

- 중저경도강(HRc52이하), 프리하든강계열, 탄소강, 금형강등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.

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



Ø0.1~0.15 Ø0.2~5.5 Ø6~12 Ø14~20

Shield Edge 335P

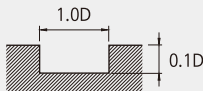
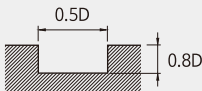
D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5.5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø14 ~ 20	-0.015 ~ -0.03mm

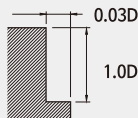
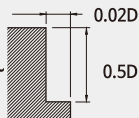
단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
2HCEG 001 002 S04	0.1	0.2	40	4		2HCEG 026 080 S04	2.6	8	45	4	
2HCEG 0015 003 S04	0.15	0.3	40	4		2HCEG 027 080 S04	2.7	8	45	4	
2HCEG 002 004 S04	0.2	0.4	40	4		2HCEG 028 080 S04	2.8	8	45	4	
2HCEG 0025 005 S04	0.25	0.5	40	4		2HCEG 029 080 S04	2.9	8	45	4	
2HCEG 003 006 S04	0.3	0.6	40	4		2HCEG 030 030 S04	3	3	40	4	
2HCEG 0035 007 S04	0.35	0.7	40	4		2HCEG 030 080 S04	3	8	45	4	
2HCEG 004 008 S04	0.4	0.8	40	4		2HCEG 030 080 S06	3	8	45	6	
2HCEG 0045 009 S04	0.45	0.9	40	4		2HCEG 030 080 070	3	8	70	6	
2HCEG 005 010 S04	0.5	1	40	4		2HCEG 035 100 S06	3.5	10	45	6	
2HCEG 0055 011 S04	0.55	1.1	40	4		2HCEG 040 040 S04	4	4	40	4	
2HCEG 006 012 S04	0.6	1.2	40	4		2HCEG 040 100 S04	4	10	45	4	
2HCEG 0065 013 S04	0.65	1.3	40	4		2HCEG 040 110 S06	4	11	45	6	
2HCEG 007 014 S04	0.7	1.4	40	4		2HCEG 040 110 070	4	11	70	6	
2HCEG 0075 015 S04	0.75	1.5	40	4		2HCEG 045 110 S06	4.5	11	45	6	
2HCEG 008 016 S04	0.8	1.6	40	4		2HCEG 050 130 S06	5	13	50	6	
2HCEG 0085 017 S04	0.85	1.7	40	4		2HCEG 050 130 080	5	13	80	6	
2HCEG 009 020 S04	0.9	2	40	4		2HCEG 055 130 S06	5.5	13	50	6	
2HCEG 0095 020 S04	0.95	2	40	4		2HCEG 060 060 S06	6	6	45	6	
2HCEG 010 010 S04	1	1	40	4		2HCEG 060 130 S06	6	13	50	6	
2HCEG 010 025 S04	1	2.5	40	4		2HCEG 060 130 080	6	13	80	6	
2HCEG 010 025 S06	1	2.5	40	6		2HCEG 060 150 S06	6	15	60	6	
2HCEG 010 025 060	1	2.5	60	6		2HCEG 065 160 S08	6.5	16	60	8	
2HCEG 010 040 S06	1	4	50	6		2HCEG 070 160 S08	7	16	60	8	
2HCEG 011 027 S04	1.1	2.7	40	4		2HCEG 075 160 S08	7.5	16	60	8	
2HCEG 012 012 S04	1.2	1.2	40	4		2HCEG 080 080 S08	8	8	50	8	
2HCEG 012 030 S04	1.2	3	40	4		2HCEG 080 190 S08	8	19	60	8	
2HCEG 012 030 S06	1.2	3	40	6		2HCEG 080 200 S08	8	20	70	8	
2HCEG 012 030 060	1.2	3	60	6		2HCEG 085 190 S10	8.5	19	70	10	
2HCEG 012 060 S06	1.2	6	50	6		2HCEG 090 190 S10	9	19	70	10	
2HCEG 013 032 S04	1.3	3.2	40	4		2HCEG 095 190 S10	9.5	19	70	10	
2HCEG 014 035 S04	1.4	3.5	40	4		2HCEG 100 100 S10	10	10	60	10	
2HCEG 015 015 S04	1.5	1.5	40	4		2HCEG 100 220 S10	10	22	70	10	
2HCEG 015 040 S04	1.5	4	40	4		2HCEG 100 250 S10	10	25	75	10	
2HCEG 015 040 S06	1.5	4	40	6		2HCEG 105 220 S12	10.5	22	75	12	
2HCEG 015 040 060	1.5	4	60	6		2HCEG 110 220 S12	11	22	75	12	
2HCEG 016 040 S04	1.6	4	40	4		2HCEG 115 220 S12	11.5	22	75	12	
2HCEG 017 042 S04	1.7	4.2	40	4		2HCEG 120 120 S12	12	12	65	12	
2HCEG 018 045 S04	1.8	4.5	40	4		2HCEG 120 260 S12	12	26	75	12	
2HCEG 019 050 S04	1.9	5	40	4		2HCEG 120 300 S12	12	30	80	12	
2HCEG 020 020 S04	2	2	40	4		2HCEG 140 260 S14	14	26	80	14	
2HCEG 020 060 S04	2	6	40	4		2HCEG 140 260 S16	14	26	85	16	
2HCEG 020 060 S06	2	6	40	6		2HCEG 160 350 S16	16	35	100	16	
2HCEG 020 060 060	2	6	60	6		2HCEG 160 400 S16	16	40	100	16	
2HCEG 021 060 S04	2.1	6	40	4		2HCEG 180 350 S18	18	35	100	18	
2HCEG 022 060 S04	2.2	6	40	4		2HCEG 200 400 S20	20	40	100	20	
2HCEG 023 060 S04	2.3	6	40	4		2HCEG 200 500 S20	20	50	110	20	
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							

