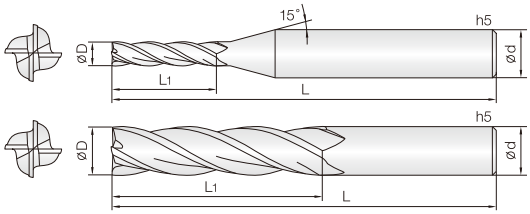
4LEMG

4Flutes Long Length End Mills for General Purpose

4날 범용 긴 길이 엔드밀



- **중저경도강(HRc52이하), 프리하든강계열, 탄소강, 금형강등 다양한 피삭재 가공**
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.

- **Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- Improve tool performance by even run-out and tolerance control.
- Various flute and overall length design for covering wide range applications as well as high efficiency machining.
- Minimize edge chipping by improving corner strength.

G series

4 | WC 미립자 | JCRO Coating | D +0-0.01 Ø1~5 | D -0.01-0.025 Ø6~12 | D -0.015-0.03 Ø14~25 | 35° Helix Angle | Shield Edge | CUTTING DATA 336P

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø14 ~ 25	-0.015 ~ -0.03mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4LEMG 010 030 S06	1	3	60	6	
4LEMG 010 050 S06	1	5	60	6	
4LEMG 015 060 S06	1.5	6	60	6	
4LEMG 015 080 S06	1.5	8	60	6	
4LEMG 020 080 S06	2	8	60	6	
4LEMG 020 100 S06	2	10	60	6	
4LEMG 030 100 S06	3	10	70	6	
4LEMG 030 150 S06	3	15	70	6	
4LEMG 030 200 S06	3	20	70	6	
4LEMG 030 250 S06	3	25	70	6	
4LEMG 040 120 S06	4	12	70	6	
4LEMG 040 150 S04	4	15	70	4	
4LEMG 040 150 S06	4	15	70	6	
4LEMG 040 200 S04	4	20	70	4	
4LEMG 040 200 S06	4	20	70	6	
4LEMG 040 250 S06	4	25	70	6	
4LEMG 040 300 S06	4	30	75	6	
4LEMG 050 200 S06	5	20	70	6	
4LEMG 050 250 S06	5	25	75	6	
4LEMG 050 300 S06	5	30	80	6	
4LEMG 060 200 S06	6	20	75	6	
4LEMG 060 200 100	6	20	100	6	
4LEMG 060 250 S06	6	25	75	6	
4LEMG 060 300 S06	6	30	80	6	
4LEMG 060 350 S06	6	35	80	6	
4LEMG 080 250 S08	8	25	75	8	
4LEMG 080 250 100	8	25	100	8	
4LEMG 080 300 S08	8	30	80	8	
4LEMG 080 350 S08	8	35	90	8	
4LEMG 080 400 S08	8	40	90	8	
4LEMG 080 450 S08	8	45	100	8	
4LEMG 100 300 S10	10	30	80	10	
4LEMG 100 300 110	10	30	110	10	
4LEMG 100 350 S10	10	35	90	10	
4LEMG 100 400 S10	10	40	90	10	
4LEMG 100 500 S10	10	50	100	10	
4LEMG 100 600 S10	10	60	110	10	
4LEMG 120 300 S12	12	30	90	12	
4LEMG 120 350 110	12	35	110	12	
4LEMG 120 400 S12	12	40	100	12	
4LEMG 120 500 S12	12	50	100	12	
4LEMG 120 600 S12	12	60	110	12	
4LEMG 120 700 S12	12	70	130	12	
4LEMG 140 500 S14	14	50	110	14	
4LEMG 160 400 160	16	40	160	16	
4LEMG 160 550 S16	16	55	120	16	
4LEMG 160 700 S16	16	70	130	16	
4LEMG 180 800 160	18	80	160	18	
4LEMG 200 500 160	20	50	160	20	
4LEMG 200 600 S20	20	60	130	20	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4LEMG 200 1000 S20	20	100	200	20	
4LEMG 250 750 S25	25	75	160	25	

