



2 Flutes Standard Length Ball End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.

2刃汎用標準長さボールエンドミル

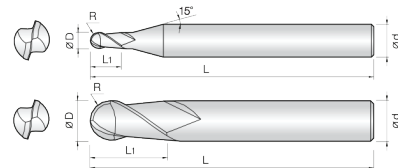
中低硬度鋼(HRC52以下), プレハードン鋼系列, 炭素鋼, 金型鋼など多様な被削材加工

- 高精度 公差 適用で超精密加工に適合します。
- 抗折力が高い 超微粒子 超硬合金を採択して, 高移送 作業時 エンドミルの破損を最小化しました。

2刃标准球头铣刀

中低硬度钢(HRC52以下), 预硬化钢系列的, 碳素钢, 模具钢等加工多样被削材加工

- 适用高精度公差, 适合超精密加工。
- 选择高抗折力超微粒钨钢合金, 铣刀破损最少化。



| Size | D Tolerance |
|--------|---------------|
| D ≤ Ø6 | +0 ~ -0.01mm |
| D > Ø6 | +0 ~ -0.015mm |

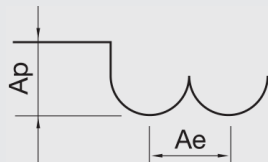
单位/Unit: mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | R×D | L1 | L | d |
| 2HGB 001 002 S04 | 0.05RX0.1 | 0.2 | 40 | 4 |
| 2HGB 002 004 S04 | 0.1RX0.2 | 0.4 | 40 | 4 |
| 2HGB 003 006 S04 | 0.15RX0.3 | 0.6 | 40 | 4 |
| 2HGB 004 008 S04 | 0.2RX0.4 | 0.8 | 40 | 4 |
| 2HGB 005 010 S04 | 0.25RX0.5 | 1 | 45 | 4 |
| 2HGB 006 012 S04 | 0.3RX0.6 | 1.2 | 45 | 4 |
| 2HGB 007 015 S04 | 0.35RX0.7 | 1.5 | 45 | 4 |
| 2HGB 008 020 S04 | 0.4RX0.8 | 2 | 45 | 4 |
| 2HGB 009 020 S04 | 0.45RX0.9 | 2 | 45 | 4 |
| 2HGB 010 025 S04 | 0.5RX1 | 2.5 | 50 | 4 |
| 2HGB 010 025 S06 | 0.5RX1 | 2.5 | 50 | 6 |
| 2HGB 010 025 070 | 0.5RX1 | 2.5 | 70 | 6 |
| 2HGB 010 025 100 | 0.5RX1 | 2.5 | 100 | 6 |
| 2HGB 012 030 S04 | 0.6RX1.2 | 3 | 50 | 4 |
| 2HGB 015 040 S04 | 0.75RX1.5 | 4 | 50 | 4 |
| 2HGB 015 040 S06 | 0.75RX1.5 | 4 | 50 | 6 |
| 2HGB 015 040 070 | 0.75RX1.5 | 4 | 70 | 6 |
| 2HGB 015 040 100 | 0.75RX1.5 | 4 | 100 | 6 |
| 2HGB 020 050 S04 | 1RX2 | 5 | 50 | 4 |
| 2HGB 020 050 S06 | 1RX2 | 5 | 50 | 6 |
| 2HGB 020 050 075 | 1RX2 | 5 | 75 | 6 |
| 2HGB 020 050 100 | 1RX2 | 5 | 100 | 6 |
| 2HGB 025 060 S04 | 1.25RX2.5 | 6 | 50 | 4 |
| 2HGB 025 060 S06 | 1.25RX2.5 | 6 | 60 | 6 |
| 2HGB 025 060 075 | 1.25RX2.5 | 6 | 75 | 6 |
| 2HGB 025 060 100 | 1.25RX2.5 | 6 | 100 | 6 |
| 2HGB 030 080 S03 | 1.5RX3 | 8 | 60 | 3 |
| 2HGB 030 080 S04 | 1.5RX3 | 8 | 50 | 4 |
| 2HGB 030 080 S06 | 1.5RX3 | 8 | 60 | 6 |
| 2HGB 030 080 080 | 1.5RX3 | 8 | 80 | 6 |
| 2HGB 030 080 100 | 1.5RX3 | 8 | 100 | 6 |
| 2HGB 035 080 S06 | 1.75RX3.5 | 8 | 60 | 6 |
| 2HGB 040 080 060 | 2RX4 | 8 | 60 | 4 |
| 2HGB 040 080 080 | 2RX4 | 8 | 80 | 4 |
| 2HGB 040 080 S06 | 2RX4 | 8 | 70 | 6 |

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | R×D | L1 | L | d |
| 2HGB 040 080 090 | 2RX4 | 8 | 90 | 6 |
| 2HGB 040 080 120 | 2RX4 | 8 | 120 | 6 |
| 2HGB 045 080 S06 | 2.25RX4.5 | 8 | 70 | 6 |
| 2HGB 050 080 S05 | 2.5RX5 | 8 | 80 | 5 |
| 2HGB 050 100 S06 | 2.5RX5 | 10 | 75 | 6 |
| 2HGB 055 100 S06 | 2.75RX5.5 | 10 | 75 | 6 |
| 2HGB 060 100 060 | 3RX6 | 10 | 60 | 6 |
| 2HGB 060 120 080 | 3RX6 | 12 | 80 | 6 |
| 2HGB 060 120 100 | 3RX6 | 12 | 100 | 6 |
| 2HGB 060 120 120 | 3RX6 | 12 | 120 | 6 |
| 2HGB 070 140 S08 | 3.5RX7 | 14 | 80 | 8 |
| 2HGB 080 120 060 | 4RX8 | 12 | 60 | 8 |
| 2HGB 080 140 090 | 4RX8 | 14 | 90 | 8 |
| 2HGB 080 140 110 | 4RX8 | 14 | 110 | 8 |
| 2HGB 080 140 150 | 4RX8 | 14 | 150 | 8 |
| 2HGB 090 160 S10 | 4.5RX9 | 16 | 100 | 10 |
| 2HGB 100 150 070 | 5RX10 | 15 | 70 | 10 |
| 2HGB 100 180 100 | 5RX10 | 18 | 100 | 10 |
| 2HGB 100 180 120 | 5RX10 | 18 | 120 | 10 |
| 2HGB 100 180 150 | 5RX10 | 18 | 150 | 10 |
| 2HGB 100 180 180 | 5RX10 | 18 | 180 | 10 |
| 2HGB 110 200 S12 | 5.5RX11 | 20 | 110 | 12 |
| 2HGB 120 180 070 | 6RX12 | 18 | 70 | 12 |
| 2HGB 120 220 110 | 6RX12 | 22 | 110 | 12 |
| 2HGB 120 220 130 | 6RX12 | 22 | 130 | 12 |
| 2HGB 120 220 150 | 6RX12 | 22 | 150 | 12 |
| 2HGB 120 220 200 | 6RX12 | 22 | 200 | 12 |
| 2HGB 130 240 S14 | 6.5RX13 | 24 | 110 | 14 |
| 2HGB 140 240 S14 | 7RX14 | 24 | 110 | 14 |
| 2HGB 160 300 130 | 8RX16 | 30 | 130 | 16 |
| 2HGB 160 300 160 | 8RX16 | 30 | 160 | 16 |
| 2HGB 160 300 200 | 8RX16 | 30 | 200 | 16 |
| 2HGB 200 380 160 | 10RX20 | 38 | 160 | 20 |
| 2HGB 200 380 200 | 10RX20 | 38 | 200 | 20 |

