

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS

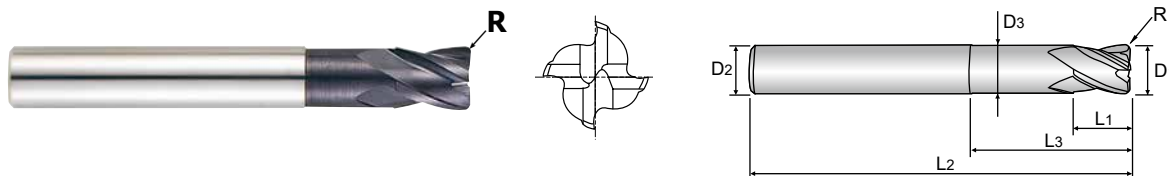
● VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS

○ Fraise carbure, 4 dents, torique, extra-courte

○ 4 TAGLIANTI, TORICA, TAGLIENTE CORTO, SCARICATA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



Unit : mm

| EDP No. | Corner Radius | Mill Diameter | Shank Diameter | Length of Cut | Length Below Shank | Overall Length | Neck Diameter |
|----------|---------------|---------------|----------------|---------------|--------------------|----------------|---------------|
| | R | D1 | D2 | L1 | L3 | L2 | D3 |
| GM839020 | R0.2 | 2.0 | 6 | 2.5 | 5 | 50 | 1.9 |
| GM839030 | R0.3 | 3.0 | 6 | 4 | 7 | 50 | 2.8 |
| GM839040 | R0.4 | 4.0 | 6 | 5 | 9 | 50 | 3.7 |
| GM839060 | R0.6 | 6.0 | 6 | 7 | 14 | 55 | 5.6 |
| GM839080 | R0.8 | 8.0 | 8 | 10 | 18 | 60 | 7.4 |
| GM839100 | R1.0 | 10.0 | 10 | 12 | 25 | 70 | 9.4 |
| GM839120 | R1.2 | 12.0 | 12 | 15 | 30 | 80 | 11.4 |

| Mill Dia. Tolerance (mm) | Shank Dia. Tolerance |
|--------------------------|----------------------|
| 0 ~ - 0.03 | h5 |

◎ : Excellent ○ : Good

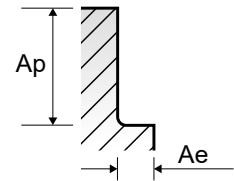
| ISO Material Description | P | | | | | | | | | | M | | | | K | | | | | | |
|--------------------------|------------------------|-----|------------------------|-----|-----|---|-----|-----|------------------------|-----|------------------------------------|-----|-----------------|-----|----------------|--------|-------------------|-----|---------------------|-------------------|--------------------|
| | Non-alloy steel | | | | | Low alloy steel | | | | | High alloyed steel, and tool steel | | Stainless steel | | Grey cast iron | | Nodular cast iron | | Malleable cast iron | | |
| VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| HRc | | | | | | | | | | | | | | | | | | | | | |
| HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230 | |
| Recommend | ○ | ○ | ○ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ○ | ◎ | | | | ○ | ○ | ○ | ○ | ○ | ○ | |
| ISO Material Description | 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 |
| VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| HRc | | | | | | | | | | | | | | | | | | | | | |
| HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550 |
| Recommend | | | | | | | | | | | | | | | | | | ○ | ◎ | ○ | ○ |

