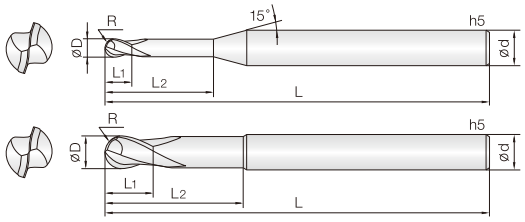
2COB

2 Flutes 45˚Helix Rib Ball End Mills for Copper

2날 45˚헬릭스 동가공 전용 리브 볼 엔드밀



- **동및동합금, 알루미늄합금, 비철합금가공용엔드밀**
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 45˚헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 우수하며, 고속, 고이송 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5㎛)을 채택, 엔드밀의 파손을 최소화.

- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize fracturing by high TRS fine(0.5㎛) WC grade.
- High speed, feed applicable by 45˚degree helix and deep chip pocket design

2 | WC 미립자 | JCRO Coating | R ± 0.005 (0.25 ~ 2.5R) | R ± 0.01 (3R ~ 6R) | R ± 0.015 (8R) | 45° Helix Angle | CUTTING DATA 355P

D Size	D Tolerance
Ø 0.5 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 16	-0.01 ~ -0.02mm

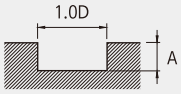
단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2COB 005 010 S04	0.25R X 0.5	0.7	1	45	4	
2COB 005 020 S04	0.25R X 0.5	0.7	2	45	4	
2COB 005 030 S04	0.25R X 0.5	0.7	3	45	4	
2COB 005 040 S04	0.25R X 0.5	0.7	4	45	4	
2COB 005 050 S04	0.25R X 0.5	0.7	5	45	4	
2COB 005 060 S04	0.25R X 0.5	0.7	6	45	4	
2COB 006 020 S04	0.3R X 0.6	0.9	2	45	4	
2COB 006 030 S04	0.3R X 0.6	0.9	3	45	4	
2COB 006 040 S04	0.3R X 0.6	0.9	4	45	4	
2COB 006 050 S04	0.3R X 0.6	0.9	5	45	4	
2COB 006 060 S04	0.3R X 0.6	0.9	6	45	4	
2COB 006 080 S04	0.3R X 0.6	0.9	8	45	4	
2COB 006 100 S04	0.3R X 0.6	0.9	10	45	4	
2COB 008 020 S04	0.4R X 0.8	1.2	2	45	4	
2COB 008 030 S04	0.4R X 0.8	1.2	3	45	4	
2COB 008 040 S04	0.4R X 0.8	1.2	4	45	4	
2COB 008 060 S04	0.4R X 0.8	1.2	6	45	4	
2COB 008 080 S04	0.4R X 0.8	1.2	8	45	4	
2COB 008 100 S04	0.4R X 0.8	1.2	10	45	4	
2COB 008 120 S04	0.4R X 0.8	1.2	12	45	4	
2COB 010 030 S04	0.5R X 1	1.5	3	50	4	
2COB 010 050 S04	0.5R X 1	1.5	5	50	4	
2COB 010 080 S04	0.5R X 1	1.5	8	50	4	
2COB 010 100 S04	0.5R X 1	1.5	10	50	4	
2COB 010 120 S04	0.5R X 1	1.5	12	50	4	
2COB 010 160 S04	0.5R X 1	1.5	16	50	4	
2COB 010 200 S04	0.5R X 1	1.5	20	50	4	
2COB 012 030 S04	0.6R X 1.2	1.8	3	50	4	
2COB 012 040 S04	0.6R X 1.2	1.8	4	50	4	
2COB 012 060 S04	0.6R X 1.2	1.8	6	50	4	
2COB 012 080 S04	0.6R X 1.2	1.8	8	50	4	
2COB 012 100 S04	0.6R X 1.2	1.8	10	50	4	
2COB 012 120 S04	0.6R X 1.2	1.8	12	50	4	
2COB 015 050 S04	0.75R X 1.5	2	5	50	4	
2COB 015 080 S04	0.75R X 1.5	2	8	50	4	
2COB 015 100 S04	0.75R X 1.5	2	10	50	4	
2COB 015 120 S04	0.75R X 1.5	2	12	50	4	
2COB 015 160 S04	0.75R X 1.5	2	16	50	4	
2COB 015 200 S04	0.75R X 1.5	2	20	50	4	
2COB 020 050 S06	1R X 2	3	5	50	6	
2COB 020 080 S06	1R X 2	3	8	50	6	
2COB 020 100 S06	1R X 2	3	10	50	6	
2COB 020 120 S06	1R X 2	3	12	60	6	
2COB 020 160 S06	1R X 2	3	16	60	6	
2COB 020 200 S06	1R X 2	3	20	60	6	
2COB 020 250 S06	1R X 2	3	25	65	6	
2COB 025 060 S06	1.25R X 2.5	4	6	50	6	
2COB 025 100 S06	1.25R X 2.5	4	10	50	6	
2COB 025 120 S06	1.25R X 2.5	4	12	60	6	
2COB 025 160 S06	1.25R X 2.5	4	16	60	6	