4HCEG / 4LEMG Cutting Condition

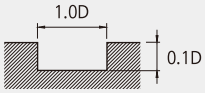
• RPM : rev./min • Feed : mm/min

홈절삭 Slotting

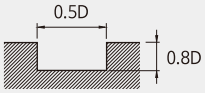
피삭재 Material	동 Copper				프리하든강 Prehardened Steels				고경도강 Hardened Steels			
경도 Hardness					40 ~ 50HRC				50 ~ 52HRC			
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 1	48,000	2,700	0.10	1.0	38,000	2,160	0.10	1.0	25,500	1,512	0.80	0.50
ø 2	33,300	3,060	0.20	2.0	26,000	2,448	0.20	2.0	17,500	1,714	1.60	1.00
ø 3	21,800	3,060	0.30	3.0	17,300	2,448	0.30	3.0	11,500	1,714	2.40	1.50
ø 4	16,700	3,168	0.40	4.0	13,200	2,534	0.40	4.0	8,800	1,774	3.20	2.00
ø 5	15,700	3,600	0.50	5.0	12,500	2,880	0.50	5.0	8,300	2,016	4.00	2.50
ø 6	13,000	3,420	0.60	6.0	10,350	2,736	0.60	6.0	6,900	1,915	4.80	3.00
ø 8	9,880	3,348	0.80	8.0	7,800	2,678	0.80	8.0	5,200	1,875	6.40	4.00
ø 10	7,800	3,060	1.00	10.0	6,150	2,448	1.00	10.0	4,100	1,714	8.00	5.00
ø 12	6,650	3,060	1.20	12.0	5,250	2,448	1.20	12.0	3,500	1,714	9.60	6.00
ø 16	5,540	2,808	1.60	16.0	4,340	2,246	1.60	16.0	2,600	1,572	12.80	8.00
ø 18	5,540	2,808	1.80	18.0	4,340	2,246	1.80	18.0	2,600	1,572	14.40	9.00
ø 20	4,640	2,592	2.00	20.0	4,340	2,074	2.00	20.0	2,100	1,452	16.00	10.00

절입량 Depth of Cut

~ 50HRC



50HRC ~

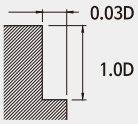


측면절삭 Side Cutting

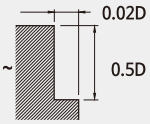
피삭재 Material	동 Copper				프리하든강 Prehardened Steels				고경도강 Hardened Steels			
경도 Hardness					40 ~ 50HRC				50 ~ 52HRC			
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 1	48,000	1,155	1	0.03	38,000	809	1	0.03	25,500	566	0.50	0.02
ø 2	33,300	1,320	2	0.06	26,000	924	2	0.06	17,500	647	1.00	0.04
ø 3	21,800	1,320	3	0.09	17,300	924	3	0.09	11,500	647	1.50	0.06
ø 4	16,700	1,375	4	0.12	13,200	963	4	0.12	8,800	674	2.00	0.08
ø 5	15,700	1,595	5	0.15	12,500	1,117	5	0.15	8,300	782	2.50	0.10
ø 6	13,000	1,485	6	0.18	10,350	1,040	6	0.18	6,900	728	3.00	0.12
ø 8	9,880	1,452	8	0.24	7,800	1,016	8	0.24	5,200	711	4.00	0.16
ø 10	7,800	1,320	10	0.30	6,150	924	10	0.30	4,100	647	5.00	0.20
ø 12	6,650	1,320	12	0.36	5,250	924	12	0.36	3,500	647	6.00	0.24
ø 16	5,540	1,100	16	0.48	4,340	770	16	0.48	2,600	539	8.00	0.32
ø 18	5,540	1,100	18	0.54	4,340	770	18	0.54	2,600	539	9.00	0.36
ø 20	4,640	1,045	20	0.60	4,340	836	20	0.60	2,100	585	10.00	0.40

절입량 Depth of Cut

~ 50HRC



50HRC ~



- 유효장 길이가 긴 경우, RPM과 FEED를 동일 비율로 낮춰 주세요.
- 날 끝이 정밀하게 연삭되어 있습니다. 파손을 피하기 위해 가능하면 비접촉 방식으로 측정 하십시오.
- HRC52 이상 고경도강 가공시 52HRC 조건의 같은 직경 대비 상기 절삭조건의 20% DOWN 해주십시오.
- 이 절삭 조건표는 절삭조건의 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.)
- 에어브로, 절삭유, 오일 미스트 쿨런트를 추천하며, 칩을 잘 제거하고 가공시의 발열과 발화에 주의 하십시오

- 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.
- When milling workpiece HRC over 52 hardened steel, reduce 20% of the RPM and feed compared to the same diameter.
- 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㎛).
- Air blow or oil mist is recommended for smooth chip emission, and dry milling is recommended for copper material.

Your specials are our standards.

당신의스페셜은우리의표준품입니다.

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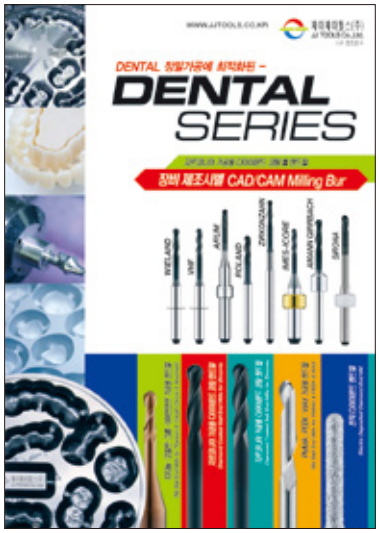

제이제이툴스(주)
JJ TOOLS Co.,Ltd.

31, Dusan-ro, Geumcheon-gu, Seoul,
Republic of Korea Tel. +82.2.808.2745
Fax. +82.2.808.2746 www.jjtools.co.kr

ISO 9001 ISO 14001

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