| Material | | Copper | | | | Prehardened Steels / Hardened Steels NAK / SKD | | | | Hardened Steels SKD / SKT | | | |
|----------|------------------|--------|-------|-------------------|--------------------|--|-------|-------------------|--------------------|---------------------------|--------|-------------------|--------------------|
| Hardness | | | | | | 30 ~ 45Hrc | | | | 45 ~ 55Hrc | | | |
| Radius | Effective Length | RPM | FEED | Ap Axial Depth | Ae Radial Depth | RPM | FEED | Ap Axial Depth | Ae Radial Depth | RPM | FEED | Ap Axial Depth | Ae Radial Depth |
| RO.05 | 0.2 | 40,000 | 300 | Less than 0.010 | 0.050 | 40,000 | 300 | Less than 0.005 | 0.040 | 30,000 | 200 | Less than 0.004 | 0.040 |
| RO.075 | 0.15 | 50,000 | 380 | 0.010 | 0.030 | 45,000 | 500 | 0.005 | 0.050 | 40,000 | 350 | 0.004 | 0.043 |
| | 0.2 | 54,000 | 430 | 0.012 | 0.008 | 54,000 | 630 | 0.020 | 0.060 | 44,300 | 500 | 0.016 | 0.048 |
| | 0.4 | 54,000 | 430 | 0.005 | 0.008 | 54,000 | 410 | 0.020 | 0.049 | 44,300 | 320 | 0.016 | 0.038 |
| | 0.3 | 54,000 | 720 | 0.020 | 0.013 | 54,000 | 750 | 0.030 | 0.090 | 44,300 | 600 | 0.024 | 0.072 |
| | 0.6 | 54,000 | 720 | 0.010 | 0.013 | 54,000 | 700 | 0.030 | 0.065 | 44,300 | 570 | 0.020 | 0.058 |
| RO.1 | 0.4 | 54,000 | 870 | 0.028 | 0.016 | 54,000 | 1,000 | 0.040 | 0.120 | 44,300 | 800 | 0.032 | 0.096 |
| | 0.8 | 54,000 | 870 | 0.014 | 0.016 | 54,000 | 840 | 0.040 | 0.100 | 44,300 | 650 | 0.032 | 0.075 |
| RO.25 | 0.5 | 56,000 | 1,250 | 0.035 | 0.022 | 53,000 | 1,250 | 0.050 | 0.150 | 43,500 | 1,000 | 0.040 | 0.120 |
| RO.3 | 0.6 | 58,000 | 1,510 | 0.042 | 0.026 | 52,000 | 1,380 | 0.060 | 0.180 | 42,650 | 1,100 | 0.048 | 0.144 |
| RO.35 | 0.7 | 55,000 | 1,690 | 0.049 | 0.031 | 50,000 | 1,440 | 0.070 | 0.210 | 41,075 | 1,150 | 0.056 | 0.168 |
| | 0.8 | 52,000 | 1,870 | 0.056 | 0.036 | 48,000 | 1,500 | 0.080 | 0.240 | 39,500 | 1,200 | 0.064 | 0.192 |
| | 2 | 52,000 | 1,870 | 0.300 | 0.036 | 45,000 | 1,075 | 0.080 | 0.150 | 35,000 | 810 | 0.064 | 0.100 |
| | 1 | 41,000 | 1,660 | 0.063 | 0.040 | 45,000 | 1,560 | 0.100 | 0.300 | 36,900 | 1,250 | 0.080 | 0.240 |
| | 2.5 | 41,000 | 1,660 | 0.022 | 0.040 | 40,000 | 1,000 | 0.100 | 0.200 | 31,500 | 800 | 0.080 | 0.160 |
| RO.6 | 3 | 34,000 | 1,740 | 0.650 | 0.400 | 40,100 | 1,550 | 0.100 | 0.280 | 32,800 | 1,250 | 0.800 | 0.266 |
| | 1.5 | 27,000 | 1,830 | 0.087 | 0.068 | 35,000 | 1,600 | 0.150 | 0.450 | 28,700 | 1,280 | 0.120 | 0.360 |
| | 4 | 27,000 | 1,830 | 0.052 | 0.068 | 34,500 | 1,000 | 0.145 | 0.325 | 26,000 | 800 | 0.120 | 0.260 |
| | 2 | 20,000 | 1,780 | 0.112 | 0.089 | 30,000 | 1,850 | 0.200 | 0.600 | 24,600 | 1,480 | 0.160 | 0.480 |
| | 5 | 20,000 | 1,780 | 0.070 | 0.091 | 27,000 | 1,450 | 0.200 | 0.485 | 22,800 | 1,100 | 0.160 | 0.388 |
| R1.25 | 6 | 16,000 | 1,840 | 0.067 | 0.115 | 25,500 | 1,600 | 0.250 | 0.542 | 21,000 | 1,280 | 0.200 | 0.430 |
| | 3 | 13,000 | 2,220 | 0.197 | 0.171 | 25,500 | 2,520 | 0.300 | 0.957 | 21,000 | 2,050 | 0.240 | 0.766 |
| | 8 | 13,000 | 2,220 | 0.100 | 0.171 | 25,500 | 2,350 | 0.300 | 0.765 | 21,000 | 18,800 | 0.240 | 0.612 |
| R1.75 | 8 | 11,500 | 2,150 | 0.183 | 0.190 | 23,000 | 2,400 | 0.350 | 1.073 | 19,150 | 10,380 | 0.280 | 0.856 |
| R2 | 4 | 10,000 | 2,080 | 0.266 | 0.208 | 21,000 | 2,450 | 0.400 | 1.380 | 17,300 | 1,960 | 0.320 | 1.100 |
| | 8 | 10,000 | 2,080 | 0.134 | 0.208 | 21,000 | 2,350 | 0.400 | 1.020 | 17,300 | 1,880 | 0.320 | 0.816 |
| R2.5 | 5 | 8,300 | 1,990 | 0.215 | 0.240 | 18,000 | 2,560 | 0.500 | 1.660 | 14,800 | 2,050 | 0.400 | 1.330 |
| | 8 | 8,300 | 1,990 | 0.200 | 0.240 | 18,000 | 2,450 | 0.500 | 1.500 | 14,800 | 1,960 | 0.400 | 1.200 |
| | 10 | 8,300 | 1,990 | 0.190 | 0.240 | 18,000 | 2,400 | 0.500 | 1.300 | 14,800 | 1,900 | 0.400 | 1.020 |
| R3 | 6 | 6,900 | 1,940 | 0.290 | 0.281 | 16,000 | 2,700 | 0.600 | 2.340 | 13,000 | 2,160 | 0.480 | 1.870 |
| | 10 | 6,900 | 1,940 | 0.250 | 0.281 | 16,000 | 2,500 | 0.600 | 1.800 | 13,000 | 2,000 | 0.480 | 1.440 |
| | 12 | 6,900 | 1,940 | 0.230 | 0.281 | 16,000 | 2,400 | 0.600 | 1.530 | 13,000 | 1,920 | 0.480 | 1.225 |
| R3.5 | 14 | 6,310 | 1,470 | 0.315 | 0.228 | 14,500 | 2,350 | 0.700 | 2.315 | 11,625 | 1,880 | 0.560 | 1.853 |
| | 8 | 5,720 | 1,000 | 0.400 | 0.175 | 12,500 | 2,300 | 0.800 | 3.100 | 10,250 | 1,840 | 0.640 | 2.480 |
| | 14 | 5,720 | 1,000 | 0.400 | 0.175 | 12,500 | 2,000 | 0.800 | 2.050 | 10,250 | 1,600 | 0.640 | 1.640 |
| R4.5 | 16 | 5,135 | 850 | 0.450 | 0.165 | 11,000 | 2,100 | 0.900 | 2.900 | 9,450 | 1,690 | 0.720 | 2.320 |
| | 10 | 4,550 | 700 | 0.500 | 0.154 | 10,500 | 2,200 | 1.000 | 3.750 | 8,650 | 1,780 | 0.800 | 3.000 |
| R5 | 15 | 4,550 | 700 | 0.500 | 0.154 | 10,500 | 1,900 | 1.000 | 3.000 | 8,650 | 1,520 | 0.800 | 2.400 |
| | 18 | 4,550 | 700 | 0.500 | 0.154 | 10,500 | 1,700 | 1.000 | 2.550 | 8,650 | 1,360 | 0.800 | 2.040 |
| R5.5 | 20 | 4,160 | 650 | 0.550 | 0.157 | 10,000 | 1,700 | 1.100 | 3.075 | 8,015 | 1,360 | 0.880 | 2.460 |
| | 18 | 3,770 | 600 | 0.600 | 0.159 | 9,000 | 1,700 | 1.200 | 3.600 | 7,380 | 1,360 | 0.960 | 2.880 |
| | 22 | 3,770 | 600 | 0.600 | 0.159 | 9,000 | 1,850 | 1.200 | 4.420 | 7,380 | 1,480 | 0.960 | 3.540 |
| R6.5 | 24 | 3,728 | 653 | 0.549 | 0.156 | 9,000 | 1,825 | 1.098 | 3.938 | 7,193 | 1,540 | 0.878 | 3.152 |
| R7 | 24 | 3,686 | 706 | 0.498 | 0.153 | 7,000 | 1,800 | 0.996 | 3.456 | 7,007 | 1,600 | 0.797 | 2.765 |
| R8 | 30 | 2,985 | 600 | 0.413 | 0.147 | 7,000 | 1,700 | 0.827 | 3.318 | 5,675 | 1,360 | 0.661 | 2.654 |
| R10 | 38 | 2,429 | 360 | 0.276 | 0.133 | 7,000 | 1,600 | 0.551 | 3.015 | 4,617 | 816 | 0.441 | 2.412 |

Depth of Cut



- Ap : Axial Depth
- Ae : Radial Depth
- Vf : Feed



Ø0.1~Ø0.9 Ø1~Ø5 Ø6~Ø12

Shield Edge

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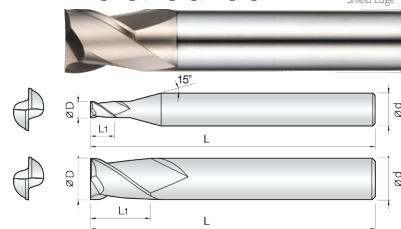
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- 选择高抗折力超微粒子钨钴合金, 铣刀破损最少化。



| Size | D Tolerance |
|--------|---------------|
| D < Ø1 | +0 ~ -0.005mm |
| D ≤ Ø5 | +0 ~ -0.01mm |
| D > Ø5 | +0 ~ -0.02mm |

单位/Unit : mm

| 订货号 Order Number | 刃径 Diameter | | 刃長 Length of cut | | 全长 Overall Length | | 柄径 Shank Dia | |
|---------------------|----------------|-----|---------------------|----|----------------------|---|-----------------|---|
| | D | L1 | L1 | L | L | L | d | d |
| 2HGE 001 002 S04 | 0.1 | 0.2 | 0.2 | 38 | 4 | | | |
| 2HGE 002 004 S04 | 0.2 | 0.4 | 0.4 | 38 | 4 | | | |
| 2HGE 003 006 S04 | 0.3 | 0.6 | 0.6 | 38 | 4 | | | |
| 2HGE 004 008 S04 | 0.4 | 0.8 | 0.8 | 38 | 4 | | | |
| 2HGE 005 010 S04 | 0.5 | 1 | 1 | 38 | 4 | | | |
| 2HGE 006 012 S04 | 0.6 | 1.2 | 1.2 | 38 | 4 | | | |
| 2HGE 007 014 S04 | 0.7 | 1.4 | 1.4 | 38 | 4 | | | |
| 2HGE 008 016 S04 | 0.8 | 1.6 | 1.6 | 38 | 4 | | | |
| 2HGE 009 020 S04 | 0.9 | 2 | 2 | 38 | 4 | | | |
| 2HGE 010 010 S04 | 1 | 1 | 1 | 40 | 4 | | | |
| 2HGE 010 025 S04 | 1 | 2.5 | 2.5 | 40 | 4 | | | |
| 2HGE 010 025 S06 | 1 | 2.5 | 2.5 | 40 | 6 | | | |
| 2HGE 010 040 S06 | 1 | 4 | 4 | 50 | 6 | | | |
| 2HGE 011 027 S04 | 1.1 | 2.7 | 2.7 | 40 | 4 | | | |
| 2HGE 012 012 S04 | 1.2 | 1.2 | 1.2 | 40 | 4 | | | |
| 2HGE 012 030 S04 | 1.2 | 3 | 3 | 40 | 4 | | | |
| 2HGE 012 030 S06 | 1.2 | 3 | 3 | 40 | 6 | | | |
| 2HGE 012 030 060 | 1.2 | 3 | 3 | 60 | 6 | | | |
| 2HGE 012 060 S06 | 1.2 | 6 | 6 | 50 | 6 | | | |
| 2HGE 013 032 S04 | 1.3 | 3.2 | 3.2 | 40 | 4 | | | |
| 2HGE 014 035 S04 | 1.4 | 3.5 | 3.5 | 40 | 4 | | | |
| 2HGE 015 015 S04 | 1.5 | 1.5 | 1.5 | 40 | 4 | | | |
| 2HGE 015 040 S04 | 1.5 | 4 | 4 | 40 | 4 | | | |
| 2HGE 015 040 S06 | 1.5 | 4 | 4 | 40 | 6 | | | |
| 2HGE 015 040 060 | 1.5 | 4 | 4 | 60 | 6 | | | |
| 2HGE 016 040 S04 | 1.6 | 4 | 4 | 40 | 4 | | | |
| 2HGE 017 042 S04 | 1.7 | 4.2 | 4.2 | 40 | 4 | | | |
| 2HGE 018 045 S04 | 1.8 | 4.5 | 4.5 | 40 | 4 | | | |
| 2HGE 019 050 S04 | 1.9 | 5 | 5 | 40 | 4 | | | |
| 2HGE 020 020 S04 | 2 | 2 | 2 | 40 | 4 | | | |
| 2HGE 020 060 S04 | 2 | 6 | 6 | 40 | 4 | | | |
| 2HGE 020 060 S06 | 2 | 6 | 6 | 40 | 6 | | | |
| 2HGE 020 060 060 | 2 | 6 | 6 | 60 | 6 | | | |
| 2HGE 021 060 S04 | 2.1 | 6 | 6 | 40 | 4 | | | |
| 2HGE 022 060 S04 | 2.2 | 6 | 6 | 40 | 4 | | | |
| 2HGE 023 060 S04 | 2.3 | 6 | 6 | 40 | 4 | | | |
| 2HGE 024 080 S04 | 2.4 | 8 | 8 | 45 | 4 | | | |
| 2HGE 025 080 S04 | 2.5 | 8 | 8 | 45 | 4 | | | |
| 2HGE 025 080 S06 | 2.5 | 8 | 8 | 45 | 6 | | | |
| 2HGE 025 080 070 | 2.5 | 8 | 8 | 70 | 6 | | | |
| 2HGE 026 080 S04 | 2.6 | 8 | 8 | 45 | 4 | | | |
| 2HGE 027 080 S04 | 2.7 | 8 | 8 | 45 | 4 | | | |
| 2HGE 028 080 S04 | 2.8 | 8 | 8 | 45 | 4 | | | |

