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Made in Korea

제이제이툴스(주)
JJ TOOLS Co.,Ltd.
(구) 장진공구

Carbide End Mills

9434 PRODUCTS

High Precision
& High Speed Cutting

Your specials are our standards. 당신의 스페셜은 우리의 표준품입니다.

USA Canada Germany France Italy Portugal Austria Spain Belgium Denmark Poland Greece Swiss

Sweden Argentina Turkey Australia New Zealand China Japan India Hong Kong Malaysia Thailand Vietnam

FOR HARDened - STEELS

고경도용 엔드밀 시리즈

For Hardened Steels End Mill Series

DLC

DLC코팅 엔드밀 시리즈

DLC Coated End Mill Series

세계로 수출하는 명품 엔드밀

Globally exporting the outstanding quality

JJ TOOLS

JJTOOLS(구_장진공구)는 초경절삭공구에만 매진해 온 초경엔드밀 전문제조기업으로서 1997년 창사이래 도전적이고 창의적인 연구개발 및 공정개선을 통하여 세계적 수준의 고정도, 고품질의 제품을 생산하고 있습니다.

또한, 신개발 코팅법 적용 및 지속적인 품질개선 등을 통하여 항상 고객의 생산성 향상에 부합하도록 최선을 다하고 있습니다.

뛰어난 기술력과 최신의 장비로 만들어내는 제이제이툴스의 제품은 미국, 중국, 일본, 호주, 유럽 등에 수출함으로써 세계적인 품질경쟁력을 인정받고 있습니다.

FOR GRAPHITE

다이아몬드 코팅 엔드밀 시리즈

Diamond Coated End Mill Series

FOR CBN

CBN 엔드밀 시리즈

CBN End Mill Series

HIGH SPEED

고이송용 엔드밀 시리즈

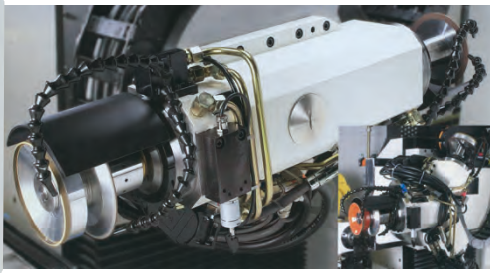
High Speed End Mill Series

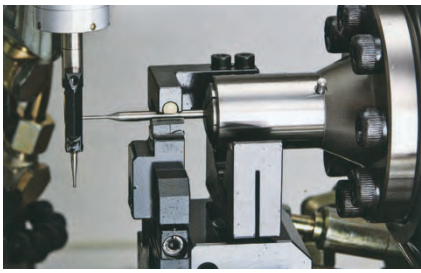
HIGH SPEED

고속가공용 엔드밀 시리즈

High Speed End Mill Series

We, JJ TOOLS(former_JANGJIN TOOLS), are a professional WC endmill manufacturer, supplying the world-class products to the industries through a continual process innovation as well as a creative research & development efforts since founded in 1997. And, We are doing our best for customers' productivity improvement via continual efforts for quality innovation and applying the newly qualified technology to the products. The world class quality competitiveness of JJ TOOLS products which are manufactured with excellent technology and the latest manufacturing equipments are very well recognized through exporting to USA, China, Japan, Australia and many other countries in Europe.





최신의 초정밀 장비 !
한차원 높은 정밀 공차 !

The Latest Manufacturing Equipments !
New Precision Tolerance !

제이제이툴스는 초정밀 공구생산을 위한 세계 최고 수준의 첨단 설비와 우수한 전문 인력을 기반으로 더욱 혁신적인 정밀공차 관리를 함으로서 표준 엔드밀의 제품 수준을 대폭 향상 시켰습니다.

JJ TOOLS achieved a big quality improvement on its' standard products line by applying very tight tolerance control as well as the world best class manufacturing equipments with very well qualified peoples.

■ 공구 오차
Tolerance

0.1R≦ R ≦1R	±0.003mm
1R< R ≦3R	±0.005mm
3R< R	±0.008mm

고경도재의 정밀 정삭가공에 적합한

Optimised for precise machining of high hardness work material

탁월한 내마모 품질 !

High Abrasion Resistance !

FOR CBN

CBN 엔드밀 시리즈

CBN End Mill series

HRc70 고경도강의 경면 사상 가공에 최적 !

Optimised for mirror face machining of hardened steels (HRc70) !

CBN 시리즈는 고함량의 PCBN을 사용하여 탁월한 내마모성과 최적의 인선부 설계로 뛰어난 절삭력 및 경면 조도를 나타내며, 고경도강(HRc70)의 고속 가공시 최고의 성능을 발휘합니다.

- *PCBN endmill for precise finishing(±5㎛) of hardened steel(HRc52~70)*
- *Long tool life by high quality PCBN*

초정밀 볼엔드밀 탄생 !

Ultra precision ball nose end mill !

진품명품
ULTRA PRECISION

국내 최초 !
초정밀 R공차 -

First in korea !
Ultra precision R tolerance -

±0.002mm

ULTRA PRECISION

0.1R ≦ R ≦ 1R	±0.002mm
1R < R ≦ 2R	±0.003mm
2R < R	±0.005mm

Ultra Precise Machining

HIGH SPEED

진품명품 시리즈

World class end mill -

대한민국 명품 엔드밀 -
2PHCB

최고의 정밀도를 우리가 실현하였습니다 !
Don't say any more about the QUALITY !

FOR GRAPHITE

다이아몬드 코팅 시리즈

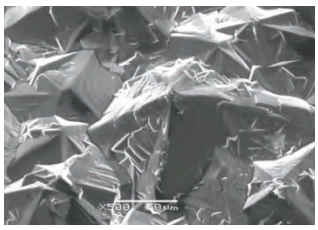
DIAMOND Coated End Mills for Graphite

CVD 다이아몬드는 바인더(활성계면제)가 없는 순수결정체로서 단결정 다이아몬드와 동일한 특성을 나타내며, 변형 없는 코팅의 우수함으로 강력한 절삭력과 공구수명이 향상됩니다.

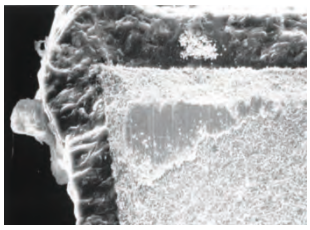
CVD diamond is a binderless- pure crystal, delivering identical properties of single diamond crystal. JJ TOOLS is applying the latest CVD coating technology which has no residual stress at the interface for extending tool life.

PROPERTY	CVD Diamond	Mono Diamond	PCD	K10
열전도율(W/m • K) Thermal conductivity	~ 1000	2,000	560	110
경도(Gpa) Hardness	80 ~ 100	50 ~ 100	50	18
표면 조밀도(MPa • m$^{1/2}$) Toughness	5 ~ 6	3.4	8 ~ 9	10.5
인장력(Gpa) Tensile strengh	400 ~ 800	1,000~3,000	1,260	-
압축 강도(Gpa) Compressive strength	16.0	9.0	7.6	6.1
항절력(Gpa) TRS	1.3	2.9	1.2	2.4

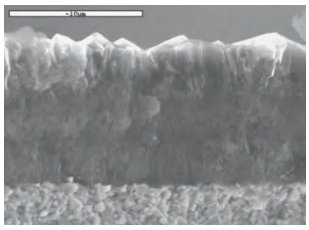
▮ 다이아몬드 결정 SEM 사진 SEM Images of Diamond crystal



다이아몬드 표면 입자 확대
Diamond surface image



다이아몬드 단면 확대
Diamond cross section image



다이아몬드 단면 확대
Diamond cross section image

고경도재의 고속·고정도 가공에 최적!

High speed precise machining for hardened steels

FOR HARDened Steels **HRc 52~68**

JJ End Mill series
제이제이 엔드밀 시리즈

우수한 내마모성으로 더욱 향상된 성능
Higher performance by much wear

신개발의 TISN-S 코팅법이 적용되어 경도 HRc52 이상의 고경도재, 프리하든강, 금형강 등의 고속,고정도 가공시 탁월한 내마모성과 절삭 성능을 발휘합니다.

JJ series on which newly developed TISIN-S coating technology delivering the best performance and tool life improvement much at high speed, precise machining of hardened and pre-hardened steel (more than HRc 52), Die and mold steel by an reinforced edge strength.

ALCRN coating

강하고 오래가는
ALCRN코팅 적용
Strong & long tool life

HRc52이하의 다양한 중저경도강용
(프리하든강, 탄소강, 금형강 등)

For various work materials (pre-hardened steel, carbon steel, mold steel) **of HRc52 or less**

"G" line for general purpose
G계열 범용 엔드밀

경제적인 제품가격과 최고의 품질력으로
귀사의 가공비 절감 및 시장경쟁력을 높여 드립니다.

We will enhance our customers' market competitiveness by economical price and best quality products.

230, 270도의 인선으로
230˚, 270˚degree ball shape

광범위한 3D가공에 최적 !
Optimized for wide range 3D machining

HIGH SPEED

3D가공용 구형엔드밀
Spherical End Mills for 3D Machining

고경도강(HRc50~65), 프리하든강 계열의 고정밀가공

Endmills for pre-hardened and hardened steel (HRc50~65)

- 230, 270도 구형의 인선으로 광범위한 3D 가공에 적합
- 유효장을 직선 및 테이퍼 설계하여 목부파손 및 떨림을 최소화
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능 발휘

- 230˚, 270˚degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

우주항공 및 자동차 분야의
복합신소재 가공을 선도하는
Leading tools for machining of composite materials

FOR COMPOSITE

복합소재용 엔드밀
For Composite Materials

강화플라스틱(CFRP), 동 및 동합금, 유리/탄소섬유 등 비철, 비금속 계열의 다양한 복합소재 전용 엔드밀

Endmills for CFRP, copper, copper alloy, glass/carbon fiber, nonferrous and non-metallic materials.

- 다양한 복합소재 가공영역에 뛰어난 성능을 발휘
- 코팅피막에 경도가 높아 내마모성이 우수
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화

- Outstanding performance in machining of various composite materials.
- Excellent wear resistance by applying high hardness coating layer.
- Minimize built up edge by low friction diamond coating.

부등분할 설계로 진동을 최소화 !

Minimize chattering by unequal flute spacing design

칩배출이 뛰어난

Excellent Chip Control

FOR SUS

SUS가공용 엔드밀

End Mills for SUS

합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 전용

End Mills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

- *부등분할 방식으로 설계하여 엔드밀의 진동을 최소화*
- *깊은 포켓으로 칩배출이 원활하며 피삭재 면조도가 우수*
- *42˚헬릭스 형상으로 설계하여 고속, 고이송 가공에 최적*
- *초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능 발휘*

- *Minimize chattering by unequal flute spacing design.*
- *Excellent work surface finish by deep chip pocket.*
- *42˚degree helix design for high speed, feed condition.*
- *Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.*

탁월한 피삭재의 경면조도 !

Ultra fine surface after machining

코팅피막이 우수한 Super DLC

DLC

DLC 코팅 엔드밀

DLC Coated End Mills

알루미늄 및 알루미늄 합금, 동 및 동합금, 강화프라스틱 (CFRP), 유리/탄소섬유 등 비철,비금속 피삭재 전용

End Mills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- *코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용해 내마모성이 우수하며, 피삭재 표면조도가 월등히 우수함*
- *고정밀 공차 적용으로 초정밀가공에 적합*
- *초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능 발휘*

- *Super DLC coating provides excellent work surface finish by high hardness and low friction.*
- *High precise edge tolerance.*
- *Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.*

Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분류 Type	쪽 Page
FOR CBN Cubic Boron Nitride	고경도, 고정밀, 정삭 HRc 52~70	2BCBN		2F	CBN 리브 볼 CBN Rib Ball End Mills	01
		2ECBN		2F	CBN 리브 엔드밀 CBN Rib End Mills	03
		2CCBN		2F	CBN 리브 코너 레디우스 CBN Rib Corner Radius	05
FOR HARDened STEELS 고경도용	고경도, 고속 HRc 52~68	2JJRB	New	2F	제이제이 리브 볼 JJ Rib Ball End Mills	07
		2JJRE	New	2F	제이제이 리브 엔드밀 JJ Rib End Mills	09
		4JJRE	New	4F	제이제이 리브 엔드밀 JJ Rib End Mills	11
		2JJSB	New	2F	제이제이 짧은 길이 볼 JJ Short Length Ball End Mills	12
		2JJB	New	2F	제이제이 볼 JJ Ball End Mills	13
	고경도, 고속 HRc 52~65	2JJE	New	2F	제이제이 엔드밀 JJ End Mills	14
		4JJE	New	4F	제이제이 엔드밀 JJ End Mills	15
		4JJHE	New	4F	제이제이 45° 헬릭스 엔드밀 JJ 45° Helix End Mills	16
	고경도, 고속 HRc 52~68	6JJHE	New	6F	제이제이 45° 헬릭스 엔드밀 JJ 45° Helix End Mills	16
		2JJCR	New	2F	제이제이 리브 코너 레디우스 JJ Rib Corner Radius	17
		4JJCR	New	4F	제이제이 리브 코너 레디우스 JJ Rib Corner Radius	20
		2JJC	New	2F	제이제이 코너 레디우스 JJ Corner Radius	22
		4JJC	New	4F	제이제이 코너 레디우스 JJ Corner Radius	24
HIGH SPEED 고속 가공용	고경도, 고속 HRc 50~	2HRB		2F	리브 볼 Rib Ball End Mills	25
		2HRE		2F	리브 엔드밀 Rib End Mills	27
		4HRE		4F	리브 엔드밀 Rib End Mills	29
		2TBE		2F	테이퍼 넥 볼 Taper Neck Ball End Mills	30
		2SPH	New	2F	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°	33
	고경도, 고속 HRc 50~60	4SPH	New	4F	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°	34
		4SPHM	New	4F	3D 270° 가공용 구형 엔드밀 End Mills for 3D Cut 270°	35
	고경도, 고속 HRc 50~	2TCR	New	2F	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius	36
		4TCR	New	4F	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius	38
	고정도, 고속 HRc 50~62	2PHCB	New	2F	초정밀 표준길이 볼 Ultra Precision Ball End Mills	39
	고경도, 고속 HRc 50~	2HSB		2F	짧은 길이 볼 Short Length Ball End Mills	40
		2HCB		2F	표준 길이 볼 Standard Length Ball End Mills	41
		3HCB		3F	표준 길이 볼 Standard Length Ball End Mills	42
		4HCB	New	4F	표준 길이 볼 Standard Length Ball End Mills	42
		2HSE		2F	짧은 길이 엔드밀 Short Length End Mills	43
		2HCE		2F	표준 길이 엔드밀 Standard Length End Mills	44
		4HSE	New	4F	짧은 길이 엔드밀 Short Length End Mills	45
		4HCE		4F	표준 길이 엔드밀 Standard Length End Mills	46
	고경도, 고속 HRc 50~	4HEM		4F	45° 헬릭스 엔드밀 45° Helix End Mills	47
		6&8HEM		6&8	45° 헬릭스 엔드밀 45° Helix End Mills	48

■ 상기 제품의 주문번호 및 사양은 품질개선으로 인해 예고없이 변경될 수 있습니다.
EDP. Number and Specifications are can be changed without notification for quality improvement.

Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분 류 Type	쪽 Page
HIGH SPEED 고속 가공용	고경도, 고속 HRc 50~	2CRE		2F	리브 코너 레디우스 Rib Corner Radius	49
		4CRE		4F	리브 코너 레디우스 Rib Corner Radius	52
		2NCR		2F	코너 레디우스 Corner Radius End Mills	55
		4NCR		4F	코너 레디우스 Corner Radius End Mills	57
	고경도, 고속 HRc 50~	4CRL		4F	45˚ 헬릭스 코너 레디우스 롱 45˚Helix Radius Long	59
		6CRL	New	6F	45˚ 헬릭스 코너 레디우스 롱 45˚Helix Radius Long	60
	고속, 고이송 커터 HRc 50~	4RCU	New	4F	고이송 코너 레디우스 커터 High Speed Radius Cutter	61
		6RCU	New	6F	고이송 코너 레디우스 커터 High Speed Radius Cutter	62
	고경도, 일반강 HRc ~55	2LEM		2F	긴 길이 엔드밀 Long Length End Mills	63
		4LEM		4F	긴 길이 엔드밀 Long Length End Mills	64
	고경도, 일반강 황삭가공 HRc ~50	3&4ROU		3&4	라핑 엔드밀 Roughing End Mills	65
		3&4HROU	New	3&4	45˚ 헬릭스 파인피치형 라핑 45˚Helix Fine Pitch Roughing	66
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		2HREG		2F	리브 엔드밀 Rib End Mills	69
		4HREG		4F	리브 엔드밀 Rib End Mills	71
		2HSBG		2F	짧은 길이 볼 Short Length Ball End Mills	72
		2HCBG		2F	표준 길이 볼 Standard Length Ball End Mills	73
		2HCEG		2F	표준 길이 엔드밀 Standard Length End Mills	74
		4HCEG		4F	표준 길이 엔드밀 Standard Length End Mills	75
		4HEMG		4F	45˚ 헬릭스 엔드밀 45˚Helix End Mills	76
		2CREG		2F	리브 코너 레디우스 Rib Corner Radius	77
		4CREG		4F	리브 코너 레디우스 Rib Corner Radius	80
		2NCRG		2F	코너 레디우스 Corner Radius End Mills	83
		4NCRG		4F	코너 레디우스 Corner Radius End Mills	85
		2LEMG		2F	긴 길이 엔드밀 Long Length End Mills	87
		4LEMG		4F	긴 길이 엔드밀 Long Length End Mills	88
	고경도, 일반강 황삭가공 HRc ~50	3&4ROUG		3&4	라핑 엔드밀 Roughing End Mills	89
		3&4HROUG		3&4	45˚ 헬릭스 파인피치형 라핑 45˚Helix Fine Pitch Roughing	90
	부등분할 타입 중저경도강 HRc ~48	4SUEG		4F	엔드밀 End Mills for SUS	91
		4SUCG		4F	코너 레디우스 엔드밀 Corner Radius End Mills for SUS	92
FOR GRAPHITE 흑연 가공용	프리하든강, 일반강, 비철, 비금속 가공 HRc ~50	2GEM		2F	롱 생크 엔드밀 Long Shank End Mills	93
		4GEM		4F	롱 생크 엔드밀 Long Shank End Mills	94
		6GEM		6F	45˚ 헬릭스 롱 생크 엔드밀 45˚Helix Long Shank End Mills	95
		2GBE		2F	롱 생크 볼 Long Shank Ball End Mills	96
		2TGB		2F	테이퍼 넥 볼 Taper Neck Ball End Mills	97

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EDP. Number and Specifications are can be changed without notification for quality improvement.

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분류 Type	쪽 Page
FOR GRAPHITE 흑연 가공용	흑연, 강화플라스틱, 탄소섬유 등 비금속 가공	2DBE		2F	다이아몬드 코팅 볼 Diamond Coated Ball End Mills	98
		4DBE		4F	다이아몬드 코팅 볼 Diamond Coated Ball End Mills	99
		2DEM	New	2F	다이아몬드 코팅 엔드밀 Diamond Coated End Mills	100
		4&6DEM		4&6	다이아몬드 코팅 엔드밀 Diamond Coated End Mills	101
		2DCR	New	2F	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius	102
		4DCR	New	4F	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius	104
FOR COMPOSITE 복합소재 가공용	강화플라스틱, 동 및 동합금, 유리/탄소섬유 비철,비금속의 복합소재	2CPB	New	2F	복합소재용 볼 Ball End Mills for Composite	105
		3~6CPR	New	4&6	복합소재용 라우터 Router for Composite	106
		4~12CPO	New	4~12	복합소재용 라우터 Router for Composite	106
		2DDC	New	2F	복합소재용 다이아몬드 코팅 드릴 Diamond Coated Drill	107
FOR SUS SUS 가공용	SUS, Ti/Ni계열, 인코넬 등 난삭재 가공	4SUB	New	4F	45° 헬릭스 볼 45° Helix Ball End Mills	108
		3SUE		3F	45° 헬릭스 엔드밀 45° Helix End Mills	109
	부등분할 타입 엔드밀	4SUE	New	4F	부등분할 엔드밀 Non Symmetry End Mills	110
		4SUC		4F	부등분할 코너 레디우스 Non Symmetry Corner Radius	111
FOR COPPER 동 가공용	동 및 동합금, 알루미늄합금, 비철합금 가공	2COB		2F	45° 헬릭스 리브 볼 45° Helix Rib Ball End Mills	112
		2COR		2F	리브 코너 레디우스 Rib Corner Radius	113
		3COR		3F	45° 헬릭스 리브 코너 레디우스 45° Helix Rib Radius	114
DLC Diamond Like Carbon	알루미늄 및 알루미늄합금, 동 및 동합금, 강화플라스틱 (CFRP), 비철,비금속 가공 엔드밀	2DRB	New	2F	DLC코팅 리브 볼 DLC Coated Rib Ball End Mills	115
		2DRE	New	2F	DLC코팅 리브 엔드밀 DLC Coated Rib End Mills	116
		3DRE	New	3F	45° 헬릭스 DLC코팅 리브 45° Helix DLC Coated Rib	117
		2DLB	New	2F	DLC코팅 볼 DLC Coated Ball End Mills	118
		2DLE	New	2F	DLC코팅 엔드밀 DLC Coated End Mills	119
		2DLC	New	2F	DLC코팅 코너 레디우스 DLC Coated Corner Radius	120
FOR ALUMINUM 알루미늄 가공	알루미늄 및 알루미늄합금, 비철,비금속 가공 엔드밀	3ALR	New	3F	45° 헬릭스 리브 엔드밀 45° Helix Rib End Mills	121
		2ALE		2F	45° 헬릭스 엔드밀 45° Helix End Mills	122
		3ALE		3F	45° 헬릭스 엔드밀 45° Helix End Mills	123
	비철,비금속 가공	3ALC	New	3F	45° 헬릭스 코너 레디우스 45° Helix Corner Radius	124
	비철,비금속 고속 중삭, 황삭	3ARE		3F	세미 피니싱& 라핑 Semi Finishing & Roughing	125
		3ARC		3F	세미 피니싱& 라핑 레디우스 Semi Finishing & Roughing Radius	125
	비철,비금속 황삭	3ARO	New	3F	45° 헬릭스 라핑 엔드밀 45° Helix Roughing End Mills	126
TAPER 테이퍼	임펠라 가공	3TBI		3F	임펠라 가공용 테이퍼 볼 Taper Ball End Mills for Impeller	127
	고경도, 일반강 각도 가공 HRc 50~	2CTB		2F	테이퍼 볼 Taper Ball End Mills	129
		2CTE		2F	테이퍼 엔드밀 Taper End Mills	130
		4CTE		4F	테이퍼 엔드밀 Taper End Mills	132
		4RTE		4F	리브 테이퍼 엔드밀 Rib Taper End Mills	133

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Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분 류 Type	쪽 Page
GENERAL PURPOSE 범용	고경도, 일반강 다기능가공 HRc ~50	2CRC		2F	코너 역R 커터 Corner Rounding Cutter	134
		4CRC	New	4F	코너 역R 커터 Corner Rounding Cutter	135
		1STE	New	1F	직선날 테이퍼 엔드밀 Straight Flute Taper End Mills	136
		2STE	New	2F	직선날 테이퍼 엔드밀 Straight Flute Taper End Mills	137
		4STE	New	4F	직선날 테이퍼 엔드밀 Straight Flute Taper End Mills	138
		2CHA		2F	45° 면취 커터 45° Chamfering Cutter	139
		3CHA	New	3F	45° 면취 커터 45° Chamfering Cutter	139
		4TES	New	4F	T 커터 T Slot Cutter	140
		4TRS	New	4F	T-R 커터 T-R Slot Cutter	141
		4&6TDA	New	4&6	T 더블앵글 커터 T Double Angular Cutter	142
		4&6TAC	New	4&6	T 앵글 커터 T Angular Cutter	143
		2CEN		2F	45° 센터링 엔드밀 45° Centering End Mills	144
		2SPO		2F	NC 스포팅 드릴 NC Spotting Drill	145
FOR A.B.S ABS수지, 비금속가공용	아크릴, ABS, 목업, 알루미늄, 비철, 비금속 가공 엔드밀	1MEM		1F	엔드밀 End Mills	146
		1REM	New	1F	역날 엔드밀 Reverse Edge End Mills	147
		2MEM		2F	범용 엔드밀 End Mills	148
		3MEM	New	3F	범용 엔드밀 End Mills	149
		2MBE		2F	범용 볼 엔드밀 Ball End Mills	150
		3MBE	New	3F	범용 볼 엔드밀 Ball End Mills	151
		2MRE	New	2F	범용 마이크로 리브 엔드밀 Micro Rib End Mills	152
		3MRE	New	3F	범용 마이크로 리브 엔드밀 Micro Rib End Mills	153
		2MRB	New	2F	범용 마이크로 리브 볼 Micro Rib Ball End Mills	154
		3MRB	New	3F	범용 마이크로 리브 볼 Micro Rib Ball End Mills	155
		2MLE		2F	마이크로 롱 엔드밀 Micro Long End Mills	156
		2MLB		2F	마이크로 롱 볼 Micro Long Ball End Mills	158

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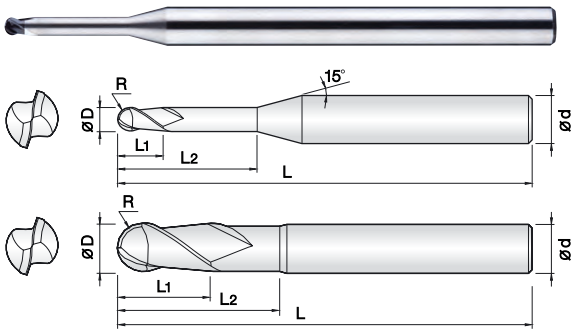
2BCBN

CBN, 2 Flutes High Speed Rib Ball End Mills

2날 CBN 고속가공용 리브 볼 엔드밀



- **고경도강(HRc52~70)의 고정밀(±5㎛) 정삭가공용 엔드밀**
- 고함량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.

- **PCBN ENDMILL for precise finishing(±5㎛) of hardened steel** (HRc52~70)
- Long tool life by high quality PCBN.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed(20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)

2 | CBN | R ±0.005 | 30° Helix Angle

0.1R ~ 3R

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm

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
New 2BCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4	
2BCBN 002 005 S04	0.1R X 0.2	0.5	-	48	4	
New 2BCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4	
New 2BCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4	
2BCBN 003 010 S04	0.15R X 0.3	1	-	48	4	
New 2BCBN 004 003 S04	0.2R X 0.4	0.3	-	48	4	
2BCBN 004 010 S04	0.2R X 0.4	0.3	1	48	4	
New 2BCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4	
2BCBN 004 020 S04	0.2R X 0.4	0.3	2	48	4	
2BCBN 004 030 S04	0.2R X 0.4	0.3	3	48	4	
2BCBN 004 040 S04	0.2R X 0.4	0.3	4	48	4	
2BCBN 004 050 S04	0.2R X 0.4	0.3	5	48	4	
2BCBN 004 060 S04	0.2R X 0.4	0.3	6	48	4	
New 2BCBN 005 004 S04	0.25R X 0.5	0.4	-	48	4	
2BCBN 005 010 S04	0.25R X 0.5	0.4	1	48	4	
New 2BCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4	
2BCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4	
2BCBN 005 030 S04	0.25R X 0.5	0.4	3	48	4	
2BCBN 005 040 S04	0.25R X 0.5	0.4	4	48	4	
2BCBN 005 050 S04	0.25R X 0.5	0.4	5	48	4	
2BCBN 005 060 S04	0.25R X 0.5	0.4	6	48	4	
2BCBN 005 080 S04	0.25R X 0.5	0.4	8	48	4	
New 2BCBN 006 005 S04	0.3R X 0.6	0.5	-	48	4	
New 2BCBN 006 010 S04	0.3R X 0.6	0.5	1	48	4	
2BCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4	
2BCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4	
2BCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4	
2BCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4	
2BCBN 006 050 S04	0.3R X 0.6	0.5	5	48	4	
2BCBN 006 060 S04	0.3R X 0.6	0.5	6	48	4	
2BCBN 006 080 S04	0.3R X 0.6	0.5	8	48	4	
2BCBN 006 100 S04	0.3R X 0.6	0.5	10	48	4	
New 2BCBN 007 005 S04	0.35R X 0.7	0.5	-	48	4	
New 2BCBN 007 010 S04	0.35R X 0.7	0.5	1	48	4	
New 2BCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4	
2BCBN 007 040 S04	0.35R X 0.7	0.5	4	48	4	
New 2BCBN 008 006 S04	0.4R X 0.8	0.6	-	48	4	
New 2BCBN 008 015 S04	0.4R X 0.8	0.6	1.5	48	4	
2BCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4	
2BCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4	
2BCBN 008 060 S04	0.4R X 0.8	0.6	6	48	4	
2BCBN 008 080 S04	0.4R X 0.8	0.6	8	48	4	
2BCBN 008 100 S04	0.4R X 0.8	0.6	10	48	4	
New 2BCBN 009 006 S04	0.45R X 0.9	0.6	-	48	4	
New 2BCBN 009 015 S04	0.45R X 0.9	0.6	1.5	48	4	
2BCBN 009 040 S04	0.45R X 0.9	0.6	4	48	4	
New 2BCBN 010 007 S04	0.5R X 1	0.7	-	48	4	
New 2BCBN 010 015 S04	0.5R X 1	0.7	1.5	48	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
New 2BCBN 010 020 S04	0.5R X 1	0.7	2	48	4	
2BCBN 010 030 S04	0.5R X 1	0.7	3	48	4	
2BCBN 010 040 S04	0.5R X 1	0.7	4	48	4	
2BCBN 010 050 S04	0.5R X 1	0.7	5	48	4	
2BCBN 010 060 S04	0.5R X 1	0.7	6	48	4	
2BCBN 010 080 S04	0.5R X 1	0.7	8	48	4	
2BCBN 010 100 S04	0.5R X 1	0.7	10	48	4	
2BCBN 010 120 S04	0.5R X 1	0.7	12	48	4	
2BCBN 010 160 S04	0.5R X 1	0.7	16	48	4	
New 2BCBN 012 008 S04	0.6R X 1.2	0.8	-	48	4	
New 2BCBN 012 015 S04	0.6R X 1.2	0.8	1.5	48	4	
New 2BCBN 012 020 S04	0.6R X 1.2	0.8	2	48	4	
2BCBN 012 030 S04	0.6R X 1.2	0.8	3	48	4	
New 2BCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4	
2BCBN 012 060 S04	0.6R X 1.2	0.8	6	48	4	
2BCBN 012 080 S04	0.6R X 1.2	0.8	8	48	4	
2BCBN 012 100 S04	0.6R X 1.2	0.8	10	48	4	
2BCBN 012 120 S04	0.6R X 1.2	0.8	12	48	4	
2BCBN 012 160 S04	0.6R X 1.2	0.8	16	48	4	
New 2BCBN 015 010 S04	0.75R X 1.5	1	-	48	4	
New 2BCBN 015 020 S04	0.75R X 1.5	1	2	48	4	
2BCBN 015 040 S04	0.75R X 1.5	1	4	48	4	
2BCBN 015 060 S04	0.75R X 1.5	1	6	48	4	
2BCBN 015 080 S04	0.75R X 1.5	1	8	48	4	
2BCBN 015 100 S04	0.75R X 1.5	1	10	48	4	
2BCBN 015 120 S04	0.75R X 1.5	1	12	48	4	
2BCBN 015 140 S04	0.75R X 1.5	1	14	48	4	
2BCBN 015 160 S04	0.75R X 1.5	1	16	48	4	
2BCBN 015 180 S04	0.75R X 1.5	1	18	48	4	
New 2BCBN 020 012 S04	1R X 2	1.2	-	50	4	
New 2BCBN 020 020 S04	1R X 2	1.2	2	50	4	
2BCBN 020 040 S04	1R X 2	1.2	4	50	4	
2BCBN 020 060 S04	1R X 2	1.2	6	50	4	
2BCBN 020 080 S04	1R X 2	1.2	8	50	4	
2BCBN 020 100 S04	1R X 2	1.2	10	50	4	
2BCBN 020 120 S04	1R X 2	1.2	12	50	4	
2BCBN 020 140 S04	1R X 2	1.2	14	50	4	
2BCBN 020 160 S04	1R X 2	1.2	16	50	4	
2BCBN 020 180 S04	1R X 2	1.2	18	50	4	
New 2BCBN 025 016 S06	1.25R X 2.5	1.6	-	66	6	
New 2BCBN 025 030 S06	1.25R X 2.5	1.6	3	66	6	
New 2BCBN 025 040 S06	1.25R X 2.5	1.6	4	66	6	
New 2BCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6	
2BCBN 025 100 S06	1.25R X 2.5	1.6	10	66	6	
2BCBN 025 160 S06	1.25R X 2.5	1.6	16	66	6	
2BCBN 025 200 S06	1.25R X 2.5	1.6	20	66	6	
New 2BCBN 030 018 S06	1.5R X 3	1.8	-	66	6	
New 2BCBN 030 030 S06	1.5R X 3	1.8	3	66	6	

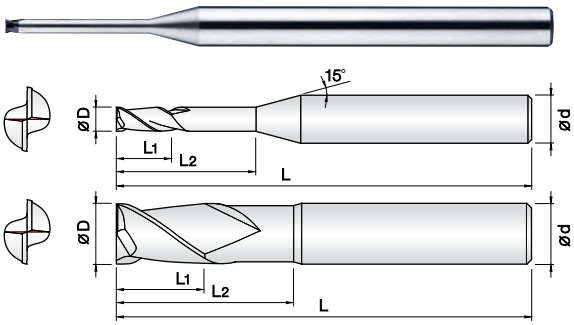
단위 : mm

Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2BCBN 030 040 S06	1.5R X 3	1.8	4	66	6	
New 2BCBN 030 060 S06	1.5R X 3	1.8	6	66	6	
2BCBN 030 080 S06	1.5R X 3	1.8	8	66	6	
2BCBN 030 100 S06	1.5R X 3	1.8	10	66	6	
2BCBN 030 120 S06	1.5R X 3	1.8	12	66	6	
2BCBN 030 160 S06	1.5R X 3	1.8	16	66	6	
2BCBN 030 200 S06	1.5R X 3	1.8	20	66	6	
New 2BCBN 040 024 S06	2R X 4	2.4	-	66	6	
New 2BCBN 040 040 S06	2R X 4	2.4	4	66	6	
New 2BCBN 040 060 S06	2R X 4	2.4	6	66	6	
New 2BCBN 040 080 S06	2R X 4	2.4	8	66	6	
2BCBN 040 100 S06	2R X 4	2.4	10	66	6	
2BCBN 040 120 S06	2R X 4	2.4	12	66	6	
2BCBN 040 160 S06	2R X 4	2.4	16	66	6	
2BCBN 040 200 S06	2R X 4	2.4	20	66	6	
New 2BCBN 060 035 S06	3R X 6	3.5	-	83	6	
New 2BCBN 060 100 S06	3R X 6	3.5	10	83	6	
New 2BCBN 060 200 S06	3R X 6	3.5	20	83	6	

2ECBN

CBN, 2 Flutes High Speed Rib End Mills

2날CBN 고속가공용 리브 엔드밀



- **고경도강(HRc52~70)의 고정밀 정삭가공용 엔드밀**
- 고함량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.

- **PCBN ENDMILL for precise finishing of hardened steel** (HRc52~70)
- Long tool life by high quality PCBN.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed(20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)

2 | CBN | D +0 −0.01 | 30° Helix Angle

ø0.2 ~ ø6

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2ECBN 002 002 S04	0.2	0.2	-	48	4	
2ECBN 002 005 S04	0.2	0.5	-	48	4	
New 2ECBN 003 003 S04	0.3	0.3	-	48	4	
New 2ECBN 003 005 S04	0.3	0.5	-	48	4	
2ECBN 003 010 S04	0.3	1	-	48	4	
New 2ECBN 004 003 S04	0.4	0.3	-	48	4	
2ECBN 004 010 S04	0.4	0.3	1	48	4	
New 2ECBN 004 015 S04	0.4	0.3	1.5	48	4	
2ECBN 004 020 S04	0.4	0.3	2	48	4	
2ECBN 004 030 S04	0.4	0.3	3	48	4	
2ECBN 004 040 S04	0.4	0.3	4	48	4	
2ECBN 004 050 S04	0.4	0.3	5	48	4	
2ECBN 004 060 S04	0.4	0.3	6	48	4	
New 2ECBN 005 004 S04	0.5	0.4	-	48	4	
New 2ECBN 005 010 S04	0.5	0.4	1	48	4	
New 2ECBN 005 015 S04	0.5	0.4	1.5	48	4	
2ECBN 005 020 S04	0.5	0.4	2	48	4	
2ECBN 005 030 S04	0.5	0.4	3	48	4	
2ECBN 005 040 S04	0.5	0.4	4	48	4	
2ECBN 005 050 S04	0.5	0.4	5	48	4	
2ECBN 005 060 S04	0.5	0.4	6	48	4	
2ECBN 005 080 S04	0.5	0.4	8	48	4	
New 2ECBN 006 005 S04	0.6	0.5	-	48	4	
New 2ECBN 006 010 S04	0.6	0.5	1	48	4	
New 2ECBN 006 015 S04	0.6	0.5	1.5	48	4	
2ECBN 006 020 S04	0.6	0.5	2	48	4	
New 2ECBN 006 030 S04	0.6	0.5	3	48	4	
2ECBN 006 040 S04	0.6	0.5	4	48	4	
2ECBN 006 060 S04	0.6	0.5	6	48	4	
2ECBN 006 080 S04	0.6	0.5	8	48	4	
2ECBN 006 100 S04	0.6	0.5	10	48	4	
New 2ECBN 007 005 S04	0.7	0.5	-	48	4	
New 2ECBN 007 010 S04	0.7	0.5	1	48	4	
2ECBN 007 020 S04	0.7	0.5	2	48	4	
2ECBN 007 040 S04	0.7	0.5	4	48	4	
2ECBN 007 060 S04	0.7	0.5	6	48	4	
New 2ECBN 008 006 S04	0.8	0.6	-	48	4	
New 2ECBN 008 015 S04	0.8	0.6	1.5	48	4	
2ECBN 008 020 S04	0.8	0.6	2	48	4	
2ECBN 008 040 S04	0.8	0.6	4	48	4	
2ECBN 008 060 S04	0.8	0.6	6	48	4	
2ECBN 008 080 S04	0.8	0.6	8	48	4	
2ECBN 008 100 S04	0.8	0.6	10	48	4	
New 2ECBN 009 006 S04	0.9	0.6	-	48	4	
New 2ECBN 009 015 S04	0.9	0.6	1.5	48	4	
New 2ECBN 009 040 S04	0.9	0.6	4	48	4	
2ECBN 009 060 S04	0.9	0.6	6	48	4	
2ECBN 009 080 S04	0.9	0.6	8	48	4	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2ECBN 009 100 S04	0.9	0.6	10	48	4	
New 2ECBN 010 007 S04	1	0.7	-	48	4	
New 2ECBN 010 015 S04	1	0.7	1.5	48	4	
New 2ECBN 010 020 S04	1	0.7	2	48	4	
2ECBN 010 030 S04	1	0.7	3	48	4	
2ECBN 010 040 S04	1	0.7	4	48	4	
2ECBN 010 050 S04	1	0.7	5	48	4	
2ECBN 010 060 S04	1	0.7	6	48	4	
2ECBN 010 080 S04	1	0.7	8	48	4	
2ECBN 010 100 S04	1	0.7	10	48	4	
2ECBN 010 120 S04	1	0.7	12	48	4	
2ECBN 010 140 S04	1	0.7	14	48	4	
2ECBN 010 160 S04	1	0.7	16	48	4	
New 2ECBN 012 007 S04	1.2	0.7	-	48	4	
New 2ECBN 012 015 S04	1.2	0.7	1.5	48	4	
New 2ECBN 012 020 S04	1.2	0.7	2	48	4	
New 2ECBN 012 030 S04	1.2	0.7	3	48	4	
New 2ECBN 012 040 S04	1.2	0.7	4	48	4	
2ECBN 012 060 S04	1.2	0.7	6	48	4	
2ECBN 012 080 S04	1.2	0.7	8	48	4	
2ECBN 012 100 S04	1.2	0.7	10	48	4	
2ECBN 012 120 S04	1.2	0.7	12	48	4	
2ECBN 012 160 S04	1.2	0.7	16	48	4	
New 2ECBN 015 008 S04	1.5	0.8	-	48	4	
New 2ECBN 015 020 S04	1.5	0.8	2	48	4	
New 2ECBN 015 040 S04	1.5	0.8	4	48	4	
2ECBN 015 060 S04	1.5	0.8	6	48	4	
2ECBN 015 080 S04	1.5	0.8	8	48	4	
2ECBN 015 100 S04	1.5	0.8	10	48	4	
2ECBN 015 120 S04	1.5	0.8	12	48	4	
2ECBN 015 140 S04	1.5	0.8	14	48	4	
2ECBN 015 160 S04	1.5	0.8	16	48	4	
2ECBN 015 180 S04	1.5	0.8	18	48	4	
New 2ECBN 020 009 S04	2	0.9	-	50	4	
New 2ECBN 020 020 S04	2	0.9	2	50	4	
New 2ECBN 020 040 S04	2	0.9	4	50	4	
2ECBN 020 060 S04	2	0.9	6	50	4	
2ECBN 020 080 S04	2	0.9	8	50	4	
2ECBN 020 100 S04	2	0.9	10	50	4	
2ECBN 020 120 S04	2	0.9	12	50	4	
2ECBN 020 140 S04	2	0.9	14	50	4	
2ECBN 020 160 S04	2	0.9	16	50	4	
2ECBN 020 180 S04	2	0.9	18	50	4	
New 2ECBN 025 012 S06	2.5	1.2	-	66	6	
New 2ECBN 025 030 S06	2.5	1.2	3	66	6	
New 2ECBN 025 040 S06	2.5	1.2	4	66	6	
New 2ECBN 025 060 S06	2.5	1.2	6	66	6	
2ECBN 025 100 S06	2.5	1.2	10	66	6	

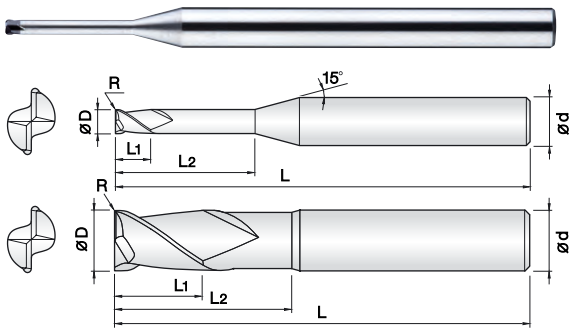
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2ECBN 025 160 S06	2.5	1.2	16	66	6	
2ECBN 025 200 S06	2.5	1.2	20	66	6	
New 2ECBN 030 012 S06	3	1.2	-	66	6	
New 2ECBN 030 030 S06	3	1.2	3	66	6	
New 2ECBN 030 040 S06	3	1.2	4	66	6	
New 2ECBN 030 060 S06	3	1.2	6	66	6	
New 2ECBN 030 080 S06	3	1.2	8	66	6	
2ECBN 030 100 S06	3	1.2	10	66	6	
2ECBN 030 120 S06	3	1.2	12	66	6	
2ECBN 030 160 S06	3	1.2	16	66	6	
2ECBN 030 200 S06	3	1.2	20	66	6	
New 2ECBN 040 015 S06	4	1.5	-	66	6	
New 2ECBN 040 030 S06	4	1.5	3	66	6	
New 2ECBN 040 060 S06	4	1.5	6	66	6	
New 2ECBN 040 080 S06	4	1.5	8	66	6	
2ECBN 040 100 S06	4	1.5	10	66	6	
2ECBN 040 120 S06	4	1.5	12	66	6	
2ECBN 040 160 S06	4	1.5	16	66	6	
2ECBN 040 200 S06	4	1.5	20	66	6	
New 2ECBN 060 030 S06	6	3	-	83	6	
New 2ECBN 060 100 S06	6	3	10	83	6	
New 2ECBN 060 200 S06	6	3	20	83	6	

2CCBN

CBN, 2 Flutes High Speed Rib Corner Radius End Mills

2날 CBN 고속가공용 리브 코너 레디우스 엔드밀



- **고경도강(HRc52~70)의 고정밀 정삭가공용 엔드밀**
- 고함량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.

- **PCBN ENDMILL for precise finishing of hardened steel** (HRc52~70)
- Long tool life by high quality PCBN.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed(20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)

2 | CBN | R ±0.005 | 30° Helix Angle

Ø0.4 ~ Ø6

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2CCBN 004 0002 003	0.4 X R0.02	0.3	-	48	4	
New 2CCBN 004 0002 010	0.4 X R0.02	0.3	1	48	4	
New 2CCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4	
New 2CCBN 004 0002 020	0.4 X R0.02	0.3	2	48	4	
New 2CCBN 004 0005 003	0.4 X R0.05	0.3	-	48	4	
New 2CCBN 004 0005 010	0.4 X R0.05	0.3	1	48	4	
New 2CCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4	
New 2CCBN 004 0005 020	0.4 X R0.05	0.3	2	48	4	
New 2CCBN 004 001 003	0.4 X R0.1	0.3	-	48	4	
2CCBN 004 001 010	0.4 X R0.1	0.3	1	48	4	
2CCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4	
2CCBN 004 001 020	0.4 X R0.1	0.3	2	48	4	
New 2CCBN 005 0005 004	0.5 X R0.05	0.4	-	48	4	
2CCBN 005 0005 010	0.5 X R0.05	0.4	1	48	4	
2CCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4	
2CCBN 005 0005 020	0.5 X R0.05	0.4	2	48	4	
2CCBN 005 0005 030	0.5 X R0.05	0.4	3	48	4	
2CCBN 005 0005 040	0.5 X R0.05	0.4	4	48	4	
2CCBN 005 0005 050	0.5 X R0.05	0.4	5	48	4	
New 2CCBN 005 001 004	0.5 X R0.1	0.4	-	48	4	
2CCBN 005 001 010	0.5 X R0.1	0.4	1	48	4	
2CCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4	
2CCBN 005 001 020	0.5 X R0.1	0.4	2	48	4	
2CCBN 005 001 030	0.5 X R0.1	0.4	3	48	4	
2CCBN 005 001 040	0.5 X R0.1	0.4	4	48	4	
2CCBN 005 001 050	0.5 X R0.1	0.4	5	48	4	
New 2CCBN 006 0005 005	0.6 X R0.05	0.5	-	48	4	
New 2CCBN 006 0005 010	0.6 X R0.05	0.5	1	48	4	
2CCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4	
2CCBN 006 0005 030	0.6 X R0.05	0.5	3	48	4	
2CCBN 006 0005 040	0.6 X R0.05	0.5	4	48	4	
2CCBN 006 0005 060	0.6 X R0.05	0.5	6	48	4	
New 2CCBN 006 001 005	0.6 X R0.1	0.5	-	48	4	
New 2CCBN 006 001 010	0.6 X R0.1	0.5	1	48	4	
2CCBN 006 001 020	0.6 X R0.1	0.5	2	48	4	
2CCBN 006 001 030	0.6 X R0.1	0.5	3	48	4	
2CCBN 006 001 040	0.6 X R0.1	0.5	4	48	4	
2CCBN 006 001 060	0.6 X R0.1	0.5	6	48	4	
New 2CCBN 007 001 005	0.7 X R0.1	0.5	-	48	4	
2CCBN 007 001 020	0.7 X R0.1	0.5	2	48	4	
2CCBN 007 001 040	0.7 X R0.1	0.5	4	48	4	
2CCBN 007 001 060	0.7 X R0.1	0.5	6	48	4	
New 2CCBN 008 001 006	0.8 X R0.1	0.6	-	48	4	
2CCBN 008 001 020	0.8 X R0.1	0.6	2	48	4	
2CCBN 008 001 040	0.8 X R0.1	0.6	4	48	4	
2CCBN 008 001 060	0.8 X R0.1	0.6	6	48	4	
New 2CCBN 008 002 006	0.8 X R0.2	0.6	-	48	4	
2CCBN 008 002 020	0.8 X R0.2	0.6	2	48	4	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CCBN 008 002 040	0.8 X R0.2	0.6	4	48	4	
2CCBN 008 002 060	0.8 X R0.2	0.6	6	48	4	
New 2CCBN 010 0002 007	1 X R 0.02	0.7	-	48	4	
New 2CCBN 010 0002 020	1 X R 0.02	0.7	2	48	4	
New 2CCBN 010 0002 040	1 X R0.02	0.7	4	48	4	
New 2CCBN 010 0002 060	1 X R0.02	0.7	6	48	4	
New 2CCBN 010 0002 080	1 X R0.02	0.7	8	48	4	
New 2CCBN 010 0002 100	1 X R0.02	0.7	10	48	4	
New 2CCBN 010 0005 007	1 X R0.05	0.7	-	48	4	
New 2CCBN 010 0005 020	1 X R0.05	0.7	2	48	4	
New 2CCBN 010 0005 040	1 X R0.05	0.7	4	48	4	
New 2CCBN 010 0005 060	1 X R0.05	0.7	6	48	4	
New 2CCBN 010 0005 080	1 X R0.05	0.7	8	48	4	
New 2CCBN 010 0005 100	1 X R0.05	0.7	10	48	4	
New 2CCBN 010 001 007	1 X R0.1	0.7	-	48	4	
New 2CCBN 010 001 020	1 X R0.1	0.7	2	48	4	
2CCBN 010 001 040	1 X R0.1	0.7	4	48	4	
2CCBN 010 001 060	1 X R0.1	0.7	6	48	4	
2CCBN 010 001 080	1 X R0.1	0.7	8	48	4	
2CCBN 010 001 100	1 X R0.1	0.7	10	48	4	
New 2CCBN 010 002 007	1 X R0.2	0.7	-	48	4	
New 2CCBN 010 002 020	1 X R0.2	0.7	2	48	4	
2CCBN 010 002 040	1 X R0.2	0.7	4	48	4	
2CCBN 010 002 060	1 X R0.2	0.7	6	48	4	
2CCBN 010 002 080	1 X R0.2	0.7	8	48	4	
2CCBN 010 002 100	1 X R0.2	0.7	10	48	4	
New 2CCBN 010 003 007	1 X R0.3	0.7	-	48	4	
New 2CCBN 010 003 020	1 X R0.3	0.7	2	48	4	
2CCBN 010 003 040	1 X R0.3	0.7	4	48	4	
2CCBN 010 003 060	1 X R0.3	0.7	6	48	4	
2CCBN 010 003 080	1 X R0.3	0.7	8	48	4	
2CCBN 010 003 100	1 X R0.3	0.7	10	48	4	
New 2CCBN 012 001 007	1.2 X R0.1	0.7	-	48	4	
New 2CCBN 012 001 020	1.2 X R0.1	0.7	2	48	4	
2CCBN 012 001 040	1.2 X R0.1	0.7	4	48	4	
2CCBN 012 001 060	1.2 X R0.1	0.7	6	48	4	
2CCBN 012 001 080	1.2 X R0.1	0.7	8	48	4	
2CCBN 012 001 100	1.2 X R0.1	0.7	10	48	4	
New 2CCBN 012 002 007	1.2 X R0.2	0.7	-	48	4	
New 2CCBN 012 002 020	1.2 X R0.2	0.7	2	48	4	
2CCBN 012 002 040	1.2 X R0.2	0.7	4	48	4	
2CCBN 012 002 060	1.2 X R0.2	0.7	6	48	4	
2CCBN 012 002 080	1.2 X R0.2	0.7	8	48	4	
2CCBN 012 002 100	1.2 X R0.2	0.7	10	48	4	
New 2CCBN 012 003 007	1.2 X R0.3	0.7	-	48	4	
New 2CCBN 012 003 020	1.2 X R0.3	0.7	2	48	4	
2CCBN 012 003 040	1.2 X R0.3	0.7	4	48	4	
2CCBN 012 003 060	1.2 X R0.3	0.7	6	48	4	

2CCBN

CBN, 2 Flutes High Speed Rib Corner Radius End Mills

2날CBN 고속가공용 리브 코너 레디우스 엔드밀

단위 : mm

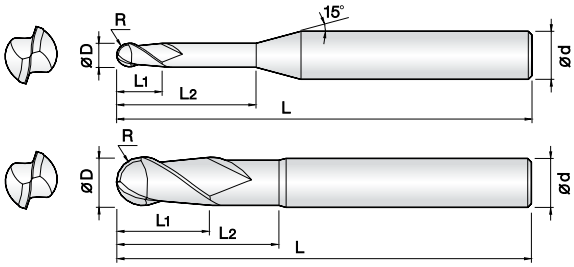
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CCBN 012 003 080	1.2 X R0.3	0.7	8	48	4	
2CCBN 012 003 100	1.2 X R0.3	0.7	10	48	4	
New 2CCBN 015 0002 008	1.5 X R0.02	0.8	-	48	4	
New 2CCBN 015 0002 020	1.5 X R0.02	0.8	2	48	4	
New 2CCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4	
New 2CCBN 015 0002 060	1.5 X R0.02	0.8	6	48	4	
New 2CCBN 015 0002 080	1.5 X R0.02	0.8	8	48	4	
New 2CCBN 015 0002 100	1.5 X R0.02	0.8	10	48	4	
New 2CCBN 015 0005 008	1.5 X R0.05	0.8	-	48	4	
New 2CCBN 015 0005 020	1.5 X R0.05	0.8	2	48	4	
New 2CCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4	
New 2CCBN 015 0005 060	1.5 X R0.05	0.8	6	48	4	
New 2CCBN 015 0005 080	1.5 X R0.05	0.8	8	48	4	
New 2CCBN 015 0005 100	1.5 X R0.05	0.8	10	48	4	
New 2CCBN 015 001 008	1.5 X R0.1	0.8	-	48	4	
New 2CCBN 015 001 020	1.5 X R0.1	0.8	2	48	4	
2CCBN 015 001 040	1.5 X R0.1	0.8	4	48	4	
2CCBN 015 001 060	1.5 X R0.1	0.8	6	48	4	
2CCBN 015 001 080	1.5 X R0.1	0.8	8	48	4	
2CCBN 015 001 100	1.5 X R0.1	0.8	10	48	4	
New 2CCBN 015 002 008	1.5 X R0.2	0.8	-	48	4	
New 2CCBN 015 002 020	1.5 X R0.2	0.8	2	48	4	
2CCBN 015 002 040	1.5 X R0.2	0.8	4	48	4	
2CCBN 015 002 060	1.5 X R0.2	0.8	6	48	4	
2CCBN 015 002 080	1.5 X R0.2	0.8	8	48	4	
2CCBN 015 002 100	1.5 X R0.2	0.8	10	48	4	
New 2CCBN 015 003 008	1.5 X R0.3	0.8	-	48	4	
New 2CCBN 015 003 020	1.5 X R0.3	0.8	2	48	4	
2CCBN 015 003 040	1.5 X R0.3	0.8	4	48	4	
2CCBN 015 003 060	1.5 X R0.3	0.8	6	48	4	
2CCBN 015 003 080	1.5 X R0.3	0.8	8	48	4	
2CCBN 015 003 100	1.5 X R0.3	0.8	10	48	4	
New 2CCBN 020 0002 009	2 X R0.02	0.9	-	50	4	
New 2CCBN 020 0002 020	2 X R0.02	0.9	2	50	4	
New 2CCBN 020 0002 040	2 X R0.02	0.9	4	50	4	
New 2CCBN 020 0002 060	2 X R0.02	0.9	6	50	4	
New 2CCBN 020 0002 080	2 X R0.02	0.9	8	50	4	
New 2CCBN 020 0002 100	2 X R0.02	0.9	10	50	4	
New 2CCBN 020 0005 009	2 X R0.05	0.9	-	50	4	
New 2CCBN 020 0005 020	2 X R0.05	0.9	2	50	4	
New 2CCBN 020 0005 040	2 X R0.05	0.9	4	50	4	
New 2CCBN 020 0005 060	2 X R0.05	0.9	6	50	4	
New 2CCBN 020 0005 080	2 X R0.05	0.9	8	50	4	
New 2CCBN 020 0005 100	2 X R0.05	0.9	10	50	4	
New 2CCBN 020 001 009	2 X R0.1	0.9	-	50	4	
New 2CCBN 020 001 020	2 X R0.1	0.9	2	50	4	
New 2CCBN 020 001 040	2 X R0.1	0.9	4	50	4	
2CCBN 020 001 060	2 X R0.1	0.9	6	50	4	
2CCBN 020 001 080	2 X R0.1	0.9	8	50	4	
2CCBN 020 001 100	2 X R0.1	0.9	10	50	4	
New 2CCBN 020 002 009	2 X R0.2	0.9	-	50	4	
New 2CCBN 020 002 020	2 X R0.2	0.9	2	50	4	
New 2CCBN 020 002 040	2 X R0.2	0.9	4	50	4	
2CCBN 020 002 060	2 X R0.2	0.9	6	50	4	
2CCBN 020 002 080	2 X R0.2	0.9	8	50	4	
2CCBN 020 002 100	2 X R0.2	0.9	10	50	4	
New 2CCBN 020 003 009	2 X R0.3	0.9	-	50	4	
New 2CCBN 020 003 020	2 X R0.3	0.9	2	50	4	
New 2CCBN 020 003 040	2 X R0.3	0.9	4	50	4	
2CCBN 020 003 060	2 X R0.3	0.9	6	50	4	
2CCBN 020 003 080	2 X R0.3	0.9	8	50	4	
2CCBN 020 003 100	2 X R0.3	0.9	10	50	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2CCBN 020 005 009	2 X R0.5	0.9	-	50	4	
New 2CCBN 020 005 020	2 X R0.5	0.9	2	50	4	
New 2CCBN 020 005 040	2 X R0.5	0.9	4	50	4	
2CCBN 020 005 060	2 X R0.5	0.9	6	50	4	
2CCBN 020 005 080	2 X R0.5	0.9	8	50	4	
2CCBN 020 005 100	2 X R0.5	0.9	10	50	4	
New 2CCBN 025 001 012	2.5 X R0.1	1.2	-	66	6	
New 2CCBN 025 001 040	2.5 X R0.1	1.2	4	66	6	
2CCBN 025 001 100	2.5 X R0.1	1.2	10	66	6	
New 2CCBN 025 002 012	2.5 X R0.2	1.2	-	66	6	
New 2CCBN 025 002 040	2.5 X R0.2	1.2	4	66	6	
2CCBN 025 002 100	2.5 X R0.2	1.2	10	66	6	
New 2CCBN 025 003 012	2.5 X R0.3	1.2	-	66	6	
New 2CCBN 025 003 040	2.5 X R0.3	1.2	4	66	6	
2CCBN 025 003 100	2.5 X R0.3	1.2	10	66	6	
New 2CCBN 030 001 060	3 X R0.1	1.2	6	66	6	
2CCBN 030 001 100	3 X R0.1	1.2	10	66	6	
2CCBN 030 001 160	3 X R0.1	1.2	16	66	6	
2CCBN 030 001 200	3 X R0.1	1.2	20	66	6	
New 2CCBN 030 002 060	3 X R0.2	1.2	6	66	6	
2CCBN 030 002 100	3 X R0.2	1.2	10	66	6	
2CCBN 030 002 160	3 X R0.2	1.2	16	66	6	
2CCBN 030 002 200	3 X R0.2	1.2	20	66	6	
New 2CCBN 030 003 060	3 X R0.3	1.2	6	66	6	
2CCBN 030 003 100	3 X R0.3	1.2	10	66	6	
2CCBN 030 003 160	3 X R0.3	1.2	16	66	6	
2CCBN 030 003 200	3 X R0.3	1.2	20	66	6	
New 2CCBN 030 005 060	3 X R0.5	1.2	6	66	6	
2CCBN 030 005 100	3 X R0.5	1.2	10	66	6	
2CCBN 030 005 160	3 X R0.5	1.2	16	66	6	
2CCBN 030 005 200	3 X R0.5	1.2	20	66	6	
New 2CCBN 030 010 060	3 X R1	1.2	6	66	6	
2CCBN 030 010 100	3 X R1	1.2	10	66	6	
2CCBN 030 010 160	3 X R1	1.2	16	66	6	
2CCBN 030 010 200	3 X R1	1.2	20	66	6	
New 2CCBN 040 001 060	4 X R0.1	1.5	6	66	6	
New 2CCBN 040 001 100	4 X R0.1	1.5	10	66	6	
2CCBN 040 001 160	4 X R0.1	1.5	16	66	6	
New 2CCBN 040 002 060	4 X R0.2	1.5	6	66	6	
New 2CCBN 040 002 100	4 X R0.2	1.5	10	66	6	
2CCBN 040 002 160	4 X R0.2	1.5	16	66	6	
New 2CCBN 040 003 060	4 X R0.3	1.5	6	66	6	
New 2CCBN 040 003 100	4 X R0.3	1.5	10	66	6	
2CCBN 040 003 160	4 X R0.3	1.5	16	66	6	
New 2CCBN 040 005 060	4 X R0.5	1.5	6	66	6	
New 2CCBN 040 005 100	4 X R0.5	1.5	10	66	6	
2CCBN 040 005 160	4 X R0.5	1.5	16	66	6	
New 2CCBN 040 010 060	4 X R1	1.5	6	66	6	
New 2CCBN 040 010 100	4 X R1	1.5	10	66	6	
2CCBN 040 010 160	4 X R1	1.5	16	66	6	
New 2CCBN 060 003 030	6 X R0.3	3	-	83	6	
New 2CCBN 060 003 150	6 X R0.3	3	15	83	6	
New 2CCBN 060 005 030	6 X R0.5	3	-	83	6	
New 2CCBN 060 005 150	6 X R0.5	3	15	83	6	
New 2CCBN 060 010 030	6 X R1	3	-	83	6	
New 2CCBN 060 010 150	6 X R1	3	15	83	6	

