



Size R0.3~R3

CFLB



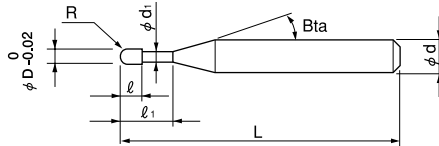
New Price

Material Applications (☆ Highly Recommended ○ Recommended ○ Suggested)

| Work Material | | | | | | | | | | | | | | | |
|-------------------------------|---------------------------------|----------------------------------|-----------------|--------|--------|-----------|-----------------|----------|--------|----------|-----------------------|-----------------|-----------------------|------------------|---------------------------------------|
| Carbon Steels S45C S55C | Alloy Steels SK / SCM SUS | Prehardened Steels NAK HPM | Hardened Steels | | | Cast Iron | Aluminum Alloys | Graphite | Copper | Plastics | Glass Filled Plastics | Titanium Alloys | Heat Resistant Alloys | Cemented Carbide | Hard Brittle (Non-Metallic) Materials |
| | | | ~55HRC | ~60HRC | ~70HRC | | | | | | | | | | |
| ○ | ○ | ○ | ○ | | | ○ | ○ | | ○ | | | ○ | ○ | | |

Features

3 flute design that offers higher feed rate milling when compared to a similar specification 2 flute end mill.
New UTCOAT offers low friction coefficient and longer tool life.
Variable pitch design minimizes tool chatter and is also high precision milling capable.
The original design features help to promote excellent chip evacuation and surface finishing on tools that are R0.75mm and larger.
Diameter Tolerance: 0/-0.02



The shank taper angle shown is not an exact value and to avoid contact with the work piece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the work piece.

Total 32 models

Unit (mm)

| Model Number | Radius of Ball Nose R | Effective Length l_1 | Length of Cut l | Neck Diameter ϕd_1 | Shank Taper Angle Bta | Overall Length L | Shank Diameter ϕd | Price (¥) | Effective Length by Inclined Angles | | | | |
|--|-----------------------|------------------------|-------------------|--------------------------|-----------------------|------------------|-------------------------|-----------|-------------------------------------|------|-------|------|------|
| | | | | | | | | | 30° | 1° | 1°30' | 2° | 3° |
| <input type="checkbox"/> CFLB 3006-020 | R0.3 | 2 | 0.48 | 0.58 | 16° | 50 | 4 | 6,970 | 2.14 | 2.22 | 2.28 | 2.35 | 2.51 |
| <input type="checkbox"/> CFLB 3006-030 | | 3 | | | | | | | 3.18 | 3.28 | 3.38 | 3.49 | 3.74 |
| <input type="checkbox"/> CFLB 3006-040 | | 4 | | | | | | | 4.22 | 4.34 | 4.48 | 4.63 | 4.96 |
| <input type="checkbox"/> CFLB 3010-025 | R0.5 | 2.5 | 0.8 | 0.96 | 16° | 50 | 4 | 6,310 | 2.71 | 2.79 | 2.87 | 2.95 | 3.14 |
| <input type="checkbox"/> CFLB 3010-030 | | 3 | | | | | | | 3.23 | 3.32 | 3.42 | 3.52 | 3.75 |
| <input type="checkbox"/> CFLB 3010-040 | | 4 | | | | | | | 4.26 | 4.38 | 4.52 | 4.66 | 4.98 |
| <input type="checkbox"/> CFLB 3010-050 | | 5 | | | | | | | 5.29 | 5.45 | 5.62 | 5.80 | 6.20 |
| <input type="checkbox"/> CFLB 3010-060 | | 6 | | | | | | | 6.32 | 6.51 | 6.72 | 6.94 | 7.42 |
| <input type="checkbox"/> CFLB 3010-080 | | 8 | | | | | | | 8.38 | 8.64 | 8.92 | 9.21 | 9.87 |