| 订货号 Order Number | 刃径 Diameter | | 刃長 Length of cut | | 全长 Overall Length | | 柄径 Shank Dia | |
|---------------------|----------------|----|---------------------|-----|----------------------|---|-----------------|---|
| | D | L1 | L1 | L | L | L | d | d |
| 2HGE 029 080 S04 | 2.9 | 8 | 8 | 45 | 4 | | | |
| 2HGE 030 030 S04 | 3 | 3 | 3 | 40 | 4 | | | |
| 2HGE 030 080 S04 | 3 | 8 | 8 | 45 | 4 | | | |
| 2HGE 030 080 S06 | 3 | 8 | 8 | 45 | 6 | | | |
| 2HGE 030 080 070 | 3 | 8 | 8 | 70 | 6 | | | |
| 2HGE 035 100 S06 | 3.5 | 10 | 10 | 45 | 6 | | | |
| 2HGE 040 040 S04 | 4 | 4 | 4 | 40 | 4 | | | |
| 2HGE 040 100 S04 | 4 | 10 | 10 | 45 | 4 | | | |
| 2HGE 040 110 S06 | 4 | 11 | 11 | 45 | 6 | | | |
| 2HGE 040 110 070 | 4 | 11 | 11 | 70 | 6 | | | |
| 2HGE 045 110 S06 | 4.5 | 11 | 11 | 45 | 6 | | | |
| 2HGE 050 130 S06 | 5 | 13 | 13 | 50 | 6 | | | |
| 2HGE 050 130 080 | 5 | 13 | 13 | 80 | 6 | | | |
| 2HGE 055 130 S06 | 5.5 | 13 | 13 | 50 | 6 | | | |
| 2HGE 060 060 S06 | 6 | 6 | 6 | 45 | 6 | | | |
| 2HGE 060 130 S06 | 6 | 13 | 13 | 50 | 6 | | | |
| 2HGE 060 130 080 | 6 | 13 | 13 | 80 | 6 | | | |
| 2HGE 060 150 S06 | 6 | 15 | 15 | 60 | 6 | | | |
| 2HGE 065 160 S08 | 6.5 | 16 | 16 | 60 | 8 | | | |
| 2HGE 070 160 S08 | 7 | 16 | 16 | 60 | 8 | | | |
| 2HGE 075 160 S08 | 7.5 | 16 | 16 | 60 | 8 | | | |
| 2HGE 080 080 S08 | 8 | 8 | 8 | 50 | 8 | | | |
| 2HGE 080 190 S08 | 8 | 19 | 19 | 60 | 8 | | | |
| 2HGE 080 200 S08 | 8 | 20 | 20 | 70 | 8 | | | |
| 2HGE 085 190 S10 | 8.5 | 19 | 19 | 70 | 10 | | | |
| 2HGE 090 190 S10 | 9 | 19 | 19 | 70 | 10 | | | |
| 2HGE 095 190 S10 | 9.5 | 19 | 19 | 70 | 10 | | | |
| 2HGE 100 100 S10 | 10 | 10 | 10 | 60 | 10 | | | |
| 2HGE 100 220 S10 | 10 | 22 | 22 | 70 | 10 | | | |
| 2HGE 100 250 S10 | 10 | 25 | 25 | 75 | 10 | | | |
| 2HGE 105 220 S12 | 10.5 | 22 | 22 | 75 | 12 | | | |
| 2HGE 110 220 S12 | 11 | 22 | 22 | 75 | 12 | | | |
| 2HGE 115 220 S12 | 11.5 | 22 | 22 | 75 | 12 | | | |
| 2HGE 120 120 S12 | 12 | 12 | 12 | 65 | 12 | | | |
| 2HGE 120 260 S12 | 12 | 26 | 26 | 75 | 12 | | | |
| 2HGE 120 300 S12 | 12 | 30 | 30 | 80 | 12 | | | |
| 2HGE 140 260 S14 | 14 | 26 | 26 | 80 | 14 | | | |
| 2HGE 140 260 S16 | 14 | 26 | 26 | 85 | 16 | | | |
| 2HGE 160 350 S16 | 16 | 35 | 35 | 100 | 16 | | | |
| 2HGE 160 400 S16 | 16 | 40 | 40 | 100 | 16 | | | |
| 2HGE 180 350 S18 | 18 | 35 | 35 | 100 | 18 | | | |
| 2HGE 200 400 S20 | 20 | 40 | 40 | 100 | 20 | | | |
| 2HGE 200 500 S20 | 20 | 50 | 50 | 110 | 20 | | | |



4 Flutes Standard Length End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC garde.

4刃 汎用 標準 長さ エンドミル

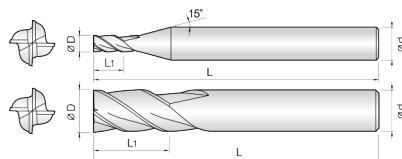
中低硬度鋼(HRC52以下),プレハードン鋼系列,炭素鋼,金型鋼など多様な被削材加工

- 高精度公差 適用で超精密加工に適合します。
- 抗折力が高い超微粒子 超硬合金を採択して,高移送 作業時 エンドミルの破損を最小化しました。

4刃標準铣刀

中低硬度鋼(HRC52以下), 预硬化钢系列的, 碳素钢, 模具钢等加工多样被削材加工

- 适用高精度公差, 适合超精密加工。
- 选择高抗折力超微粒钨钢合金, 铣刀破损最少化。



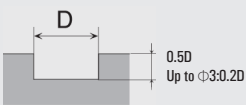
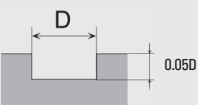
| Size | D Tolerance |
|--------|--------------|
| D ≤ Ø5 | +0 ~ -0.01mm |
| D > Ø5 | +0 ~ -0.02mm |

单位/Unit: mm

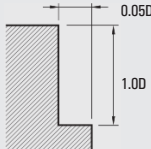
| 订货号 Order Number | 刃径 Diameter D | 刃長 Length of cut L1 | 全长 Overall Length L | 柄径 Shank Dia d |
|---------------------|---------------------|---------------------------|---------------------------|----------------------|
| 4HGE 008 020 S04 | 0.8 | 2 | 40 | 4 |
| 4HGE 010 010 S04 | 1 | 1 | 40 | 4 |
| 4HGE 010 025 S04 | 1 | 2.5 | 40 | 4 |
| 4HGE 010 025 S06 | 1 | 2.5 | 40 | 6 |
| 4HGE 010 025 060 | 1 | 2.5 | 60 | 6 |
| 4HGE 010 025 080 | 1 | 2.5 | 80 | 6 |
| 4HGE 010 040 S06 | 1 | 4 | 50 | 6 |
| 4HGE 012 012 S04 | 1.2 | 1.2 | 40 | 4 |
| 4HGE 012 030 S04 | 1.2 | 3 | 40 | 4 |
| 4HGE 012 030 S06 | 1.2 | 3 | 40 | 6 |
| 4HGE 012 030 060 | 1.2 | 3 | 60 | 6 |
| 4HGE 012 060 S06 | 1.2 | 6 | 50 | 6 |
| 4HGE 015 015 S04 | 1.5 | 1.5 | 40 | 4 |
| 4HGE 015 040 S04 | 1.5 | 4 | 40 | 4 |
| 4HGE 015 040 S06 | 1.5 | 4 | 40 | 6 |
| 4HGE 015 040 060 | 1.5 | 4 | 60 | 6 |
| 4HGE 015 040 080 | 1.5 | 4 | 80 | 6 |
| 4HGE 020 020 S04 | 2 | 2 | 40 | 4 |
| 4HGE 020 060 S04 | 2 | 6 | 40 | 4 |
| 4HGE 020 060 S06 | 2 | 6 | 40 | 6 |
| 4HGE 020 060 060 | 2 | 6 | 60 | 6 |
| 4HGE 020 060 100 | 2 | 6 | 100 | 6 |
| 4HGE 025 080 S04 | 2.5 | 8 | 45 | 4 |
| 4HGE 025 080 S06 | 2.5 | 8 | 45 | 6 |
| 4HGE 025 080 070 | 2.5 | 8 | 70 | 6 |
| 4HGE 025 080 100 | 2.5 | 8 | 100 | 6 |
| 4HGE 030 080 S03 | 3 | 8 | 45 | 3 |
| 4HGE 030 080 S04 | 3 | 8 | 45 | 4 |
| 4HGE 030 080 S06 | 3 | 8 | 45 | 6 |
| 4HGE 030 080 070 | 3 | 8 | 70 | 6 |
| 4HGE 030 080 100 | 3 | 8 | 100 | 6 |
| 4HGE 035 100 S06 | 3.5 | 10 | 45 | 6 |
| 4HGE 040 040 S04 | 4 | 4 | 40 | 4 |
| 4HGE 040 110 S04 | 4 | 11 | 45 | 4 |
| 4HGE 040 110 S06 | 4 | 11 | 45 | 6 |
| 4HGE 040 110 070 | 4 | 11 | 70 | 6 |
| 4HGE 040 110 100 | 4 | 11 | 100 | 6 |
| 4HGE 045 110 S06 | 4.5 | 11 | 45 | 6 |
| 4HGE 050 130 S06 | 5 | 13 | 50 | 6 |
| 4HGE 050 130 080 | 5 | 13 | 80 | 6 |