2JJRB

2 Flutes JJ Rib Ball End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 볼 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | R ±0.005 (0.05R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

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
2JJRB 001 003 S04	0.05R X 0.1	0.3	-	40	4	
2JJRB 001 005 S04	0.05R X 0.1	0.5	-	40	4	
2JJRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4	
2JJRB 002 010 S04	0.1R X 0.2	0.2	1	40	4	
2JJRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4	
2JJRB 002 020 S04	0.1R X 0.2	0.2	2	40	4	
2JJRB 003 010 S04	0.15R X 0.3	0.3	1	40	4	
2JJRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4	
2JJRB 003 020 S04	0.15R X 0.3	0.3	2	40	4	
2JJRB 003 030 S04	0.15R X 0.3	0.3	3	40	4	
2JJRB 003 040 S04	0.15R X 0.3	0.3	4	40	4	
2JJRB 004 010 S04	0.2R X 0.4	0.4	1	40	4	
2JJRB 004 020 S04	0.2R X 0.4	0.4	2	40	4	
2JJRB 004 030 S04	0.2R X 0.4	0.4	3	40	4	
2JJRB 004 040 S04	0.2R X 0.4	0.4	4	40	4	
2JJRB 004 050 S04	0.2R X 0.4	0.4	5	40	4	
2JJRB 004 060 S04	0.2R X 0.4	0.4	6	40	4	
2JJRB 004 080 S04	0.2R X 0.4	0.4	8	40	4	
2JJRB 005 010 S04	0.25R X 0.5	0.5	1	45	4	
2JJRB 005 020 S04	0.25R X 0.5	0.5	2	45	4	
2JJRB 005 030 S04	0.25R X 0.5	0.5	3	45	4	
2JJRB 005 040 S04	0.25R X 0.5	0.5	4	45	4	
2JJRB 005 050 S04	0.25R X 0.5	0.5	5	45	4	
2JJRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	
2JJRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	
2JJRB 005 100 S04	0.25R X 0.5	0.5	10	45	4	
2JJRB 005 120 S04	0.25R X 0.5	0.5	12	45	4	
2JJRB 006 010 S04	0.3R X 0.6	0.6	1	45	4	
2JJRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2JJRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
2JJRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2JJRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
2JJRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2JJRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2JJRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2JJRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2JJRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
2JJRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2JJRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2JJRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
2JJRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2JJRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2JJRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2JJRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2JJRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2JJRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2JJRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2JJRB 008 120 S04	0.4R X 0.8	0.8	12	45	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
2JJRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2JJRB 010 020 S04	0.5R X 1	1	2	45	4	
2JJRB 010 030 S04	0.5R X 1	1	3	45	4	
2JJRB 010 040 S04	0.5R X 1	1	4	45	4	
2JJRB 010 050 S04	0.5R X 1	1	5	45	4	
2JJRB 010 060 S04	0.5R X 1	1	6	45	4	
2JJRB 010 080 S04	0.5R X 1	1	8	45	4	
2JJRB 010 100 S04	0.5R X 1	1	10	50	4	
2JJRB 010 120 S04	0.5R X 1	1	12	50	4	
2JJRB 010 140 S04	0.5R X 1	1	14	50	4	
2JJRB 010 160 S04	0.5R X 1	1	16	50	4	
2JJRB 010 180 S04	0.5R X 1	1	18	50	4	
2JJRB 010 200 S04	0.5R X 1	1	20	50	4	
2JJRB 010 220 S04	0.5R X 1	1	22	60	4	
2JJRB 010 250 S04	0.5R X 1	1	25	60	4	
2JJRB 012 040 S04	0.6R X 1.2	1.2	4	45	4	
2JJRB 012 060 S04	0.6R X 1.2	1.2	6	45	4	
2JJRB 012 080 S04	0.6R X 1.2	1.2	8	45	4	
2JJRB 012 100 S04	0.6R X 1.2	1.2	10	50	4	
2JJRB 012 120 S04	0.6R X 1.2	1.2	12	50	4	
2JJRB 012 160 S04	0.6R X 1.2	1.2	16	50	4	
2JJRB 012 200 S04	0.6R X 1.2	1.2	20	50	4	
2JJRB 012 240 S04	0.6R X 1.2	1.2	24	60	4	
2JJRB 014 060 S04	0.7R X 1.4	1.4	6	45	4	
2JJRB 014 080 S04	0.7R X 1.4	1.4	8	45	4	
2JJRB 014 120 S04	0.7R X 1.4	1.4	12	50	4	
2JJRB 014 160 S04	0.7R X 1.4	1.4	16	50	4	
2JJRB 015 030 S04	0.75R X 1.5	1.5	3	45	4	
2JJRB 015 040 S04	0.75R X 1.5	1.5	4	45	4	
2JJRB 015 060 S04	0.75R X 1.5	1.5	6	45	4	
2JJRB 015 080 S04	0.75R X 1.5	1.5	8	45	4	
2JJRB 015 100 S04	0.75R X 1.5	1.5	10	50	4	
2JJRB 015 120 S04	0.75R X 1.5	1.5	12	50	4	
2JJRB 015 140 S04	0.75R X 1.5	1.5	14	50	4	
2JJRB 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2JJRB 015 180 S04	0.75R X 1.5	1.5	18	50	4	
2JJRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2JJRB 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2JJRB 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2JJRB 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2JJRB 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2JJRB 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2JJRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2JJRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2JJRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2JJRB 018 060 S04	0.9R X 1.8	1.8	6	45	4	
2JJRB 018 080 S04	0.9R X 1.8	1.8	8	45	4	
2JJRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	

2JJRB

2 Flutes JJ Rib Ball End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 볼 엔드밀

단위 : mm

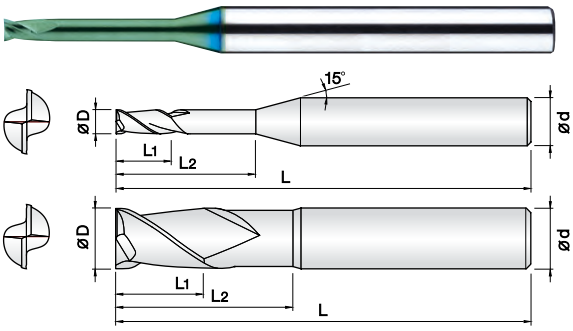
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2JJRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
2JJRB 020 040 S04	1R X 2	2	4	45	4	
2JJRB 020 060 S04	1R X 2	2	6	45	4	
2JJRB 020 080 S04	1R X 2	2	8	45	4	
2JJRB 020 100 S04	1R X 2	2	10	50	4	
2JJRB 020 120 S04	1R X 2	2	12	50	4	
2JJRB 020 140 S04	1R X 2	2	14	50	4	
2JJRB 020 160 S04	1R X 2	2	16	50	4	
2JJRB 020 180 S04	1R X 2	2	18	50	4	
2JJRB 020 200 S04	1R X 2	2	20	50	4	
2JJRB 020 220 S04	1R X 2	2	22	60	4	
2JJRB 020 250 S04	1R X 2	2	25	60	4	
2JJRB 020 300 S04	1R X 2	2	30	60	4	
2JJRB 025 080 S04	1.25R X 2.5	2.5	8	45	4	
2JJRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2JJRB 025 160 S04	1.25R X 2.5	2.5	16	50	4	
2JJRB 025 200 S04	1.25R X 2.5	2.5	20	50	4	
2JJRB 025 250 S04	1.25R X 2.5	2.5	25	60	4	
2JJRB 025 300 S04	1.25R X 2.5	2.5	30	70	4	
2JJRB 030 060 S06	1.5R X 3	3	6	45	6	
2JJRB 030 080 S06	1.5R X 3	3	8	45	6	
2JJRB 030 100 S06	1.5R X 3	3	10	50	6	
2JJRB 030 120 S06	1.5R X 3	3	12	50	6	
2JJRB 030 160 S06	1.5R X 3	3	16	55	6	
2JJRB 030 200 S06	1.5R X 3	3	20	60	6	
2JJRB 030 250 S06	1.5R X 3	3	25	65	6	
2JJRB 030 300 S06	1.5R X 3	3	30	70	6	
2JJRB 030 350 S06	1.5R X 3	3	35	75	6	
2JJRB 030 400 S06	1.5R X 3	3	40	80	6	
2JJRB 030 450 S06	1.5R X 3	3	45	90	6	
2JJRB 040 080 S06	2R X 4	4	8	45	6	
2JJRB 040 100 S06	2R X 4	4	10	50	6	
2JJRB 040 120 S06	2R X 4	4	12	50	6	
2JJRB 040 160 S06	2R X 4	4	16	55	6	
2JJRB 040 200 S06	2R X 4	4	20	60	6	
2JJRB 040 250 S06	2R X 4	4	25	65	6	
2JJRB 040 300 S06	2R X 4	4	30	70	6	
2JJRB 040 350 S06	2R X 4	4	35	75	6	
2JJRB 040 400 S06	2R X 4	4	40	80	6	
2JJRB 040 450 S06	2R X 4	4	45	90	6	
2JJRB 050 160 S06	2.5R X 5	6	16	60	6	
2JJRB 050 200 S06	2.5R X 5	6	20	60	6	
2JJRB 050 250 S06	2.5R X 5	6	25	70	6	
2JJRB 050 300 S06	2.5R X 5	6	30	70	6	
2JJRB 050 400 S06	2.5R X 5	6	40	80	6	
2JJRB 050 450 S06	2.5R X 5	6	45	90	6	
2JJRB 060 150 S06	3R X 6	10	15	55	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
2JJRB 080 250 060	4R X 8	12	25	60	8	
2JJRB 100 300 070	5R X 10	16	30	70	10	
2JJRB 120 300 075	6R X 12	18	30	75	12	

2JJRE

2 Flutes JJ Rib End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | D +0 −0.01 | 30° Helix Angle

Ø0.1 ~ Ø6

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJRE 001 003 S04	0.1	0.3	-	40	4	
2JJRE 001 005 S04	0.1	0.5	-	40	4	
2JJRE 002 005 S04	0.2	0.2	0.5	40	4	
2JJRE 002 010 S04	0.2	0.2	1	40	4	
2JJRE 002 015 S04	0.2	0.2	1.5	40	4	
2JJRE 002 020 S04	0.2	0.2	2	40	4	
2JJRE 003 010 S04	0.3	0.3	1	40	4	
2JJRE 003 015 S04	0.3	0.3	1.5	40	4	
2JJRE 003 020 S04	0.3	0.3	2	40	4	
2JJRE 003 030 S04	0.3	0.3	3	40	4	
2JJRE 004 010 S04	0.4	0.4	1	40	4	
2JJRE 004 020 S04	0.4	0.4	2	40	4	
2JJRE 004 030 S04	0.4	0.4	3	40	4	
2JJRE 004 040 S04	0.4	0.4	4	40	4	
2JJRE 004 050 S04	0.4	0.4	5	40	4	
2JJRE 004 060 S04	0.4	0.4	6	40	4	
2JJRE 004 080 S04	0.4	0.4	8	40	4	
2JJRE 005 020 S04	0.5	0.5	2	45	4	
2JJRE 005 030 S04	0.5	0.5	3	45	4	
2JJRE 005 040 S04	0.5	0.5	4	45	4	
2JJRE 005 050 S04	0.5	0.5	5	45	4	
2JJRE 005 060 S04	0.5	0.5	6	45	4	
2JJRE 005 080 S04	0.5	0.5	8	45	4	
2JJRE 005 100 S04	0.5	0.5	10	45	4	
2JJRE 006 020 S04	0.6	0.6	2	45	4	
2JJRE 006 030 S04	0.6	0.6	3	45	4	
2JJRE 006 040 S04	0.6	0.6	4	45	4	
2JJRE 006 050 S04	0.6	0.6	5	45	4	
2JJRE 006 060 S04	0.6	0.6	6	45	4	
2JJRE 006 080 S04	0.6	0.6	8	45	4	
2JJRE 006 100 S04	0.6	0.6	10	45	4	
2JJRE 007 020 S04	0.7	0.7	2	45	4	
2JJRE 007 040 S04	0.7	0.7	4	45	4	
2JJRE 007 060 S04	0.7	0.7	6	45	4	
2JJRE 007 080 S04	0.7	0.7	8	45	4	
2JJRE 007 100 S04	0.7	0.7	10	45	4	
2JJRE 008 020 S04	0.8	0.8	2	45	4	
2JJRE 008 040 S04	0.8	0.8	4	45	4	
2JJRE 008 060 S04	0.8	0.8	6	45	4	
2JJRE 008 080 S04	0.8	0.8	8	45	4	
2JJRE 008 100 S04	0.8	0.8	10	45	4	
2JJRE 008 120 S04	0.8	0.8	12	45	4	
2JJRE 009 060 S04	0.9	0.9	6	45	4	
2JJRE 009 080 S04	0.9	0.9	8	45	4	
2JJRE 009 100 S04	0.9	0.9	10	45	4	
2JJRE 010 030 S04	1	1	3	45	4	
2JJRE 010 040 S04	1	1	4	45	4	
2JJRE 010 050 S04	1	1	5	45	4	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJRE 010 060 S04	1	1	6	45	4	
2JJRE 010 080 S04	1	1	8	45	4	
2JJRE 010 100 S04	1	1	10	50	4	
2JJRE 010 120 S04	1	1	12	50	4	
2JJRE 010 140 S04	1	1	14	50	4	
2JJRE 010 160 S04	1	1	16	50	4	
2JJRE 010 180 S04	1	1	18	50	4	
2JJRE 010 200 S04	1	1	20	50	4	
2JJRE 010 250 S04	1	1	25	60	4	
2JJRE 012 060 S04	1.2	1.2	6	45	4	
2JJRE 012 080 S04	1.2	1.2	8	45	4	
2JJRE 012 100 S04	1.2	1.2	10	50	4	
2JJRE 012 120 S04	1.2	1.2	12	50	4	
2JJRE 012 160 S04	1.2	1.2	16	50	4	
2JJRE 012 200 S04	1.2	1.2	20	50	4	
2JJRE 012 250 S04	1.2	1.2	25	60	4	
2JJRE 014 080 S04	1.4	1.4	8	45	4	
2JJRE 014 100 S04	1.4	1.4	10	50	4	
2JJRE 014 140 S04	1.4	1.4	14	50	4	
2JJRE 014 160 S04	1.4	1.4	16	50	4	
2JJRE 014 200 S04	1.4	1.4	20	50	4	
2JJRE 015 060 S04	1.5	1.5	6	45	4	
2JJRE 015 080 S04	1.5	1.5	8	45	4	
2JJRE 015 100 S04	1.5	1.5	10	50	4	
2JJRE 015 120 S04	1.5	1.5	12	50	4	
2JJRE 015 140 S04	1.5	1.5	14	50	4	
2JJRE 015 160 S04	1.5	1.5	16	50	4	
2JJRE 015 180 S04	1.5	1.5	18	50	4	
2JJRE 015 200 S04	1.5	1.5	20	50	4	
2JJRE 015 250 S04	1.5	1.5	25	60	4	
2JJRE 016 100 S04	1.6	1.6	10	50	4	
2JJRE 016 140 S04	1.6	1.6	14	50	4	
2JJRE 016 180 S04	1.6	1.6	18	50	4	
2JJRE 018 100 S04	1.8	1.8	10	50	4	
2JJRE 018 140 S04	1.8	1.8	14	50	4	
2JJRE 018 180 S04	1.8	1.8	18	50	4	
2JJRE 020 060 S04	2	2	6	45	4	
2JJRE 020 080 S04	2	2	8	45	4	
2JJRE 020 100 S04	2	2	10	50	4	
2JJRE 020 120 S04	2	2	12	50	4	
2JJRE 020 140 S04	2	2	14	50	4	
2JJRE 020 160 S04	2	2	16	50	4	
2JJRE 020 180 S04	2	2	18	50	4	
2JJRE 020 200 S04	2	2	20	50	4	
2JJRE 020 220 S04	2	2	22	60	4	
2JJRE 020 250 S04	2	2	25	60	4	
2JJRE 020 300 S04	2	2	30	60	4	
2JJRE 020 350 S04	2	2	35	70	4	

2JJRE

2 Flutes JJ Rib End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 엔드밀

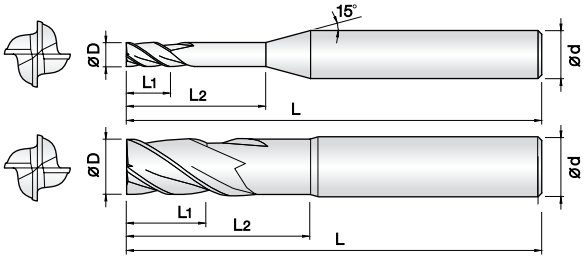
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJRE 020 400 S04	2	2	40	80	4	
2JJRE 025 100 S04	2.5	2.5	10	50	4	
2JJRE 025 120 S04	2.5	2.5	12	50	4	
2JJRE 025 160 S04	2.5	2.5	16	50	4	
2JJRE 025 200 S04	2.5	2.5	20	50	4	
2JJRE 025 250 S04	2.5	2.5	25	60	4	
2JJRE 025 300 S04	2.5	2.5	30	70	4	
2JJRE 025 350 S04	2.5	2.5	35	70	4	
2JJRE 025 400 S04	2.5	2.5	40	80	4	
2JJRE 030 100 S06	3	3	10	50	6	
2JJRE 030 120 S06	3	3	12	50	6	
2JJRE 030 160 S06	3	3	16	55	6	
2JJRE 030 200 S06	3	3	20	60	6	
2JJRE 030 250 S06	3	3	25	65	6	
2JJRE 030 300 S06	3	3	30	70	6	
2JJRE 030 350 S06	3	3	35	75	6	
2JJRE 030 400 S06	3	3	40	80	6	
2JJRE 030 450 S06	3	3	45	90	6	
2JJRE 030 500 S06	3	3	50	100	6	
2JJRE 040 100 S06	4	4	10	50	6	
2JJRE 040 120 S06	4	4	12	50	6	
2JJRE 040 160 S06	4	4	16	55	6	
2JJRE 040 200 S06	4	4	20	60	6	
2JJRE 040 250 S06	4	4	25	65	6	
2JJRE 040 300 S06	4	4	30	70	6	
2JJRE 040 350 S06	4	4	35	75	6	
2JJRE 040 400 S06	4	4	40	80	6	
2JJRE 040 450 S06	4	4	45	90	6	
2JJRE 040 500 S06	4	4	50	100	6	
2JJRE 050 160 S06	5	6	16	60	6	
2JJRE 050 200 S06	5	6	20	60	6	
2JJRE 050 250 S06	5	6	25	65	6	
2JJRE 050 300 S06	5	6	30	70	6	
2JJRE 050 350 S06	5	6	35	75	6	
2JJRE 050 400 S06	5	6	40	80	6	
2JJRE 050 500 S06	5	6	50	100	6	
2JJRE 060 200 S06	6	10	20	60	6	
2JJRE 060 300 S06	6	10	30	75	6	
2JJRE 060 400 S06	6	10	40	80	6	
2JJRE 060 500 S06	6	10	50	90	6	
2JJRE 060 600 S06	6	10	60	110	6	

4JJRE

4 Flutes JJ Rib End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 리브 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN-S Coating | D +0 −0.01 | 30° Helix Angle

Ø1 ~ Ø6

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm

단위 : mm

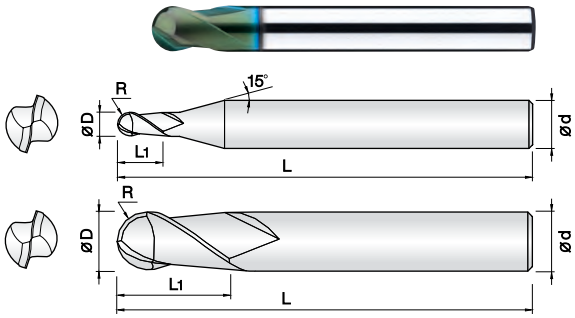
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJRE 010 040 S04	1	1	4	45	4	
4JJRE 010 060 S04	1	1	6	45	4	
4JJRE 010 080 S04	1	1	8	45	4	
4JJRE 010 100 S04	1	1	10	50	4	
4JJRE 010 120 S04	1	1	12	50	4	
4JJRE 010 160 S04	1	1	16	50	4	
4JJRE 012 060 S04	1.2	1.2	6	45	4	
4JJRE 012 080 S04	1.2	1.2	8	45	4	
4JJRE 012 100 S04	1.2	1.2	10	50	4	
4JJRE 012 120 S04	1.2	1.2	12	50	4	
4JJRE 012 160 S04	1.2	1.2	16	50	4	
4JJRE 015 060 S04	1.5	1.5	6	45	4	
4JJRE 015 080 S04	1.5	1.5	8	45	4	
4JJRE 015 100 S04	1.5	1.5	10	50	4	
4JJRE 015 120 S04	1.5	1.5	12	50	4	
4JJRE 015 160 S04	1.5	1.5	16	50	4	
4JJRE 020 060 S04	2	2	6	45	4	
4JJRE 020 080 S04	2	2	8	45	4	
4JJRE 020 100 S04	2	2	10	50	4	
4JJRE 020 120 S04	2	2	12	50	4	
4JJRE 020 160 S04	2	2	16	50	4	
4JJRE 020 200 S04	2	2	20	50	4	
4JJRE 025 100 S04	2.5	2.5	10	50	4	
4JJRE 025 120 S04	2.5	2.5	12	50	4	
4JJRE 025 160 S04	2.5	2.5	16	50	4	
4JJRE 025 200 S04	2.5	2.5	20	50	4	
4JJRE 025 250 S04	2.5	2.5	25	60	4	
4JJRE 030 100 S06	3	3	10	50	6	
4JJRE 030 120 S06	3	3	12	50	6	
4JJRE 030 160 S06	3	3	16	55	6	
4JJRE 030 200 S06	3	3	20	60	6	
4JJRE 030 250 S06	3	3	25	65	6	
4JJRE 030 300 S06	3	3	30	70	6	
4JJRE 040 100 S06	4	4	10	50	6	
4JJRE 040 120 S06	4	4	12	50	6	
4JJRE 040 160 S06	4	4	16	55	6	
4JJRE 040 200 S06	4	4	20	60	6	
4JJRE 040 250 S06	4	4	25	65	6	
4JJRE 040 300 S06	4	4	30	70	6	
4JJRE 040 400 S06	4	4	40	80	6	
4JJRE 050 160 S06	5	6	16	60	6	
4JJRE 050 200 S06	5	6	20	60	6	
4JJRE 050 250 S06	5	6	25	70	6	
4JJRE 050 300 S06	5	6	30	70	6	
4JJRE 050 400 S06	5	6	40	80	6	
4JJRE 060 200 S06	6	6	20	60	6	
4JJRE 060 300 S06	6	6	30	75	6	
4JJRE 060 400 S06	6	6	40	80	6	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJRE 060 500 S06	6	6	50	90	6	

2JJSB

2 Flutes JJ Short Length Ball End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 짧은 길이 볼 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Short overall length for easy use with shrinking chuck
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

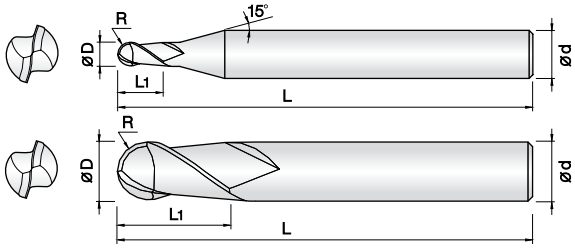
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJSB 002 002 S04	0.1R X 0.2	0.2	40	4	
2JJSB 003 003 S04	0.15R X 0.3	0.3	40	4	
2JJSB 004 004 S04	0.2R X 0.4	0.4	40	4	
2JJSB 005 005 S04	0.25R X 0.5	0.5	40	4	
2JJSB 006 006 S04	0.3R X 0.6	0.6	40	4	
2JJSB 007 007 S04	0.35R X 0.7	0.7	40	4	
2JJSB 008 008 S04	0.4R X 0.8	0.8	40	4	
2JJSB 009 009 S04	0.45R X 0.9	0.9	40	4	
2JJSB 010 010 S04	0.5R X 1	1	40	4	
2JJSB 015 015 S04	0.75R X 1.5	1.5	40	4	
2JJSB 020 020 S04	1R X 2	2	45	4	
2JJSB 030 030 S04	1.5R X 3	3	45	4	
2JJSB 030 030 S06	1.5R X 3	3	45	6	
2JJSB 040 040 S04	2R X 4	4	45	4	
2JJSB 040 040 S06	2R X 4	4	45	6	
2JJSB 050 050 S06	2.5R X 5	5	50	6	
2JJSB 060 060 050	3R X 6	6	50	6	
2JJSB 080 080 050	4R X 8	8	50	8	
2JJSB 100 100 060	5R X 10	10	60	10	
2JJSB 120 120 060	6R X 12	12	60	12	

2JJB

2 Flutes JJ Ball End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 볼 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | R ±0.005 (0.05R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

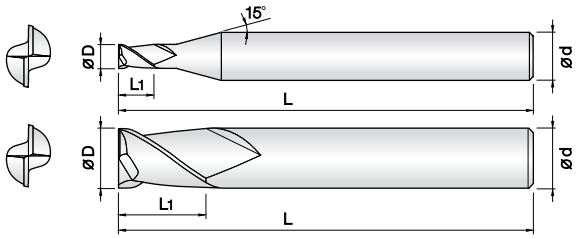
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJB 001 002 S04	0.05R X 0.1	0.2	40	4	
2JJB 0015 003 S04	0.075R X 0.15	0.3	40	4	
2JJB 002 004 S04	0.1R X 0.2	0.4	40	4	
2JJB 003 006 S04	0.15R X 0.3	0.6	40	4	
2JJB 004 008 S04	0.2R X 0.4	0.8	40	4	
2JJB 005 010 S04	0.25R X 0.5	1	45	4	
2JJB 006 012 S04	0.3R X 0.6	1.2	45	4	
2JJB 007 015 S04	0.35R X 0.7	1.5	45	4	
2JJB 008 020 S04	0.4R X 0.8	2	45	4	
2JJB 009 020 S04	0.45R X 0.9	2	45	4	
2JJB 010 025 S04	0.5R X 1	2.5	50	4	
2JJB 010 025 S06	0.5R X 1	2.5	50	6	
2JJB 012 030 S04	0.6R X 1.2	3	50	4	
2JJB 015 040 S04	0.75R X 1.5	4	50	4	
2JJB 015 040 S06	0.75R X 1.5	4	50	6	
2JJB 020 050 S04	1R X 2	5	50	4	
2JJB 020 050 S06	1R X 2	5	50	6	
2JJB 025 060 S04	1.25R X 2.5	6	50	4	
2JJB 030 080 S04	1.5R X 3	8	50	4	
2JJB 030 080 S06	1.5R X 3	8	60	6	
2JJB 035 080 S06	1.75R X 3.5	8	60	6	
2JJB 040 080 S04	2R X 4	8	60	4	
2JJB 040 080 S06	2R X 4	8	70	6	
2JJB 050 100 S06	2.5R X 5	10	75	6	
2JJB 060 100 060	3R X 6	10	60	6	
2JJB 060 120 090	3R X 6	12	90	6	
2JJB 080 120 060	4R X 8	12	60	8	
2JJB 080 140 100	4R X 8	14	100	8	
2JJB 100 150 070	5R X 10	15	70	10	
2JJB 100 180 100	5R X 10	18	100	10	
2JJB 120 180 075	6R X 12	18	75	12	
2JJB 120 220 110	6R X 12	22	110	12	

2JJE

2 Flutes JJ End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 엔드밀



- **고경도강(HRc52~65), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 국내최초 날경 0.05mm 제품부터 생산합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~65)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Produce down to 0.05mm in diameter endmills at the first time in Korea.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | D +0 −0.005 | D +0 −0.01 | D +0 −0.02 | 30° Helix Angle

Ø0.05~Ø0.95 Ø1~Ø5.5 Ø6~Ø20

Size	D Tolerance
D < ø1	+0 ~ −0.005mm
D ≦ ø5.5	+0 ~ −0.01mm
D > ø5.5	+0 ~ −0.02mm

단위 : mm

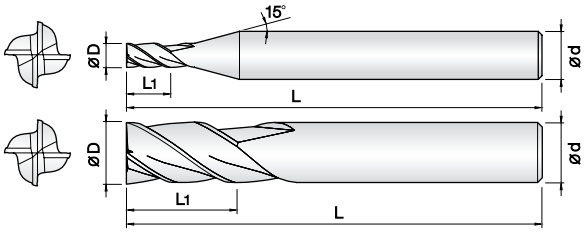
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJE 0005 0008 S04	0.05	0.08	38	4	
2JJE 0006 001 S04	0.06	0.1	38	4	
2JJE 0007 0012 S04	0.07	0.12	38	4	
2JJE 0008 0015 S04	0.08	0.15	38	4	
2JJE 0009 0017 S04	0.09	0.17	38	4	
2JJE 001 002 S04	0.1	0.2	38	4	
2JJE 0015 003 S04	0.15	0.3	38	4	
2JJE 002 004 S04	0.2	0.4	38	4	
2JJE 0025 005 S04	0.25	0.5	38	4	
2JJE 003 006 S04	0.3	0.6	38	4	
2JJE 0035 007 S04	0.35	0.7	38	4	
2JJE 004 008 S04	0.4	0.8	38	4	
2JJE 0045 009 S04	0.45	0.9	38	4	
2JJE 005 010 S04	0.5	1	38	4	
2JJE 0055 011 S04	0.55	1.1	38	4	
2JJE 006 012 S04	0.6	1.2	38	4	
2JJE 0065 013 S04	0.65	1.3	38	4	
2JJE 007 014 S04	0.7	1.4	38	4	
2JJE 0075 015 S04	0.75	1.5	38	4	
2JJE 008 016 S04	0.8	1.6	38	4	
2JJE 0085 017 S04	0.85	1.7	38	4	
2JJE 009 020 S04	0.9	2	38	4	
2JJE 0095 020 S04	0.95	2	38	4	
2JJE 010 025 S04	1	2.5	40	4	
2JJE 010 025 S06	1	2.5	40	6	
2JJE 011 027 S04	1.1	2.7	40	4	
2JJE 012 030 S04	1.2	3	40	4	
2JJE 013 032 S04	1.3	3.2	40	4	
2JJE 014 035 S04	1.4	3.5	40	4	
2JJE 015 040 S04	1.5	4	40	4	
2JJE 015 040 S06	1.5	4	40	6	
2JJE 016 040 S04	1.6	4	40	4	
2JJE 017 042 S04	1.7	4.2	40	4	
2JJE 018 045 S04	1.8	4.5	40	4	
2JJE 019 050 S04	1.9	5	40	4	
2JJE 020 060 S04	2	6	40	4	
2JJE 020 060 S06	2	6	40	6	
2JJE 021 060 S04	2.1	6	40	4	
2JJE 022 060 S04	2.2	6	40	4	
2JJE 023 060 S04	2.3	6	40	4	
2JJE 024 080 S04	2.4	8	45	4	
2JJE 025 080 S04	2.5	8	45	4	
2JJE 025 080 S06	2.5	8	45	6	
2JJE 026 080 S04	2.6	8	45	4	
2JJE 027 080 S04	2.7	8	45	4	
2JJE 028 080 S04	2.8	8	45	4	
2JJE 029 080 S04	2.9	8	45	4	
2JJE 030 080 S04	3	8	45	4	

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

4JJE

4 Flutes JJ End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 엔드밀



- **고경도강(HRc52~65), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~65)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

4 | UWC 초미립자 | TISIN-S Coating | D +0 −0.01 Ø1~Ø5 | D +0 −0.02 Ø6~Ø12 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

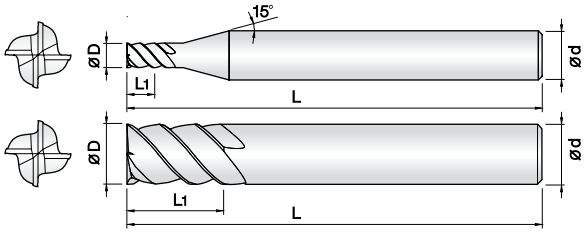
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4JJE 010 025 S04	1	2.5	40	4	
4JJE 010 025 S06	1	2.5	40	6	
4JJE 012 030 S04	1.2	3	40	4	
4JJE 015 040 S04	1.5	4	40	4	
4JJE 015 040 S06	1.5	4	40	6	
4JJE 020 060 S04	2	6	40	4	
4JJE 020 060 S06	2	6	40	6	
4JJE 025 080 S04	2.5	8	45	4	
4JJE 025 080 S06	2.5	8	45	6	
4JJE 030 080 S04	3	8	45	4	
4JJE 030 080 S06	3	8	45	6	
4JJE 035 100 S06	3.5	10	45	6	
4JJE 040 110 S04	4	11	45	4	
4JJE 040 110 S06	4	11	45	6	
4JJE 045 110 S06	4.5	11	45	6	
4JJE 050 130 S06	5	13	50	6	
4JJE 055 130 S06	5.5	13	50	6	
4JJE 060 130 S06	6	13	50	6	
4JJE 080 190 S08	8	19	60	8	
4JJE 100 220 S10	10	22	70	10	
4JJE 120 260 S12	12	26	75	12	

4JJHE

4 Flutes JJ 45° Helix End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 45° 헬릭스 엔드밀



- **고경도강(HRc52~65), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~65)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- 45° degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN-S Coating | D +0 −0.01 (Ø1~Ø5) | D +0 −0.02 (Ø6~Ø12) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0 ~ −0.01mm
D > Ø5	+0 ~ −0.02mm

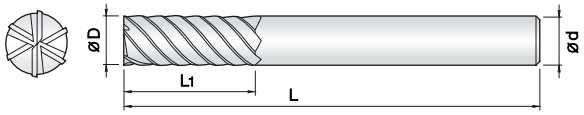
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4JJHE 010 025 S06	1	2.5	40	6	
4JJHE 020 050 S06	2	5	40	6	
4JJHE 030 080 S06	3	8	45	6	
4JJHE 040 110 S06	4	11	45	6	
4JJHE 050 130 S06	5	13	50	6	
4JJHE 060 130 S06	6	13	50	6	
4JJHE 080 200 S08	8	20	60	8	
4JJHE 100 220 S10	10	22	70	10	
4JJHE 120 260 S12	12	26	75	12	
4JJHE 160 350 S16	16	35	90	16	

6JJHE

6 Flutes JJ 45° Helix End Mills for Hardened Steels

6날 고경도재 가공용 제이제이 45° 헬릭스 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃과 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- Precise run-out and tolerance for finish machining.
- Reinforced edge design for preventing edge chipping.
- 45° degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

6 | UWC 초미립자 | TISIN-S Coating | D +0 −0.02 (Ø6~Ø8) | D −0.01 −0.03 (Ø10~Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø8	+0 ~ −0.02mm
D > Ø8	−0.01 ~ −0.03mm

단위 : mm

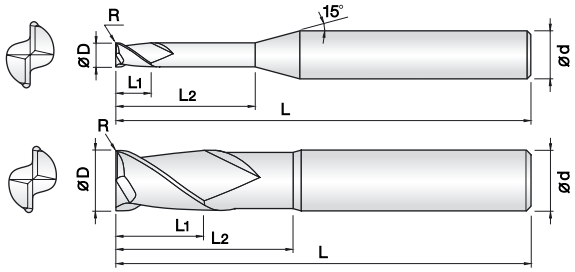
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6JJHE 060 150 S06	6	15	50	6	
6JJHE 060 200 S06	6	20	60	6	
6JJHE 080 200 S08	8	20	60	8	
6JJHE 080 250 S08	8	25	65	8	
6JJHE 080 350 S08	8	35	90	8	
6JJHE 100 250 S10	10	25	70	10	
6JJHE 100 350 S10	10	35	90	10	
6JJHE 120 300 S12	12	30	80	12	
6JJHE 120 400 S12	12	40	90	12	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6JJHE 160 500 S16	16	50	110	16	
6JJHE 160 650 S16	16	65	120	16	
6JJHE 200 600 S20	20	60	120	20	
6JJHE 200 800 S20	20	80	150	20	

2JJCR

2 Flutes JJ Rib Corner Radius End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø0.2 ~ Ø6 Ø8 ~ Ø16

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJCR 002 0002 010	0.2 X R0.02	0.2	1	40	4	
2JJCR 002 0002 015	0.2 X R0.02	0.2	1.5	40	4	
2JJCR 002 0005 010	0.2 X R0.05	0.2	1	40	4	
2JJCR 002 0005 015	0.2 X R0.05	0.2	1.5	40	4	
2JJCR 003 0005 010	0.3 X R0.05	0.3	1	40	4	
2JJCR 003 0005 020	0.3 X R0.05	0.3	2	40	4	
2JJCR 003 0005 030	0.3 X R0.05	0.3	3	40	4	
2JJCR 004 0005 010	0.4 X R0.05	0.4	1	40	4	
2JJCR 004 0005 020	0.4 X R0.05	0.4	2	40	4	
2JJCR 004 0005 030	0.4 X R0.05	0.4	3	40	4	
2JJCR 004 0005 040	0.4 X R0.05	0.4	4	40	4	
2JJCR 004 001 010	0.4 X R0.1	0.4	1	40	4	
2JJCR 004 001 015	0.4 X R0.1	0.4	1.5	40	4	
2JJCR 004 001 020	0.4 X R0.1	0.4	2	40	4	
2JJCR 004 001 030	0.4 X R0.1	0.4	3	40	4	
2JJCR 004 001 040	0.4 X R0.1	0.4	4	40	4	
2JJCR 005 0005 010	0.5 X R0.05	0.5	1	45	4	
2JJCR 005 0005 015	0.5 X R0.05	0.5	1.5	45	4	
2JJCR 005 0005 020	0.5 X R0.05	0.5	2	45	4	
2JJCR 005 0005 025	0.5 X R0.05	0.5	2.5	45	4	
2JJCR 005 0005 030	0.5 X R0.05	0.5	3	45	4	
2JJCR 005 0005 040	0.5 X R0.05	0.5	4	45	4	
2JJCR 005 0005 050	0.5 X R0.05	0.5	5	45	4	
2JJCR 005 0005 060	0.5 X R0.05	0.5	6	45	4	
2JJCR 005 001 010	0.5 X R0.1	0.5	1	45	4	
2JJCR 005 001 015	0.5 X R0.1	0.5	1.5	45	4	
2JJCR 005 001 020	0.5 X R0.1	0.5	2	45	4	
2JJCR 005 001 025	0.5 X R0.1	0.5	2.5	45	4	
2JJCR 005 001 030	0.5 X R0.1	0.5	3	45	4	
2JJCR 005 001 040	0.5 X R0.1	0.5	4	45	4	
2JJCR 005 001 050	0.5 X R0.1	0.5	5	45	4	
2JJCR 005 001 060	0.5 X R0.1	0.5	6	45	4	
2JJCR 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2JJCR 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2JJCR 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2JJCR 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2JJCR 006 0005 080	0.6 X R0.05	0.6	8	45	4	
2JJCR 006 001 020	0.6 X R0.1	0.6	2	45	4	
2JJCR 006 001 030	0.6 X R0.1	0.6	3	45	4	
2JJCR 006 001 040	0.6 X R0.1	0.6	4	45	4	
2JJCR 006 001 060	0.6 X R0.1	0.6	6	45	4	
2JJCR 006 001 080	0.6 X R0.1	0.6	8	45	4	
2JJCR 007 001 020	0.7 X R0.1	0.7	2	45	4	
2JJCR 007 001 040	0.7 X R0.1	0.7	4	45	4	
2JJCR 007 001 060	0.7 X R0.1	0.7	6	45	4	
2JJCR 008 001 020	0.8 X R0.1	0.8	2	45	4	
2JJCR 008 001 040	0.8 X R0.1	0.8	4	45	4	
2JJCR 008 001 060	0.8 X R0.1	0.8	6	45	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJCR 008 001 080	0.8 X R0.1	0.8	8	45	4	
2JJCR 008 002 020	0.8 X R0.2	0.8	2	45	4	
2JJCR 008 002 040	0.8 X R0.2	0.8	4	45	4	
2JJCR 008 002 060	0.8 X R0.2	0.8	6	45	4	
2JJCR 008 002 080	0.8 X R0.2	0.8	8	45	4	
2JJCR 010 001 040	1 X R0.1	1	4	45	4	
2JJCR 010 001 060	1 X R0.1	1	6	45	4	
2JJCR 010 001 080	1 X R0.1	1	8	45	4	
2JJCR 010 001 100	1 X R0.1	1	10	50	4	
2JJCR 010 001 120	1 X R0.1	1	12	50	4	
2JJCR 010 001 160	1 X R0.1	1	16	50	4	
2JJCR 010 001 200	1 X R0.1	1	20	50	4	
2JJCR 010 002 040	1 X R0.2	1	4	45	4	
2JJCR 010 002 060	1 X R0.2	1	6	45	4	
2JJCR 010 002 080	1 X R0.2	1	8	45	4	
2JJCR 010 002 100	1 X R0.2	1	10	50	4	
2JJCR 010 002 120	1 X R0.2	1	12	50	4	
2JJCR 010 002 160	1 X R0.2	1	16	50	4	
2JJCR 010 002 200	1 X R0.2	1	20	50	4	
2JJCR 010 003 040	1 X R0.3	1	4	45	4	
2JJCR 010 003 060	1 X R0.3	1	6	45	4	
2JJCR 010 003 080	1 X R0.3	1	8	45	4	
2JJCR 010 003 100	1 X R0.3	1	10	50	4	
2JJCR 010 003 120	1 X R0.3	1	12	50	4	
2JJCR 010 003 160	1 X R0.3	1	16	50	4	
2JJCR 010 003 200	1 X R0.3	1	20	50	4	
2JJCR 012 001 040	1.2 X R0.1	1.2	4	45	4	
2JJCR 012 001 060	1.2 X R0.1	1.2	6	45	4	
2JJCR 012 001 080	1.2 X R0.1	1.2	8	45	4	
2JJCR 012 001 100	1.2 X R0.1	1.2	10	50	4	
2JJCR 012 001 120	1.2 X R0.1	1.2	12	50	4	
2JJCR 012 001 160	1.2 X R0.1	1.2	16	50	4	
2JJCR 012 001 200	1.2 X R0.1	1.2	20	50	4	
2JJCR 012 002 040	1.2 X R0.2	1.2	4	45	4	
2JJCR 012 002 060	1.2 X R0.2	1.2	6	45	4	
2JJCR 012 002 080	1.2 X R0.2	1.2	8	45	4	
2JJCR 012 002 100	1.2 X R0.2	1.2	10	50	4	
2JJCR 012 002 120	1.2 X R0.2	1.2	12	50	4	
2JJCR 012 002 160	1.2 X R0.2	1.2	16	50	4	
2JJCR 012 002 200	1.2 X R0.2	1.2	20	50	4	
2JJCR 012 003 040	1.2 X R0.3	1.2	4	45	4	
2JJCR 012 003 060	1.2 X R0.3	1.2	6	45	4	
2JJCR 012 003 080	1.2 X R0.3	1.2	8	45	4	
2JJCR 012 003 100	1.2 X R0.3	1.2	10	50	4	
2JJCR 012 003 120	1.2 X R0.3	1.2	12	50	4	
2JJCR 012 003 160	1.2 X R0.3	1.2	16	50	4	
2JJCR 012 003 200	1.2 X R0.3	1.2	20	50	4	
2JJCR 015 001 040	1.5 X R0.1	1.5	4	45	4	

2JJCR

2 Flutes JJ Rib Corner Radius End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJCR 015 001 060	1.5 X R0.1	1.5	6	45	4	
2JJCR 015 001 080	1.5 X R0.1	1.5	8	45	4	
2JJCR 015 001 100	1.5 X R0.1	1.5	10	50	4	
2JJCR 015 001 120	1.5 X R0.1	1.5	12	50	4	
2JJCR 015 001 160	1.5 X R0.1	1.5	16	50	4	
2JJCR 015 001 200	1.5 X R0.1	1.5	20	50	4	
2JJCR 015 002 040	1.5 X R0.2	1.5	4	45	4	
2JJCR 015 002 060	1.5 X R0.2	1.5	6	45	4	
2JJCR 015 002 080	1.5 X R0.2	1.5	8	45	4	
2JJCR 015 002 100	1.5 X R0.2	1.5	10	50	4	
2JJCR 015 002 120	1.5 X R0.2	1.5	12	50	4	
2JJCR 015 002 160	1.5 X R0.2	1.5	16	50	4	
2JJCR 015 002 200	1.5 X R0.2	1.5	20	50	4	
2JJCR 015 003 040	1.5 X R0.3	1.5	4	45	4	
2JJCR 015 003 060	1.5 X R0.3	1.5	6	45	4	
2JJCR 015 003 080	1.5 X R0.3	1.5	8	45	4	
2JJCR 015 003 100	1.5 X R0.3	1.5	10	50	4	
2JJCR 015 003 120	1.5 X R0.3	1.5	12	50	4	
2JJCR 015 003 160	1.5 X R0.3	1.5	16	50	4	
2JJCR 015 003 200	1.5 X R0.3	1.5	20	50	4	
2JJCR 015 005 040	1.5 X R0.5	1.5	4	45	4	
2JJCR 015 005 060	1.5 X R0.5	1.5	6	45	4	
2JJCR 015 005 080	1.5 X R0.5	1.5	8	45	4	
2JJCR 015 005 100	1.5 X R0.5	1.5	10	50	4	
2JJCR 015 005 120	1.5 X R0.5	1.5	12	50	4	
2JJCR 015 005 160	1.5 X R0.5	1.5	16	50	4	
2JJCR 015 005 200	1.5 X R0.5	1.5	20	50	4	
2JJCR 020 001 060	2 X R0.1	2	6	45	4	
2JJCR 020 001 080	2 X R0.1	2	8	45	4	
2JJCR 020 001 100	2 X R0.1	2	10	50	4	
2JJCR 020 001 120	2 X R0.1	2	12	50	4	
2JJCR 020 001 160	2 X R0.1	2	16	50	4	
2JJCR 020 001 200	2 X R0.1	2	20	50	4	
2JJCR 020 001 250	2 X R0.1	2	25	60	4	
2JJCR 020 002 060	2 X R0.2	2	6	45	4	
2JJCR 020 002 080	2 X R0.2	2	8	45	4	
2JJCR 020 002 100	2 X R0.2	2	10	50	4	
2JJCR 020 002 120	2 X R0.2	2	12	50	4	
2JJCR 020 002 160	2 X R0.2	2	16	50	4	
2JJCR 020 002 200	2 X R0.2	2	20	50	4	
2JJCR 020 002 250	2 X R0.2	2	25	60	4	
2JJCR 020 003 060	2 X R0.3	2	6	45	4	
2JJCR 020 003 080	2 X R0.3	2	8	45	4	
2JJCR 020 003 100	2 X R0.3	2	10	50	4	
2JJCR 020 003 120	2 X R0.3	2	12	50	4	
2JJCR 020 003 160	2 X R0.3	2	16	50	4	
2JJCR 020 003 200	2 X R0.3	2	20	50	4	
2JJCR 020 003 250	2 X R0.3	2	25	60	4	
2JJCR 020 005 060	2 X R0.5	2	6	45	4	
2JJCR 020 005 080	2 X R0.5	2	8	45	4	
2JJCR 020 005 100	2 X R0.5	2	10	50	4	
2JJCR 020 005 120	2 X R0.5	2	12	50	4	
2JJCR 020 005 160	2 X R0.5	2	16	50	4	
2JJCR 020 005 200	2 X R0.5	2	20	50	4	
2JJCR 020 005 250	2 X R0.5	2	25	60	4	
2JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4	
2JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4	
2JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4	
2JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4	
2JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4	
2JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4	
2JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4	
2JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4	
2JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4	
2JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4	
2JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4	
2JJCR 030 001 100	3 X R0.1	3	10	50	6	
2JJCR 030 001 120	3 X R0.1	3	12	50	6	
2JJCR 030 001 160	3 X R0.1	3	16	55	6	
2JJCR 030 001 200	3 X R0.1	3	20	60	6	
2JJCR 030 001 250	3 X R0.1	3	25	65	6	
2JJCR 030 002 100	3 X R0.2	3	10	50	6	
2JJCR 030 002 120	3 X R0.2	3	12	50	6	
2JJCR 030 002 160	3 X R0.2	3	16	55	6	
2JJCR 030 002 200	3 X R0.2	3	20	60	6	
2JJCR 030 002 250	3 X R0.2	3	25	65	6	
2JJCR 030 003 100	3 X R0.3	3	10	50	6	
2JJCR 030 003 120	3 X R0.3	3	12	50	6	
2JJCR 030 003 160	3 X R0.3	3	16	55	6	
2JJCR 030 003 200	3 X R0.3	3	20	60	6	
2JJCR 030 003 250	3 X R0.3	3	25	65	6	
2JJCR 030 005 100	3 X R0.5	3	10	50	6	
2JJCR 030 005 120	3 X R0.5	3	12	50	6	
2JJCR 030 005 160	3 X R0.5	3	16	55	6	
2JJCR 030 005 200	3 X R0.5	3	20	60	6	
2JJCR 030 005 250	3 X R0.5	3	25	65	6	
2JJCR 030 010 100	3 X R1	3	10	50	6	
2JJCR 030 010 120	3 X R1	3	12	50	6	
2JJCR 030 010 160	3 X R1	3	16	55	6	
2JJCR 030 010 200	3 X R1	3	20	60	6	
2JJCR 030 010 250	3 X R1	3	25	65	6	
2JJCR 040 001 120	4 X R0.1	4	12	50	6	
2JJCR 040 001 160	4 X R0.1	4	16	55	6	
2JJCR 040 001 200	4 X R0.1	4	20	60	6	
2JJCR 040 001 250	4 X R0.1	4	25	65	6	
2JJCR 040 001 300	4 X R0.1	4	30	70	6	
2JJCR 040 002 120	4 X R0.2	4	12	50	6	
2JJCR 040 002 160	4 X R0.2	4	16	55	6	
2JJCR 040 002 200	4 X R0.2	4	20	60	6	
2JJCR 040 002 250	4 X R0.2	4	25	65	6	
2JJCR 040 002 300	4 X R0.2	4	30	70	6	
2JJCR 040 003 120	4 X R0.3	4	12	50	6	
2JJCR 040 003 160	4 X R0.3	4	16	55	6	
2JJCR 040 003 200	4 X R0.3	4	20	60	6	
2JJCR 040 003 250	4 X R0.3	4	25	65	6	
2JJCR 040 003 300	4 X R0.3	4	30	70	6	
2JJCR 040 005 120	4 X R0.5	4	12	50	6	
2JJCR 040 005 160	4 X R0.5	4	16	55	6	
2JJCR 040 005 200	4 X R0.5	4	20	60	6	
2JJCR 040 005 250	4 X R0.5	4	25	65	6	
2JJCR 040 005 300	4 X R0.5	4	30	70	6	
2JJCR 040 010 120	4 X R1	4	12	50	6	
2JJCR 040 010 160	4 X R1	4	16	55	6	
2JJCR 040 010 200	4 X R1	4	20	60	6	
2JJCR 040 010 250	4 X R1	4	25	65	6	
2JJCR 040 010 300	4 X R1	4	30	70	6	
2JJCR 050 002 160	5 X R0.2	6	16	60	6	
2JJCR 050 002 250	5 X R0.2	6	25	70	6	
2JJCR 050 005 160	5 X R0.5	6	16	60	6	
2JJCR 050 005 250	5 X R0.5	6	25	70	6	
2JJCR 050 010 160	5 X R1	6	16	60	6	
2JJCR 050 010 250	5 X R1	6	25	70	6	
2JJCR 060 001 200	6 X R0.1	7	20	60	6	
2JJCR 060 001 400	6 X R0.1	7	40	80	6	
2JJCR 060 002 200	6 X R0.2	7	20	60	6	

2JJCR

2 Flutes JJ Rib Corner Radius End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀

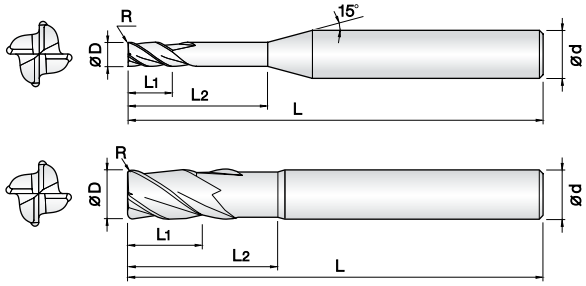
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2JJCR 060 002 400	6 X R0.2	7	40	80	6	
2JJCR 060 003 200	6 X R0.3	7	20	60	6	
2JJCR 060 003 400	6 X R0.3	7	40	80	6	
2JJCR 060 005 200	6 X R0.5	7	20	60	6	
2JJCR 060 005 400	6 X R0.5	7	40	80	6	
2JJCR 060 010 200	6 X R1	7	20	60	6	
2JJCR 060 010 400	6 X R1	7	40	80	6	
2JJCR 060 015 200	6 X R1.5	7	20	60	6	
2JJCR 060 015 400	6 X R1.5	7	40	80	6	
2JJCR 080 002 220	8 X R0.2	9	22	65	8	
2JJCR 080 003 220	8 X R0.3	9	22	65	8	
2JJCR 080 005 220	8 X R0.5	9	22	65	8	
2JJCR 080 010 220	8 X R1	9	22	65	8	
2JJCR 080 015 220	8 X R1.5	9	22	65	8	
2JJCR 100 002 240	10 X R0.2	11	24	70	10	
2JJCR 100 003 240	10 X R0.3	11	24	70	10	
2JJCR 100 005 240	10 X R0.5	11	24	70	10	
2JJCR 100 010 240	10 X R1	11	24	70	10	
2JJCR 100 015 240	10 X R1.5	11	24	70	10	
2JJCR 100 020 240	10 X R2	11	24	70	10	
2JJCR 120 002 260	12 X R0.2	13	26	80	12	
2JJCR 120 003 260	12 X R0.3	13	26	80	12	
2JJCR 120 005 260	12 X R0.5	13	26	80	12	
2JJCR 120 010 260	12 X R1	13	26	80	12	
2JJCR 120 015 260	12 X R1.5	13	26	80	12	
2JJCR 120 020 260	12 X R2	13	26	80	12	
2JJCR 120 030 260	12 X R3	13	26	80	12	
2JJCR 160 005 110	16 X R0.5	20	35	110	16	
2JJCR 160 010 110	16 X R1	20	35	110	16	

4JJCR

4 Flutes JJ Rib Corner Radius End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀



4 | UWC 초미립자 | TISIN-S Coating | R ±0.005 (Ø1~Ø6) | R ±0.01 (Ø8~Ø12) | 30° Helix Angle

- **고경도강(HRc52~68), 프리하든강 계열의 고정밀가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJCR 010 0005 040	1 X R0.05	1	4	45	4	
4JJCR 010 0005 060	1 X R0.05	1	6	45	4	
4JJCR 010 0005 080	1 X R0.05	1	8	45	4	
4JJCR 010 0005 100	1 X R0.05	1	10	50	4	
4JJCR 010 0005 120	1 X R0.05	1	12	50	4	
4JJCR 010 001 040	1 X R0.1	1	4	45	4	
4JJCR 010 001 060	1 X R0.1	1	6	45	4	
4JJCR 010 001 080	1 X R0.1	1	8	45	4	
4JJCR 010 001 100	1 X R0.1	1	10	50	4	
4JJCR 010 001 120	1 X R0.1	1	12	50	4	
4JJCR 010 002 040	1 X R0.2	1	4	45	4	
4JJCR 010 002 060	1 X R0.2	1	6	45	4	
4JJCR 010 002 080	1 X R0.2	1	8	45	4	
4JJCR 010 002 100	1 X R0.2	1	10	50	4	
4JJCR 010 002 120	1 X R0.2	1	12	50	4	
4JJCR 010 003 040	1 X R0.3	1	4	45	4	
4JJCR 010 003 060	1 X R0.3	1	6	45	4	
4JJCR 010 003 080	1 X R0.3	1	8	45	4	
4JJCR 010 003 100	1 X R0.3	1	10	50	4	
4JJCR 010 003 120	1 X R0.3	1	12	50	4	
4JJCR 012 001 040	1.2 X R0.1	1.2	4	45	4	
4JJCR 012 001 060	1.2 X R0.1	1.2	6	45	4	
4JJCR 012 001 080	1.2 X R0.1	1.2	8	45	4	
4JJCR 012 001 100	1.2 X R0.1	1.2	10	50	4	
4JJCR 012 001 120	1.2 X R0.1	1.2	12	50	4	
4JJCR 012 002 040	1.2 X R0.2	1.2	4	45	4	
4JJCR 012 002 060	1.2 X R0.2	1.2	6	45	4	
4JJCR 012 002 080	1.2 X R0.2	1.2	8	45	4	
4JJCR 012 002 100	1.2 X R0.2	1.2	10	50	4	
4JJCR 012 002 120	1.2 X R0.2	1.2	12	50	4	
4JJCR 012 003 040	1.2 X R0.3	1.2	4	45	4	
4JJCR 012 003 060	1.2 X R0.3	1.2	6	45	4	
4JJCR 012 003 080	1.2 X R0.3	1.2	8	45	4	
4JJCR 012 003 100	1.2 X R0.3	1.2	10	50	4	
4JJCR 012 003 120	1.2 X R0.3	1.2	12	50	4	
4JJCR 015 001 060	1.5 X R0.1	1.5	6	45	4	
4JJCR 015 001 080	1.5 X R0.1	1.5	8	45	4	
4JJCR 015 001 100	1.5 X R0.1	1.5	10	50	4	
4JJCR 015 001 120	1.5 X R0.1	1.5	12	50	4	
4JJCR 015 001 160	1.5 X R0.1	1.5	16	50	4	
4JJCR 015 002 060	1.5 X R0.2	1.5	6	45	4	
4JJCR 015 002 080	1.5 X R0.2	1.5	8	45	4	
4JJCR 015 002 100	1.5 X R0.2	1.5	10	50	4	
4JJCR 015 002 120	1.5 X R0.2	1.5	12	50	4	
4JJCR 015 002 160	1.5 X R0.2	1.5	16	50	4	
4JJCR 015 003 060	1.5 X R0.3	1.5	6	45	4	
4JJCR 015 003 080	1.5 X R0.3	1.5	8	45	4	
4JJCR 015 003 100	1.5 X R0.3	1.5	10	50	4	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJCR 015 003 120	1.5 X R0.3	1.5	12	50	4	
4JJCR 015 003 160	1.5 X R0.3	1.5	16	50	4	
4JJCR 015 005 060	1.5 X R0.5	1.5	6	45	4	
4JJCR 015 005 080	1.5 X R0.5	1.5	8	45	4	
4JJCR 015 005 100	1.5 X R0.5	1.5	10	50	4	
4JJCR 015 005 120	1.5 X R0.5	1.5	12	50	4	
4JJCR 015 005 160	1.5 X R0.5	1.5	16	50	4	
4JJCR 020 001 060	2 X R0.1	2	6	45	4	
4JJCR 020 001 080	2 X R0.1	2	8	45	4	
4JJCR 020 001 100	2 X R0.1	2	10	50	4	
4JJCR 020 001 120	2 X R0.1	2	12	50	4	
4JJCR 020 001 160	2 X R0.1	2	16	50	4	
4JJCR 020 001 200	2 X R0.1	2	20	50	4	
4JJCR 020 001 250	2 X R0.1	2	25	60	4	
4JJCR 020 002 060	2 X R0.2	2	6	45	4	
4JJCR 020 002 080	2 X R0.2	2	8	45	4	
4JJCR 020 002 100	2 X R0.2	2	10	50	4	
4JJCR 020 002 120	2 X R0.2	2	12	50	4	
4JJCR 020 002 160	2 X R0.2	2	16	50	4	
4JJCR 020 002 200	2 X R0.2	2	20	50	4	
4JJCR 020 002 250	2 X R0.2	2	25	60	4	
4JJCR 020 003 060	2 X R0.3	2	6	45	4	
4JJCR 020 003 080	2 X R0.3	2	8	45	4	
4JJCR 020 003 100	2 X R0.3	2	10	50	4	
4JJCR 020 003 120	2 X R0.3	2	12	50	4	
4JJCR 020 003 160	2 X R0.3	2	16	50	4	
4JJCR 020 003 200	2 X R0.3	2	20	50	4	
4JJCR 020 003 250	2 X R0.3	2	25	60	4	
4JJCR 020 005 060	2 X R0.5	2	6	45	4	
4JJCR 020 005 080	2 X R0.5	2	8	45	4	
4JJCR 020 005 100	2 X R0.5	2	10	50	4	
4JJCR 020 005 120	2 X R0.5	2	12	50	4	
4JJCR 020 005 160	2 X R0.5	2	16	50	4	
4JJCR 020 005 200	2 X R0.5	2	20	50	4	
4JJCR 020 005 250	2 X R0.5	2	25	60	4	
4JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4	
4JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4	
4JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4	
4JJCR 025 001 250	2.5 X R0.1	2.5	25	60	4	
4JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4	
4JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4	
4JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4	
4JJCR 025 002 250	2.5 X R0.2	2.5	25	60	4	
4JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4	
4JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4	
4JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4	
4JJCR 025 003 250	2.5 X R0.3	2.5	25	60	4	
4JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4	