New price

Next Page ➡

Unit (mm)

| | Model Number | Radius of Ball Nose R | Effective Length l_1 | Length of Cut l | Neck Diameter ϕd | Shank Taper Angle β | Overall Length L | Shank Diameter ϕd | Price (¥) | Effective Length by Inclined Angles | | | | |
|--------------------------|---------------|-----------------------|------------------------|-------------------|------------------------|---------------------------|------------------|-------------------------|-----------|-------------------------------------|-------|-------|-----------------|-----------------|
| | | | | | | | | | | 30° | 1° | 1°30' | 2° | 3° |
| <input type="checkbox"/> | CFLB 3015-060 | R0.75 | 6 | 1.2 | 1.43 | 16° | 50 | 4 | 6,970 | 6.24 | 6.42 | 6.61 | 6.82 | 7.28 |
| <input type="checkbox"/> | CFLB 3015-080 | | 8 | | | | | | | 8.30 | 8.55 | 8.82 | 9.10 | 9.73 |
| <input type="checkbox"/> | CFLB 3015-100 | | 10 | | | | | | | 10.37 | 10.68 | 11.02 | 11.38 | 12.18 |
| <input type="checkbox"/> | CFLB 3020-060 | R1 | 6 | 1.6 | 1.83 | 16° | 50 | 4 | 6,810 | 6.41 | 6.59 | 6.78 | 6.98 | 7.44 |
| <input type="checkbox"/> | CFLB 3020-080 | | 8 | | | | | | | 8.48 | 8.72 | 8.98 | 9.26 | 9.89 |
| <input type="checkbox"/> | CFLB 3020-100 | | 10 | | | | | | | 10.54 | 10.85 | 11.18 | 11.54 | 12.33 |
| <input type="checkbox"/> | CFLB 3020-120 | | 12 | | | | | | | 12.60 | 12.98 | 13.39 | 13.82 | 14.78 |
| <input type="checkbox"/> | CFLB 3020-140 | | 14 | | | | | | | 14.66 | 15.11 | 15.59 | 16.09 | 17.23 |
| <input type="checkbox"/> | CFLB 3020-160 | | 16 | | | | | | | 16.73 | 17.24 | 17.79 | 18.37 | 19.68 |
| <input type="checkbox"/> | CFLB 3030-080 | R1.5 | 8 | 2.4 | 2.73 | 16° | 60 | 6 | 6,970 | 8.64 | 8.87 | 9.13 | 9.39 | 9.99 |
| <input type="checkbox"/> | CFLB 3030-100 | | 10 | | | | | | | 10.70 | 11.00 | 11.33 | 11.67 | 12.44 |
| <input type="checkbox"/> | CFLB 3030-120 | | 12 | | | | | | | 12.77 | 13.13 | 13.53 | 13.95 | 14.89 |
| <input type="checkbox"/> | CFLB 3030-160 | | 16 | | | | | | | 16.89 | 17.39 | 17.93 | 18.50 | 19.78 |
| <input type="checkbox"/> | CFLB 3030-200 | | 20 | | | | | | | 21.02 | 21.65 | 22.33 | 23.06 | 24.68 |
| <input type="checkbox"/> | CFLB 3030-250 | | 25 | | | | | | | 26.17 | 26.98 | 27.83 | 28.75 | No Interference |
| <input type="checkbox"/> | CFLB 3040-120 | R2 | 12 | 3.2 | 3.63 | 16° | 70 | 6 | 7,380 | 12.93 | 13.29 | 13.67 | 14.08 | 14.99 |
| <input type="checkbox"/> | CFLB 3040-160 | | 16 | | | | | | | 17.06 | 17.55 | 18.07 | 18.63 | 19.88 |
| <input type="checkbox"/> | CFLB 3040-200 | | 20 | | | | | | | 21.18 | 21.81 | 22.47 | 23.19 | No Interference |
| <input type="checkbox"/> | CFLB 3040-250 | | 25 | | | | | | | 26.34 | 27.13 | 27.98 | 28.88 | No Interference |
| <input type="checkbox"/> | CFLB 3040-300 | | 30 | | | | | | | 31.50 | 32.45 | 33.48 | No Interference | No Interference |
| <input type="checkbox"/> | CFLB 3060-200 | | R3 | | | | | | | 20 | 4.8 | 5.42 | — | 80 |
| <input type="checkbox"/> | CFLB 3060-300 | 30 | | No Interference | No Interference | No Interference | No Interference | No Interference | | | | | | |
| <input type="checkbox"/> | CFLB 3060-400 | 40 | | No Interference | No Interference | No Interference | No Interference | No Interference | | | | | | |