| 订货号 Order Number | 刃径 Diameter D | 刃長 Length of cut L1 | 全长 Overall Length L | 柄径 Shank Dia d |
|---------------------|---------------------|---------------------------|---------------------------|----------------------|
| 4HGE 050 130 100 | 5 | 13 | 100 | 6 |
| 4HGE 055 130 S06 | 5.5 | 13 | 50 | 6 |
| 4HGE 060 060 S06 | 6 | 6 | 45 | 6 |
| 4HGE 060 130 S06 | 6 | 13 | 50 | 6 |
| 4HGE 060 130 080 | 6 | 13 | 80 | 6 |
| 4HGE 060 130 100 | 6 | 13 | 100 | 6 |
| 4HGE 060 150 S06 | 6 | 15 | 60 | 6 |
| 4HGE 065 160 S08 | 6.5 | 16 | 60 | 8 |
| 4HGE 070 160 S08 | 7 | 16 | 60 | 8 |
| 4HGE 075 160 S08 | 7.5 | 16 | 60 | 8 |
| 4HGE 080 080 S08 | 8 | 8 | 50 | 8 |
| 4HGE 080 190 S08 | 8 | 19 | 60 | 8 |
| 4HGE 080 200 S08 | 8 | 20 | 70 | 8 |
| 4HGE 085 190 S10 | 8.5 | 19 | 70 | 10 |
| 4HGE 090 190 S10 | 9 | 19 | 70 | 10 |
| 4HGE 095 190 S10 | 9.5 | 19 | 70 | 10 |
| 4HGE 100 100 S10 | 10 | 10 | 60 | 10 |
| 4HGE 100 220 S10 | 10 | 22 | 70 | 10 |
| 4HGE 100 250 S10 | 10 | 25 | 75 | 10 |
| 4HGE 105 220 S12 | 10.5 | 22 | 75 | 12 |
| 4HGE 110 220 S12 | 11 | 22 | 75 | 12 |
| 4HGE 115 220 S12 | 11.5 | 22 | 75 | 12 |
| 4HGE 120 120 S12 | 12 | 12 | 65 | 12 |
| 4HGE 120 260 S12 | 12 | 26 | 75 | 12 |
| 4HGE 120 300 S12 | 12 | 30 | 80 | 12 |
| 4HGE 140 260 S14 | 14 | 26 | 80 | 14 |
| 4HGE 140 260 S16 | 14 | 26 | 85 | 16 |
| 4HGE 160 350 S16 | 16 | 35 | 100 | 16 |
| 4HGE 160 400 S16 | 16 | 40 | 100 | 16 |
| 4HGE 180 350 S18 | 18 | 35 | 100 | 18 |
| 4HGE 200 400 S20 | 20 | 40 | 100 | 20 |
| 4HGE 200 450 S20 | 20 | 45 | 100 | 20 |

| Material | Carbon Steels / Alloy Steels SCM / SNCM / S45C | | Prehardened Steels NAK / CENA / KP4 | | Stainless Steels SUS | | Hardened Steels SKD / SKT / STAVAX | |
|------------------|--|------|--|------|-------------------------|------|---------------------------------------|------|
| Hardness | ~ 35 HRC | | 35 ~ 45 HRC | | | | 45 ~ 55HRC | |
| Strength | ~ 1,100N/mm ² | | 1,100 ~ 1,500N/mm ² | | | | 1500 ~ 2000N/mm ² | |
| Outside Diameter | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED |
| 1mm | 13,020 | 170 | 9,000 | 100 | 8,100 | 70 | 7,020 | 30 |
| 1.5mm | 12,300 | 180 | 8,880 | 110 | 7,360 | 80 | 5,940 | 30 |
| 2mm | 11,560 | 190 | 7,560 | 120 | 6,300 | 90 | 5,040 | 35 |
| 2.5mm | 10,300 | 200 | 6,620 | 130 | 5,480 | 110 | 4,320 | 35 |
| 3mm | 8,920 | 210 | 5,560 | 140 | 4,620 | 120 | 3,360 | 40 |
| 4mm | 7,560 | 300 | 4,620 | 180 | 3,880 | 150 | 2,940 | 40 |
| 5mm | 6,300 | 320 | 3,780 | 190 | 3,160 | 160 | 2,320 | 50 |
| 6mm | 5,560 | 350 | 3,360 | 220 | 2,840 | 180 | 2,000 | 55 |
| 8mm | 4,200 | 380 | 2,520 | 200 | 2,100 | 180 | 1,680 | 75 |
| 10mm | 3,260 | 330 | 2,000 | 160 | 1,680 | 160 | 1,360 | 60 |
| 12mm | 2,740 | 280 | 1,680 | 130 | 1,360 | 130 | 1,160 | 55 |
| 16mm | 2,200 | 220 | 1,360 | 110 | 1,060 | 110 | 900 | 40 |
| 20mm | 1,680 | 170 | 1,060 | 80 | 840 | 80 | 680 | 30 |

| | | |
|--------------|---|--|
| Depth of Cut |  |  |
|--------------|---|--|

| Material | Carbon Steels / Alloy Steels SCM / SNCM / S45C | | Prehardened Steels NAK / CENA / KP4 | | Stainless Steels SUS | | Hardened Steels SKD / SKT / STAVAX | |
|------------------|--|------|--|------|-------------------------|------|---------------------------------------|------|
| Hardness | ~ 35 HRC | | 35 ~ 45 HRC | | | | 45 ~ 55HRC | |
| Strength | ~ 1100N/mm ² | | 1100 ~ 1500N/mm ² | | | | 1500 ~ 2000N/mm ² | |
| Outside Diameter | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED |
| 2mm | 11,560 | 280 | 7,560 | 170 | 6,300 | 140 | 5,040 | 50 |
| 3mm | 8,920 | 320 | 5,560 | 200 | 4,620 | 170 | 3,360 | 60 |
| 4mm | 7,560 | 570 | 4,620 | 350 | 3,880 | 280 | 2,940 | 60 |
| 5mm | 6,300 | 600 | 3,780 | 360 | 3,160 | 300 | 2,320 | 70 |
| 6mm | 5,560 | 660 | 3,360 | 410 | 2,840 | 330 | 2,000 | 80 |
| 8mm | 4,200 | 710 | 2,520 | 380 | 2,100 | 350 | 1,680 | 110 |
| 10mm | 3,260 | 610 | 2,000 | 300 | 1,680 | 300 | 1,360 | 90 |
| 12mm | 2,740 | 520 | 1,680 | 250 | 1,360 | 240 | 1,160 | 80 |
| 14mm | 2,420 | 510 | 1,460 | 225 | 1,210 | 220 | 960 | 70 |
| 16mm | 2,200 | 410 | 1,360 | 200 | 1,100 | 200 | 900 | 60 |
| 18mm | 1820 | 350 | 1210 | 180 | 950 | 175 | 820 | 50 |
| 20mm | 1,680 | 320 | 1,060 | 160 | 840 | 150 | 680 | 40 |

| | |
|--------------|---|
| Depth of Cut |  |
|--------------|---|



0.4 - 0.6 0.8 - 0.12

2 Flutes Corner Radius End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

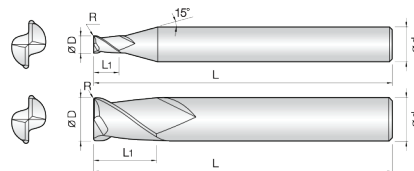
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.



2刃汎用コーナーラジウスエンドミル

中低硬度鋼(HRC52以下), プレハードン鋼系列, 炭素鋼, 金型鋼など多様な被削材加工

- コーナーR形状を刃部チップングが少ないように設計しました。
- 高精密公差適用で超精密加工に適合します。
- 抗折力が高い超微粒子超硬合金を採択して, 高移送作業時エンドミルの破損を最小化しました。



2刃锥形半径铣刀

中低硬度鋼(HRC52以下), 预硬化鋼系列, 碳素鋼, 模具鋼等加工多样被削材加工

- 角落R形状设计, 优秀的排出碎屑。
- 适用高精密公差, 适合超精密加工。
- 选择高抗折力超微粒钨钢合金, 铣刀破损最少化。

| Size | D Tolerance |
|--------|---------------|
| D ≤ Ø6 | +0 ~ -0.01mm |
| D > Ø6 | +0 ~ -0.015mm |

