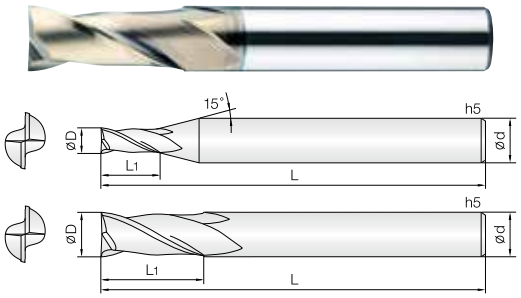
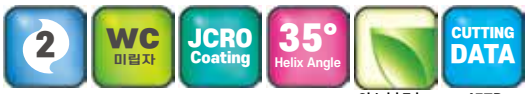
2HCEG

2 Flutes Standard Length End Mills for Multi Purpose
2날 범용 표준 길이 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5㎛)을 채택,엔드밀의 파손을 최소화 하였습니다.

- **Endmills for various work materials(~HRc52), pre-hardened steels, carbon steels, mold steels**
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5㎛) WC grade.



Shield Edge　457P

Condition	D Size	D Tolerance
ØD ≠ Ød	Ø0.1 ~ 0.15	+0 ~ -0.005mm
	Ø0.2 ~ 6	+0 ~ -0.01mm
	Ø6.5 ~ 20	+0 ~ -0.015mm

Condition	D Size	D Tolerance
ØD =Ød	Ø4 ~ 6	-0.005 ~ -0.015mm
	Ø8 ~ 12	-0.01 ~ -0.025mm
	Ø14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

