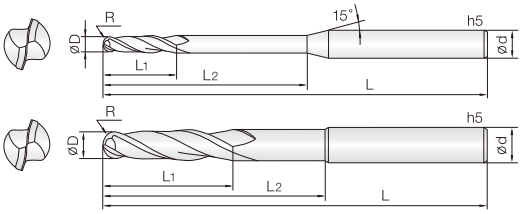
2DBE

2 Flutes Diamond Coated Ball End Mills for Graphite

2날 흑연가공용 다이아몬드 코팅 볼 엔드밀



- **그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀**
- CVD 순수다이아몬드코팅을적용하여내마모성이우수합니다.
- 다양한피삭재의형상에적용하도록규격을다양화하여, 넓은가공 영역에뛰어난수명과성능을발휘합니다.

- **Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.**
- Excellent wear resistance by applying qualified CVD diamond coating.
- Wide range products prepared for various work shape and excellent performance.

2 | WC 미립자 | DIA. Coating | R ± 0.01 0.1 ~ 6R | 30° Helix Angle | CUTTING DATA 346P

D Size	D Tolerance
Ø 0.2 ~ 12	+0 ~ -0.02mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DBE 002 010 S04	0.1R X 0.2	1	-	45	4	
2DBE 003 012 S04	0.15R X 0.3	1.2	-	45	4	
2DBE 003 020 S04	0.15R X 0.3	1.2	2	45	4	
2DBE 004 015 S04	0.2R X 0.4	1.5	-	45	4	
2DBE 004 020 S04	0.2R X 0.4	1.5	2	45	4	
2DBE 004 030 S04	0.2R X 0.4	1.5	3	45	4	
2DBE 004 040 S04	0.2R X 0.4	1.5	4	45	4	
2DBE 004 050 S04	0.2R X 0.4	1.5	5	45	4	
2DBE 004 080 S04	0.2R X 0.4	1.5	8	45	4	
2DBE 004 100 S04	0.2R X 0.4	1.5	10	45	4	
2DBE 005 020 S04	0.25R X 0.5	2	-	45	4	
2DBE 005 030 S04	0.25R X 0.5	2	3	45	4	
2DBE 005 040 S04	0.25R X 0.5	2	4	45	4	
2DBE 005 050 S04	0.25R X 0.5	2	5	45	4	
2DBE 005 060 S04	0.25R X 0.5	2	6	45	4	
2DBE 005 080 S04	0.25R X 0.5	2	8	45	4	
2DBE 005 100 S04	0.25R X 0.5	2	10	45	4	
2DBE 005 120 S04	0.25R X 0.5	2	12	45	4	
2DBE 006 020 S04	0.3R X 0.6	2	-	45	4	
2DBE 006 030 S04	0.3R X 0.6	2	3	45	4	
2DBE 006 040 S04	0.3R X 0.6	2	4	45	4	
2DBE 006 050 S04	0.3R X 0.6	2	5	45	4	
2DBE 006 060 S04	0.3R X 0.6	2	6	45	4	
2DBE 006 080 S04	0.3R X 0.6	2	8	45	4	
2DBE 006 100 S04	0.3R X 0.6	2	10	45	4	
2DBE 006 120 S04	0.3R X 0.6	2	12	45	4	
2DBE 006 150 S04	0.3R X 0.6	2	15	45	4	
2DBE 006 200 S04	0.3R X 0.6	2	20	45	4	
2DBE 008 030 S04	0.4R X 0.8	3	-	45	4	
2DBE 008 040 S04	0.4R X 0.8	3	4	45	4	
2DBE 008 050 S04	0.4R X 0.8	3	5	45	4	
2DBE 008 060 S04	0.4R X 0.8	3	6	45	4	
2DBE 008 080 S04	0.4R X 0.8	3	8	45	4	
2DBE 008 100 S04	0.4R X 0.8	3	10	45	4	
2DBE 008 150 S04	0.4R X 0.8	3	15	45	4	
2DBE 008 200 S04	0.4R X 0.8	3	20	45	4	
2DBE 010 030 S04	0.5R X 1	3	-	60	4	
2DBE 010 040 S04	0.5R X 1	3	4	60	4	
2DBE 010 050 S04	0.5R X 1	3	5	60	4	
2DBE 010 060 S04	0.5R X 1	3	6	60	4	
2DBE 010 080 S04	0.5R X 1	3	8	60	4	
2DBE 010 100 S04	0.5R X 1	3	10	60	4	
2DBE 010 120 S04	0.5R X 1	3	12	60	4	
2DBE 010 150 S04	0.5R X 1	3	15	60	4	
2DBE 010 200 S04	0.5R X 1	3	20	60	4	
2DBE 010 250 S04	0.5R X 1	3	25	80	4	
2DBE 010 300 S04	0.5R X 1	3	30	80	4	
2DBE 010 350 S04	0.5R X 1	3	35	80	4	
2DBE 010 400 S04	0.5R X 1	3	40	80	4	
2DBE 010 450 S04	0.5R X 1	3	45	80	4	