4JJCR

4 Flutes JJ Rib Corner Radius End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀

단위 : mm

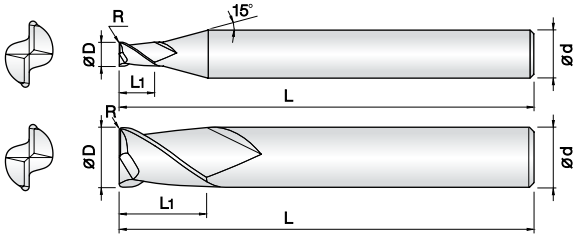
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4	
4JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4	
4JJCR 025 005 250	2.5 X R0.5	2.5	25	60	4	
4JJCR 030 001 100	3 X R0.1	3	10	50	6	
4JJCR 030 001 160	3 X R0.1	3	16	55	6	
4JJCR 030 001 200	3 X R0.1	3	20	60	6	
4JJCR 030 001 250	3 X R0.1	3	25	65	6	
4JJCR 030 001 300	3 X R0.1	3	30	70	6	
4JJCR 030 001 350	3 X R0.1	3	35	75	6	
4JJCR 030 002 100	3 X R0.2	3	10	50	6	
4JJCR 030 002 160	3 X R0.2	3	16	55	6	
4JJCR 030 002 200	3 X R0.2	3	20	60	6	
4JJCR 030 002 250	3 X R0.2	3	25	65	6	
4JJCR 030 002 300	3 X R0.2	3	30	70	6	
4JJCR 030 002 350	3 X R0.2	3	35	75	6	
4JJCR 030 003 100	3 X R0.3	3	10	50	6	
4JJCR 030 003 160	3 X R0.3	3	16	55	6	
4JJCR 030 003 200	3 X R0.3	3	20	60	6	
4JJCR 030 003 250	3 X R0.3	3	25	65	6	
4JJCR 030 003 300	3 X R0.3	3	30	70	6	
4JJCR 030 003 350	3 X R0.3	3	35	75	6	
4JJCR 030 005 100	3 X R0.5	3	10	50	6	
4JJCR 030 005 160	3 X R0.5	3	16	55	6	
4JJCR 030 005 200	3 X R0.5	3	20	60	6	
4JJCR 030 005 250	3 X R0.5	3	25	65	6	
4JJCR 030 005 300	3 X R0.5	3	30	70	6	
4JJCR 030 005 350	3 X R0.5	3	35	75	6	
4JJCR 030 010 100	3 X R1	3	10	50	6	
4JJCR 030 010 160	3 X R1	3	16	55	6	
4JJCR 030 010 200	3 X R1	3	20	60	6	
4JJCR 030 010 250	3 X R1	3	25	65	6	
4JJCR 030 010 300	3 X R1	3	30	70	6	
4JJCR 030 010 350	3 X R1	3	35	75	6	
4JJCR 040 001 120	4 X R0.1	4	12	55	6	
4JJCR 040 001 160	4 X R0.1	4	16	55	6	
4JJCR 040 001 200	4 X R0.1	4	20	60	6	
4JJCR 040 001 250	4 X R0.1	4	25	65	6	
4JJCR 040 001 300	4 X R0.1	4	30	70	6	
4JJCR 040 001 350	4 X R0.1	4	35	75	6	
4JJCR 040 001 400	4 X R0.1	4	40	80	6	
4JJCR 040 002 120	4 X R0.2	4	12	55	6	
4JJCR 040 002 160	4 X R0.2	4	16	55	6	
4JJCR 040 002 200	4 X R0.2	4	20	60	6	
4JJCR 040 002 250	4 X R0.2	4	25	65	6	
4JJCR 040 002 300	4 X R0.2	4	30	70	6	
4JJCR 040 002 350	4 X R0.2	4	35	75	6	
4JJCR 040 002 400	4 X R0.2	4	40	80	6	
4JJCR 040 003 120	4 X R0.3	4	12	55	6	
4JJCR 040 003 160	4 X R0.3	4	16	55	6	
4JJCR 040 003 200	4 X R0.3	4	20	60	6	
4JJCR 040 003 250	4 X R0.3	4	25	65	6	
4JJCR 040 003 300	4 X R0.3	4	30	70	6	
4JJCR 040 003 350	4 X R0.3	4	35	75	6	
4JJCR 040 003 400	4 X R0.3	4	40	80	6	
4JJCR 040 005 120	4 X R0.5	4	12	55	6	
4JJCR 040 005 160	4 X R0.5	4	16	55	6	
4JJCR 040 005 200	4 X R0.5	4	20	60	6	
4JJCR 040 005 250	4 X R0.5	4	25	65	6	
4JJCR 040 005 300	4 X R0.5	4	30	70	6	
4JJCR 040 005 350	4 X R0.5	4	35	75	6	
4JJCR 040 005 400	4 X R0.5	4	40	80	6	
4JJCR 040 010 120	4 X R1	4	12	55	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJCR 040 010 160	4 X R1	4	16	55	6	
4JJCR 040 010 200	4 X R1	4	20	60	6	
4JJCR 040 010 250	4 X R1	4	25	65	6	
4JJCR 040 010 300	4 X R1	4	30	70	6	
4JJCR 040 010 350	4 X R1	4	35	75	6	
4JJCR 040 010 400	4 X R1	4	40	80	6	
4JJCR 050 001 160	5 X R0.1	6	16	60	6	
4JJCR 050 001 300	5 X R0.1	6	30	70	6	
4JJCR 050 002 160	5 X R0.2	6	16	60	6	
4JJCR 050 002 300	5 X R0.2	6	30	70	6	
4JJCR 050 003 160	5 X R0.3	6	16	60	6	
4JJCR 050 003 300	5 X R0.3	6	30	70	6	
4JJCR 050 005 160	5 X R0.5	6	16	60	6	
4JJCR 050 005 300	5 X R0.5	6	30	70	6	
4JJCR 050 010 160	5 X R1	6	16	60	6	
4JJCR 050 010 300	5 X R1	6	30	70	6	
4JJCR 060 001 200	6 X R0.1	7	20	60	6	
4JJCR 060 001 400	6 X R0.1	7	40	80	6	
4JJCR 060 002 200	6 X R0.2	7	20	60	6	
4JJCR 060 002 400	6 X R0.2	7	40	80	6	
4JJCR 060 003 200	6 X R0.3	7	20	60	6	
4JJCR 060 003 400	6 X R0.3	7	40	80	6	
4JJCR 060 005 200	6 X R0.5	7	20	60	6	
4JJCR 060 005 400	6 X R0.5	7	40	80	6	
4JJCR 060 010 200	6 X R1	7	20	60	6	
4JJCR 060 010 400	6 X R1	7	40	80	6	
4JJCR 060 015 200	6 X R1.5	7	20	60	6	
4JJCR 060 015 400	6 X R1.5	7	40	80	6	
4JJCR 080 003 220	8 X R0.3	9	22	65	8	
4JJCR 080 005 220	8 X R0.5	9	22	65	8	
4JJCR 080 005 400	8 X R0.5	9	40	100	8	
4JJCR 080 010 220	8 X R1	9	22	65	8	
4JJCR 080 010 400	8 X R1	9	40	100	8	
4JJCR 080 015 220	8 X R1.5	9	22	65	8	
4JJCR 080 020 220	8 X R2	9	22	65	8	
4JJCR 100 003 240	10 X R0.3	11	24	70	10	
4JJCR 100 005 240	10 X R0.5	11	24	70	10	
4JJCR 100 005 400	10 X R0.5	11	40	100	10	
4JJCR 100 010 240	10 X R1	11	24	70	10	
4JJCR 100 010 400	10 X R1	11	40	100	10	
4JJCR 100 015 240	10 X R1.5	11	24	70	10	
4JJCR 100 020 240	10 X R2	11	24	70	10	
4JJCR 100 025 240	10 X R2.5	11	24	70	10	
4JJCR 120 003 260	12 X R0.3	13	26	80	12	
4JJCR 120 005 260	12 X R0.5	13	26	80	12	
4JJCR 120 005 400	12 X R0.5	13	40	110	12	
4JJCR 120 010 260	12 X R1	13	26	80	12	
4JJCR 120 010 400	12 X R1	13	40	110	12	
4JJCR 120 015 260	12 X R1.5	13	26	80	12	
4JJCR 120 020 260	12 X R2	13	26	80	12	
4JJCR 120 030 260	12 X R3	13	26	80	12	

2JJC

2 Flutes JJ Corner Radius End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 코너 레디우스 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN-S Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø0.4 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJC 004 0005 S04	0.4 X R0.05	0.8	45	4	
2JJC 004 001 S04	0.4 X R0.1	0.8	45	4	
2JJC 005 0005 S04	0.5 X R0.05	1	45	4	
2JJC 005 001 S04	0.5 X R0.1	1	45	4	
2JJC 006 0005 S04	0.6 X R0.05	1.2	45	4	
2JJC 006 001 S04	0.6 X R0.1	1.2	45	4	
2JJC 006 002 S04	0.6 X R0.2	1.2	45	4	
2JJC 007 0005 S04	0.7 X R0.05	1.4	45	4	
2JJC 007 001 S04	0.7 X R0.1	1.4	45	4	
2JJC 007 002 S04	0.7 X R0.2	1.4	45	4	
2JJC 008 0005 S04	0.8 X R0.05	1.6	45	4	
2JJC 008 001 S04	0.8 X R0.1	1.6	45	4	
2JJC 008 002 S04	0.8 X R0.2	1.6	45	4	
2JJC 009 0005 S04	0.9 X R0.05	1.8	45	4	
2JJC 009 001 S04	0.9 X R0.1	1.8	45	4	
2JJC 010 001 S04	1 X R0.1	2.5	45	4	
2JJC 010 002 S04	1 X R0.2	2.5	45	4	
2JJC 010 003 S04	1 X R0.3	2.5	45	4	
2JJC 012 001 S04	1.2 X R0.1	3.2	45	4	
2JJC 012 002 S04	1.2 X R0.2	3.2	45	4	
2JJC 012 003 S04	1.2 X R0.3	3.2	45	4	
2JJC 015 001 S04	1.5 X R0.1	4	45	4	
2JJC 015 002 S04	1.5 X R0.2	4	45	4	
2JJC 015 003 S04	1.5 X R0.3	4	45	4	
2JJC 015 005 S04	1.5 X R0.5	4	45	4	
2JJC 020 001 S04	2 X R0.1	6	45	4	
2JJC 020 002 S04	2 X R0.2	6	45	4	
2JJC 020 003 S04	2 X R0.3	6	45	4	
2JJC 020 005 S04	2 X R0.5	6	45	4	
2JJC 025 001 S04	2.5 X R0.1	6	50	4	
2JJC 025 002 S04	2.5 X R0.2	6	50	4	
2JJC 025 003 S04	2.5 X R0.3	6	50	4	
2JJC 025 005 S04	2.5 X R0.5	6	50	4	
2JJC 030 001 S06	3 X R0.1	8	60	6	
2JJC 030 002 S06	3 X R0.2	8	60	6	
2JJC 030 003 S06	3 X R0.3	8	60	6	
2JJC 030 005 S06	3 X R0.5	8	60	6	
2JJC 030 010 S06	3 X R1	8	60	6	
2JJC 040 001 S04	4 X R0.1	9	60	4	
2JJC 040 001 S06	4 X R0.1	11	70	6	
2JJC 040 002 S04	4 X R0.2	9	60	4	
2JJC 040 002 S06	4 X R0.2	11	70	6	
2JJC 040 003 S04	4 X R0.3	9	60	4	
2JJC 040 003 S06	4 X R0.3	11	70	6	
2JJC 040 005 S04	4 X R0.5	9	60	4	
2JJC 040 005 S06	4 X R0.5	11	70	6	
2JJC 040 010 S04	4 X R1	9	60	4	
2JJC 040 010 S06	4 X R1	11	70	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJC 050 001 S06	5 X R0.1	13	75	6	
2JJC 050 002 S06	5 X R0.2	13	75	6	
2JJC 050 003 S06	5 X R0.3	13	75	6	
2JJC 050 005 S06	5 X R0.5	13	75	6	
2JJC 050 010 S06	5 X R1	13	75	6	
2JJC 060 001 060	6 X R0.1	11	60	6	
2JJC 060 001 090	6 X R0.1	13	90	6	
2JJC 060 002 060	6 X R0.2	11	60	6	
2JJC 060 002 090	6 X R0.2	13	90	6	
2JJC 060 003 060	6 X R0.3	11	60	6	
2JJC 060 003 090	6 X R0.3	13	90	6	
2JJC 060 005 060	6 X R0.5	11	60	6	
2JJC 060 005 090	6 X R0.5	13	90	6	
2JJC 060 010 060	6 X R1	11	60	6	
2JJC 060 010 090	6 X R1	13	90	6	
2JJC 060 015 060	6 X R1.5	11	60	6	
2JJC 060 015 090	6 X R1.5	13	90	6	
2JJC 060 020 060	6 X R2	11	60	6	
2JJC 060 020 090	6 X R2	13	90	6	
2JJC 060 025 090	6 X R2.5	13	90	6	
2JJC 080 001 070	8 X R0.1	16	70	8	
2JJC 080 001 100	8 X R0.1	19	100	8	
2JJC 080 002 070	8 X R0.2	16	70	8	
2JJC 080 002 100	8 X R0.2	19	100	8	
2JJC 080 003 070	8 X R0.3	16	70	8	
2JJC 080 003 100	8 X R0.3	19	100	8	
2JJC 080 005 070	8 X R0.5	16	70	8	
2JJC 080 005 100	8 X R0.5	19	100	8	
2JJC 080 010 070	8 X R1	16	70	8	
2JJC 080 010 100	8 X R1	19	100	8	
2JJC 080 015 070	8 X R1.5	16	70	8	
2JJC 080 015 100	8 X R1.5	19	100	8	
2JJC 080 020 070	8 X R2	16	70	8	
2JJC 080 020 100	8 X R2	19	100	8	
2JJC 080 025 100	8 X R2.5	19	100	8	
2JJC 080 030 100	8 X R3	19	100	8	
2JJC 080 035 100	8 X R3.5	19	100	8	
2JJC 100 001 075	10 X R0.1	19	75	10	
2JJC 100 001 100	10 X R0.1	22	100	10	
2JJC 100 002 075	10 X R0.2	19	75	10	
2JJC 100 002 100	10 X R0.2	22	100	10	
2JJC 100 003 075	10 X R0.3	19	75	10	
2JJC 100 003 100	10 X R0.3	22	100	10	
2JJC 100 005 075	10 X R0.5	19	75	10	
2JJC 100 005 100	10 X R0.5	22	100	10	
2JJC 100 010 075	10 X R1	19	75	10	
2JJC 100 010 100	10 X R1	22	100	10	
2JJC 100 015 075	10 X R1.5	19	75	10	

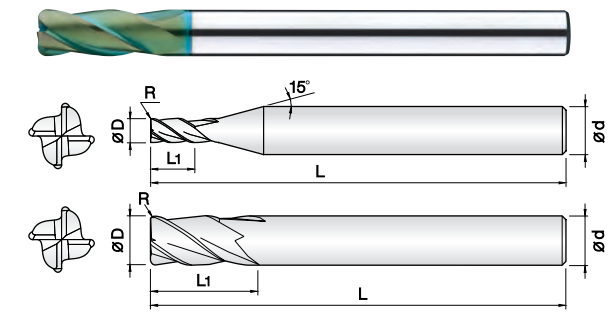
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJC 100 015 100	10 X R1.5	22	100	10	
2JJC 100 020 075	10 X R2	19	75	10	
2JJC 100 020 100	10 X R2	22	100	10	
2JJC 100 025 100	10 X R2.5	22	100	10	
2JJC 100 030 100	10 X R3	22	100	10	
2JJC 100 040 100	10 X R4	22	100	10	
2JJC 120 001 080	12 X R0.1	22	80	12	
2JJC 120 001 110	12 X R0.1	26	110	12	
2JJC 120 002 080	12 X R0.2	22	80	12	
2JJC 120 002 110	12 X R0.2	26	110	12	
2JJC 120 003 080	12 X R0.3	22	80	12	
2JJC 120 003 110	12 X R0.3	26	110	12	
2JJC 120 005 080	12 X R0.5	22	80	12	
2JJC 120 005 110	12 X R0.5	26	110	12	
2JJC 120 010 080	12 X R1	22	80	12	
2JJC 120 010 110	12 X R1	26	110	12	
2JJC 120 015 080	12 X R1.5	22	80	12	
2JJC 120 015 110	12 X R1.5	26	110	12	
2JJC 120 020 080	12 X R2	22	80	12	
2JJC 120 020 110	12 X R2	26	110	12	
2JJC 120 025 110	12 X R2.5	26	110	12	
2JJC 120 030 110	12 X R3	26	110	12	
2JJC 120 040 110	12 X R4	26	110	12	
2JJC 120 050 110	12 X R5	26	110	12	

4JJC

4 Flutes JJ Corner Radius End Mills for Hardened Steels

4날 고경도재 가공용 제이제이 코너 레디우스 엔드밀



- **고경도강(HRc52~68), 프리하든강 계열의 고속가공 엔드밀**
- 고함량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc52~68)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN-S Coating | R ±0.005 Ø1~Ø6 | R ±0.01 Ø8~Ø12 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

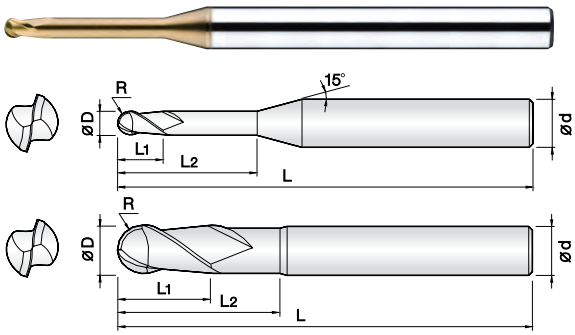
Order Number	날경 Diameter D ×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4JJC 010 0005 S04	1 X R0.05	2.5	45	4	
4JJC 010 001 S04	1 X R0.1	2.5	45	4	
4JJC 010 002 S04	1 X R0.2	2.5	45	4	
4JJC 010 003 S04	1 X R0.3	2.5	45	4	
4JJC 015 0005 S04	1.5 X R0.05	4	45	4	
4JJC 015 001 S04	1.5 X R0.1	4	45	4	
4JJC 015 002 S04	1.5 X R0.2	4	45	4	
4JJC 015 003 S04	1.5 X R0.3	4	45	4	
4JJC 015 005 S04	1.5 X R0.5	4	45	4	
4JJC 020 0005 S04	2 X R0.05	6	45	4	
4JJC 020 001 S04	2 X R0.1	6	45	4	
4JJC 020 002 S04	2 X R0.2	6	45	4	
4JJC 020 003 S04	2 X R0.3	6	45	4	
4JJC 020 005 S04	2 X R0.5	6	45	4	
4JJC 025 001 S04	2.5 X R0.1	6	50	4	
4JJC 025 002 S04	2.5 X R0.2	6	50	4	
4JJC 025 003 S04	2.5 X R0.3	6	50	4	
4JJC 025 005 S04	2.5 X R0.5	6	50	4	
4JJC 030 001 S06	3 X R0.1	8	60	6	
4JJC 030 002 S06	3 X R0.2	8	60	6	
4JJC 030 003 S06	3 X R0.3	8	60	6	
4JJC 030 005 S06	3 X R0.5	8	60	6	
4JJC 030 010 S06	3 X R1	8	60	6	
4JJC 040 001 S04	4 X R0.1	9	60	4	
4JJC 040 001 S06	4 X R0.1	11	70	6	
4JJC 040 002 S04	4 X R0.2	9	60	4	
4JJC 040 002 S06	4 X R0.2	11	70	6	
4JJC 040 003 S04	4 X R0.3	9	60	4	
4JJC 040 003 S06	4 X R0.3	11	70	6	
4JJC 040 005 S04	4 X R0.5	9	60	4	
4JJC 040 005 S06	4 X R0.5	11	70	6	
4JJC 040 010 S04	4 X R1	9	60	4	
4JJC 040 010 S06	4 X R1	11	70	6	
4JJC 050 001 S06	5 X R0.1	13	75	6	
4JJC 050 002 S06	5 X R0.2	13	75	6	
4JJC 050 003 S06	5 X R0.3	13	75	6	
4JJC 050 005 S06	5 X R0.5	13	75	6	
4JJC 050 010 S06	5 X R1	13	75	6	
4JJC 060 001 055	6 X R0.1	11	55	6	
4JJC 060 001 080	6 X R0.1	13	80	6	
4JJC 060 002 055	6 X R0.2	11	55	6	
4JJC 060 002 080	6 X R0.2	13	80	6	
4JJC 060 003 055	6 X R0.3	11	55	6	
4JJC 060 003 080	6 X R0.3	13	80	6	
4JJC 060 005 055	6 X R0.5	11	55	6	
4JJC 060 005 080	6 X R0.5	13	80	6	
4JJC 060 010 055	6 X R1	11	55	6	
4JJC 060 010 080	6 X R1	13	80	6	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4JJC 060 015 055	6 X R1.5	11	55	6	
4JJC 060 015 080	6 X R1.5	13	80	6	
4JJC 060 020 055	6 X R2	11	55	6	
4JJC 060 020 080	6 X R2	13	80	6	
4JJC 080 003 060	8 X R0.3	16	60	8	
4JJC 080 003 090	8 X R0.3	19	90	8	
4JJC 080 005 060	8 X R0.5	16	60	8	
4JJC 080 005 090	8 X R0.5	19	90	8	
4JJC 080 010 060	8 X R1	16	60	8	
4JJC 080 010 090	8 X R1	19	90	8	
4JJC 080 015 060	8 X R1.5	16	60	8	
4JJC 080 015 090	8 X R1.5	19	90	8	
4JJC 080 020 060	8 X R2	16	60	8	
4JJC 080 020 090	8 X R2	19	90	8	
4JJC 100 003 070	10 X R0.3	19	70	10	
4JJC 100 003 100	10 X R0.3	22	100	10	
4JJC 100 005 070	10 X R0.5	19	70	10	
4JJC 100 005 100	10 X R0.5	22	100	10	
4JJC 100 010 070	10 X R1	19	70	10	
4JJC 100 010 100	10 X R1	22	100	10	
4JJC 100 015 070	10 X R1.5	19	70	10	
4JJC 100 015 100	10 X R1.5	22	100	10	
4JJC 100 020 070	10 X R2	19	70	10	
4JJC 100 020 100	10 X R2	22	100	10	
4JJC 100 025 070	10 X R2.5	19	70	10	
4JJC 100 025 100	10 X R2.5	22	100	10	
4JJC 120 003 075	12 X R0.3	22	75	12	
4JJC 120 003 110	12 X R0.3	26	110	12	
4JJC 120 005 075	12 X R0.5	22	75	12	
4JJC 120 005 110	12 X R0.5	26	110	12	
4JJC 120 010 075	12 X R1	22	75	12	
4JJC 120 010 110	12 X R1	26	110	12	
4JJC 120 015 075	12 X R1.5	22	75	12	
4JJC 120 015 110	12 X R1.5	26	110	12	
4JJC 120 020 075	12 X R2	22	75	12	
4JJC 120 020 110	12 X R2	26	110	12	
4JJC 120 025 075	12 X R2.5	22	75	12	
4JJC 120 025 110	12 X R2.5	26	110	12	
4JJC 120 030 075	12 X R3	22	75	12	
4JJC 120 030 110	12 X R3	26	110	12	

2HRB

2 Flutes High Speed Rib Ball End Mills

2날 고속가공용 리브 볼 엔드밀



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 (0.05R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

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
2HRB 001 003 S04	0.05R X 0.1	0.3	-	40	4	
2HRB 001 005 S04	0.05R X 0.1	0.5	-	40	4	
2HRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4	
2HRB 002 010 S04	0.1R X 0.2	0.2	1	40	4	
2HRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4	
2HRB 002 020 S04	0.1R X 0.2	0.2	2	40	4	
2HRB 003 010 S04	0.15R X 0.3	0.3	1	40	4	
2HRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4	
2HRB 003 020 S04	0.15R X 0.3	0.3	2	40	4	
2HRB 003 030 S04	0.15R X 0.3	0.3	3	40	4	
New 2HRB 003 040 S04	0.15R X 0.3	0.3	4	40	4	
New 2HRB 003 050 S04	0.15R X 0.3	0.3	5	40	4	
2HRB 004 010 S04	0.2R X 0.4	0.4	1	40	4	
2HRB 004 020 S04	0.2R X 0.4	0.4	2	40	4	
2HRB 004 030 S04	0.2R X 0.4	0.4	3	40	4	
2HRB 004040 S04	0.2R X 0.4	0.4	4	40	4	
2HRB 004 050 S04	0.2R X 0.4	0.4	5	40	4	
2HRB 004 060 S04	0.2R X 0.4	0.4	6	40	4	
2HRB 004 080 S04	0.2R X 0.4	0.4	8	40	4	
New 2HRB 004 100 S04	0.2R X 0.4	0.4	10	40	4	
New 2HRB 005 010 S04	0.25R X 0.5	0.5	1	45	4	
2HRB 005 020 S04	0.25R X 0.5	0.5	2	45	4	
2HRB 005 030 S04	0.25R X 0.5	0.5	3	45	4	
2HRB 005 040 S04	0.25R X 0.5	0.5	4	45	4	
2HRB 005 050 S04	0.25R X 0.5	0.5	5	45	4	
2HRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	
2HRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	
2HRB 005 100 S04	0.25R X 0.5	0.5	10	45	4	
New 2HRB 005 120 S04	0.25R X 0.5	0.5	12	45	4	
New 2HRB 005 140 S04	0.25R X 0.5	0.5	14	45	4	
New 2HRB 006 010 S04	0.3R X 0.6	0.6	1	45	4	
2HRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2HRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
2HRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2HRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
2HRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2HRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2HRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2HRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
New 2HRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
New 2HRB 006 160 S04	0.3R X 0.6	0.6	16	45	4	
New 2HRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2HRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2HRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
New 2HRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
New 2HRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2HRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2HRB 008 040 S04	0.4R X 0.8	0.8	4	45	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
2HRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2HRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2HRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2HRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
New 2HRB 008 140 S04	0.4R X 0.8	0.8	14	45	4	
New 2HRB 008 160 S04	0.4R X 0.8	0.8	16	45	4	
2HRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
New 2HRB 010 020 S04	0.5R X 1	1	2	50	4	
New 2HRB 010 020 S06	0.5R X 1	1	2	50	6	
2HRB 010 030 S04	0.5R X 1	1	3	50	4	
New 2HRB 010 030 S06	0.5R X 1	1	3	50	6	
2HRB 010 040 S04	0.5R X 1	1	4	50	4	
New 2HRB 010 040 S06	0.5R X 1	1	4	50	6	
2HRB 010 050 S04	0.5R X 1	1	5	50	4	
New 2HRB 010 050 S06	0.5R X 1	1	5	50	6	
2HRB 010 060 S04	0.5R X 1	1	6	50	4	
New 2HRB 010 060 S06	0.5R X 1	1	6	50	6	
2HRB 010 080 S04	0.5R X 1	1	8	50	4	
New 2HRB 010 080 S06	0.5R X 1	1	8	50	6	
2HRB 010 100 S04	0.5R X 1	1	10	50	4	
New 2HRB 010 100 S06	0.5R X 1	1	10	50	6	
2HRB 010 120 S04	0.5R X 1	1	12	50	4	
New 2HRB 010 120 S06	0.5R X 1	1	12	50	6	
2HRB 010 140 S04	0.5R X 1	1	14	50	4	
New 2HRB 010 140 S06	0.5R X 1	1	14	50	6	
2HRB 010 160 S04	0.5R X 1	1	16	50	4	
New 2HRB 010 160 S06	0.5R X 1	1	16	60	6	
2HRB 010 180 S04	0.5R X 1	1	18	50	4	
New 2HRB 010 180 S06	0.5R X 1	1	18	60	6	
2HRB 010 200 S04	0.5R X 1	1	20	50	4	
New 2HRB 010 200 S06	0.5R X 1	1	20	60	6	
2HRB 010 220 S04	0.5R X 1	1	22	60	4	
New 2HRB 010 220 S06	0.5R X 1	1	22	65	6	
New 2HRB 010 250 S04	0.5R X 1	1	25	60	4	
New 2HRB 012 040 S04	0.6R X 1.2	1.2	4	50	4	
New 2HRB 012 040 S06	0.6R X 1.2	1.2	4	50	6	
2HRB 012 060 S04	0.6R X 1.2	1.2	6	50	4	
New 2HRB 012 060 S06	0.6R X 1.2	1.2	6	50	6	
2HRB 012 080 S04	0.6R X 1.2	1.2	8	50	4	
New 2HRB 012 080 S06	0.6R X 1.2	1.2	8	50	6	
2HRB 012 100 S04	0.6R X 1.2	1.2	10	50	4	
New 2HRB 012 100 S06	0.6R X 1.2	1.2	10	50	6	
2HRB 012 120 S04	0.6R X 1.2	1.2	12	50	4	
New 2HRB 012 120 S06	0.6R X 1.2	1.2	12	50	6	
2HRB 012 160 S04	0.6R X 1.2	1.2	16	50	4	
New 2HRB 012 160 S06	0.6R X 1.2	1.2	16	60	6	
2HRB 012 200 S04	0.6R X 1.2	1.2	20	50	4	
New 2HRB 012 200 S06	0.6R X 1.2	1.2	20	60	6	

2HRB

2 Flutes High Speed Rib Ball End Mills

2날 고속가공용 리브 볼 엔드밀

단위 : mm

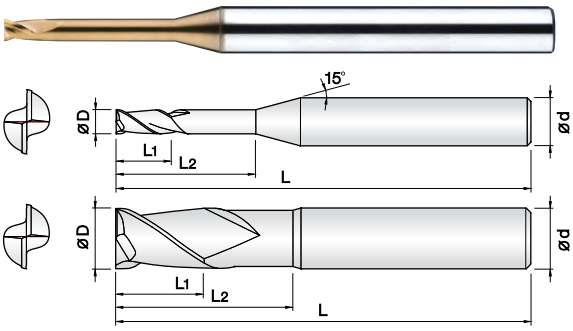
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRB 012 240 S04	0.6R X 1.2	1.2	24	60	4	
New 2HRB 012 240 S06	0.6R X 1.2	1.2	24	65	6	
New 2HRB 014 060 S04	0.7R X 1.4	1.4	6	50	4	
2HRB 014 080 S04	0.7R X 1.4	1.4	8	50	4	
2HRB 014 120 S04	0.7R X 1.4	1.4	12	50	4	
2HRB 014 160 S04	0.7R X 1.4	1.4	16	50	4	
New 2HRB 015 030 S04	0.75R X 1.5	1.5	3	50	4	
New 2HRB 015 030 S06	0.75R X 1.5	1.5	3	50	6	
2HRB 015 040 S04	0.75R X 1.5	1.5	4	50	4	
New 2HRB 015 040 S06	0.75R X 1.5	1.5	4	50	6	
2HRB 015 060 S04	0.75R X 1.5	1.5	6	50	4	
New 2HRB 015 060 S06	0.75R X 1.5	1.5	6	50	6	
2HRB 015 080 S04	0.75R X 1.5	1.5	8	50	4	
New 2HRB 015 080 S06	0.75R X 1.5	1.5	8	50	6	
2HRB 015 100 S04	0.75R X 1.5	1.5	10	50	4	
New 2HRB 015 100 S06	0.75R X 1.5	1.5	10	50	6	
2HRB 015 120 S04	0.75R X 1.5	1.5	12	50	4	
New 2HRB 015 120 S06	0.75R X 1.5	1.5	12	50	6	
2HRB 015 140 S04	0.75R X 1.5	1.5	14	50	4	
New 2HRB 015 140 S06	0.75R X 1.5	1.5	14	50	6	
2HRB 015 160 S04	0.75R X 1.5	1.5	16	50	4	
New 2HRB 015 160 S06	0.75R X 1.5	1.5	16	60	6	
2HRB 015 180 S04	0.75R X 1.5	1.5	18	50	4	
New 2HRB 015 180 S06	0.75R X 1.5	1.5	18	60	6	
2HRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
New 2HRB 015 200 S06	0.75R X 1.5	1.5	20	60	6	
2HRB 015 220 S04	0.75R X 1.5	1.5	22	60	4	
New 2HRB 015 220 S06	0.75R X 1.5	1.5	22	65	6	
2HRB 015 250 S04	0.75R X 1.5	1.5	25	60	4	
New 2HRB 015 250 S06	0.75R X 1.5	1.5	25	65	6	
2HRB 015 300 S04	0.75R X 1.5	1.5	30	70	4	
New 2HRB 015 300 S06	0.75R X 1.5	1.5	30	70	6	
New 2HRB 015 350 S04	0.75R X 1.5	1.5	35	70	4	
New 2HRB 016 060 S04	0.8R X 1.6	1.6	6	50	4	
2HRB 016 080 S04	0.8R X 1.6	1.6	8	50	4	
2HRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2HRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2HRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
New 2HRB 018 060 S04	0.9R X 1.8	1.8	6	50	4	
2HRB 018 080 S04	0.9R X 1.8	1.8	8	50	4	
2HRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	
2HRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2HRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
New 2HRB 020 040 S04	1R X 2	2	4	50	4	
New 2HRB 020 040 S06	1R X 2	2	4	50	6	
2HRB 020 060 S04	1R X 2	2	6	50	4	
New 2HRB 020 060 S06	1R X 2	2	6	50	6	
2HRB 020 080 S04	1R X 2	2	8	50	4	
New 2HRB 020 080 S06	1R X 2	2	8	50	6	
2HRB 020 100 S04	1R X 2	2	10	50	4	
New 2HRB 020 100 S06	1R X 2	2	10	50	6	
2HRB 020 120 S04	1R X 2	2	12	50	4	
New 2HRB 020 120 S06	1R X 2	2	12	50	6	
2HRB 020 140 S04	1R X 2	2	14	50	4	
New 2HRB 020 140 S06	1R X 2	2	14	50	6	
2HRB 020 160 S04	1R X 2	2	16	50	4	
New 2HRB 020 160 S06	1R X 2	2	16	60	6	
2HRB 020 180 S04	1R X 2	2	18	50	4	
New 2HRB 020 180 S06	1R X 2	2	18	60	6	
2HRB 020 200 S04	1R X 2	2	20	50	4	
New 2HRB 020 200 S06	1R X 2	2	20	60	6	
2HRB 020 220 S04	1R X 2	2	22	60	4	
New 2HRB 020 220 S06	1R X 2	2	22	65	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
2HRB 020 250 S04	1R X 2	2	25	60	4	
New 2HRB 020 250 S06	1R X 2	2	25	65	6	
2HRB 020 300 S04	1R X 2	2	30	70	4	
New 2HRB 020 300 S06	1R X 2	2	30	70	6	
2HRB 020 350 S04	1R X 2	2	35	70	4	
New 2HRB 020 350 S06	1R X 2	2	35	75	6	
2HRB 020 400 S04	1R X 2	2	40	80	4	
New 2HRB 020 400 S06	1R X 2	2	40	80	6	
New 2HRB 020 450 S04	1R X 2	2	45	80	4	
New 2HRB 025 080 S04	1.25R X 2.5	2.5	8	50	4	
2HRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2HRB 025 160 S04	1.25R X 2.5	2.5	16	50	4	
2HRB 025 200 S04	1.25R X 2.5	2.5	20	60	4	
2HRB 025 250 S04	1.25R X 2.5	2.5	25	60	4	
2HRB 025 300 S04	1.25R X 2.5	2.5	30	70	4	
2HRB 025 350 S04	1.25R X 2.5	2.5	35	70	4	
New 2HRB 030 060 S06	1.5R X 3	3	6	50	6	
2HRB 030 080 S06	1.5R X 3	3	8	50	6	
2HRB 030 100 S06	1.5R X 3	3	10	50	6	
2HRB 030 120 S06	1.5R X 3	3	12	50	6	
2HRB 030 160 S06	1.5R X 3	3	16	60	6	
2HRB 030 200 S06	1.5R X 3	3	20	60	6	
2HRB 030 250 S06	1.5R X 3	3	25	65	6	
2HRB 030 300 S06	1.5R X 3	3	30	70	6	
2HRB 030 350 S06	1.5R X 3	3	35	75	6	
2HRB 030 400 S06	1.5R X 3	3	40	80	6	
2HRB 030 450 S06	1.5R X 3	3	45	90	6	
2HRB 030 500 S06	1.5R X 3	3	50	100	6	
New 2HRB 030 600 S06	1.5R X 3	3	60	100	6	
New 2HRB 040 080 S06	2R X 4	4	8	50	6	
2HRB 040 100 S06	2R X 4	4	10	50	6	
2HRB 040 120 S06	2R X 4	4	12	50	6	
2HRB 040 160 S06	2R X 4	4	16	60	6	
2HRB 040 200 S06	2R X 4	4	20	60	6	
2HRB 040 250 S06	2R X 4	4	25	65	6	
2HRB 040 300 S06	2R X 4	4	30	70	6	
2HRB 040 350 S06	2R X 4	4	35	75	6	
2HRB 040 400 S06	2R X 4	4	40	80	6	
2HRB 040 450 S06	2R X 4	4	45	90	6	
2HRB 040 500 S06	2R X 4	4	50	100	6	
New 2HRB 040 550 S06	2R X 4	4	55	100	6	
New 2HRB 040 600 S06	2R X 4	4	60	100	6	
New 2HRB 050 150 S06	2.5R X 5	5	15	60	6	
2HRB 050 200 S06	2.5R X 5	5	20	60	6	
2HRB 050 250 S06	2.5R X 5	5	25	70	6	
2HRB 050 300 S06	2.5R X 5	5	30	75	6	
2HRB 050 400 S06	2.5R X 5	5	40	80	6	
2HRB 050 450 S06	2.5R X 5	5	45	90	6	
2HRB 050 500 S06	2.5R X 5	5	50	100	6	
New 2HRB 050 600 S06	2.5R X 5	5	60	100	6	
2HRB 060 150 S06	3R X 6	10	15	55	6	
2HRB 060 300 S06	3R X 6	10	30	110	6	
2HRB 080 250 060	4R X 8	12	25	60	8	
New 2HRB 080 300 100	4R X 8	12	30	100	8	
2HRB 100 300 070	5R X 10	16	30	70	10	
New 2HRB 100 350 100	5R X 10	16	35	100	10	
2HRB 120 300 075	6R X 12	18	30	75	12	
New 2HRB 120 400 110	6R X 12	18	40	110	12	

2HRE

2 Flutes High Speed Rib End Mills

2날 고속가공용 리브 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.01 | D +0 −0.015 | 30° Helix Angle

Ø0.1 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRE 001 003 S04	0.1	0.3	-	40	4	
2HRE 001 005 S04	0.1	0.5	-	40	4	
2HRE 002 005 S04	0.2	0.3	0.5	40	4	
2HRE 002 010 S04	0.2	0.3	1	40	4	
2HRE 002 015 S04	0.2	0.3	1.5	40	4	
2HRE 002 020 S04	0.2	0.3	2	40	4	
2HRE 003 010 S04	0.3	0.4	1	40	4	
2HRE 003 015 S04	0.3	0.4	1.5	40	4	
2HRE 003 020 S04	0.3	0.4	2	40	4	
2HRE 003 030 S04	0.3	0.4	3	40	4	
New 2HRE 003 040 S04	0.3	0.4	4	40	4	
New 2HRE 003 050 S04	0.3	0.4	5	40	4	
2HRE 004 010 S04	0.4	0.5	1	40	4	
2HRE 004 020 S04	0.4	0.5	2	40	4	
2HRE 004 030 S04	0.4	0.5	3	40	4	
2HRE 004 040 S04	0.4	0.5	4	40	4	
2HRE 004 050 S04	0.4	0.5	5	40	4	
2HRE 004 060 S04	0.4	0.5	6	40	4	
2HRE 004 080 S04	0.4	0.5	8	40	4	
New 2HRE 004 100 S04	0.4	0.5	10	40	4	
2HRE 005 020 S04	0.5	0.6	2	40	4	
2HRE 005 030 S04	0.5	0.6	3	40	4	
2HRE 005 040 S04	0.5	0.6	4	40	4	
2HRE 005 050 S04	0.5	0.6	5	40	4	
2HRE 005 060 S04	0.5	0.6	6	40	4	
2HRE 005 080 S04	0.5	0.6	8	40	4	
2HRE 005 100 S04	0.5	0.6	10	40	4	
New 2HRE 005 120 S04	0.5	0.6	12	45	4	
New 2HRE 005 140 S04	0.5	0.6	14	45	4	
2HRE 006 020 S04	0.6	0.7	2	40	4	
2HRE 006 030 S04	0.6	0.7	3	40	4	
2HRE 006 040 S04	0.6	0.7	4	40	4	
2HRE 006 050 S04	0.6	0.7	5	40	4	
2HRE 006 060 S04	0.6	0.7	6	40	4	
2HRE 006 080 S04	0.6	0.7	8	40	4	
2HRE 006 100 S04	0.6	0.7	10	40	4	
New 2HRE 006 120 S04	0.6	0.7	12	45	4	
New 2HRE 006 140 S04	0.6	0.7	14	45	4	
New 2HRE 006 160 S04	0.6	0.7	16	45	4	
2HRE 007 020 S04	0.7	0.8	2	40	4	
2HRE 007 040 S04	0.7	0.8	4	40	4	
2HRE 007 060 S04	0.7	0.8	6	40	4	
2HRE 007 080 S04	0.7	0.8	8	40	4	
2HRE 007 100 S04	0.7	0.8	10	40	4	
New 2HRE 007 120 S04	0.7	0.8	12	45	4	
2HRE 008 020 S04	0.8	1	2	40	4	
2HRE 008 040 S04	0.8	1	4	40	4	
2HRE 008 060 S04	0.8	1	6	40	4	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRE 008 080 S04	0.8	1	8	40	4	
2HRE 008 100 S04	0.8	1	10	40	4	
2HRE 008 120 S04	0.8	1	12	45	4	
New 2HRE 008 140 S04	0.8	1	14	45	4	
2HRE 009 060 S04	0.9	1.1	6	40	4	
2HRE 009 080 S04	0.9	1.1	8	40	4	
2HRE 009 100 S04	0.9	1.1	10	40	4	
New 2HRE 010 020 S04	1	1.2	2	45	4	
2HRE 010 030 S04	1	1.2	3	45	4	
2HRE 010 040 S04	1	1.2	4	45	4	
2HRE 010 050 S04	1	1.2	5	45	4	
2HRE 010 060 S04	1	1.2	6	45	4	
2HRE 010 080 S04	1	1.2	8	45	4	
2HRE 010 100 S04	1	1.2	10	45	4	
2HRE 010 120 S04	1	1.2	12	45	4	
2HRE 010 140 S04	1	1.2	14	45	4	
2HRE 010 160 S04	1	1.2	16	50	4	
2HRE 010 180 S04	1	1.2	18	50	4	
2HRE 010 200 S04	1	1.2	20	50	4	
2HRE 010 250 S04	1	1.2	25	60	4	
New 2HRE 010 300 S04	1	1.2	30	70	4	
New 2HRE 012 040 S04	1.2	1.5	4	45	4	
2HRE 012 060 S04	1.2	1.5	6	45	4	
2HRE 012 080 S04	1.2	1.5	8	45	4	
2HRE 012 100 S04	1.2	1.5	10	45	4	
2HRE 012 120 S04	1.2	1.5	12	45	4	
2HRE 012 160 S04	1.2	1.5	16	50	4	
2HRE 012 200 S04	1.2	1.5	20	50	4	
2HRE 012 250 S04	1.2	1.5	25	60	4	
New 2HRE 012 300 S04	1.2	1.5	30	70	4	
New 2HRE 014 060 S04	1.4	1.8	6	45	4	
2HRE 014 080 S04	1.4	1.8	8	45	4	
2HRE 014 100 S04	1.4	1.8	10	45	4	
2HRE 014 140 S04	1.4	1.8	14	45	4	
2HRE 014 160 S04	1.4	1.8	16	50	4	
2HRE 014 200 S04	1.4	1.8	20	50	4	
New 2HRE 015 040 S04	1.5	1.8	4	45	4	
2HRE 015 060 S04	1.5	1.8	6	45	4	
2HRE 015 080 S04	1.5	1.8	8	45	4	
2HRE 015 100 S04	1.5	1.8	10	45	4	
2HRE 015 120 S04	1.5	1.8	12	45	4	
2HRE 015 140 S04	1.5	1.8	14	50	4	
2HRE 015 160 S04	1.5	1.8	16	50	4	
2HRE 015 180 S04	1.5	1.8	18	50	4	
2HRE 015 200 S04	1.5	1.8	20	50	4	
2HRE 015 250 S04	1.5	1.8	25	60	4	
New 2HRE 015 300 S04	1.5	1.8	30	70	4	
2HRE 016 100 S04	1.6	1.9	10	45	4	

2HRE

2 Flutes High Speed Rib End Mills

2날 고속가공용 리브 엔드밀

단위 : mm

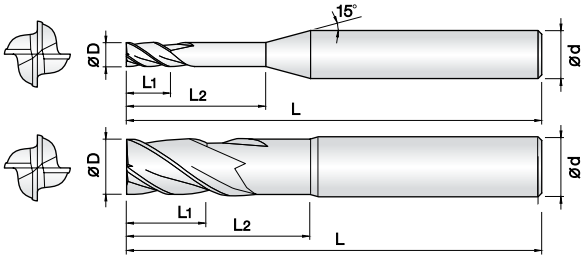
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRE 016 140 S04	1.6	1.9	14	45	4	
2HRE 016 180 S04	1.6	1.9	18	60	4	
2HRE 018 100 S04	1.8	2	10	45	4	
2HRE 018 140 S04	1.8	2	14	45	4	
2HRE 018 180 S04	1.8	2	18	50	4	
New 2HRE 020 040 S04	2	2.5	4	45	4	
2HRE 020 060 S04	2	2.5	6	45	4	
2HRE 020 080 S04	2	2.5	8	45	4	
2HRE 020 100 S04	2	2.5	10	45	4	
2HRE 020 120 S04	2	2.5	12	45	4	
2HRE 020 140 S04	2	2.5	14	45	4	
2HRE 020 160 S04	2	2.5	16	50	4	
2HRE 020 180 S04	2	2.5	18	50	4	
2HRE 020 200 S04	2	2.5	20	50	4	
2HRE 020 220 S04	2	2.5	22	60	4	
2HRE 020 250 S04	2	2.5	25	60	4	
2HRE 020 300 S04	2	2.5	30	60	4	
2HRE 020 350 S04	2	2.5	35	70	4	
2HRE 020 400 S04	2	2.5	40	80	4	
New 2HRE 020 450 S04	2	2.5	45	80	4	
New 2HRE 020 500 S04	2	2.5	50	90	4	
New 2HRE 025 080 S04	2.5	3	8	45	4	
2HRE 025 100 S04	2.5	3	10	45	4	
2HRE 025 120 S04	2.5	3	12	45	4	
2HRE 025 160 S04	2.5	3	16	50	4	
2HRE 025 200 S04	2.5	3	20	50	4	
2HRE 025 250 S04	2.5	3	25	60	4	
2HRE 025 300 S04	2.5	3	30	70	4	
2HRE 025 350 S04	2.5	3	35	70	4	
2HRE 025 400 S04	2.5	3	40	80	4	
New 2HRE 025 500 S04	2.5	3	50	90	4	
New 2HRE 030 060 S06	3	3.5	6	45	6	
2HRE 030 100 S06	3	3.5	10	45	6	
2HRE 030 120 S06	3	3.5	12	50	6	
2HRE 030 160 S06	3	3.5	16	55	6	
2HRE 030 200 S06	3	3.5	20	60	6	
2HRE 030 250 S06	3	3.5	25	65	6	
2HRE 030 300 S06	3	3.5	30	70	6	
2HRE 030 350 S06	3	3.5	35	75	6	
2HRE 030 400 S06	3	3.5	40	80	6	
2HRE 030 450 S06	3	3.5	45	90	6	
2HRE 030 500 S06	3	3.5	50	100	6	
New 2HRE 030 600 S06	3	3.5	60	100	6	
New 2HRE 040 080 S06	4	4.5	8	50	6	
2HRE 040 100 S06	4	4.5	10	50	6	
2HRE 040 120 S06	4	4.5	12	50	6	
2HRE 040 160 S06	4	4.5	16	55	6	
2HRE 040 200 S06	4	4.5	20	60	6	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRE 040 250 S06	4	4.5	25	65	6	
2HRE 040 300 S06	4	4.5	30	70	6	
2HRE 040 350 S06	4	4.5	35	75	6	
2HRE 040 400 S06	4	4.5	40	80	6	
2HRE 040 450 S06	4	4.5	45	90	6	
2HRE 040 500 S06	4	4.5	50	100	6	
New 2HRE 040 550 S06	4	4.5	55	100	6	
New 2HRE 040 600 S06	4	4.5	60	100	6	
2HRE 050 160 S06	5	7	16	55	6	
2HRE 050 200 S06	5	7	20	60	6	
2HRE 050 250 S06	5	7	25	65	6	
2HRE 050 300 S06	5	7	30	70	6	
2HRE 050 350 S06	5	7	35	75	6	
2HRE 050 400 S06	5	7	40	80	6	
2HRE 050 500 S06	5	7	50	100	6	
New 2HRE 050 600 S06	5	7	60	100	6	
2HRE 060 200 S06	6	10	20	60	6	
2HRE 060 300 S06	6	10	30	75	6	
2HRE 060 400 S06	6	10	40	80	6	
2HRE 060 500 S06	6	10	50	90	6	
2HRE 060 600 S06	6	10	60	110	6	
New 2HRE 080 200 S08	8	12	20	65	8	
New 2HRE 080 300 S08	8	12	30	80	8	
New 2HRE 080 400 S08	8	12	40	100	8	
New 2HRE 100 250 S10	10	15	25	70	10	
New 2HRE 100 350 S10	10	15	35	80	10	
New 2HRE 100 450 S10	10	15	45	100	10	
New 2HRE 120 300 S12	12	18	30	80	12	
New 2HRE 120 400 S12	12	18	40	100	12	
New 2HRE 120 500 S12	12	18	50	120	12	

4HRE

4 Flutes High Speed Rib End Mills

4날 고속가공용 리브 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 | D +0 −0.015 | 30° Helix Angle

Ø0.8 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

단위 : mm

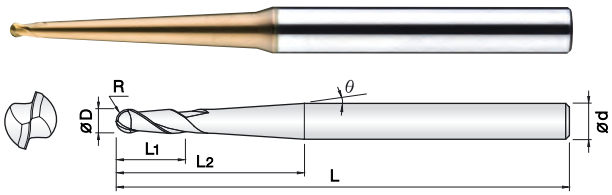
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 4HRE 008 020 S04	0.8	0.8	2	45	4	
New 4HRE 008 040 S04	0.8	0.8	4	45	4	
New 4HRE 008 060 S04	0.8	0.8	6	45	4	
New 4HRE 008 080 S04	0.8	0.8	8	45	4	
New 4HRE 008 100 S04	0.8	0.8	10	45	4	
New 4HRE 008 120 S04	0.8	0.8	12	45	4	
New 4HRE 008 160 S04	0.8	0.8	16	50	4	
New 4HRE 009 020 S04	0.9	0.9	2	45	4	
New 4HRE 009 060 S04	0.9	0.9	6	45	4	
New 4HRE 009 080 S04	0.9	0.9	8	45	4	
New 4HRE 009 100 S04	0.9	0.9	10	45	4	
New 4HRE 010 030 S04	1	1	3	45	4	
4HRE 010 040 S04	1	1	4	45	4	
4HRE 010 060 S04	1	1	6	45	4	
4HRE 010 080 S04	1	1	8	45	4	
4HRE 010 100 S04	1	1	10	45	4	
4HRE 010 120 S04	1	1	12	45	4	
4HRE 010 160 S04	1	1	16	50	4	
New 4HRE 010 200 S04	1	1	20	50	4	
New 4HRE 010 250 S04	1	1	25	60	4	
4HRE 012 060 S04	1.2	1.2	6	45	4	
4HRE 012 080 S04	1.2	1.2	8	45	4	
4HRE 012 100 S04	1.2	1.2	10	45	4	
4HRE 012 120 S04	1.2	1.2	12	45	4	
4HRE 012 160 S04	1.2	1.2	16	50	4	
4HRE 015 060 S04	1.5	1.5	6	45	4	
4HRE 015 080 S04	1.5	1.5	8	45	4	
4HRE 015 100 S04	1.5	1.5	10	45	4	
4HRE 015 120 S04	1.5	1.5	12	45	4	
4HRE 015 160 S04	1.5	1.5	16	50	4	
New 4HRE 015 200 S04	1.5	1.5	20	50	4	
New 4HRE 015 250 S04	1.5	1.5	25	60	4	
4HRE 020 060 S04	2	2	6	45	4	
4HRE 020 080 S04	2	2	8	45	4	
4HRE 020 100 S04	2	2	10	45	4	
4HRE 020 120 S04	2	2	12	45	4	
4HRE 020 160 S04	2	2	16	50	4	
4HRE 020 200 S04	2	2	20	50	4	
New 4HRE 020 250 S04	2	2	25	60	4	
New 4HRE 020 300 S04	2	2	30	70	4	
4HRE 025 100 S04	2.5	2.5	10	45	4	
4HRE 025 120 S04	2.5	2.5	12	45	4	
4HRE 025 160 S04	2.5	2.5	16	50	4	
4HRE 025 200 S04	2.5	2.5	20	50	4	
4HRE 025 250 S04	2.5	2.5	25	60	4	
New 4HRE 025 300 S04	2.5	2.5	30	70	4	
4HRE 030 100 S06	3	3	10	45	6	
4HRE 030 120 S06	3	3	12	50	6	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4HRE 030 160 S06	3	3	16	55	6	
4HRE 030 200 S06	3	3	20	60	6	
4HRE 030 250 S06	3	3	25	65	6	
4HRE 030 300 S06	3	3	30	70	6	
New 4HRE 030 350 S06	3	3	35	75	6	
New 4HRE 030 400 S06	3	3	40	80	6	
4HRE 040 100 S06	4	4	10	50	6	
4HRE 040 120 S06	4	4	12	50	6	
4HRE 040 160 S06	4	4	16	55	6	
4HRE 040 200 S06	4	4	20	60	6	
4HRE 040 250 S06	4	4	25	65	6	
4HRE 040 300 S06	4	4	30	70	6	
4HRE 040 400 S06	4	4	40	80	6	
New 4HRE 040 450 S06	4	4	45	90	6	
New 4HRE 040 500 S06	4	4	50	100	6	
4HRE 050 160 S06	5	5	16	55	6	
4HRE 050 200 S06	5	5	20	60	6	
4HRE 050 250 S06	5	5	25	65	6	
4HRE 050 300 S06	5	5	30	70	6	
4HRE 050 400 S06	5	5	40	80	6	
New 4HRE 050 500 S06	5	5	50	100	6	
4HRE 060 200 S06	6	6	20	60	6	
4HRE 060 300 S06	6	6	30	75	6	
4HRE 060 400 S06	6	6	40	80	6	
4HRE 060 500 S06	6	6	50	90	6	
New 4HRE 080 200 S08	8	10	20	65	8	
New 4HRE 080 300 S08	8	10	30	80	8	
New 4HRE 080 400 S08	8	10	40	100	8	
New 4HRE 100 250 S10	10	15	25	70	10	
New 4HRE 100 350 S10	10	15	35	90	10	
New 4HRE 100 450 S10	10	15	45	110	10	
New 4HRE 120 300 S12	12	18	30	80	12	
New 4HRE 120 400 S12	12	18	40	100	12	
New 4HRE 120 500 S12	12	18	50	120	12	

2TBE

2 Flutes High Speed Taper Neck Ball End Mills

2날 고속가공용 테이퍼 넥볼 엔드밀



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장을 테이퍼 설계하여 깊은 홈 작업시 목부파손 및 떨림을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- Minimize chattering and fracturing by taper designed flute.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter R ×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 002 003 015	0.1R X 0.2	0°30	0.2	1.5	40	4	
2TBE 002 003 020	0.1R X 0.2	0°30	0.2	2	40	4	
2TBE 002 010 015	0.1R X 0.2	1°	0.2	1.5	40	4	
2TBE 002 010 020	0.1R X 0.2	1°	0.2	2	40	4	
2TBE 002 010 025	0.1R X 0.2	1°	0.2	2.5	40	4	
2TBE 002 013 015	0.1R X 0.2	1°30	0.2	1.5	40	4	
2TBE 002 013 020	0.1R X 0.2	1°30	0.2	2	40	4	
2TBE 002 013 025	0.1R X 0.2	1°30	0.2	2.5	40	4	
2TBE 002 020 015	0.1R X 0.2	2°	0.2	1.5	40	4	
2TBE 002 020 020	0.1R X 0.2	2°	0.2	2	40	4	
2TBE 002 020 025	0.1R X 0.2	2°	0.2	2.5	40	4	
2TBE 002 030 015	0.1R X 0.2	3°	0.2	1.5	40	4	
2TBE 002 030 020	0.1R X 0.2	3°	0.2	2	40	4	
2TBE 002 030 025	0.1R X 0.2	3°	0.2	2.5	40	4	
2TBE 002 050 020	0.1R X 0.2	5°	0.2	2	40	4	
2TBE 003 003 030	0.15R X 0.3	0°30	0.3	3	40	4	
2TBE 003 010 020	0.15R X 0.3	1°	0.3	2	40	4	
2TBE 003 010 030	0.15R X 0.3	1°	0.3	3	40	4	
2TBE 003 010 040	0.15R X 0.3	1°	0.3	4	40	4	
2TBE 003 010 050	0.15R X 0.3	1°	0.3	5	40	4	
2TBE 003 013 020	0.15R X 0.3	1°30	0.3	2	40	4	
2TBE 003 013 030	0.15R X 0.3	1°30	0.3	3	40	4	
2TBE 003 013 040	0.15R X 0.3	1°30	0.3	4	40	4	
2TBE 003 013 050	0.15R X 0.3	1°30	0.3	5	40	4	
2TBE 003 020 020	0.15R X 0.3	2°	0.3	2	40	4	
2TBE 003 020 030	0.15R X 0.3	2°	0.3	3	40	4	
2TBE 003 020 040	0.15R X 0.3	2°	0.3	4	40	4	
2TBE 003 020 050	0.15R X 0.3	2°	0.3	5	40	4	
2TBE 003 030 020	0.15R X 0.3	3°	0.3	2	40	4	
2TBE 003 030 030	0.15R X 0.3	3°	0.3	3	40	4	
2TBE 003 030 040	0.15R X 0.3	3°	0.3	4	40	4	
2TBE 003 030 050	0.15R X 0.3	3°	0.3	5	40	4	
2TBE 003 050 050	0.15R X 0.3	5°	0.3	5	40	4	
2TBE 004 003 020	0.2R X 0.4	0°30	0.4	2	40	4	
2TBE 004 003 030	0.2R X 0.4	0°30	0.4	3	40	4	
2TBE 004 003 040	0.2R X 0.4	0°30	0.4	4	40	4	
2TBE 004 003 050	0.2R X 0.4	0°30	0.4	5	40	4	
2TBE 004 003 060	0.2R X 0.4	0°30	0.4	6	40	4	
2TBE 004 010 020	0.2R X 0.4	1°	0.4	2	40	4	
2TBE 004 010 030	0.2R X 0.4	1°	0.4	3	40	4	
2TBE 004 010 040	0.2R X 0.4	1°	0.4	4	40	4	
2TBE 004 010 050	0.2R X 0.4	1°	0.4	5	40	4	
2TBE 004 010 060	0.2R X 0.4	1°	0.4	6	40	4	
2TBE 004 013 020	0.2R X 0.4	1°30	0.4	2	40	4	
2TBE 004 013 030	0.2R X 0.4	1°30	0.4	3	40	4	
2TBE 004 013 040	0.2R X 0.4	1°30	0.4	4	40	4	
2TBE 004 013 050	0.2R X 0.4	1°30	0.4	5	40	4	
2TBE 004 013 060	0.2R X 0.4	1°30	0.4	6	40	4	

