



Size $\phi 0.4 \sim \phi 6$

DCLS

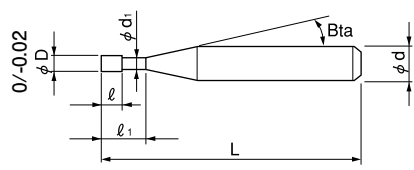


Material Applications (☆ Highly Recommended ○ Recommended ○ Suggested)

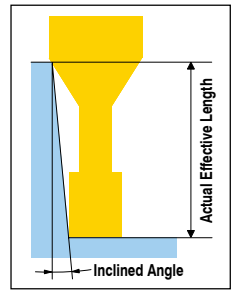
| Work Material | | | | | | | | | | | | | | | |
|-------------------------------|---------------------------------|----------------------------------|-----------------|--------|--------|-----------|-----------------|----------|--------|----------|-----------------------|-----------------|-----------------------|------------------|---------------------------------------|
| 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

DIA COAT 2 flute, square design with long neck for milling Graphite Electrodes.
 New diamond coating, with a highly adhesive base layer, offers excellent wear resistance and up to 20x longer tool life.



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.



Neck diameter / effective length by inclined angles have been changed.
 Change Date: From Production in November, 2012

Total 33 models

Unit (mm)

| Model Number | Outside Diameter ϕD | 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° |
| DCLS 2004-020 | 0.4 | 2 | 0.8 | 0.37 | 16° | 45 | 4 | 16,000 | 2.26 | 2.43 | 2.57 | 2.68 | 2.89 |
| DCLS 2004-040 | | 4 | | | | | | | 4.40 | 4.63 | 4.80 | 4.97 | 5.34 |
| DCLS 2004-060 | | 6 | | | | | | | 6.51 | 6.77 | 7.00 | 7.24 | 7.79 |
| DCLS 2005-020 | 0.5 | 2 | 1 | 0.47 | 16° | 45 | 4 | 16,000 | 2.32 | 2.52 | 2.68 | 2.82 | 3.07 |
| DCLS 2005-040 | | 4 | | | | | | | 4.48 | 4.74 | 4.95 | 5.13 | 5.51 |
| DCLS 2005-060 | | 6 | | | | | | | 6.60 | 6.91 | 7.15 | 7.40 | 7.96 |
| DCLS 2006-020 | 0.6 | 2 | 1.2 | 0.57 | 16° | 45 | 4 | 16,000 | 2.36 | 2.60 | 2.78 | 2.95 | 3.23 |
| DCLS 2006-040 | | 4 | | | | | | | 4.55 | 4.85 | 5.08 | 5.29 | 5.68 |
| DCLS 2006-060 | | 6 | | | | | | | 6.69 | 7.04 | 7.31 | 7.56 | 8.13 |
| DCLS 2006-080 | | 8 | | | | | | | 8.80 | 9.19 | 9.51 | 9.84 | 10.58 |
| DCLS 2006-100 | | 10 | | | | | | | 10.90 | 11.33 | 11.71 | 12.12 | 13.03 |

Unit (mm)

| Model Number | Outside Diameter ϕD | 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° |
| DCLS 2010-040 | 1 | 4 | 2 | 0.96 | 16° | 45 | 4 | 16,000 | 4.57 | 4.86 | 5.09 | 5.30 | 5.70 |
| DCLS 2010-060 | | 6 | | | | | | | 6.70 | 7.05 | 7.32 | 7.57 | 8.14 |
| DCLS 2010-080 | | 8 | | | | | | | 8.82 | 9.20 | 9.52 | 9.85 | 10.59 |
| DCLS 2010-100 | | 10 | | | | | | | 10.91 | 11.34 | 11.72 | 12.13 | 13.04 |
| DCLS 2010-160 | | 16 | | | | | | | 17.16 | 17.73 | 18.32 | 18.96 | 20.38 |
| DCLS 2010-210 | | 21 | | | | | | | 22.33 | 23.05 | 23.82 | 24.65 | 26.50 |
| DCLS 2015-060 | 1.5 | 6 | 3 | 1.44 | 16° | 45 | 4 | 16,000 | 6.17 | 6.37 | 6.58 | 6.81 | 7.33 |
| DCLS 2015-100 | | 10 | | | | | | | 10.29 | 10.63 | 10.98 | 11.37 | 12.22 |
| DCLS 2015-160 | | 16 | | | | | | | 16.48 | 17.02 | 17.59 | 18.20 | 19.56 |
| DCLS 2015-210 | | 21 | | | | | | | 21.64 | 22.34 | 23.09 | 23.89 | No Interference |
| DCLS 2020-060 | 2 | 6 | 4 | 1.9 | 16° | 50 | 4 | 16,000 | 6.22 | 6.42 | 6.64 | 6.87 | 7.39 |
| DCLS 2020-100 | | 10 | | | | | | | 10.35 | 10.68 | 11.04 | 11.43 | 12.28 |
| DCLS 2020-160 | | 16 | | | | | | | 16.53 | 17.07 | 17.65 | 18.26 | No Interference |
| DCLS 2020-210 | | 21 | | | | | | | 21.69 | 22.40 | 23.15 | 23.95 | No Interference |
| DCLS 2020-260 | | 26 | | | | | | | 26.85 | 27.72 | 28.65 | No Interference | No Interference |
| DCLS 2030-160 | 3 | 16 | 6 | 2.9 | 16° | 70 | 6 | 18,000 | 16.53 | 17.07 | 17.65 | 18.26 | 19.63 |
| DCLS 2030-320 | | 32 | | | | | | | 33.04 | 34.11 | 35.25 | 36.48 | No Interference |
| DCLS 2040-210 | 4 | 21 | 8 | 3.91 | 16° | 70 | 6 | 20,000 | 21.68 | 22.39 | 23.14 | 23.94 | No Interference |
| DCLS 2040-320 | | 32 | | | | | | | 33.03 | 34.10 | 35.24 | No Interference | No Interference |
| DCLS 2040-420 | | 42 | | | | | | | 43.34 | 44.75 | No Interference | No Interference | No Interference |
| DCLS 2060-420 | 6 | 42 | 12 | 5.71 | — | 80 | 6 | 23,000 | No Interference | No Interference | No Interference | No Interference | No Interference |
| DCLS 2060-630 | | 63 | | | | | | | 120 | 6 | 30,000 | No Interference | No Interference |