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DBE 010 500 S04	0.5R X 1	3	50	80	4	
2DBE 015 045 S04	0.75R X 1.5	4.5	-	60	4	
2DBE 015 080 S04	0.75R X 1.5	4.5	8	80	4	
2DBE 015 100 S04	0.75R X 1.5	4.5	10	80	4	
2DBE 015 120 S04	0.75R X 1.5	4.5	12	80	4	
2DBE 015 150 S04	0.75R X 1.5	4.5	15	80	4	
2DBE 015 180 S04	0.75R X 1.5	4.5	18	80	4	
2DBE 015 200 S04	0.75R X 1.5	4.5	20	80	4	
2DBE 015 250 S04	0.75R X 1.5	4.5	25	80	4	
2DBE 015 300 S04	0.75R X 1.5	4.5	30	80	4	
2DBE 015 350 S04	0.75R X 1.5	4.5	35	80	4	
2DBE 015 400 S04	0.75R X 1.5	4.5	40	80	4	
2DBE 020 060 S04	1R X 2	6	-	60	4	
2DBE 020 100 S04	1R X 2	6	10	80	4	
2DBE 020 150 S04	1R X 2	6	15	80	4	
2DBE 020 200 S04	1R X 2	6	20	80	4	
2DBE 020 250 S04	1R X 2	6	25	80	4	
2DBE 020 300 S04	1R X 2	6	30	80	4	
2DBE 020 350 S04	1R X 2	6	35	80	4	
2DBE 020 400 S04	1R X 2	6	40	100	4	
2DBE 020 450 S04	1R X 2	6	45	100	4	
2DBE 020 500 S04	1R X 2	6	50	100	4	
2DBE 020 600 S04	1R X 2	6	60	100	4	
2DBE 020 700 S04	1R X 2	6	70	100	4	
2DBE 030 150 100	1.5R X 3	8	15	100	3	
2DBE 030 080 S04	1.5R X 3	8	-	60	4	
New 2DBE 030 080 S06	1.5R X 3	3	8	60	6	
2DBE 030 150 S04	1.5R X 3	8	15	100	4	
2DBE 030 200 S04	1.5R X 3	8	20	100	4	
2DBE 030 250 S04	1.5R X 3	8	25	100	4	
2DBE 030 300 S04	1.5R X 3	8	30	100	4	
2DBE 030 350 S04	1.5R X 3	8	35	100	4	
2DBE 030 400 S04	1.5R X 3	8	40	100	4	
2DBE 030 500 S04	1.5R X 3	8	50	100	4	
2DBE 030 600 S04	1.5R X 3	8	60	100	4	
2DBE 030 700 S04	1.5R X 3	8	70	100	4	
2DBE 040 040 060	2R X 4	4	-	60	4	
2DBE 040 160 060	2R X 4	16	-	60	4	
2DBE 040 160 080	2R X 4	16	-	80	4	
2DBE 040 300 080	2R X 4	16	30	80	4	
2DBE 040 160 100	2R X 4	16	-	100	4	
2DBE 040 400 100	2R X 4	16	40	100	4	
2DBE 040 160 130	2R X 4	16	-	130	4	
2DBE 040 400 130	2R X 4	16	40	130	4	
2DBE 040 160 150	2R X 4	16	-	150	4	
2DBE 040 500 150	2R X 4	16	50	150	4	
2DBE 050 160 110	2.5R X 5	16	-	110	5	
2DBE 050 400 110	2.5R X 5	16	40	110	5	
2DBE 050 200 S06	2.5R X 5	16	20	110	6	
2DBE 050 400 S06	2.5R X 5	16	40	110	6	