Order Number	날경 Diameter R ×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 004 020 020	0.2R X 0.4	2°	0.4	2	40	4	
2TBE 004 020 030	0.2R X 0.4	2°	0.4	3	40	4	
2TBE 004 020 040	0.2R X 0.4	2°	0.4	4	40	4	
2TBE 004 020 050	0.2R X 0.4	2°	0.4	5	40	4	
2TBE 004 020 060	0.2R X 0.4	2°	0.4	6	40	4	
2TBE 005 003 040	0.25R X 0.5	0°30	0.5	4	45	4	
2TBE 005 003 060	0.25R X 0.5	0°30	0.5	6	45	4	
2TBE 005 010 040	0.25R X 0.5	1°	0.5	4	45	4	
2TBE 005 010 060	0.25R X 0.5	1°	0.5	6	45	4	
2TBE 005 010 080	0.25R X 0.5	1°	0.5	8	45	4	
2TBE 005 010 100	0.25R X 0.5	1°	0.5	10	45	4	
2TBE 005 013 040	0.25R X 0.5	1°30	0.5	4	45	4	
2TBE 005 013 060	0.25R X 0.5	1°30	0.5	6	45	4	
2TBE 005 013 080	0.25R X 0.5	1°30	0.5	8	45	4	
2TBE 005 013 100	0.25R X 0.5	1°30	0.5	10	45	4	
2TBE 005 020 040	0.25R X 0.5	2°	0.5	4	45	4	
2TBE 005 020 060	0.25R X 0.5	2°	0.5	6	45	4	
2TBE 005 020 080	0.25R X 0.5	2°	0.5	8	45	4	
2TBE 005 020 100	0.25R X 0.5	2°	0.5	10	45	4	
2TBE 005 030 080	0.25R X 0.5	3°	0.5	8	45	4	
2TBE 005 030 120	0.25R X 0.5	3°	0.5	12	50	4	
2TBE 006 003 040	0.3R X 0.6	0°30	0.6	4	45	4	
2TBE 006 003 060	0.3R X 0.6	0°30	0.6	6	45	4	
2TBE 006 003 080	0.3R X 0.6	0°30	0.6	8	45	4	
2TBE 006 010 040	0.3R X 0.6	1°	0.6	4	45	4	
2TBE 006 010 060	0.3R X 0.6	1°	0.6	6	45	4	
2TBE 006 010 080	0.3R X 0.6	1°	0.6	8	45	4	
2TBE 006 010 100	0.3R X 0.6	1°	0.6	10	45	4	
2TBE 006 010 120	0.3R X 0.6	1°	0.6	12	50	4	
2TBE 006 010 150	0.3R X 0.6	1°	0.6	15	50	4	
2TBE 006 013 040	0.3R X 0.6	1°30	0.6	4	45	4	
2TBE 006 013 060	0.3R X 0.6	1°30	0.6	6	45	4	
2TBE 006 013 080	0.3R X 0.6	1°30	0.6	8	45	4	
2TBE 006 013 100	0.3R X 0.6	1°30	0.6	10	45	4	
2TBE 006 013 120	0.3R X 0.6	1°30	0.6	12	50	4	
2TBE 006 020 060	0.3R X 0.6	2°	0.6	6	45	4	
2TBE 006 020 080	0.3R X 0.6	2°	0.6	8	45	4	
2TBE 006 020 100	0.3R X 0.6	2°	0.6	10	45	4	
2TBE 006 030 130	0.3R X 0.6	3°	0.6	13	50	4	
2TBE 008 003 040	0.4R X 0.8	0°30	0.8	4	45	4	
2TBE 008 003 060	0.4R X 0.8	0°30	0.8	6	45	4	
2TBE 008 003 080	0.4R X 0.8	0°30	0.8	8	45	4	
2TBE 008 003 100	0.4R X 0.8	0°30	0.8	10	45	4	
2TBE 008 003 120	0.4R X 0.8	0°30	0.8	12	50	4	
2TBE 008 010 040	0.4R X 0.8	1°	0.8	4	45	4	
2TBE 008 010 060	0.4R X 0.8	1°	0.8	6	45	4	
2TBE 008 010 080	0.4R X 0.8	1°	0.8	8	45	4	
2TBE 008 010 100	0.4R X 0.8	1°	0.8	10	45	4	

2TBE

2 Flutes High Speed Taper Neck Ball End Mills

2날 고속가공용 테이퍼 넥 볼 엔드밀

단위 : mm

Order Number	날경 Diameter R×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 008 010 120	0.4R X 0.8	1°	0.8	12	50	4	
2TBE 008 010 160	0.4R X 0.8	1°	0.8	16	50	4	
2TBE 008 013 040	0.4R X 0.8	1°30	0.8	4	45	4	
2TBE 008 013 060	0.4R X 0.8	1°30	0.8	6	45	4	
2TBE 008 013 080	0.4R X 0.8	1°30	0.8	8	45	4	
2TBE 008 013 100	0.4R X 0.8	1°30	0.8	10	45	4	
2TBE 008 013 120	0.4R X 0.8	1°30	0.8	12	50	4	
2TBE 008 013 160	0.4R X 0.8	1°30	0.8	16	50	4	
2TBE 008 020 080	0.4R X 0.8	2°	0.8	8	50	4	
2TBE 008 020 100	0.4R X 0.8	2°	0.8	10	50	4	
2TBE 008 020 120	0.4R X 0.8	2°	0.8	12	50	4	
2TBE 008 020 160	0.4R X 0.8	2°	0.8	16	50	4	
2TBE 008 030 080	0.4R X 0.8	3°	0.8	8	50	4	
2TBE 008 030 120	0.4R X 0.8	3°	0.8	12	50	4	
2TBE 008 030 160	0.4R X 0.8	3°	0.8	16	50	4	
2TBE 010 003 060	0.5R X 1	0°30	1	6	50	4	
2TBE 010 003 080	0.5R X 1	0°30	1	8	50	4	
2TBE 010 003 100	0.5R X 1	0°30	1	10	50	4	
2TBE 010 003 150	0.5R X 1	0°30	1	15	50	4	
2TBE 010 003 200	0.5R X 1	0°30	1	20	60	4	
2TBE 010 003 250	0.5R X 1	0°30	1	25	60	4	
2TBE 010 003 300	0.5R X 1	0°30	1	30	70	4	
2TBE 010 010 060	0.5R X 1	1°	1	6	50	4	
2TBE 010 010 080	0.5R X 1	1°	1	8	50	4	
2TBE 010 010 100	0.5R X 1	1°	1	10	50	4	
2TBE 010 010 150	0.5R X 1	1°	1	15	50	4	
2TBE 010 010 200	0.5R X 1	1°	1	20	50	4	
2TBE 010 010 250	0.5R X 1	1°	1	25	60	4	
2TBE 010 010 300	0.5R X 1	1°	1	30	70	4	
2TBE 010 010 350	0.5R X 1	1°	1	35	75	4	
2TBE 010 013 060	0.5R X 1	1°30	1	6	50	4	
2TBE 010 013 080	0.5R X 1	1°30	1	8	50	4	
2TBE 010 013 100	0.5R X 1	1°30	1	10	50	4	
2TBE 010 013 150	0.5R X 1	1°30	1	15	50	4	
2TBE 010 013 200	0.5R X 1	1°30	1	20	50	4	
2TBE 010 013 250	0.5R X 1	1°30	1	25	60	4	
2TBE 010 013 300	0.5R X 1	1°30	1	30	70	4	
2TBE 010 020 150	0.5R X 1	2°	1	15	50	4	
2TBE 010 020 200	0.5R X 1	2°	1	20	50	4	
2TBE 010 020 250	0.5R X 1	2°	1	25	60	4	
2TBE 010 020 300	0.5R X 1	2°	1	30	70	4	
2TBE 010 030 200	0.5R X 1	3°	1	20	50	4	
2TBE 010 030 300	0.5R X 1	3°	1	30	70	6	
2TBE 010 030 400	0.5R X 1	3°	1	40	80	6	
2TBE 010 050 230	0.5R X 1	5°	1	23	60	6	
2TBE 012 003 080	0.6R X 1.2	0°30	1.2	8	50	4	
2TBE 012 003 120	0.6R X 1.2	0°30	1.2	12	50	4	
2TBE 012 003 180	0.6R X 1.2	0°30	1.2	18	50	4	

Order Number	날경 Diameter R×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 012 003 240	0.6R X 1.2	0°30	1.2	24	60	4	
2TBE 012 010 080	0.6R X 1.2	1°	1.2	8	50	4	
2TBE 012 010 120	0.6R X 1.2	1°	1.2	12	50	4	
2TBE 012 010 180	0.6R X 1.2	1°	1.2	18	50	4	
2TBE 012 010 240	0.6R X 1.2	1°	1.2	24	60	4	
2TBE 012 013 080	0.6R X 1.2	1°30	1.2	8	50	4	
2TBE 012 013 120	0.6R X 1.2	1°30	1.2	12	50	4	
2TBE 012 013 180	0.6R X 1.2	1°30	1.2	18	50	4	
2TBE 012 013 240	0.6R X 1.2	1°30	1.2	24	60	4	
2TBE 012 020 080	0.6R X 1.2	2°	1.2	8	50	4	
2TBE 012 020 120	0.6R X 1.2	2°	1.2	12	50	4	
2TBE 012 020 180	0.6R X 1.2	2°	1.2	18	50	4	
2TBE 012 020 240	0.6R X 1.2	2°	1.2	24	60	4	
2TBE 015 003 080	0.75R X 1.5	0°30	1.5	8	50	4	
2TBE 015 003 100	0.75R X 1.5	0°30	1.5	10	50	4	
2TBE 015 003 120	0.75R X 1.5	0°30	1.5	12	50	4	
2TBE 015 003 150	0.75R X 1.5	0°30	1.5	15	50	4	
2TBE 015 003 200	0.75R X 1.5	0°30	1.5	20	60	4	
2TBE 015 003 300	0.75R X 1.5	0°30	1.5	30	70	4	
2TBE 015 010 080	0.75R X 1.5	1°	1.5	8	50	4	
2TBE 015 010 100	0.75R X 1.5	1°	1.5	10	50	4	
2TBE 015 010 120	0.75R X 1.5	1°	1.5	12	50	4	
2TBE 015 010 150	0.75R X 1.5	1°	1.5	15	50	4	
2TBE 015 010 200	0.75R X 1.5	1°	1.5	20	60	4	
2TBE 015 010 250	0.75R X 1.5	1°	1.5	25	60	4	
2TBE 015 010 300	0.75R X 1.5	1°	1.5	30	70	4	
2TBE 015 013 080	0.75R X 1.5	1°30	1.5	8	50	4	
2TBE 015 013 100	0.75R X 1.5	1°30	1.5	10	50	4	
2TBE 015 013 120	0.75R X 1.5	1°30	1.5	12	50	4	
2TBE 015 013 150	0.75R X 1.5	1°30	1.5	15	50	4	
2TBE 015 013 200	0.75R X 1.5	1°30	1.5	20	60	4	
2TBE 015 013 250	0.75R X 1.5	1°30	1.5	25	60	4	
2TBE 015 013 300	0.75R X 1.5	1°30	1.5	30	70	4	
2TBE 015 020 100	0.75R X 1.5	2°	1.5	10	50	4	
2TBE 015 020 150	0.75R X 1.5	2°	1.5	15	50	4	
2TBE 015 020 200	0.75R X 1.5	2°	1.5	20	60	4	
2TBE 015 020 300	0.75R X 1.5	2°	1.5	30	70	4	
2TBE 015 030 420	0.75R X 1.5	3°	1.5	42	80	6	
2TBE 015 050 250	0.75R X 1.5	5°	1.5	25	70	6	
2TBE 020 003 080	1R X 2	0°30	2	8	50	4	
2TBE 020 003 120	1R X 2	0°30	2	12	50	4	
2TBE 020 003 160	1R X 2	0°30	2	16	50	4	
2TBE 020 003 200	1R X 2	0°30	2	20	60	4	
2TBE 020 003 300	1R X 2	0°30	2	30	70	4	
2TBE 020 003 400	1R X 2	0°30	2	40	80	4	
2TBE 020 010 080	1R X 2	1°	2	8	50	4	
2TBE 020 010 120	1R X 2	1°	2	12	50	4	
2TBE 020 010 160	1R X 2	1°	2	16	50	4	

2TBE

2 Flutes High Speed Taper Neck Ball End Mills

2날 고속가공용 테이퍼 넥 볼 엔드밀

단위 : mm

Order Number	날경 Diameter R ×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 020 010 200	1R X 2	1°	2	20	60	4	
2TBE 020 010 250	1R X 2	1°	2	25	60	4	
2TBE 020 010 300	1R X 2	1°	2	30	70	4	
2TBE 020 010 350	1R X 2	1°	2	35	75	4	
2TBE 020 010 400	1R X 2	1°	2	40	80	4	
2TBE 020 010 500	1R X 2	1°	2	50	90	4	
2TBE 020 013 080	1R X 2	1°30	2	8	50	4	
2TBE 020 013 120	1R X 2	1°30	2	12	50	4	
2TBE 020 013 160	1R X 2	1°30	2	16	50	4	
2TBE 020 013 200	1R X 2	1°30	2	20	60	4	
2TBE 020 013 250	1R X 2	1°30	2	25	60	4	
2TBE 020 013 300	1R X 2	1°30	2	30	70	4	
2TBE 020 013 350	1R X 2	1°30	2	35	75	6	
2TBE 020 013 400	1R X 2	1°30	2	40	80	6	
2TBE 020 013 500	1R X 2	1°30	2	50	90	6	
2TBE 020 020 300	1R X 2	2°	2	30	70	6	
2TBE 020 020 400	1R X 2	2°	2	40	80	6	
2TBE 020 020 500	1R X 2	2°	2	50	90	6	
2TBE 020 030 300	1R X 2	3°	2	30	70	6	
2TBE 020 030 400	1R X 2	3°	2	40	80	6	
2TBE 020 050 250	1R X 2	5°	2	25	60	6	
2TBE 020 050 380	1R X 2	5°	2	38	80	8	
2TBE 030 003 160	1.5R X 3	0°30	3	16	60	6	
2TBE 030 003 200	1.5R X 3	0°30	3	20	65	6	
2TBE 030 003 300	1.5R X 3	0°30	3	30	70	6	
2TBE 030 003 400	1.5R X 3	0°30	3	40	80	6	
2TBE 030 003 500	1.5R X 3	0°30	3	50	90	6	
2TBE 030 010 160	1.5R X 3	1°	3	16	60	6	
2TBE 030 010 200	1.5R X 3	1°	3	20	65	6	
2TBE 030 010 300	1.5R X 3	1°	3	30	70	6	
2TBE 030 010 400	1.5R X 3	1°	3	40	80	6	
2TBE 030 010 500	1.5R X 3	1°	3	50	90	6	
2TBE 030 013 160	1.5R X 3	1°30	3	16	60	6	
2TBE 030 013 200	1.5R X 3	1°30	3	20	65	6	
2TBE 030 013 300	1.5R X 3	1°30	3	30	70	6	
2TBE 030 013 400	1.5R X 3	1°30	3	40	80	6	
2TBE 030 013 500	1.5R X 3	1°30	3	50	90	6	
2TBE 030 020 160	1.5R X 3	2°	3	16	60	6	
2TBE 030 020 200	1.5R X 3	2°	3	20	65	6	
2TBE 030 020 300	1.5R X 3	2°	3	30	70	6	
2TBE 030 020 480	1.5R X 3	2°	3	48	90	6	
2TBE 030 030 300	1.5R X 3	3°	3	30	70	6	
2TBE 030 030 500	1.5R X 3	3°	3	50	90	8	
2TBE 030 050 330	1.5R X 3	5°	3	33	90	8	
2TBE 040 003 600	2R X 4	0°30	4	60	100	6	
2TBE 040 010 500	2R X 4	1°	4	50	90	6	
2TBE 040 010 600	2R X 4	1°	4	60	100	6	
2TBE 040 013 450	2R X 4	1°30	4	45	90	6	

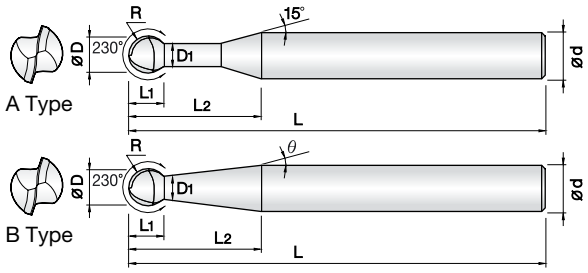
Order Number	날경 Diameter R ×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TBE 040 013 600	2R X 4	1°30	4	60	110	8	
2TBE 040 030 250	2R X 4	3°	4	25	70	6	
2TBE 040 050 290	2R X 4	5°	4	29	90	8	
2TBE 050 013 400	2.5R X 5	1°30	5	40	90	8	
2TBE 050 013 600	2.5R X 5	1°30	5	60	110	8	
2TBE 050 030 400	2.5R X 5	3°	5	40	90	8	
2TBE 060 013 490	3R X 6	1°30	9	49	110	8	
2TBE 060 020 600	3R X 6	2°	9	60	110	10	
2TBE 060 030 290	3R X 6	3°	9	29	90	8	
2TBE 060 050 320	3R X 6	5°	9	32	110	10	
2TBE 080 013 520	4R X 8	1°30	12	52	110	10	
2TBE 080 030 330	4R X 8	3°	12	33	100	10	
2TBE 100 013 540	5R X 10	1°30	18	54	130	12	
2TBE 100 030 370	5R X 10	3°	18	37	110	12	
2TBE 120 013 850	6R X 12	1°30	22	85	160	16	
2TBE 120 030 630	6R X 12	3°	22	63	130	16	

2SPH

2 Flutes Spherical End Mills for 3D Cut 230°

2날5축3D 230도 가공용 구형엔드밀

New



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- 230°degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | LR ±0.005 (0.5R ~ 2.5R) | LR ±0.01 (3R ~ 6R) | 15° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	+0~ −0.015mm

단위 : mm

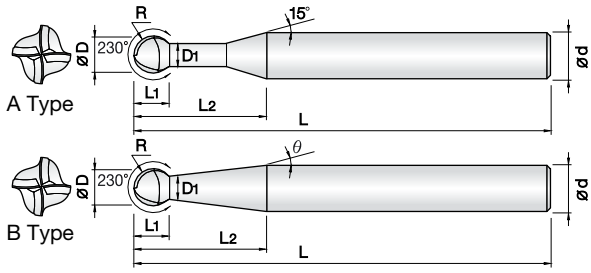
Order Number	날경 Diameter R×D	목경 Neck Diameter D1	날장 Length of cut L1	유효장 Effective Length L2	각도 Angle θ	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
2SPH 010 040 S06	0.5R X 1	0.91	0.7	4	0°	60	A	6	
2SPH 010 060 S06	0.5R X 1	0.91	0.7	6	0°	60	A	6	
2SPH 010 013 200	0.5R X 1	0.91	0.7	20	1°30	80	B	6	
2SPH 015 060 S06	0.75R X 1.5	1.36	1	6	0°	60	A	6	
2SPH 015 080 S06	0.75R X 1.5	1.36	1	8	0°	60	A	6	
2SPH 015 013 200	0.75R X 1.5	1.36	1	20	1°30	80	B	6	
2SPH 020 060 S06	1R X 2	1.8	1.4	6	0°	60	A	6	
2SPH 020 100 S06	1R X 2	1.8	1.4	10	0°	60	A	6	
2SPH 020 013 200	1R X 2	1.8	1.4	20	1°30	80	B	6	
2SPH 030 100 S06	1.5R X 3	2.7	2.1	10	0°	70	A	6	
2SPH 030 150 S06	1.5R X 3	2.7	2.1	15	0°	70	A	6	
2SPH 030 013 300	1.5R X 3	2.7	2.1	30	1°30	80	B	6	
2SPH 040 120 S06	2R X 4	3.6	2.8	12	0°	70	A	6	
2SPH 040 200 S06	2R X 4	3.6	2.8	20	0°	70	A	6	
2SPH 040 030 250	2R X 4	3.6	2.8	25	3°	80	B	6	
2SPH 050 010 400	2.5R X 5	4.5	3.5	40	1°	90	B	6	
2SPH 060 150 S06	3R X 6	5.4	4.2	15	0°	90	A	6	
2SPH 060 300 S06	3R X 6	5.4	4.2	30	0°	90	A	6	
2SPH 060 010 210	3R X 6	5.4	4.2	21	1°	100	B	6	
2SPH 080 010 280	4R X 8	7.2	5.7	28	1°	100	B	8	
2SPH 100 010 350	5R X 10	9	7.1	35	1°	110	B	10	
2SPH 120 010 420	6R X 12	10.8	8.5	42	1°	120	B	12	

4SPH

4 Flutes Spherical End Mills for 3D Cut 230°

4날5축3D 230도 가공용 구형 엔드밀

New



- **고경도강(HRc50~65), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~65)**
- Good wear resistance by Si-based PVD coating.
- 230°degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 (0.5R ~ 2.5R) | R ±0.01 (3R ~ 6R) | 15° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ -0.01mm
D > ø5	+0~ -0.015mm

단위 : mm

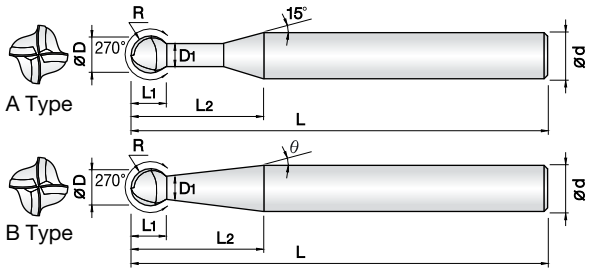
Order Number	날경 Diameter R×D	목경 Neck Diameter D1	날장 Length of cut L1	유효장 Effective Length L2	각도 Angle θ	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
4SPH 010 040 S06	0.5R X 1	0.91	0.7	4	0°	60	A	6	
4SPH 010 060 S06	0.5R X 1	0.91	0.7	6	0°	60	A	6	
4SPH 010 013 200	0.5R X 1	0.91	0.7	20	1°30	80	B	6	
4SPH 015 060 S06	0.75R X 1.5	1.36	1	6	0°	60	A	6	
4SPH 015 080 S06	0.75R X 1.5	1.36	1	8	0°	60	A	6	
4SPH 015 013 200	0.75R X 1.5	1.36	1	20	1°30	80	B	6	
4SPH 020 060 S06	1R X 2	1.8	1.4	6	0°	60	A	6	
4SPH 020 100 S06	1R X 2	1.8	1.4	10	0°	60	A	6	
4SPH 020 013 200	1R X 2	1.8	1.4	20	1°30	80	B	6	
4SPH 030 100 S06	1.5R X 3	2.7	2.1	10	0°	70	A	6	
4SPH 030 150 S06	1.5R X 3	2.7	2.1	15	0°	70	A	6	
4SPH 030 013 300	1.5R X 3	2.7	2.1	30	1°30	80	B	6	
4SPH 040120 S06	2R X 4	3.6	2.8	12	0°	70	A	6	
4SPH 040 200 S06	2R X 4	3.6	2.8	20	0°	70	A	6	
4SPH 040 030 250	2R X 4	3.6	2.8	25	3°	80	B	6	
4SPH 050 010 400	2.5R X 5	4.5	3.5	40	1°	90	B	6	
4SPH 060 150 S06	3R X 6	5.4	4.2	15	0°	90	A	6	
4SPH 060 300 S06	3R X 6	5.4	4.2	30	0°	90	A	6	
4SPH 060 010 210	3R X 6	5.4	4.2	21	1°	100	B	6	
4SPH 080 010 280	4R X 8	7.2	5.7	28	1°	100	B	8	
4SPH 100 010 350	5R X 10	9	7.1	35	1°	110	B	10	
4SPH 120 010 420	6R X 12	10.8	8.5	42	1°	120	B	12	

4SPHM

4 Flutes Spherical End Mills for 3D Cut 270°

4날5축3D 270도 가공용 구형 엔드밀

New



- **고경도강(HRc50~65), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 270도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~65)**
- Good wear resistance by Si-based PVD coating.
- 270°degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | LR ±0.005 (0.5R ~ 2.5R) | LR ±0.01 (3R ~ 6R) | 15° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	+0~ −0.015mm

단위 : mm

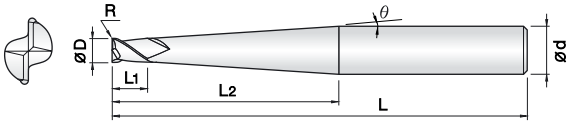
Order Number	날경 Diameter R×D	목경 Neck Diameter D1	날장 Length of cut L1	유효장 Effective Length L2	각도 Angle θ	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
4SPHM 010 040 S06	0.5R X 1	0.7	0.8	4	0°	60	A	6	
4SPHM 010 060 S06	0.5R X 1	0.7	0.8	6	0°	60	A	6	
4SPHM 010 013 200	0.5R X 1	0.7	0.8	20	1°30	80	B	6	
4SPHM 015 060 S06	0.75R X 1.5	1	1.2	6	0°	60	A	6	
4SPHM 015 080 S06	0.75R X 1.5	1	1.2	8	0°	60	A	6	
4SPHM 015 013 200	0.75R X 1.5	1	1.2	20	1°30	80	B	6	
4SPHM 020 060 S06	1R X 2	1.4	1.7	6	0°	60	A	6	
4SPHM 020 100 S06	1R X 2	1.4	1.7	10	0°	60	A	6	
4SPHM 020 013 200	1R X 2	1.4	1.7	20	1°30	80	B	6	
4SPHM 030 100 S06	1.5R X 3	2.1	2.5	10	0°	70	A	6	
4SPHM 030 150 S06	1.5R X 3	2.1	2.5	15	0°	70	A	6	
4SPHM 030 013 300	1.5R X 3	2.1	2.5	30	1°30	80	B	6	
4SPHM 040120 S06	2R X 4	2.8	3.4	12	0°	70	A	6	
4SPHM 040 200 S06	2R X 4	2.8	3.4	20	0°	70	A	6	
4SPHM 040 030 250	2R X 4	2.8	3.4	25	3°	80	B	6	
4SPHM 050 010 400	2.5R X 5	3.5	4.2	40	1°	90	B	6	
4SPHM 060 150 S06	3R X 6	4.2	5.1	15	0°	90	A	6	
4SPHM 060 300 S06	3R X 6	4.2	5.1	30	0°	90	A	6	
4SPHM 060 010 210	3R X 6	4.2	5.1	21	1°	100	B	6	
4SPHM 080 010 280	4R X 8	5.6	6.8	28	1°	100	B	8	
4SPHM 100 010 350	5R X 10	7	8.5	35	1°	110	B	10	
4SPHM 120 010 420	6R X 12	8.5	10	42	1°	120	B	12	

2TCR

2 Flutes High Speed Taper Neck Corner Radius End Mills

2날 고속가공용 테이퍼 넥 코너 레디우스 엔드밀

New



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장을 테이퍼 설계하여 깊은 홈 작업시 목부파손 및 떨림을 최소화 하였습니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- Minimize chattering and fracturing by taper designed flute.
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 Ø1~Ø4 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TCR 010 001 0601	1 X R0.1	1°	1	6	50	4	
2TCR 010 001 1001	1 X R0.1	1°	1	10	50	4	
2TCR 010 001 1501	1 X R0.1	1°	1	15	50	4	
2TCR 010 001 2001	1 X R0.1	1°	1	20	60	4	
2TCR 010 001 2501	1 X R0.1	1°	1	25	60	4	
2TCR 010 001 3001	1 X R0.1	1°	1	30	70	4	
2TCR 010 001 3501	1 X R0.1	1°	1	35	75	4	
2TCR 010 002 0601	1 X R0.2	1°	1	6	50	4	
2TCR 010 002 1001	1 X R0.2	1°	1	10	50	4	
2TCR 010 002 1501	1 X R0.2	1°	1	15	50	4	
2TCR 010 002 2001	1 X R0.2	1°	1	20	60	4	
2TCR 010 002 2501	1 X R0.2	1°	1	25	60	4	
2TCR 010 002 3001	1 X R0.2	1°	1	30	70	4	
2TCR 010 002 3501	1 X R0.2	1°	1	35	75	4	
2TCR 010 003 0601	1 X R0.3	1°	1	6	50	4	
2TCR 010 003 1001	1 X R0.3	1°	1	10	50	4	
2TCR 010 003 1501	1 X R0.3	1°	1	15	50	4	
2TCR 010 003 2001	1 X R0.3	1°	1	20	60	4	
2TCR 010 003 2501	1 X R0.3	1°	1	25	60	4	
2TCR 010 003 3001	1 X R0.3	1°	1	30	70	4	
2TCR 010 003 3501	1 X R0.3	1°	1	35	75	4	
2TCR 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4	
2TCR 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4	
2TCR 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4	
2TCR 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4	
2TCR 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4	
2TCR 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4	
2TCR 015 003 1001	1.5 X R0.3	1°	1.5	10	50	4	
2TCR 015 003 1501	1.5 X R0.3	1°	1.5	15	50	4	
2TCR 015 003 2001	1.5 X R0.3	1°	1.5	20	60	4	
2TCR 015 003 2501	1.5 X R0.3	1°	1.5	25	60	4	
2TCR 015 003 3001	1.5 X R0.3	1°	1.5	30	70	4	
2TCR 015 003 3501	1.5 X R0.3	1°	1.5	35	75	4	
2TCR 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4	
2TCR 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4	
2TCR 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4	
2TCR 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4	
2TCR 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4	
2TCR 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4	
2TCR 020 002 1201	2 X R0.2	1°	2	12	50	4	
2TCR 020 002 1601	2 X R0.2	1°	2	16	50	4	
2TCR 020 002 2001	2 X R0.2	1°	2	20	60	4	
2TCR 020 002 2501	2 X R0.2	1°	2	25	60	4	
2TCR 020 002 3001	2 X R0.2	1°	2	30	70	4	
2TCR 020 002 3501	2 X R0.2	1°	2	35	75	4	
2TCR 020 002 4001	2 X R0.2	1°	2	40	80	4	
2TCR 020 002 5001	2 X R0.2	1°	2	50	90	4	
2TCR 020 003 1201	2 X R0.3	1°	2	12	50	4	

Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TCR 020 003 1601	2 X R0.3	1°	2	16	50	4	
2TCR 020 003 2001	2 X R0.3	1°	2	20	60	4	
2TCR 020 003 2501	2 X R0.3	1°	2	25	60	4	
2TCR 020 003 3001	2 X R0.3	1°	2	30	70	4	
2TCR 020 003 3501	2 X R0.3	1°	2	35	75	4	
2TCR 020 003 4001	2 X R0.3	1°	2	40	80	4	
2TCR 020 003 5001	2 X R0.3	1°	2	50	90	4	
2TCR 020 005 1201	2 X R0.5	1°	2	12	50	4	
2TCR 020 005 1601	2 X R0.5	1°	2	16	50	4	
2TCR 020 005 2001	2 X R0.5	1°	2	20	60	4	
2TCR 020 005 2501	2 X R0.5	1°	2	25	60	4	
2TCR 020 005 3001	2 X R0.5	1°	2	30	70	4	
2TCR 020 005 3501	2 X R0.5	1°	2	35	75	4	
2TCR 020 005 4001	2 X R0.5	1°	2	40	80	4	
2TCR 020 005 5001	2 X R0.5	1°	2	50	90	4	
2TCR 030 002 2001	3 X R0.2	1°	3	20	60	6	
2TCR 030 002 3001	3 X R0.2	1°	3	30	70	6	
2TCR 030 002 4001	3 X R0.2	1°	3	40	80	6	
2TCR 030 002 5001	3 X R0.2	1°	3	50	90	6	
2TCR 030 002 6001	3 X R0.2	1°	3	60	100	6	
2TCR 030 003 2001	3 X R0.3	1°	3	20	60	6	
2TCR 030 003 3001	3 X R0.3	1°	3	30	70	6	
2TCR 030 003 4001	3 X R0.3	1°	3	40	80	6	
2TCR 030 003 5001	3 X R0.3	1°	3	50	90	6	
2TCR 030 003 6001	3 X R0.3	1°	3	60	100	6	
2TCR 030 005 2001	3 X R0.5	1°	3	20	60	6	
2TCR 030 005 3001	3 X R0.5	1°	3	30	70	6	
2TCR 030 005 4001	3 X R0.5	1°	3	40	80	6	
2TCR 030 005 5001	3 X R0.5	1°	3	50	90	6	
2TCR 030 005 6001	3 X R0.5	1°	3	60	100	6	
2TCR 030 010 2001	3 X R1	1°	3	20	60	6	
2TCR 030 010 3001	3 X R1	1°	3	30	70	6	
2TCR 030 010 4001	3 X R1	1°	3	40	80	6	
2TCR 030 010 5001	3 X R1	1°	3	50	90	6	
2TCR 030 010 6001	3 X R1	1°	3	60	100	6	
2TCR 040 002 2001	4 X R0.2	1°	4	20	60	6	
2TCR 040 002 3001	4 X R0.2	1°	4	30	70	6	
2TCR 040 002 4001	4 X R0.2	1°	4	40	80	6	
2TCR 040 002 5001	4 X R0.2	1°	4	50	90	6	
2TCR 040 002 6001	4 X R0.2	1°	4	60	100	6	
2TCR 040 003 2001	4 X R0.3	1°	4	20	60	6	
2TCR 040 003 3001	4 X R0.3	1°	4	30	70	6	
2TCR 040 003 4001	4 X R0.3	1°	4	40	80	6	
2TCR 040 003 5001	4 X R0.3	1°	4	50	90	6	
2TCR 040 003 6001	4 X R0.3	1°	4	60	100	6	
2TCR 040 005 2001	4 X R0.5	1°	4	20	60	6	
2TCR 040 005 3001	4 X R0.5	1°	4	30	70	6	
2TCR 040 005 4001	4 X R0.5	1°	4	40	80	6	

2TCR

2 Flutes High Speed Taper Neck Corner Radius End Mills

2날 고속가공용 테이퍼 넥 코너 레디우스 엔드밀

New

단위 : mm

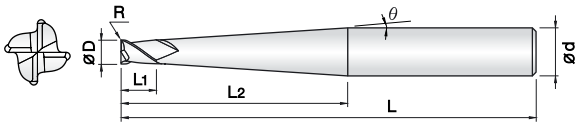
Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TCR 040 005 5001	4 X R0.5	1°	4	50	90	6	
2TCR 040 005 6001	4 X R0.5	1°	4	60	100	6	
2TCR 040 010 2001	4 X R1	1°	4	20	60	6	
2TCR 040 010 3001	4 X R1	1°	4	30	70	6	
2TCR 040 010 4001	4 X R1	1°	4	40	80	6	
2TCR 040 010 5001	4 X R1	1°	4	50	90	6	
2TCR 040 010 6001	4 X R1	1°	4	60	100	6	

4TCR

4 Flutes High Speed Taper Neck Corner Radius End Mills

4날 고속가공용 테이퍼 넥 코너 레디우스 엔드밀

New



- **고경도강(HRc50~65), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장을 테이퍼 설계하여 깊은 홈 작업시 목부파손 및 떨림을 최소화 하였습니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~65)**
- Good wear resistance by Si-based PVD coating.
- Minimize chattering and fracturing by taper designed flute.
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 Ø1~Ø4 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4TCR 010001 0601	1 X R0.1	1°	1	6	50	4	
4TCR 010001 1001	1 X R0.1	1°	1	10	50	4	
4TCR 010001 1501	1 X R0.1	1°	1	15	50	4	
4TCR 010001 2001	1 X R0.1	1°	1	20	60	4	
4TCR 010001 2501	1 X R0.1	1°	1	25	60	4	
4TCR 010001 3001	1 X R0.1	1°	1	30	70	4	
4TCR 010001 3501	1 X R0.1	1°	1	35	75	4	
4TCR 010002 0601	1 X R0.2	1°	1	6	50	4	
4TCR 010002 1001	1 X R0.2	1°	1	10	50	4	
4TCR 010002 1501	1 X R0.2	1°	1	15	50	4	
4TCR 010002 2001	1 X R0.2	1°	1	20	60	4	
4TCR 010002 2501	1 X R0.2	1°	1	25	60	4	
4TCR 010002 3001	1 X R0.2	1°	1	30	70	4	
4TCR 010002 3501	1 X R0.2	1°	1	35	75	4	
4TCR 015002 1001	1.5 X R0.2	1°	1.5	10	50	4	
4TCR 015002 1501	1.5 X R0.2	1°	1.5	15	50	4	
4TCR 015002 2001	1.5 X R0.2	1°	1.5	20	60	4	
4TCR 015002 2501	1.5 X R0.2	1°	1.5	25	60	4	
4TCR 015002 3001	1.5 X R0.2	1°	1.5	30	70	4	
4TCR 015002 3501	1.5 X R0.2	1°	1.5	35	75	4	
4TCR 015005 1001	1.5 X R0.5	1°	1.5	10	50	4	
4TCR 015005 1501	1.5 X R0.5	1°	1.5	15	50	4	
4TCR 015005 2001	1.5 X R0.5	1°	1.5	20	60	4	
4TCR 015005 2501	1.5 X R0.5	1°	1.5	25	60	4	
4TCR 015005 3001	1.5 X R0.5	1°	1.5	30	70	4	
4TCR 015005 3501	1.5 X R0.5	1°	1.5	35	75	4	
4TCR 020002 1201	2 X R0.2	1°	2	12	50	4	
4TCR 020002 1601	2 X R0.2	1°	2	16	50	4	
4TCR 020002 2001	2 X R0.2	1°	2	20	60	4	
4TCR 020002 2501	2 X R0.2	1°	2	25	60	4	
4TCR 020002 3001	2 X R0.2	1°	2	30	70	4	
4TCR 020002 3501	2 X R0.2	1°	2	35	75	4	
4TCR 020002 4001	2 X R0.2	1°	2	40	80	4	
4TCR 020002 5001	2 X R0.2	1°	2	50	90	4	
4TCR 020005 1201	2 X R0.5	1°	2	12	50	4	
4TCR 020005 1601	2 X R0.5	1°	2	16	50	4	
4TCR 020005 2001	2 X R0.5	1°	2	20	60	4	
4TCR 020005 2501	2 X R0.5	1°	2	25	60	4	
4TCR 020005 3001	2 X R0.5	1°	2	30	70	4	
4TCR 020005 3501	2 X R0.5	1°	2	35	75	4	
4TCR 020005 4001	2 X R0.5	1°	2	40	80	4	
4TCR 020005 5001	2 X R0.5	1°	2	50	90	4	
4TCR 030002 2001	3 X R0.2	1°	3	20	60	6	
4TCR 030002 3001	3 X R0.2	1°	3	30	70	6	
4TCR 030002 4001	3 X R0.2	1°	3	40	80	6	
4TCR 030002 5001	3 X R0.2	1°	3	50	90	6	
4TCR 030002 6001	3 X R0.2	1°	3	60	100	6	
4TCR 030005 2001	3 X R0.5	1°	3	20	60	6	

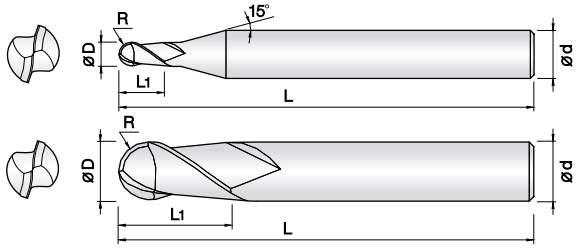
Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4TCR 030005 3001	3 X R0.5	1°	3	30	70	6	
4TCR 030005 4001	3 X R0.5	1°	3	40	80	6	
4TCR 030005 5001	3 X R0.5	1°	3	50	90	6	
4TCR 030005 6001	3 X R0.5	1°	3	60	100	6	
4TCR 040002 2001	4 X R0.2	1°	4	20	60	6	
4TCR 040002 3001	4 X R0.2	1°	4	30	70	6	
4TCR 040002 4001	4 X R0.2	1°	4	40	80	6	
4TCR 040002 5001	4 X R0.2	1°	4	50	90	6	
4TCR 040002 6001	4 X R0.2	1°	4	60	100	6	
4TCR 040005 2001	4 X R0.5	1°	4	20	60	6	
4TCR 040005 3001	4 X R0.5	1°	4	30	70	6	
4TCR 040005 4001	4 X R0.5	1°	4	40	80	6	
4TCR 040005 5001	4 X R0.5	1°	4	50	90	6	
4TCR 040005 6001	4 X R0.5	1°	4	60	100	6	

2PHCB

2 Flutes Ultra Precision Standard Length Ball End Mills

2날 초정밀 표준 길이 볼 엔드밀

New



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀(±2㎛) 가공용**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for precise cutting(±2㎛) of pre-hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.002 (0.1R~1R) | R ±0.003 (1.25R~2R) | R ±0.005 (2.5R~6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

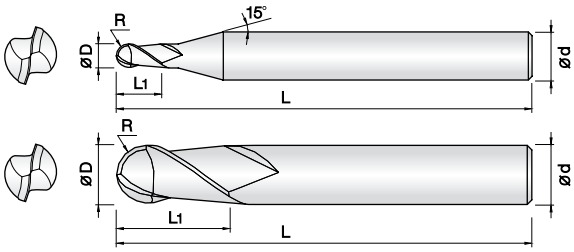
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2PHCB 002 004 S04	0.1R X 0.2	0.4	40	4	
2PHCB 003 006 S04	0.15R X 0.3	0.6	40	4	
2PHCB 004 008 S04	0.2R X 0.4	0.8	40	4	
2PHCB 005 010 S04	0.25R X 0.5	1	45	4	
2PHCB 006 012 S04	0.3R X 0.6	1.2	45	4	
2PHCB 007 015 S04	0.35R X 0.7	1.5	45	4	
2PHCB 008 020 S04	0.4R X 0.8	2	45	4	
2PHCB 009 020 S04	0.45R X 0.9	2	45	4	
2PHCB 010 025 S04	0.5R X 1	2.5	50	4	
2PHCB 010 025 S06	0.5R X 1	2.5	50	6	
2PHCB 012 030 S04	0.6R X 1.2	3	50	4	
2PHCB 015 040 S04	0.75R X 1.5	4	50	4	
2PHCB 015 040 S06	0.75R X 1.5	4	50	6	
2PHCB 020 050 S04	1R X 2	5	50	4	
2PHCB 020 050 S06	1R X 2	5	50	6	
2PHCB 025 060 S04	1.25R X 2.5	6	50	4	
2PHCB 030 080 S04	1.5R X 3	8	50	4	
2PHCB 030 080 S06	1.5R X 3	8	60	6	
2PHCB 035 080 S06	1.75R X 3.5	8	60	6	
2PHCB 040 080 S04	2R X 4	8	60	4	
2PHCB 040 080 S06	2R X 4	8	70	6	
2PHCB 045 080 S06	2.25R X 4.5	8	70	6	
2PHCB 050 100 S06	2.5R X 5	10	75	6	
2PHCB 055 100 S06	2.75R X 5.5	10	75	6	
2PHCB 060 120 080	3R X 6	12	80	6	
2PHCB 070 140 S08	3.5R X 7	14	80	8	
2PHCB 080 140 090	4R X 8	14	90	8	
2PHCB 100 180 100	5R X 10	18	100	10	
2PHCB 120 220 110	6R X 12	22	110	12	

2HSB

2 Flutes High Speed Short Length Ball End Mills

2날 고속가공용 짧은 길이 볼 엔드밀



- **고경도강(HRc50~62), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Short overall length for easy use with shrinking chuck
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

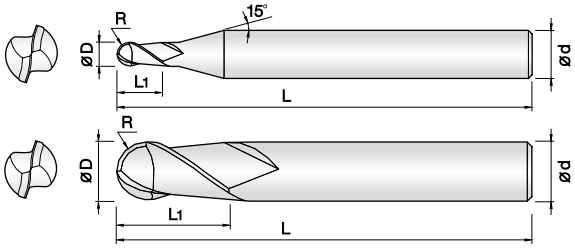
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 2HSB 002 002 S04	0.1R X 0.2	0.2	40	4	
New 2HSB 003 003 S04	0.15R X 0.3	0.3	40	4	
New 2HSB 004 004 S04	0.2R X 0.4	0.4	40	4	
New 2HSB 005 005 S04	0.25R X 0.5	0.5	40	4	
New 2HSB 006 006 S04	0.3R X 0.6	0.6	40	4	
New 2HSB 007 007 S04	0.35R X 0.7	0.7	40	4	
New 2HSB 008 008 S04	0.4R X 0.8	0.8	40	4	
New 2HSB 009 009 S04	0.45R X 0.9	0.9	40	4	
2HSB 010 010 S04	0.5R X 1	1	40	4	
2HSB 010 010 S06	0.5R X 1	1	40	6	
2HSB 015 015 S04	0.75R X 1.5	1.5	40	4	
2HSB 015 015 S06	0.75R X 1.5	1.5	40	6	
2HSB 020 020 S04	1R X 2	2	45	4	
2HSB 020 020 S06	1R X 2	2	45	6	
2HSB 030 030 S04	1.5R X 3	3	45	4	
2HSB 030 030 S06	1.5R X 3	3	45	6	
2HSB 040 040 S04	2R X 4	4	45	4	
2HSB 040 040 S06	2R X 4	4	45	6	
2HSB 050 050 S06	2.5R X 5	5	50	6	
2HSB 060 060 050	3R X 6	6	50	6	
New 2HSB 060 060 060	3R X 6	6	60	6	
New 2HSB 080 080 050	4R X 8	8	50	8	
2HSB 080 080 060	4R X 8	8	60	8	
New 2HSB 100 100 060	5R X 10	10	60	10	
2HSB 100 100 070	5R X 10	10	70	10	
New 2HSB 120 120 060	6R X 12	12	60	12	
2HSB 120 120 075	6R X 12	12	75	12	

2HCB

2 Flutes High Speed Standard Length Ball End Mills

2날 고속가공용 표준 길이 볼 엔드밀



- **고경도강(HRc50~62), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | LR ±0.005 (0.05R~3R) | LR ±0.01 (3.5R~10R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

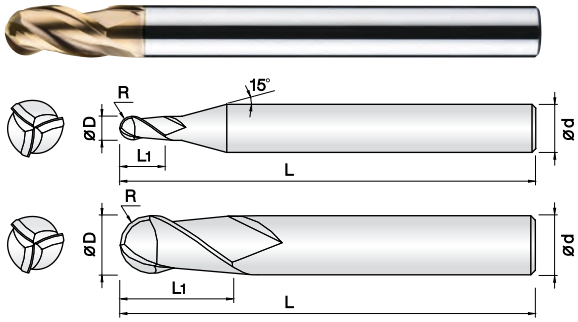
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCB 001 002 S04	0.05R X 0.1	0.2	40	4	
2HCB 0015 003 S04	0.075R X 0.15	0.3	40	4	
2HCB 002 004 S04	0.1R X 0.2	0.4	40	4	
2HCB 003 006 S04	0.15R X 0.3	0.6	40	4	
2HCB 004 008 S04	0.2R X 0.4	0.8	40	4	
2HCB 005 010 S04	0.25R X 0.5	1	45	4	
2HCB 006 012 S04	0.3R X 0.6	1.2	45	4	
2HCB 007 015 S04	0.35R X 0.7	1.5	45	4	
2HCB 008 020 S04	0.4R X 0.8	2	45	4	
2HCB 009 020 S04	0.45R X 0.9	2	45	4	
2HCB 010 025 S04	0.5R X 1	2.5	50	4	
2HCB 010 025 S06	0.5R X 1	2.5	50	6	
New 2HCB 010 025 070	0.5R X 1	2.5	70	6	
New 2HCB 010 025 100	0.5R X 1	2.5	100	6	
2HCB 012 030 S04	0.6R X 1.2	3	50	4	
2HCB 015 040 S04	0.75R X 1.5	4	50	4	
2HCB 015 040 S06	0.75R X 1.5	4	50	6	
New 2HCB 015 040 070	0.75R X 1.5	4	70	6	
New 2HCB 015 040 100	0.75R X 1.5	4	100	6	
2HCB 020 050 S04	1R X 2	5	50	4	
2HCB 020 050 S06	1R X 2	5	50	6	
New 2HCB 020 050 075	1R X 2	5	75	6	
New 2HCB 020 050 100	1R X 2	5	100	6	
2HCB 025 060 S04	1.25R X 2.5	6	50	4	
New 2HCB 025 060 S06	1.25R X 2.5	6	75	6	
New 2HCB 025 060 100	1.25R X 2.5	6	100	6	
New 2HCB 030 080 S03	1.5R X 3	8	60	3	
2HCB 030 080 S04	1.5R X 3	8	50	4	
2HCB 030 080 S06	1.5R X 3	8	60	6	
New 2HCB 030 080 080	1.5R X 3	8	80	6	
New 2HCB 030 080 100	1.5R X 3	8	100	6	
2HCB 035 080 S06	1.75R X 3.5	8	60	6	
2HCB 040 080 060	2R X 4	8	60	4	
New 2HCB 040 080 080	2R X 4	8	80	4	
2HCB 040 080 S06	2R X 4	8	70	6	
New 2HCB 040 080 090	2R X 4	8	90	6	
New 2HCB 040 080 120	2R X 4	8	120	6	
2HCB 045 080 S06	2.25R X 4.5	8	70	6	
New 2HCB 050 080 S05	2.5R X 5	8	80	5	
2HCB 050 100 S06	2.5R X 5	10	75	6	
2HCB 055 100 S06	2.75R X 5.5	10	75	6	
New 2HCB 060 100 060	3R X 6	10	60	6	
2HCB 060 120 080	3R X 6	12	80	6	
2HCB 060 120 100	3R X 6	12	100	6	
New 2HCB 060 120 120	3R X 6	12	120	6	
2HCB 070 140 S08	3.5R X 7	14	80	8	
2HCB 080 140 090	4R X 8	14	90	8	
2HCB 080 140 110	4R X 8	14	110	8	

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 2HCB 080 140 150	4R X 8	14	150	8	
New 2HCB 090 160 S10	4.5R X 9	16	100	10	
2HCB 100 180 100	5R X 10	18	100	10	
2HCB 100 180 120	5R X 10	18	120	10	
New 2HCB 100 180 150	5R X 10	18	150	10	
New 2HCB 100 180 180	5R X 10	18	180	10	
New 2HCB 110 200 S12	5.5R X 11	20	110	12	
2HCB 120 220 110	6R X 12	22	110	12	
2HCB 120 220 130	6R X 12	22	130	12	
New 2HCB 120 220 150	6R X 12	22	150	12	
New 2HCB 120 220 200	6R X 12	22	200	12	
New 2HCB 130 240 S14	6.5R X 13	24	110	14	
New 2HCB 140 240 S14	7R X 14	24	110	14	
2HCB 160 300 130	8R X 16	30	130	16	
New 2HCB 160 300 160	8R X 16	30	160	16	
New 2HCB 160 300 200	8R X 16	30	200	16	
2HCB 200 380 160	10R X 20	38	160	20	
New 2HCB 200 380 200	10R X 20	38	200	20	

3HCB

3 Flutes High Speed Standard Length Ball End Mills

3날 고속가공용 표준 길이 볼 엔드밀



- **고경도강(HRc50~65), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 3날 볼타입 적용으로 고속,고이송 작업이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~65)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- High speed, feed applicable by 3 flute ball edge.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | TISIN Coating | R ±0.005 (1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3HCB 020 050 S06	1R X 2	5	50	6	
3HCB 030 080 S06	1.5R X 3	8	65	6	
3HCB 040 080 S04	2R X 4	8	60	4	
3HCB 040 080 S06	2R X 4	8	70	6	
3HCB 050 100 S06	2.5R X 5	10	75	6	
3HCB 060 120 S06	3R X 6	12	80	6	
3HCB 080 140 S08	4R X 8	14	90	8	
3HCB 100 180 S10	5R X 10	18	100	10	
3HCB 120 220 S12	6R X 12	22	110	12	

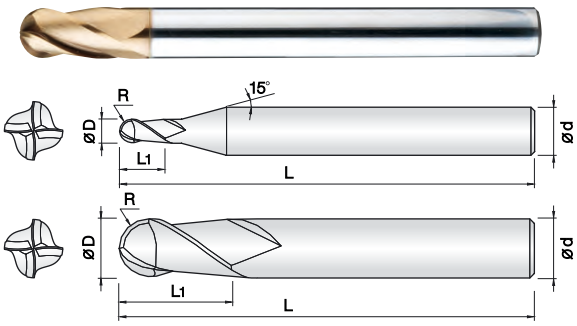
Max. 25% off

4HCB

4 Flutes High Speed Standard Length Ball End Mills

4날 고속가공용 표준 길이 볼 엔드밀

New



- **고경도강(HRc50~65), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 4날 볼타입 적용으로 고속,고이송 작업이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~65)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- High speed, feed applicable by 4 flute ball edge.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 (1.5R ~ 3R) | R ±0.01 (4R ~ 8R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

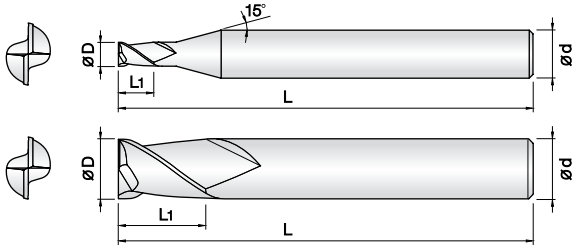
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4HCB 030 080 S06	1.5R X 3	8	60	6	
4HCB 040 080 S04	2R X 4	8	60	4	
4HCB 040 080 S06	2R X 4	8	70	6	
4HCB 050 100 S06	2.5R X 5	10	80	6	
4HCB 060 120 S06	3R X 6	12	90	6	
4HCB 080 140 S08	4R X 8	14	100	8	
4HCB 100 180 S10	5R X 10	18	100	10	
4HCB 120 220 S12	6R X 12	22	110	12	
4HCB 160 300 S16	8R X 16	30	130	16	

2HSE

2 Flutes High Speed Short Length End Mills

2날 고속가공용 짧은 길이 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Short overall length for easy use with shrinking chuck.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.01 | D +0 −0.02 | 30° Helix Angle

Ø0.1 ~ Ø5 Ø6 ~ Ø12

Size	D Tolerance
D ≦ Ø5	+0 ~ −0.01mm
D > Ø5	+0 ~ −0.02mm

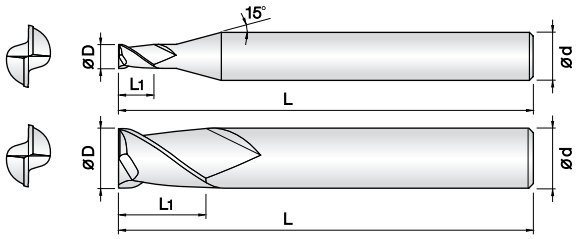
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HSE 001 001 S04	0.1	0.1	38	4	
2HSE 002 002 S04	0.2	0.2	38	4	
2HSE 003 003 S04	0.3	0.3	38	4	
2HSE 004 004 S04	0.4	0.4	38	4	
2HSE 005 005 S04	0.5	0.5	38	4	
2HSE 006 006 S04	0.6	0.6	38	4	
2HSE 007 007 S04	0.7	0.7	38	4	
2HSE 008 008 S04	0.8	0.8	38	4	
2HSE 009 009 S04	0.9	0.9	38	4	
2HSE 010 010 S04	1	1	38	4	
2HSE 012 012 S04	1.2	1.2	38	4	
2HSE 015 015 S04	1.5	1.5	38	4	
2HSE 020 020 S04	2	2	38	4	
2HSE 030 030 S04	3	3	40	4	
2HSE 040 040 S04	4	4	40	4	
New 2HSE 050 050 S06	5	5	45	6	
New 2HSE 060 060 S06	6	6	45	6	
New 2HSE 080 080 S08	8	8	50	8	
New 2HSE 100 100 S10	10	10	60	10	
New 2HSE 120 120 S12	12	12	65	12	

2HCE

2 Flutes High Speed Standard Length End Mills

2날 고속가공용 표준 길이 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 국내최초 날경 0.05mm 제품부터 생산합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Produce down to 0.05mm in diameter endmills at the first time in Korea.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.005 | D +0 −0.01 | D +0 −0.02 | 30° Helix Angle

Ø0.05~Ø0.95 Ø1~Ø5.5 Ø6~Ø20

Size	D Tolerance
D < ø1	+0 ~ −0.005mm
D ≦ ø5.5	+0 ~ −0.01mm
D > Ø5.5	+0 ~ −0.02mm

단위 : mm

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	2HCE 0005 0008 S04	0.05	0.08	38	4	
	2HCE 0006 001 S04	0.06	0.1	38	4	
	2HCE00070 012 S04	0.07	0.12	38	4	
	2HCE 00080 015 S04	0.08	0.15	38	4	
	2HCE 00090 017 S04	0.09	0.17	38	4	
	2HCE 001 002 S04	0.1	0.2	38	4	
	2HCE 0015 003 S04	0.15	0.3	38	4	
	2HCE 002 004 S04	0.2	0.4	38	4	
	2HCE 0025 005 S04	0.25	0.5	38	4	
	2HCE 003 006 S04	0.3	0.6	38	4	
	2HCE 0035 007 S04	0.35	0.7	38	4	
	2HCE 004 008 S04	0.4	0.8	38	4	
	2HCE 0045 009 S04	0.45	0.9	38	4	
	2HCE 005 010 S04	0.5	1	38	4	
	2HCE 0055 011 S04	0.55	1.1	38	4	
	2HCE 006 012 S04	0.6	1.2	38	4	
	2HCE 0065 013 S04	0.65	1.3	38	4	
	2HCE 007 014 S04	0.7	1.4	38	4	
	2HCE 0075 015 S04	0.75	1.5	38	4	
	2HCE 008 016 S04	0.8	1.6	38	4	
	2HCE 0085 017 S04	0.85	1.7	38	4	
	2HCE 009 020 S04	0.9	2	38	4	
	2HCE 0095 020 S04	0.95	2	38	4	
	2HCE 010 025 S04	1	2.5	40	4	
	2HCE 010 025 S06	1	2.5	40	6	
New	2HCE 010 025 060	1	2.5	60	6	
	2HCE 011 027 S04	1.1	2.7	40	4	
	2HCE 012 030 S04	1.2	3	40	4	
New	2HCE 012 030 060	1.2	3	60	6	
	2HCE 013 032 S04	1.3	3.2	40	4	
	2HCE 014 035 S04	1.4	3.5	40	4	
	2HCE 015 040 S04	1.5	4	40	4	
	2HCE 015 040 S06	1.5	4	40	6	
New	2HCE 015 040 060	1.5	4	60	6	
	2HCE 016 040 S04	1.6	4	40	4	
	2HCE 017 042 S04	1.7	4.2	40	4	
	2HCE 018 045 S04	1.8	4.5	40	4	
	2HCE 019 050 S04	1.9	5	40	4	
	2HCE 020 060 S04	2	6	40	4	
	2HCE 020 060 S06	2	6	40	6	
New	2HCE 020 060 060	2	6	60	6	
	2HCE 021 060 S04	2.1	6	40	4	
	2HCE 022 060 S04	2.2	6	40	4	
	2HCE 023 060 S04	2.3	6	40	4	
	2HCE 024 080 S04	2.4	8	45	4	
	2HCE 025 080 S04	2.5	8	45	4	
	2HCE 025 080 S06	2.5	8	45	6	
New	2HCE 025 080 070	2.5	8	70	6	

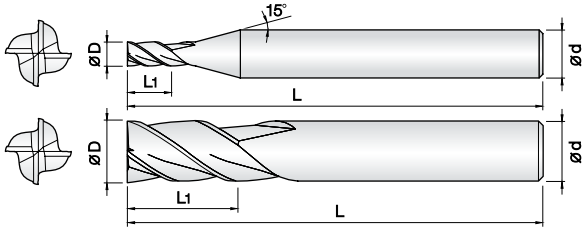
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	2HCE 026 080 S04	2.6	8	45	4	
	2HCE 027 080 S04	2.7	8	45	4	
	2HCE 028 080 S04	2.8	8	45	4	
	2HCE 029 080 S04	2.9	8	45	4	
New	2HCE 030 080 S04	3	8	45	3	
	2HCE 030 080 S04	3	8	45	4	
	2HCE 030 080 S06	3	8	45	6	
New	2HCE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

4HSE

4 Flutes High Speed Short Length End Mills

4날 고속가공용 짧은 길이 엔드밀

New



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 짧은 날장의 채택으로 강력절삭에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Optimum for heavy condition by short flute design.
- Reinforced edge design for preventing edge chipping.
- Short overall length for easy use with shrinking chuck.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø1 ~ Ø5) | D +0 −0.02 (Ø6 ~ Ø16) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0 ~ −0.01mm
D > Ø5	+0 ~ −0.02mm

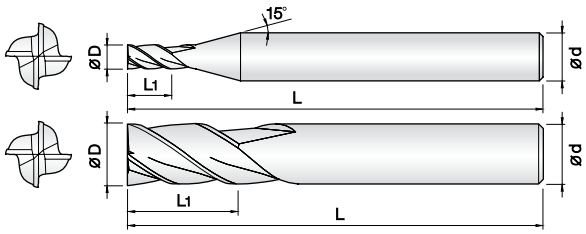
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4HSE 010 015 S04	1	1.5	40	4	
4HSE 012 020 S04	1.2	2	40	4	
4HSE 015 022 S04	1.5	2.2	40	4	
4HSE 020 035 S04	2	3.5	40	4	
4HSE 020 035 S06	2	3.5	40	6	
4HSE 030 045 S04	3	4.5	40	4	
4HSE 030 045 S06	3	4.5	40	6	
4HSE 040 060 S04	4	6	40	4	
4HSE 040 060 S06	4	6	40	6	
4HSE 050 075 S06	5	7.5	45	6	
4HSE 060 090 S06	6	9	45	6	
4HSE 080 120 S08	8	12	50	8	
4HSE 100 150 S10	10	15	60	10	
4HSE 120 180 S12	12	18	65	12	
4HSE 160 240 S16	16	24	75	16	