GM839 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING

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

| ISO | VDI 3323 | Material Description | Ae | Ap | Parameter | Diameter (Ø) | | | | | | |
|--------------|--|----------------------|-------|-------|-----------|--------------|-------|-------|-------|-------|-------|-------|
| | | | | | | 2.0 | 3.0 | 4.0 | 6.0 | 8.0 | 10.0 | 12.0 |
| P | 1-4 | Non-alloy steel | 0.05D | 1.0D | Vc | 95 | 110 | 125 | 140 | 140 | 135 | 135 |
| | | | | | fz | 0.006 | 0.009 | 0.019 | 0.03 | 0.042 | 0.047 | 0.048 |
| | RPM | | | | 15120 | 11671 | 9947 | 7427 | 5570 | 4297 | 3581 | |
| | FEED | | | | 363 | 420 | 756 | 891 | 936 | 808 | 688 | |
| | Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | |
| | fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | |
| | RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | |
| | FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | |
| | 5 | Low alloy steel | 0.05D | 1.0D | Vc | 95 | 110 | 125 | 140 | 140 | 135 | 135 |
| | | | | | fz | 0.006 | 0.009 | 0.019 | 0.03 | 0.042 | 0.047 | 0.048 |
| | RPM | | | | 15120 | 11671 | 9947 | 7427 | 5570 | 4297 | 3581 | |
| | FEED | | | | 363 | 420 | 756 | 891 | 936 | 808 | 688 | |
| Vc | 65 | | | | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | 0.006 | | | | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |
| 6-7 | High alloyed steel, and tool steel | 0.05D | 1.0D | Vc | 95 | 110 | 125 | 140 | 140 | 135 | 135 | |
| | | | | fz | 0.006 | 0.009 | 0.019 | 0.03 | 0.042 | 0.047 | 0.048 | |
| RPM | | | | 15120 | 11671 | 9947 | 7427 | 5570 | 4297 | 3581 | | |
| FEED | | | | 363 | 420 | 756 | 891 | 936 | 808 | 688 | | |
| Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |
| 8-9 | Grey cast iron Nodular cast iron Malleable cast iron | 0.05D | 1.0D | Vc | 95 | 110 | 125 | 140 | 140 | 135 | 135 | |
| | | | | fz | 0.006 | 0.009 | 0.019 | 0.03 | 0.042 | 0.047 | 0.048 | |
| RPM | | | | 15120 | 11671 | 9947 | 7427 | 5570 | 4297 | 3581 | | |
| FEED | | | | 363 | 420 | 756 | 891 | 936 | 808 | 688 | | |
| Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |
| 10 | Hardened steel | 0.05D | 1.0D | Vc | 40 | 40 | 50 | 50 | 55 | 55 | 60 | |
| | | | | fz | 0.002 | 0.004 | 0.005 | 0.010 | 0.016 | 0.017 | 0.017 | |
| RPM | | | | 6366 | 4244 | 3979 | 2653 | 2188 | 1751 | 1592 | | |
| FEED | | | | 51 | 68 | 80 | 106 | 140 | 119 | 108 | | |
| Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |
| 11.1 11.2 | Chilled Cast Iron | 0.05D | 1.0D | Vc | 40 | 40 | 50 | 50 | 55 | 55 | 60 | |
| | | | | fz | 0.002 | 0.004 | 0.005 | 0.010 | 0.016 | 0.017 | 0.017 | |
| RPM | | | | 6366 | 4244 | 3979 | 2653 | 2188 | 1751 | 1592 | | |
| FEED | | | | 51 | 68 | 80 | 106 | 140 | 119 | 108 | | |
| Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |
| 15-20 | Hardened Cast Iron | 0.05D | 1.0D | Vc | 40 | 40 | 50 | 50 | 55 | 55 | 60 | |
| | | | | fz | 0.002 | 0.004 | 0.005 | 0.010 | 0.016 | 0.017 | 0.017 | |
| RPM | | | | 6366 | 4244 | 3979 | 2653 | 2188 | 1751 | 1592 | | |
| FEED | | | | 51 | 68 | 80 | 106 | 140 | 119 | 108 | | |
| Vc | | | | 65 | 70 | 75 | 85 | 85 | 85 | 85 | | |
| fz | | | | 0.006 | 0.009 | 0.019 | 0.030 | 0.038 | 0.037 | 0.037 | | |
| RPM | 10345 | 7427 | 5968 | 4509 | 3382 | 2706 | 2255 | | | | | |
| FEED | 248 | 267 | 454 | 541 | 514 | 400 | 334 | | | | | |



SELECTION GUIDE



| SERIES | GM876 | GM813 | GM886 | GM902 |
|--------------------|-----------|-----------|-----------|-----------|
| FLUTE | 2 | 2 | 2 | 2 |
| HELIX ANGLE | 30° | 30° | 30° | 30° |
| CUTTING EDGE SHAPE | BALL NOSE | BALL NOSE | BALL NOSE | BALL NOSE |
| SIZE MIN | R0.5 | R0.5 | R0.25 | R0.5 |
| SIZE MAX | R8.0 | R10.0 | R3.0 | R4.0 |
| PAGE | 350 | 351 | 352 | 354 |

SOLID CARBIDE
X-POWER PRO
END MILLS

for Pre-Hardened Steels up to HRC55,
 Mold & Die, Dry & Wet Cutting

| SHORT LENGTH | LONG LENGTH | RIB PROCESSING | TAPER NECK |
|--------------|-------------|----------------|------------|
| Y-Coating | Y-Coating | Y-Coating | Y-Coating |



Please visit
globalyg1.com/mat
 for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 372