単位/Unit : mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | DxR | L1 | L | d |
| 2NGR 004 0005 S04 | 0.4XR0.05 | 0.8 | 45 | 4 |
| 2NGR 004 001 S04 | 0.4XR0.1 | 0.8 | 45 | 4 |
| 2NGR 005 0005 S04 | 0.5XR0.05 | 1 | 45 | 4 |
| 2NGR 005 001 S04 | 0.5XR0.1 | 1 | 45 | 4 |
| 2NGR 006 0005 S04 | 0.6XR0.05 | 1.2 | 45 | 4 |
| 2NGR 006 001 S04 | 0.6XR0.1 | 1.2 | 45 | 4 |
| 2NGR 006 002 S04 | 0.6XR0.2 | 1.2 | 45 | 4 |
| 2NGR 007 0005 S04 | 0.7XR0.05 | 1.4 | 45 | 4 |
| 2NGR 007 001 S04 | 0.7XR0.1 | 1.4 | 45 | 4 |
| 2NGR 007 002 S04 | 0.7XR0.2 | 1.4 | 45 | 4 |
| 2NGR 008 0005 S04 | 0.8XR0.05 | 1.6 | 45 | 4 |
| 2NGR 008 001 S04 | 0.8XR0.1 | 1.6 | 45 | 4 |
| 2NGR 008 002 S04 | 0.8XR0.2 | 1.6 | 45 | 4 |
| 2NGR 009 0005 S04 | 0.9XR0.05 | 1.8 | 45 | 4 |
| 2NGR 009 001 S04 | 0.9XR0.1 | 1.8 | 45 | 4 |
| 2NGR 010 001 S04 | 1XR0.1 | 2.5 | 45 | 4 |
| 2NGR 010 002 S04 | 1XR0.2 | 2.5 | 45 | 4 |
| 2NGR 010 003 S04 | 1XR0.3 | 2.5 | 45 | 4 |
| 2NGR 012 001 S04 | 1.2XR0.1 | 3.2 | 45 | 4 |
| 2NGR 012 002 S04 | 1.2XR0.2 | 3.2 | 45 | 4 |
| 2NGR 012 003 S04 | 1.2XR0.3 | 3.2 | 45 | 4 |
| 2NGR 015 001 S04 | 1.5XR0.1 | 4 | 45 | 4 |
| 2NGR 015 002 S04 | 1.5XR0.2 | 4 | 45 | 4 |
| 2NGR 015 003 S04 | 1.5XR0.3 | 4 | 45 | 4 |
| 2NGR 015 005 S04 | 1.5XR0.5 | 4 | 45 | 4 |
| 2NGR 020 001 S04 | 2XR0.1 | 6 | 45 | 4 |
| 2NGR 020 002 S04 | 2XR0.2 | 6 | 45 | 4 |
| 2NGR 020 003 S04 | 2XR0.3 | 6 | 45 | 4 |
| 2NGR 020 005 S04 | 2XR0.5 | 6 | 45 | 4 |
| 2NGR 025 001 S04 | 2.5XR0.1 | 6 | 50 | 4 |
| 2NGR 025 002 S04 | 2.5XR0.2 | 6 | 50 | 4 |
| 2NGR 025 003 S04 | 2.5XR0.3 | 6 | 50 | 4 |
| 2NGR 025 005 S04 | 2.5XR0.5 | 6 | 50 | 4 |
| 2NGR 030 001 S06 | 3XR0.1 | 8 | 60 | 6 |
| 2NGR 030 002 S06 | 3XR0.2 | 8 | 60 | 6 |
| 2NGR 030 003 S06 | 3XR0.3 | 8 | 60 | 6 |
| 2NGR 030 005 S06 | 3XR0.5 | 8 | 60 | 6 |
| 2NGR 030 010 S06 | 3XR1 | 8 | 60 | 6 |
| 2NGR 040 001 060 | 4XR0.1 | 9 | 60 | 4 |
| 2NGR 040 001 080 | 4XR0.1 | 9 | 80 | 4 |
| 2NGR 040 001 S06 | 4XR0.1 | 10 | 70 | 6 |
| 2NGR 040 002 060 | 4XR0.2 | 9 | 60 | 4 |
| 2NGR 040 002 080 | 4XR0.2 | 9 | 80 | 4 |

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | DxR | L1 | L | d |
| 2NGR 040 002 S06 | 4XR0.2 | 10 | 70 | 6 |
| 2NGR 040 003 060 | 4XR0.3 | 9 | 60 | 4 |
| 2NGR 040 003 080 | 4XR0.3 | 9 | 80 | 4 |
| 2NGR 040 003 S06 | 4XR0.3 | 10 | 70 | 6 |
| 2NGR 040 005 060 | 4XR0.5 | 9 | 60 | 4 |
| 2NGR 040 005 080 | 4XR0.5 | 9 | 80 | 4 |
| 2NGR 040 005 S06 | 4XR0.5 | 10 | 70 | 6 |
| 2NGR 040 010 060 | 4XR1 | 9 | 60 | 4 |
| 2NGR 040 010 080 | 4XR1 | 9 | 80 | 4 |
| 2NGR 040 010 S06 | 4XR1 | 10 | 70 | 6 |
| 2NGR 050 001 S06 | 5XR0.1 | 13 | 75 | 6 |
| 2NGR 050 002 S06 | 5XR0.2 | 13 | 75 | 6 |
| 2NGR 050 003 S06 | 5XR0.3 | 13 | 75 | 6 |
| 2NGR 050 005 S06 | 5XR0.5 | 13 | 75 | 6 |
| 2NGR 050 010 S06 | 5XR1 | 13 | 75 | 6 |
| 2NGR 060 001 060 | 6XR0.1 | 11 | 60 | 6 |
| 2NGR 060 001 090 | 6XR0.1 | 13 | 90 | 6 |
| 2NGR 060 002 060 | 6XR0.2 | 11 | 60 | 6 |
| 2NGR 060 002 090 | 6XR0.2 | 13 | 90 | 6 |
| 2NGR 060 003 060 | 6XR0.3 | 11 | 60 | 6 |
| 2NGR 060 003 090 | 6XR0.3 | 13 | 90 | 6 |
| 2NGR 060 005 060 | 6XR0.5 | 11 | 60 | 6 |
| 2NGR 060 005 090 | 6XR0.5 | 13 | 90 | 6 |
| 2NGR 060 010 060 | 6XR1 | 11 | 60 | 6 |
| 2NGR 060 010 090 | 6XR1 | 13 | 90 | 6 |
| 2NGR 060 015 060 | 6XR1.5 | 11 | 60 | 6 |
| 2NGR 060 015 090 | 6XR1.5 | 13 | 90 | 6 |
| 2NGR 060 020 060 | 6XR2 | 11 | 60 | 6 |
| 2NGR 060 020 090 | 6XR2 | 13 | 90 | 6 |
| 2NGR 060 025 090 | 6XR2.5 | 13 | 90 | 6 |
| 2NGR 080 001 070 | 8XR0.1 | 16 | 70 | 8 |
| 2NGR 080 001 100 | 8XR0.1 | 19 | 100 | 8 |
| 2NGR 080 002 070 | 8XR0.2 | 16 | 70 | 8 |
| 2NGR 080 002 100 | 8XR0.2 | 19 | 100 | 8 |
| 2NGR 080 003 070 | 8XR0.3 | 16 | 70 | 8 |
| 2NGR 080 003 100 | 8XR0.3 | 19 | 100 | 8 |
| 2NGR 080 005 070 | 8XR0.5 | 16 | 70 | 8 |
| 2NGR 080 005 100 | 8XR0.5 | 19 | 100 | 8 |
| 2NGR 080 005 120 | 8XR0.5 | 19 | 120 | 8 |
| 2NGR 080 010 070 | 8XR1 | 16 | 70 | 8 |
| 2NGR 080 010 100 | 8XR1 | 19 | 100 | 8 |
| 2NGR 080 010 120 | 8XR1 | 19 | 120 | 8 |
| 2NGR 080 015 070 | 8XR1.5 | 16 | 70 | 8 |



084-06 08-012

单位/Unit:mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | DxR | L1 | L | d |
| 2NGR 080 015 100 | 8XR1.5 | 19 | 100 | 8 |
| 2NGR 080 020 070 | 8XR2 | 16 | 70 | 8 |
| 2NGR 080 020 100 | 8XR2 | 19 | 100 | 8 |
| 2NGR 080 025 100 | 8XR2.5 | 19 | 100 | 8 |
| 2NGR 080 030 100 | 8XR3 | 19 | 100 | 8 |
| 2NGR 080 035 100 | 8XR3.5 | 19 | 100 | 8 |
| 2NGR 100 001 075 | 10XR0.1 | 19 | 75 | 10 |
| 2NGR 100 001 100 | 10XR0.1 | 22 | 100 | 10 |
| 2NGR 100 002 075 | 10XR0.2 | 19 | 75 | 10 |
| 2NGR 100 002 100 | 10XR0.2 | 22 | 100 | 10 |
| 2NGR 100 003 075 | 10XR0.3 | 19 | 75 | 10 |
| 2NGR 100 003 100 | 10XR0.3 | 22 | 100 | 10 |
| 2NGR 100 005 075 | 10XR0.5 | 19 | 75 | 10 |
| 2NGR 100 005 100 | 10XR0.5 | 22 | 100 | 10 |
| 2NGR 100 005 130 | 10XR0.5 | 22 | 130 | 10 |
| 2NGR 100 010 075 | 10XR1 | 19 | 75 | 10 |
| 2NGR 100 010 100 | 10XR1 | 22 | 100 | 10 |
| 2NGR 100 010 130 | 10XR1 | 22 | 130 | 10 |
| 2NGR 100 015 075 | 10XR1.5 | 19 | 75 | 10 |
| 2NGR 100 015 100 | 10XR1.5 | 22 | 100 | 10 |
| 2NGR 100 015 130 | 10XR1.5 | 22 | 130 | 10 |
| 2NGR 100 020 075 | 10XR2 | 19 | 75 | 10 |
| 2NGR 100 020 100 | 10XR2 | 22 | 100 | 10 |
| 2NGR 100 025 100 | 10XR2.5 | 22 | 100 | 10 |

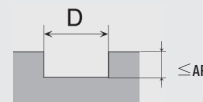
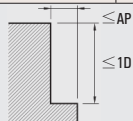
| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | DxR | L1 | L | d |
| 2NGR 100 030 100 | 10XR3 | 22 | 100 | 10 |
| 2NGR 100 040 100 | 10XR4 | 22 | 100 | 10 |
| 2NGR 120 001 080 | 12XR0.1 | 22 | 80 | 12 |
| 2NGR 120 001 110 | 12XR0.1 | 26 | 110 | 12 |
| 2NGR 120 002 080 | 12XR0.2 | 22 | 80 | 12 |
| 2NGR 120 002 110 | 12XR0.2 | 26 | 110 | 12 |
| 2NGR 120 003 080 | 12XR0.3 | 22 | 80 | 12 |
| 2NGR 120 003 110 | 12XR0.3 | 26 | 110 | 12 |
| 2NGR 120 005 080 | 12XR0.5 | 22 | 80 | 12 |
| 2NGR 120 005 110 | 12XR0.5 | 26 | 110 | 12 |
| 2NGR 120 005 130 | 12XR0.5 | 26 | 130 | 12 |
| 2NGR 120 010 080 | 12XR1 | 22 | 80 | 12 |
| 2NGR 120 010 110 | 12XR1 | 26 | 110 | 12 |
| 2NGR 120 010 130 | 12XR1 | 26 | 130 | 12 |
| 2NGR 120 015 080 | 12XR1.5 | 22 | 80 | 12 |
| 2NGR 120 015 110 | 12XR1.5 | 26 | 110 | 12 |
| 2NGR 120 015 130 | 12XR1.5 | 26 | 130 | 12 |
| 2NGR 120 020 080 | 12XR2 | 22 | 80 | 12 |
| 2NGR 120 020 110 | 12XR2 | 26 | 110 | 12 |
| 2NGR 120 020 130 | 12XR2 | 26 | 130 | 12 |
| 2NGR 120 025 110 | 12XR2.5 | 26 | 110 | 12 |
| 2NGR 120 030 110 | 12XR3 | 26 | 110 | 12 |
| 2NGR 120 040 110 | 12XR4 | 26 | 110 | 12 |
| 2NGR 120 050 110 | 12XR5 | 26 | 110 | 12 |