4HCE

4 Flutes High Speed Standard Length End Mills

4날 고속가공용 표준 길이 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

ø0.8~ ø5.5 ø6 ~ ø20

Size	D Tolerance
D ≦ ø5.5	+0~ −0.01mm
D > ø5.5	+0~ −0.02mm

단위 : mm

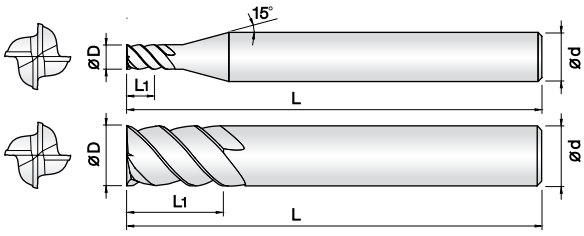
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	4HCE 008 020 S04	0.8	2	40	4	
	4HCE 010 025 S04	1	2.5	40	4	
	4HCE 010 025 S06	1	2.5	40	6	
New	4HCE 010 025 060	1	2.5	60	6	
New	4HCE 010 025 080	1	2.5	80	6	
New	4HCE 012 030 S04	1.2	3	40	4	
New	4HCE 012 030 S06	1.2	3	40	6	
New	4HCE 012 030 060	1.2	3	60	6	
	4HCE 015 040 S04	1.5	4	40	4	
	4HCE 015 040 S06	1.5	4	40	6	
New	4HCE 015 040 060	1.5	4	60	6	
New	4HCE 015 040 080	1.5	4	80	6	
	4HCE 020 060 S04	2	6	40	4	
	4HCE 020 060 S06	2	6	40	6	
New	4HCE 020 060 060	2	6	60	6	
New	4HCE 020 060 100	2	6	100	6	
	4HCE 025 080 S04	2.5	8	45	4	
	4HCE 025 080 S06	2.5	8	45	6	
New	4HCE 025 080 070	2.5	8	70	6	
New	4HCE 025 080 100	2.5	8	100	6	
New	4HCE 030 080 S03	3	8	45	3	
	4HCE 030 080 S04	3	8	45	4	
	4HCE 030 080 S06	3	8	45	6	
New	4HCE 030 080 070	3	8	70	6	
New	4HCE 030 080 100	3	8	100	6	
	4HCE 035 100 S06	3.5	10	45	6	
	4HCE 040 110 S04	4	11	45	4	
	4HCE 040 110 S06	4	11	45	6	
New	4HCE 040 110 070	4	11	70	6	
New	4HCE 040 110 100	4	11	100	6	
	4HCE 045 110 S06	4.5	11	45	6	
	4HCE 050 130 S06	5	13	50	6	
New	4HCE 050 130 080	5	13	80	6	
New	4HCE 050 130 100	5	13	100	6	
	4HCE 055 130 S06	5.5	13	50	6	
	4HCE 060 130 S06	6	13	50	6	
New	4HCE 060 130 080	6	13	80	6	
New	4HCE 060 130 100	6	13	100	6	
	4HCE 065 160 S08	6.5	16	60	8	
	4HCE 070 160 S08	7	16	60	8	
	4HCE 075 160 S08	7.5	16	60	8	
	4HCE 080 190 S08	8	19	60	8	
	4HCE 085 190 S10	8.5	19	70	10	
	4HCE 090 190 S10	9	19	70	10	
	4HCE 095 190 S10	9.5	19	70	10	
	4HCE 100 220 S10	10	22	70	10	
	4HCE 105 220 S12	10.5	22	75	12	
	4HCE 110 220 S12	11	22	75	12	

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	4HCE 115 220 S12	11.5	22	75	12	
	4HCE 120 260 S12	12	26	75	12	
New	4HCE 140 260 S14	14	26	80	14	
	4HCE 140 260 S16	14	26	85	16	
	4HCE 160 350 S16	16	35	100	16	
	4HCE 180 350 S18	18	35	105	18	
	4HCE 200 400 S20	20	40	105	20	

4HEM

4 Flutes High Speed 45° Helix End Mills

4날 고속가공용 45° 헬릭스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 45°헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- 45°degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø1~ Ø5) | D +0 −0.02 (Ø6~ Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

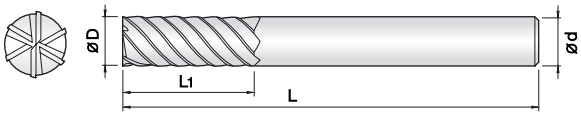
단위 : mm

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	4HEM 010 025 S06	1	2.5	40	6	
New	4HEM 010 035 S06	1	3.5	40	6	
New	4HEM 015 040 S06	1.5	4	40	6	
New	4HEM 015 060 S06	1.5	6	40	6	
	4HEM 020 050 S06	2	5	40	6	
	4HEM 020 080 S06	2	8	45	6	
	4HEM 030 080 S06	3	8	45	6	
	4HEM 030 120 S06	3	12	50	6	
	4HEM 040 110 S06	4	11	45	6	
	4HEM 040 160 S06	4	16	55	6	
	4HEM 050 130 S06	5	13	50	6	
New	4HEM 050 180 S06	5	18	60	6	
	4HEM 060 130 S06	6	13	50	6	
	4HEM 060 200 S06	6	20	60	6	
	4HEM 080 200 S08	8	20	60	8	
	4HEM 080 250 S08	8	25	70	8	
	4HEM 100 220 S10	10	22	70	10	
	4HEM 100 300 S10	10	30	80	10	
	4HEM 120 260 S12	12	26	75	12	
	4HEM 120 400 S12	12	40	90	12	
New	4HEM 120 500 S12	12	50	100	12	
	4HEM 160 350 S16	16	35	82	16	
	4HEM 160 500 S16	16	50	110	16	
	4HEM 200 400 S20	20	40	100	20	
	4HEM 200 500 S20	20	50	110	20	

6&8HEM

6&8 Flutes High Speed 45° Helix End Mills

6&8날 고속가공용45° 헬릭스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고경도가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃과 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 45°헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Precise run-out and tolerance for finish machining.
- Reinforced edge design for preventing edge chipping.
- 45°degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

6 | 8 | UWC 초미립자 | TISIN Coating | D +0 −0.02 (Ø6 ~ Ø8) | D −0.01 −0.03 (Ø10 ~ Ø25) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø8	+0 ~ −0.02mm
D > Ø8	−0.01 ~ −0.03mm

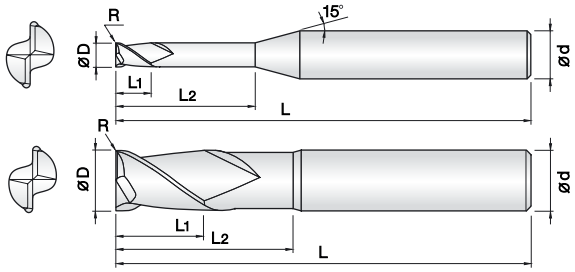
단위 : mm

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	6HEM 030 100 S06	3	10	50	6	
New	6HEM 040 120 S06	4	12	50	6	
New	6HEM 050 150 S06	5	15	50	6	
	6HEM 060 150 S06	6	15	50	6	
	6HEM 060 200 S06	6	20	60	6	
	6HEM 060 250 S06	6	25	65	6	
	6HEM 080 200 S08	8	20	60	8	
	6HEM 080 250 S08	8	25	65	8	
	6HEM 080 300 S08	8	30	75	8	
	6HEM 080 350 S08	8	35	90	8	
	6HEM 100 250 S10	10	25	70	10	
	6HEM 100 350 S10	10	35	90	10	
	6HEM 100 450 S10	10	45	100	10	
	6HEM 120 300 S12	12	30	80	12	
	6HEM 120 400 S12	12	40	90	12	
	6HEM 120 500 S12	12	50	100	12	
	6HEM 160 350S16	16	35	90	16	
	6HEM 160 500 S16	16	50	110	16	
	6HEM 160 650 S16	16	65	120	16	
New	6HEM 160 800 S16	16	80	150	16	
New	6HEM 160 900 S16	16	90	160	16	
	6HEM 200 450 S20	20	45	100	20	
	6HEM 200 600 S20	20	60	120	20	
	6HEM 200 800 S20	20	80	150	20	
	6HEM 200 900 S20	20	90	160	20	
New	6HEM 200 1000 S20	20	100	160	20	
New	6HEM 200 1100 S20	20	110	170	20	
New	8HEM 250 1250 S25	25	125	200	25	

2CRE

2 Flutes Rib Corner Radius End Mills

2날 리브 코너레디우스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø0.2 ~ Ø6 Ø8 ~ Ø16

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2CRE 002 0002 010	0.2 X R0.02	0.3	1	45	4	
New 2CRE 002 0002 015	0.2 X R0.02	0.3	1.5	45	4	
New 2CRE 002 0005 010	0.2 X R0.05	0.3	1	45	4	
New 2CRE 002 0005 015	0.2 X R0.05	0.3	1.5	45	4	
2CRE 003 0005 010	0.3 X R0.05	0.4	1	45	4	
2CRE 003 0005 020	0.3 X R0.05	0.4	2	45	4	
2CRE 003 0005 030	0.3 X R0.05	0.4	3	45	4	
2CRE 004 0005 010	0.4 X R0.05	0.5	1	45	4	
2CRE 004 0005 020	0.4 X R0.05	0.5	2	45	4	
2CRE 004 0005 030	0.4 X R0.05	0.5	3	45	4	
2CRE 004 0005 040	0.4 X R0.05	0.5	4	45	4	
2CRE 004 001 010	0.4 X R0.1	0.5	1	45	4	
2CRE 004 001 015	0.4 X R0.1	0.5	1.5	45	4	
2CRE 004 001 020	0.4 X R0.1	0.5	2	45	4	
2CRE 004 001 030	0.4 X R0.1	0.5	3	45	4	
2CRE 004 001 040	0.4 X R0.1	0.5	4	45	4	
2CRE 005 0005 010	0.5 X R0.05	0.6	1	45	4	
2CRE 005 0005 015	0.5 X R0.05	0.6	1.5	45	4	
2CRE 005 0005 020	0.5 X R0.05	0.6	2	45	4	
2CRE 005 0005 025	0.5 X R0.05	0.6	2.5	45	4	
2CRE 005 0005 030	0.5 X R0.05	0.6	3	45	4	
2CRE 005 0005 040	0.5 X R0.05	0.6	4	45	4	
2CRE 005 0005 050	0.5 X R0.05	0.6	5	45	4	
2CRE 005 0005 060	0.5 X R0.05	0.6	6	45	4	
2CRE 005 001 010	0.5 X R0.1	0.6	1	45	4	
2CRE 005 001 015	0.5 X R0.1	0.6	1.5	45	4	
2CRE 005 001 020	0.5 X R0.1	0.6	2	45	4	
2CRE 005 001 025	0.5 X R0.1	0.6	2.5	45	4	
2CRE 005 001 030	0.5 X R0.1	0.6	3	45	4	
2CRE 005 001 040	0.5 X R0.1	0.6	4	45	4	
2CRE 005 001 050	0.5 X R0.1	0.6	5	45	4	
2CRE 005 001 060	0.5 X R0.1	0.6	6	45	4	
2CRE 006 0005 020	0.6 X R0.05	0.7	2	45	4	
2CRE 006 0005 030	0.6 X R0.05	0.7	3	45	4	
2CRE 006 0005 040	0.6 X R0.05	0.7	4	45	4	
2CRE 006 0005 060	0.6 X R0.05	0.7	6	45	4	
2CRE 006 0005 080	0.6 X R0.05	0.7	8	45	4	
2CRE 006 001 020	0.6 X R0.1	0.7	2	45	4	
2CRE 006 001 030	0.6 X R0.1	0.7	3	45	4	
2CRE 006 001 040	0.6 X R0.1	0.7	4	45	4	
2CRE 006 001 060	0.6 X R0.1	0.7	6	45	4	
2CRE 006 001 080	0.6 X R0.1	0.7	8	45	4	
2CRE 007 001 020	0.7 X R0.1	0.8	2	45	4	
2CRE 007 001 040	0.7 X R0.1	0.8	4	45	4	
2CRE 007 001 060	0.7 X R0.1	0.8	6	45	4	
2CRE 008 001 020	0.8 X R0.1	1	2	45	4	
2CRE 008 001 040	0.8 X R0.1	1	4	45	4	
2CRE 008 001 060	0.8 X R0.1	1	6	45	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CRE 008 001 080	0.8 X R0.1	1	8	45	4	
2CRE 008 002 020	0.8 X R0.2	1	2	45	4	
2CRE 008 002 040	0.8 X R0.2	1	4	45	4	
2CRE 008 002 060	0.8 X R0.2	1	6	45	4	
2CRE 008 002 080	0.8 X R0.2	1	8	45	4	
2CRE 010 001 040	1 X R0.1	1.2	4	45	4	
2CRE 010 001 060	1 X R0.1	1.2	6	45	4	
2CRE 010 001 080	1 X R0.1	1.2	8	45	4	
2CRE 010 001 100	1 X R0.1	1.2	10	50	4	
2CRE 010 001 120	1 X R0.1	1.2	12	50	4	
2CRE 010 001 160	1 X R0.1	1.2	16	50	4	
2CRE 010 001 200	1 X R0.1	1.2	20	50	4	
2CRE 010 002 040	1 X R0.2	1.2	4	45	4	
2CRE 010 002 060	1 X R0.2	1.2	6	45	4	
2CRE 010 002 080	1 X R0.2	1.2	8	45	4	
2CRE 010 002 100	1 X R0.2	1.2	10	50	4	
2CRE 010 002 120	1 X R0.2	1.2	12	50	4	
2CRE 010 002 160	1 X R0.2	1.2	16	50	4	
2CRE 010 002 200	1 X R0.2	1.2	20	50	4	
2CRE 010 003 040	1 X R0.3	1.2	4	45	4	
2CRE 010 003 060	1 X R0.3	1.2	6	45	4	
2CRE 010 003 080	1 X R0.3	1.2	8	45	4	
2CRE 010 003 100	1 X R0.3	1.2	10	50	4	
2CRE 010 003 120	1 X R0.3	1.2	12	50	4	
2CRE 010 003 160	1 X R0.3	1.2	16	50	4	
2CRE 010 003 200	1 X R0.3	1.2	20	50	4	
2CRE 012 001 040	1.2 X R0.1	1.5	4	45	4	
2CRE 012 001 060	1.2 X R0.1	1.5	6	45	4	
2CRE 012 001 080	1.2 X R0.1	1.5	8	45	4	
2CRE 012 001 100	1.2 X R0.1	1.5	10	50	4	
2CRE 012 001 120	1.2 X R0.1	1.5	12	50	4	
2CRE 012 001 160	1.2 X R0.1	1.5	16	50	4	
2CRE 012 001 200	1.2 X R0.1	1.5	20	50	4	
2CRE 012 002 040	1.2 X R0.2	1.5	4	45	4	
2CRE 012 002 060	1.2 X R0.2	1.5	6	45	4	
2CRE 012 002 080	1.2 X R0.2	1.5	8	45	4	
2CRE 012 002 100	1.2 X R0.2	1.5	10	50	4	
2CRE 012 002 120	1.2 X R0.2	1.5	12	50	4	
2CRE 012 002 160	1.2 X R0.2	1.5	16	50	4	
2CRE 012 002 200	1.2 X R0.2	1.5	20	50	4	
2CRE 012 003 040	1.2 X R0.3	1.5	4	45	4	
2CRE 012 003 060	1.2 X R0.3	1.5	6	45	4	
2CRE 012 003 080	1.2 X R0.3	1.5	8	45	4	
2CRE 012 003 100	1.2 X R0.3	1.5	10	50	4	
2CRE 012 003 120	1.2 X R0.3	1.5	12	50	4	
2CRE 012 003 160	1.2 X R0.3	1.5	16	50	4	
2CRE 012 003 200	1.2 X R0.3	1.5	20	50	4	
2CRE 015 001 040	1.5 X R0.1	1.8	4	45	4	

2CRE

2 Flutes Rib Corner Radius End Mills

2날 리브 코너 레디우스 엔드밀

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CRE 015 001 060	1.5 X R0.1	1.8	6	45	4	
2CRE 015 001 080	1.5 X R0.1	1.8	8	45	4	
2CRE 015 001 100	1.5 X R0.1	1.8	10	50	4	
2CRE 015 001 120	1.5 X R0.1	1.8	12	50	4	
2CRE 015 001 160	1.5 X R0.1	1.8	16	50	4	
2CRE 015 001 200	1.5 X R0.1	1.8	20	50	4	
New 2CRE 015 001 220	1.5 X R0.1	1.8	22	60	4	
New 2CRE 015 001 250	1.5 X R0.1	1.8	25	60	4	
2CRE 015 002 040	1.5 X R0.2	1.8	4	45	4	
2CRE 015 002 060	1.5 X R0.2	1.8	6	45	4	
2CRE 015 002 080	1.5 X R0.2	1.8	8	45	4	
2CRE 015 002 100	1.5 X R0.2	1.8	10	50	4	
2CRE 015 002 120	1.5 X R0.2	1.8	12	50	4	
2CRE 015 002 160	1.5 X R0.2	1.8	16	50	4	
2CRE 015 002 200	1.5 X R0.2	1.8	20	50	4	
New 2CRE 015 002 220	1.5 X R0.2	1.8	22	60	4	
New 2CRE 015 002 250	1.5 X R0.2	1.8	25	60	4	
2CRE 015 003 040	1.5 X R0.3	1.8	4	45	4	
2CRE 015 003 060	1.5 X R0.3	1.8	6	45	4	
2CRE 015 003 080	1.5 X R0.3	1.8	8	45	4	
2CRE 015 003 100	1.5 X R0.3	1.8	10	50	4	
2CRE 015 003 120	1.5 X R0.3	1.8	12	50	4	
2CRE 015 003 160	1.5 X R0.3	1.8	16	50	4	
2CRE 015 003 200	1.5 X R0.3	1.8	20	50	4	
New 2CRE 015 003 220	1.5 X R0.3	1.8	22	60	4	
New 2CRE 015 003 250	1.5 X R0.3	1.8	25	60	4	
New 2CRE 015 005 040	1.5 X R0.5	1.8	4	45	4	
New 2CRE 015 005 060	1.5 X R0.5	1.8	6	45	4	
New 2CRE 015 005 080	1.5 X R0.5	1.8	8	45	4	
New 2CRE 015 005 100	1.5 X R0.5	1.8	10	50	4	
New 2CRE 015 005 120	1.5 X R0.5	1.8	12	50	4	
New 2CRE 015 005 160	1.5 X R0.5	1.8	16	50	4	
New 2CRE 015 005 200	1.5 X R0.5	1.8	20	50	4	
New 2CRE 015 005 220	1.5 X R0.5	1.8	22	60	4	
New 2CRE 015 005 250	1.5 X R0.5	1.8	25	60	4	
2CRE 020 001 060	2 X R0.1	2.5	6	45	4	
2CRE 020 001 080	2 X R0.1	2.5	8	45	4	
2CRE 020 001 100	2 X R0.1	2.5	10	50	4	
2CRE 020 001 120	2 X R0.1	2.5	12	50	4	
2CRE 020 001 160	2 X R0.1	2.5	16	50	4	
2CRE 020 001 200	2 X R0.1	2.5	20	50	4	
2CRE 020 001 250	2 X R0.1	2.5	25	60	4	
New 2CRE 020 001 300	2 X R0.1	2.5	30	70	4	
2CRE 020 002 060	2 X R0.2	2.5	6	45	4	
2CRE 020 002 080	2 X R0.2	2.5	8	45	4	
2CRE 020 002 100	2 X R0.2	2.5	10	50	4	
2CRE 020 002 120	2 X R0.2	2.5	12	50	4	
2CRE 020 002 160	2 X R0.2	2.5	16	50	4	
2CRE 020 002 200	2 X R0.2	2.5	20	50	4	
2CRE 020 002 250	2 X R0.2	2.5	25	60	4	
New 2CRE 020 002 300	2 X R0.2	2.5	30	70	4	
2CRE 020 003 060	2 X R0.3	2.5	6	45	4	
2CRE 020 003 080	2 X R0.3	2.5	8	45	4	
2CRE 020 003 100	2 X R0.3	2.5	10	50	4	
2CRE 020 003 120	2 X R0.3	2.5	12	50	4	
2CRE 020 003 160	2 X R0.3	2.5	16	50	4	
2CRE 020 003 200	2 X R0.3	2.5	20	50	4	
2CRE 020 003 250	2 X R0.3	2.5	25	60	4	
New 2CRE 020 003 300	2 X R0.3	2.5	30	70	4	
2CRE 020 005 060	2 X R0.5	2.5	6	45	4	
2CRE 020 005 080	2 X R0.5	2.5	8	45	4	
2CRE 020 005 100	2 X R0.5	2.5	10	50	4	
2CRE 020 005 120	2 X R0.5	2.5	12	50	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CRE 020 005 160	2 X R0.5	2.5	16	50	4	
2CRE 020 005 200	2 X R0.5	2.5	20	50	4	
2CRE 020 005 250	2 X R0.5	2.5	25	60	4	
New 2CRE 020 005 300	2 X R0.5	2.5	30	70	4	
2CRE 025 001 100	2.5 X R0.1	3	10	50	4	
2CRE 025 001 160	2.5 X R0.1	3	16	50	4	
2CRE 025 001 200	2.5 X R0.1	3	20	50	4	
New 2CRE 025 001 250	2.5 X R0.1	3	25	60	4	
New 2CRE 025 001 300	2.5 X R0.1	3	30	70	4	
2CRE 025 002 100	2.5 X R0.2	3	10	50	4	
2CRE 025 002 160	2.5 X R0.2	3	16	50	4	
2CRE 025 002 200	2.5 X R0.2	3	20	50	4	
New 2CRE 025 002 250	2.5 X R0.2	3	25	60	4	
New 2CRE 025 002 300	2.5 X R0.2	3	30	70	4	
2CRE 025 003 100	2.5 X R0.3	3	10	50	4	
2CRE 025 003 160	2.5 X R0.3	3	16	50	4	
2CRE 025 003 200	2.5 X R0.3	3	20	50	4	
New 2CRE 025 003 250	2.5 X R0.3	3	25	60	4	
New 2CRE 025 003 300	2.5 X R0.3	3	30	70	4	
New 2CRE 025 005 100	2.5 X R0.5	3	10	50	4	
New 2CRE 025 005 160	2.5 X R0.5	3	16	50	4	
New 2CRE 025 005 200	2.5 X R0.5	3	20	50	4	
New 2CRE 025 005 250	2.5 X R0.5	3	25	60	4	
New 2CRE 025 005 300	2.5 X R0.5	3	30	70	4	
2CRE 030 001 100	3 X R0.1	3.5	10	50	6	
2CRE 030 001 120	3 X R0.1	3.5	12	55	6	
2CRE 030 001 160	3 X R0.1	3.5	16	55	6	
2CRE 030 001 200	3 X R0.1	3.5	20	60	6	
2CRE 030 001 250	3 X R0.1	3.5	25	65	6	
New 2CRE 030 001 300	3 X R0.1	3.5	30	70	6	
New 2CRE 030 001 350	3 X R0.1	3.5	35	75	6	
New 2CRE 030 001 400	3 X R0.1	3.5	40	80	6	
2CRE 030 002 100	3 X R0.2	3.5	10	50	6	
2CRE 030 002 120	3 X R0.2	3.5	12	55	6	
2CRE 030 002 160	3 X R0.2	3.5	16	55	6	
2CRE 030 002 200	3 X R0.2	3.5	20	60	6	
2CRE 030 002 250	3 X R0.2	3.5	25	65	6	
New 2CRE 030 002 300	3 X R0.2	3.5	30	70	6	
New 2CRE 030 002 350	3 X R0.2	3.5	35	75	6	
New 2CRE 030 002 400	3 X R0.2	3.5	40	80	6	
2CRE 030 003 100	3 X R0.3	3.5	10	50	6	
2CRE 030 003 120	3 X R0.3	3.5	12	55	6	
2CRE 030 003 160	3 X R0.3	3.5	16	55	6	
2CRE 030 003 200	3 X R0.3	3.5	20	60	6	
2CRE 030 003 250	3 X R0.3	3.5	25	65	6	
New 2CRE 030 003 300	3 X R0.3	3.5	30	70	6	
New 2CRE 030 003 350	3 X R0.3	3.5	35	75	6	
New 2CRE 030 003 400	3 X R0.3	3.5	40	80	6	
2CRE 030 005 100	3 X R0.5	3.5	10	50	6	
2CRE 030 005 120	3 X R0.5	3.5	12	55	6	
2CRE 030 005 160	3 X R0.5	3.5	16	55	6	
2CRE 030 005 200	3 X R0.5	3.5	20	60	6	
2CRE 030 005 250	3 X R0.5	3.5	25	65	6	
New 2CRE 030 005 300	3 X R0.5	3.5	30	70	6	
New 2CRE 030 005 350	3 X R0.5	3.5	35	75	6	
New 2CRE 030 005 400	3 X R0.5	3.5	40	80	6	
2CRE 030 010 100	3 X R1	3.5	10	50	6	
2CRE 030 010 120	3 X R1	3.5	12	55	6	
2CRE 030 010 160	3 X R1	3.5	16	55	6	
2CRE 030 010 200	3 X R1	3.5	20	60	6	
2CRE 030 010 250	3 X R1	3.5	25	65	6	
New 2CRE 030 010 300	3 X R1	3.5	30	70	6	
New 2CRE 030 010 350	3 X R1	3.5	35	75	6	

2CRE

2 Flutes Rib Corner Radius End Mills

2날 리브 코너레디우스 엔드밀

단위 : mm

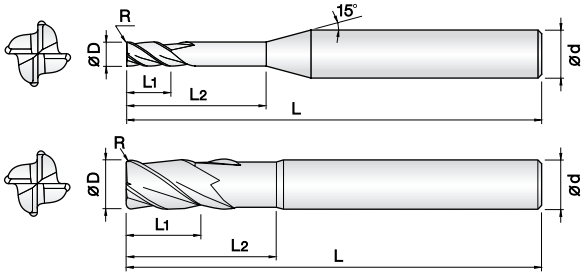
	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New	2CRE 030 010 400	3 X R1	3.5	40	80	6	
New	2CRE 040 001 050	4 X R0.1	4.5	12	50	4	
New	2CRE 040 001 070	4 X R0.1	4.5	20	70	4	
	2CRE 040 001 120	4 X R0.1	4.5	12	55	6	
	2CRE 040 001 160	4 X R0.1	4.5	16	55	6	
	2CRE 040 001 200	4 X R0.1	4.5	20	60	6	
	2CRE 040 001 250	4 X R0.1	4.5	25	65	6	
	2CRE 040 001 300	4 X R0.1	4.5	30	70	6	
New	2CRE 040 001 350	4 X R0.1	4.5	35	75	6	
New	2CRE 040 001 400	4 X R0.1	4.5	40	80	6	
New	2CRE 040 001 450	4 X R0.1	4.5	45	90	6	
New	2CRE 040 001 500	4 X R0.1	4.5	50	100	6	
New	2CRE 040 002 050	4 X R0.2	4.5	12	50	4	
New	2CRE 040 002 070	4 X R0.2	4.5	20	70	4	
	2CRE 040 002 120	4 X R0.2	4.5	12	55	6	
	2CRE 040 002 160	4 X R0.2	4.5	16	55	6	
	2CRE 040 002 200	4 X R0.2	4.5	20	60	6	
	2CRE 040 002 250	4 X R0.2	4.5	25	65	6	
	2CRE 040 002 300	4 X R0.2	4.5	30	70	6	
New	2CRE 040 002 350	4 X R0.2	4.5	35	75	6	
New	2CRE 040 002 400	4 X R0.2	4.5	40	80	6	
New	2CRE 040 002 450	4 X R0.2	4.5	45	90	6	
New	2CRE 040 002 500	4 X R0.2	4.5	50	100	6	
New	2CRE 040 003 050	4 X R0.3	4.5	12	50	4	
New	2CRE 040 003 070	4 X R0.3	4.5	20	70	4	
	2CRE 040 003 120	4 X R0.3	4.5	12	55	6	
	2CRE 040 003 160	4 X R0.3	4.5	16	55	6	
	2CRE 040 003 200	4 X R0.3	4.5	20	60	6	
	2CRE 040 003 250	4 X R0.3	4.5	25	65	6	
	2CRE 040 003 300	4 X R0.3	4.5	30	70	6	
New	2CRE 040 003 350	4 X R0.3	4.5	35	75	6	
New	2CRE 040 003 400	4 X R0.3	4.5	40	80	6	
New	2CRE 040 003 450	4 X R0.3	4.5	45	90	6	
New	2CRE 040 003 500	4 X R0.3	4.5	50	100	6	
New	2CRE 040 005 050	4 X R0.5	4.5	12	50	4	
New	2CRE 040 005 070	4 X R0.5	4.5	20	70	4	
	2CRE 040 005 120	4 X R0.5	4.5	12	55	6	
	2CRE 040 005 160	4 X R0.5	4.5	16	55	6	
	2CRE 040 005 200	4 X R0.5	4.5	20	60	6	
	2CRE 040 005 250	4 X R0.5	4.5	25	65	6	
	2CRE 040 005 300	4 X R0.5	4.5	30	70	6	
New	2CRE 040 005 350	4 X R0.5	4.5	35	75	6	
New	2CRE 040 005 400	4 X R0.5	4.5	40	80	6	
New	2CRE 040 005 450	4 X R0.5	4.5	45	90	6	
New	2CRE 040 005 500	4 X R0.5	4.5	50	100	6	
New	2CRE 040 010 050	4 X R1	4.5	12	50	4	
New	2CRE 040 010 070	4 X R1	4.5	20	70	4	
	2CRE 040 010 120	4 X R1	4.5	12	55	6	
	2CRE 040 010 160	4 X R1	4.5	16	55	6	
	2CRE 040 010 200	4 X R1	4.5	20	60	6	
	2CRE 040 010 250	4 X R1	4.5	25	65	6	
	2CRE 040 010 300	4 X R1	4.5	30	70	6	
New	2CRE 040 010 350	4 X R1	4.5	35	75	6	
New	2CRE 040 010 400	4 X R1	4.5	40	80	6	
New	2CRE 040 010 450	4 X R1	4.5	45	90	6	
New	2CRE 040 010 500	4 X R1	4.5	50	100	6	
	2CRE 050 002 150	5 X R0.2	6	15	60	6	
	2CRE 050 002 250	5 X R0.2	6	25	70	6	
New	2CRE 050 002 300	5 X R0.2	6	30	70	6	
New	2CRE 050 002 400	5 X R0.2	6	40	80	6	
New	2CRE 050 002 500	5 X R0.2	6	50	100	6	
	2CRE 050 005 150	5 X R0.5	6	15	60	6	
	2CRE 050 005 250	5 X R0.5	6	25	70	6	

	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New	2CRE 050 005 300	5 X R0.5	6	30	70	6	
New	2CRE 050 005 400	5 X R0.5	6	40	80	6	
New	2CRE 050 005 500	5 X R0.5	6	50	100	6	
	2CRE 050 010 150	5 X R1	6	15	60	6	
	2CRE 050 010 250	5 X R1	6	25	70	6	
New	2CRE 050 010 300	5 X R1	6	30	70	6	
New	2CRE 050 010 400	5 X R1	6	40	80	6	
New	2CRE 050 010 500	5 X R1	6	50	100	6	
	2CRE 060 001 200	6 X R0.1	7	20	60	6	
New	2CRE 060 001 400	6 X R0.1	7	40	90	6	
	2CRE 060 002 200	6 X R0.2	7	20	60	6	
New	2CRE 060 002 400	6 X R0.2	7	40	90	6	
	2CRE 060 003 200	6 X R0.3	7	20	60	6	
New	2CRE 060 003 400	6 X R0.3	7	40	90	6	
	2CRE 060 005 200	6 X R0.5	7	20	60	6	
New	2CRE 060 005 400	6 X R0.5	7	40	90	6	
	2CRE 060 010 200	6 X R1	7	20	60	6	
New	2CRE 060 010 400	6 X R1	7	40	90	6	
	2CRE 060 015 200	6 X R1.5	7	20	60	6	
New	2CRE 060 015 400	6 X R1.5	7	40	90	6	
New	2CRE 080 002 220	8 X R0.2	9	22	65	8	
New	2CRE 080 002 400	8 X R0.2	9	40	100	8	
New	2CRE 080 003 220	8 X R0.3	9	22	65	8	
New	2CRE 080 003 400	8 X R0.3	9	40	100	8	
	2CRE 080 005 220	8 X R0.5	9	22	65	8	
New	2CRE 080 005 400	8 X R0.5	9	40	100	8	
	2CRE 080 010 220	8 X R1	9	22	65	8	
New	2CRE 080 010 400	8 X R1	9	40	100	8	
	2CRE 080 015 220	8 X R1.5	9	22	65	8	
New	2CRE 080 015 400	8 X R1.5	9	40	100	8	
New	2CRE 100 002 240	10 X R0.2	11	24	70	10	
New	2CRE 100 002 450	10 X R0.2	11	45	100	10	
New	2CRE 100 003 240	10 X R0.3	11	24	70	10	
New	2CRE 100 003 450	10 X R0.3	11	45	100	10	
	2CRE 100 005 240	10 X R0.5	11	24	70	10	
New	2CRE 100 005 450	10 X R0.5	11	45	100	10	
	2CRE 100 010 240	10 X R1	11	24	70	10	
New	2CRE 100 010 450	10 X R1	11	45	100	10	
	2CRE 100 015 240	10 X R1.5	11	24	70	10	
New	2CRE 100 015 450	10 X R1.5	11	45	100	10	
New	2CRE 100 020 240	10 X R2	11	24	70	10	
New	2CRE 100 020 450	10 X R2	11	45	100	10	
New	2CRE 120 002 260	12 X R0.2	13	26	80	12	
New	2CRE 120 002 500	12 X R0.2	13	50	110	12	
New	2CRE 120 003 260	12 X R0.3	13	26	80	12	
New	2CRE 120 003 500	12 X R0.3	13	50	110	12	
	2CRE 120 005 260	12 X R0.5	13	26	80	12	
New	2CRE 120 005 500	12 X R0.5	13	50	110	12	
	2CRE 120 010 260	12 X R1	13	26	80	12	
New	2CRE 120 010 500	12 X R1	13	50	110	12	
	2CRE 120 015 260	12 X R1.5	13	26	80	12	
New	2CRE 120 015 500	12 X R1.5	13	50	110	12	
New	2CRE 120 020 260	12 X R2	13	26	80	12	
New	2CRE 120 020 500	12 X R2	13	50	110	12	
New	2CRE 120 030 260	12 X R3	13	26	80	12	
New	2CRE 120 030 500	12 X R3	13	50	110	12	
	2CRE 160 005 110	16 X R0.5	20	35	110	16	
	2CRE 160 005 160	16 X R0.5	20	35	160	16	
	2CRE 160 010 110	16 X R1	20	35	110	16	
	2CRE 160 010 160	16 X R1	20	35	160	16	

4CRE

4 Flutes Rib Corner Radius End Mills

4날리브 코너레디우스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø1 ~ Ø6 Ø8 ~ Ø12

Max. 8% off

Size	D Tolerance
D ≦ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CRE 010 0005 040	1 X R0.05	1	4	45	4	
4CRE 010 0005 060	1 X R0.05	1	6	45	4	
4CRE 010 0005 080	1 X R0.05	1	8	45	4	
4CRE 010 0005 100	1 X R0.05	1	10	50	4	
4CRE 010 0005 120	1 X R0.05	1	12	50	4	
New 4CRE 010 0005 160	1 X R0.05	1	16	50	4	
New 4CRE 010 0005 200	1 X R0.05	1	20	50	4	
4CRE 010 001 040	1 X R0.1	1	4	45	4	
4CRE 010 001 060	1 X R0.1	1	6	45	4	
4CRE 010 001 080	1 X R0.1	1	8	45	4	
4CRE 010 001 100	1 X R0.1	1	10	50	4	
4CRE 010 001 120	1 X R0.1	1	12	50	4	
New 4CRE 010 001 160	1 X R0.1	1	16	50	4	
New 4CRE 010 001 200	1 X R0.1	1	20	50	4	
4CRE 010 002 040	1 X R0.2	1	4	45	4	
4CRE 010 002 060	1 X R0.2	1	6	45	4	
4CRE 010 002 080	1 X R0.2	1	8	45	4	
4CRE 010 002 100	1 X R0.2	1	10	50	4	
4CRE 010 002 120	1 X R0.2	1	12	50	4	
New 4CRE 010 002 160	1 X R0.2	1	16	50	4	
New 4CRE 010 002 200	1 X R0.2	1	20	50	4	
4CRE 010 003 040	1 X R0.3	1	4	45	4	
4CRE 010 003 060	1 X R0.3	1	6	45	4	
4CRE 010 003 080	1 X R0.3	1	8	45	4	
4CRE 010 003 100	1 X R0.3	1	10	50	4	
4CRE 010 003 120	1 X R0.3	1	12	50	4	
New 4CRE 010 003 160	1 X R0.3	1	16	50	4	
New 4CRE 010 003 200	1 X R0.3	1	20	50	4	
4CRE 012 001 040	1.2 X R0.1	1.2	4	45	4	
4CRE 012 001 060	1.2 X R0.1	1.2	6	45	4	
4CRE 012 001 080	1.2 X R0.1	1.2	8	45	4	
4CRE 012 001 100	1.2 X R0.1	1.2	10	50	4	
4CRE 012 001 120	1.2 X R0.1	1.2	12	50	4	
New 4CRE 012 001 160	1.2 X R0.1	1.2	16	50	4	
New 4CRE 012 001 200	1.2 X R0.1	1.2	20	50	4	
4CRE 012 002 040	1.2 X R0.2	1.2	4	45	4	
4CRE 012 002 060	1.2 X R0.2	1.2	6	45	4	
4CRE 012 002 080	1.2 X R0.2	1.2	8	45	4	
4CRE 012 002 100	1.2 X R0.2	1.2	10	50	4	
4CRE 012 002 120	1.2 X R0.2	1.2	12	50	4	
New 4CRE 012 002 160	1.2 X R0.2	1.2	16	50	4	
New 4CRE 012 002 200	1.2 X R0.2	1.2	20	50	4	
4CRE 012 003 040	1.2 X R0.3	1.2	4	45	4	
4CRE 012 003 060	1.2 X R0.3	1.2	6	45	4	
4CRE 012 003 080	1.2 X R0.3	1.2	8	45	4	
4CRE 012 003 100	1.2 X R0.3	1.2	10	50	4	
4CRE 012 003 120	1.2 X R0.3	1.2	12	50	4	
New 4CRE 012 003 160	1.2 X R0.3	1.2	16	50	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 4CRE 012 003 200	1.2 X R0.3	1.2	20	50	4	
4CRE 015 001 060	1.5 X R0.1	1.5	6	45	4	
4CRE 015 001 080	1.5 X R0.1	1.5	8	45	4	
4CRE 015 001 100	1.5 X R0.1	1.5	10	50	4	
4CRE 015 001 120	1.5 X R0.1	1.5	12	50	4	
4CRE 015 001 160	1.5 X R0.1	1.5	16	50	4	
New 4CRE 015 001 200	1.5 X R0.1	1.5	20	50	4	
New 4CRE 015 001 220	1.5 X R0.1	1.5	22	60	4	
New 4CRE 015 001 250	1.5 X R0.1	1.5	25	60	4	
4CRE 015 002 060	1.5 X R0.2	1.5	6	45	4	
4CRE 015 002 080	1.5 X R0.2	1.5	8	45	4	
4CRE 015 002 100	1.5 X R0.2	1.5	10	50	4	
4CRE 015 002 120	1.5 X R0.2	1.5	12	50	4	
4CRE 015 002 160	1.5 X R0.2	1.5	16	50	4	
New 4CRE 015 002 200	1.5 X R0.2	1.5	20	50	4	
New 4CRE 015 002 220	1.5 X R0.2	1.5	22	60	4	
New 4CRE 015 002 250	1.5 X R0.2	1.5	25	60	4	
4CRE 015 003 060	1.5 X R0.3	1.5	6	45	4	
4CRE 015 003 080	1.5 X R0.3	1.5	8	45	4	
4CRE 015 003 100	1.5 X R0.3	1.5	10	50	4	
4CRE 015 003 120	1.5 X R0.3	1.5	12	50	4	
4CRE 015 003 160	1.5 X R0.3	1.5	16	50	4	
New 4CRE 015 003 200	1.5 X R0.3	1.5	20	50	4	
New 4CRE 015 003 220	1.5 X R0.3	1.5	22	60	4	
New 4CRE 015 003 250	1.5 X R0.3	1.5	25	60	4	
4CRE 015 005 060	1.5 X R0.5	1.5	6	45	4	
4CRE 015 005 080	1.5 X R0.5	1.5	8	45	4	
4CRE 015 005 100	1.5 X R0.5	1.5	10	50	4	
4CRE 015 005 120	1.5 X R0.5	1.5	12	50	4	
4CRE 015 005 160	1.5 X R0.5	1.5	16	50	4	
New 4CRE 015 005 200	1.5 X R0.5	1.5	20	50	4	
New 4CRE 015 005 220	1.5 X R0.5	1.5	22	60	4	
New 4CRE 015 005 250	1.5 X R0.5	1.5	25	60	4	
4CRE 020 001 060	2 X R0.1	2	6	45	4	
4CRE 020 001 080	2 X R0.1	2	8	45	4	
4CRE 020 001 100	2 X R0.1	2	10	50	4	
4CRE 020 001 120	2 X R0.1	2	12	50	4	
4CRE 020 001 160	2 X R0.1	2	16	50	4	
4CRE 020 001 200	2 X R0.1	2	20	50	4	
4CRE 020 001 250	2 X R0.1	2	25	60	4	
New 4CRE 020 001 300	2 X R0.1	2	30	70	4	
New 4CRE 020 001 350	2 X R0.1	2	35	70	4	
4CRE 020 002 060	2 X R0.2	2	6	45	4	
4CRE 020 002 080	2 X R0.2	2	8	45	4	
4CRE 020 002 100	2 X R0.2	2	10	50	4	
4CRE 020 002 120	2 X R0.2	2	12	50	4	
4CRE 020 002 160	2 X R0.2	2	16	50	4	
4CRE 020 002 200	2 X R0.2	2	20	50	4	

4CRE

4 Flutes Rib Corner Radius End Mills

4날 리브 코너레디우스 엔드밀

Max. 8% off

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CRE 020 002 250	2 X R0.2	2	25	60	4	
New 4CRE 020 002 300	2 X R0.2	2	30	70	4	
New 4CRE 020 002 350	2 X R0.2	2	35	70	4	
4CRE 020 003 060	2 X R0.3	2	6	45	4	
4CRE 020 003 080	2 X R0.3	2	8	45	4	
4CRE 020 003 100	2 X R0.3	2	10	50	4	
4CRE 020 003 120	2 X R0.3	2	12	50	4	
4CRE 020 003 160	2 X R0.3	2	16	50	4	
4CRE 020 003 200	2 X R0.3	2	20	50	4	
4CRE 020 003 250	2 X R0.3	2	25	60	4	
New 4CRE 020 003 300	2 X R0.3	2	30	70	4	
New 4CRE 020 003 350	2 X R0.3	2	35	70	4	
4CRE 020 005 060	2 X R0.5	2	6	45	4	
4CRE 020 005 080	2 X R0.5	2	8	45	4	
4CRE 020 005 100	2 X R0.5	2	10	50	4	
4CRE 020 005 120	2 X R0.5	2	12	50	4	
4CRE 020 005 160	2 X R0.5	2	16	50	4	
4CRE 020 005 200	2 X R0.5	2	20	50	4	
4CRE 020 005 250	2 X R0.5	2	25	60	4	
New 4CRE 020 005 300	2 X R0.5	2	30	70	4	
New 4CRE 020 005 350	2 X R0.5	2	35	70	4	
4CRE 025 001 100	2.5 X R0.1	2.5	10	50	4	
4CRE 025 001 160	2.5 X R0.1	2.5	16	50	4	
4CRE 025 001 200	2.5 X R0.1	2.5	20	50	4	
4CRE 025 001 250	2.5 X R0.1	2.5	25	60	4	
New 4CRE 025 001 300	2.5 X R0.1	2.5	30	70	4	
4CRE 025 002 100	2.5 X R0.2	2.5	10	50	4	
4CRE 025 002 160	2.5 X R0.2	2.5	16	50	4	
4CRE 025 002 200	2.5 X R0.2	2.5	20	50	4	
4CRE 025 002 250	2.5 X R0.2	2.5	25	60	4	
New 4CRE 025 002 300	2.5 X R0.2	2.5	30	70	4	
4CRE 025 003 100	2.5 X R0.3	2.5	10	50	4	
4CRE 025 003 160	2.5 X R0.3	2.5	16	50	4	
4CRE 025 003 200	2.5 X R0.3	2.5	20	50	4	
4CRE 025 003 250	2.5 X R0.3	2.5	25	60	4	
New 4CRE 025 003 300	2.5 X R0.3	2.5	30	70	4	
4CRE 025 005 100	2.5 X R0.5	2.5	10	50	4	
4CRE 025 005 160	2.5 X R0.5	2.5	16	50	4	
4CRE 025 005 200	2.5 X R0.5	2.5	20	50	4	
4CRE 025 005 250	2.5 X R0.5	2.5	25	60	4	
New 4CRE 025 005 300	2.5 X R0.5	2.5	30	70	4	
4CRE 030 001 100	3 X R0.1	3	10	50	6	
4CRE 030 001 160	3 X R0.1	3	16	55	6	
4CRE 030 001 200	3 X R0.1	3	20	60	6	
4CRE 030 001 250	3 X R0.1	3	25	65	6	
4CRE 030 001 300	3 X R0.1	3	30	70	6	
4CRE 030 001 350	3 X R0.1	3	35	75	6	
New 4CRE 030 001 400	3 X R0.1	3	40	80	6	
New 4CRE 030 001 500	3 X R0.1	3	50	100	6	
4CRE 030 002 100	3 X R0.2	3	10	50	6	
4CRE 030 002 160	3 X R0.2	3	16	55	6	
4CRE 030 002 200	3 X R0.2	3	20	60	6	
4CRE 030 002 250	3 X R0.2	3	25	65	6	
4CRE 030 002 300	3 X R0.2	3	30	70	6	
4CRE 030 002 350	3 X R0.2	3	35	75	6	
New 4CRE 030 002 400	3 X R0.2	3	40	80	6	
New 4CRE 030 002 500	3 X R0.2	3	50	100	6	
4CRE 030 003 100	3 X R0.3	3	10	50	6	
4CRE 030 003 160	3 X R0.3	3	16	55	6	
4CRE 030 003 200	3 X R0.3	3	20	60	6	
4CRE 030 003 250	3 X R0.3	3	25	65	6	
4CRE 030 003 300	3 X R0.3	3	30	70	6	
4CRE 030 003 350	3 X R0.3	3	35	75	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 4CRE 030 003 400	3 X R0.3	3	40	80	6	
New 4CRE 030 003 500	3 X R0.3	3	50	100	6	
4CRE 030 005 100	3 X R0.5	3	10	50	6	
4CRE 030 005 160	3 X R0.5	3	16	55	6	
4CRE 030 005 200	3 X R0.5	3	20	60	6	
4CRE 030 005 250	3 X R0.5	3	25	65	6	
4CRE 030 005 300	3 X R0.5	3	30	70	6	
4CRE 030 005 350	3 X R0.5	3	35	75	6	
New 4CRE 030 005 400	3 X R0.5	3	40	80	6	
New 4CRE 030 005 500	3 X R0.5	3	50	100	6	
4CRE 030 010 100	3 X R1	3	10	50	6	
4CRE 030 010 160	3 X R1	3	16	55	6	
4CRE 030 010 200	3 X R1	3	20	60	6	
4CRE 030 010 250	3 X R1	3	25	65	6	
4CRE 030 010 300	3 X R1	3	30	70	6	
4CRE 030 010 350	3 X R1	3	35	75	6	
New 4CRE 030 010 400	3 X R1	3	40	80	6	
New 4CRE 030 010 500	3 X R1	3	50	100	6	
New 4CRE 040 001 050	4 X R0.1	4	12	50	4	
New 4CRE 040 001 070	4 X R0.1	4	20	70	4	
4CRE 040 001 130	4 X R0.1	4	13	55	6	
4CRE 040 001 160	4 X R0.1	4	16	55	6	
4CRE 040 001 200	4 X R0.1	4	20	60	6	
4CRE 040 001 250	4 X R0.1	4	25	65	6	
4CRE 040 001 300	4 X R0.1	4	30	70	6	
4CRE 040 001 350	4 X R0.1	4	35	75	6	
4CRE 040 001 400	4 X R0.1	4	40	80	6	
New 4CRE 040 001 450	4 X R0.1	4	45	90	6	
New 4CRE 040 001 500	4 X R0.1	4	50	100	6	
New 4CRE 040 002 050	4 X R0.2	4	12	50	4	
New 4CRE 040 002 070	4 X R0.2	4	20	70	4	
4CRE 040 002 130	4 X R0.2	4	13	55	6	
4CRE 040 002 160	4 X R0.2	4	16	55	6	
4CRE 040 002 200	4 X R0.2	4	20	60	6	
4CRE 040 002 250	4 X R0.2	4	25	65	6	
4CRE 040 002 300	4 X R0.2	4	30	70	6	
4CRE 040 002 350	4 X R0.2	4	35	75	6	
4CRE 040 002 400	4 X R0.2	4	40	80	6	
New 4CRE 040 002 450	4 X R0.2	4	45	90	6	
New 4CRE 040 002 500	4 X R0.2	4	50	100	6	
New 4CRE 040 003 050	4 X R0.3	4	12	50	4	
New 4CRE 040 003 070	4 X R0.3	4	20	70	4	
4CRE 040 003 130	4 X R0.3	4	13	55	6	
4CRE 040 003 160	4 X R0.3	4	16	55	6	
4CRE 040 003 200	4 X R0.3	4	20	60	6	
4CRE 040 003 250	4 X R0.3	4	25	65	6	
4CRE 040 003 300	4 X R0.3	4	30	70	6	
4CRE 040 003 350	4 X R0.3	4	35	75	6	
4CRE 040 003 400	4 X R0.3	4	40	80	6	
New 4CRE 040 003 450	4 X R0.3	4	45	90	6	
New 4CRE 040 003 500	4 X R0.3	4	50	100	6	
New 4CRE 040 005 050	4 X R0.5	4	12	50	4	
New 4CRE 040 005 070	4 X R0.5	4	20	70	4	
4CRE 040 005 130	4 X R0.5	4	13	55	6	
4CRE 040 005 160	4 X R0.5	4	16	55	6	
4CRE 040 005 200	4 X R0.5	4	20	60	6	
4CRE 040 005 250	4 X R0.5	4	25	65	6	
4CRE 040 005 300	4 X R0.5	4	30	70	6	
4CRE 040 005 350	4 X R0.5	4	35	75	6	
4CRE 040 005 400	4 X R0.5	4	40	80	6	
New 4CRE 040 005 450	4 X R0.5	4	45	90	6	
New 4CRE 040 005 500	4 X R0.5	4	50	100	6	
New 4CRE 040 010 050	4 X R1	4	12	50	4	

4CRE

4 Flutes Rib Corner Radius End Mills

4날 리브 코너레디우스 엔드밀

단위 : mm

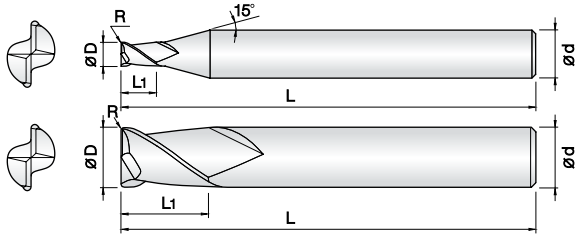
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 4CRE 040 010 070	4 X R1	4	20	70	4	
4CRE 040 010 130	4 X R1	4	13	55	6	
4CRE 040 010 160	4 X R1	4	16	55	6	
4CRE 040 010 200	4 X R1	4	20	60	6	
4CRE 040 010 250	4 X R1	4	25	65	6	
4CRE 040 010 300	4 X R1	4	30	70	6	
4CRE 040 010 350	4 X R1	4	35	75	6	
4CRE 040 010 400	4 X R1	4	40	80	6	
New 4CRE 040 010 450	4 X R1	4	45	90	6	
New 4CRE 040 010 500	4 X R1	4	50	100	6	
4CRE 050 001 160	5 X R0.1	5	16	60	6	
4CRE 050 001 300	5 X R0.1	5	30	70	6	
New 4CRE 050 001 400	5 X R0.1	5	40	80	6	
New 4CRE 050 001 500	5 X R0.1	5	50	100	6	
4CRE 050 002 160	5 X R0.2	5	16	60	6	
4CRE 050 002 300	5 X R0.2	5	30	70	6	
New 4CRE 050 002 400	5 X R0.2	5	40	80	6	
New 4CRE 050 002 500	5 X R0.2	5	50	100	6	
4CRE 050 003 160	5 X R0.3	5	16	60	6	
4CRE 050 003 300	5 X R0.3	5	30	70	6	
New 4CRE 050 003 400	5 X R0.3	5	40	80	6	
New 4CRE 050 003 500	5 X R0.3	5	50	100	6	
4CRE 050 005 160	5 X R0.5	5	16	60	6	
4CRE 050 005 300	5 X R0.5	5	30	70	6	
New 4CRE 050 005 400	5 X R0.5	5	40	80	6	
New 4CRE 050 005 500	5 X R0.5	5	50	100	6	
4CRE 050 010 160	5 X R1	5	16	60	6	
4CRE 050 010 300	5 X R1	5	30	70	6	
New 4CRE 050 010 400	5 X R1	5	40	80	6	
New 4CRE 050 010 500	5 X R1	5	50	100	6	
4CRE 060 001 200	6 X R0.1	7	20	60	6	
4CRE 060 001 400	6 X R0.1	7	40	80	6	
New 4CRE 060 001 500	6 X R0.1	7	50	100	6	
4CRE 060 002 200	6 X R0.2	7	20	60	6	
4CRE 060 002 400	6 X R0.2	7	40	80	6	
New 4CRE 060 002 500	6 X R0.2	7	50	100	6	
4CRE 060 003 200	6 X R0.3	7	20	60	6	
4CRE 060 003 400	6 X R0.3	7	40	80	6	
New 4CRE 060 003 500	6 X R0.3	7	50	100	6	
4CRE 060 005 200	6 X R0.5	7	20	60	6	
4CRE 060 005 400	6 X R0.5	7	40	80	6	
New 4CRE 060 005 500	6 X R0.5	7	50	100	6	
4CRE 060 010 200	6 X R1	7	20	60	6	
4CRE 060 010 400	6 X R1	7	40	80	6	
New 4CRE 060 010 500	6 X R1	7	50	100	6	
4CRE 060 015 200	6 X R1.5	7	20	60	6	
4CRE 060 015 400	6 X R1.5	7	40	80	6	
New 4CRE 060 015 500	6 X R1.5	7	50	100	6	
New 4CRE 080 002 220	8 X R0.2	9	22	65	8	
New 4CRE 080 003 220	8 X R0.3	9	22	65	8	
4CRE 080 005 220	8 X R0.5	9	22	65	8	
New 4CRE 080 005 400	8 X R0.5	9	40	100	8	
4CRE 080 010 220	8 X R1	9	22	65	8	
New 4CRE 080 010 400	8 X R1	9	40	100	8	
4CRE 080 015 220	8 X R1.5	9	22	65	8	
New 4CRE 080 015400	8 X R1.5	9	40	100	8	
4CRE 080 020 220	8 X R2	9	22	65	8	
New 4CRE 100 002 240	10 X R0.2	11	24	70	10	
New 4CRE 100 003 240	10 X R0.3	11	24	70	10	
4CRE 100 005 240	10 X R0.5	11	24	70	10	
New 4CRE 100 005 400	10 X R0.5	11	40	100	10	
4CRE 100 010 240	10 X R1	11	24	70	10	
New 4CRE 100 010 400	10 X R1	11	40	100	10	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CRE 100 015 240	10 X R1.5	11	24	70	10	
New 4CRE 100 015 400	10 X R1.5	11	40	100	10	
4CRE 100 020 240	10 X R2	11	24	70	10	
4CRE 100 025 240	10 X R2.5	11	24	70	10	
4CRE 120 003 260	12 X R0.3	13	26	80	12	
4CRE 120 005 260	12 X R0.5	13	26	80	12	
New 4CRE 120 005 400	12 X R0.5	13	40	110	12	
4CRE 120 010 260	12 X R1	13	26	80	12	
New 4CRE 120 010 400	12 X R1	13	40	110	12	
4CRE 120 015 260	12 X R1.5	13	26	80	12	
New 4CRE 120 015 400	12 X R1.5	13	40	110	12	
4CRE 120 020 260	12 X R2	13	26	80	12	
4CRE 120 030 260	12 X R3	13	26	80	12	

2NCR

2 Flutes Corner Radius End Mills

2날 코너 레디우스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.005 (Ø0.4 ~ Ø6) | R ±0.01 (Ø8 ~ Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2NCR 004 0005 S04	0.4 X R0.05	0.8	45	4	
2NCR 004 001 S04	0.4 X R0.1	0.8	45	4	
2NCR 005 0005 S04	0.5 X R0.05	1	45	4	
2NCR 005 001 S04	0.5 X R0.1	1	45	4	
2NCR 006 0005 S04	0.6 X R0.05	1.2	45	4	
2NCR 006 001 S04	0.6 X R0.1	1.2	45	4	
2NCR 006 002 S04	0.6 X R0.2	1.2	45	4	
2NCR 007 0005 S04	0.7 X R0.05	1.4	45	4	
2NCR 007 001 S04	0.7 X R0.1	1.4	45	4	
2NCR 007 002 S04	0.7 X R0.2	1.4	45	4	
2NCR 008 0005 S04	0.8 X R0.05	1.6	45	4	
2NCR 008 001 S04	0.8 X R0.1	1.6	45	4	
2NCR 008 002 S04	0.8 X R0.2	1.6	45	4	
2NCR 009 0005 S04	0.9 X R0.05	1.8	45	4	
2NCR 009 001 S04	0.9 X R0.1	1.8	45	4	
2NCR 010 001 S04	1 X R0.1	2.5	45	4	
2NCR 010 002 S04	1 X R0.2	2.5	45	4	
2NCR 010 003 S04	1 X R0.3	2.5	45	4	
2NCR 012 001 S04	1.2 X R0.1	3.2	45	4	
2NCR 012 002 S04	1.2 X R0.2	3.2	45	4	
2NCR 012 003 S04	1.2 X R0.3	3.2	45	4	
2NCR 015 001 S04	1.5 X R0.1	4	45	4	
2NCR 015 002 S04	1.5 X R0.2	4	45	4	
2NCR 015 003 S04	1.5 X R0.3	4	45	4	
2NCR 015 005 S04	1.5 X R0.5	4	45	4	
2NCR 020 001 S04	2 X R0.1	6	45	4	
2NCR 020 002 S04	2 X R0.2	6	45	4	
2NCR 020 003 S04	2 X R0.3	6	45	4	
2NCR 020 005 S04	2 X R0.5	6	45	4	
2NCR 025 001 S04	2.5 X R0.1	6	50	4	
2NCR 025 002 S04	2.5 X R0.2	6	50	4	
New 2NCR 025 003 S04	2.5 X R0.3	6	50	4	
2NCR 025 005 S04	2.5 X R0.5	6	50	4	
2NCR 030 001 S06	3 X R0.1	8	60	6	
2NCR 030 002 S06	3 X R0.2	8	60	6	
2NCR 030 003 S06	3 X R0.3	8	60	6	
2NCR 030 005 S06	3 X R0.5	8	60	6	
2NCR 030 010 S06	3 X R1	8	60	6	
New 2NCR 040 001 060	4 X R0.1	9	60	4	
New 2NCR 040 001 080	4 X R0.1	9	80	4	
2NCR 040 001 S06	4 X R0.1	11	70	6	
New 2NCR 040 002 060	4 X R0.2	9	60	4	
New 2NCR 040 002 080	4 X R0.2	9	80	4	
2NCR 040 002 S06	4 X R0.2	11	70	6	
New 2NCR 040 003 060	4 X R0.3	9	60	4	
New 2NCR 040 003 080	4 X R0.3	9	80	4	
2NCR 040 003 S06	4 X R0.3	11	70	6	
New 2NCR 040 005 060	4 X R0.5	9	60	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 2NCR 040 005 080	4 X R0.5	9	80	4	
2NCR 040 005 S06	4 X R0.5	11	70	6	
New 2NCR 040 010 060	4 X R1	9	60	4	
New 2NCR 040 010 080	4 X R1	9	80	4	
2NCR 040 010 S06	4 X R1	11	70	6	
2NCR 050 001 S06	5 X R0.1	13	75	6	
2NCR 050 002 S06	5 X R0.2	13	75	6	
2NCR 050 003 S06	5 X R0.3	13	75	6	
2NCR 050 005 S06	5 X R0.5	13	75	6	
2NCR 050 010 S06	5 X R1	13	75	6	
New 2NCR 060 001 060	6 X R0.1	11	60	6	
New 2NCR 060 001 090	6 X R0.1	13	90	6	
New 2NCR 060 002 060	6 X R0.2	11	60	6	
2NCR 060 002 090	6 X R0.2	13	90	6	
New 2NCR 060 003 060	6 X R0.3	11	60	6	
2NCR 060 003 090	6 X R0.3	13	90	6	
New 2NCR 060 005 060	6 X R0.5	11	60	6	
2NCR 060 005 090	6 X R0.5	13	90	6	
New 2NCR 060 010 060	6 X R1	11	60	6	
2NCR 060 010 090	6 X R1	13	90	6	
New 2NCR 060 015 060	6 X R1.5	11	60	6	
2NCR 060 015 090	6 X R1.5	13	90	6	
New 2NCR 060 020 060	6 X R2	11	60	6	
2NCR 060 020 090	6 X R2	13	90	6	
New 2NCR 060 025 090	6 X R2.5	13	90	6	
New 2NCR 080 001 070	8 X R0.1	16	70	8	
New 2NCR 080 001 100	8 X R0.1	19	100	8	
New 2NCR 080 002 070	8 X R0.2	16	70	8	
2NCR 080 002 100	8 X R0.2	19	100	8	
New 2NCR 080 003 070	8 X R0.3	16	70	8	
2NCR 080 003 100	8 X R0.3	19	100	8	
New 2NCR 080 005 070	8 X R0.5	16	70	8	
2NCR 080 005 100	8 X R0.5	19	100	8	
2NCR 080 005 120	8 X R0.5	19	120	8	
New 2NCR 080 010 070	8 X R1	16	70	8	
2NCR 080 010 100	8 X R1	19	100	8	
2NCR 080 010 120	8 X R1	19	120	8	
New 2NCR 080 015 070	8 X R1.5	16	70	8	
2NCR 080 015 100	8 X R1.5	19	100	8	
New 2NCR 080 020 070	8 X R2	16	70	8	
2NCR 080 020 100	8 X R2	19	100	8	
2NCR 080 025 100	8 X R2.5	19	100	8	
2NCR 080 030 100	8 X R3	19	100	8	
New 2NCR 080 035 100	8 X R3.5	19	100	8	
New 2NCR 100 001 075	10 X R0.1	19	75	10	
New 2NCR 100 001 100	10 X R0.1	22	100	10	
New 2NCR 100 002 075	10 X R0.2	19	75	10	
2NCR 100 002 100	10 X R0.2	22	100	10	

