



CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ High precision milling in medical, optical, electronics and aerospace industrials.
- ▶ Excellent performance at dry cutting condition.
- ▶ Excellent performance on high hardened steel

- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der trockenen Schneidbedingung.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



MG HM 2 30° ±0.01 PLAIN P.657

Unit : mm

| EDP No. PLAIN | Radius of Ball Nose R (±0.01) | Mill Diameter | Shank Diameter | Length of Cut | Overall Length |
|------------------|----------------------------------|---------------|----------------|---------------|----------------|
| EM865006 | RO.3 | 0.6 | 3 | 1.1 | 40 |
| EM865007 | RO.35 | 0.7 | 3 | 1.5 | 40 |
| EM865008 | RO.4 | 0.8 | 3 | 2 | 40 |
| EM865009 | RO.45 | 0.9 | 3 | 2.2 | 40 |
| EM865010 | RO.5 | 1.0 | 3 | 2.5 | 40 |
| EM865011 | RO.55 | 1.1 | 3 | 3 | 40 |
| EM865012 | RO.6 | 1.2 | 3 | 3 | 40 |
| EM865013 | RO.65 | 1.3 | 3 | 3.5 | 40 |
| EM865014 | RO.7 | 1.4 | 3 | 3.5 | 40 |
| EM865015 | RO.75 | 1.5 | 3 | 4 | 40 |
| EM865020 | R1.0 | 2.0 | 3 | 5 | 40 |
| EM865030 | R1.5 | 3.0 | 3 | 8 | 40 |

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

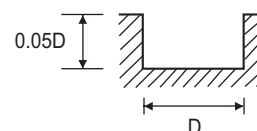
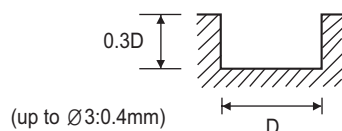
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels | | High Hardened Steels | Copper | Graphite | Cast Iron | Aluminum | Stainless Steels | Titanium | Inconel |
|---------------|--------------|--------------------|-----------------|----------|----------------------|--------|----------|-----------|----------|------------------|----------|------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

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE LONG - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN LANG - NUTENFRÄSEN

EM816, EM826 SERIES

| MATERIAL | NON-ALLOYED STEELS ALLOY STEELS CAST IRON | | ALLOY STEELS HEAT RESISTANT STEELS | | HARDENED STEELS | |
|----------|---|------|--|------|------------------------------|------|
| HARDNESS | ~ HRC30 | | HRC30 ~ HRC45 | | HRC45 ~ HRC55 | |
| STRENGTH | ~ 1000N/mm ² | | 1000 ~ 1500N/mm ² | | 1500 ~ 2000N/mm ² | |
| DIAMETER | RPM | FEED | RPM | FEED | RPM | FEED |
| 2.0 | 7560 | 70 | 6050 | 60 | 3780 | 30 |
| 3.0 | 5290 | 85 | 4280 | 70 | 2640 | 35 |
| 4.0 | 4280 | 100 | 3410 | 85 | 2150 | 40 |
| 5.0 | 3660 | 125 | 2900 | 100 | 1900 | 45 |
| 6.0 | 3160 | 150 | 2520 | 125 | 1640 | 60 |
| 8.0 | 2400 | 160 | 1900 | 125 | 1260 | 60 |
| 10.0 | 2020 | 160 | 1640 | 125 | 1010 | 60 |
| 12.0 | 1640 | 125 | 1390 | 115 | 840 | 45 |
| 16.0 | 1390 | 115 | 1070 | 90 | 670 | 40 |
| 20.0 | 1010 | 85 | 820 | 60 | 500 | 30 |



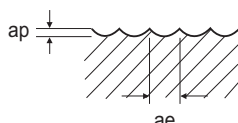
RPM = rev./min.
FEED = mm/min.

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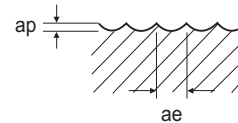
EM865 SERIES

| MATERIAL | NON-ALLOYED STEELS ALLOY STEELS CAST IRON | | HARDENED STEELS | |
|-------------|---|------|------------------------------|------|
| HARDNESS | HRC30 ~ HRC45 | | HRC45 ~ HRC55 | |
| STRENGTH | 1000 ~ 1500N/mm ² | | 1500 ~ 2000N/mm ² | |
| DIAMETER | RPM | FEED | RPM | FEED |
| R0.3 × 0.6 | 30000 | 510 | 30000 | 360 |
| R0.4 × 0.8 | 27000 | 560 | 27000 | 330 |
| R0.5 × 1.0 | 25000 | 560 | 25000 | 340 |
| R0.6 × 1.2 | 24000 | 570 | 24000 | 350 |
| R0.75 × 1.5 | 23000 | 600 | 23000 | 370 |
| R1.0 × 2.0 | 19000 | 570 | 19000 | 320 |
| R1.5 × 3.0 | 14000 | 480 | 14000 | 280 |

$D < 1$ $D > 1$
 $ap = 0.05 \times D$ $ap = 0.075 \times D$
 $ae = 0.15 \times D$ $ae = 0.15 \times D$



$D < 1$ $D > 1$
 $ap = 0.05 \times D$ $ap = 0.05 \times D$
 $ae = 0.1 \times D$ $ae = 0.15 \times D$



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