2NGR

• RPM : rev/min • Feed : mm/min

| Material | General Steels | | | SKD61 | | |
|----------|----------------|-------|-------|-------------|-------|-------|
| | ~ 45 HRC | | | 45 ~ 55 HRC | | |
| Hardness | RPM | FEED | Ap | RPM | FEED | Ap |
| 0.1mm | 40,000 | 40 | 0.001 | 40,000 | 40 | 0.001 |
| 0.2mm | 40,000 | 100 | 0.002 | 40,000 | 100 | 0.002 |
| 0.3mm | 40,000 | 200 | 0.005 | 40,000 | 200 | 0.005 |
| 0.4mm | 40,000 | 600 | 0.010 | 40,000 | 600 | 0.010 |
| 0.5mm | 40,000 | 1,000 | 0.015 | 40,000 | 960 | 0.015 |
| 0.6mm | 40,000 | 1,200 | 0.020 | 40,000 | 1,200 | 0.020 |
| 0.7mm | 40,000 | 1,400 | 0.020 | 40,000 | 1,400 | 0.020 |
| 0.8mm | 40,000 | 1,600 | 0.030 | 40,000 | 1,600 | 0.030 |
| 0.9mm | 40,000 | 1,800 | 0.040 | 40,000 | 1,600 | 0.040 |
| 1mm | 40,000 | 2,000 | 0.060 | 32,000 | 1,600 | 0.060 |
| 1.5mm | 40,000 | 3,000 | 0.120 | 32,000 | 1,900 | 0.080 |
| 2mm | 30,000 | 3,000 | 0.180 | 24,000 | 1,900 | 0.100 |
| 2.5mm | 24,000 | 2,600 | 0.250 | 19,000 | 1,600 | 0.130 |
| 3mm | 20,000 | 2,300 | 0.300 | 16,000 | 1,400 | 0.150 |
| 4mm | 15,000 | 2,000 | 0.400 | 12,000 | 1,200 | 0.200 |
| 5mm | 12,000 | 1,600 | 0.500 | 9,000 | 900 | 0.250 |
| 6mm | 10,000 | 1,400 | 0.600 | 7,000 | 700 | 0.300 |
| 8mm | 8,000 | 1,000 | 0.800 | 5,600 | 550 | 0.400 |
| 10mm | 6,400 | 900 | 1.000 | 4,500 | 500 | 0.500 |
| 12mm | 5,400 | 820 | 1.000 | 3,800 | 450 | 0.500 |
| 16mm | 2,400 | 380 | 3.000 | 1,200 | 100 | 0.800 |
| 20mm | 1,900 | 320 | 4.000 | 1,000 | 80 | 1.000 |

Depth of Cut





4 Flutes Corner Radius End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

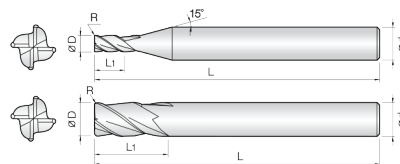
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.



4刃汎用コーナーラジウスエンドミル

中低硬度鋼(HRC52以下), プレハードン鋼系列, 炭素鋼, 金型鋼など多様な被削材加工

- コーナーR形状を刃部チップングが少ないように設計しました。
- 高精密公差適用で超精密加工に適合します。
- 抗折力が高い超微粒子超硬合金を採択して, 高移送作業時エンドミルの破損を最小化しました。



4刃锥形半径铣刀

中低硬度鋼(HRC52以下), 预硬化鋼系列的, 炭素鋼, 模具鋼等加工多样被削材加工

- 角落R形状设计, 优秀的排出碎屑。
- 适用高精密公差, 适合超精密加工。
- 选择高抗折力超微粒子钨钢合金, 铣刀破損最少化。

| Size | D Tolerance |
|--------|---------------|
| D ≤ Ø6 | +0 ~ -0.01mm |
| D > Ø6 | +0 ~ -0.015mm |

単位/Unit : mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D×R | L1 | L | d |
| 4NGR 010 0005 S04 | 1XR0.05 | 2.5 | 45 | 4 |
| 4NGR 010 001 S04 | 1XR0.1 | 2.5 | 45 | 4 |
| 4NGR 010 002 S04 | 1XR0.2 | 2.5 | 45 | 4 |
| 4NGR 010 003 S04 | 1XR0.3 | 2.5 | 45 | 4 |
| 4NGR 015 0005 S04 | 1.5XR0.05 | 4 | 45 | 4 |
| 4NGR 015 001 S04 | 1.5XR0.1 | 4 | 45 | 4 |
| 4NGR 015 002 S04 | 1.5XR0.2 | 4 | 45 | 4 |
| 4NGR 015 003 S04 | 1.5XR0.3 | 4 | 45 | 4 |
| 4NGR 015 005 S04 | 1.5XR0.5 | 4 | 45 | 4 |
| 4NGR 020 0005 S04 | 2XR0.05 | 6 | 45 | 4 |
| 4NGR 020 001 S04 | 2XR0.1 | 6 | 45 | 4 |
| 4NGR 020 002 S04 | 2XR0.2 | 6 | 45 | 4 |
| 4NGR 020 003 S04 | 2XR0.3 | 6 | 45 | 4 |
| 4NGR 020 005 S04 | 2XR0.5 | 6 | 45 | 4 |
| 4NGR 025 001 S04 | 2.5XR0.1 | 6 | 50 | 4 |
| 4NGR 025 002 S04 | 2.5XR0.2 | 6 | 50 | 4 |
| 4NGR 025 003 S04 | 2.5XR0.3 | 6 | 50 | 4 |
| 4NGR 025 005 S04 | 2.5XR0.5 | 6 | 50 | 4 |
| 4NGR 030 001 S06 | 3XR0.1 | 8 | 60 | 6 |
| 4NGR 030 002 S06 | 3XR0.2 | 8 | 60 | 6 |
| 4NGR 030 003 S06 | 3XR0.3 | 8 | 60 | 6 |
| 4NGR 030 005 S06 | 3XR0.5 | 8 | 60 | 6 |
| 4NGR 030 010 S06 | 3XR1 | 8 | 60 | 6 |
| 4NGR 040 001 060 | 4XR0.1 | 9 | 60 | 4 |
| 4NGR 040 001 080 | 4XR0.1 | 9 | 80 | 4 |
| 4NGR 040 001 S06 | 4XR0.1 | 10 | 70 | 6 |
| 4NGR 040 002 060 | 4XR0.2 | 9 | 60 | 4 |
| 4NGR 040 002 080 | 4XR0.2 | 9 | 80 | 4 |
| 4NGR 040 002 S06 | 4XR0.2 | 10 | 70 | 6 |
| 4NGR 040 003 060 | 4XR0.3 | 9 | 60 | 4 |
| 4NGR 040 003 080 | 4XR0.3 | 9 | 80 | 4 |
| 4NGR 040 003 S06 | 4XR0.3 | 10 | 70 | 6 |
| 4NGR 040 005 060 | 4XR0.5 | 9 | 60 | 4 |
| 4NGR 040 005 080 | 4XR0.5 | 9 | 80 | 4 |
| 4NGR 040 005 S06 | 4XR0.5 | 10 | 70 | 6 |
| 4NGR 040 010 060 | 4XR1 | 9 | 60 | 4 |
| 4NGR 040 010 080 | 4XR1 | 9 | 80 | 4 |
| 4NGR 040 010 S06 | 4XR1 | 10 | 70 | 6 |

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D×R | L1 | L | d |
| 4NGR 050 001 S06 | 5XR0.1 | 13 | 75 | 6 |
| 4NGR 050 002 S06 | 5XR0.2 | 13 | 75 | 6 |
| 4NGR 050 003 S06 | 5XR0.3 | 13 | 75 | 6 |
| 4NGR 050 005 S06 | 5XR0.5 | 13 | 75 | 6 |
| 4NGR 050 010 S06 | 5XR1 | 13 | 75 | 6 |
| 4NGR 060 001 060 | 6XR0.1 | 11 | 60 | 6 |
| 4NGR 060 001 080 | 6XR0.1 | 13 | 80 | 6 |
| 4NGR 060 002 060 | 6XR0.2 | 11 | 60 | 6 |
| 4NGR 060 002 080 | 6XR0.2 | 13 | 80 | 6 |
| 4NGR 060 003 060 | 6XR0.3 | 11 | 60 | 6 |
| 4NGR 060 003 080 | 6XR0.3 | 13 | 80 | 6 |
| 4NGR 060 005 060 | 6XR0.5 | 11 | 60 | 6 |
| 4NGR 060 005 080 | 6XR0.5 | 13 | 80 | 6 |
| 4NGR 060 010 060 | 6XR1 | 11 | 60 | 6 |
| 4NGR 060 010 080 | 6XR1 | 13 | 80 | 6 |
| 4NGR 060 015 060 | 6XR1.5 | 11 | 60 | 6 |
| 4NGR 060 015 080 | 6XR1.5 | 13 | 80 | 6 |
| 4NGR 060 020 060 | 6XR2 | 11 | 60 | 6 |
| 4NGR 060 020 080 | 6XR2 | 13 | 80 | 6 |
| 4NGR 080 001 070 | 8XR0.1 | 16 | 70 | 8 |
| 4NGR 080 001 090 | 8XR0.1 | 19 | 90 | 8 |
| 4NGR 080 002 070 | 8XR0.2 | 16 | 70 | 8 |
| 4NGR 080 002 090 | 8XR0.2 | 19 | 90 | 8 |
| 4NGR 080 003 070 | 8XR0.3 | 16 | 70 | 8 |
| 4NGR 080 003 090 | 8XR0.3 | 19 | 90 | 8 |
| 4NGR 080 005 070 | 8XR0.5 | 16 | 70 | 8 |
| 4NGR 080 005 090 | 8XR0.5 | 19 | 90 | 8 |
| 4NGR 080 005 110 | 8XR0.5 | 19 | 110 | 8 |
| 4NGR 080 010 070 | 8XR1 | 16 | 70 | 8 |
| 4NGR 080 010 090 | 8XR1 | 19 | 90 | 8 |
| 4NGR 080 010 110 | 8XR1 | 19 | 110 | 8 |
| 4NGR 080 015 070 | 8XR1.5 | 16 | 70 | 8 |
| 4NGR 080 015 090 | 8XR1.5 | 19 | 90 | 8 |
| 4NGR 080 015 110 | 8XR1.5 | 19 | 110 | 8 |
| 4NGR 080 020 070 | 8XR2 | 16 | 70 | 8 |
| 4NGR 080 020 090 | 8XR2 | 19 | 90 | 8 |
| 4NGR 080 020 110 | 8XR2 | 19 | 110 | 8 |
| 4NGR 080 025 090 | 8XR2.5 | 19 | 90 | 8 |