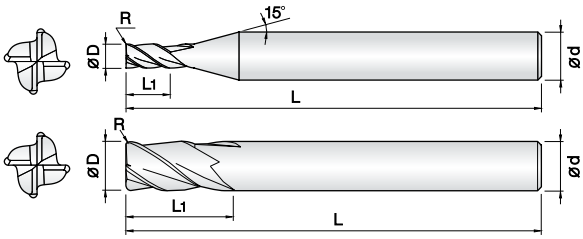
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 2NCR 100 003 075	10 X R0.3	19	75	10	
2NCR 100 003 100	10 X R0.3	22	100	10	
New 2NCR 100 005 075	10 X R0.5	19	75	10	
2NCR 100 005 100	10 X R0.5	22	100	10	
2NCR 100 005 130	10 X R0.5	22	130	10	
New 2NCR 100 010 075	10 X R1	19	75	10	
2NCR 100 010 100	10 X R1	22	100	10	
2NCR 100 010 130	10 X R1	22	130	10	
New 2NCR 100 015 075	10 X R1.5	19	75	10	
2NCR 100 015 100	10 X R1.5	22	100	10	
2NCR 100 015 130	10 X R1.5	22	130	10	
New 2NCR 100 020 075	10 X R2	19	75	10	
2NCR 100 020 100	10 X R2	22	100	10	
2NCR 100 025 100	10 X R2.5	22	100	10	
2NCR 100 030 100	10 X R3	22	100	10	
New 2NCR 100 040 100	10 X R4	22	100	10	
New 2NCR 120 001 080	12 X R0.1	22	80	12	
New 2NCR 120 001 110	12 X R0.1	26	110	12	
New 2NCR 120 002 080	12 X R0.2	22	80	12	
New 2NCR 120 002 110	12 X R0.2	26	110	12	
New 2NCR 120 003 080	12 X R0.3	22	80	12	
2NCR 120 003 110	12 X R0.3	26	110	12	
New 2NCR 120 005 080	12 X R0.5	22	80	12	
2NCR 120 005 110	12 X R0.5	26	110	12	
2NCR 120 005 130	12 X R0.5	26	130	12	
New 2NCR 120 010 080	12 X R1	22	80	12	
2NCR 120 010 110	12 X R1	26	110	12	
2NCR 120 010 130	12 X R1	26	130	12	
New 2NCR 120 015 080	12 X R1.5	22	80	12	
2NCR 120 015 110	12 X R1.5	26	110	12	
2NCR 120 015 130	12 X R1.5	26	130	12	
New 2NCR 120 020 080	12 X R2	22	80	12	
2NCR 120 020 110	12 X R2	26	110	12	
New 2NCR 120 020 130	12 X R2	26	130	12	
2NCR 120 025 110	12 X R2.5	26	110	12	
2NCR 120 030 110	12 X R3	26	110	12	
New 2NCR 120 040 110	12 X R4	26	110	12	
New 2NCR 120 050 110	12 X R5	26	110	12	

4NCR

4 Flutes Corner Radius End Mills

4날 코너 레디우스 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 (Ø1 ~ Ø6) | R ±0.01 (Ø8 ~ Ø16) | 30° Helix Angle

Max. 8% off

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCR 010 0005 S04	1 X R0.05	2.5	45	4	
4NCR 010 001 S04	1 X R0.1	2.5	45	4	
4NCR 010 002 S04	1 X R0.2	2.5	45	4	
4NCR 010 003 S04	1 X R0.3	2.5	45	4	
4NCR 015 0005 S04	1.5 X R0.05	4	45	4	
4NCR 015 001 S04	1.5 X R0.1	4	45	4	
4NCR 015 002 S04	1.5 X R0.2	4	45	4	
4NCR 015 003 S04	1.5 X R0.3	4	45	4	
4NCR 015 005 S04	1.5 X R0.5	4	45	4	
4NCR 020 0005 S04	2 X R0.05	6	45	4	
4NCR 020 001 S04	2 X R0.1	6	45	4	
4NCR 020 002 S04	2 X R0.2	6	45	4	
4NCR 020 003 S04	2 X R0.3	6	45	4	
4NCR 020 005 S04	2 X R0.5	6	45	4	
4NCR 025 001 S04	2.5 X R0.1	6	50	4	
4NCR 025 002 S04	2.5 X R0.2	6	50	4	
4NCR 025 003 S04	2.5 X R0.3	6	50	4	
4NCR 025 005 S04	2.5 X R0.5	6	50	4	
4NCR 030 001 S06	3 X R0.1	8	60	6	
4NCR 030 002 S06	3 X R0.2	8	60	6	
4NCR 030 003 S06	3 X R0.3	8	60	6	
4NCR 030 005 S06	3 X R0.5	8	60	6	
4NCR 030 010 S06	3 X R1	8	60	6	
New 4NCR 040 001 060	4 X R0.1	9	60	4	
New 4NCR 040 001 080	4 X R0.1	9	80	4	
4NCR 040 001 S06	4 X R0.1	11	70	6	
New 4NCR 040 002 060	4 X R0.2	9	60	4	
New 4NCR 040 002 080	4 X R0.2	9	80	4	
4NCR 040 002 S06	4 X R0.2	11	70	6	
New 4NCR 040 003 060	4 X R0.3	9	60	4	
New 4NCR 040 003 080	4 X R0.3	9	80	4	
4NCR 040 003 S06	4 X R0.3	11	70	6	
New 4NCR 040 005 060	4 X R0.5	9	60	4	
New 4NCR 040 005 080	4 X R0.5	9	80	4	
4NCR 040 005 S06	4 X R0.5	11	70	6	
New 4NCR 040 010 060	4 X R1	9	60	4	
New 4NCR 040 010 080	4 X R1	9	80	4	
4NCR 040 010 S06	4 X R1	11	70	6	
4NCR 050 001 S06	5 X R0.1	13	75	6	
4NCR 050 002 S06	5 X R0.2	13	75	6	
New 4NCR 050 003 S06	5 X R0.3	13	75	6	
4NCR 050 005 S06	5 X R0.5	13	75	6	
4NCR 050 010 S06	5 X R1	13	75	6	
New 4NCR 060 001 060	6 X R0.1	11	60	6	
4NCR 060 001 080	6 X R0.1	13	80	6	
New 4NCR 060 002 060	6 X R0.2	11	60	6	
4NCR 060 002 080	6 X R0.2	13	80	6	
New 4NCR 060 003 060	6 X R0.3	11	60	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCR 060 003 080	6 X R0.3	13	80	6	
New 4NCR 060 005 060	6 X R0.5	11	60	6	
4NCR 060 005 080	6 X R0.5	13	80	6	
New 4NCR 060 010 060	6 X R1	11	60	6	
4NCR 060 010 080	6 X R1	13	80	6	
New 4NCR 060 015 060	6 X R1.5	11	60	6	
4NCR 060 015 080	6 X R1.5	13	80	6	
New 4NCR 060 020 060	6 X R2	11	60	6	
4NCR 060 020 080	6 X R2	13	80	6	
New 4NCR 080 001 070	8 X R0.1	16	70	8	
New 4NCR 080 001 090	8 X R0.1	19	90	8	
New 4NCR 080 002 070	8 X R0.2	16	70	8	
New 4NCR 080 002 090	8 X R0.2	19	90	8	
New 4NCR 080 003 070	8 X R0.3	16	70	8	
New 4NCR 080 003 090	8 X R0.3	19	90	8	
New 4NCR 080 005 070	8 X R0.5	16	70	8	
4NCR 080 005 090	8 X R0.5	19	90	8	
4NCR 080 005 110	8 X R0.5	19	110	8	
New 4NCR 080 010 070	8 X R1	16	70	8	
4NCR 080 010 090	8 X R1	19	90	8	
4NCR 080 010 110	8 X R1	19	110	8	
New 4NCR 080 015 070	8 X R1.5	16	70	8	
4NCR 080 015 090	8 X R1.5	19	90	8	
4NCR 080 015 110	8 X R1.5	19	110	8	
New 4NCR 080 020 070	8 X R2	16	70	8	
4NCR 080 020 090	8 X R2	19	90	8	
4NCR 080 020 110	8 X R2	19	110	8	
New 4NCR 080 025 090	8 X R2.5	19	90	8	
New 4NCR 100 001 075	10 X R0.1	19	75	10	
New 4NCR 100 001 100	10 X R0.1	22	100	10	
New 4NCR 100 002 075	10 X R0.2	19	75	10	
New 4NCR 100 002 100	10 X R0.2	22	100	10	
New 4NCR 100 003 075	10 X R0.3	19	75	10	
New 4NCR 100 003 100	10 X R0.3	22	100	10	
New 4NCR 100 005 075	10 X R0.5	19	75	10	
4NCR 100 005 100	10 X R0.5	22	100	10	
4NCR 100 005 120	10 X R0.5	22	120	10	
New 4NCR 100 010 075	10 X R1	19	75	10	
4NCR 100 010 100	10 X R1	22	100	10	
4NCR 100 010 120	10 X R1	22	120	10	
New 4NCR 100 015 075	10 X R1.5	19	75	10	
4NCR 100 015 100	10 X R1.5	22	100	10	
4NCR 100 015 120	10 X R1.5	22	120	10	
New 4NCR 100 020 075	10 X R2	19	75	10	
4NCR 100 020 100	10 X R2	22	100	10	
4NCR 100 020 120	10 X R2	22	120	10	
4NCR 100 025 075	10 X R2.5	19	75	10	
4NCR 100 025 100	10 X R2.5	22	100	10	

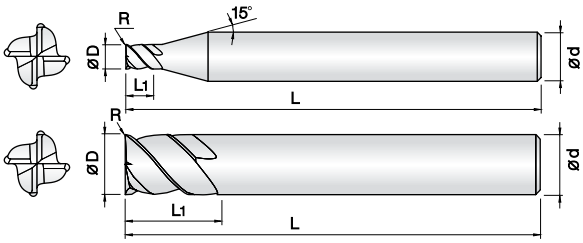
단위 : mm

	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	4NCR 100 025 120	10 X R2.5	22	120	10	
New	4NCR 100 030 100	10 X R3	22	100	10	
New	4NCR 120 002 080	12 X R0.2	22	80	12	
New	4NCR 120 002 110	12 X R0.2	26	110	12	
New	4NCR 120 003 080	12 X R0.3	22	80	12	
New	4NCR 120 003 110	12 X R0.3	26	110	12	
New	4NCR 120 005 080	12 X R0.5	22	80	12	
	4NCR 120 005 110	12 X R0.5	26	110	12	
	4NCR 120 005 130	12 X R0.5	26	130	12	
New	4NCR 120 010 080	12 X R1	22	80	12	
	4NCR 120 010 110	12 X R1	26	110	12	
	4NCR 120 010 130	12 X R1	26	130	12	
New	4NCR 120 015 080	12 X R1.5	22	80	12	
	4NCR 120 015 110	12 X R1.5	26	110	12	
	4NCR 120 015 130	12 X R1.5	26	130	12	
New	4NCR 120 020 080	12 X R2	22	80	12	
	4NCR 120 020 110	12 X R2	26	110	12	
	4NCR 120 020 130	12 X R2	26	130	12	
New	4NCR 120 025 080	12 X R2.5	22	80	12	
	4NCR 120 025 110	12 X R2.5	26	110	12	
	4NCR 120 025 130	12 X R2.5	26	130	12	
New	4NCR 120 030 080	12 X R3	22	80	12	
	4NCR 120 030 110	12 X R3	26	110	12	
	4NCR 120 030 130	12 X R3	26	130	12	
New	4NCR 120 035 110	12 X R3.5	26	110	12	
New	4NCR 120 040 110	12 X R4	26	110	12	
	4NCR 160 005 110	16 X R0.5	35	110	16	
	4NCR 160 005 160	16 X R0.5	35	160	16	
	4NCR 160 010 110	16 X R1	35	110	16	
	4NCR 160 010 160	16 X R1	35	160	16	

4CRL

4 Flutes 45° Helix Corner Radius Long End Mills

4날 45° 헬릭스 코너 레디우스 롱 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- 45° degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

Ø3 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

단위 : mm

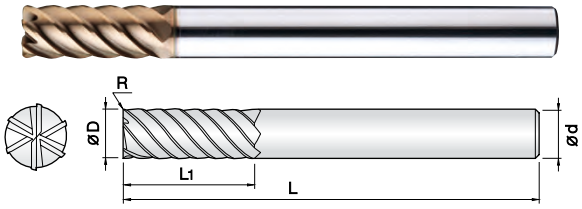
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4CRL 030 002 S06	3 X R0.2	6	70	6	
4CRL 030 005 S06	3 X R0.5	6	70	6	
4CRL 030 010 S06	3 X R1	6	70	6	
4CRL 040 002 S06	4 X R0.2	8	70	6	
4CRL 040 005 S06	4 X R0.5	8	70	6	
4CRL 040 010 S06	4 X R1	8	70	6	
4CRL 060 005 S06	6 X R0.5	12	90	6	
4CRL 060 010 S06	6 X R1	12	90	6	
4CRL 080 002 S08	8 X R0.2	16	90	8	
4CRL 080 005 S08	8 X R0.5	16	90	8	
4CRL 080 010 S08	8 X R1	16	90	8	
4CRL 100 003 S10	10 X R0.3	20	100	10	
4CRL 100 005 S10	10 X R0.5	20	100	10	
4CRL 100 010 S10	10 X R1	20	100	10	
4CRL 120 003 S12	12 X R0.3	24	110	12	
4CRL 120 005 S12	12 X R0.5	24	110	12	
4CRL 120 010 S12	12 X R1	24	110	12	

6CRL

6 Flutes 45° Helix Corner Radius Long End Mills

6날 45° 헬릭스 코너 레디우스 롱 엔드밀

New



- **고경도강(HRc50이상), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 측벽가공, 코너부, 무구배면 가공시 가공물의 표면조도가 뛰어납니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- 45°degree helix design for high speed, feed condition.
- Improved wear resistance with longer edge and excellent work surface finish in various machining applications.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

6 | UWC 초미립자 | TISIN Coating | R ±0.005 ~ Ø6 | R ±0.01 Ø8 ~ Ø16 | 45° Helix Angle

Size	D Tolerance
D ≧ Ø6	+0 ~ −0.02mm

단위 : mm

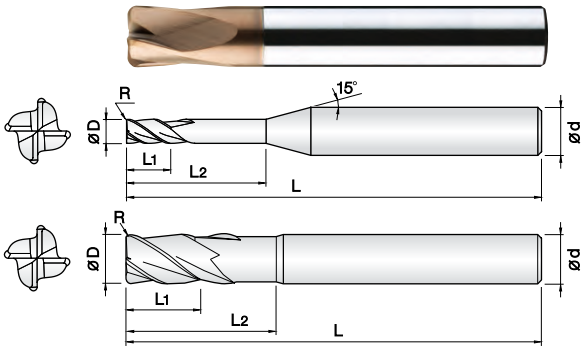
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6CRL 060 003 060	6 X R0.3	15	60	6	
6CRL 060 003 080	6 X R0.3	15	80	6	
6CRL 060 005 060	6 X R0.5	15	60	6	
6CRL 060 005 080	6 X R0.5	15	80	6	
6CRL 060 010 060	6 X R1	15	60	6	
6CRL 060 010 080	6 X R1	15	80	6	
6CRL 080 003 070	8 X R0.3	20	70	8	
6CRL 080 003 090	8 X R0.3	20	90	8	
6CRL 080 005 070	8 X R0.5	20	70	8	
6CRL 080 005 090	8 X R0.5	20	90	8	
6CRL 080 010 070	8 X R1	20	70	8	
6CRL 080 010 090	8 X R1	20	90	8	
6CRL 100 003 075	10 X R0.3	25	75	10	
6CRL 100 003 100	10 X R0.3	25	100	10	
6CRL 100 005 075	10 X R0.5	25	75	10	
6CRL 100 005 100	10 X R0.5	25	100	10	
6CRL 100 010 075	10 X R1	25	75	10	
6CRL 100 010 100	10 X R1	25	100	10	
6CRL 120 003 080	12 X R0.3	30	80	12	
6CRL 120 003 110	12 X R0.3	30	110	12	
6CRL 120 005 080	12 X R0.5	30	80	12	
6CRL 120 005 110	12 X R0.5	30	110	12	
6CRL 120 010 080	12 X R1	30	80	12	
6CRL 120 010 110	12 X R1	30	110	12	
6CRL 160 005 S16	16 X R0.5	50	110	16	
6CRL 160 010 S16	16 X R1	50	110	16	

4RCU

4 Flutes High Speed Corner Radius Cutter

4날 고이송 코너 레디우스 커터

New



- **고경도강(HRc50이상), 프리하든강 계열의 고이송 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능 하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Cutter for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Designed for low speed with high feed condition.
- Suitable for heavy duty and roughing application.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.005 (Ø1 ~ Ø5) | R ±0.01 (Ø6 ~ Ø12) | R ±0.015 (~ Ø16) | 15° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4RCU 010 002 025	1 X R0.2	1	2.5	50	4	
4RCU 015 005 040	1.5 X R0.5	1.5	4	50	4	
4RCU 020 005 060	2 X R0.5	2	6	50	6	
4RCU 030 005 080	3 X R0.5	3	8	50	6	
4RCU 040 005 120	4 X R0.5	4	12	60	6	
4RCU 040 005 160	4 X R0.5	4	16	60	6	
4RCU 040 010 120	4 X R1	4	12	60	6	
4RCU 040 010 160	4 X R1	4	16	60	6	
4RCU 050 005 150	5 X R0.5	5	15	60	6	
4RCU 050 010 150	5 X R1	5	15	60	6	
4RCU 060 003 150	6 X R0.3	6	15	60	6	
4RCU 060 005 150	6 X R0.5	6	15	60	6	
4RCU 060 010 150	6 X R1	6	15	60	6	
4RCU 060 015 150	6 X R1.5	6	15	60	6	
4RCU 080 003 160	8 X R0.3	8	16	60	8	
4RCU 080 005 160	8 X R0.5	8	16	60	8	
4RCU 080 005 200	8 X R0.5	8	20	80	8	
4RCU 080 005 300	8 X R0.5	8	30	110	8	
4RCU 080 010 160	8 X R1	8	16	60	8	
4RCU 080 010 200	8 X R1	8	20	80	8	
4RCU 080 010 300	8 X R1	8	30	110	8	
4RCU 080 020 160	8 X R2	8	16	60	8	
4RCU 080 020 200	8 X R2	8	20	80	8	
4RCU 080 020 300	8 X R2	8	30	110	8	
4RCU 100 003 200	10 X R0.3	10	20	70	10	
4RCU 100 005 200	10 X R0.5	10	20	70	10	
4RCU 100 005 250	10 X R0.5	10	25	90	10	
4RCU 100 005 300	10 X R0.5	10	30	120	10	
4RCU 100 010 200	10 X R1	10	20	70	10	
4RCU 100 010 250	10 X R1	10	25	90	10	
4RCU 100 010 300	10 X R1	10	30	120	10	
4RCU 100 020 200	10 X R2	10	20	70	10	
4RCU 100 020 250	10 X R2	10	25	90	10	
4RCU 100 020 300	10 X R2	10	30	120	10	
4RCU 120 005 250	12 X R0.5	12	25	80	12	
4RCU 120 005 300	12 X R0.5	12	30	100	12	
4RCU 120 005 350	12 X R0.5	12	35	130	12	
4RCU 120 010 250	12 X R1	12	25	80	12	
4RCU 120 010 300	12 X R1	12	30	100	12	
4RCU 120 010 350	12 X R1	12	35	130	12	
4RCU 120 020 250	12 X R2	12	25	80	12	
4RCU 120 020 300	12 X R2	12	30	100	12	
4RCU 120 020 350	12 X R2	12	35	130	12	
4RCU 120 030 250	12 X R3	12	25	80	12	
4RCU 160 010 300	16 X R1	16	30	110	16	
4RCU 160 010 400	16 X R1	16	40	160	16	
4RCU 160 020 300	16 X R2	16	30	110	16	
4RCU 160 020 400	16 X R2	16	40	160	16	

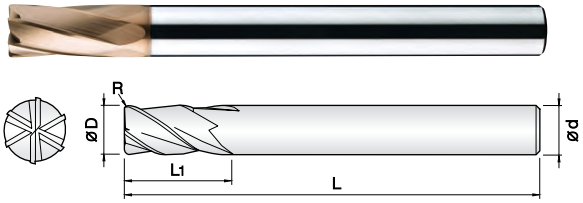
Max. 8% off

6RCU

6 Flutes High Speed Corner Radius Cutter

6날 고이송 코너레디우스 커터

New



- **고경도강(HRc50이상), 프리하든강 계열의 고이송 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능 하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Cutter for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Designed for low speed with high feed condition.
- Suitable for heavy duty and roughing application.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

6 | UWC 초미립자 | TISIN Coating | R ±0.01 ~ Ø6 | R ±0.015 Ø8 ~ Ø20 | 15° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

단위 : mm

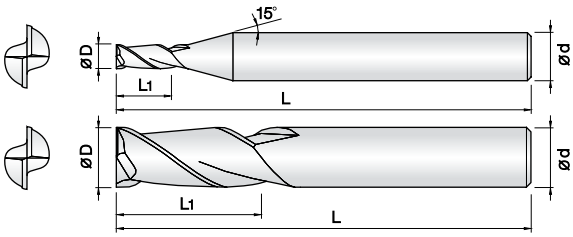
Order Number	날경 Diameter D ×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6RCU 060 005 060	6 X R0.5	12	60	6	
6RCU 060 005 080	6 X R0.5	12	80	6	
6RCU 060 010 060	6 X R1	12	60	6	
6RCU 060 010 080	6 X R1	12	80	6	
6RCU 080 005 060	8 X R0.5	16	60	8	
6RCU 080 005 090	8 X R0.5	16	90	8	
6RCU 080 010 060	8 X R1	16	60	8	
6RCU 080 010 090	8 X R1	16	90	8	
6RCU 080 020 060	8 X R2	16	60	8	
6RCU 080 020 090	8 X R2	16	90	8	
6RCU 100 005 070	10 X R0.5	20	70	10	
6RCU 100 005 100	10 X R0.5	20	100	10	
6RCU 100 010 070	10 X R1	20	70	10	
6RCU 100 010 100	10 X R1	20	100	10	
6RCU 100 020 070	10 X R2	20	70	10	
6RCU 100 020 100	10 X R2	20	100	10	
6RCU 120 005 080	12 X R0.5	25	80	12	
6RCU 120 005 110	12 X R0.5	25	110	12	
6RCU 120 010 080	12 X R1	25	80	12	
6RCU 120 010 110	12 X R1	25	110	12	
6RCU 120 020 080	12 X R2	25	80	12	
6RCU 120 020 110	12 X R2	25	110	12	
6RCU 160 005 160	16 X R0.5	35	160	16	
6RCU 160 005 200	16 X R0.5	35	200	16	
6RCU 160 010 160	16 X R1	35	160	16	
6RCU 160 010 200	16 X R1	35	200	16	
6RCU 160 015 160	16 X R1.5	35	160	16	
6RCU 160 015 200	16 X R1.5	35	200	16	
6RCU 160 020 160	16 X R2	35	160	16	
6RCU 160 020 200	16 X R2	35	200	16	
6RCU 200 005 150	20 X R0.5	40	150	20	
6RCU 200 005 200	20 X R0.5	40	200	20	
6RCU 200 010 150	20 X R1	40	150	20	
6RCU 200 010 200	20 X R1	40	200	20	
6RCU 200 015 150	20 X R1.5	40	150	20	
6RCU 200 015 200	20 X R1.5	40	200	20	
6RCU 200 020 150	20 X R2	40	150	20	
6RCU 200 020 200	20 X R2	40	200	20	

Max. 8% Off

2LEM

2 Flutes Long Length End Mills

2날 긴 길이 엔드밀



- **HRc52이하의 고경도강, 프리하든강, 공구강, 주철등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.

- **Endmill for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD 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.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø1~Ø5) | D −0.01 −0.03 (Ø6~Ø25) | 30° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	−0.01~ −0.03mm

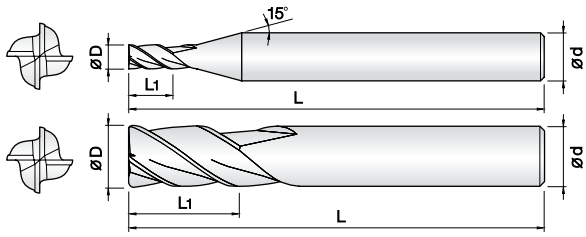
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	2LEM 010 030 S06	1	3	60	6	
	2LEM 010 050 S06	1	5	60	6	
	2LEM 010 070 S06	1	7	60	6	
	2LEM 010 100 S06	1	10	60	6	
New	2LEM 015 060 S06	1.5	6	60	6	
	2LEM 015 075 S06	1.5	7.5	60	6	
	2LEM 015 100 S06	1.5	10	60	6	
	2LEM 015 150 S06	1.5	15	60	6	
New	2LEM 020 060 S06	2	6	60	6	
	2LEM 020 100 S06	2	10	60	6	
	2LEM 020 150 S06	2	15	60	6	
	2LEM 030 120 S06	3	12	70	6	
	2LEM 030 150 S06	3	15	70	6	
	2LEM 030 200 S06	3	20	70	6	
New	2LEM 030 250 S06	3	25	70	6	
	2LEM 040 150 S06	4	15	70	6	
	2LEM 040 200 S06	4	20	70	6	
	2LEM 040 300 S06	4	30	75	6	
	2LEM 050 200 S06	5	20	70	6	
	2LEM 050 250 S06	5	25	75	6	
New	2LEM 050 300 S06	5	30	80	6	
	2LEM 060 200 S06	6	20	75	6	
New	2LEM 060 200 100	6	20	100	6	
	2LEM 060 250 S06	6	25	75	6	
	2LEM 060 300 S06	6	30	80	6	
	2LEM 080 250 S08	8	25	75	8	
New	2LEM 080 250 100	8	25	100	8	
	2LEM 080 300 S08	8	30	80	8	
	2LEM 080 350 S08	8	35	80	8	
	2LEM 080 400 S08	8	40	90	8	
New	2LEM 080 500 S08	8	50	100	8	
	2LEM 100 300 S10	10	30	80	10	
New	2LEM 100 300 110	10	30	110	10	
	2LEM 100 350 S10	10	35	90	10	
	2LEM 100 400 S10	10	40	90	10	
	2LEM 100 500 S10	10	50	100	10	
New	2LEM 100 600 S10	10	60	110	10	
	2LEM 120 300 S12	12	30	90	12	
New	2LEM 120 350 110	12	35	110	12	
	2LEM 120 400 S12	12	40	100	12	
	2LEM 120 500 S12	12	50	100	12	
	2LEM 120 600 S12	12	60	110	12	
New	2LEM 120 700 S12	12	70	130	12	
	2LEM 140 500 S14	14	50	110	14	
New	2LEM 160 400 160	16	40	160	16	
	2LEM 160 550 S16	16	55	120	16	
New	2LEM 160 700 S16	16	70	130	16	
New	2LEM 160 800 S16	16	80	160	16	

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	2LEM 200 500 160	20	50	160	20	
	2LEM 200 600 S20	20	60	130	20	
New	2LEM 200 1000 S20	20	100	200	20	
	2LEM 250 750 S25	25	75	160	25	

4LEM

4Flutes Long Length End Mills

4날 긴 길이 엔드밀



- **HRc55이하의 고경도강, 프리하든강, 공구강, 주철등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.

- **Endmill for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD 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.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (ø3~ ø5) | D −0.01 −0.03 (ø6~ ø25) | 30° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	−0.01~ −0.03mm

단위 : mm

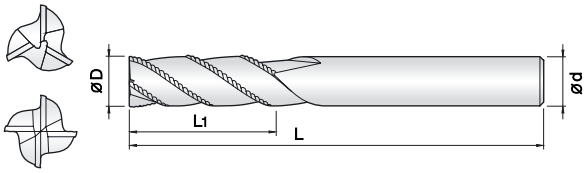
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	4LEM 010 030 S06	1	3	60	6	
New	4LEM 010 050 S06	1	5	60	6	
New	4LEM 015 060 S06	1.5	6	60	6	
New	4LEM 015 080 S06	1.5	8	60	6	
New	4LEM 020 080 S06	2	8	60	6	
New	4LEM 020 100 S06	2	10	60	6	
	4LEM 030 100 S06	3	10	70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

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	4LEM 200 600 S20	20	60	130	20	
New	4LEM 200 1000 S20	20	100	200	20	
	4LEM 250 750 S25	25	75	160	25	

3&4ROU

3&4 Flutes Roughing End Mills

3&4날 라핑 엔드밀



- **공구강, 합금강 및 고경도 일반강 황삭가공 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 뛰어난 칩배출력으로 가공시간을 단축하였습니다.
- 고속가공으로 작업의 효율성을 극대화합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Roughing Endmills for tool steel, alloy steel**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Reduce machining time by excellent chip control.
- Maximize work efficiency by high speed machining.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | 4 | UWC 초미립자 | JMAX Coating | D -0.01 -0.03 (Ø4~Ø9) | D -0.01 -0.04 (Ø10~Ø20) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø9	-0.01~ -0.03mm
D > Ø9	-0.01~ -0.04mm

단위 : mm

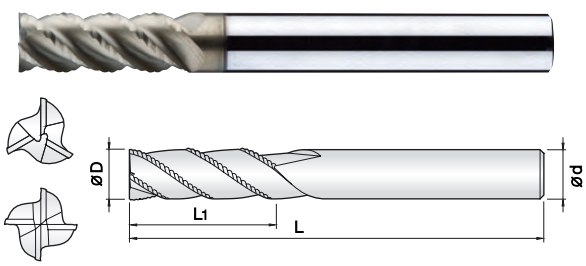
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 3ROU 040 100 S06	4	10	50	6	
New 3ROU 050 130 S06	5	13	50	6	
New 3ROU 060 100 050	6	10	50	6	
3ROU 060 150 055	6	15	55	6	
New 3ROU 060 200 060	6	20	60	6	
New 3ROU 070 180 S08	7	18	65	8	
New 3ROU 080 120 060	8	12	60	8	
3ROU 080 190 065	8	19	65	8	
New 3ROU 080 250 070	8	25	70	8	
New 4ROU 090 220 S10	9	22	70	10	
New 4ROU 100 150 070	10	15	70	10	
4ROU 100 220 070	10	22	70	10	
New 4ROU 100 300 080	10	30	80	10	
New 4ROU 110 270 S12	11	27	80	12	
New 4ROU 120 200 075	12	20	75	12	
4ROU 120 260 080	12	26	80	12	
New 4ROU 120 350 090	12	35	90	12	
4ROU 160 320 090	16	32	90	16	
New 4ROU 160 400 100	16	40	100	16	
4ROU 200 380 110	20	38	110	20	
New 4ROU 200 500 110	20	50	110	20	

3&4HROU

3&4 Flutes 45° Helix Fine Pitch Roughing End Mills

3&4날 45° 헬릭스 파인피치형 라핑 엔드밀

New



- **합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재의 황삭가공**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 45° 헬릭스 적용으로 절삭 저항이 감소되어 장시간 가공에 적합합니다.
- 파인피치 형상 채택으로 고속, 황삭가공 작업에 적합합니다.
- **Roughing Endmills for hard to cut materials, alloy steel, SUS, Inconel and structural steel.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Long tool life with low cutting force by 45° degree helix design.
- Fine pitch shape design for high speed roughing application.

3 | 4 | UWC 초미립자 | JMAX Coating | D -0.01 -0.03 (Ø4~ Ø9) | D -0.01 -0.04 (Ø10~ Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø9	-0.01~ -0.03mm
D > Ø9	-0.01~ -0.04mm

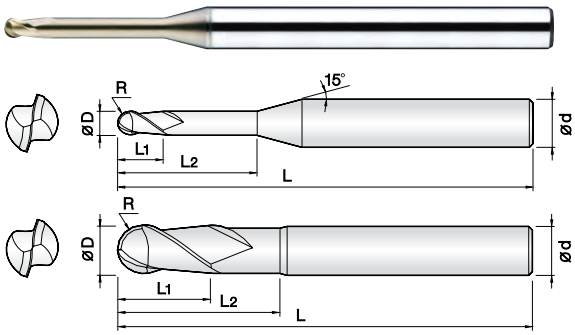
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3HROU 040 100 S06	4	10	50	6	
3HROU 050 130 S06	5	13	50	6	
3HROU 060 100 050	6	10	50	6	
3HROU 060 160 055	6	16	55	6	
3HROU 060 200 060	6	20	60	6	
3HROU 070 180 S08	7	18	65	8	
3HROU 080 120 060	8	12	60	8	
3HROU 080 190 065	8	19	65	8	
3HROU 080 250 070	8	25	70	8	
4HROU 090 220 S10	9	22	70	10	
4HROU 100 150 070	10	15	70	10	
4HROU 100 220 070	10	22	70	10	
4HROU 100 300 080	10	30	80	10	
4HROU 110 270 S12	11	27	80	12	
4HROU 120 200 075	12	20	75	12	
4HROU 120 250 080	12	25	80	12	
4HROU 120 350 090	12	35	90	12	
4HROU 160 320 090	16	32	90	16	
4HROU 160 400 110	16	40	110	16	
4HROU 200 380 110	20	38	110	20	
4HROU 200 500 120	20	50	120	20	

2HRBG

2 Flutes Rib Ball End Mills for Generality

2날 중저경도용 리브볼 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | R ±0.005 (0.05R ~ 3R) | R ±0.01 (4R ~ 6R) | 35° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

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
2HRBG 001 003 S04	0.05R X 0.1	0.3	-	40	4	
2HRBG 001 005 S04	0.05R X 0.1	0.5	-	40	4	
2HRBG 002 005 S04	0.1R X 0.2	0.2	0.5	40	4	
2HRBG 002 010 S04	0.1R X 0.2	0.2	1	40	4	
2HRBG 002 015 S04	0.1R X 0.2	0.2	1.5	40	4	
2HRBG 002 020 S04	0.1R X 0.2	0.2	2	40	4	
2HRBG 003 010 S04	0.15R X 0.3	0.3	1	40	4	
2HRBG 003 015 S04	0.15R X 0.3	0.3	1.5	40	4	
2HRBG 003 020 S04	0.15R X 0.3	0.3	2	40	4	
2HRBG 003 030 S04	0.15R X 0.3	0.3	3	40	4	
2HRBG 003 040 S04	0.15R X 0.3	0.3	4	40	4	
2HRBG 003 050 S04	0.15R X 0.3	0.3	5	40	4	
2HRBG 004 010 S04	0.2R X 0.4	0.5	1	40	4	
2HRBG 004 020 S04	0.2R X 0.4	0.5	2	40	4	
2HRBG 004 030 S04	0.2R X 0.4	0.5	3	40	4	
2HRBG 004040 S04	0.2R X 0.4	0.5	4	40	4	
2HRBG 004 050 S04	0.2R X 0.4	0.5	5	40	4	
2HRBG 004 060 S04	0.2R X 0.4	0.5	6	40	4	
2HRBG 004 080 S04	0.2R X 0.4	0.5	8	40	4	
2HRBG 004 100 S04	0.2R X 0.4	0.5	10	40	4	
2HRBG 005 010 S04	0.25R X 0.5	0.6	1	45	4	
2HRBG 005 020 S04	0.25R X 0.5	0.6	2	45	4	
2HRBG 005 030 S04	0.25R X 0.5	0.6	3	45	4	
2HRBG 005 040 S04	0.25R X 0.5	0.6	4	45	4	
2HRBG 005 050 S04	0.25R X 0.5	0.6	5	45	4	
2HRBG 005 060 S04	0.25R X 0.5	0.6	6	45	4	
2HRBG 005 080 S04	0.25R X 0.5	0.6	8	45	4	
2HRBG 005 100 S04	0.25R X 0.5	0.6	10	45	4	
2HRBG 005 120 S04	0.25R X 0.5	0.6	12	45	4	
2HRBG 005 140 S04	0.25R X 0.5	0.6	14	45	4	
2HRBG 006 010 S04	0.3R X 0.6	0.7	1	45	4	
2HRBG 006 020 S04	0.3R X 0.6	0.7	2	45	4	
2HRBG 006 030 S04	0.3R X 0.6	0.7	3	45	4	
2HRBG 006 040 S04	0.3R X 0.6	0.7	4	45	4	
2HRBG 006 050 S04	0.3R X 0.6	0.7	5	45	4	
2HRBG 006 060 S04	0.3R X 0.6	0.7	6	45	4	
2HRBG 006 080 S04	0.3R X 0.6	0.7	8	45	4	
2HRBG 006 100 S04	0.3R X 0.6	0.7	10	45	4	
2HRBG 006 120 S04	0.3R X 0.6	0.7	12	45	4	
2HRBG 006 140 S04	0.3R X 0.6	0.7	14	45	4	
2HRBG 006 160 S04	0.3R X 0.6	0.7	16	45	4	
2HRBG 007 020 S04	0.35R X 0.7	0.8	2	45	4	
2HRBG 007 040 S04	0.35R X 0.7	0.8	4	45	4	
2HRBG 007 080 S04	0.35R X 0.7	0.8	8	45	4	
2HRBG 007 100 S04	0.35R X 0.7	0.8	10	45	4	
2HRBG 007 120 S04	0.35R X 0.7	0.8	12	45	4	
2HRBG 008 020 S04	0.4R X 0.8	0.9	2	45	4	
2HRBG 008 040 S04	0.4R X 0.8	0.9	4	45	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
2HRBG 008 060 S04	0.4R X 0.8	0.9	6	45	4	
2HRBG 008 080 S04	0.4R X 0.8	0.9	8	45	4	
2HRBG 008 100 S04	0.4R X 0.8	0.9	10	45	4	
2HRBG 008 120 S04	0.4R X 0.8	0.9	12	45	4	
2HRBG 008 140 S04	0.4R X 0.8	0.9	14	45	4	
2HRBG 008 160 S04	0.4R X 0.8	0.9	16	45	4	
2HRBG 009 040 S04	0.45R X 0.9	1	4	45	4	
2HRBG 010 020 S04	0.5R X 1	1.2	2	45	4	
2HRBG 010 020 S06	0.5R X 1	1.2	2	45	6	
2HRBG 010 030 S04	0.5R X 1	1.2	3	45	4	
2HRBG 010 030 S06	0.5R X 1	1.2	3	45	6	
2HRBG 010 040 S04	0.5R X 1	1.2	4	45	4	
2HRBG 010 040 S06	0.5R X 1	1.2	4	45	6	
2HRBG 010 050 S04	0.5R X 1	1.2	5	45	4	
2HRBG 010 050 S06	0.5R X 1	1.2	5	45	6	
2HRBG 010 060 S04	0.5R X 1	1.2	6	45	4	
2HRBG 010 060 S06	0.5R X 1	1.2	6	45	6	
2HRBG 010 080 S04	0.5R X 1	1.2	8	45	4	
2HRBG 010 080 S06	0.5R X 1	1.2	8	45	6	
2HRBG 010 100 S04	0.5R X 1	1.2	10	50	4	
2HRBG 010 100 S06	0.5R X 1	1.2	10	50	6	
2HRBG 010 120 S04	0.5R X 1	1.2	12	50	4	
2HRBG 010 120 S06	0.5R X 1	1.2	12	50	6	
2HRBG 010 140 S04	0.5R X 1	1.2	14	50	4	
2HRBG 010 140 S06	0.5R X 1	1.2	14	50	6	
2HRBG 010 160 S04	0.5R X 1	1.2	16	50	4	
2HRBG 010 160 S06	0.5R X 1	1.2	16	55	6	
2HRBG 010 180 S04	0.5R X 1	1.2	18	50	4	
2HRBG 010 180 S06	0.5R X 1	1.2	18	60	6	
2HRBG 010 200 S04	0.5R X 1	1.2	20	50	4	
2HRBG 010 200 S06	0.5R X 1	1.2	20	60	6	
2HRBG 010 220 S04	0.5R X 1	1.2	22	60	4	
2HRBG 010 220 S06	0.5R X 1	1.2	22	65	6	
2HRBG 010 250 S04	0.5R X 1	1.2	25	60	4	
2HRBG 012 040 S04	0.6R X 1.2	1.4	4	45	4	
2HRBG 012 040 S06	0.6R X 1.2	1.4	4	45	6	
2HRBG 012 060 S04	0.6R X 1.2	1.4	6	45	4	
2HRBG 012 060 S06	0.6R X 1.2	1.4	6	45	6	
2HRBG 012 080 S04	0.6R X 1.2	1.4	8	45	4	
2HRBG 012 080 S06	0.6R X 1.2	1.4	8	45	6	
2HRBG 012 100 S04	0.6R X 1.2	1.4	10	50	4	
2HRBG 012 100 S06	0.6R X 1.2	1.4	10	50	6	
2HRBG 012 120 S04	0.6R X 1.2	1.4	12	50	4	
2HRBG 012 120 S06	0.6R X 1.2	1.4	12	50	6	
2HRBG 012 160 S04	0.6R X 1.2	1.4	16	50	4	
2HRBG 012 160 S06	0.6R X 1.2	1.4	16	55	6	
2HRBG 012 200 S04	0.6R X 1.2	1.4	20	50	4	
2HRBG 012 200 S06	0.6R X 1.2	1.4	20	60	6	

2HRBG

2 Flutes Rib Ball End Mills for Generality

2날 중저경도용 리브볼 엔드밀

단위 : mm

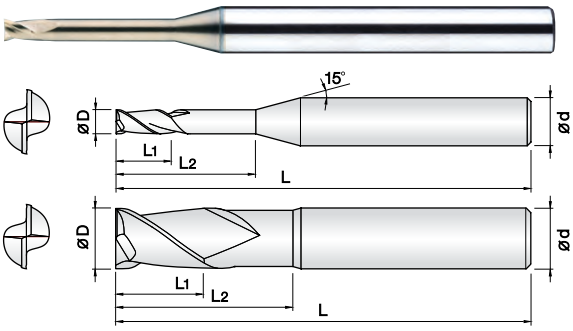
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HRBG 012 240 S04	0.6R X 1.2	1.4	24	60	4	
2HRBG 012 240 S06	0.6R X 1.2	1.4	24	65	6	
2HRBG 014 060 S04	0.7R X 1.4	1.6	6	45	4	
2HRBG 014 080 S04	0.7R X 1.4	1.6	8	45	4	
2HRBG 014 120 S04	0.7R X 1.4	1.6	12	50	4	
2HRBG 014 160 S04	0.7R X 1.4	1.6	16	50	4	
2HRBG 015 030 S04	0.75R X 1.5	1.8	3	45	4	
2HRBG 015 030 S06	0.75R X 1.5	1.8	3	45	6	
2HRBG 015 040 S04	0.75R X 1.5	1.8	4	45	4	
2HRBG 015 040 S06	0.75R X 1.5	1.8	4	45	6	
2HRBG 015 060 S04	0.75R X 1.5	1.8	6	45	4	
2HRBG 015 060 S06	0.75R X 1.5	1.8	6	45	6	
2HRBG 015 080 S04	0.75R X 1.5	1.8	8	45	4	
2HRBG 015 080 S06	0.75R X 1.5	1.8	8	45	6	
2HRBG 015 100 S04	0.75R X 1.5	1.8	10	50	4	
2HRBG 015 100 S06	0.75R X 1.5	1.8	10	50	6	
2HRBG 015 120 S04	0.75R X 1.5	1.8	12	50	4	
2HRBG 015 120 S06	0.75R X 1.5	1.8	12	50	6	
2HRBG 015 140 S04	0.75R X 1.5	1.8	14	50	4	
2HRBG 015 140 S06	0.75R X 1.5	1.8	14	50	6	
2HRBG 015 160 S04	0.75R X 1.5	1.8	16	50	4	
2HRBG 015 160 S06	0.75R X 1.5	1.8	16	55	6	
2HRBG 015 180 S04	0.75R X 1.5	1.8	18	50	4	
2HRBG 015 180 S06	0.75R X 1.5	1.8	18	60	6	
2HRBG 015 200 S04	0.75R X 1.5	1.8	20	50	4	
2HRBG 015 200 S06	0.75R X 1.5	1.8	20	60	6	
2HRBG 015 220 S04	0.75R X 1.5	1.8	22	60	4	
2HRBG 015 220 S06	0.75R X 1.5	1.8	22	65	6	
2HRBG 015 250 S04	0.75R X 1.5	1.8	25	60	4	
2HRBG 015 250 S06	0.75R X 1.5	1.8	25	65	6	
2HRBG 015 300 S04	0.75R X 1.5	1.8	30	70	4	
2HRBG 015 300 S06	0.75R X 1.5	1.8	30	70	6	
2HRBG 015 350 S04	0.75R X 1.5	1.8	35	70	4	
2HRBG 016 060 S04	0.8R X 1.6	1.9	6	45	4	
2HRBG 016 080 S04	0.8R X 1.6	1.9	8	45	4	
2HRBG 016 120 S04	0.8R X 1.6	1.9	12	50	4	
2HRBG 016 160 S04	0.8R X 1.6	1.9	16	50	4	
2HRBG 016 200 S04	0.8R X 1.6	1.9	20	50	4	
2HRBG 018 060 S04	0.9R X 1.8	2.1	6	45	4	
2HRBG 018 080 S04	0.9R X 1.8	2.1	8	45	4	
2HRBG 018 120 S04	0.9R X 1.8	2.1	12	50	4	
2HRBG 018 160 S04	0.9R X 1.8	2.1	16	50	4	
2HRBG 018 200 S04	0.9R X 1.8	2.1	20	50	4	
2HRBG 020 040 S04	1R X 2	2.4	4	45	4	
2HRBG 020 040 S06	1R X 2	2.4	4	45	6	
2HRBG 020 060 S04	1R X 2	2.4	6	45	4	
2HRBG 020 060 S06	1R X 2	2.4	6	45	6	
2HRBG 020 080 S04	1R X 2	2.4	8	45	4	
2HRBG 020 080 S06	1R X 2	2.4	8	45	6	
2HRBG 020 100 S04	1R X 2	2.4	10	50	4	
2HRBG 020 100 S06	1R X 2	2.4	10	50	6	
2HRBG 020 120 S04	1R X 2	2.4	12	50	4	
2HRBG 020 120 S06	1R X 2	2.4	12	50	6	
2HRBG 020 140 S04	1R X 2	2.4	14	50	4	
2HRBG 020 140 S06	1R X 2	2.4	14	50	6	
2HRBG 020 160 S04	1R X 2	2.4	16	50	4	
2HRBG 020 160 S06	1R X 2	2.4	16	55	6	
2HRBG 020 180 S04	1R X 2	2.4	18	50	4	
2HRBG 020 180 S06	1R X 2	2.4	18	60	6	
2HRBG 020 200 S04	1R X 2	2.4	20	50	4	
2HRBG 020 200 S06	1R X 2	2.4	20	60	6	
2HRBG 020 220 S04	1R X 2	2.4	22	60	4	
2HRBG 020 220 S06	1R X 2	2.4	22	65	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
2HRBG 020 250 S04	1R X 2	2.4	25	60	4	
2HRBG 020 250 S06	1R X 2	2.4	25	65	6	
2HRBG 020 300 S04	1R X 2	2.4	30	70	4	
2HRBG 020 300 S06	1R X 2	2.4	30	70	6	
2HRBG 020 350 S04	1R X 2	2.4	35	70	4	
2HRBG 020 350 S06	1R X 2	2.4	35	75	6	
2HRBG 020 400 S04	1R X 2	2.4	40	80	4	
2HRBG 020 400 S06	1R X 2	2.4	40	80	6	
2HRBG 020 450 S04	1R X 2	2.4	45	80	4	
2HRBG 025 080 S04	1.25R X 2.5	3	8	45	4	
2HRBG 025 100 S04	1.25R X 2.5	3	10	50	4	
2HRBG 025 160 S04	1.25R X 2.5	3	16	50	4	
2HRBG 025 200 S04	1.25R X 2.5	3	20	50	4	
2HRBG 025 250 S04	1.25R X 2.5	3	25	60	4	
2HRBG 025 300 S04	1.25R X 2.5	3	30	70	4	
2HRBG 025 350 S04	1.25R X 2.5	3	35	70	4	
2HRBG 030 060 S06	1.5R X 3	3.6	6	45	6	
2HRBG 030 080 S06	1.5R X 3	3.6	8	45	6	
2HRBG 030 100 S06	1.5R X 3	3.6	10	50	6	
2HRBG 030 120 S06	1.5R X 3	3.6	12	50	6	
2HRBG 030 160 S06	1.5R X 3	3.6	16	55	6	
2HRBG 030 200 S06	1.5R X 3	3.6	20	60	6	
2HRBG 030 250 S06	1.5R X 3	3.6	25	65	6	
2HRBG 030 300 S06	1.5R X 3	3.6	30	70	6	
2HRBG 030 350 S06	1.5R X 3	3.6	35	75	6	
2HRBG 030 400 S06	1.5R X 3	3.6	40	80	6	
2HRBG 030 450 S06	1.5R X 3	3.6	45	90	6	
2HRBG 030 500 S06	1.5R X 3	3.6	50	100	6	
2HRBG 030 600 S06	1.5R X 3	3.6	60	100	6	
2HRBG 040 080 S06	2R X 4	4.8	8	45	6	
2HRBG 040 100 S06	2R X 4	4.8	10	50	6	
2HRBG 040 120 S06	2R X 4	4.8	12	50	6	
2HRBG 040 160 S06	2R X 4	4.8	16	55	6	
2HRBG 040 200 S06	2R X 4	4.8	20	60	6	
2HRBG 040 250 S06	2R X 4	4.8	25	65	6	
2HRBG 040 300 S06	2R X 4	4.8	30	70	6	
2HRBG 040 350 S06	2R X 4	4.8	35	75	6	
2HRBG 040 400 S06	2R X 4	4.8	40	80	6	
2HRBG 040 450 S06	2R X 4	4.8	45	90	6	
2HRBG 040 500 S06	2R X 4	4.8	50	100	6	
2HRBG 040 550 S06	2R X 4	4.8	55	100	6	
2HRBG 040 600 S06	2R X 4	4.8	60	100	6	
2HRBG 050 150 S06	2.5R X 5	6	15	55	6	
2HRBG 050 200 S06	2.5R X 5	6	20	60	6	
2HRBG 050 250 S06	2.5R X 5	6	25	70	6	
2HRBG 050 300 S06	2.5R X 5	6	30	75	6	
2HRBG 050 400 S06	2.5R X 5	6	40	80	6	
2HRBG 050 450 S06	2.5R X 5	6	45	90	6	
2HRBG 050 500 S06	2.5R X 5	6	50	100	6	
2HRBG 050 600 S06	2.5R X 5	6	60	100	6	
2HRBG 060 150 S06	3R X 6	10	15	55	6	
2HRBG 060 300 S06	3R X 6	10	30	110	6	
2HRBG 080 250 060	4R X 8	12	25	60	8	
2HRBG 080 300 100	4R X 8	12	30	100	8	
2HRBG 100 300 070	5R X 10	16	30	70	10	
2HRBG 100 350 100	5R X 10	16	35	100	10	
2HRBG 120 300 075	6R X 12	18	30	75	12	
2HRBG 120 400 110	6R X 12	18	40	110	12	

2HREG

2 Flutes Rib End Mills for Generality

2날 중저경도용 리브 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 | D +0 −0.015 | 35° Helix Angle

Ø0.1 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HREG 001 003 S04	0.1	0.3	-	40	4	
2HREG 001 005 S04	0.1	0.5	-	40	4	
2HREG 002 005 S04	0.2	0.3	0.5	40	4	
2HREG 002 010 S04	0.2	0.2	1	40	4	
2HREG 002 015 S04	0.2	0.2	1.5	40	4	
2HREG 002 020 S04	0.2	0.2	2	40	4	
2HREG 003 010 S04	0.3	0.3	1	40	4	
2HREG 003 015 S04	0.3	0.3	1.5	40	4	
2HREG 003 020 S04	0.3	0.3	2	40	4	
2HREG 003 030 S04	0.3	0.3	3	40	4	
2HREG 003 040 S04	0.3	0.3	4	40	4	
2HREG 003 050 S04	0.3	0.3	5	40	4	
2HREG 004 010 S04	0.4	0.5	1	40	4	
2HREG 004 020 S04	0.4	0.5	2	40	4	
2HREG 004 030 S04	0.4	0.5	3	40	4	
2HREG 004 040 S04	0.4	0.5	4	40	4	
2HREG 004 050 S04	0.4	0.5	5	40	4	
2HREG 004 060 S04	0.4	0.5	6	40	4	
2HREG 004 080 S04	0.4	0.5	8	40	4	
2HREG 004 100 S04	0.4	0.5	10	40	4	
2HREG 005 020 S04	0.5	0.6	2	45	4	
2HREG 005 030 S04	0.5	0.6	3	45	4	
2HREG 005 040 S04	0.5	0.6	4	45	4	
2HREG 005 050 S04	0.5	0.6	5	45	4	
2HREG 005 060 S04	0.5	0.6	6	45	4	
2HREG 005 080 S04	0.5	0.6	8	45	4	
2HREG 005 100 S04	0.5	0.6	10	45	4	
2HREG 005 120 S04	0.5	0.6	12	45	4	
2HREG 005 140 S04	0.5	0.6	14	45	4	
2HREG 006 020 S04	0.6	0.7	2	45	4	
2HREG 006 030 S04	0.6	0.7	3	45	4	
2HREG 006 040 S04	0.6	0.7	4	45	4	
2HREG 006 050 S04	0.6	0.7	5	45	4	
2HREG 006 060 S04	0.6	0.7	6	45	4	
2HREG 006 080 S04	0.6	0.7	8	45	4	
2HREG 006 100 S04	0.6	0.7	10	45	4	
2HREG 006 120 S04	0.6	0.7	12	45	4	
2HREG 006 140 S04	0.6	0.7	14	45	4	
2HREG 006 160 S04	0.6	0.7	16	45	4	
2HREG 007 020 S04	0.7	0.8	2	45	4	
2HREG 007 040 S04	0.7	0.8	4	45	4	
2HREG 007 060 S04	0.7	0.8	6	45	4	
2HREG 007 080 S04	0.7	0.8	8	45	4	
2HREG 007 100 S04	0.7	0.8	10	45	4	
2HREG 007 120 S04	0.7	0.8	12	45	4	
2HREG 008 020 S04	0.8	0.9	2	45	4	
2HREG 008 040 S04	0.8	0.9	4	45	4	
2HREG 008 060 S04	0.8	0.9	6	45	4	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HREG 008 080 S04	0.8	0.9	8	45	4	
2HREG 008 100 S04	0.8	0.9	10	45	4	
2HREG 008 120 S04	0.8	0.9	12	45	4	
2HREG 008 140 S04	0.8	0.9	14	45	4	
2HREG 009 060 S04	0.9	1	6	45	4	
2HREG 009 080 S04	0.9	1	8	45	4	
2HREG 009 100 S04	0.9	1	10	45	4	
2HREG 010 020 S04	1	1.2	2	45	4	
2HREG 010 030 S04	1	1.2	3	45	4	
2HREG 010 040 S04	1	1.2	4	45	4	
2HREG 010 050 S04	1	1.2	5	45	4	
2HREG 010 060 S04	1	1.2	6	45	4	
2HREG 010 080 S04	1	1.2	8	45	4	
2HREG 010 100 S04	1	1.2	10	50	4	
2HREG 010 120 S04	1	1.2	12	50	4	
2HREG 010 140 S04	1	1.2	14	50	4	
2HREG 010 160 S04	1	1.2	16	50	4	
2HREG 010 180 S04	1	1.2	18	50	4	
2HREG 010 200 S04	1	1.2	20	50	4	
2HREG 010 250 S04	1	1.2	25	60	4	
2HREG 010 300 S04	1	1.2	30	70	4	
2HREG 012 040 S04	1.2	1.4	4	45	4	
2HREG 012 060 S04	1.2	1.4	6	45	4	
2HREG 012 080 S04	1.2	1.4	8	45	4	
2HREG 012 100 S04	1.2	1.4	10	50	4	
2HREG 012 120 S04	1.2	1.4	12	50	4	
2HREG 012 160 S04	1.2	1.4	16	50	4	
2HREG 012 200 S04	1.2	1.4	20	50	4	
2HREG 012 250 S04	1.2	1.4	25	60	4	
2HREG 012 300 S04	1.2	1.4	30	70	4	
2HREG 014 060 S04	1.4	1.6	6	45	4	
2HREG 014 080 S04	1.4	1.6	8	45	4	
2HREG 014 100 S04	1.4	1.6	10	50	4	
2HREG 014 140 S04	1.4	1.6	14	50	4	
2HREG 014 160 S04	1.4	1.6	16	50	4	
2HREG 014 200 S04	1.4	1.6	20	50	4	
2HREG 015 040 S04	1.5	1.8	4	45	4	
2HREG 015 060 S04	1.5	1.8	6	45	4	
2HREG 015 080 S04	1.5	1.8	8	45	4	
2HREG 015 100 S04	1.5	1.8	10	50	4	
2HREG 015 120 S04	1.5	1.8	12	50	4	
2HREG 015 140 S04	1.5	1.8	14	50	4	
2HREG 015 160 S04	1.5	1.8	16	50	4	
2HREG 015 180 S04	1.5	1.8	18	50	4	
2HREG 015 200 S04	1.5	1.8	20	50	4	
2HREG 015 250 S04	1.5	1.8	25	60	4	
2HREG 015 300 S04	1.5	1.8	30	70	4	
2HREG 016 100 S04	1.6	1.9	10	50	4	