Square

Square
Long Neck
Square

Radius

Radius
Long Neck
RadiusBall / Long
Shank BallBall
Long Neck
BallTaper Neck
Ball

Taper

Spiral
V CutterDrill
Thread Mill

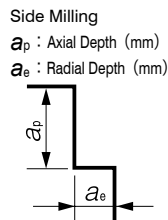
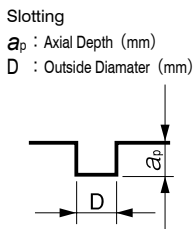
EURO Series

Technical Data

Milling Conditions for DCLS

| WORK MATERIAL | | | GRAPHITE | | | | |
|---------------|-----------------------|-----------------------|------------------------------------|--------------------|---------------------------|----------------------------|---------------------------|
| Mode Number | Outside Diameter (mm) | Effective Length (mm) | Spindle Speed (min ⁻¹) | Feed Rate (mm/min) | Side Milling | | Slotting |
| | | | | | a_p Axial Depth (mm) | a_e Radial Depth (mm) | a_p Axial Depth (mm) |
| 2004-020 | 0.4 | 2 | 34,000 | 410 | 0.4 | 0.02 | 0.02 |
| 2004-040 | | 4 | 34,000 | 240 | 0.4 | 0.02 | 0.02 |
| 2004-060 | | 6 | 34,000 | 180 | 0.4 | 0.02 | 0.02 |
| 2005-020 | 0.5 | 2 | 34,000 | 540 | 0.5 | 0.025 | 0.025 |
| 2005-040 | | 4 | 34,000 | 350 | 0.5 | 0.025 | 0.025 |
| 2005-060 | | 6 | 34,000 | 240 | 0.5 | 0.025 | 0.025 |
| 2006-020 | 0.6 | 2 | 34,000 | 660 | 0.6 | 0.03 | 0.03 |
| 2006-040 | | 4 | 34,000 | 520 | 0.6 | 0.03 | 0.03 |
| 2006-060 | | 6 | 34,000 | 320 | 0.6 | 0.03 | 0.03 |
| 2006-080 | | 8 | 25,000 | 220 | 0.6 | 0.03 | 0.03 |
| 2006-100 | 1 | 10 | 24,000 | 120 | 0.6 | 0.03 | 0.03 |
| 2010-040 | | 4 | 34,000 | 1,170 | 1 | 0.05 | 0.1 |
| 2010-060 | | 6 | 26,000 | 850 | 1 | 0.05 | 0.1 |
| 2010-080 | | 8 | 22,000 | 660 | 1 | 0.05 | 0.1 |
| 2010-100 | | 10 | 22,100 | 530 | 1 | 0.05 | 0.1 |
| 2010-160 | | 16 | 14,300 | 300 | 1 | 0.05 | 0.1 |
| 2010-210 | | 21 | 12,500 | 200 | 1 | 0.05 | 0.1 |
| 2015-060 | 1.5 | 6 | 22,000 | 1,620 | 1.5 | 0.075 | 0.15 |
| 2015-100 | | 10 | 17,000 | 1,050 | 1.5 | 0.075 | 0.15 |
| 2015-160 | | 16 | 15,000 | 600 | 1.5 | 0.075 | 0.15 |
| 2015-210 | | 21 | 10,000 | 370 | 1.5 | 0.075 | 0.15 |
| 2020-060 | 2 | 6 | 25,500 | 2,175 | 2 | 0.1 | 0.2 |
| 2020-100 | | 10 | 21,000 | 1,680 | 2 | 0.1 | 0.2 |
| 2020-160 | | 16 | 19,500 | 1,230 | 2 | 0.1 | 0.2 |
| 2020-210 | | 21 | 16,500 | 750 | 2 | 0.1 | 0.2 |
| 2020-260 | | 26 | 12,000 | 590 | 2 | 0.1 | 0.2 |
| 2030-160 | 3 | 16 | 22,000 | 2,200 | 3 | 0.15 | 0.3 |
| 2030-320 | | 32 | 15,000 | 1,040 | 3 | 0.15 | 0.3 |
| 2040-210 | 4 | 21 | 14,000 | 1,760 | 4 | 0.2 | 0.4 |
| 2040-320 | | 32 | 13,000 | 1,160 | 4 | 0.2 | 0.4 |
| 2040-420 | | 42 | 11,000 | 900 | 4 | 0.2 | 0.4 |
| 2060-420 | 6 | 42 | 10,800 | 1,160 | 6 | 0.6 | 1.2 |
| 2060-630 | | 63 | 7,400 | 620 | 6 | 0.6 | 1.2 |

- Square
- Long Neck Square
- Radius
- Long Neck Radius
- Ball / Long Shank Ball
- Long Neck Ball
- Taper Neck Ball
- Taper
- Spiral V Cutter
- Drill Thread Mill
- EURO Series
- Technical Data



Note:
 ·Use a milling machine dedicated for Graphite.
 ·Recommend air blow for Graphite.