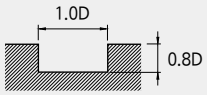
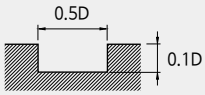
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCEG 001 002 S04	0.1	0.2	40	4	
2HCEG 0015 003 S04	0.15	0.3	40	4	
2HCEG 002 004 S04	0.2	0.4	40	4	
2HCEG 0025 005 S04	0.25	0.5	40	4	
2HCEG 003 006 S04	0.3	0.6	40	4	
2HCEG 0035 007 S04	0.35	0.7	40	4	
2HCEG 004 008 S04	0.4	0.8	40	4	
2HCEG 0045 009 S04	0.45	0.9	40	4	
2HCEG 005 010 S04	0.5	1	40	4	
2HCEG 0055 011 S04	0.55	1.1	40	4	
2HCEG 006 012 S04	0.6	1.2	40	4	
2HCEG 0065 013 S04	0.65	1.3	40	4	
2HCEG 007 014 S04	0.7	1.4	40	4	
2HCEG 0075 015 S04	0.75	1.5	40	4	
2HCEG 008 016 S04	0.8	1.6	40	4	
2HCEG 0085 017 S04	0.85	1.7	40	4	
2HCEG 009 020 S04	0.9	2	40	4	
2HCEG 0095 020 S04	0.95	2	40	4	
2HCEG 010 010 S04	1	1	40	4	
2HCEG 010 025 S04	1	2.5	40	4	
2HCEG 010 025 S06	1	2.5	40	6	
2HCEG 010 025 060	1	2.5	60	6	
2HCEG 010 040 S06	1	4	50	6	
2HCEG 011 027 S04	1.1	2.7	40	4	
2HCEG 012 012 S04	1.2	1.2	40	4	
2HCEG 012 030 S04	1.2	3	40	4	
2HCEG 012 030 S06	1.2	3	40	6	
2HCEG 012 030 060	1.2	3	60	6	
2HCEG 012 060 S06	1.2	6	50	6	
2HCEG 013 032 S04	1.3	3.2	40	4	
2HCEG 014 035 S04	1.4	3.5	40	4	
2HCEG 015 015 S04	1.5	1.5	40	4	
2HCEG 015 040 S04	1.5	4	40	4	
2HCEG 015 040 S06	1.5	4	40	6	
2HCEG 015 040 060	1.5	4	60	6	
2HCEG 016 040 S04	1.6	4	40	4	
2HCEG 017 042 S04	1.7	4.2	40	4	
2HCEG 018 045 S04	1.8	4.5	40	4	
2HCEG 019 050 S04	1.9	5	40	4	
2HCEG 020 020 S04	2	2	40	4	
2HCEG 020 060 S04	2	6	40	4	
2HCEG 020 060 S06	2	6	40	6	
2HCEG 020 060 060	2	6	60	6	
2HCEG 021 060 S04	2.1	6	40	4	
2HCEG 022 060 S04	2.2	6	40	4	
2HCEG 023 060 S04	2.3	6	40	4	
2HCEG 024 080 S04	2.4	8	45	4	
2HCEG 025 080 S04	2.5	8	45	4	
2HCEG 025 080 S06	2.5	8	45	6	
2HCEG 025 080 070	2.5	8	70	6	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCEG 026 080 S04	2.6	8	45	4	
2HCEG 027 080 S04	2.7	8	45	4	
2HCEG 028 080 S04	2.8	8	45	4	
2HCEG 029 080 S04	2.9	8	45	4	
2HCEG 030 030 S04	3	3	40	4	
2HCEG 030 080 S04	3	8	45	4	
2HCEG 030 080 S06	3	8	45	6	
2HCEG 030 080 070	3	8	70	6	
2HCEG 035 100 S06	3.5	10	45	6	
2HCEG 040 040 S04	4	4	40	4	
2HCEG 040 100 S04	4	10	45	4	
2HCEG 040 110 S06	4	11	45	6	
2HCEG 040 110 070	4	11	70	6	
2HCEG 045 110 S06	4.5	11	45	6	
2HCEG 050 130 S06	5	13	50	6	
2HCEG 050 130 080	5	13	80	6	
2HCEG 055 130 S06	5.5	13	50	6	
2HCEG 060 060 S06	6	6	45	6	
2HCEG 060 130 S06	6	13	50	6	
2HCEG 060 130 080	6	13	80	6	
2HCEG 060 150 S06	6	15	60	6	
2HCEG 065 160 S08	6.5	16	60	8	
2HCEG 070 160 S08	7	16	60	8	
2HCEG 075 160 S08	7.5	16	60	8	
2HCEG 080 080 S08	8	8	50	8	
2HCEG 080 190 S08	8	19	60	8	
2HCEG 080 200 S08	8	20	70	8	
2HCEG 085 190 S10	8.5	19	70	10	
2HCEG 090 190 S10	9	19	70	10	
2HCEG 095 190 S10	9.5	19	70	10	
2HCEG 100 100 S10	10	10	60	10	
2HCEG 100 220 S10	10	22	70	10	
2HCEG 100 250 S10	10	25	75	10	
2HCEG 105 220 S12	10.5	22	75	12	
2HCEG 110 220 S12	11	22	75	12	
2HCEG 115 220 S12	11.5	22	75	12	
2HCEG 120 120 S12	12	12	65	12	
2HCEG 120 260 S12	12	26	75	12	
2HCEG 120 300 S12	12	30	80	12	
2HCEG 140 260 S14	14	26	80	14	
2HCEG 140 260 S16	14	26	85	16	
2HCEG 160 350 S16	16	35	100	16	
2HCEG 160 400 S16	16	40	100	16	
2HCEG 180 350 S18	18	35	100	18	
2HCEG 200 400 S20	20	40	100	20	
2HCEG 200 500 S20	20	50	110	20	

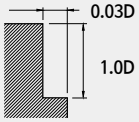
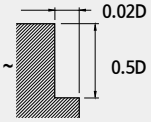
2HCEG/2LEMG Cutting Condition