2HREG

2 Flutes Rib End Mills for Generality

2날 중저경도용 리브 엔드밀

단위 : mm

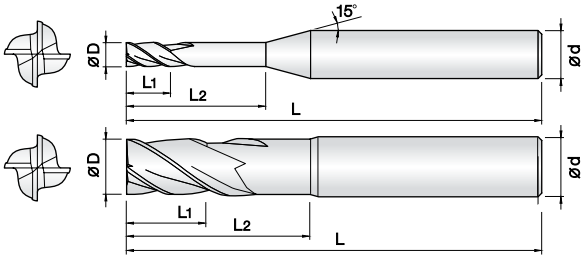
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HREG 016 140 S04	1.6	1.9	14	50	4	
2HREG 016 180 S04	1.6	1.9	18	50	4	
2HREG 018 100 S04	1.8	2.1	10	50	4	
2HREG 018 140 S04	1.8	2.1	14	50	4	
2HREG 018 180 S04	1.8	2.1	18	50	4	
2HREG 020 040 S04	2	2.4	4	45	4	
2HREG 020 060 S04	2	2.4	6	45	4	
2HREG 020 080 S04	2	2.4	8	45	4	
2HREG 020 100 S04	2	2.4	10	50	4	
2HREG 020 120 S04	2	2.4	12	50	4	
2HREG 020 140 S04	2	2.4	14	50	4	
2HREG 020 160 S04	2	2.4	16	50	4	
2HREG 020 180 S04	2	2.4	18	50	4	
2HREG 020 200 S04	2	2.4	20	50	4	
2HREG 020 220 S04	2	2.4	22	60	4	
2HREG 020 250 S04	2	2.4	25	60	4	
2HREG 020 300 S04	2	2.4	30	70	4	
2HREG 020 350 S04	2	2.4	35	70	4	
2HREG 020 400 S04	2	2.4	40	80	4	
2HREG 020 450 S04	2	2.4	45	80	4	
2HREG 020 500 S04	2	2.4	50	90	4	
2HREG 025 080 S04	2.5	3	8	45	4	
2HREG 025 100 S04	2.5	3	10	50	4	
2HREG 025 120 S04	2.5	3	12	50	4	
2HREG 025 160 S04	2.5	3	16	50	4	
2HREG 025 200 S04	2.5	3	20	50	4	
2HREG 025 250 S04	2.5	3	25	60	4	
2HREG 025 300 S04	2.5	3	30	70	4	
2HREG 025 350 S04	2.5	3	35	70	4	
2HREG 025 400 S04	2.5	3	40	80	4	
2HREG 025 500 S04	2.5	3	50	90	4	
2HREG 030 060 S06	3	3.6	6	45	6	
2HREG 030 080 S06	3	3.6	8	45	6	
2HREG 030 100 S06	3	3.6	10	50	6	
2HREG 030 120 S06	3	3.6	12	50	6	
2HREG 030 160 S06	3	3.6	16	55	6	
2HREG 030 200 S06	3	3.6	20	60	6	
2HREG 030 250 S06	3	3.6	25	65	6	
2HREG 030 300 S06	3	3.6	30	70	6	
2HREG 030 350 S06	3	3.6	35	75	6	
2HREG 030 400 S06	3	3.6	40	80	6	
2HREG 030 450 S06	3	3.6	45	90	6	
2HREG 030 500 S06	3	3.6	50	100	6	
2HREG 030 600 S06	3	3.6	60	100	6	
2HREG 040 080 S06	4	4.8	8	45	6	
2HREG 040 100 S06	4	4.8	10	50	6	
2HREG 040 120 S06	4	4.8	12	50	6	
2HREG 040 160 S06	4	4.8	16	55	6	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2HREG 040 200 S06	4	4.8	20	60	6	
2HREG 040 250 S06	4	4.8	25	65	6	
2HREG 040 300 S06	4	4.8	30	70	6	
2HREG 040 350 S06	4	4.8	35	75	6	
2HREG 040 400 S06	4	4.8	40	80	6	
2HREG 040 450 S06	4	4.8	45	90	6	
2HREG 040 500 S06	4	4.8	50	100	6	
2HREG 040 550 S06	4	4.8	55	100	6	
2HREG 040 600 S06	4	4.8	60	100	6	
2HREG 050 150 S06	5	6	15	55	6	
2HREG 050 200 S06	5	6	20	60	6	
2HREG 050 250 S06	5	6	25	70	6	
2HREG 050 300 S06	5	6	30	75	6	
2HREG 050 350 S06	5	6	35	75	6	
2HREG 050 400 S06	5	6	40	80	6	
2HREG 050 500 S06	5	6	50	100	6	
2HREG 050 600 S06	5	6	60	100	6	
2HREG 060 200 S06	6	10	20	60	6	
2HREG 060 300 S06	6	10	30	75	6	
2HREG 060 400 S06	6	10	40	80	6	
2HREG 060 500 S06	6	10	50	90	6	
2HREG 060 600 S06	6	10	60	110	6	
2HREG 080 200 S08	8	12	20	65	8	
2HREG 080 300 S08	8	12	30	80	8	
2HREG 080 400 S08	8	12	40	100	8	
2HREG 100 250 S10	10	15	25	70	10	
2HREG 100 350 S10	10	15	35	80	10	
2HREG 100 450 S10	10	15	45	100	10	
2HREG 120 300 S12	12	18	30	80	12	
2HREG 120 400 S12	12	18	40	100	12	
2HREG 120 500 S12	12	18	50	120	12	

4HREG

4 Flutes Rib End Mills for Generality

4날 중저경도용 리브 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

4 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 | D +0 −0.015 | 35° Helix Angle

Ø0.8 ~ Ø6 Ø8 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

단위 : mm

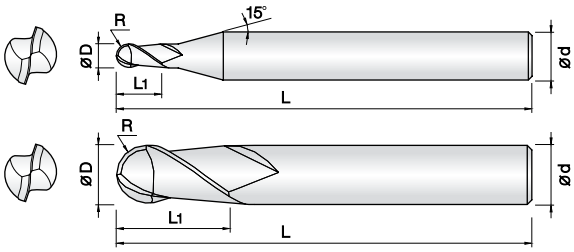
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4HREG 008 020 S04	0.8	0.9	2	45	4	
4HREG 008 040 S04	0.8	0.9	4	45	4	
4HREG 008 060 S04	0.8	0.9	6	45	4	
4HREG 008 080 S04	0.8	0.9	8	45	4	
4HREG 008 100 S04	0.8	0.9	10	45	4	
4HREG 008 120 S04	0.8	0.9	12	45	4	
4HREG 008 160 S04	0.8	0.9	16	45	4	
4HREG 009 020 S04	0.9	1	2	45	4	
4HREG 009 060 S04	0.9	1	6	45	4	
4HREG 009 080 S04	0.9	1	8	45	4	
4HREG 009 100 S04	0.9	1	10	45	4	
4HREG 010 030 S04	1	1.2	3	45	4	
4HREG 010 040 S04	1	1.2	4	45	4	
4HREG 010 060 S04	1	1.2	6	45	4	
4HREG 010 080 S04	1	1.2	8	45	4	
4HREG 010 100 S04	1	1.2	10	50	4	
4HREG 010 120 S04	1	1.2	12	50	4	
4HREG 010 160 S04	1	1.2	16	50	4	
4HREG 010 200 S04	1	1.2	20	50	4	
4HREG 010 250 S04	1	1.2	25	60	4	
4HREG 012 060 S04	1.2	1.4	6	45	4	
4HREG 012 080 S04	1.2	1.4	8	45	4	
4HREG 012 100 S04	1.2	1.4	10	50	4	
4HREG 012 120 S04	1.2	1.4	12	50	4	
4HREG 012 160 S04	1.2	1.4	16	50	4	
4HREG 015 060 S04	1.5	1.8	6	45	4	
4HREG 015 080 S04	1.5	1.8	8	45	4	
4HREG 015 100 S04	1.5	1.8	10	50	4	
4HREG 015 120 S04	1.5	1.8	12	50	4	
4HREG 015 160 S04	1.5	1.8	16	50	4	
4HREG 015 200 S04	1.5	1.8	20	50	4	
4HREG 015 250 S04	1.5	1.8	25	60	4	
4HREG 020 060 S04	2	2.4	6	45	4	
4HREG 020 080 S04	2	2.4	8	45	4	
4HREG 020 100 S04	2	2.4	10	50	4	
4HREG 020 120 S04	2	2.4	12	50	4	
4HREG 020 160 S04	2	2.4	16	50	4	
4HREG 020 200 S04	2	2.4	20	50	4	
4HREG 020 250 S04	2	2.4	25	60	4	
4HREG 020 300 S04	2	2.4	30	70	4	
4HREG 025 100 S04	2.5	3	10	50	4	
4HREG 025 120 S04	2.5	3	12	50	4	
4HREG 025 160 S04	2.5	3	16	50	4	
4HREG 025 200 S04	2.5	3	20	50	4	
4HREG 025 250 S04	2.5	3	25	60	4	
4HREG 025 300 S04	2.5	3	30	70	4	
4HREG 030 100 S06	3	3.6	10	50	6	
4HREG 030 120 S06	3	3.6	12	50	6	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4HREG 030 160 S06	3	3.6	16	55	6	
4HREG 030 200 S06	3	3.6	20	60	6	
4HREG 030 250 S06	3	3.6	25	65	6	
4HREG 030 300 S06	3	3.6	30	70	6	
4HREG 030 350 S06	3	3.6	35	75	6	
4HREG 030 400 S06	3	3.6	40	80	6	
4HREG 040 100 S06	4	4.8	10	50	6	
4HREG 040 120 S06	4	4.8	12	50	6	
4HREG 040 160 S06	4	4.8	16	55	6	
4HREG 040 200 S06	4	4.8	20	60	6	
4HREG 040 250 S06	4	4.8	25	65	6	
4HREG 040 300 S06	4	4.8	30	70	6	
4HREG 040 400 S06	4	4.8	40	80	6	
4HREG 040 450 S06	4	4.8	45	90	6	
4HREG 040 500 S06	4	4.8	50	100	6	
4HREG 050 150 S06	5	6	15	55	6	
4HREG 050 200 S06	5	6	20	60	6	
4HREG 050 250 S06	5	6	25	65	6	
4HREG 050 300 S06	5	6	30	70	6	
4HREG 050 400 S06	5	6	40	80	6	
4HREG 050 500 S06	5	6	50	100	6	
4HREG 060 200 S06	6	10	20	60	6	
4HREG 060 300 S06	6	10	30	75	6	
4HREG 060 400 S06	6	10	40	80	6	
4HREG 060 500 S06	6	10	50	90	6	
4HREG 080 200 S08	8	12	20	65	8	
4HREG 080 300 S08	8	12	30	80	8	
4HREG 080 400 S08	8	12	40	100	8	
4HREG 100 250 S10	10	15	25	70	10	
4HREG 100 350 S10	10	15	35	90	10	
4HREG 100 450 S10	10	15	45	110	10	
4HREG 120 300 S12	12	18	30	80	12	
4HREG 120 400 S12	12	18	40	100	12	
4HREG 120 500 S12	12	18	50	120	12	

2HSBG

2 Flutes Short Length Ball End Mills for Generality

2날 중저경도용 짧은 길이 볼 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Short overall length for easy use with shrinking chuck
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 35° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

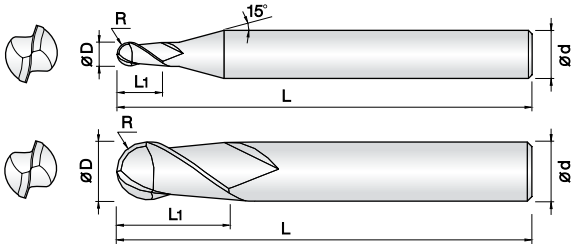
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HSBG 002 002 S04	0.1R X 0.2	0.2	40	4	
2HSBG 003 003 S04	0.15R X 0.3	0.3	40	4	
2HSBG 004 004 S04	0.2R X 0.4	0.4	40	4	
2HSBG 005 005 S04	0.25R X 0.5	0.5	40	4	
2HSBG 006 006 S04	0.3R X 0.6	0.6	40	4	
2HSBG 007 007 S04	0.35R X 0.7	0.7	40	4	
2HSBG 008 008 S04	0.4R X 0.8	0.8	40	4	
2HSBG 009 009 S04	0.45R X 0.9	0.9	40	4	
2HSBG 010 010 S04	0.5R X 1	1	40	4	
2HSBG 010 010 S06	0.5R X 1	1	40	6	
2HSBG 015 015 S04	0.75R X 1.5	1.5	40	4	
2HSBG 015 015 S06	0.75R X 1.5	1.5	40	6	
2HSBG 020 020 S04	1R X 2	2	45	4	
2HSBG 020 020 S06	1R X 2	2	45	6	
2HSBG 030 030 S04	1.5R X 3	3	45	4	
2HSBG 030 030 S06	1.5R X 3	3	45	6	
2HSBG 040 040 S04	2R X 4	4	45	4	
2HSBG 040 040 S06	2R X 4	4	45	6	
2HSBG 050 050 S06	2.5R X 5	5	50	6	
2HSBG 060 060 050	3R X 6	6	50	6	
2HSBG 060 060 060	3R X 6	6	60	6	
2HSBG 080 080 050	4R X 8	8	50	8	
2HSBG 080 080 060	4R X 8	8	60	8	
2HSBG 100 100 060	5R X 10	10	60	10	
2HSBG 100 100 070	5R X 10	10	70	10	
2HSBG 120 120 060	6R X 12	12	60	12	
2HSBG 120 120 070	6R X 12	12	70	12	

2HCBG

2 Flutes Standard Length Ball End Mills for Generality

2날 중저경도용 표준 길이 볼 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
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- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | ±0.005 (0.05R~3R) | ±0.01 (3.5R~10R) | 35° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

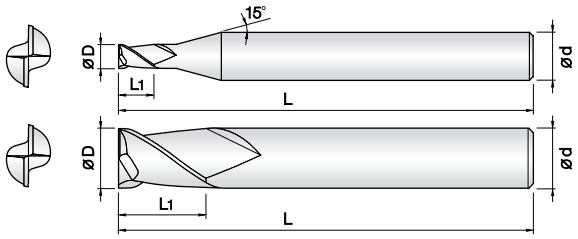
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCBG 001 002 S04	0.05R X 0.1	0.2	40	4	
2HCBG 0015 003 S04	0.075R X 0.15	0.3	40	4	
2HCBG 002 004 S04	0.1R X 0.2	0.4	40	4	
2HCBG 003 006 S04	0.15R X 0.3	0.6	40	4	
2HCBG 004 008 S04	0.2R X 0.4	0.8	40	4	
2HCBG 005 010 S04	0.25R X 0.5	1	45	4	
2HCBG 006 012 S04	0.3R X 0.6	1.2	45	4	
2HCBG 007 015 S04	0.35R X 0.7	1.5	45	4	
2HCBG 008 020 S04	0.4R X 0.8	2	45	4	
2HCBG 009 020 S04	0.45R X 0.9	2	45	4	
2HCBG 010 025 S04	0.5R X 1	2.5	50	4	
2HCBG 010 025 S06	0.5R X 1	2.5	50	6	
2HCBG 010 025 070	0.5R X 1	2.5	70	6	
2HCBG 010 025 100	0.5R X 1	2.5	100	6	
2HCBG 012 030 S04	0.6R X 1.2	3	50	4	
2HCBG 015 040 S04	0.75R X 1.5	4	50	4	
2HCBG 015 040 S06	0.75R X 1.5	4	50	6	
2HCBG 015 040 070	0.75R X 1.5	4	70	6	
2HCBG 015 040 100	0.75R X 1.5	4	100	6	
2HCBG 020 050 S04	1R X 2	5	50	4	
2HCBG 020 050 S06	1R X 2	5	50	6	
2HCBG 020 050 075	1R X 2	5	75	6	
2HCBG 020 050 100	1R X 2	5	100	6	
2HCBG 025 060 S04	1.25R X 2.5	6	50	4	
2HCBG 025 060 S06	1.25R X 2.5	6	75	6	
2HCBG 025 060 100	1.25R X 2.5	6	100	6	
2HCBG 030 080 S03	1.5R X 3	8	60	3	
2HCBG 030 080 S04	1.5R X 3	8	50	4	
2HCBG 030 080 S06	1.5R X 3	8	60	6	
2HCBG 030 080 080	1.5R X 3	8	80	6	
2HCBG 030 080 100	1.5R X 3	8	100	6	
2HCBG 035 080 S06	1.75R X 3.5	8	60	6	
2HCBG 040 080 060	2R X 4	8	60	4	
2HCBG 040 080 080	2R X 4	8	80	4	
2HCBG 040 080 S06	2R X 4	8	70	6	
2HCBG 040 080 090	2R X 4	8	90	6	
2HCBG 040 080 120	2R X 4	8	120	6	
2HCBG 045 080 S06	2.25R X 4.5	8	70	6	
2HCBG 050 080 S05	2.5R X 5	8	80	5	
2HCBG 050 100 S06	2.5R X 5	10	75	6	
2HCBG 055 100 S06	2.75R X 5.5	10	75	6	
2HCBG 060 100 060	3R X 6	10	60	6	
2HCBG 060 120 080	3R X 6	12	80	6	
2HCBG 060 120 100	3R X 6	12	100	6	
2HCBG 060 120 120	3R X 6	12	120	6	
2HCBG 070 140 S08	3.5R X 7	14	80	8	
2HCBG 080 120 060	4R X 8	12	60	8	
2HCBG 080 140 090	4R X 8	14	90	8	

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCBG 080 140 110	4R X 8	14	110	8	
2HCBG 080 140 150	4R X 8	14	150	8	
2HCBG 090 160 S10	4.5R X 9	16	100	10	
2HCBG 100 150 070	5R X 10	15	70	10	
2HCBG 100 180 100	5R X 10	18	100	10	
2HCBG 100 180 120	5R X 10	18	120	10	
2HCBG 100 180 150	5R X 10	18	150	10	
2HCBG 100 180 180	5R X 10	18	180	10	
2HCBG 110 200 S12	5.5R X 11	20	110	12	
2HCBG 120 180 070	6R X 12	18	70	12	
2HCBG 120 220 110	6R X 12	22	110	12	
2HCBG 120 220 130	6R X 12	22	130	12	
2HCBG 120 220 150	6R X 12	22	150	12	
2HCBG 120 220 200	6R X 12	22	200	12	
2HCBG 130 240 S14	6.5R X 13	24	110	14	
2HCBG 140 240 S14	7R X 14	24	110	14	
2HCBG 160 300 130	8R X 16	30	130	16	
2HCBG 160 300 160	8R X 16	30	160	16	
2HCBG 160 300 200	8R X 16	30	200	16	
2HCBG 200 380 160	10R X 20	38	160	20	
2HCBG 200 380 200	10R X 20	38	200	20	

2HCEG

2 Flutes Standard Length End Mills for Generality

2날 중저경도용 표준 길이 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | D +0 −0.005 (Ø0.1~Ø0.95) | D +0 −0.01 (Ø1~Ø5.5) | D +0 −0.02 (Ø6~Ø20) | 35° Helix Angle

Size	D Tolerance
D < ø1	+0 ~ −0.005mm
D ≦ ø5.5	+0 ~ −0.01mm
D > ø5.5	+0 ~ −0.02mm

단위 : mm

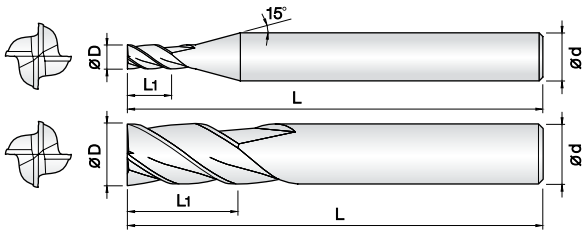
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCEG 001 002 S04	0.1	0.2	38	4	
2HCEG 0015 003 S04	0.15	0.3	38	4	
2HCEG 002 004 S04	0.2	0.4	38	4	
2HCEG 0025 005 S04	0.25	0.5	38	4	
2HCEG 003 006 S04	0.3	0.6	38	4	
2HCEG 0035 007 S04	0.35	0.7	38	4	
2HCEG 004 008 S04	0.4	0.8	38	4	
2HCEG 0045 009 S04	0.45	0.9	38	4	
2HCEG 005 010 S04	0.5	1	38	4	
2HCEG 0055 011 S04	0.55	1.1	38	4	
2HCEG 006 012 S04	0.6	1.2	38	4	
2HCEG 0065 013 S04	0.65	1.3	38	4	
2HCEG 007 014 S04	0.7	1.4	38	4	
2HCEG 0075 015 S04	0.75	1.5	38	4	
2HCEG 008 016 S04	0.8	1.6	38	4	
2HCEG 0085 017 S04	0.85	1.7	38	4	
2HCEG 009 020 S04	0.9	2	38	4	
2HCEG 0095 020 S04	0.95	2	38	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	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2HCEG 025 080 S06	2.5	8	45	6	
2HCEG 025 080 070	2.5	8	70	6	
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	105	18	
2HCEG 200 400 S20	20	40	105	20	
2HCEG 200 450 S20	20	50	110	20	

4HCEG

4 Flutes Standard Length End Mills for Generality

4날 중저경도용 표준 길이 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

4 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 (Ø0.8~ Ø5.5) | D +0 −0.02 (Ø6 ~ Ø20) | 35° Helix Angle

Size	D Tolerance
D ≦ Ø5.5	+0~ −0.01mm
D > Ø5.5	+0~ −0.02mm

단위 : mm

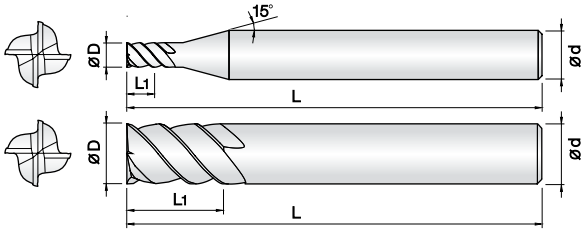
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4HCEG 008 020 S04	0.8	2	40	4	
4HCEG 010 010 S06	1	1	40	6	
4HCEG 010 025 S04	1	2.5	40	4	
4HCEG 010 025 S06	1	2.5	40	6	
4HCEG 010 025 060	1	2.5	60	6	
4HCEG 010 025 080	1	2.5	80	6	
4HCEG 010 040 S06	1	4	50	6	
4HCEG 012 012 S04	1.2	1.2	40	4	
4HCEG 012 030 S04	1.2	3	40	4	
4HCEG 012 030 S06	1.2	3	40	6	
4HCEG 012 030 060	1.2	3	60	6	
4HCEG 012 060 S06	1.5	6	50	6	
4HCEG 015 015 S04	1.5	1.5	40	4	
4HCEG 015 040 S04	1.5	4	40	4	
4HCEG 015 040 S06	1.5	4	40	6	
4HCEG 015 040 060	1.5	4	60	6	
4HCEG 015 040 080	1.5	4	80	6	
4HCEG 020 020 S04	2	2	40	4	
4HCEG 020 060 S04	2	6	40	4	
4HCEG 020 060 S06	2	6	40	6	
4HCEG 020 060 060	2	6	60	6	
4HCEG 020 060 100	2	6	100	6	
4HCEG 025 080 S04	2.5	8	45	4	
4HCEG 025 080 S06	2.5	8	45	6	
4HCEG 025 080 070	2.5	8	70	6	
4HCEG 025 080 100	2.5	8	100	6	
4HCEG 030 080 S03	3	8	45	3	
4HCEG 030 080 S04	3	8	45	4	
4HCEG 030 080 S06	3	8	45	6	
4HCEG 030 080 070	3	8	70	6	
4HCEG 030 080 100	3	8	100	6	
4HCEG 035 100 S06	3.5	10	45	6	
4HCEG 040 040 S04	4	4	40	4	
4HCEG 040 110 S04	4	11	45	4	
4HCEG 040 110 S06	4	11	45	6	
4HCEG 040 110 070	4	11	70	6	
4HCEG 040 110 100	4	11	100	6	
4HCEG 045 110 S06	4.5	11	45	6	
4HCEG 050 130 S06	5	13	50	6	
4HCEG 050 130 080	5	13	80	6	
4HCEG 050 130 100	5	13	100	6	
4HCEG 055 130 S06	5.5	13	50	6	
4HCEG 060 060 S06	6	6	45	6	
4HCEG 060 130 S06	6	13	50	6	
4HCEG 060 130 080	6	13	80	6	
4HCEG 060 130 100	6	13	100	6	
4HCEG 060 150 S06	6	15	60	6	
4HCEG 065 160 S08	6.5	16	60	8	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4HCEG 070 160 S08	7	16	60	8	
4HCEG 075 160 S08	7.5	16	60	8	
4HCEG 080 080 S08	8	8	50	8	
4HCEG 080 190 S08	8	19	60	8	
4HCEG 080 200 S08	8	20	70	8	
4HCEG 085 190 S10	8.5	19	70	10	
4HCEG 090 190 S10	9	19	70	10	
4HCEG 095 190 S10	9.5	19	70	10	
4HCEG 100 100 S10	10	10	60	10	
4HCEG 100 220 S10	10	22	70	10	
4HCEG 100 250 S10	10	25	75	10	
4HCEG 105 220 S12	10.5	22	75	12	
4HCEG 110 220 S12	11	22	75	12	
4HCEG 115 220 S12	11.5	22	75	12	
4HCEG 120 120 S12	12	12	65	12	
4HCEG 120 260 S12	12	26	75	12	
4HCEG 120 300 S12	12	30	80	12	
4HCEG 140 260 S14	14	26	80	14	
4HCEG 140 260 S16	14	26	85	16	
4HCEG 160 350 S16	16	35	100	16	
4HCEG 160 400 S16	16	40	100	16	
4HCEG 180 350 S18	18	35	105	18	
4HCEG 200 400 S20	20	40	105	20	
4HCEG 200 450 S20	20	45	105	20	

4HEMG

4 Flutes 45° Helix End Mills for Generality

4날 중저경도용 45° 헬릭스 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 45°헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 항절력이 높은 초미립자 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- 45°degree helix design for high speed, feed condition.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

4 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 (Ø1~ Ø5) | D +0 −0.02 (Ø6~ Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

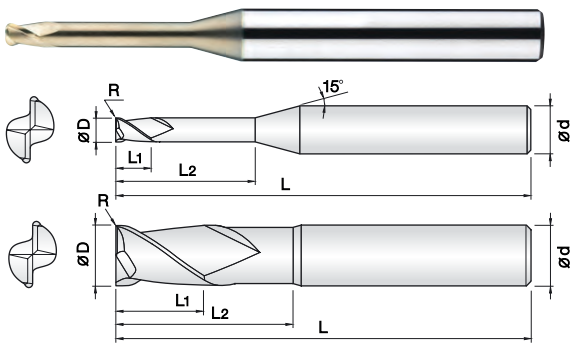
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4HEMG 010 025 S06	1	2.5	40	6	
4HEMG 010 035 S06	1	3.5	40	6	
4HEMG 015 040 S06	1.5	4	40	6	
4HEMG 015 060 S06	1.5	6	40	6	
4HEMG 020 050 S06	2	5	40	6	
4HEMG 020 080 S06	2	8	45	6	
4HEMG 030 080 S06	3	8	45	6	
4HEMG 030 120 S06	3	12	50	6	
4HEMG 040 110 S06	4	11	45	6	
4HEMG 040 160 S06	4	16	55	6	
4HEMG 050 130 S06	5	13	50	6	
4HEMG 050 180 S06	5	18	60	6	
4HEMG 060 130 S06	6	13	50	6	
4HEMG 060 200 S06	6	20	60	6	
4HEMG 080 200 S08	8	20	60	8	
4HEMG 080 250 S08	8	25	70	8	
4HEMG 100 220 S10	10	22	70	10	
4HEMG 100 300 S10	10	30	80	10	
4HEMG 120 260 S12	12	26	75	12	
4HEMG 120 400 S12	12	40	90	12	
4HEMG 120 500 S12	12	50	100	12	
4HEMG 160 350 S16	16	35	90	16	
4HEMG 160 500 S16	16	50	110	16	
4HEMG 200 400 S20	20	40	100	20	
4HEMG 200 500 S20	20	50	110	20	

2CREG

2 Flutes Rib Corner Radius End Mills for Generality

2날 중저경도용 리브 코너 레디우스 엔드밀



2 | UWC 초미립자 | ALCRN Coating | R ±0.005 | R ±0.01 | 35° Helix Angle

Ø0.2 ~ Ø6 Ø8 ~ Ø16

- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 002 0002 010	0.2 X R0.02	0.2	1	40	4	
2CREG 002 0002 015	0.2 X R0.02	0.2	1.5	40	4	
2CREG 002 0005 010	0.2 X R0.05	0.2	1	40	4	
2CREG 002 0005 015	0.2 X R0.05	0.2	1.5	40	4	
2CREG 003 0005 010	0.3 X R0.05	0.3	1	40	4	
2CREG 003 0005 020	0.3 X R0.05	0.3	2	40	4	
2CREG 003 0005 030	0.3 X R0.05	0.3	3	40	4	
2CREG 004 0005 010	0.4 X R0.05	0.5	1	40	4	
2CREG 004 0005 020	0.4 X R0.05	0.5	2	40	4	
2CREG 004 0005 030	0.4 X R0.05	0.5	3	40	4	
2CREG 004 0005 040	0.4 X R0.05	0.5	4	40	4	
2CREG 004 001 010	0.4 X R0.1	0.5	1	40	4	
2CREG 004 001 015	0.4 X R0.1	0.5	1.5	40	4	
2CREG 004 001 020	0.4 X R0.1	0.5	2	40	4	
2CREG 004 001 030	0.4 X R0.1	0.5	3	40	4	
2CREG 004 001 040	0.4 X R0.1	0.5	4	40	4	
2CREG 005 0005 010	0.5 X R0.05	0.6	1	45	4	
2CREG 005 0005 015	0.5 X R0.05	0.6	1.5	45	4	
2CREG 005 0005 020	0.5 X R0.05	0.6	2	45	4	
2CREG 005 0005 025	0.5 X R0.05	0.6	2.5	45	4	
2CREG 005 0005 030	0.5 X R0.05	0.6	3	45	4	
2CREG 005 0005 040	0.5 X R0.05	0.6	4	45	4	
2CREG 005 0005 050	0.5 X R0.05	0.6	5	45	4	
2CREG 005 0005 060	0.5 X R0.05	0.6	6	45	4	
2CREG 005 001 010	0.5 X R0.1	0.6	1	45	4	
2CREG 005 001 015	0.5 X R0.1	0.6	1.5	45	4	
2CREG 005 001 020	0.5 X R0.1	0.6	2	45	4	
2CREG 005 001 025	0.5 X R0.1	0.6	2.5	45	4	
2CREG 005 001 030	0.5 X R0.1	0.6	3	45	4	
2CREG 005 001 040	0.5 X R0.1	0.6	4	45	4	
2CREG 005 001 050	0.5 X R0.1	0.6	5	45	4	
2CREG 005 001 060	0.5 X R0.1	0.6	6	45	4	
2CREG 006 0005 020	0.6 X R0.05	0.7	2	45	4	
2CREG 006 0005 030	0.6 X R0.05	0.7	3	45	4	
2CREG 006 0005 040	0.6 X R0.05	0.7	4	45	4	
2CREG 006 0005 060	0.6 X R0.05	0.7	6	45	4	
2CREG 006 0005 080	0.6 X R0.05	0.7	8	45	4	
2CREG 006 001 020	0.6 X R0.1	0.7	2	45	4	
2CREG 006 001 030	0.6 X R0.1	0.7	3	45	4	
2CREG 006 001 040	0.6 X R0.1	0.7	4	45	4	
2CREG 006 001 060	0.6 X R0.1	0.7	6	45	4	
2CREG 006 001 080	0.6 X R0.1	0.7	8	45	4	
2CREG 007 001 020	0.7 X R0.1	0.8	2	45	4	
2CREG 007 001 040	0.7 X R0.1	0.8	4	45	4	
2CREG 007 001 060	0.7 X R0.1	0.8	6	45	4	
2CREG 008 001 020	0.8 X R0.1	0.9	2	45	4	
2CREG 008 001 040	0.8 X R0.1	0.9	4	45	4	
2CREG 008 001 060	0.8 X R0.1	0.9	6	45	4	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 008 001 080	0.8 X R0.1	0.9	8	45	4	
2CREG 008 002 020	0.8 X R0.2	0.9	2	45	4	
2CREG 008 002 040	0.8 X R0.2	0.9	4	45	4	
2CREG 008 002 060	0.8 X R0.2	0.9	6	45	4	
2CREG 008 002 080	0.8 X R0.2	0.9	8	45	4	
2CREG 010 001 040	1 X R0.1	1.2	4	45	4	
2CREG 010 001 060	1 X R0.1	1.2	6	45	4	
2CREG 010 001 080	1 X R0.1	1.2	8	45	4	
2CREG 010 001 100	1 X R0.1	1.2	10	50	4	
2CREG 010 001 120	1 X R0.1	1.2	12	50	4	
2CREG 010 001 160	1 X R0.1	1.2	16	50	4	
2CREG 010 001 200	1 X R0.1	1.2	20	50	4	
2CREG 010 002 040	1 X R0.2	1.2	4	45	4	
2CREG 010 002 060	1 X R0.2	1.2	6	45	4	
2CREG 010 002 080	1 X R0.2	1.2	8	45	4	
2CREG 010 002 100	1 X R0.2	1.2	10	50	4	
2CREG 010 002 120	1 X R0.2	1.2	12	50	4	
2CREG 010 002 160	1 X R0.2	1.2	16	50	4	
2CREG 010 002 200	1 X R0.2	1.2	20	50	4	
2CREG 010 003 040	1 X R0.3	1.2	4	45	4	
2CREG 010 003 060	1 X R0.3	1.2	6	45	4	
2CREG 010 003 080	1 X R0.3	1.2	8	45	4	
2CREG 010 003 100	1 X R0.3	1.2	10	50	4	
2CREG 010 003 120	1 X R0.3	1.2	12	50	4	
2CREG 010 003 160	1 X R0.3	1.2	16	50	4	
2CREG 010 003 200	1 X R0.3	1.2	20	50	4	
2CREG 012 001 040	1.2 X R0.1	1.4	4	45	4	
2CREG 012 001 060	1.2 X R0.1	1.4	6	45	4	
2CREG 012 001 080	1.2 X R0.1	1.4	8	45	4	
2CREG 012 001 100	1.2 X R0.1	1.4	10	50	4	
2CREG 012 001 120	1.2 X R0.1	1.4	12	50	4	
2CREG 012 001 160	1.2 X R0.1	1.4	16	50	4	
2CREG 012 001 200	1.2 X R0.1	1.4	20	50	4	
2CREG 012 002 040	1.2 X R0.2	1.4	4	45	4	
2CREG 012 002 060	1.2 X R0.2	1.4	6	45	4	
2CREG 012 002 080	1.2 X R0.2	1.4	8	45	4	
2CREG 012 002 100	1.2 X R0.2	1.4	10	50	4	
2CREG 012 002 120	1.2 X R0.2	1.4	12	50	4	
2CREG 012 002 160	1.2 X R0.2	1.4	16	50	4	
2CREG 012 002 200	1.2 X R0.2	1.4	20	50	4	
2CREG 012 003 040	1.2 X R0.3	1.4	4	45	4	
2CREG 012 003 060	1.2 X R0.3	1.4	6	45	4	
2CREG 012 003 080	1.2 X R0.3	1.4	8	45	4	
2CREG 012 003 100	1.2 X R0.3	1.4	10	50	4	
2CREG 012 003 120	1.2 X R0.3	1.4	12	50	4	
2CREG 012 003 160	1.2 X R0.3	1.4	16	50	4	
2CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
2CREG 015 001 040	1.5 X R0.1	1.8	4	45	4	

2CREG

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단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 015 001 060	1.5 X R0.1	1.8	6	45	4	
2CREG 015 001 080	1.5 X R0.1	1.8	8	45	4	
2CREG 015 001 100	1.5 X R0.1	1.8	10	50	4	
2CREG 015 001 120	1.5 X R0.1	1.8	12	50	4	
2CREG 015 001 160	1.5 X R0.1	1.8	16	50	4	
2CREG 015 001 200	1.5 X R0.1	1.8	20	50	4	
2CREG 015 001 220	1.5 X R0.1	1.8	22	60	4	
2CREG 015 001 250	1.5 X R0.1	1.8	25	60	4	
2CREG 015 002 040	1.5 X R0.2	1.8	4	45	4	
2CREG 015 002 060	1.5 X R0.2	1.8	6	45	4	
2CREG 015 002 080	1.5 X R0.2	1.8	8	45	4	
2CREG 015 002 100	1.5 X R0.2	1.8	10	50	4	
2CREG 015 002 120	1.5 X R0.2	1.8	12	50	4	
2CREG 015 002 160	1.5 X R0.2	1.8	16	50	4	
2CREG 015 002 200	1.5 X R0.2	1.8	20	50	4	
2CREG 015 002 220	1.5 X R0.2	1.8	22	60	4	
2CREG 015 002 250	1.5 X R0.2	1.8	25	60	4	
2CREG 015 003 040	1.5 X R0.3	1.8	4	45	4	
2CREG 015 003 060	1.5 X R0.3	1.8	6	45	4	
2CREG 015 003 080	1.5 X R0.3	1.8	8	45	4	
2CREG 015 003 100	1.5 X R0.3	1.8	10	50	4	
2CREG 015 003 120	1.5 X R0.3	1.8	12	50	4	
2CREG 015 003 160	1.5 X R0.3	1.8	16	50	4	
2CREG 015 003 200	1.5 X R0.3	1.8	20	50	4	
2CREG 015 003 220	1.5 X R0.3	1.8	22	60	4	
2CREG 015 003 250	1.5 X R0.3	1.8	25	60	4	
2CREG 015 005 040	1.5 X R0.5	1.8	4	45	4	
2CREG 015 005 060	1.5 X R0.5	1.8	6	45	4	
2CREG 015 005 080	1.5 X R0.5	1.8	8	45	4	
2CREG 015 005 100	1.5 X R0.5	1.8	10	50	4	
2CREG 015 005 120	1.5 X R0.5	1.8	12	50	4	
2CREG 015 005 160	1.5 X R0.5	1.8	16	50	4	
2CREG 015 005 200	1.5 X R0.5	1.8	20	50	4	
2CREG 015 005 220	1.5 X R0.5	1.8	22	60	4	
2CREG 015 005 250	1.5 X R0.5	1.8	25	60	4	
2CREG 020 001 060	2 X R0.1	2.4	6	45	4	
2CREG 020 001 080	2 X R0.1	2.4	8	45	4	
2CREG 020 001 100	2 X R0.1	2.4	10	50	4	
2CREG 020 001 120	2 X R0.1	2.4	12	50	4	
2CREG 020 001 160	2 X R0.1	2.4	16	50	4	
2CREG 020 001 200	2 X R0.1	2.4	20	50	4	
2CREG 020 001 250	2 X R0.1	2.4	25	60	4	
2CREG 020 001 300	2 X R0.1	2.4	30	70	4	
2CREG 020 002 060	2 X R0.2	2.4	6	45	4	
2CREG 020 002 080	2 X R0.2	2.4	8	45	4	
2CREG 020 002 100	2 X R0.2	2.4	10	50	4	
2CREG 020 002 120	2 X R0.2	2.4	12	50	4	
2CREG 020 002 160	2 X R0.2	2.4	16	50	4	
2CREG 020 002 200	2 X R0.2	2.4	20	50	4	
2CREG 020 002 250	2 X R0.2	2.4	25	60	4	
2CREG 020 002 300	2 X R0.2	2.4	30	70	4	
2CREG 020 003 060	2 X R0.3	2.4	6	45	4	
2CREG 020 003 080	2 X R0.3	2.4	8	45	4	
2CREG 020 003 100	2 X R0.3	2.4	10	50	4	
2CREG 020 003 120	2 X R0.3	2.4	12	50	4	
2CREG 020 003 160	2 X R0.3	2.4	16	50	4	
2CREG 020 003 200	2 X R0.3	2.4	20	50	4	
2CREG 020 003 250	2 X R0.3	2.4	25	60	4	
2CREG 020 003 300	2 X R0.3	2.4	30	70	4	
2CREG 020 005 060	2 X R0.5	2.4	6	45	4	
2CREG 020 005 080	2 X R0.5	2.4	8	45	4	
2CREG 020 005 100	2 X R0.5	2.4	10	50	4	
2CREG 020 005 120	2 X R0.5	2.4	12	50	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 020 005 160	2 X R0.5	2.4	16	50	4	
2CREG 020 005 200	2 X R0.5	2.4	20	50	4	
2CREG 020 005 250	2 X R0.5	2.4	25	60	4	
2CREG 020 005 300	2 X R0.5	2.4	30	70	4	
2CREG 025 001 100	2.5 X R0.1	3	10	50	4	
2CREG 025 001 160	2.5 X R0.1	3	16	50	4	
2CREG 025 001 200	2.5 X R0.1	3	20	50	4	
2CREG 025 001 250	2.5 X R0.1	3	25	60	4	
2CREG 025 001 300	2.5 X R0.1	3	30	70	4	
2CREG 025 002 100	2.5 X R0.2	3	10	50	4	
2CREG 025 002 160	2.5 X R0.2	3	16	50	4	
2CREG 025 002 200	2.5 X R0.2	3	20	50	4	
2CREG 025 002 250	2.5 X R0.2	3	25	60	4	
2CREG 025 002 300	2.5 X R0.2	3	30	70	4	
2CREG 025 003 100	2.5 X R0.3	3	10	50	4	
2CREG 025 003 160	2.5 X R0.3	3	16	50	4	
2CREG 025 003 200	2.5 X R0.3	3	20	50	4	
2CREG 025 003 250	2.5 X R0.3	3	25	60	4	
2CREG 025 003 300	2.5 X R0.3	3	30	70	4	
2CREG 025 005 100	2.5 X R0.5	3	10	50	4	
2CREG 025 005 160	2.5 X R0.5	3	16	50	4	
2CREG 025 005 200	2.5 X R0.5	3	20	50	4	
2CREG 025 005 250	2.5 X R0.5	3	25	60	4	
2CREG 025 005 300	2.5 X R0.5	3	30	70	4	
2CREG 030 001 100	3 X R0.1	3.6	10	50	6	
2CREG 030 001 120	3 X R0.1	3.6	12	50	6	
2CREG 030 001 160	3 X R0.1	3.6	16	55	6	
2CREG 030 001 200	3 X R0.1	3.6	20	60	6	
2CREG 030 001 250	3 X R0.1	3.6	25	65	6	
2CREG 030 001 300	3 X R0.1	3.6	30	70	6	
2CREG 030 001 350	3 X R0.1	3.6	35	75	6	
2CREG 030 001 400	3 X R0.1	3.6	40	80	6	
2CREG 030 002 100	3 X R0.2	3.6	10	50	6	
2CREG 030 002 120	3 X R0.2	3.6	12	50	6	
2CREG 030 002 160	3 X R0.2	3.6	16	55	6	
2CREG 030 002 200	3 X R0.2	3.6	20	60	6	
2CREG 030 002 250	3 X R0.2	3.6	25	65	6	
2CREG 030 002 300	3 X R0.2	3.6	30	70	6	
2CREG 030 002 350	3 X R0.2	3.6	35	75	6	
2CREG 030 002 400	3 X R0.2	3.6	40	80	6	
2CREG 030 003 100	3 X R0.3	3.6	10	50	6	
2CREG 030 003 120	3 X R0.3	3.6	12	50	6	
2CREG 030 003 160	3 X R0.3	3.6	16	55	6	
2CREG 030 003 200	3 X R0.3	3.6	20	60	6	
2CREG 030 003 250	3 X R0.3	3.6	25	65	6	
2CREG 030 003 300	3 X R0.3	3.6	30	70	6	
2CREG 030 003 350	3 X R0.3	3.6	35	75	6	
2CREG 030 003 400	3 X R0.3	3.6	40	80	6	
2CREG 030 005 100	3 X R0.5	3.6	10	50	6	
2CREG 030 005 120	3 X R0.5	3.6	12	50	6	
2CREG 030 005 160	3 X R0.5	3.6	16	55	6	
2CREG 030 005 200	3 X R0.5	3.6	20	60	6	
2CREG 030 005 250	3 X R0.5	3.6	25	65	6	
2CREG 030 005 300	3 X R0.5	3.6	30	70	6	
2CREG 030 005 350	3 X R0.5	3.6	35	75	6	
2CREG 030 005 400	3 X R0.5	3.6	40	80	6	
2CREG 030 010 100	3 X R1	3.6	10	50	6	
2CREG 030 010 120	3 X R1	3.6	12	50	6	
2CREG 030 010 160	3 X R1	3.6	16	55	6	
2CREG 030 010 200	3 X R1	3.6	20	60	6	
2CREG 030 010 250	3 X R1	3.6	25	65	6	
2CREG 030 010 300	3 X R1	3.6	30	70	6	
2CREG 030 010 350	3 X R1	3.6	35	75	6	

2CREG

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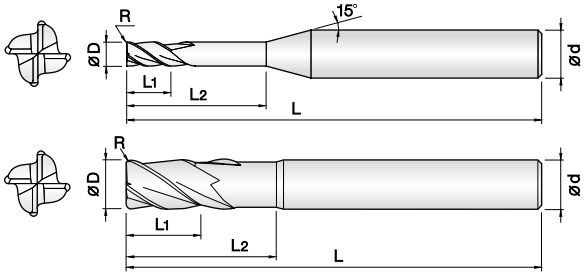
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 030 010 400	3 X R1	3.6	40	80	6	
2CREG 040 001 050	4 X R0.1	4.8	12	50	4	
2CREG 040 001 070	4 X R0.1	4.8	20	70	4	
2CREG 040 001 120	4 X R0.1	4.8	12	50	6	
2CREG 040 001 160	4 X R0.1	4.8	16	55	6	
2CREG 040 001 200	4 X R0.1	4.8	20	60	6	
2CREG 040 001 250	4 X R0.1	4.8	25	65	6	
2CREG 040 001 300	4 X R0.1	4.8	30	70	6	
2CREG 040 001 350	4 X R0.1	4.8	35	75	6	
2CREG 040 001 400	4 X R0.1	4.8	40	80	6	
2CREG 040 001 450	4 X R0.1	4.8	45	90	6	
2CREG 040 001 500	4 X R0.1	4.8	50	100	6	
2CREG 040 002 050	4 X R0.2	4.8	12	50	4	
2CREG 040 002 070	4 X R0.2	4.8	20	70	4	
2CREG 040 002 120	4 X R0.2	4.8	12	50	6	
2CREG 040 002 160	4 X R0.2	4.8	16	55	6	
2CREG 040 002 200	4 X R0.2	4.8	20	60	6	
2CREG 040 002 250	4 X R0.2	4.8	25	65	6	
2CREG 040 002 300	4 X R0.2	4.8	30	70	6	
2CREG 040 002 350	4 X R0.2	4.8	35	75	6	
2CREG 040 002 400	4 X R0.2	4.8	40	80	6	
2CREG 040 002 450	4 X R0.2	4.8	45	90	6	
2CREG 040 002 500	4 X R0.2	4.8	50	100	6	
2CREG 040 003 050	4 X R0.3	4.8	12	50	4	
2CREG 040 003 070	4 X R0.3	4.8	20	70	4	
2CREG 040 003 120	4 X R0.3	4.8	12	50	6	
2CREG 040 003 160	4 X R0.3	4.8	16	55	6	
2CREG 040 003 200	4 X R0.3	4.8	20	60	6	
2CREG 040 003 250	4 X R0.3	4.8	25	65	6	
2CREG 040 003 300	4 X R0.3	4.8	30	70	6	
2CREG 040 003 350	4 X R0.3	4.8	35	75	6	
2CREG 040 003 400	4 X R0.3	4.8	40	80	6	
2CREG 040 003 450	4 X R0.3	4.8	45	90	6	
2CREG 040 003 500	4 X R0.3	4.8	50	100	6	
2CREG 040 005 050	4 X R0.5	4.8	12	50	4	
2CREG 040 005 070	4 X R0.5	4.8	20	70	4	
2CREG 040 005 120	4 X R0.5	4.8	12	50	6	
2CREG 040 005 160	4 X R0.5	4.8	16	55	6	
2CREG 040 005 200	4 X R0.5	4.8	20	60	6	
2CREG 040 005 250	4 X R0.5	4.8	25	65	6	
2CREG 040 005 300	4 X R0.5	4.8	30	70	6	
2CREG 040 005 350	4 X R0.5	4.8	35	75	6	
2CREG 040 005 400	4 X R0.5	4.8	40	80	6	
2CREG 040 005 450	4 X R0.5	4.8	45	90	6	
2CREG 040 005 500	4 X R0.5	4.8	50	100	6	
2CREG 040 010 050	4 X R1	4.8	12	50	4	
2CREG 040 010 070	4 X R1	4.8	20	70	4	
2CREG 040 010 120	4 X R1	4.8	12	50	6	
2CREG 040 010 160	4 X R1	4.8	16	55	6	
2CREG 040 010 200	4 X R1	4.8	20	60	6	
2CREG 040 010 250	4 X R1	4.8	25	65	6	
2CREG 040 010 300	4 X R1	4.8	30	70	6	
2CREG 040 010 350	4 X R1	4.8	35	75	6	
2CREG 040 010 400	4 X R1	4.8	40	80	6	
2CREG 040 010 450	4 X R1	4.8	45	90	6	
2CREG 040 010 500	4 X R1	4.8	50	100	6	
2CREG 050 002 150	5 X R0.2	6	15	55	6	
2CREG 050 002 250	5 X R0.2	6	25	70	6	
2CREG 050 002 300	5 X R0.2	6	30	70	6	
2CREG 050 002 400	5 X R0.2	6	40	80	6	
2CREG 050 002 500	5 X R0.2	6	50	100	6	
2CREG 050 005 150	5 X R0.5	6	15	55	6	
2CREG 050 005 250	5 X R0.5	6	25	70	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CREG 050 005 300	5 X R0.5	6	30	70	6	
2CREG 050 005 400	5 X R0.5	6	40	80	6	
2CREG 050 005 500	5 X R0.5	6	50	100	6	
2CREG 050 010 150	5 X R1	6	15	55	6	
2CREG 050 010 250	5 X R1	6	25	70	6	
2CREG 050 010 300	5 X R1	6	30	70	6	
2CREG 050 010 400	5 X R1	6	40	80	6	
2CREG 050 010 500	5 X R1	6	50	100	6	
2CREG 060 001 200	6 X R0.1	7	20	60	6	
2CREG 060 001 400	6 X R0.1	7	40	90	6	
2CREG 060 002 200	6 X R0.2	7	20	60	6	
2CREG 060 002 400	6 X R0.2	7	40	90	6	
2CREG 060 003 200	6 X R0.3	7	20	60	6	
2CREG 060 003 400	6 X R0.3	7	40	90	6	
2CREG 060 005 200	6 X R0.5	7	20	60	6	
2CREG 060 005 400	6 X R0.5	7	40	90	6	
2CREG 060 010 200	6 X R1	7	20	60	6	
2CREG 060 010 400	6 X R1	7	40	90	6	
2CREG 060 015 200	6 X R1.5	7	20	60	6	
2CREG 060 015 400	6 X R1.5	7	40	90	6	
2CREG 080 002 220	8 X R0.2	9	22	65	8	
2CREG 080 002 400	8 X R0.2	9	40	100	8	
2CREG 080 003 220	8 X R0.3	9	22	65	8	
2CREG 080 003 400	8 X R0.3	9	40	100	8	
2CREG 080 005 220	8 X R0.5	9	22	65	8	
2CREG 080 005 400	8 X R0.5	9	40	100	8	
2CREG 080 010 220	8 X R1	9	22	65	8	
2CREG 080 010 400	8 X R1	9	40	100	8	
2CREG 080 015 220	8 X R1.5	9	22	65	8	
2CREG 080 015 400	8 X R1.5	9	40	100	8	
2CREG 100 002 240	10 X R0.2	11	24	70	10	
2CREG 100 002 450	10 X R0.2	11	45	100	10	
2CREG 100 003 240	10 X R0.3	11	24	70	10	
2CREG 100 003 450	10 X R0.3	11	45	100	10	
2CREG 100 005 240	10 X R0.5	11	24	70	10	
2CREG 100 005 450	10 X R0.5	11	45	100	10	
2CREG 100 010 240	10 X R1	11	24	70	10	
2CREG 100 010 450	10 X R1	11	45	100	10	
2CREG 100 015 240	10 X R1.5	11	24	70	10	
2CREG 100 015 450	10 X R1.5	11	45	100	10	
2CREG 100 020 240	10 X R2	11	24	70	10	
2CREG 100 020 450	10 X R2	11	45	100	10	
2CREG 120 002 260	12 X R0.2	13	26	80	12	
2CREG 120 002 500	12 X R0.2	13	50	110	12	
2CREG 120 003 260	12 X R0.3	13	26	80	12	
2CREG 120 003 500	12 X R0.3	13	50	110	12	
2CREG 120 005 260	12 X R0.5	13	26	80	12	
2CREG 120 005 500	12 X R0.5	13	50	110	12	
2CREG 120 010 260	12 X R1	13	26	80	12	
2CREG 120 010 500	12 X R1	13	50	110	12	
2CREG 120 015 260	12 X R1.5	13	26	80	12	
2CREG 120 015 500	12 X R1.5	13	50	110	12	
2CREG 120 020 260	12 X R2	13	26	80	12	
2CREG 120 020 500	12 X R2	13	50	110	12	
2CREG 120 030 260	12 X R3	13	26	80	12	
2CREG 120 030 500	12 X R3	13	50	110	12	
2CREG 160 005 110	16 X R0.5	20	35	110	16	
2CREG 160 005 160	16 X R0.5	20	35	160	16	
2CREG 160 010 110	16 X R1	20	35	110	16	
2CREG 160 010 160	16 X R1	20	35	160	16	

4CREG

4 Flutes Rib Corner Radius End Mills for Generality

4날 중저경도용 리브 코너 레디우스 엔드밀



4 | UWC 초미립자 | ALCRN Coating | R ±0.005 | R ±0.01 | 35° Helix Angle

Ø1 ~ Ø6　Ø8 ~ Ø12

- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CREG 010 0005 040	1 X R0.05	1.2	4	45	4	
4CREG 010 0005 060	1 X R0.05	1.2	6	45	4	
4CREG 010 0005 080	1 X R0.05	1.2	8	45	4	
4CREG 010 0005 100	1 X R0.05	1.2	10	50	4	
4CREG 010 0005 120	1 X R0.05	1.2	12	50	4	
4CREG 010 0005 160	1 X R0.05	1.2	16	50	4	
4CREG 010 0005 200	1 X R0.05	1.2	20	50	4	
4CREG 010 001 040	1 X R0.1	1.2	4	45	4	
4CREG 010 001 060	1 X R0.1	1.2	6	45	4	
4CREG 010 001 080	1 X R0.1	1.2	8	45	4	
4CREG 010 001 100	1 X R0.1	1.2	10	50	4	
4CREG 010 001 120	1 X R0.1	1.2	12	50	4	
4CREG 010 001 160	1 X R0.1	1.2	16	50	4	
4CREG 010 001 200	1 X R0.1	1.2	20	50	4	
4CREG 010 002 040	1 X R0.2	1.2	4	45	4	
4CREG 010 002 060	1 X R0.2	1.2	6	45	4	
4CREG 010 002 080	1 X R0.2	1.2	8	45	4	
4CREG 010 002 100	1 X R0.2	1.2	10	50	4	
4CREG 010 002 120	1 X R0.2	1.2	12	50	4	
4CREG 010 002 160	1 X R0.2	1.2	16	50	4	
4CREG 010 002 200	1 X R0.2	1.2	20	50	4	
4CREG 010 003 040	1 X R0.3	1.2	4	45	4	
4CREG 010 003 060	1 X R0.3	1.2	6	45	4	
4CREG 010 003 080	1 X R0.3	1.2	8	45	4	
4CREG 010 003 100	1 X R0.3	1.2	10	50	4	
4CREG 010 003 120	1 X R0.3	1.2	12	50	4	
4CREG 010 003 160	1 X R0.3	1.2	16	50	4	
4CREG 010 003 200	1 X R0.3	1.2	20	50	4	
4CREG 012 001 040	1.2 X R0.1	1.4	4	45	4	
4CREG 012 001 060	1.2 X R0.1	1.4	6	45	4	
4CREG 012 001 080	1.2 X R0.1	1.4	8	45	4	
4CREG 012 001 100	1.2 X R0.1	1.4	10	50	4	
4CREG 012 001 120	1.2 X R0.1	1.4	12	50	4	
4CREG 012 001 160	1.2 X R0.1	1.4	16	50	4	
4CREG 012 001 200	1.2 X R0.1	1.4	20	50	4	
4CREG 012 002 040	1.2 X R0.2	1.4	4	45	4	
4CREG 012 002 060	1.2 X R0.2	1.4	6	45	4	
4CREG 012 002 080	1.2 X R0.2	1.4	8	45	4	
4CREG 012 002 100	1.2 X R0.2	1.4	10	50	4	
4CREG 012 002 120	1.2 X R0.2	1.4	12	50	4	
4CREG 012 002 160	1.2 X R0.2	1.4	16	50	4	
4CREG 012 002 200	1.2 X R0.2	1.4	20	50	4	
4CREG 012 003 040	1.2 X R0.3	1.4	4	45	4	
4CREG 012 003 060	1.2 X R0.3	1.4	6	45	4	
4CREG 012 003 080	1.2 X R0.3	1.4	8	45	4	
4CREG 012 003 100	1.2 X R0.3	1.4	10	50	4	
4CREG 012 003 120	1.2 X R0.3	1.4	12	50	4	
4CREG 012 003 160	1.2 X R0.3	1.4	16	50	4	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
4CREG 015 001 060	1.5 X R0.1	1.8	6	45	4	
4CREG 015 001 080	1.5 X R0.1	1.8	8	45	4	
4CREG 015 001 100	1.5 X R0.1	1.8	10	50	4	
4CREG 015 001 120	1.5 X R0.1	1.8	12	50	4	
4CREG 015 001 160	1.5 X R0.1	1.8	16	50	4	
4CREG 015 001 200	1.5 X R0.1	1.8	20	50	4	
4CREG 015 001 220	1.5 X R0.1	1.8	22	60	4	
4CREG 015 001 250	1.5 X R0.1	1.8	25	60	4	
4CREG 015 002 060	1.5 X R0.2	1.8	6	45	4	
4CREG 015 002 080	1.5 X R0.2	1.8	8	45	4	
4CREG 015 002 100	1.5 X R0.2	1.8	10	50	4	
4CREG 015 002 120	1.5 X R0.2	1.8	12	50	4	
4CREG 015 002 160	1.5 X R0.2	1.8	16	50	4	
4CREG 015 002 200	1.5 X R0.2	1.8	20	50	4	
4CREG 015 002 220	1.5 X R0.2	1.8	22	60	4	
4CREG 015 002 250	1.5 X R0.2	1.8	25	60	4	
4CREG 015 003 060	1.5 X R0.3	1.8	6	45	4	
4CREG 015 003 080	1.5 X R0.3	1.8	8	45	4	
4CREG 015 003 100	1.5 X R0.3	1.8	10	50	4	
4CREG 015 003 120	1.5 X R0.3	1.8	12	50	4	
4CREG 015 003 160	1.5 X R0.3	1.8	16	50	4	
4CREG 015 003 200	1.5 X R0.3	1.8	20	50	4	
4CREG 015 003 220	1.5 X R0.3	1.8	22	60	4	
4CREG 015 003 250	1.5 X R0.3	1.8	25	60	4	
4CREG 015 005 060	1.5 X R0.5	1.8	6	45	4	
4CREG 015 005 080	1.5 X R0.5	1.8	8	45	4	
4CREG 015 005 100	1.5 X R0.5	1.8	10	50	4	
4CREG 015 005 120	1.5 X R0.5	1.8	12	50	4	
4CREG 015 005 160	1.5 X R0.5	1.8	16	50	4	
4CREG 015 005 200	1.5 X R0.5	1.8	20	50	4	
4CREG 015 005 220	1.5 X R0.5	1.8	22	60	4	
4CREG 015 005 250	1.5 X R0.5	1.8	25	60	4	
4CREG 020 001 060	2 X R0.1	2.4	6	45	4	
4CREG 020 001 080	2 X R0.1	2.4	8	45	4	
4CREG 020 001 100	2 X R0.1	2.4	10	50	4	
4CREG 020 001 120	2 X R0.1	2.4	12	50	4	
4CREG 020 001 160	2 X R0.1	2.4	16	50	4	
4CREG 020 001 200	2 X R0.1	2.4	20	50	4	
4CREG 020 001 250	2 X R0.1	2.4	25	60	4	
4CREG 020 001 300	2 X R0.1	2.4	30	70	4	
4CREG 020 001 350	2 X R0.1	2.4	35	70	4	
4CREG 020 002 060	2 X R0.2	2.4	6	45	4	
4CREG 020 002 080	2 X R0.2	2.4	8	45	4	
4CREG 020 002 100	2 X R0.2	2.4	10	50	4	
4CREG 020 002 120	2 X R0.2	2.4	12	50	4	
4CREG 020 002 160	2 X R0.2	2.4	16	50	4	
4CREG 020 002 200	2 X R0.2	2.4	20	50	4	