| ISO | VDI 3323 | Material Description | Composition / Structure / Heat Treatment | HB | HRC | | | | | |
|-----|---------------------|-----------------------------|--|---------------------|---------|----|---|---|---|---|
| P | 1 | Non-alloy steel | About 0.15% C Annealed | 125 | | ○ | ○ | ○ | ○ | |
| | 2 | | About 0.45% C Annealed | 190 | 13 | ○ | ○ | ○ | ○ | |
| | 3 | | About 0.45% C Quenched & Tempered | 250 | 25 | ○ | ○ | ○ | ○ | |
| | 4 | | About 0.75% C Annealed | 270 | 28 | ◎ | ◎ | ◎ | ○ | |
| | 5 | | About 0.75% C Quenched & Tempered | 300 | 32 | ◎ | ◎ | ◎ | ○ | |
| | 6 | Low alloy steel | Annealed | 180 | 10 | ○ | ○ | ○ | ○ | |
| | 7 | | Quenched & Tempered | 275 | 29 | ◎ | ◎ | ◎ | ○ | |
| | 8 | | Quenched & Tempered | 300 | 32 | ◎ | ◎ | ◎ | ◎ | |
| | 9 | | Quenched & Tempered | 350 | 38 | ◎ | ◎ | ◎ | ◎ | |
| | 10 | | High alloyed steel, and tool steel | Annealed | 200 | 15 | ○ | ○ | ○ | ○ |
| | 11 | | | Quenched & Tempered | 325 | 35 | ◎ | ◎ | ◎ | ◎ |
| M | 12 | Stainless steel | Ferritic / Martensitic Annealed | 200 | 15 | | | | | |
| | 13 | | Martensitic Quenched & Tempered | 240 | 23 | | | | | |
| | 14 | | Austenitic | 180 | 10 | | | | | |
| K | 15 | Grey cast iron | Pearlitic / ferritic | 180 | 10 | ○ | ○ | ○ | | |
| | 16 | | Pearlitic (Martensitic) | 260 | 26 | ○ | ○ | ○ | | |
| | 17 | Nodular cast iron | Ferritic | 160 | 3 | ○ | ○ | ○ | | |
| | 18 | | Pearlitic | 250 | 25 | ○ | ○ | ○ | | |
| | 19 | | Ferritic | 130 | | ○ | ○ | ○ | | |
| 20 | Malleable cast iron | Pearlitic | 230 | 21 | ○ | ○ | ○ | | | |
| N | 21 | Aluminum-wrought alloy | Not Curable | 60 | | | | | | |
| | 22 | | Curable Hardened | 100 | | | | | | |
| | 23 | Aluminum-cast, alloyed | ≤ 12% Si, Not Curable | 75 | | | | | | |
| | 24 | | ≤ 12% Si, Curable Hardened | 90 | | | | | | |
| | 25 | | > 12% Si, Not Curable | 130 | | | | | | |
| | 26 | | Cutting Alloys, PB>1% | 110 | | | | | | |
| | 27 | Copper and Copper Alloys | CuZn, CuSnZn (Brass) | 90 | | | | | | |
| | 28 | | CuSn, lead-free copper and electrolytic copper | 100 | | | | | | |
| | 29 | Non Metallic Materials | Duroplastic, Fiber Reinforced Plastic | | | | | | | |
| | 30 | | Rubber, Wood, etc. | | | | | | | |
| S | 31 | Heat Resistant Super Alloys | Fe Based | Annealed | 200 | 15 | | | | |
| | 32 | | | Cured | 280 | 30 | | | | |
| | 33 | | Annealed | 250 | 25 | | | | | |
| | 34 | | Ni or Co Based | Cured | 350 | 38 | | | | |
| | 35 | | | Cast | 320 | 34 | | | | |
| | 36 | Titanium Alloys | Pure Titanium | 400 Rm | | | | | | |
| | 37 | | Alpha + Beta Alloys | Hardened | 1050 Rm | | | | | |
| H | 38 | Hardened steel | Hardened | 550 | 55 | ○ | ○ | ○ | ○ | |
| | 39 | | Hardened | 630 | 60 | ○ | ○ | ○ | ○ | |
| | 40 | Chilled Cast Iron | Cast | 400 | 42 | ◎ | ◎ | ◎ | ◎ | |
| | 41 | Hardened Cast Iron | Hardened | 550 | 55 | ○ | ○ | ○ | ○ | |

| GM815 | GM818 | GM8A1 | GM839 | GM819 | GM810 | GM883 | GM895 | GM811 | GM817 | GM812 | GM834 | GM814 |
|-------------|---------------|----------------|---------------|---------------|--------------|----------------|--------------|--------------|-------------|-------------|-------------------|-------------|
| 4 | 2 | 2 | 4 | 4 | 2 | 2 | 3 | 4 | 4 | 6&8 | 6 | 3&4 |
| 30° | 30° | 30° | 30° | 30° | 30° | 30° | 38° | 30° | 30° | 45° | 45° | 20° |
| BALL NOSE | CORNER RADIUS | CORNER RADIUS | CORNER RADIUS | CORNER RADIUS | SQUARE | SQUARE | SQUARE | SQUARE | SQUARE | SQUARE | SQUARE | ROUGHING |
| R1.0 | D4.0 | D1.0 | D2.0 | D3.0 | D0.4 | D0.4 | D1.0 | D2.0 | D2.0 | D6.0 | D6.0 | D6.0 |
| R8.0 | D12.0 | D6.0 | D12.0 | D20.0 | D20.0 | D6.0 | D16.0 | D25.0 | D20.0 | D20.0 | D25.0 | D20.0 |
| 355 | 356 | 357 | 359 | 360 | 361 | 363 | 366 | 367 | 368 | 369 | 370 | 371 |
| LONG LENGTH | LONG LENGTH | RIB PROCESSING | STUB LENGTH | LONG LENGTH | SHORT LENGTH | RIB PROCESSING | SHORT LENGTH | SHORT LENGTH | LONG LENGTH | LONG LENGTH | EXTRA LONG LENGTH | LONG LENGTH |
| Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating | Y-Coating |



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HSS

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