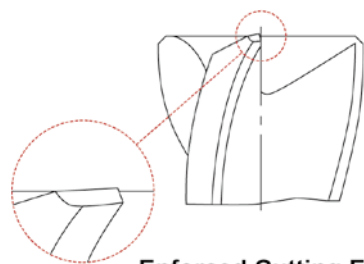
HSS PM
DIN 844
HR
3-5
30°
DIN 1835B
~ $\varnothing 20$
 $\varnothing 22$ ~
C x 45°
P.664~665

Unit : mm

| EDP No. | | Mill Diameter | Shank Diameter | Length of Cut | Overall Length | No. of Flute | Chamfer |
|----------|-----------|---------------|----------------|---------------|----------------|--------------|---------|
| UNCOATED | X-COATING | js12 | h6 | | | | |
| E9A35060 | GAA35060 | 6.0 | 6 | 24 | 68 | 3 | 0.18 |
| E9A35070 | GAA35070 | 7.0 | 10 | 30 | 80 | 3 | 0.18 |
| E9A35080 | GAA35080 | 8.0 | 10 | 38 | 88 | 3 | 0.18 |
| E9A35090 | GAA35090 | 9.0 | 10 | 38 | 88 | 3 | 0.18 |
| E9A35100 | GAA35100 | 10.0 | 10 | 45 | 95 | 4 | 0.18 |
| E9A35120 | GAA35120 | 12.0 | 12 | 53 | 110 | 4 | 0.18 |
| E9A35140 | GAA35140 | 14.0 | 12 | 53 | 110 | 4 | 0.25 |
| E9A35160 | GAA35160 | 16.0 | 16 | 63 | 123 | 4 | 0.25 |
| E9A35180 | GAA35180 | 18.0 | 16 | 63 | 123 | 4 | 0.25 |
| E9A35200 | GAA35200 | 20.0 | 20 | 75 | 141 | 4 | 0.25 |
| E9A35220 | GAA35220 | 22.0 | 20 | 75 | 141 | 5 | 0.36 |
| E9A35250 | GAA35250 | 25.0 | 25 | 90 | 166 | 5 | 0.36 |

Tolerances according to DIN 7160 & 7161

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



Enforced Cutting Edge

◎ : Excellent ○ : Good

| ISO | P | | | | | | | | | | M | | | | K | | | | | | |
|----------------------|-----------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----------------|-----|----------------|-----|-------------------|-----|---------------------|
| | Non-alloy steel | | | | | Low alloy steel | | | | | High alloyed steel, and tool steel | | | | Stainless steel | | Grey cast iron | | Nodular cast iron | | Malleable cast iron |
| Material Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| VDI 3323 | | | | | | | | | | | | | | | | | | | | | |
| HRc | | | | | | | | | | | | | | | | | | | | | |
| HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230 | |
| Recommend | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | |

| ISO | N | | | | | S | | | | | H | | | | | | | | | | |
|----------------------|------------------------|-----|------------------------|----|---|------------------------|-----------------------------|-----|----|-----------------|-----|----------------|-------------------|--------------------|-----|--------|---------|-----|-----|-----|-----|
| | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | Copper and Copper Alloys (Bronze / Brass) | Non Metallic Materials | Heat Resistant Super Alloys | | | Titanium Alloys | | Hardened steel | Chilled Cast Iron | Hardened Cast Iron | | | | | | | |
| Material Description | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| VDI 3323 | | | | | | | | | | | | | | | | | | | | | |
| HRc | | | | | | | | | | | | | | | | | | | | | |
| HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550 |
| Recommend | | | | | | ○ | ○ | ○ | | | | | | | | | | | | | |

