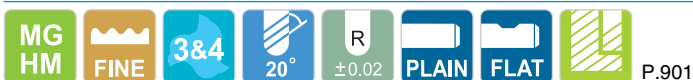


CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING BALL NOSE - FINE
VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFÄSER STIRNRADIUS - FEIN

- ▶ Zaprojektowany do obróbki stali narzędziowych, stali stopowych, stali na formy i innych materiałów wysoko utwardzonych
- ▶ Frezowanie stali utwardzonych z dużymi prędkościami skrawania
- ▶ Do frezowania na sucho i na mokro
- ▶ Szybkie usuwanie wiórów



Unit : mm

| EDP No. | | Radius of Ball Nose | Mill Diameter | Shank Diameter | Length of Cut | Overall Length | No. of Flute |
|----------|----------|---------------------|---------------|----------------|---------------|----------------|--------------|
| PLAIN | FLAT | R (±0.02) | h10 | h6 | | | |
| EM833060 | EM843060 | R3.0 | 6.0 | 6 | 16 | 57 | 3 |
| EM833080 | EM843080 | R4.0 | 8.0 | 8 | 16 | 63 | 3 |
| EM833100 | EM843100 | R5.0 | 10.0 | 10 | 22 | 72 | 4 |
| EM833120 | EM843120 | R6.0 | 12.0 | 12 | 26 | 83 | 4 |
| EM833140 | EM843140 | R7.0 | 14.0 | 14 | 26 | 83 | 4 |
| EM833160 | EM843160 | R8.0 | 16.0 | 16 | 32 | 92 | 4 |
| EM833180 | EM843180 | R9.0 | 18.0 | 18 | 32 | 92 | 4 |
| EM833200 | EM843200 | R10.0 | 20.0 | 20 | 38 | 104 | 4 |

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

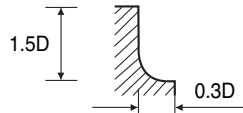
| Tolerance range in μm / Toleranzwerte in μm | | | | | |
|---|----------------------------|-----------------------------|-------------------------------|---------------------------------|---------------------------------|
| Nominal-Diameter in mm / Nennmaßbereich in mm | | | | | |
| | from 1 to 3 von 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 |
| h10 | 0 - 40 | 0 - 48 | 0 - 58 | 0 - 70 | 0 - 84 |
| h6 | 0 - 6 | 0 - 8 | 0 - 9 | 0 - 11 | 0 - 13 |

◎ : Excellent ○ : Good

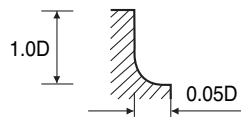
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels | | High Hardened Steels | Copper | Graphite | Cast Iron | Aluminum | Stainless Steels | Titanium | Inconel | Acrylic | CFRP |
|---------------|--------------|--------------------|-----------------|----------|----------------------|--------|----------|-----------|----------|------------------|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


**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**
**CARBIDE, 3&4 FLUTE 20° HELIX ROUGHING BALL NOSE - SIDE CUTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE SCHRUPPFÄRER STIRNRADIUS - SEITENFRÄSEN**
EM833, EM843 SERIES

| MATERIAL | NON-ALLOYED STEELS ALLOY STEELS CAST IRON | | | | ALLOY STEELS HEAT RESISTANT STEELS | | | | ALLOY STEELS HEAT RESISTANT STEELS | | | |
|-------------|---|------|-----|-------|---------------------------------------|------|-----|-------|---------------------------------------|------|-----|-------|
| HARDNESS | ~ HRc30 | | | | HRc30 ~ HRc38 | | | | HRc38 ~ HRc45 | | | |
| STRENGTH | ~ 1000N/mm ² | | | | 1000 ~ 1200N/mm ² | | | | 1200 ~ 1400N/mm ² | | | |
| DIAMETER | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz |
| R1.5 × 3.0 | 15600 | 2320 | 295 | 0.050 | 12400 | 840 | 235 | 0.023 | 8400 | 570 | 160 | 0.023 |
| R2.0 × 4.0 | 11600 | 2320 | 290 | 0.067 | 9200 | 840 | 230 | 0.030 | 6300 | 570 | 160 | 0.030 |
| R2.5 × 5.0 | 9200 | 2320 | 290 | 0.063 | 7600 | 840 | 240 | 0.028 | 5100 | 570 | 160 | 0.028 |
| R3.0 × 6.0 | 8000 | 2400 | 300 | 0.075 | 6000 | 800 | 225 | 0.033 | 4200 | 570 | 160 | 0.034 |
| R4.0 × 8.0 | 6800 | 2400 | 300 | 0.088 | 5200 | 840 | 230 | 0.040 | 3600 | 570 | 160 | 0.040 |
| R5.0 × 10.0 | 6000 | 2400 | 300 | 0.100 | 4800 | 760 | 240 | 0.040 | 3300 | 510 | 165 | 0.039 |
| R6.0 × 12.0 | 5200 | 2320 | 295 | 0.112 | 4400 | 720 | 250 | 0.041 | 2700 | 420 | 155 | 0.039 |
| R8.0 × 16.0 | 4800 | 2160 | 300 | 0.113 | 3600 | 560 | 225 | 0.039 | 2400 | 360 | 150 | 0.038 |



| MATERIAL | HARDENED STEELS | | | | HARDENED STEELS | | | |
|-------------|------------------------------|------|----|-------|-------------------------|------|----|-------|
| HARDNESS | HRc45 ~ HRc55 | | | | HRc55 ~ HRc65 | | | |
| STRENGTH | 1400 ~ 2000N/mm ² | | | | 2000N/mm ² ~ | | | |
| DIAMETER | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz |
| R1.5 × 3.0 | 3400 | 260 | 65 | 0.025 | 2400 | 190 | 45 | 0.026 |
| R2.0 × 4.0 | 2400 | 240 | 60 | 0.033 | 1800 | 180 | 45 | 0.033 |
| R2.5 × 5.0 | 2000 | 290 | 65 | 0.036 | 1300 | 190 | 40 | 0.037 |
| R3.0 × 6.0 | 1680 | 260 | 65 | 0.039 | 1200 | 190 | 45 | 0.040 |
| R4.0 × 8.0 | 1400 | 200 | 60 | 0.036 | 900 | 130 | 40 | 0.036 |
| R5.0 × 10.0 | 1200 | 160 | 60 | 0.033 | 800 | 110 | 40 | 0.034 |
| R6.0 × 12.0 | 1100 | 150 | 60 | 0.034 | 700 | 100 | 40 | 0.036 |
| R8.0 × 16.0 | 1000 | 150 | 65 | 0.038 | 660 | 100 | 40 | 0.038 |



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

HSS

 CBN
END MILLS

 i-Xmill
END MILLS

 i-HS mill
END MILLS

 X5070
END MILLS

 4G MILL
END MILLS

 X-SPEED
ROUGHER
END MILLS

**X-POWER
END MILLS**

 JET-POWER
END MILLS

 TN MILL
END MILLS

 V7 Mill
END MILLS

 ALU-POWER
END MILLS

 CRX S
END MILLS

 D-POWER
GRAPHITE
END MILLS

 D-POWER
CFRP
END MILLS

ROUTERS

 K-2 CARBIDE
END MILLS

 GENERAL
CARBIDE
END MILLS

 TANK-POWER
END MILLS

 GENERAL
HSS
END MILLS

 MILLING
CUTTERS

 TECHNICAL
DATA