New price

3-6 Flutes

Square
Square
Long Neck Square

Radius
Radius
Long Neck Radius

Ball / Long Shank Ball
Ball
Long Neck Ball
Taper Neck Ball

Taper
Taper

Spiral V Cutter

Drill Thread Mill

EURO Series

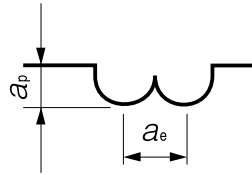
Technical Data

Milling Conditions for CFLB

| WORK MATERIAL | | COPPER ALUMINUM ALLOYS C1100 / A5052 / A7075 etc. | | | | CARBON STEELS / ALLOY STEELS / HARDENED STEELS S50C / NAK80 etc. | | | | HARDENED STEELS (~55HRC) STAVAX / SKD61 etc. | | | | TITANIUM ALLOYS STAINLESS STEELS TI-6Al-4V / SUS etc. | | | | | |
|--|-----------------------|--|-------|------------------------------------|--------------------|---|----------------------------------|------------------------------------|--------------------|---|----------------------------------|------------------------------------|--------------------|--|----------------------------------|------------------------------------|--------------------|---------------------------------|----------------------------------|
| Coolant | | WET | | | | WET / DRY | | | | DRY / WET | | | | WET | | | | | |
| Model Number | Outside Diameter (mm) | Effective Length (mm) | L/D | Spindle Speed (min ⁻¹) | Feed Rate (mm/min) | a _p Axial Depth (mm) | a _e Radial Depth (mm) | Spindle Speed (min ⁻¹) | Feed Rate (mm/min) | a _p Axial Depth (mm) | a _e Radial Depth (mm) | Spindle Speed (min ⁻¹) | Feed Rate (mm/min) | a _p Axial Depth (mm) | a _e Radial Depth (mm) | Spindle Speed (min ⁻¹) | Feed Rate (mm/min) | a _p Axial Depth (mm) | a _e Radial Depth (mm) |
| Square Long Neck Square | R0.3 | 2 | 3.33 | 30,000 | 1,000 | 0.030 | 0.13 | 30,000 | 1,000 | 0.030 | 0.13 | 30,000 | 700 | 0.030 | 0.13 | 20,000 | 1,000 | 0.015 | 0.09 |
| | | 3 | 5.00 | 30,000 | 1,000 | 0.030 | 0.13 | 30,000 | 1,000 | 0.030 | 0.13 | 30,000 | 700 | 0.030 | 0.13 | 20,000 | 1,000 | 0.015 | 0.09 |
| | | 4 | 6.67 | 30,000 | 700 | 0.020 | 0.10 | 30,000 | 700 | 0.020 | 0.10 | 30,000 | 480 | 0.020 | 0.10 | 20,000 | 700 | 0.010 | 0.07 |
| Radius Long Neck Radius | R0.5 | 2.5 | 2.50 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,000 | 0.050 | 0.21 | 20,000 | 1,500 | 0.025 | 0.15 |
| | | 3 | 3.00 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,000 | 0.050 | 0.21 | 20,000 | 1,500 | 0.025 | 0.15 |
| | | 4 | 4.00 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,000 | 0.050 | 0.21 | 20,000 | 1,500 | 0.025 | 0.15 |
