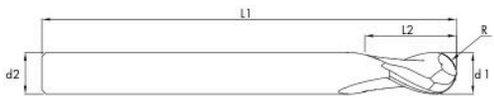
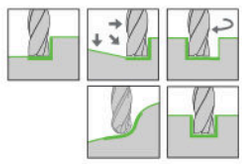
# SOLID CARBIDE BALL NOSE END MILLS

VOLLHARTMETALL RADIUSFRASER

KARBÜR KÜRE FREZE UZUN BALLER BALL NOSE





## BALLER BALL NOSE

<52 HRC



TYPE



QUALITY



DIAMETER



NORM

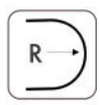

2 FLUTES



SHAFT TYPE



HELICAL

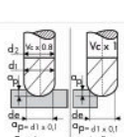


RADIUS



COATED

| $d_1(e_8)$ | $L_2$ | $L_1$ | $d_2(h_6)$ | Z | R | Coated Code |
|---|---|---|---|---|---|---|
| 3 | 6 | 40 | 3 | 2 | 1,5 | 4029000 |
| 4 | 8 | 50 | 4 | 2 | 2,0 | 4029010 |
| 5 | 10 | 50 | 5 | 2 | 2,5 | 4029020 |
| 6 | 12 | 57 | 6 | 2 | 3,0 | 4029030 |
| 8 | 14 | 63 | 8 | 2 | 4,0 | 4029040 |
| 10 | 16 | 72 | 10 | 2 | 5,0 | 4029050 |
| 12 | 18 | 83 | 12 | 2 | 6,0 | 4029060 |
| 14 | 19 | 83 | 14 | 2 | 7,0 | 4029070 |
| 16 | 20 | 92 | 16 | 2 | 8,0 | 4029080 |
| 18 | 22 | 92 | 18 | 2 | 9,0 | 4029090 |
| 20 | 24 | 104 | 20 | 2 | 10,0 | 4029100 |
| | | | | | | |
| 3 | 6 | 65 | 3 | 2 | 1,5 | 4029110 |
| 4 | 8 | 65 | 4 | 2 | 2,0 | 4029120 |
| 5 | 10 | 80 | 5 | 2 | 2,5 | 4029130 |
| 6 | 12 | 80 | 6 | 2 | 3,0 | 4029140 |
| 8 | 14 | 88 | 8 | 2 | 4,0 | 4029150 |
| 10 | 16 | 100 | 10 | 2 | 5,0 | 4029160 |
| 12 | 18 | 100 | 12 | 2 | 6,0 | 4029170 |
| 16 | 20 | 100 | 16 | 2 | 8,0 | 4029180 |
| 3 | 6 | 100 | 3 | 2 | 1,5 | 4029190 |
| 4 | 8 | 100 | 4 | 2 | 2,0 | 4029200 |
| 5 | 10 | 100 | 5 | 2 | 2,5 | 4029210 |
| 6 | 12 | 100 | 6 | 2 | 3,0 | 4029220 |
| 8 | 14 | 100 | 8 | 2 | 4,0 | 4029230 |
| 10 | 16 | 130 | 10 | 2 | 5,0 | 4029240 |
| 12 | 18 | 130 | 12 | 2 | 6,0 | 4029250 |
| 14 | 19 | 130 | 14 | 2 | 7,0 | 4029260 |
| 16 | 20 | 130 | 16 | 2 | 8,0 | 4029270 |