01-06 08-012

单位/Unit: mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D×R | L1 | L | d |
| 4NGR 100 001 075 | 10XR0.1 | 19 | 75 | 10 |
| 4NGR 100 001 100 | 10XR0.1 | 22 | 100 | 10 |
| 4NGR 100 002 075 | 10XR0.2 | 19 | 75 | 10 |
| 4NGR 100 002 100 | 10XR0.2 | 22 | 100 | 10 |
| 4NGR 100 003 075 | 10XR0.3 | 19 | 75 | 10 |
| 4NGR 100 003 100 | 10XR0.3 | 22 | 100 | 10 |
| 4NGR 100 005 075 | 10XR0.5 | 19 | 75 | 10 |
| 4NGR 100 005 100 | 10XR0.5 | 22 | 100 | 10 |
| 4NGR 100 005 120 | 10XR0.5 | 22 | 120 | 10 |
| 4NGR 100 010 075 | 10XR1 | 19 | 75 | 10 |
| 4NGR 100 010 100 | 10XR1 | 22 | 100 | 10 |
| 4NGR 100 010 120 | 10XR1 | 22 | 120 | 10 |
| 4NGR 100 015 075 | 10XR1.5 | 19 | 75 | 10 |
| 4NGR 100 015 100 | 10XR1.5 | 22 | 100 | 10 |
| 4NGR 100 015 120 | 10XR1.5 | 22 | 120 | 10 |
| 4NGR 100 020 075 | 10XR2 | 19 | 75 | 10 |
| 4NGR 100 020 100 | 10XR2 | 22 | 100 | 10 |
| 4NGR 100 020 120 | 10XR2 | 22 | 120 | 10 |
| 4NGR 100 025 075 | 10XR2.5 | 19 | 75 | 10 |
| 4NGR 100 025 100 | 10XR2.5 | 22 | 100 | 10 |
| 4NGR 100 025 120 | 10XR2.5 | 22 | 120 | 10 |
| 4NGR 100 030 100 | 10XR3 | 22 | 100 | 10 |
| 4NGR 120 002 080 | 12XR0.2 | 22 | 80 | 12 |
| 4NGR 120 002 110 | 12XR0.2 | 26 | 110 | 12 |
| 4NGR 120 003 080 | 12XR0.3 | 22 | 80 | 12 |

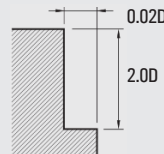
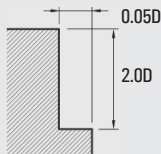
| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D×R | L1 | L | d |
| 4NGR 120 003 110 | 12XR0.3 | 26 | 110 | 12 |
| 4NGR 120 005 080 | 12XR0.5 | 22 | 80 | 12 |
| 4NGR 120 005 110 | 12XR0.5 | 26 | 110 | 12 |
| 4NGR 120 005 130 | 12XR0.5 | 26 | 130 | 12 |
| 4NGR 120 010 080 | 12XR1 | 22 | 80 | 12 |
| 4NGR 120 010 110 | 12XR1 | 26 | 110 | 12 |
| 4NGR 120 010 130 | 12XR1 | 26 | 130 | 12 |
| 4NGR 120 015 080 | 12XR1.5 | 22 | 80 | 12 |
| 4NGR 120 015 110 | 12XR1.5 | 26 | 110 | 12 |
| 4NGR 120 015 130 | 12XR1.5 | 26 | 130 | 12 |
| 4NGR 120 020 080 | 12XR2 | 22 | 80 | 12 |
| 4NGR 120 020 110 | 12XR2 | 26 | 110 | 12 |
| 4NGR 120 020 130 | 12XR2 | 26 | 130 | 12 |
| 4NGR 120 025 080 | 12XR2.5 | 22 | 80 | 12 |
| 4NGR 120 025 110 | 12XR2.5 | 26 | 110 | 12 |
| 4NGR 120 025 130 | 12XR2.5 | 26 | 130 | 12 |
| 4NGR 120 030 080 | 12XR3 | 22 | 80 | 12 |
| 4NGR 120 030 110 | 12XR3 | 26 | 110 | 12 |
| 4NGR 120 030 130 | 12XR3 | 26 | 130 | 12 |
| 4NGR 120 035 110 | 12XR3.5 | 26 | 110 | 12 |
| 4NGR 120 040 110 | 12XR4 | 26 | 110 | 12 |
| 4NGR 160 005 110 | 16XR0.5 | 35 | 110 | 16 |
| 4NGR 160 005 160 | 16XR0.5 | 35 | 160 | 16 |
| 4NGR 160 010 110 | 16XR1 | 35 | 110 | 16 |
| 4NGR 160 010 160 | 16XR1 | 35 | 160 | 16 |

4NGR

• RPM : rev./min • Feed : mm/min

| Material | Carbon Steels / Alloy Steels SCM / SNCM / S45 | | Prehardened Steels NAK / CENA / KP4 | | Hardened Steels SKD / SKT / STAVAX | |
|------------------|--|------|--|------|---------------------------------------|------|
| | ~ 35HRc | | 35 ~ 45HRc | | 45 ~ 55HRc | |
| Hardness | RPM | FEED | RPM | FEED | RPM | FEED |
| Outside Diameter | | | | | | |
| 1mm | 27,600 | 300 | 18,000 | 220 | 11,000 | 120 |
| 1.5mm | 22,000 | 310 | 13,500 | 230 | 8,500 | 120 |
| 2mm | 18,000 | 320 | 11,560 | 240 | 7,200 | 130 |
| 2.5mm | 15,000 | 330 | 9,500 | 250 | 6,100 | 130 |
| 3mm | 13,240 | 340 | 8,560 | 260 | 5,280 | 130 |
| 4mm | 10,720 | 420 | 6,820 | 300 | 4,300 | 140 |
| 5mm | 9,160 | 430 | 5,800 | 360 | 3,800 | 170 |
| 6mm | 7,900 | 430 | 5,040 | 360 | 3,280 | 170 |
| 8mm | 6,000 | 460 | 3,800 | 360 | 2,520 | 170 |
| 10mm | 5,040 | 460 | 3,280 | 360 | 2,020 | 170 |
| 12mm | 4,120 | 360 | 2,780 | 320 | 1,680 | 140 |
| 16mm | 3,100 | 280 | 2,100 | 230 | 1,280 | 115 |

Depth of Cut





2 Flutes Long Length End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

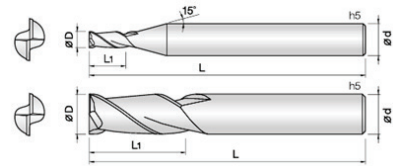
- Optimum for various work materials by AlCrN coating.
- Minimize edge chipping by improving corner strength.



2枚刃汎用ロングエンドミル

中低硬度鋼(HRC52以下)、プリハードン鋼系列、炭素鋼、金型鋼など加工

- AlCrNコーティング処理で広い領域の被削材加工に適しています。
- コーナー部剛性を補強して刃部のチッピングを最小限にしました。



2刃長铣刀

中低硬度鋼(HRC52以下) , 预硬化钢系列的, 碳素钢, 模具钢等加工多样被削材加工

- 以AlCrN涂层, 适合扩大范围被材料加工。
- 增强角落强度, 优秀的排出碎屑。

| Size | D Tolerance |
|--------|------------------|
| Φ1~5 | +0 ~ -0.01mm |
| Φ6~12 | -0.01 ~ -0.025mm |
| Φ14~25 | -0.015 ~ -0.03mm |

単位/Unit : mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D | L1 | L | d |
| 2LGM 010 030 S06 | 1 | 3 | 60 | 6 |
| 2LGM 010 050 S06 | 1 | 5 | 60 | 6 |
| 2LGM 010 070 S06 | 1 | 7 | 60 | 6 |
| 2LGM 010 100 S06 | 1 | 10 | 60 | 6 |
| 2LGM 010 150 S06 | 1 | 15 | 60 | 6 |
| 2LGM 015 060 S06 | 1.5 | 6 | 60 | 6 |
| 2LGM 015 075 S06 | 1.5 | 7.5 | 60 | 6 |
| 2LGM 015 100 S06 | 1.5 | 10 | 60 | 6 |
| 2LGM 015 150 S06 | 1.5 | 15 | 60 | 6 |
| 2LGM 015 200 S06 | 1.5 | 20 | 60 | 6 |
| 2LGM 020 060 S06 | 2 | 6 | 60 | 6 |
| 2LGM 020 100 S06 | 2 | 10 | 60 | 6 |
| 2LGM 020 150 S06 | 2 | 15 | 60 | 6 |
| 2LGM 020 200 S06 | 2 | 20 | 60 | 6 |
| 2LGM 030 120 S06 | 3 | 12 | 70 | 6 |
| 2LGM 030 150 S06 | 3 | 15 | 70 | 6 |
| 2LGM 030 200 S06 | 3 | 20 | 70 | 6 |
| 2LGM 030 250 S06 | 3 | 25 | 70 | 6 |
| 2LGM 030 300 S06 | 3 | 30 | 70 | 6 |
| 2LGM 040 150 S06 | 4 | 15 | 70 | 6 |
| 2LGM 040 200 S06 | 4 | 20 | 70 | 6 |
| 2LGM 040 300 S06 | 4 | 30 | 75 | 6 |
| 2LGM 050 200 S06 | 5 | 20 | 70 | 6 |
| 2LGM 050 250 S06 | 5 | 25 | 75 | 6 |
| 2LGM 050 300 S06 | 5 | 30 | 80 | 6 |
| 2LGM 060 200 S06 | 6 | 20 | 75 | 6 |
| 2LGM 060 200 100 | 6 | 20 | 100 | 6 |
| 2LGM 060 250 S06 | 6 | 25 | 75 | 6 |
| 2LGM 060 300 S06 | 6 | 30 | 80 | 6 |
| 2LGM 080 250 S08 | 8 | 25 | 75 | 8 |
| 2LGM 080 250 100 | 8 | 25 | 100 | 8 |
| 2LGM 080 300 S08 | 8 | 30 | 80 | 8 |
| 2LGM 080 350 S08 | 8 | 35 | 80 | 8 |