| | | 5 | 5.00 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,500 | 0.050 | 0.21 | 30,000 | 1,000 | 0.050 | 0.21 | 20,000 | 1,500 | 0.025 | 0.15 |
| | | 6 | 6.00 | 30,000 | 1,500 | 0.040 | 0.19 | 30,000 | 1,500 | 0.040 | 0.19 | 30,000 | 1,000 | 0.040 | 0.19 | 20,000 | 1,500 | 0.020 | 0.14 |
| | | 8 | 8.00 | 25,200 | 1,200 | 0.030 | 0.17 | 25,200 | 1,200 | 0.030 | 0.17 | 25,200 | 800 | 0.030 | 0.17 | 16,800 | 1,200 | 0.015 | 0.12 |
| | | 10 | 10.00 | 20,000 | 1,000 | 0.020 | 0.15 | 20,000 | 1,000 | 0.020 | 0.15 | 20,000 | 600 | 0.020 | 0.15 | 14,000 | 1,000 | 0.010 | 0.09 |
| Ball / Long Shank Ball Long Neck Ball | R0.75 | 6 | 4.00 | 30,000 | 2,500 | 0.075 | 0.32 | 30,000 | 2,500 | 0.075 | 0.32 | 30,000 | 1,700 | 0.075 | 0.32 | 20,000 | 2,500 | 0.035 | 0.22 |
| | | 8 | 5.33 | 30,000 | 2,500 | 0.075 | 0.32 | 30,000 | 2,500 | 0.075 | 0.32 | 30,000 | 1,700 | 0.075 | 0.32 | 20,000 | 2,500 | 0.035 | 0.22 |
| | | 10 | 6.67 | 24,000 | 2,000 | 0.050 | 0.26 | 24,000 | 2,000 | 0.050 | 0.26 | 24,000 | 1,350 | 0.050 | 0.26 | 16,000 | 2,000 | 0.025 | 0.19 |
| Ball Taper Neck Ball | R1 | 6 | 3.00 | 30,000 | 3,200 | 0.200 | 0.60 | 30,000 | 3,200 | 0.200 | 0.60 | 30,000 | 2,500 | 0.200 | 0.60 | 20,000 | 3,200 | 0.100 | 0.43 |
| | | 8 | 4.00 | 30,000 | 3,200 | 0.200 | 0.60 | 30,000 | 3,200 | 0.200 | 0.60 | 29,150 | 2,400 | 0.200 | 0.60 | 20,000 | 3,200 | 0.100 | 0.43 |
| | | 10 | 5.00 | 27,000 | 3,000 | 0.200 | 0.60 | 27,000 | 3,000 | 0.200 | 0.60 | 24,300 | 2,000 | 0.200 | 0.60 | 18,000 | 3,000 | 0.100 | 0.43 |
| | | 12 | 6.00 | 21,600 | 2,400 | 0.150 | 0.50 | 21,600 | 2,400 | 0.150 | 0.50 | 21,000 | 1,600 | 0.140 | 0.50 | 14,400 | 2,400 | 0.075 | 0.38 |
| | | 14 | 7.00 | 16,200 | 1,600 | 0.120 | 0.45 | 16,200 | 1,600 | 0.120 | 0.45 | 16,200 | 1,200 | 0.080 | 0.35 | 10,800 | 1,600 | 0.060 | 0.34 |
| | | 16 | 8.00 | 12,600 | 1,200 | 0.100 | 0.40 | 12,600 | 1,200 | 0.100 | 0.40 | 12,600 | 1,200 | 0.050 | 0.30 | 8,400 | 1,200 | 0.050 | 0.34 |
| Taper | R1.5 | 8 | 2.67 | 24,000 | 4,000 | 0.300 | 0.90 | 24,000 | 4,000 | 0.300 | 0.90 | 21,600 | 2,700 | 0.300 | 0.90 | 16,000 | 4,000 | 0.150 | 0.65 |
| | | 10 | 3.33 | 24,000 | 4,000 | 0.300 | 0.90 | 24,000 | 4,000 | 0.300 | 0.90 | 21,600 | 2,700 | 0.300 | 0.90 | 16,000 | 4,000 | 0.150 | 0.65 |
| | | 12 | 4.00 | 24,000 | 3,600 | 0.300 | 0.90 | 24,000 | 3,600 | 0.300 | 0.90 | 21,600 | 2,450 | 0.300 | 0.90 | 16,000 | 3,600 | 0.150 | 0.65 |