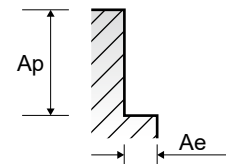
E9941, E9A35, E9A33, E9A34 SERIES

MULTI FLUTE ROUGHING - SIDE CUTTING

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

| ISO | VDI 3323 | Material Description | Ae | Ap | Parameter | Diameter (Ø) | | | | | | | | | | |
|------|----------|--|------|-------|-----------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| | | | | | | 6.0 | 8.0 | 10.0 | 12.0 | 22.0 | 25.0 | 18.0 | 20.0 | 22.0 | 25.0 | |
| P | 1 | Non-alloy steel | 0.5D | 1.5D | Vc | 35 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | | | | | fz | 0.018 | 0.028 | 0.05 | 0.059 | 0.056 | 0.063 | 0.061 | 0.067 | 0.072 | 0.08 | |
| | | | | | RPM | 1857 | 1592 | 1273 | 1061 | 909 | 796 | 707 | 637 | 579 | 509 | |
| | FEED | | 100 | 134 | 255 | 250 | 204 | 201 | 173 | 171 | 208 | 204 | | | | |
| | 2 | | 0.5D | 1.5D | Vc | 30 | 35 | 30 | 30 | 30 | 30 | 35 | 30 | 30 | 30 | |
| | | | | | fz | 0.018 | 0.027 | 0.049 | 0.063 | 0.058 | 0.064 | 0.056 | 0.067 | 0.078 | 0.081 | |
| | | | | | RPM | 1592 | 1393 | 955 | 796 | 682 | 597 | 619 | 477 | 434 | 382 | |
| | FEED | | 86 | 113 | 187 | 201 | 158 | 153 | 139 | 128 | 169 | 155 | | | | |
| | 3-4 | | 0.5D | 1.5D | Vc | 20 | 25 | 20 | 25 | 20 | 25 | 25 | 25 | 20 | 20 | |
| | | | | | fz | 0.017 | 0.028 | 0.044 | 0.058 | 0.055 | 0.062 | 0.057 | 0.065 | 0.073 | 0.08 | |
| | | | | | RPM | 1061 | 995 | 637 | 663 | 455 | 497 | 442 | 398 | 289 | 255 | |
| FEED | 54 | 84 | 112 | 154 | 100 | 123 | 101 | 103 | 106 | 102 | | | | | | |
| 5 | 0.5D | 1.5D | Vc | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| | | | fz | 0.018 | 0.027 | 0.042 | 0.055 | 0.051 | 0.059 | 0.056 | 0.061 | 0.068 | 0.076 | | | |
| | | | RPM | 796 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | |
| FEED | 43 | 64 | 107 | 117 | 93 | 94 | 79 | 78 | 98 | 97 | | | | | | |
| 6 | 0.5D | 1.5D | Vc | 30 | 35 | 30 | 30 | 30 | 30 | 35 | 30 | 30 | 30 | | | |
| | | | fz | 0.018 | 0.027 | 0.049 | 0.063 | 0.058 | 0.064 | 0.056 | 0.067 | 0.078 | 0.081 | | | |
| | | | RPM | 1592 | 1393 | 955 | 796 | 682 | 597 | 619 | 477 | 434 | 382 | | | |
| FEED | 86 | 113 | 187 | 201 | 158 | 153 | 139 | 128 | 169 | 155 | | | | | | |
| 7 | 0.5D | 1.5D | Vc | 20 | 25 | 20 | 25 | 20 | 25 | 25 | 25 | 20 | 20 | | | |
| | | | fz | 0.017 | 0.028 | 0.044 | 0.058 | 0.055 | 0.062 | 0.057 | 0.065 | 0.073 | 0.08 | | | |
| | | | RPM | 1061 | 995 | 637 | 663 | 455 | 497 | 442 | 398 | 289 | 255 | | | |
| FEED | 54 | 84 | 112 | 154 | 100 | 123 | 101 | 103 | 106 | 102 | | | | | | |
| 8-9 | 0.5D | 1.5D | Vc | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| | | | fz | 0.018 | 0.027 | 0.042 | 0.055 | 0.051 | 0.059 | 0.056 | 0.061 | 0.068 | 0.076 | | | |
| | | | RPM | 796 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | |
| FEED | 43 | 64 | 107 | 117 | 93 | 94 | 79 | 78 | 98 | 97 | | | | | | |
| 10 | 0.5D | 1.5D | Vc | 30 | 35 | 30 | 30 | 30 | 30 | 35 | 30 | 30 | 30 | | | |
| | | | fz | 0.018 | 0.027 | 0.049 | 0.063 | 0.058 | 0.064 | 0.056 | 0.067 | 0.078 | 0.081 | | | |
| | | | RPM | 1592 | 1393 | 955 | 796 | 682 | 597 | 619 | 477 | 434 | 382 | | | |
| FEED | 86 | 113 | 187 | 201 | 158 | 153 | 139 | 128 | 169 | 155 | | | | | | |
| 11.1 | 0.5D | 1.5D | Vc | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| | | | fz | 0.018 | 0.027 | 0.042 | 0.055 | 0.051 | 0.059 | 0.056 | 0.061 | 0.068 | 0.076 | | | |
| | | | RPM | 796 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | |
| FEED | 43 | 64 | 107 | 117 | 93 | 94 | 79 | 78 | 98 | 97 | | | | | | |
| M | 14.1 | Stainless steel | 0.5D | 1.5D | Vc | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| | | | | | fz | 0.02 | 0.03 | 0.045 | 0.065 | 0.06 | 0.069 | 0.064 | 0.073 | 0.081 | 0.086 | |
| | | | | | RPM | 1061 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | |
| FEED | 64 | 72 | 115 | 138 | 109 | 110 | 91 | 93 | 117 | 109 | | | | | | |
| K | 15-20 | Grey cast iron Nodular cast iron Malleable cast iron | 0.5D | 1.5D | Vc | 30 | 35 | 30 | 30 | 30 | 30 | 35 | 30 | 30 | 30 | |
| | | | | | fz | 0.018 | 0.027 | 0.049 | 0.063 | 0.058 | 0.064 | 0.056 | 0.067 | 0.078 | 0.081 | |
| | | | | | RPM | 1592 | 1393 | 955 | 796 | 682 | 597 | 619 | 477 | 434 | 382 | |
| FEED | 86 | 113 | 187 | 201 | 158 | 153 | 139 | 128 | 169 | 155 | | | | | | |