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2날 흑연가공용 다이아몬드 코팅 볼 엔드밀

FOR GRAPHITE

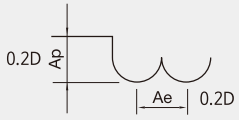
단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DBE 050 600 S06	2.5R X 5	16	60	110	6	
2DBE 060 250 080	3R X 6	16	25	80	6	
2DBE 060 250 110	3R X 6	16	25	110	6	
2DBE 060 400 110	3R X 6	16	40	110	6	
2DBE 060 300 150	3R X 6	16	30	150	6	
2DBE 060 500 150	3R X 6	16	50	150	6	
2DBE 080 300 080	4R X 8	20	30	80	8	
2DBE 080 300 110	4R X 8	20	30	110	8	
2DBE 080 400 110	4R X 8	20	40	110	8	
2DBE 080 500 150	4R X 8	20	50	150	8	
2DBE 080 400 200	4R X 8	20	40	200	8	
2DBE 100 400 080	5R X 10	22	40	80	10	
2DBE 100 400 110	5R X 10	22	40	110	10	
2DBE 100 500 110	5R X 10	22	50	110	10	
2DBE 100 600 160	5R X 10	22	60	160	10	
2DBE 100 500 200	5R X 10	22	50	200	10	
2DBE 120 500 110	6R X 12	25	50	110	12	
2DBE 120 500 160	6R X 12	25	50	160	12	
2DBE 120 600 200	6R X 12	25	60	200	12	

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고

2DBE / 3DBE / 4DBE Cutting Condition

• RPM : rev./min • Feed : mm/min

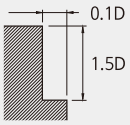
	2DBE				3DBE				4DBE			
피삭재 Material	흑연 Graphite				흑연 Graphite				흑연 Graphite			
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 1	16,000	400	0.20	0.20	16,000	480	0.20	0.20	16,000	700	0.20	0.20
ø 2	16,000	800	0.40	0.40	16,000	960	0.40	0.40	16,000	1,200	0.40	0.40
ø 3	16,000	1,450	0.60	0.60	16,000	1,740	0.60	0.60	16,000	2,000	0.60	0.60
ø 4	16,000	2,100	0.80	0.80	16,000	2,520	0.80	0.80	16,000	3,100	0.80	0.80
ø 5	15,500	2,550	1.00	1.00	15,500	3,060	1.00	1.00	15,000	3,800	1.00	1.00
ø 6	15,000	2,950	1.20	1.20	15,000	3,540	1.20	1.20	15,000	4,400	1.20	1.20
ø 8	13,000	3,000	1.60	1.60	13,000	3,600	1.60	1.60	13,000	4,500	1.60	1.60
ø 10	11,500	3,000	2.00	2.00	12,000	3,600	2.00	2.00	12,000	4,600	2.00	2.00
ø 12	10,700	3,200	2.40	2.40	10,000	3,840	2.40	2.40	10,000	4,700	2.40	2.40
절입량 Depth of Cut												

- 유효장이 긴 경우에는 회전수와 이송속도를 최대20% 이하로 줄이십시오.
- 절삭 조건표에 없는 유효장은 같은 직경과 비례하여 DOWN 시켜주십시오.
- 이절삭조건표는절삭조건의참고수치입니다. 실가공시가공형상, 가공목적, 적용기계에따라조건변경요망합니다.
- 공작기계와가공물의강성이없는경우진동이발생할시조건표에회전속도와이송속도를같은비율로줄여서적용 합니다.

