



Size  $\phi 1 \sim \phi 6$

# DCLRS

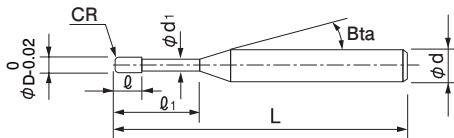


Material Applications (★ Highly Recommended ● Recommended ○ Suggested)

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
			~50HRC	~55HRC	~60HRC	~65HRC	~70HRC										
									○	★	○	○	●				○

## Features

**Diamond coated 4 Flute Long Neck Radius End Mills for Graphite Electrodes.**  
**Original diamond coating offers excellent resistance to wear on Graphite milling.**  
**Long life tool with optimized flute geometry and high adhesion diamond coating.**



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 39 models

Unit (mm)

Model Number	Outside Diameter $\phi D$	Corner Radius CR	Effective Length $l_1$	Length of Cut $l$	Neck Diameter $\phi d_1$	Shank Taper Angle Bta	Overall Length L	Shank Diameter $\phi d$	Suggested Retail Price ¥
DCLRS 4010-002-060	1	RO.02	6	2	0.97	16°	50	4	16,000
DCLRS 4010-002-100			10				50	4	16,000
DCLRS 4010-002-200			20				60	4	16,000
DCLRS 4010-005-060		RO.05	6				50	4	16,000
DCLRS 4010-005-100			10				50	4	16,000
DCLRS 4010-005-200			20				60	4	16,000
DCLRS 4015-002-120	1.5	RO.02	12	3	1.47	16°	55	4	16,000
DCLRS 4015-002-200			20				60	4	16,000
DCLRS 4015-002-300			30				80	4	17,000
DCLRS 4015-005-120		RO.05	12				55	4	16,000
DCLRS 4015-005-200			20				60	4	16,000
DCLRS 4015-005-300			30				80	4	17,000

Unit (mm)

Model Number	Outside Diameter $\phi D$	Corner Radius CR	Effective Length $\ell_1$	Length of Cut $\ell$	Neck Diameter $\phi d_1$	Shank Taper Angle Bta	Overall Length L	Shank Diameter $\phi d$	Suggested Retail Price ¥
DCLRS 4020-005-100	2	RO.05	10	4	1.98	16°	50	4	16,000
DCLRS 4020-005-200			20				60	4	16,000
DCLRS 4020-02-100			10				50	4	16,000
DCLRS 4020-02-200		RO.2	20				60	4	16,000
DCLRS 4020-02-300			30				80	4	17,000
DCLRS 4020-05-100			10				50	4	16,000
DCLRS 4020-05-200		RO.5	20				60	4	16,000
DCLRS 4020-05-300			30				80	4	17,000
DCLRS 4030-005-160			3				RO.05	16	6
DCLRS 4030-005-200	20	60		4	18,000				
DCLRS 4030-005-300	30	80		4	20,000				
DCLRS 4030-02-160	RO.2	16		60	4	18,000			
DCLRS 4030-02-200		20		60	4	18,000			
DCLRS 4030-02-300		30		80	4	20,000			
DCLRS 4030-05-160	RO.5	16		60	4	18,000			
DCLRS 4030-05-200		20		60	4	18,000			
DCLRS 4030-05-300		30		80	4	20,000			
DCLRS 4040-02-200	4	RO.2	20	8	3.93	16°	60	6	20,000
DCLRS 4040-02-300			30				80	6	20,000
DCLRS 4040-02-400			40				80	6	20,000
DCLRS 4040-05-200		RO.5	20				60	6	20,000
DCLRS 4040-05-300			30				80	6	20,000
DCLRS 4040-05-400			40				80	6	20,000
DCLRS 4060-02-300	6	RO.2	30	12	5.93	—	100	6	23,000
DCLRS 4060-02-600			60				120	6	30,000
DCLRS 4060-05-300		RO.5	30				100	6	23,000
DCLRS 4060-05-600			60				120	6	30,000