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



SELECTION GUIDE



| SERIES | E9940 GA940 | E9A32 GAA32 | E9936 GA936 | E9A29 GAA29 |
|--------------------|----------------|----------------|----------------|----------------|
| FLUTE | 2 | 2 | 2 | 2 |
| HELIX ANGLE | 30° | 30° | 30° | 30° |
| CUTTING EDGE SHAPE | BALL NOSE | BALL NOSE | SQUARE | SQUARE |
| SIZE MIN | R0.5 | R1.0 | D1.0 | D1.0 |
| SIZE MAX | R12.5 | R12.5 | D25.0 | D25.0 |
| PAGE | 640 | 641 | 642 | 643 |

CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS
END MILLS

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

D-POWER
CFRP
END MILLS

ROUTERS

CRX S
END MILLS

K-2
END MILLS

ONLY ONE
COATED PM60
END MILLS

TANK-
POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

HSS-PM
TANK-POWER
END MILLS

High Toughness, for Stainless Steels, Carbon steels, Alloy Steels
For General Application, Rough & Finish



Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 654

| | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | LONG LENGTH |
|----------|--------------|-------------|--------------|-------------|
| | TiAlN based | TiAlN based | TiAlN based | TiAlN based |
| | | | | |
| P | ◎ | ◎ | ◎ | ◎ |
| M | ◎ | ◎ | ◎ | ◎ |
| K | ◎ | ◎ | ◎ | ◎ |
| N | ○ | ○ | ○ | ○ |
| S | ○ | ○ | ○ | ○ |
| H | ○ | ○ | ○ | ○ |

| E9942 GA942 | E9A30 GAA30 | E9938 GA938 | E9A31 GAA31 | E9941 GA941 | E9A35 GAA35 | E9A26 GAA26 | E9A33 GAA33 | E9A34 GAA34 | E9E43 GAE43 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3 | 3 | 4 | 4 | Multi Flute | Multi Flute | Multi Flute | Multi Flute | Multi Flute | Multi Flute |
| 30° | 30° | 30° | 30° | 30° | 30° | 45° | 30° | 30° | 30° |
| SQUARE | SQUARE | SQUARE | SQUARE | ROUGHING | ROUGHING | ROUGHING | ROUGHING | ROUGHING | ROUGHING |
| D1.0 | D1.0 | D1.0 | D2.0 | D6.0 | D6.0 | D4.0 | D6.0 | D6.0 | D10.0 |
| D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 |
| 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 |
| STUB LENGTH | SHORT LENGTH | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | SHORT LENGTH | LONG LENGTH | WITH NECK |
| TiAlN based | TiAlN based | TiAlN based | TiAlN based | X-Coating | X-Coating | X-Coating | X-Coating | X-Coating | X-Coating |



| | | | | | | | | | | |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 3 |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 5 |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 8 |
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| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 11 |
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CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS
END MILLS

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

D-POWER
CFRP
END MILLS

ROUTERS

CRX S
END MILLS

K-2
END MILLS

ONLY ONE
COATED PM60
END MILLS

TANK-
POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA