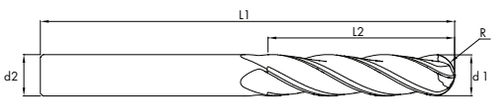
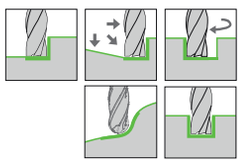
# SOLID CARBIDE BALL NOSE END MILLS

VOLLHARTMETALL RADIUSFRASER LANG

KARBÜR KÜRE FREZE UZUN





## BLITZ BALL NOSE LONG

<52 HRC



TYPE



QUALITY



DIAMETER



NORM

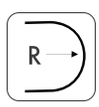

4 FLUTES



SHAFT TYPE



HELICAL



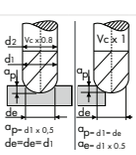
RADIUS



COATED

| $d_1$(e8) | $L_2$ | $L_1$ | $d_2$(h6) | Z | R | Uncoated Code | Coated Code |
|---|---|---|---|---|---|---|---|
| 3 | 16 | 65 | 3 | 4 | 1,5 | 4004320 | 4004330 |
| 4 | 18 | 65 | 4 | 4 | 2 | 4004340 | 4004350 |
| 5 | 20 | 65 | 5 | 4 | 2,5 | 4004360 | 4004370 |
| 6 | 24 | 68 | 6 | 4 | 3 | 4004380 | 4004390 |
| 8 | 38 | 88 | 8 | 4 | 4 | 4004400 | 4004410 |
| | | | | | | | |
| 3 | 20 | 100 | 3 | 4 | 1,5 | 4004420 | 4004430 |
| 4 | 26 | 100 | 4 | 4 | 2 | 4004440 | 4004450 |
| 5 | 26 | 100 | 5 | 4 | 2,5 | 4004460 | 4004470 |
| 6 | 40 | 100 | 6 | 4 | 3 | 4004480 | 4004490 |
| 8 | 45 | 100 | 8 | 4 | 4 | 4004500 | 4004510 |
| 10 | 45 | 100 | 10 | 4 | 5 | 4004520 | 4004530 |
| 12 | 45 | 100 | 12 | 4 | 6 | 4004540 | 4004550 |
| 14 | 45 | 100 | 14 | 4 | 7 | 4004560 | 4004570 |
| 16 | 45 | 100 | 16 | 4 | 8 | 4004580 | 4004590 |
| 18 | 45 | 100 | 18 | 4 | 9 | 4004600 | 4004610 |
| 20 | 45 | 104 | 20 | 4 | 10 | 4004620 | 4004630 |
| | | | | | | | |

| $d_1$(e8) | $L_2$ | $L_1$ | $d_2$(h6) | Z | R | Uncoated Code | Coated Code |
|---|---|---|---|---|---|---|---|
| 8 | 40 | 130 | 8 | 4 | 4 | 4004640 | 4004650 |
| 10 | 50 | 130 | 10 | 4 | 5 | 4004660 | 4004670 |
| 12 | 50 | 130 | 12 | 4 | 6 | 4004680 | 4004690 |
| 14 | 50 | 130 | 14 | 4 | 7 | 4004700 | 4004710 |
| 16 | 60 | 130 | 16 | 4 | 8 | 4004720 | 4004730 |
| 18 | 60 | 130 | 18 | 4 | 9 | 4004740 | 4004750 |
| 20 | 60 | 130 | 20 | 4 | 10 | 4004760 | 4004770 |
| | | | | | | | |
| 10 | 65 | 165 | 10 | 4 | 5 | 4004780 | 4004790 |
| 12 | 65 | 165 | 12 | 4 | 6 | 4004800 | 4004810 |
| 14 | 65 | 165 | 14 | 4 | 7 | 4004820 | 4004830 |
| 16 | 75 | 165 | 16 | 4 | 8 | 4004840 | 4004850 |
| 18 | 75 | 165 | 18 | 4 | 9 | 4004860 | 4004870 |
| 20 | 75 | 165 | 20 | 4 | 10 | 4004880 | 4004890 |
| 25 | 75 | 165 | 25 | 4 | 12,5 | 4004900 | 4004910 |




| | | | | 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=100 m/dk. | | | Vc = 80 m/dk. | | | Vc = 55 m/dk. | | | Vc= 120 m/dk. | | | Vc = 300 m/dk. | | | Vc = 190 m/dk. | | | Vc = 45 m/dk. | | | Vc = 45 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 | 3 | 1,5 | 1,5 | 0,017 | 10616 | 180xZ | 0,018 | 8492 | 150xZ | 0,021 | 5838 | 125xZ | 0,051 | 12738 | 650 xZ | 0,039 | 31846 | 1240xZ | 0,043 | 20170 | 875 xZ | 0,014 | 4777 | 65 xZ | 0,012 | 4777 | 55 xZ |
| 4 | 4 | 2,0 | 2,0 | 0,023 | 7962 | 180xZ | 0,024 | 6370 | 150xZ | 0,028 | 4379 | 125xZ | 0,068 | 9554 | 650 xZ | 0,052 | 23885 | 1240xZ | 0,058 | 15127 | 875 xZ | 0,018 | 3582 | 65 xZ | 0,015 | 3582 | 55 xZ |
| 5 | 5 | 2,5 | 2,5 | 0,028 | 6370 | 180xZ | 0,029 | 5100 | 150xZ | 0,035 | 3503 | 125xZ | 0,085 | 7643 | 650 xZ | 0,065 | 19108 | 1240xZ | 0,072 | 12102 | 875 xZ | 0,023 | 2866 | 65 xZ | 0,019 | 2866 | 55 xZ |
| 6 | 6 | 3,0 | 3,0 | 0,034 | 5308 | 180xZ | 0,035 | 4250 | 150xZ | 0,043 | 2919 | 125xZ | 0,102 | 6369 | 650 xZ | 0,078 | 15923 | 1240xZ | 0,087 | 10085 | 875 xZ | 0,027 | 2388 | 65 xZ | 0,023 | 2388 | 55 xZ |
| 8 | 8 | 4,0 | 4,0 | 0,045 | 3981 | 180xZ | 0,047 | 3185 | 150xZ | 0,057 | 2189 | 125xZ | 0,136 | 4777 | 650 xZ | 0,104 | 11942 | 1240xZ | 0,116 | 7564 | 875 xZ | 0,036 | 1791 | 65 xZ | 0,031 | 1791 | 55 xZ |
| 10 | 10 | 5,0 | 5,0 | 0,056 | 3185 | 180xZ | 0,059 | 2550 | 150xZ | 0,071 | 1751 | 125xZ | 0,170 | 3821 | 650 xZ | 0,130 | 9554 | 1240xZ | 0,145 | 6051 | 875 xZ | 0,045 | 1433 | 65 xZ | 0,038 | 1433 | 55 xZ |
| 12 | 12 | 6,0 | 6,0 | 0,068 | 2654 | 180xZ | 0,071 | 2123 | 150xZ | 0,086 | 1460 | 125xZ | 0,204 | 3185 | 650 xZ | 0,156 | 7962 | 1240xZ | 0,174 | 5042 | 875 xZ | 0,054 | 1194 | 65 xZ | 0,046 | 1194 | 55 xZ |
| 14 | 14 | 7,0 | 7,0 | 0,079 | 2275 | 180xZ | 0,082 | 1820 | 150xZ | 0,100 | 1251 | 125xZ | 0,238 | 2730 | 650 xZ | 0,182 | 6824 | 1240xZ | 0,202 | 4322 | 875 xZ | 0,063 | 1024 | 65 xZ | 0,054 | 1024 | 55 xZ |
| 16 | 16 | 8,0 | 8,0 | 0,090 | 1990 | 180xZ | 0,094 | 1592 | 150xZ | 0,114 | 1095 | 125xZ | 0,272 | 2388 | 650 xZ | 0,208 | 5971 | 1240xZ | 0,231 | 3782 | 875 xZ | 0,073 | 896 | 65 xZ | 0,061 | 896 | 55 xZ |
| 18 | 18 | 9,0 | 9,0 | 0,102 | 1760 | 180xZ | 0,106 | 1415 | 150xZ | 0,128 | 973 | 125xZ | 0,306 | 2123 | 650 xZ | 0,234 | 5308 | 1240xZ | 0,260 | 3362 | 875 xZ | 0,082 | 796 | 65 xZ | 0,069 | 796 | 55 xZ |
| 20 | 20 | 10,0 | 10,0 | 0,113 | 1592 | 180xZ | 0,117 | 1275 | 150xZ | 0,143 | 875 | 125xZ | 0,340 | 1910 | 650 xZ | 0,260 | 4777 | 1240xZ | 0,290 | 3025 | 875 xZ | 0,090 | 716 | 65 xZ | 0,077 | 716 | 55 xZ |
| 25 | 25 | 12,5 | 12,5 | 0,141 | 1274 | 180xZ | 0,147 | 1020 | 150xZ | 0,179 | 700 | 125xZ | 0,425 | 1528 | 650 xZ | 0,324 | 3822 | 1240xZ | 0,362 | 2420 | 875 xZ | 0,113 | 573 | 65 xZ | 0,100 | 573 | 55 xZ |