• RPM : rev./min • Feed : mm/min

홈절삭 Slotting

피삭재 Material	동 합금 Copper alloys C1100				합금강 / 프리하든강 Alloy Steels / Prehardened Steels NAK80/KP4M				고경도강 Hardened Steels STAVAX/SKD11			
경도 Hardness					40 ~ 45HRc				45 ~ 55HRc			
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 0.1	50,000	300	0.01	0.1	45,000	240	0.08	0.05	40,500	168	0.08	0.05
ø 0.2	50,000	390	0.02	0.2	45,000	312	0.16	0.10	40,500	218	0.16	0.10
ø 0.3	50,000	570	0.03	0.3	45,000	456	0.24	0.15	40,500	319	0.24	0.15
ø 0.4	50,000	705	0.04	0.4	45,000	564	0.32	0.20	40,500	395	0.32	0.20
ø 0.5	50,000	1,110	0.05	0.5	45,000	888	0.40	0.25	40,500	622	0.40	0.25
ø 0.6	50,000	1,410	0.06	0.6	45,000	1,128	0.48	0.30	40,500	790	0.48	0.30
ø 0.8	50,000	1,800	0.08	0.8	40,000	1,440	0.64	0.40	30,000	1,008	0.64	0.40
ø 0.9	49,000	1,965	0.09	0.9	39,000	1,572	0.72	0.45	27,800	1,100	0.72	0.45
ø 1	48,000	2,250	0.10	1.0	38,000	1,800	0.80	0.50	25,500	1,260	0.80	0.50
ø 2	33,300	2,550	0.20	2.0	26,000	2,040	1.60	1.00	17,500	1,428	1.60	1.00
ø 3	21,800	2,550	0.30	3.0	17,300	2,040	2.40	1.50	11,500	1,428	2.40	1.50
ø 4	16,700	2,640	0.40	4.0	13,200	2,112	3.20	2.00	8,800	1,478	3.20	2.00
ø 5	15,700	3,000	0.50	5.0	12,500	2,400	4.00	2.50	8,300	1,680	4.00	2.50
ø 6	13,000	2,850	0.60	6.0	10,350	2,280	4.80	3.00	6,900	1,596	4.80	3.00
ø 8	9,880	2,790	0.80	8.0	7,800	2,232	6.40	4.00	5,200	1,562	6.40	4.00
ø 10	7,800	2,550	1.00	10.0	6,150	2,040	8.00	5.00	4,100	1,428	8.00	5.00
ø 12	6,650	2,550	1.20	12.0	5,250	2,040	9.60	6.00	3,500	1,428	9.60	6.00
ø 16	5,540	2,340	1.60	16.0	4,340	1,872	12.80	8.00	2,600	1,310	12.80	8.00
ø 18	5,540	2,340	1.80	18.0	4,340	1,872	14.40	9.00	2,600	1,310	14.40	9.00
ø 20	4,640	2,160	2.00	20.0	4,340	1,728	16.00	10.00	2,100	1,210	16.00	10.00
절입량 Depth of Cut	~ 40HRC 				40HRC ~ 							

측면절삭 Side Cutting

피삭재 Material	동 Copper alloys C1100				합금강 / 프리하든강 Alloy Steels / Prehardened Steels NAK80/KP4M				고경도강 Hardened Steels STAVAX/SKD11			
경도 Hardness					40 ~ 45HRc				45 ~ 55HRc			
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	1,050	1	0.03	38,000	735	0.50	0.02	25,500	515	0.50	0.02
ø 2	33,300	1,200	2	0.06	26,000	840	1.00	0.04	17,500	588	1.00	0.04
ø 3	21,800	1,200	3	0.09	17,300	840	1.50	0.06	11,500	588	1.50	0.06
ø 4	16,700	1,250	4	0.12	13,200	875	2.00	0.08	8,800	613	2.00	0.08
ø 5	15,700	1,450	5	0.15	12,500	1,015	2.50	0.10	8,300	711	2.50	0.10
ø 6	13,000	1,350	6	0.18	10,350	945	3.00	0.12	6,900	662	3.00	0.12
ø 8	9,880	1,320	8	0.24	7,800	924	4.00	0.16	5,200	647	4.00	0.16
ø 10	7,800	1,200	10	0.30	6,150	840	5.00	0.20	4,100	588	5.00	0.20
ø 12	6,650	1,200	12	0.36	5,250	840	6.00	0.24	3,500	588	6.00	0.24
ø 16	5,540	1,000	16	0.48	4,340	700	8.00	0.32	2,600	490	8.00	0.32
ø 18	5,540	1,000	18	0.54	4,340	700	9.00	0.36	2,600	490	9.00	0.36
ø 20	4,640	950	20	0.60	4,340	760	10.00	0.40	2,100	532	10.00	0.40
절입량 Depth of Cut	~ 40HRC 				40HRC ~ 							

- 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 같은 직경의 같은 비율로 20% DOWN 해주십시오.
- 상기 절삭조건은 참고 수치이므로 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 비례하여 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 가공시 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 mist coolants are recommended and note for chip emission, heat, or ignition.