- If the effective length is long, reduce the RPM and feed maximum 20%.
- If the effective length of your tool does not show above the table, use the shorten effevtive length of parameter and reduce the parameters in the same proportion.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- In case of workpiece and machine do not have enough rigidity and make vibration, reduce the RPM and feed in same proportion.

2DEM / 3DEM / 4&6DEM Cutting Condition

• RPM : rev./min • Feed : mm/min

	2DEM				4DEM				6DEM			
피삭재 Material	흑연 Graphite				흑연 Graphite				흑연 Graphite			
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 0.2	40,000	100	0.3	0.02	-	-	-	-	-	-	-	-
ø 0.4	40,000	200	0.6	0.04	-	-	-	-	-	-	-	-
ø 0.6	40,000	350	0.9	0.06	-	-	-	-	-	-	-	-
ø 0.8	40,000	550	1.2	0.08	-	-	-	-	-	-	-	-
ø 1	40,000	700	1.5	0.10	-	-	-	-	-	-	-	-
ø 2	25,000	800	3.0	0.20	-	-	-	-	-	-	-	-
ø 3	20,000	800	4.5	0.30	20,000	1,600	4.5	0.3	-	-	-	-
ø 4	18,000	950	6.0	0.40	18,000	1,900	6.0	0.4	-	-	-	-
ø 5	14,000	1,200	7.5	0.50	14,000	2,400	7.5	0.5	-	-	-	-
ø 6	11,000	1,400	9.0	0.60	11,000	2,800	9.0	0.6	22,200	8,000	9	0.6
ø 8	8,000	1,300	12.0	0.80	8,000	2,600	12.0	0.8	16,800	8,000	12	0.8
ø 10	6,500	1,200	15.0	1.00	6,500	2,400	15.0	1.0	13,400	8,000	15	1.0
ø 12	5,500	1,200	18.0	1.20	5,500	2,400	18.0	1.2	11,350	6,700	18	1.2
ø 16	5,500	1,200	24.0	1.60	-	-	-	-	8,400	5,000	24	1.6
절입량 Depth of Cut												

- 유효장 길이가 긴 경우, RPM과 FEED를 동일 비율로 낮춰 주세요.
- 날 끝이 정밀하게 연삭되어 있습니다. 파손을 피하기 위해 가능하면 비접촉 방식으로 측정 하십시오.
- 이 절삭 조건표는 절삭 조건의 참고 수치 입니다. 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건변경 요망 합니다.
- 조건표가 기계의 최대 스핀들 속도를 초과 하거나 버 및 적열 현상이 발생할때 스핀들 속도와 이송 속도를 비례적으로 조정 하십시오.
- 진동이 적고 강성이 좋은 공작기계 사용 요망 합니다 (Ø1이하 사용시 진동 허용 관리 5㎛이내 일것.)
- 흑연 가공시 에어브로를 추천 합니다.

- If the effective length is long, reduce the RPM and feed in the same proportion.
- The edge of the flute precisely grinded. If you want to measure the tool, and to avoid damaging on the flutes, use non-contact measuring method.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine, or found red heat on the material, adjust RPM and feed in the same proportion.
- Use a machine with low vibration and good rigidity (Ø1 or less, the vibration tolerance management should be within 5㎛).
- For graphite milling, air blow method is recommended.

Your specials are our standards.

당신의스페셜은우리의표준품입니다.

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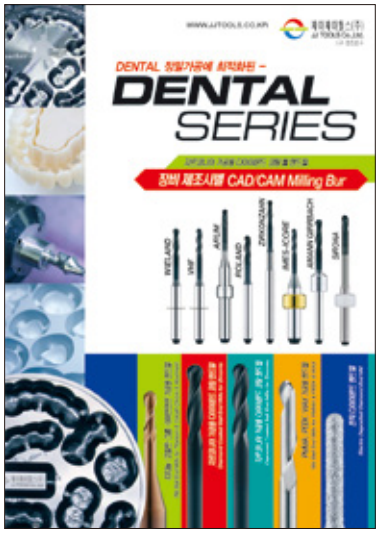

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ISO 9001 ISO 14001

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