| | P (20-30 Hrc) | | | P (30-40 Hrc) | | | M | | | GG | | | AL | | | CU | | | Titan | | | < 52 HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.0050-2<br>1.0060-2<br>1.0070-2 | | | 1.5864<br>1.6580<br>1.7225 | | | 1.4405<br>1.4460<br>1.4505 | | | 0.6035<br>0.7080<br>0.8055 | | | 3.2151<br>3.2373<br>3.2382 | | | 2.1247<br>2.0580<br>2.0598 | | | 3.7035<br>3.7055<br>3.7065 | | | 1.3255<br>1.3265<br>1.3333 | | |
| | Vc= 160 m/dk. | | | Vc = 140 m/dk. | | | Vc = 90 m/dk. | | | Vc= 240 m/dk. | | | Vc = 480 m/dk. | | | Vc = 300 m/dk. | | | Vc = 90 m/dk. | | | Vc = 90 m/dk. | | |
| d1 | de | ap | ae | fz | n | Vf | fz | n | Vf | fz | n | Vf | fz | n | Vf | fz | n | Vf | fz | n | Vf | fz | n | Vf | fz | n | Vf |
| 3 | 1,8 | 0,3 | 0,50 | 0,026 | 28308 | 750xZ | 0,026 | 24770 | 650xZ | 0,028 | 15923 | 450xZ | 0,035 | 42463 | 1500xZ | 0,050 | 60000 | 3000xZ | 0,038 | 53000 | 2000xZ | 0,025 | 15923 | 400xZ | 0,026 | 15923 | 420xZ |
| 4 | 2,8 | 0,4 | 0,55 | 0,042 | 17693 | 750xZ | 0,042 | 15481 | 650xZ | 0,045 | 9951 | 450xZ | 0,057 | 26539 | 1500xZ | 0,056 | 53078 | 3000xZ | 0,060 | 33170 | 2000xZ | 0,040 | 9952 | 400xZ | 0,042 | 9951 | 420xZ |
| 5 | 3,0 | 0,5 | 0,83 | 0,044 | 16985 | 750xZ | 0,044 | 14862 | 650xZ | 0,047 | 9554 | 450xZ | 0,059 | 25478 | 1500xZ | 0,059 | 50955 | 3000xZ | 0,063 | 31845 | 2000xZ | 0,042 | 9554 | 400xZ | 0,044 | 9554 | 420xZ |
| 6 | 3,6 | 0,6 | 1,00 | 0,053 | 14154 | 750xZ | 0,053 | 12385 | 650xZ | 0,056 | 7962 | 450xZ | 0,071 | 21231 | 1500xZ | 0,071 | 42463 | 3000xZ | 0,075 | 26535 | 2000xZ | 0,050 | 7962 | 400xZ | 0,053 | 7962 | 420xZ |
| 8 | 4,8 | 0,8 | 1,33 | 0,071 | 10616 | 750xZ | 0,070 | 9288 | 650xZ | 0,075 | 5971 | 450xZ | 0,094 | 15923 | 1500xZ | 0,094 | 31847 | 3000xZ | 0,101 | 19900 | 2000xZ | 0,067 | 5971 | 400xZ | 0,070 | 5971 | 420xZ |
| 10 | 6,0 | 1,0 | 1,66 | 0,088 | 8492 | 750xZ | 0,088 | 7431 | 650xZ | 0,094 | 4777 | 450xZ | 0,118 | 12739 | 1500xZ | 0,118 | 25478 | 3000xZ | 0,126 | 15923 | 2000xZ | 0,084 | 4777 | 400xZ | 0,088 | 4777 | 420xZ |
| 12 | 7,2 | 1,2 | 2,00 | 0,106 | 7077 | 750xZ | 0,105 | 6192 | 650xZ | 0,113 | 3981 | 450xZ | 0,141 | 10616 | 1500xZ | 0,141 | 21231 | 3000xZ | 0,151 | 13270 | 2000xZ | 0,101 | 3981 | 400xZ | 0,106 | 3981 | 420xZ |
| 14 | 8,4 | 1,4 | 2,33 | 0,124 | 6066 | 750xZ | 0,120 | 5308 | 650xZ | 0,132 | 3412 | 450xZ | 0,165 | 9099 | 1500xZ | 0,165 | 18198 | 3000xZ | 0,176 | 11370 | 2000xZ | 0,117 | 3412 | 400xZ | 0,123 | 3412 | 420xZ |
| 16 | 9,6 | 1,6 | 2,66 | 0,141 | 5308 | 750xZ | 0,140 | 4644 | 650xZ | 0,151 | 2986 | 450xZ | 0,188 | 7962 | 1500xZ | 0,180 | 15923 | 3000xZ | 0,201 | 9952 | 2000xZ | 0,134 | 2986 | 400xZ | 0,141 | 2986 | 420xZ |