| | | 16 | 5.33 | 16,800 | 2,800 | 0.270 | 0.85 | 16,800 | 2,800 | 0.270 | 0.85 | 15,100 | 1,900 | 0.270 | 0.85 | 11,200 | 2,800 | 0.135 | 0.62 |
| | | 20 | 6.67 | 12,000 | 2,000 | 0.240 | 0.75 | 12,000 | 2,000 | 0.240 | 0.75 | 10,800 | 1,350 | 0.240 | 0.75 | 8,000 | 2,000 | 0.120 | 0.58 |
| Spiral V Cutter | R2 | 25 | 8.33 | 8,400 | 1,200 | 0.150 | 0.65 | 8,400 | 1,200 | 0.150 | 0.65 | 7,500 | 800 | 0.150 | 0.65 | 5,600 | 1,200 | 0.075 | 0.46 |
| | | 12 | 3.00 | 18,000 | 4,000 | 0.400 | 1.20 | 18,000 | 4,000 | 0.400 | 1.20 | 16,200 | 2,700 | 0.400 | 1.20 | 12,000 | 4,000 | 0.200 | 0.87 |
| | | 16 | 4.00 | 16,200 | 3,600 | 0.400 | 1.20 | 16,200 | 3,600 | 0.400 | 1.20 | 14,600 | 2,450 | 0.400 | 1.20 | 10,800 | 3,600 | 0.200 | 0.87 |
| | | 20 | 5.00 | 13,500 | 3,000 | 0.400 | 1.20 | 13,500 | 3,000 | 0.400 | 1.20 | 12,200 | 2,000 | 0.400 | 1.20 | 9,000 | 3,000 | 0.200 | 0.87 |
| | | 25 | 6.25 | 9,900 | 2,200 | 0.320 | 1.05 | 9,900 | 2,200 | 0.320 | 1.05 | 8,900 | 1,450 | 0.320 | 1.05 | 6,600 | 2,200 | 0.160 | 0.78 |
| | | 30 | 7.50 | 7,200 | 1,400 | 0.200 | 0.85 | 7,200 | 1,400 | 0.200 | 0.85 | 6,500 | 950 | 0.200 | 0.85 | 4,800 | 1,400 | 0.100 | 0.62 |
| EURO Series Technical Data | R3 | 20 | 3.33 | 12,000 | 4,000 | 0.600 | 1.80 | 12,000 | 4,000 | 0.600 | 1.80 | 10,800 | 2,700 | 0.600 | 1.80 | 8,000 | 4,000 | 0.300 | 1.30 |
| | | 30 | 5.00 | 9,000 | 3,000 | 0.600 | 1.80 | 9,000 | 3,000 | 0.600 | 1.80 | 8,100 | 2,000 | 0.600 | 1.80 | 6,000 | 3,000 | 0.300 | 1.30 |
| | | 40 | 6.67 | 6,000 | 2,000 | 0.400 | 1.40 | 6,000 | 2,000 | 0.400 | 1.40 | 5,400 | 1,350 | 0.400 | 1.40 | 4,000 | 2,000 | 0.200 | 1.05 |

Milling Conditions for CFLB

a_p : Axial Depth (mm)
 a_e : Radial Depth (mm)



- Note:
- Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed.
 - Decrease the feed rate more than 50% from the milling parameters when slot milling.
 - Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed, or when burr and red-hot occur.
 - Recommend wet coolant for Copper.
 - DRY: air blow, WET: water soluble or oil coolant.

Tool Life Comparison with C-CERB R0.3 x 3mm Effective Length

S50C Pocket Milling

| | |
|--------------------|----------------------------|
| Work Material | S50C |
| Spindle Speed | 30000min ⁻¹ |
| Feed Rate | 1000mm/min |
| Axial Depth a_p | 0.03mm |
| Radial Depth a_e | 0.13mm |
| Coolant | Air Blow (Through Spindle) |
| Overhang | 12mm |
| Pocke Size | $\phi 5 \times 3$ mm |
| Cycle Time | 14min/pocket |