2HCEG / 2LEMG Cutting Condition

• RPM : rev./min • Feed : mm/min

홈절삭 Slotting												
파삭재 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 0.1	50,000	300	0.01	0.1	45,000	240	0.01	0.1	40,500	168	0.08	0.05
ø 0.2	50,000	390	0.02	0.2	45,000	312	0.02	0.2	40,500	218	0.16	0.10
ø 0.3	50,000	570	0.03	0.3	45,000	456	0.03	0.3	40,500	319	0.24	0.15
ø 0.4	50,000	705	0.04	0.4	45,000	564	0.04	0.4	40,500	395	0.32	0.20
ø 0.5	50,000	1,110	0.05	0.5	45,000	888	0.05	0.5	40,500	622	0.40	0.25
ø 0.6	50,000	1,410	0.06	0.6	45,000	1,128	0.06	0.6	40,500	790	0.48	0.30
ø 0.8	50,000	1,800	0.08	0.8	40,000	1,440	0.08	0.8	30,000	1,008	0.64	0.40
ø 0.9	49,000	1,965	0.09	0.9	39,000	1,572	0.09	0.9	27,800	1,100	0.72	0.45
ø 1	48,000	2,250	0.10	1.0	38,000	1,800	0.10	1.0	25,500	1,260	0.80	0.50
ø 2	33,300	2,550	0.20	2.0	26,000	2,040	0.20	2.0	17,500	1,428	1.60	1.00
ø 3	21,800	2,550	0.30	3.0	17,300	2,040	0.30	3.0	11,500	1,428	2.40	1.50
ø 4	16,700	2,640	0.40	4.0	13,200	2,112	0.40	4.0	8,800	1,478	3.20	2.00
ø 5	15,700	3,000	0.50	5.0	12,500	2,400	0.50	5.0	8,300	1,680	4.00	2.50
ø 6	13,000	2,850	0.60	6.0	10,350	2,280	0.60	6.0	6,900	1,596	4.80	3.00
ø 8	9,880	2,790	0.80	8.0	7,800	2,232	0.80	8.0	5,200	1,562	6.40	4.00
ø 10	7,800	2,550	1.00	10.0	6,150	2,040	1.00	10.0	4,100	1,428	8.00	5.00
ø 12	6,650	2,550	1.20	12.0	5,250	2,040	1.20	12.0	3,500	1,428	9.60	6.00
ø 16	5,540	2,340	1.60	16.0	4,340	1,872	1.60	16.0	2,600	1,310	12.80	8.00
ø 18	5,540	2,340	1.80	18.0	4,340	1,872	1.80	18.0	2,600	1,310	14.40	9.00
ø 20	4,640	2,160	2.00	20.0	4,340	1,728	2.00	20.0	2,100	1,210	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	1,050	1	0.03	38,000	735	1	0.03	25,500	515	0.50	0.02
ø 2	33,300	1,200	2	0.06	26,000	840	2	0.06	17,500	588	1.00	0.04
ø 3	21,800	1,200	3	0.09	17,300	840	3	0.09	11,500	588	1.50	0.06
ø 4	16,700	1,250	4	0.12	13,200	875	4	0.12	8,800	613	2.00	0.08
ø 5	15,700	1,450	5	0.15	12,500	1,015	5	0.15	8,300	711	2.50	0.10
ø 6	13,000	1,350	6	0.18	10,350	945	6	0.18	6,900	662	3.00	0.12
ø 8	9,880	1,320	8	0.24	7,800	924	8	0.24	5,200	647	4.00	0.16
ø 10	7,800	1,200	10	0.30	6,150	840	10	0.30	4,100	588	5.00	0.20
ø 12	6,650	1,200	12	0.36	5,250	840	12	0.36	3,500	588	6.00	0.24
ø 16	5,540	1,000	16	0.48	4,340	700	16	0.48	2,600	490	8.00	0.32
ø 18	5,540	1,000	18	0.54	4,340	700	18	0.54	2,600	490	9.00	0.36
ø 20	4,640	950	20	0.60	4,340	760	20	0.60	2,100	532	10.00	0.40
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.
- HRC52 이상 고경도강 가공시 52HRC 조건의 같은 직경 대비 상기 절삭조건의 20% DOWN 해주십시오.
- 이 절삭 조건표는 절삭조건의 참고 수치입니다. 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건변경 요망 합니다.
- 조건표가 기계의 최대 스피들 속도를 초과하거나 버 및 적열 현상이 발생할때 스피들 속도와 이송 속도를 비례적으로 조정 하십시오.
- 진동이 적고 강성이 좋은 공작기계 사용 요망 합니다 (ø1이하 사용자 진동 허용 관리 5µm 이내 일것.)
- 에어브로, 절삭유, 오일 미스트 콜러트를 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 5µm).
- Air blow or oil mist is recommended for smooth chip emission, and dry milling is recommended for copper material.

당신의스페셜은우리의표준품입니다.

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