4 Flutes

ø3mm Shank  
V SeriesUDC-PCD  
SeriesCBN  
Series

Square

Square

Long Neck  
Square

Radius

Radius

Long Neck  
RadiusTaper Neck  
Radius

Ball

Ball / Long  
Shank BallLong Neck  
BallTaper Neck  
Ball

Taper

Taper

Barrel

Barrel

Spiral

Spiral  
V Cutter

Drill

Drill

Technical Data

Technical Data

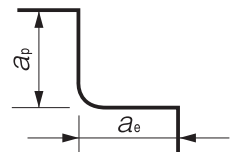
397

## Milling Conditions for DCLRS

WORK MATERIAL				GRAPHITE			
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min <sup>-1</sup> )	Feed Rate (mm/min)	$a_p$ Axial Depth (mm)	$a_e$ Radial Depth (mm)
4010-002-060	1	R0.02	6	26,000	1,700	0.12	0.7
4010-002-100			10	22,000	1,300	0.12	0.6
4010-002-200			20	13,000	750	0.1	0.5
4010-005-060		R0.05	6	26,000	1,700	0.12	0.6
4010-005-100			10	22,000	1,300	0.12	0.5
4010-005-200			20	13,000	750	0.1	0.4
4015-002-120	1.5	R0.02	12	19,000	1,700	0.18	1.1
4015-002-200			20	15,000	1,300	0.14	0.9
4015-002-300			30	10,000	800	0.11	0.7
4015-005-120		R0.05	12	19,000	1,700	0.18	0.95
4015-005-200			20	15,000	1,300	0.14	0.75
4015-005-300			30	10,000	800	0.11	0.6
4020-005-100	2	R0.05	10	20,000	2,400	0.3	1.4
4020-005-200			20	16,000	1,800	0.25	1.35
4020-02-100		R0.2	10	20,000	2,400	0.3	1.2
4020-02-200			20	16,000	1,800	0.25	1.15
4020-02-300			30	12,000	1,300	0.2	1.1
4020-05-100		R0.5	10	20,000	2,400	0.3	0.95
4020-05-200	20		16,000	1,800	0.25	0.9	
4020-05-300	30		12,000	1,300	0.2	0.85	
4030-005-160	3	R0.05	16	16,500	3,100	0.4	2.3
4030-005-200			20	16,000	2,900	0.4	2.1
4030-005-300			30	14,000	2,300	0.4	1.9
4030-02-160		R0.2	16	16,500	3,100	0.4	2
4030-02-200			20	16,000	2,900	0.4	1.8
4030-02-300			30	14,000	2,300	0.4	1.6
4030-05-160	R0.5	16	16,500	3,100	0.4	1.7	
4030-05-200		20	16,000	2,900	0.4	1.5	
4030-05-300		30	14,000	2,300	0.4	1.4	
4040-02-200	4	R0.2	20	14,000	3,400	0.5	2.7
4040-02-300			30	13,000	3,000	0.5	2.6
4040-02-400			40	12,000	2,600	0.5	2.5
4040-05-200		R0.5	20	14,000	3,400	0.5	2.3
4040-05-300			30	13,000	3,000	0.5	2.2
4040-05-400			40	12,000	2,600	0.5	2.1
4060-02-300	6	R0.2	30	13,000	4,300	0.75	4
4060-02-600			60	10,000	2,800	0.75	3.7
4060-05-300		R0.5	30	13,000	4,300	0.75	3.5
4060-05-600			60	10,000	2,800	0.75	3.1

Note:





- Use a milling machine dedicated for Graphite.
- Recommend air blow for Graphite.



## Other series for Graphite milling

### Square / Long Neck Square






(★ Highly Recommended ● Recommended ○ Suggested)

Number of Flutes, Tool Type	Model Number	Appearance	Coating	Size	Aluminum Alloys	Graphite	Copper	Plastics	Glass Filled Plastics	Hard Brittle (Non-Metallic) Materials	Page
4 flutes Square	CGE		Non-coat	$\phi 2 \sim \phi 20$	○	★	○	○	○		236
2 flutes Square	DCES 2000		DIA	$\phi 0.2 \sim \phi 6$	○	★	○	○	●	○	188
4 flutes Square	DCES 4000		DIA	$\phi 3 \sim \phi 10$	○	★	○	○	●	○	234
2 flutes Long Neck Square	DCLS		DIA	$\phi 0.4 \sim \phi 6$	○	★	○	○	●	○	266

### Long Neck Radius

4 flutes Long Neck Radius	DCLRS		DIA	$\phi 1 \sim \phi 6$	○	★	○	○	●	○	396
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### Ball / Long Neck Ball / Taper Neck Ball

2 flutes Ball	CGB 2000		Non-coat	R0.2~R6	○	★	○	○	○		440
4 flutes Ball	CGB 4000		Non-coat	R2~R10	○	★	○	○	○		458
2 flutes Ball	DCB		DIA	R0.5~R6	○	★	○	○	●	○	438
2 flutes Long Neck Ball	DCLB		DIA	R0.2~R3	○	★	○	○	●	○	512
2 flutes Taper Neck Ball	DCTNB		DIA	R0.5~R1	○	★	○	○	●	○	556

4 Flutes

φ3mm Shank V Series

UDC-PCD Series

CBN Series

Square

Square

Long Neck Square

Radius

Radius

Long Neck Radius

Taper Neck Radius

Ball / Long Shank Ball

Ball

Long Neck Ball

Taper Neck Ball

Taper

Taper

Barrel

Spiral V Cutter

Drill

Technical Data