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D | L1 | L | d |
| 2LGM 080 400 S08 | 8 | 40 | 90 | 8 |
| 2LGM 080 500 S08 | 8 | 50 | 100 | 8 |
| 2LGM 100 300 S10 | 10 | 30 | 80 | 10 |
| 2LGM 100 300 110 | 10 | 30 | 110 | 10 |
| 2LGM 100 350 S10 | 10 | 35 | 90 | 10 |
| 2LGM 100 400 S10 | 10 | 40 | 90 | 10 |
| 2LGM 100 500 S10 | 10 | 50 | 100 | 10 |
| 2LGM 100 600 S10 | 10 | 60 | 110 | 10 |
| 2LGM 120 300 S12 | 12 | 30 | 90 | 12 |
| 2LGM 120 350 110 | 12 | 35 | 110 | 12 |
| 2LGM 120 400 S12 | 12 | 40 | 100 | 12 |
| 2LGM 120 500 S12 | 12 | 50 | 100 | 12 |
| 2LGM 120 600 S12 | 12 | 60 | 110 | 12 |
| 2LGM 120 700 S12 | 12 | 70 | 130 | 12 |
| 2LGM 140 500 S14 | 14 | 50 | 110 | 14 |
| 2LGM 160 400 160 | 16 | 40 | 160 | 16 |
| 2LGM 160 550 S16 | 16 | 55 | 120 | 16 |
| 2LGM 160 700 S16 | 16 | 70 | 130 | 16 |
| 2LGM 160 800 S16 | 16 | 80 | 160 | 16 |
| 2LGM 200 500 160 | 20 | 50 | 160 | 20 |
| 2LGM 200 600 S20 | 20 | 60 | 130 | 20 |
| 2LGM 200 1000 S20 | 20 | 100 | 200 | 20 |
| 2LGM 250 750 S25 | 25 | 75 | 160 | 25 |



4 Flutes Long Length End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- Optimum for various work materials by AlCrN coating.
- Minimize edge chipping by improving corner strength.

4枚刃汎用ロングエンドミル

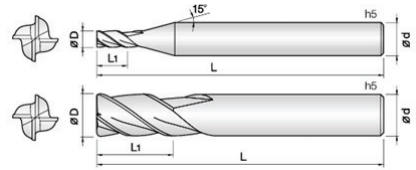
中低硬度鋼(HRC52以下), プレハードン鋼系列, 炭素鋼, 金型鋼など多様な被削材加工

- AlCrNコーティング処理で広い領域の被削材加工に適しています。
- コーナー部剛性を補強して刃部のチッピングを最小限にしました。

4刃長铣刀

中低硬度鋼(HRC52以下), 预硬化钢系列的, 碳素钢, 模具钢等加工多样被削材

- 以AlCrN涂层, 适合扩大范围被材料加工。
- 增强角落强度, 优秀的排出碎屑。



| Size | D Tolerance |
|--------|----------------|
| φ1~5 | +0~-0.01mm |
| φ6~12 | -0.01~-0.025mm |
| φ14~25 | -0.015~-0.03mm |

単位/Unit : mm

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D | L1 | L | d |
| 4LGM 010 030 S06 | 1 | 3 | 60 | 6 |
| 4LGM 010 050 S06 | 1 | 5 | 60 | 6 |
| 4LGM 015 060 S06 | 1.5 | 6 | 60 | 6 |
| 4LGM 015 080 S06 | 1.5 | 8 | 60 | 6 |
| 4LGM 020 080 S06 | 2 | 8 | 60 | 6 |
| 4LGM 020 100 S06 | 2 | 10 | 60 | 6 |
| 4LGM 030 100 S06 | 3 | 10 | 70 | 6 |
| 4LGM 030 150 S06 | 3 | 15 | 70 | 6 |
| 4LGM 030 200 S06 | 3 | 20 | 70 | 6 |
| 4LGM 030 250 S06 | 3 | 25 | 70 | 6 |
| 4LGM 040 120 S06 | 4 | 12 | 70 | 6 |
| 4LGM 040 150 S04 | 4 | 15 | 70 | 4 |
| 4LGM 040 150 S06 | 4 | 15 | 70 | 6 |
| 4LGM 040 200 S04 | 4 | 20 | 70 | 4 |
| 4LGM 040 200 S06 | 4 | 20 | 70 | 6 |
| 4LGM 040 250 S06 | 4 | 25 | 70 | 6 |
| 4LGM 040 300 S06 | 4 | 30 | 75 | 6 |
| 4LGM 050 200 S06 | 5 | 20 | 70 | 6 |
| 4LGM 050 250 S06 | 5 | 25 | 75 | 6 |
| 4LGM 050 300 S06 | 5 | 30 | 80 | 6 |
| 4LGM 060 200 S06 | 6 | 20 | 75 | 6 |
| 4LGM 060 200 100 | 6 | 20 | 100 | 6 |
| 4LGM 060 250 S06 | 6 | 25 | 75 | 6 |
| 4LGM 060 300 S06 | 6 | 30 | 80 | 6 |
| 4LGM 060 350 S06 | 6 | 35 | 80 | 6 |
| 4LGM 080 250 S08 | 8 | 25 | 75 | 8 |
| 4LGM 080 250 100 | 8 | 25 | 100 | 8 |
| 4LGM 080 300 S08 | 8 | 30 | 80 | 8 |
| 4LGM 080 350 S08 | 8 | 35 | 90 | 8 |
| 4LGM 080 400 S08 | 8 | 40 | 90 | 8 |
| 4LGM 080 450 S08 | 8 | 45 | 100 | 8 |
| 4LGM 100 300 S10 | 10 | 30 | 80 | 10 |
| 4LGM 100 300 110 | 10 | 30 | 110 | 10 |

| 订货号 Order Number | 刃径 Diameter | 刃長 Length of cut | 全长 Overall Length | 柄径 Shank Dia |
|---------------------|----------------|---------------------|----------------------|-----------------|
| | D | L1 | L | d |
| 4LGM 100 350 S10 | 10 | 35 | 90 | 10 |
| 4LGM 100 400 S10 | 10 | 40 | 90 | 10 |
| 4LGM 100 500 S10 | 10 | 50 | 100 | 10 |
| 4LGM 100 600 S10 | 10 | 60 | 110 | 10 |
| 4LGM 120 300 S12 | 12 | 30 | 90 | 12 |
| 4LGM 120 350 110 | 12 | 35 | 110 | 12 |
| 4LGM 120 400 S12 | 12 | 40 | 100 | 12 |
| 4LGM 120 500 S12 | 12 | 50 | 100 | 12 |
| 4LGM 120 600 S12 | 12 | 60 | 110 | 12 |
| 4LGM 120 700 S12 | 12 | 70 | 130 | 12 |
| 4LGM 140 500 S14 | 14 | 50 | 110 | 14 |
| 4LGM 160 400 160 | 16 | 40 | 160 | 16 |
| 4LGM 160 550 S16 | 16 | 55 | 120 | 16 |
| 4LGM 160 700 S16 | 16 | 70 | 130 | 16 |
| 4LGM 180 800 160 | 18 | 80 | 160 | 18 |
| 4LGM 200 500 160 | 20 | 50 | 160 | 20 |
| 4LGM 200 600 S20 | 20 | 60 | 130 | 20 |
| 4LGM 200 1000 S20 | 20 | 100 | 200 | 20 |
| 4LGM 250 750 S25 | 25 | 75 | 160 | 25 |

2LGM

• RPM : rev/min • Feed : mm/min

| Material | Carbon Steels S50 / SCM | | Alloy Steels / Prehardened Steels SKD61 / NAK | | Hardened Steels SKD61 | |
|------------------|----------------------------|------|--|------|--------------------------|------|
| Hardness | ~ 30HRc | | 30 ~ 45HRc | | 45 ~ 55HRc | |
| Outside Diameter | RPM | FEED | RPM | FEED | RPM | FEED |
| 1mm | 8,570 | 45 | 6,570 | 40 | 4,200 | 15 |
| 1.5mm | 7,800 | 50 | 6,000 | 45 | 3,700 | 20 |
| 2mm | 6,300 | 60 | 5,040 | 50 | 3,150 | 25 |
| 3mm | 4,410 | 70 | 3,570 | 60 | 2,200 | 30 |
| 4mm | 3,570 | 85 | 2,840 | 70 | 1,790 | 35 |
| 5mm | 3,050 | 105 | 2,420 | 85 | 1,580 | 40 |
| 6mm | 2,630 | 125 | 2,100 | 105 | 1,370 | 50 |
| 8mm | 2,000 | 135 | 1,580 | 105 | 1,050 | 50 |
| 10mm | 1,680 | 135 | 1,370 | 105 | 840 | 50 |
| 12mm | 1,370 | 105 | 1,160 | 95 | 700 | 40 |
| 16mm | 1,160 | 95 | 890 | 75 | 560 | 35 |
| 20mm | 840 | 70 | 680 | 50 | 420 | 25 |
| 25mm | 600 | 55 | 510 | 35 | 300 | 15 |

| | | |
|--------------|--|--|
| Depth of Cut | | |
|--------------|--|--|

4LGM

• RPM : rev/min • Feed : mm/min

| Material | Carbon Steels S50 / SCM | | Alloy Steels / Prehardened Steels SKD61 / NAK | | Hardened Steels SKD61 | |
|------------------|----------------------------|------|--|------|--------------------------|------|
| Hardness | ~ 30HRc | | 30 ~ 45HRc | | 45 ~ 55HRc | |
| Outside Diameter | RPM | FEED | RPM | FEED | RPM | FEED |
| 1mm | 8,200 | 85 | 6,100 | 65 | 4,300 | 30 |
| 1.5mm | 7,100 | 95 | 5,500 | 75 | 3,500 | 40 |
| 2mm | 6,300 | 100 | 5,040 | 80 | 3,150 | 45 |
| 3mm | 4,410 | 115 | 3,570 | 100 | 2,200 | 55 |
| 4mm | 3,570 | 140 | 2,840 | 115 | 1,790 | 60 |
| 5mm | 3,050 | 180 | 2,420 | 140 | 1,580 | 70 |
| 6mm | 2,630 | 215 | 2,100 | 180 | 1,370 | 90 |
| 8mm | 2,000 | 230 | 1,580 | 180 | 1,050 | 90 |
| 10mm | 1,680 | 230 | 1,370 | 180 | 840 | 90 |
| 12mm | 1,370 | 180 | 1,160 | 160 | 700 | 70 |
| 16mm | 1,160 | 160 | 890 | 125 | 560 | 60 |
| 20mm | 840 | 115 | 680 | 90 | 420 | 45 |
| 25mm | 650 | 80 | 790 | 65 | 310 | 30 |

| | | |
|--------------|--|--|
| Depth of Cut | | |
|--------------|--|--|