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2COB 025 200 S06	1.25R X 2.5	4	20	60	6	
2COB 030 080 S06	1.5R X 3	4.5	8	60	6	
2COB 030 120 S06	1.5R X 3	4.5	12	60	6	
2COB 030 160 S06	1.5R X 3	4.5	16	60	6	
2COB 030 200 S06	1.5R X 3	4.5	20	60	6	
2COB 030 250 S06	1.5R X 3	4.5	25	70	6	
2COB 030 300 S06	1.5R X 3	4.5	30	70	6	
2COB 030 400 S06	1.5R X 3	4.5	40	80	6	
2COB 040 100 S06	2R X 4	6	10	60	6	
2COB 040 160 S06	2R X 4	6	16	60	6	
2COB 040 200 S06	2R X 4	6	20	60	6	
2COB 040 250 S06	2R X 4	6	25	70	6	
2COB 040 300 S06	2R X 4	6	30	70	6	
2COB 040 400 S06	2R X 4	6	40	80	6	
2COB 050 160 S06	2.5R X 5	8	16	80	6	
2COB 050 200 S06	2.5R X 5	8	20	80	6	
2COB 050 250 S06	2.5R X 5	8	25	80	6	
2COB 060 150 S06	3R X 6	9	15	90	6	
2COB 060 300 S06	3R X 6	9	30	90	6	
2COB 060 400 S06	3R X 6	9	40	90	6	
2COB 080 200 S08	4R X 8	12	20	100	8	
2COB 100 250 S10	5R X 10	15	25	100	10	
2COB 120 300 S12	6R X 12	18	30	110	12	
2COB 160 600 S16	8R X 16	30	60	160	16	

3&5&5SUR Cutting Condition

• RPM : rev./min • Feed : mm/min

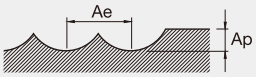
피삭재 Material	스테인레스강/ 티탄합금 Stainless Steels / Titanium Alloy Steels			
	SUS304 / SUS 316 / Ti6A			
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 3	5,000	380	0.9	3
ø 4	4,800	350	1.2	4
ø 5	4,700	350	1.5	5
ø 6	4,400	340	1.5	6
ø 7	3,800	340	1.75	7
ø 8	3,300	340	2	8
ø 9	3,000	340	2.25	9
ø 10	2,700	330	2.5	10
ø 12	2,200	330	1.8	12
ø 14	2,000	310	2.1	14
ø 16	1,750	300	2.4	16
ø 20	1,300	210	2	20
절입량 Depth of Cut	 A : Ø3 ~ 5 = 0.3 x D Ø6 ~ 10 = 0.25 x D Ø12 ~ 16 = 0.15 x D Ø18 ~ 20 = 0.1 x D			

- 가공 진입시 가능한 피삭재 밖에서 진입 하십시오.
- 유효장이 긴 경우에는 회전수와 이송속도를 최대30% 이하로 줄이십시오.
- 이 절삭 조건표는 절삭조건의 참고 수치 입니다. 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건변경 요망 합니다.
- 공작기계와 가공물의 강성이 없는 경우 진동이 발생할시 조건표에 회전 속도와 이송속도를 같은 비율로 줄여서 적용 합니다.
- 피삭재와 가공 모양에 따라 적절한 쿨런트를 사용 하십시오.
- 스테인레스, 내열합금강 등의 절단 가공시 수용성 절삭유가 가장 효과적입니다.

- When entering the tool to the workpiece, enter the tool from outside to the workpiece.
- If the effective length is long, reduce the RPM and feed maximum 30%.
- 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.
- In case of workpiece and machine do not have enough rigidity and make vibration, reduce the RPM and feed in same proportion.
- Depending on the workpiece and shape, use adequate coolant.
- For parting off stainless or hear resistant alloy, using water-soluble oil is the most effective way.

2C0B Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	동합금 Copper Alloys							
반경 Corner Radius	α≦15°				α>15°			
	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.5	40,000	8,000	0.06	0.1	40,000	3,200	0.06	0.1
R 0.75	40,000	9,600	0.09	0.15	40,000	4,000	0.09	0.15
R 1	40,000	9,600	0.11	0.2	39,000	4,700	0.11	0.2
R 1.5	40,000	12,000	0.12	0.3	30,000	4,500	0.12	0.3
R 2	40,000	12,000	0.13	0.4	27,000	4,300	0.13	0.4
R 2.5	32,000	11,000	0.15	0.5	20,000	3,600	0.15	0.5
R 3	25,000	9,000	0.2	0.6	16,000	2,900	0.2	0.6
R 4	21,000	8,400	0.25	0.8	13,000	2,600	0.25	0.8
R 5	16,000	6,400	0.3	1	10,000	2,000	0.3	1
R 6	13,000	5,200	0.5	1.2	8,000	1,700	0.5	1.2
R 8	9,000	3,600	0.5	1.6	6,000	1,300	0.5	1.6
절입량 Depth of Cut								

- α란 가공면의 경사각입니다.
- 유효장 길이가 긴 경우, RPM과 FEED를 동일 비율로 낮춰주세요.
- 원활한 칩배출을 위하여 수용성 절삭유제의 사용을 추천합니다.
- 적용 기계의 회전속도가 부족한 경우에는 회전속도와 이송속도를 같은 비율로 줄여서 적용 합니다.

- α value represents a slope of workpiece.
- If the effective length is long, reduce the RPM and feed in the same proportion.
- Using Water-soluble oil is recommended for smooth chip emission.
- If the parameters exceed the maximum RPM and feed of your machine, reduce the RPM and feed in the same proportion.

Your specials are our standards.

당신의스페셜은우리의표준품입니다.

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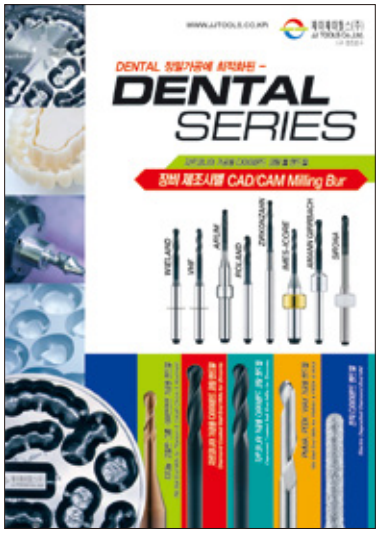

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