4CREG

4 Flutes Rib Corner Radius End Mills for Generality

4날 중저경도용 리브 코너 레디우스 엔드밀

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CREG 020 002 250	2 X R0.2	2.4	25	60	4	
4CREG 020 002 300	2 X R0.2	2.4	30	70	4	
4CREG 020 002 350	2 X R0.2	2.4	35	70	4	
4CREG 020 003 060	2 X R0.3	2.4	6	45	4	
4CREG 020 003 080	2 X R0.3	2.4	8	45	4	
4CREG 020 003 100	2 X R0.3	2.4	10	50	4	
4CREG 020 003 120	2 X R0.3	2.4	12	50	4	
4CREG 020 003 160	2 X R0.3	2.4	16	50	4	
4CREG 020 003 200	2 X R0.3	2.4	20	50	4	
4CREG 020 003 250	2 X R0.3	2.4	25	60	4	
4CREG 020 003 300	2 X R0.3	2.4	30	70	4	
4CREG 020 003 350	2 X R0.3	2.4	35	70	4	
4CREG 020 005 060	2 X R0.5	2.4	6	45	4	
4CREG 020 005 080	2 X R0.5	2.4	8	45	4	
4CREG 020 005 100	2 X R0.5	2.4	10	50	4	
4CREG 020 005 120	2 X R0.5	2.4	12	50	4	
4CREG 020 005 160	2 X R0.5	2.4	16	50	4	
4CREG 020 005 200	2 X R0.5	2.4	20	50	4	
4CREG 020 005 250	2 X R0.5	2.4	25	60	4	
4CREG 020 005 300	2 X R0.5	2.4	30	70	4	
4CREG 020 005 350	2 X R0.5	2.4	35	70	4	
4CREG 025 001 100	2.5 X R0.1	3	10	50	4	
4CREG 025 001 160	2.5 X R0.1	3	16	50	4	
4CREG 025 001 200	2.5 X R0.1	3	20	50	4	
4CREG 025 001 250	2.5 X R0.1	3	25	60	4	
4CREG 025 001 300	2.5 X R0.1	3	30	70	4	
4CREG 025 002 100	2.5 X R0.2	3	10	50	4	
4CREG 025 002 160	2.5 X R0.2	3	16	50	4	
4CREG 025 002 200	2.5 X R0.2	3	20	50	4	
4CREG 025 002 250	2.5 X R0.2	3	25	60	4	
4CREG 025 002 300	2.5 X R0.2	3	30	70	4	
4CREG 025 003 100	2.5 X R0.3	3	10	50	4	
4CREG 025 003 160	2.5 X R0.3	3	16	50	4	
4CREG 025 003 200	2.5 X R0.3	3	20	50	4	
4CREG 025 003 250	2.5 X R0.3	3	25	60	4	
4CREG 025 003 300	2.5 X R0.3	3	30	70	4	
4CREG 025 005 100	2.5 X R0.5	3	10	50	4	
4CREG 025 005 160	2.5 X R0.5	3	16	50	4	
4CREG 025 005 200	2.5 X R0.5	3	20	50	4	
4CREG 025 005 250	2.5 X R0.5	3	25	60	4	
4CREG 025 005 300	2.5 X R0.5	3	30	70	4	
4CREG 030 001 100	3 X R0.1	3.6	10	50	6	
4CREG 030 001 160	3 X R0.1	3.6	16	55	6	
4CREG 030 001 200	3 X R0.1	3.6	20	60	6	
4CREG 030 001 250	3 X R0.1	3.6	25	65	6	
4CREG 030 001 300	3 X R0.1	3.6	30	70	6	
4CREG 030 001 350	3 X R0.1	3.6	35	75	6	
4CREG 030 001 400	3 X R0.1	3.6	40	80	6	
4CREG 030 001 500	3 X R0.1	3.6	50	100	6	
4CREG 030 002 100	3 X R0.2	3.6	10	50	6	
4CREG 030 002 160	3 X R0.2	3.6	16	55	6	
4CREG 030 002 200	3 X R0.2	3.6	20	60	6	
4CREG 030 002 250	3 X R0.2	3.6	25	65	6	
4CREG 030 002 300	3 X R0.2	3.6	30	70	6	
4CREG 030 002 350	3 X R0.2	3.6	35	75	6	
4CREG 030 002 400	3 X R0.2	3.6	40	80	6	
4CREG 030 002 500	3 X R0.2	3.6	50	100	6	
4CREG 030 003 100	3 X R0.3	3.6	10	50	6	
4CREG 030 003 160	3 X R0.3	3.6	16	55	6	
4CREG 030 003 200	3 X R0.3	3.6	20	60	6	
4CREG 030 003 250	3 X R0.3	3.6	25	65	6	
4CREG 030 003 300	3 X R0.3	3.6	30	70	6	
4CREG 030 003 350	3 X R0.3	3.6	35	75	6	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CREG 030 003 400	3 X R0.3	3.6	40	80	6	
4CREG 030 003 500	3 X R0.3	3.6	50	100	6	
4CREG 030 005 100	3 X R0.5	3.6	10	50	6	
4CREG 030 005 160	3 X R0.5	3.6	16	55	6	
4CREG 030 005 200	3 X R0.5	3.6	20	60	6	
4CREG 030 005 250	3 X R0.5	3.6	25	65	6	
4CREG 030 005 300	3 X R0.5	3.6	30	70	6	
4CREG 030 005 350	3 X R0.5	3.6	35	75	6	
4CREG 030 005 400	3 X R0.5	3.6	40	80	6	
4CREG 030 005 500	3 X R0.5	3.6	50	100	6	
4CREG 030 010 100	3 X R1	3.6	10	50	6	
4CREG 030 010 160	3 X R1	3.6	16	55	6	
4CREG 030 010 200	3 X R1	3.6	20	60	6	
4CREG 030 010 250	3 X R1	3.6	25	65	6	
4CREG 030 010 300	3 X R1	3.6	30	70	6	
4CREG 030 010 350	3 X R1	3.6	35	75	6	
4CREG 030 010 400	3 X R1	3.6	40	80	6	
4CREG 030 010 500	3 X R1	3.6	50	100	6	
4CREG 040 001 050	4 X R0.1	4.8	12	50	4	
4CREG 040 001 070	4 X R0.1	4.8	20	70	4	
4CREG 040 001 120	4 X R0.1	4.8	12	50	6	
4CREG 040 001 160	4 X R0.1	4.8	16	55	6	
4CREG 040 001 200	4 X R0.1	4.8	20	60	6	
4CREG 040 001 250	4 X R0.1	4.8	25	65	6	
4CREG 040 001 300	4 X R0.1	4.8	30	70	6	
4CREG 040 001 350	4 X R0.1	4.8	35	75	6	
4CREG 040 001 400	4 X R0.1	4.8	40	80	6	
4CREG 040 001 450	4 X R0.1	4.8	45	90	6	
4CREG 040 001 500	4 X R0.1	4.8	50	100	6	
4CREG 040 002 050	4 X R0.2	4.8	12	50	4	
4CREG 040 002 070	4 X R0.2	4.8	20	70	4	
4CREG 040 002 120	4 X R0.2	4.8	12	50	6	
4CREG 040 002 160	4 X R0.2	4.8	16	55	6	
4CREG 040 002 200	4 X R0.2	4.8	20	60	6	
4CREG 040 002 250	4 X R0.2	4.8	25	65	6	
4CREG 040 002 300	4 X R0.2	4.8	30	70	6	
4CREG 040 002 350	4 X R0.2	4.8	35	75	6	
4CREG 040 002 400	4 X R0.2	4.8	40	80	6	
4CREG 040 002 450	4 X R0.2	4.8	45	90	6	
4CREG 040 002 500	4 X R0.2	4.8	50	100	6	
4CREG 040 003 050	4 X R0.3	4.8	12	50	4	
4CREG 040 003 070	4 X R0.3	4.8	20	70	4	
4CREG 040 003 120	4 X R0.3	4.8	12	50	6	
4CREG 040 003 160	4 X R0.3	4.8	16	55	6	
4CREG 040 003 200	4 X R0.3	4.8	20	60	6	
4CREG 040 003 250	4 X R0.3	4.8	25	65	6	
4CREG 040 003 300	4 X R0.3	4.8	30	70	6	
4CREG 040 003 350	4 X R0.3	4.8	35	75	6	
4CREG 040 003 400	4 X R0.3	4.8	40	80	6	
4CREG 040 003 450	4 X R0.3	4.8	45	90	6	
4CREG 040 003 500	4 X R0.3	4.8	50	100	6	
4CREG 040 005 050	4 X R0.5	4.8	12	50	4	
4CREG 040 005 070	4 X R0.5	4.8	20	70	4	
4CREG 040 005 120	4 X R0.5	4.8	12	50	6	
4CREG 040 005 160	4 X R0.5	4.8	16	55	6	
4CREG 040 005 200	4 X R0.5	4.8	20	60	6	
4CREG 040 005 250	4 X R0.5	4.8	25	65	6	
4CREG 040 005 300	4 X R0.5	4.8	30	70	6	
4CREG 040 005 350	4 X R0.5	4.8	35	75	6	
4CREG 040 005 400	4 X R0.5	4.8	40	80	6	
4CREG 040 005 450	4 X R0.5	4.8	45	90	6	
4CREG 040 005 500	4 X R0.5	4.8	50	100	6	
4CREG 040 010 050	4 X R1	4.8	12	50	4	

4CREG

4 Flutes Rib Corner Radius End Mills for Generality

4날 중저경도용 리브 코너 레디우스 엔드밀

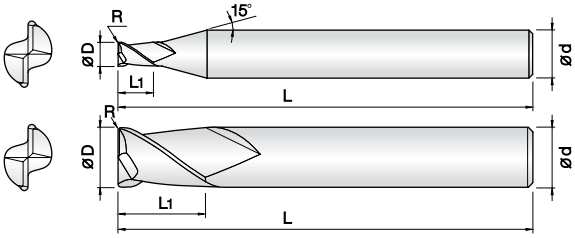
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4CREG 040 010 070	4 X R1	4.8	20	70	4	
4CREG 040 010 120	4 X R1	4.8	12	50	6	
4CREG 040 010 160	4 X R1	4.8	16	55	6	
4CREG 040 010 200	4 X R1	4.8	20	60	6	
4CREG 040 010 250	4 X R1	4.8	25	65	6	
4CREG 040 010 300	4 X R1	4.8	30	70	6	
4CREG 040 010 350	4 X R1	4.8	35	75	6	
4CREG 040 010 400	4 X R1	4.8	40	80	6	
4CREG 040 010 450	4 X R1	4.8	45	90	6	
4CREG 040 010 500	4 X R1	4.8	50	100	6	
4CREG 050 001 150	5 X R0.1	6	15	55	6	
4CREG 050 001 300	5 X R0.1	6	30	70	6	
4CREG 050 001 400	5 X R0.1	6	40	80	6	
4CREG 050 001 500	5 X R0.1	6	50	100	6	
4CREG 050 002 150	5 X R0.2	6	15	55	6	
4CREG 050 002 300	5 X R0.2	6	30	70	6	
4CREG 050 002 400	5 X R0.2	6	40	80	6	
4CREG 050 002 500	5 X R0.2	6	50	100	6	
4CREG 050 003 150	5 X R0.3	6	15	55	6	
4CREG 050 003 300	5 X R0.3	6	30	70	6	
4CREG 050 003 400	5 X R0.3	6	40	80	6	
4CREG 050 003 500	5 X R0.3	6	50	100	6	
4CREG 050 005 150	5 X R0.5	6	15	55	6	
4CREG 050 005 300	5 X R0.5	6	30	70	6	
4CREG 050 005 400	5 X R0.5	6	40	80	6	
4CREG 050 005 500	5 X R0.5	6	50	100	6	
4CREG 050 010 150	5 X R1	6	15	55	6	
4CREG 050 010 300	5 X R1	6	30	70	6	
4CREG 050 010 400	5 X R1	6	40	80	6	
4CREG 050 010 500	5 X R1	6	50	100	6	
4CREG 060 001 200	6 X R0.1	7	20	60	6	
4CREG 060 001 400	6 X R0.1	7	40	80	6	
4CREG 060 001 500	6 X R0.1	7	50	100	6	
4CREG 060 002 200	6 X R0.2	7	20	60	6	
4CREG 060 002 400	6 X R0.2	7	40	80	6	
4CREG 060 002 500	6 X R0.2	7	50	100	6	
4CREG 060 003 200	6 X R0.3	7	20	60	6	
4CREG 060 003 400	6 X R0.3	7	40	80	6	
4CREG 060 003 500	6 X R0.3	7	50	100	6	
4CREG 060 005 200	6 X R0.5	7	20	60	6	
4CREG 060 005 400	6 X R0.5	7	40	80	6	
4CREG 060 005 500	6 X R0.5	7	50	100	6	
4CREG 060 010 200	6 X R1	7	20	60	6	
4CREG 060 010 400	6 X R1	7	40	80	6	
4CREG 060 010 500	6 X R1	7	50	100	6	
4CREG 060 015 200	6 X R1.5	7	20	60	6	
4CREG 060 015 400	6 X R1.5	7	40	80	6	
4CREG 060 015 500	6 X R1.5	7	50	100	6	
4CREG 080 002 220	8 X R0.2	9	22	65	8	
4CREG 080 003 220	8 X R0.3	9	22	65	8	
4CREG 080 005 220	8 X R0.5	9	22	65	8	
4CREG 080 005 400	8 X R0.5	9	40	100	8	
4CREG 080 010 220	8 X R1	9	22	65	8	
4CREG 080 010 400	8 X R1	9	40	100	8	
4CREG 080 015 220	8 X R1.5	9	22	65	8	
4CREG 080 015400	8 X R1.5	9	40	100	8	
4CREG 080 020 220	8 X R2	9	22	65	8	
4CREG 100 002 240	10 X R0.2	11	24	70	10	
4CREG 100 003 240	10 X R0.3	11	24	70	10	
4CREG 100 005 240	10 X R0.5	11	24	70	10	
4CREG 100 005 400	10 X R0.5	11	40	100	10	
4CREG 100 010 240	10 X R1	11	24	70	10	
4CREG 100 010 400	10 X R1	11	40	100	10	
4CREG 100 015 240	10 X R1.5	11	24	70	10	
4CREG 100 015 400	10 X R1.5	11	40	100	10	
4CREG 100 020 240	10 X R2	11	24	70	10	
4CREG 100 025 240	10 X R2.5	11	24	70	10	
4CREG 120 003 260	12 X R0.3	13	26	80	12	
4CREG 120 005 260	12 X R0.5	13	26	80	12	
4CREG 120 005 400	12 X R0.5	13	40	110	12	
4CREG 120 010 260	12 X R1	13	26	80	12	
4CREG 120 010 400	12 X R1	13	40	110	12	
4CREG 120 015 260	12 X R1.5	13	26	80	12	
4CREG 120 015 400	12 X R1.5	13	40	110	12	
4CREG 120 020 260	12 X R2	13	26	80	12	
4CREG 120 030 260	12 X R3	13	26	80	12	

2NCRG

2 Flutes Corner Radius End Mills for Generality

2날 중저경도용 코너레디우스 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

2 | UWC 초미립자 | ALCRN Coating | R ±0.005 (Ø0.4 ~ Ø6) | R ±0.01 (Ø8 ~ Ø12) | 35° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2NCRG 004 0005 S04	0.4 X R0.05	0.8	45	4	
2NCRG 004 001 S04	0.4 X R0.1	0.8	45	4	
2NCRG 005 0005 S04	0.5 X R0.05	1	45	4	
2NCRG 005 001 S04	0.5 X R0.1	1	45	4	
2NCRG 006 0005 S04	0.6 X R0.05	1.2	45	4	
2NCRG 006 001 S04	0.6 X R0.1	1.2	45	4	
2NCRG 006 002 S04	0.6 X R0.2	1.2	45	4	
2NCRG 007 0005 S04	0.7 X R0.05	1.4	45	4	
2NCRG 007 001 S04	0.7 X R0.1	1.4	45	4	
2NCRG 007 002 S04	0.7 X R0.2	1.4	45	4	
2NCRG 008 0005 S04	0.8 X R0.05	1.6	45	4	
2NCRG 008 001 S04	0.8 X R0.1	1.6	45	4	
2NCRG 008 002 S04	0.8 X R0.2	1.6	45	4	
2NCRG 009 0005 S04	0.9 X R0.05	1.8	45	4	
2NCRG 009 001 S04	0.9 X R0.1	1.8	45	4	
2NCRG 010 001 S04	1 X R0.1	2.5	45	4	
2NCRG 010 002 S04	1 X R0.2	2.5	45	4	
2NCRG 010 003 S04	1 X R0.3	2.5	45	4	
2NCRG 012 001 S04	1.2 X R0.1	3.2	45	4	
2NCRG 012 002 S04	1.2 X R0.2	3.2	45	4	
2NCRG 012 003 S04	1.2 X R0.3	3.2	45	4	
2NCRG 015 001 S04	1.5 X R0.1	4	45	4	
2NCRG 015 002 S04	1.5 X R0.2	4	45	4	
2NCRG 015 003 S04	1.5 X R0.3	4	45	4	
2NCRG 015 005 S04	1.5 X R0.5	4	45	4	
2NCRG 020 001 S04	2 X R0.1	6	45	4	
2NCRG 020 002 S04	2 X R0.2	6	45	4	
2NCRG 020 003 S04	2 X R0.3	6	45	4	
2NCRG 020 005 S04	2 X R0.5	6	45	4	
2NCRG 025 001 S04	2.5 X R0.1	6	50	4	
2NCRG 025 002 S04	2.5 X R0.2	6	50	4	
2NCRG 025 003 S04	2.5 X R0.3	6	50	4	
2NCRG 025 005 S04	2.5 X R0.5	6	50	4	
2NCRG 030 001 S06	3 X R0.1	8	60	6	
2NCRG 030 002 S06	3 X R0.2	8	60	6	
2NCRG 030 003 S06	3 X R0.3	8	60	6	
2NCRG 030 005 S06	3 X R0.5	8	60	6	
2NCRG 030 010 S06	3 X R1	8	60	6	
2NCRG 040 001 060	4 X R0.1	9	60	4	
2NCRG 040 001 080	4 X R0.1	9	80	4	
2NCRG 040 001 S06	4 X R0.1	11	70	6	
2NCRG 040 002 060	4 X R0.2	9	60	4	
2NCRG 040 002 080	4 X R0.2	9	80	4	
2NCRG 040 002 S06	4 X R0.2	11	70	6	
2NCRG 040 003 060	4 X R0.3	9	60	4	
2NCRG 040 003 080	4 X R0.3	9	80	4	
2NCRG 040 003 S06	4 X R0.3	11	70	6	
2NCRG 040 005 060	4 X R0.5	9	60	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2NCRG 040 005 080	4 X R0.5	9	80	4	
2NCRG 040 005 S06	4 X R0.5	11	70	6	
2NCRG 040 010 060	4 X R1	9	60	4	
2NCRG 040 010 080	4 X R1	9	80	4	
2NCRG 040 010 S06	4 X R1	11	70	6	
2NCRG 050 001 S06	5 X R0.1	13	75	6	
2NCRG 050 002 S06	5 X R0.2	13	75	6	
2NCRG 050 003 S06	5 X R0.3	13	75	6	
2NCRG 050 005 S06	5 X R0.5	13	75	6	
2NCRG 050 010 S06	5 X R1	13	75	6	
2NCRG 060 001 060	6 X R0.1	11	60	6	
2NCRG 060 001 090	6 X R0.1	13	90	6	
2NCRG 060 002 060	6 X R0.2	11	60	6	
2NCRG 060 002 090	6 X R0.2	13	90	6	
2NCRG 060 003 060	6 X R0.3	11	60	6	
2NCRG 060 003 090	6 X R0.3	13	90	6	
2NCRG 060 005 060	6 X R0.5	11	60	6	
2NCRG 060 005 090	6 X R0.5	13	90	6	
2NCRG 060 010 060	6 X R1	11	60	6	
2NCRG 060 010 090	6 X R1	13	90	6	
2NCRG 060 015 060	6 X R1.5	11	60	6	
2NCRG 060 015 090	6 X R1.5	13	90	6	
2NCRG 060 020 060	6 X R2	11	60	6	
2NCRG 060 020 090	6 X R2	13	90	6	
2NCRG 060 025 090	6 X R2.5	13	90	6	
2NCRG 080 001 070	8 X R0.1	16	70	8	
2NCRG 080 001 100	8 X R0.1	19	100	8	
2NCRG 080 002 070	8 X R0.2	16	70	8	
2NCRG 080 002 100	8 X R0.2	19	100	8	
2NCRG 080 003 070	8 X R0.3	16	70	8	
2NCRG 080 003 100	8 X R0.3	19	100	8	
2NCRG 080 005 070	8 X R0.5	16	70	8	
2NCRG 080 005 100	8 X R0.5	19	100	8	
2NCRG 080 005 120	8 X R0.5	19	120	8	
2NCRG 080 010 070	8 X R1	16	70	8	
2NCRG 080 010 100	8 X R1	19	100	8	
2NCRG 080 010 120	8 X R1	19	120	8	
2NCRG 080 015 070	8 X R1.5	16	70	8	
2NCRG 080 015 100	8 X R1.5	19	100	8	
2NCRG 080 020 070	8 X R2	16	70	8	
2NCRG 080 020 100	8 X R2	19	100	8	
2NCRG 080 025 100	8 X R2.5	19	100	8	
2NCRG 080 030 100	8 X R3	19	100	8	
2NCRG 080 035 100	8 X R3.5	19	100	8	
2NCRG 100 001 075	10 X R0.1	19	75	10	
2NCRG 100 001 100	10 X R0.1	22	100	10	
2NCRG 100 002 075	10 X R0.2	19	75	10	
2NCRG 100 002 100	10 X R0.2	22	100	10	

2NCRG

2 Flutes Corner Radius End Mills for Generality

2날 중저경도용 코너 레디우스 엔드밀

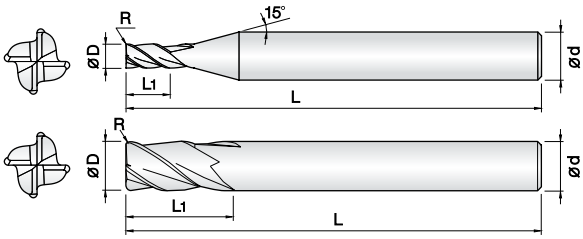
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2NCRG 100 003 075	10 X R0.3	19	75	10	
2NCRG 100 003 100	10 X R0.3	22	100	10	
2NCRG 100 005 075	10 X R0.5	19	75	10	
2NCRG 100 005 100	10 X R0.5	22	100	10	
2NCRG 100 005 130	10 X R0.5	22	130	10	
2NCRG 100 010 075	10 X R1	19	75	10	
2NCRG 100 010 100	10 X R1	22	100	10	
2NCRG 100 010 130	10 X R1	22	130	10	
2NCRG 100 015 075	10 X R1.5	19	75	10	
2NCRG 100 015 100	10 X R1.5	22	100	10	
2NCRG 100 015 130	10 X R1.5	22	130	10	
2NCRG 100 020 075	10 X R2	19	75	10	
2NCRG 100 020 100	10 X R2	22	100	10	
2NCRG 100 025 100	10 X R2.5	22	100	10	
2NCRG 100 030 100	10 X R3	22	100	10	
2NCRG 100 040 100	10 X R4	22	100	10	
2NCRG 120 001 080	12 X R0.1	22	80	12	
2NCRG 120 001 110	12 X R0.1	26	110	12	
2NCRG 120 002 080	12 X R0.2	22	80	12	
2NCRG 120 002 110	12 X R0.2	26	110	12	
2NCRG 120 003 080	12 X R0.3	22	80	12	
2NCRG 120 003 110	12 X R0.3	26	110	12	
2NCRG 120 005 080	12 X R0.5	22	80	12	
2NCRG 120 005 110	12 X R0.5	26	110	12	
2NCRG 120 005 130	12 X R0.5	26	130	12	
2NCRG 120 010 080	12 X R1	22	80	12	
2NCRG 120 010 110	12 X R1	26	110	12	
2NCRG 120 010 130	12 X R1	26	130	12	
2NCRG 120 015 080	12 X R1.5	22	80	12	
2NCRG 120 015 110	12 X R1.5	26	110	12	
2NCRG 120 015 130	12 X R1.5	26	130	12	
2NCRG 120 020 080	12 X R2	22	80	12	
2NCRG 120 020 110	12 X R2	26	110	12	
2NCRG 120 020 130	12 X R2	26	130	12	
2NCRG 120 025 110	12 X R2.5	26	110	12	
2NCRG 120 030 110	12 X R3	26	110	12	
2NCRG 120 040 110	12 X R4	26	110	12	
2NCRG 120 050 110	12 X R5	26	110	12	

4NCRG

4 Flutes Corner Radius End Mills for Generality

4날 중저경도용 코너 레디우스 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공**
- ALCRN 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 초경합금(0.5㎛)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 ALCRN coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Minimize fracturing by high TRS ultra fine(0.5㎛) WC grade.

Ø1 ~ Ø6 Ø8 ~ Ø16

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCRG 010 0005 S04	1 X R0.05	2.5	45	4	
4NCRG 010 001 S04	1 X R0.1	2.5	45	4	
4NCRG 010 002 S04	1 X R0.2	2.5	45	4	
4NCRG 010 003 S04	1 X R0.3	2.5	45	4	
4NCRG 015 0005 S04	1.5 X R0.05	4	45	4	
4NCRG 015 001 S04	1.5 X R0.1	4	45	4	
4NCRG 015 002 S04	1.5 X R0.2	4	45	4	
4NCRG 015 003 S04	1.5 X R0.3	4	45	4	
4NCRG 015 005 S04	1.5 X R0.5	4	45	4	
4NCRG 020 0005 S04	2 X R0.05	6	45	4	
4NCRG 020 001 S04	2 X R0.1	6	45	4	
4NCRG 020 002 S04	2 X R0.2	6	45	4	
4NCRG 020 003 S04	2 X R0.3	6	45	4	
4NCRG 020 005 S04	2 X R0.5	6	45	4	
4NCRG 025 001 S04	2.5 X R0.1	6	50	4	
4NCRG 025 002 S04	2.5 X R0.2	6	50	4	
4NCRG 025 003 S04	2.5 X R0.3	6	50	4	
4NCRG 025 005 S04	2.5 X R0.5	6	50	4	
4NCRG 030 001 S06	3 X R0.1	8	60	6	
4NCRG 030 002 S06	3 X R0.2	8	60	6	
4NCRG 030 003 S06	3 X R0.3	8	60	6	
4NCRG 030 005 S06	3 X R0.5	8	60	6	
4NCRG 030 010 S06	3 X R1	8	60	6	
4NCRG 040 001 060	4 X R0.1	9	60	4	
4NCRG 040 001 080	4 X R0.1	9	80	4	
4NCRG 040 001 S06	4 X R0.1	11	70	6	
4NCRG 040 002 060	4 X R0.2	9	60	4	
4NCRG 040 002 080	4 X R0.2	9	80	4	
4NCRG 040 002 S06	4 X R0.2	11	70	6	
4NCRG 040 003 060	4 X R0.3	9	60	4	
4NCRG 040 003 080	4 X R0.3	9	80	4	
4NCRG 040 003 S06	4 X R0.3	11	70	6	
4NCRG 040 005 060	4 X R0.5	9	60	4	
4NCRG 040 005 080	4 X R0.5	9	80	4	
4NCRG 040 005 S06	4 X R0.5	11	70	6	
4NCRG 040 010 060	4 X R1	9	60	4	
4NCRG 040 010 080	4 X R1	9	80	4	
4NCRG 040 010 S06	4 X R1	11	70	6	
4NCRG 050 001 S06	5 X R0.1	13	75	6	
4NCRG 050 002 S06	5 X R0.2	13	75	6	
4NCRG 050 003 S06	5 X R0.3	13	75	6	
4NCRG 050 005 S06	5 X R0.5	13	75	6	
4NCRG 050 010 S06	5 X R1	13	75	6	
4NCRG 060 001 060	6 X R0.1	11	60	6	
4NCRG 060 001 080	6 X R0.1	13	80	6	
4NCRG 060 002 060	6 X R0.2	11	60	6	
4NCRG 060 002 080	6 X R0.2	13	80	6	
4NCRG 060 003 060	6 X R0.3	11	60	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCRG 060 003 080	6 X R0.3	13	80	6	
4NCRG 060 005 060	6 X R0.5	11	60	6	
4NCRG 060 005 080	6 X R0.5	13	80	6	
4NCRG 060 010 060	6 X R1	11	60	6	
4NCRG 060 010 080	6 X R1	13	80	6	
4NCRG 060 015 060	6 X R1.5	11	60	6	
4NCRG 060 015 080	6 X R1.5	13	80	6	
4NCRG 060 020 060	6 X R2	11	60	6	
4NCRG 060 020 080	6 X R2	13	80	6	
4NCRG 080 001 070	8 X R0.1	16	70	8	
4NCRG 080 001 090	8 X R0.1	19	90	8	
4NCRG 080 002 070	8 X R0.2	16	70	8	
4NCRG 080 002 090	8 X R0.2	19	90	8	
4NCRG 080 003 070	8 X R0.3	16	70	8	
4NCRG 080 003 090	8 X R0.3	19	90	8	
4NCRG 080 005 070	8 X R0.5	16	70	8	
4NCRG 080 005 090	8 X R0.5	19	90	8	
4NCRG 080 005 110	8 X R0.5	19	110	8	
4NCRG 080 010 070	8 X R1	16	70	8	
4NCRG 080 010 090	8 X R1	19	90	8	
4NCRG 080 010 110	8 X R1	19	110	8	
4NCRG 080 015 070	8 X R1.5	16	70	8	
4NCRG 080 015 090	8 X R1.5	19	90	8	
4NCRG 080 015 110	8 X R1.5	19	110	8	
4NCRG 080 020 070	8 X R2	16	70	8	
4NCRG 080 020 090	8 X R2	19	90	8	
4NCRG 080 020 110	8 X R2	19	110	8	
4NCRG 080 025 090	8 X R2.5	19	90	8	
4NCRG 100 001 075	10 X R0.1	19	75	10	
4NCRG 100 001 100	10 X R0.1	22	100	10	
4NCRG 100 002 075	10 X R0.2	19	75	10	
4NCRG 100 002 100	10 X R0.2	22	100	10	
4NCRG 100 003 075	10 X R0.3	19	75	10	
4NCRG 100 003 100	10 X R0.3	22	100	10	
4NCRG 100 005 075	10 X R0.5	19	75	10	
4NCRG 100 005 100	10 X R0.5	22	100	10	
4NCRG 100 005 120	10 X R0.5	22	120	10	
4NCRG 100 010 075	10 X R1	19	75	10	
4NCRG 100 010 100	10 X R1	22	100	10	
4NCRG 100 010 120	10 X R1	22	120	10	
4NCRG 100 015 075	10 X R1.5	19	75	10	
4NCRG 100 015 100	10 X R1.5	22	100	10	
4NCRG 100 015 120	10 X R1.5	22	120	10	
4NCRG 100 020 075	10 X R2	19	75	10	
4NCRG 100 020 100	10 X R2	22	100	10	
4NCRG 100 020 120	10 X R2	22	120	10	
4NCRG 100 025 075	10 X R2.5	19	75	10	
4NCRG 100 025 100	10 X R2.5	22	100	10	

4NCRG

4 Flutes Corner Radius End Mills for Generality

4날 중저경도용 코너 레디우스 엔드밀

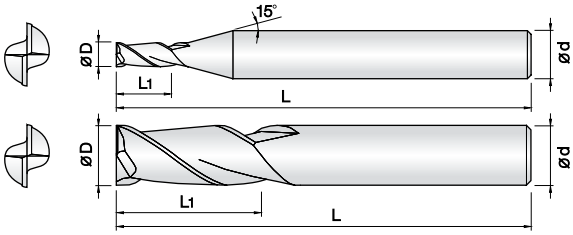
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCRG 100 025 120	10 X R2.5	22	120	10	
4NCRG 100 030 100	10 X R3	22	100	10	
4NCRG 120 002 080	12 X R0.2	22	80	12	
4NCRG 120 002 110	12 X R0.2	26	110	12	
4NCRG 120 003 080	12 X R0.3	22	80	12	
4NCRG 120 003 110	12 X R0.3	26	110	12	
4NCRG 120 005 080	12 X R0.5	22	80	12	
4NCRG 120 005 110	12 X R0.5	26	110	12	
4NCRG 120 005 130	12 X R0.5	26	130	12	
4NCRG 120 010 080	12 X R1	22	80	12	
4NCRG 120 010 110	12 X R1	26	110	12	
4NCRG 120 010 130	12 X R1	26	130	12	
4NCRG 120 015 080	12 X R1.5	22	80	12	
4NCRG 120 015 110	12 X R1.5	26	110	12	
4NCRG 120 015 130	12 X R1.5	26	130	12	
4NCRG 120 020 080	12 X R2	22	80	12	
4NCRG 120 020 110	12 X R2	26	110	12	
4NCRG 120 020 130	12 X R2	26	130	12	
4NCRG 120 025 080	12 X R2.5	22	80	12	
4NCRG 120 025 110	12 X R2.5	26	110	12	
4NCRG 120 025 130	12 X R2.5	26	130	12	
4NCRG 120 030 080	12 X R3	22	80	12	
4NCRG 120 030 110	12 X R3	26	110	12	
4NCRG 120 030 130	12 X R3	26	130	12	
4NCRG 120 035 110	12 X R3.5	26	110	12	
4NCRG 120 040 110	12 X R4	26	110	12	
4NCRG 160 005 110	16 X R0.5	35	110	16	
4NCRG 160 005 160	16 X R0.5	35	160	16	
4NCRG 160 010 110	16 X R1	35	110	16	
4NCRG 160 010 160	16 X R1	35	160	16	

2LEMG

2 Flutes Long Length End Mills for Generality

2날 중저경도용 긴 길이 엔드밀



- **중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공**
- ALCRN 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 ALCRN 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.

2 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 (Ø1~Ø5) | D −0.01 −0.03 (Ø6~Ø25) | 35° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	−0.01~ −0.03mm

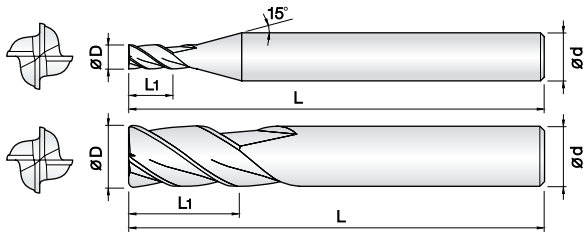
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2LEMG 010 030 S06	1	3	60	6	
2LEMG 010 050 S06	1	5	60	6	
2LEMG 010 070 S06	1	7	60	6	
2LEMG 010 100 S06	1	10	60	6	
2LEMG 010 150 S06	1	15	60	6	
2LEMG 015 060 S06	1.5	6	60	6	
2LEMG 015 075 S06	1.5	7.5	60	6	
2LEMG 015 100 S06	1.5	10	60	6	
2LEMG 015 150 S06	1.5	15	60	6	
2LEMG 015 200 S06	1.5	20	60	6	
2LEMG 020 060 S06	2	6	60	6	
2LEMG 020 100 S06	2	10	60	6	
2LEMG 020 150 S06	2	15	60	6	
2LEMG 020 200 S06	2	20	60	6	
2LEMG 030 120 S06	3	12	70	6	
2LEMG 030 150 S06	3	15	70	6	
2LEMG 030 200 S06	3	20	70	6	
2LEMG 030 250 S06	3	25	70	6	
2LEMG 030 300 S06	3	30	70	6	
2LEMG 040 150 S06	4	15	70	6	
2LEMG 040 200 S06	4	20	70	6	
2LEMG 040 300 S06	4	30	75	6	
2LEMG 050 200 S06	5	20	70	6	
2LEMG 050 250 S06	5	25	75	6	
2LEMG 050 300 S06	5	30	80	6	
2LEMG 060 200 S06	6	20	75	6	
2LEMG 060 200 100	6	20	100	6	
2LEMG 060 250 S06	6	25	75	6	
2LEMG 060 300 S06	6	30	80	6	
2LEMG 080 250 S08	8	25	75	8	
2LEMG 080 250 100	8	25	100	8	
2LEMG 080 300 S08	8	30	80	8	
2LEMG 080 350 S08	8	35	80	8	
2LEMG 080 400 S08	8	40	90	8	
2LEMG 080 500 S08	8	50	100	8	
2LEMG 100 300 S10	10	30	80	10	
2LEMG 100 300 110	10	30	110	10	
2LEMG 100 350 S10	10	35	90	10	
2LEMG 100 400 S10	10	40	90	10	
2LEMG 100 500 S10	10	50	100	10	
2LEMG 100 600 S10	10	60	110	10	
2LEMG 120 300 S12	12	30	90	12	
2LEMG 120 350 110	12	35	110	12	
2LEMG 120 400 S12	12	40	100	12	
2LEMG 120 500 S12	12	50	100	12	
2LEMG 120 600 S12	12	60	110	12	
2LEMG 120 700 S12	12	70	130	12	
2LEMG 140 500 S14	14	50	110	14	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2LEMG 160 400 160	16	40	160	16	
2LEMG 160 550 S16	16	55	120	16	
2LEMG 160 700 S16	16	70	130	16	
2LEMG 160 800 S16	16	80	160	16	
2LEMG 200 500 160	20	50	160	20	
2LEMG 200 600 S20	20	60	130	20	
2LEMG 200 1000 S20	20	100	200	20	
2LEMG 250 750 S25	25	75	160	25	

4LEMG

4Flutes Long Length End Mills for Generality

4날 중저경도용 긴 길이 엔드밀



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- 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 ALCRN 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.

4 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 (ø1~ø5) | D −0.01 −0.03 (ø6~ø25) | 35° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.01mm
D > ø5	−0.01~ −0.03mm

단위 : mm

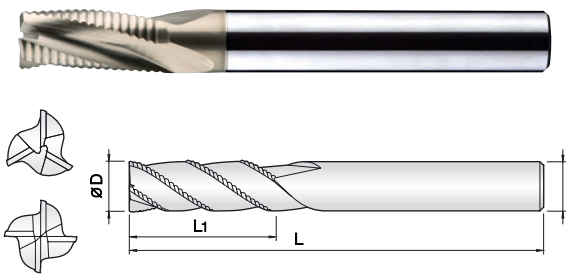
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4LEMG 010 030 S06	1	3	60	6	
4LEMG 010 050 S06	1	5	60	6	
4LEMG 015 060 S06	1.5	6	60	6	
4LEMG 015 080 S06	1.5	8	60	6	
4LEMG 020 080 S06	2	8	60	6	
4LEMG 020 100 S06	2	10	60	6	
4LEMG 030 100 S06	3	10	70	6	
4LEMG 030 150 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 200 500 160	20	50	160	20	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4LEMG 200 600 S20	20	60	130	20	
4LEMG 200 1000 S20	20	100	200	20	
4LEMG 250 750 S25	25	75	160	25	

3&4ROUG

3&4 Flutes Roughing End Mills for Generality

3&4날 중저경도용 라핑 엔드밀



- **공구강, 합금강 및 고경도 일반강 황삭가공 엔드밀**
- ANCRN코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 뛰어난 칩배출력으로 가공시간을 단축하였습니다.
- 고속가공으로 작업의 효율성을 극대화합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Roughing Endmills for tool steel, alloy steel**
- ANCRN coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Reduce machining time by excellent chip control.
- Maximize work efficiency by high speed machining.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | 4 | UWC 초미립자 | ALCRN Coating | D -0.01 -0.03 (Ø4~Ø9) | D -0.01 -0.04 (Ø10~Ø20) | 35° Helix Angle

Size	D Tolerance
D ≦ Ø9	-0.01~ -0.03mm
D > Ø9	-0.01~ -0.04mm

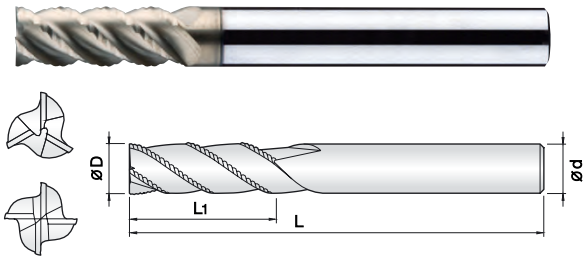
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3ROUG 040 100 S06	4	10	50	6	
3ROUG 050 130 S06	5	13	50	6	
3ROUG 060 100 050	6	10	50	6	
3ROUG 060 150 055	6	15	55	6	
3ROUG 060 200 060	6	20	60	6	
3ROUG 070 180 S08	7	18	65	8	
3ROUG 080 120 060	8	12	60	8	
3ROUG 080 190 065	8	19	65	8	
3ROUG 080 250 070	8	25	70	8	
4ROUG 090 220 S10	9	22	70	10	
4ROUG 100 150 070	10	15	70	10	
4ROUG 100 220 070	10	22	70	10	
4ROUG 100 300 080	10	30	80	10	
4ROUG 110 270 S12	11	27	80	12	
4ROUG 120 200 075	12	20	75	12	
4ROUG 120 260 080	12	26	80	12	
4ROUG 120 350 090	12	35	90	12	
4ROUG 160 320 090	16	32	90	16	
4ROUG 160 400 100	16	40	100	16	
4ROUG 200 380 110	20	38	110	20	
4ROUG 200 500 110	20	50	110	20	

3&4HROUG

3&4 Flutes 45° Helix Fine Pitch Roughing End Mills for Generality

3&4날 중저경도용 45° 헬릭스 파인피치형 라핑 엔드밀



- **합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재의 황삭가공**
- ANCRN코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 45° 헬릭스 적용으로 절삭 저항이 감소되어 장시간 가공에 적합합니다.
- 파인피치 형상 채택으로 고속, 황삭가공 작업에 적합합니다.

- **Roughing Endmills for hard to cut materials, alloy steel, SUS, Inconel and structural steel.**
- ANCRN coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Long tool life with low cutting force by 45° degree helix design.
- Fine pitch shape design for high speed roughing application.

3 | 4 | UWC 초미립자 | ALCRN Coating | D -0.01 -0.03 (ø4~ ø9) | D -0.01 -0.04 (ø10~ ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ ø9	-0.01~ -0.03mm
D > ø9	-0.01~ -0.04mm

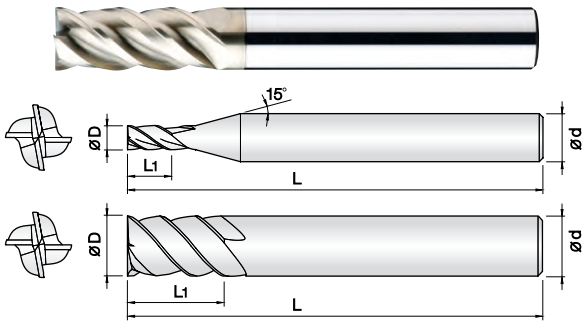
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3HROUG 040 100 S06	4	10	50	6	
3HROUG 050 130 S06	5	13	50	6	
3HROUG 060 100 050	6	10	50	6	
3HROUG 060 160 055	6	16	55	6	
3HROUG 060 200 060	6	20	60	6	
3HROUG 070 180 S08	7	18	65	8	
3HROUG 080 120 060	8	12	60	8	
3HROUG 080 190 065	8	19	65	8	
3HROUG 080 250 070	8	25	70	8	
4HROUG 090 220 S10	9	22	70	10	
4HROUG 100 150 070	10	15	70	10	
4HROUG 100 220 070	10	22	70	10	
4HROUG 100 300 080	10	30	80	10	
4HROUG 110 270 S12	11	27	80	12	
4HROUG 120 200 075	12	20	75	12	
4HROUG 120 250 080	12	25	80	12	
4HROUG 120 350 090	12	35	90	12	
4HROUG 160 320 090	16	32	90	16	
4HROUG 160 400 110	16	40	110	16	
4HROUG 200 380 110	20	38	110	20	
4HROUG 200 500 120	20	50	120	20	

4SUEG

4 Flutes End Mills for SUS

4날 부등분할 엔드밀



- **중저경도강(Hrc48이하), SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공용**
- ANCRN코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 부등분할 방식으로 설계하여 엔드밀의 진동을 최소화 하였습니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for steels(~HRc48), SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- ANCRN coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize chattering by unequal flute spacing design.
- Excellent work surface finish by 4 flute and deep chip pocket.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | ALCRN Coating | D +0 −0.01 (ø1~ø5) | D −0.01 −0.03 (ø6~ø20) | 42° Helix Angle

Size	D Tolerance
D ≦ ø5	+0 ~ −0.01mm
D > ø5	−0.01 ~ −0.03mm

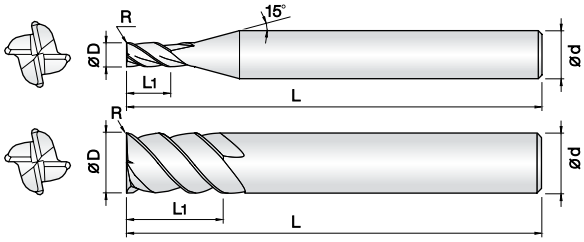
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4SUEG 010 025 S04	1	2.5	50	4	
4SUEG 015 040 S04	1.5	4	50	4	
4SUEG 020 060 S04	2	6	50	4	
4SUEG 025 080 S04	2.5	8	50	4	
4SUEG 030 100 S06	3	10	60	6	
4SUEG 040 120 S06	4	12	60	6	
4SUEG 050 150 S06	5	15	60	6	
4SUEG 060 150 S06	6	15	60	6	
4SUEG 070 180 S08	7	18	70	8	
4SUEG 080 200 S08	8	20	70	8	
4SUEG 090 220 S10	9	22	80	10	
4SUEG 100 250 S10	10	25	80	10	
4SUEG 110 220 S12	11	22	90	12	
4SUEG 120 300 S12	12	30	90	12	
4SUEG 160 350 S16	16	35	100	16	
4SUEG 200 400 S20	20	40	100	20	

4SUCG

4 Flutes Corner Radius End Mills for SUS

4날 부등분할 코너레디우스 엔드밀



- **중저경도강(Hrc48이하), SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공용**
- ANCRN코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 부등분할 방식으로 설계하여 엔드밀의 진동을 최소화 하였습니다.
- 코너R부 적용으로 밑날 치핑을 방지 하였습니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for steels(~HRc48), SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- ANCRN coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize chattering by unequal flute spacing design.
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

Ø3~Ø20

Size	D Tolerance
D ≦ Ø5.5	+0~ −0.01mm
D > Ø5.5	+0~ −0.02mm

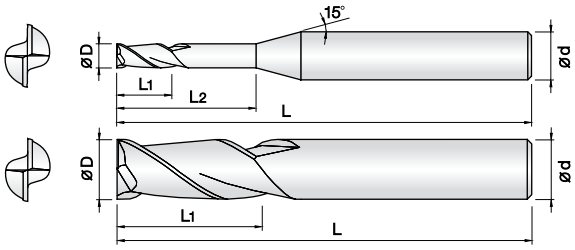
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4SUCG 030 002 S06	3 X R0.2	10	60	6	
4SUCG 030 005 S06	3 X R0.5	10	60	6	
4SUCG 035 002 S06	3.5 X R0.2	10	60	6	
4SUCG 040 002 S06	4 X R0.2	12	60	6	
4SUCG 040 005 S06	4 X R0.5	12	60	6	
4SUCG 045 002 S06	4.5 X R0.2	14	60	6	
4SUCG 050 002 S06	5 X R0.2	15	60	6	
4SUCG 050 005 S06	5 X R0.5	15	60	6	
4SUCG 055 002 S06	5.5 X R0.2	15	60	6	
4SUCG 060 003 S06	6 X R0.3	15	60	6	
4SUCG 060 005 S06	6 X R0.5	15	60	6	
4SUCG 060 010 S06	6 X R1	15	60	6	
4SUCG 065 003 S08	6.5 X R0.3	18	60	8	
4SUCG 070 003 S08	7 X R0.3	20	80	8	
4SUCG 080 003 S08	8 X R0.3	20	80	8	
4SUCG 080 005 S08	8 X R0.5	20	80	8	
4SUCG 080 010 S08	8 X R1	20	80	8	
4SUCG 085 003 S10	8.5 X R0.3	22	80	10	
4SUCG 090 003 S10	9 X R0.3	25	80	10	
4SUCG 100 003 S10	10 X R0.3	25	80	10	
4SUCG 100 005 S10	10 X R0.5	25	80	10	
4SUCG 100 010 S10	10 X R1	25	80	10	
4SUCG 100 015 S10	10 X R1.5	25	80	10	
4SUCG 100 020 S10	10 X R2	25	80	10	
4SUCG 120 005 S12	12 X R0.5	30	100	12	
4SUCG 120 010 S12	12 X R1	30	100	12	
4SUCG 120 015 S12	12 X R1.5	30	100	12	
4SUCG 120 020 S12	12 X R2	30	100	12	
4SUCG 120 025 S12	12 X R2.5	30	100	12	
4SUCG 120 030 S12	12 X R3	30	100	12	
4SUCG 160 005 S16	16 X R0.5	42	110	16	
4SUCG 160 010 S16	16 X R1	42	110	16	
4SUCG 200 005 S20	20 X R0.5	48	110	20	
4SUCG 200 010 S20	20 X R1	48	110	20	

2GEM

2 Flutes Long Shank End Mills for Graphite

2날 롱 생크 엔드밀 & 흑연가공용 롱 생크 엔드밀



- **흑연, HRc48이하의 고경도강, 프리하든강, 공구강, 주철 등 가공**
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 초미립자 초경합금을 채택, HRc48이하의 다양한 합금강의 피삭재 영역에 적용이 가능합니다.

- **Endmill for various work materials, graphite, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Excellent performance with low cutting force by ALTIN coating.
- Long flute length optimized for deep-side wall machining of graphite.
- Applied ultra fine WC grade optimized for various alloy steels applications, below HRc48.

2 | UWC 초미립자 | ALTIN Coating | D +0 −0.01 Ø0.5~ Ø5 | D +0 −0.03 Ø6~ Ø20 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.03mm

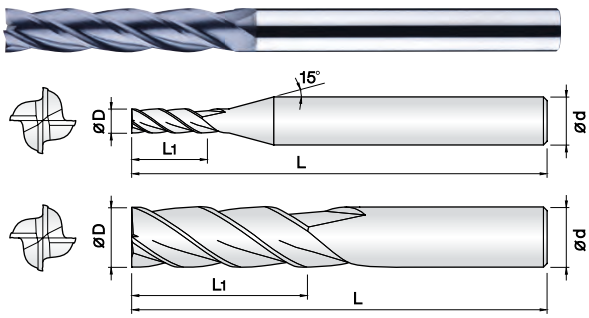
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2GEM 005 020 S04	0.5	2	-	50	4	
2GEM 010 050 S04	1	5	-	60	4	
2GEM 010 100 S04	1	5	10	60	4	
2GEM 010 100 S06	1	5	10	60	6	
2GEM 010 150 S04	1	5	15	60	4	
2GEM 010 200 S04	1	5	20	60	4	
2GEM 010 250 S04	1	5	25	70	4	
2GEM 015 100 S04	1.5	10	-	60	4	
2GEM 015 150 S04	1.5	8	15	60	4	
2GEM 015 200 S04	1.5	8	20	60	4	
2GEM 015 200 S06	1.5	8	20	60	6	
2GEM 015 250 S04	1.5	8	25	70	4	
2GEM 020 100 S04	2	10	-	60	4	
2GEM 020 150 S04	2	10	15	60	4	
2GEM 020 200 S04	2	10	20	60	4	
2GEM 020 200 S06	2	10	20	60	6	
2GEM 020 250 S04	2	10	25	70	4	
2GEM 020 300 S04	2	10	30	80	4	
2GEM 030 150 S04	3	15	-	70	4	
2GEM 030 250 S04	3	15	25	75	4	
2GEM 030 300 S06	3	15	30	75	6	
2GEM 040 200 100	4	20	-	100	4	
2GEM 040 400 S06	4	20	40	100	6	
2GEM 050 250 100	5	25	-	100	5	
2GEM 060 300 110	6	30	-	110	6	
2GEM 060 300 150	6	30	-	150	6	
2GEM 080 400 150	8	40	-	150	8	
2GEM 100 450 150	10	45	-	150	10	
2GEM 100 500 200	10	50	-	200	10	
2GEM 120 600 150	12	60	-	150	12	
2GEM 120 600 200	12	60	-	200	12	
2GEM 160 600 130	16	60	-	130	16	
2GEM 160 700 160	16	70	-	160	16	
2GEM 160 700 200	16	70	-	200	16	
2GEM 200 800 160	20	80	-	160	20	
2GEM 200 900 200	20	90	-	200	20	
2GEM 200 1200 320	20	120	-	320	20	

4GEM

4 Flutes Long Shank End Mills for Graphite

4날 롱 생크 엔드밀 & 흑연가공용 롱 생크 엔드밀



- **흑연, HRc48이하의 고경도강, 프리하든강, 공구강, 주철 등 가공**
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 초미립자 초경합금을 채택, HRc48이하의 다양한 합금강의 피삭재 영역에 적용이 가능합니다.

- **Endmill for various work materials, graphite, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Excellent performance with low cutting force by ALTIN coating.
- Long flute length optimized for deep-side wall machining of graphite.
- Applied ultra fine WC grade optimized for various alloy steels applications, below HRc48.

4 | UWC 초미립자 | ALTIN Coating | D +0 −0.01 (Ø3~Ø5) | D +0 −0.03 (Ø6~Ø20) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0 ~ −0.01mm
D > Ø5	+0 ~ −0.03mm

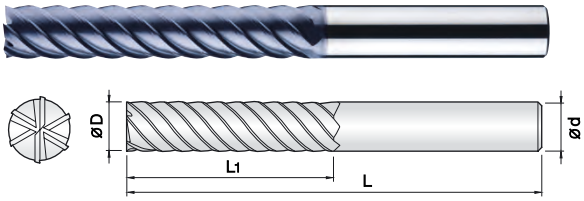
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4GEM 030 100 S06	3	10	100	6	
4GEM 030 150 S06	3	15	100	6	
New 4GEM 040 150 S06	4	15	100	6	
4GEM 040 200 100	4	20	100	4	
4GEM 040 200 S06	4	20	100	6	
New 4GEM 050 200 S06	5	20	100	6	
4GEM 060 300 110	6	30	110	6	
4GEM 060 300 150	6	30	150	6	
4GEM 080 400 150	8	40	150	8	
4GEM 080 400 200	8	40	200	8	
4GEM 100 500 150	10	50	150	10	
4GEM 100 500 200	10	50	200	10	
4GEM 120 600 150	12	60	150	12	
4GEM 120 600 200	12	60	200	12	
4GEM 160 700 160	16	70	160	16	
4GEM 160 800 200	16	80	200	16	
4GEM 200 750 160	20	75	160	20	
4GEM 200 900 200	20	90	200	20	
4GEM 200 1000 320	20	100	320	20	

6GEM

6 Flutes 45° Long Shank End Mills for Graphite

6날 45° 헬릭스 엔드밀 & 흑연가공용 롱 생크 엔드밀



- **흑연, HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 가공**
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 초미립자 초경합금을 채택, HRc50이하의 다양한 합금강의 피삭재 영역에 적용이 가능합니다.

- **Endmill for various work materials, graphite, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Excellent performance with low cutting force by ALTIN coating.
- Long flute length optimized for deep-side wall machining of graphite.
- Applied ultra fine WC grade optimized for various alloy steels applications, below HRc50.

6 | UWC 초미립자 | ALTIN Coating | D −0.01 −0.03 | 45° Helix Angle

Ø6~Ø20

Size	D Tolerance
D ≧ Ø6	−0.01~ −0.03mm

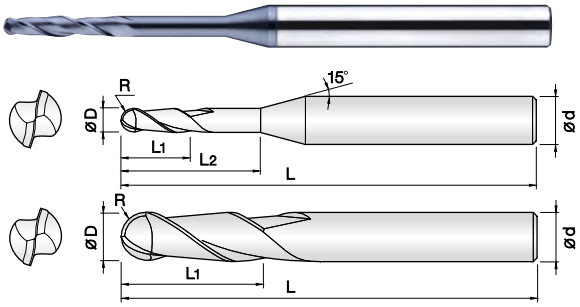
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6GEM 060 300 110	6	30	110	6	
6GEM 080 400 110	8	40	110	8	
6GEM 100 500 120	10	50	120	10	
6GEM 100 500 150	10	50	150	10	
6GEM 120 600 130	12	60	130	12	
6GEM 120 600 160	12	60	160	12	
6GEM 160 900 160	16	90	160	16	
6GEM 160 900 200	16	90	200	16	
6GEM 160 900 250	16	90	250	16	
6GEM 200 1000 200	20	100	200	20	
6GEM 200 1000 250	20	100	250	20	
6GEM 200 1000 320	20	100	320	20	

2GBE

2 Flutes Long Shank Ball End Mills for Graphite

2날 긴 길이 볼 엔드밀 & 흑연가공용 볼 엔드밀



- **그라파이트(흑연), 비철합금, 목업, 주철등 다양한 피삭재 가공**
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 초미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용이 가능합니다.

- **Endmill for various work materials, graphite, non-ferrous and non-metallic, cast iron.**
- Excellent performance with low cutting force by ALTIN coating.
- Long flute length optimized for deep-side wall machining of graphite.
- Applied ultra fine WC grade optimized for various non-ferrous and non-metallic work materials.

2 | UWC 초미립자 | ALTIN Coating | R ±0.01 (0.25R~3R) | R ±0.015 (4R~10R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

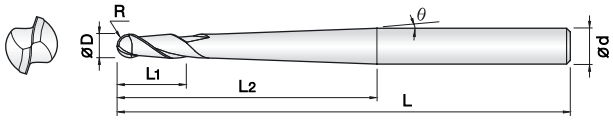
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2GBE 005 020 S04	0.25R X 0.5	2	-	50	4	
2GBE 005 050 S04	0.25R X 0.5	2	5	50	4	
2GBE 010 050 S04	0.5R X 1	5	-	60	4	
2GBE 010 100 S04	0.5R X 1	5	10	60	4	
2GBE 010 150 S04	0.5R X 1	5	15	60	4	
2GBE 010 200 S04	0.5R X 1	5	20	60	4	
2GBE 010 250 S04	0.5R X 1	5	25	70	4	
2GBE 010 300 S04	0.5R X 1	5	30	80	4	
2GBE 010 350 S04	0.5R X 1	5	35	80	4	
2GBE 010 400 S04	0.5R X 1	5	40	90	4	
2GBE 015 100 S04	0.75R X 1.5	8	10	60	4	
2GBE 015 150 S04	0.75R X 1.5	8	15	60	4	
2GBE 015 200 S04	0.75R X 1.5	8	20	60	4	
2GBE 015 250 S04	0.75R X 1.5	8	25	70	4	
2GBE 015 300 S04	0.75R X 1.5	8	30	80	4	
2GBE 015 350 S04	0.75R X 1.5	8	35	80	4	
2GBE 015 400 S04	0.75R X 1.5	8	40	90	4	
2GBE 020 100 S04	1R X 2	10	-	60	4	
2GBE 020 150 S04	1R X 2	10	15	60	4	
2GBE 020 200 S04	1R X 2	10	20	60	4	
2GBE 020 250 S04	1R X 2	10	25	70	4	
2GBE 020 300 S04	1R X 2	10	30	80	4	
2GBE 020 350 S04	1R X 2	10	35	80	4	
2GBE 020 400 S04	1R X 2	10	40	90	4	
2GBE 020 500 S04	1R X 2	10	50	100	4	
2GBE 020 600 S04	1R X 2	10	60	100	4	
2GBE 025 200 S04	1.25R X 2.5	10	20	70	4	
2GBE 030 150 100	1.5R X 3	15	-	100	3	
2GBE 030 200 S04	1.5R X 3	15	20	70	4	
2GBE 030 300 S04	1.5R X 3	15	30	80	4	
2GBE 030 400 S04	1.5R X 3	15	40	90	4	
2GBE 030 500 S04	1.5R X 3	15	50	100	4	
2GBE 030 600 S04	1.5R X 3	15	60	100	4	
2GBE 040 200 080	2R X 4	20	-	80	4	
2GBE 040 200 100	2R X 4	20	-	100	4	
2GBE 040 200 130	2R X 4	20	-	130	4	
2GBE 050 250 100	2.5R X 5	25	-	100	5	
2GBE 050 250 130	2.5R X 5	25	-	130	5	

Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2GBE 010 050 S06	0.5R X 1	5	-	60	6	
2GBE 010 100 S06	0.5R X 1	5	10	60	6	
2GBE 015 080 S06	0.75R X 1.5	8	-	60	6	
2GBE 015 150 S06	0.75R X 1.5	8	15	60	6	
2GBE 020 100 S06	1R X 2	10	-	70	6	
2GBE 020 200 S06	1R X 2	10	20	70	6	
2GBE 030 150 S06	1.5R X 3	15	-	70	6	
2GBE 030 300 S06	1.5R X 3	15	30	75	6	
2GBE 030 400 S06	1.5R X 3	15	40	85	6	
2GBE 040 200 S06	2R X 4	20	-	75	6	
2GBE 040 350 S06	2R X 4	20	35	85	6	
2GBE 040 450 S06	2R X 4	20	45	100	6	
2GBE 050 250 S06	2.5R X 5	25	-	85	6	
2GBE 050 500 S06	2.5R X 5	25	50	110	6	
2GBE 060 250 110	3R X 6	25	-	110	6	
2GBE 060 300 150	3R X 6	30	-	150	6	
2GBE 060 300 185	3R X 6	30	-	185	6	
2GBE 060 300 220	3R X 6	30	-	220	6	
2GBE 080 350 110	4R X 8	35	-	110	8	
2GBE 080 400 150	4R X 8	40	-	150	8	
2GBE 080 400 200	4R X 8	40	-	200	8	
2GBE 080 400 220	4R X 8	40	-	220	8	
2GBE 100 400 120	5R X 10	40	-	120	10	
2GBE 100 450 150	5R X 10	45	-	150	10	
2GBE 100 450 200	5R X 10	45	-	200	10	
2GBE 100 450 230	5R X 10	45	-	230	10	
2GBE 120 500 130	6R X 12	50	-	130	12	
2GBE 120 500 150	6R X 12	50	-	150	12	
2GBE 120 550 200	6R X 12	55	-	200	12	
2GBE 120 550 250	6R X 12	55	-	250	12	
2GBE 160 600 160	8R X 16	60	-	160	16	
2GBE 160 650 200	8R X 16	65	-	200	16	
2GBE 160 650 250	8R X 16	65	-	250	16	
2GBE 160 700 320	8R X 16	70	-	320	16	
2GBE 200 700160	10R X 20	70	-	160	20	
2GBE 200 750 200	10R X 20	75	-	200	20	
New 2GBE 200 750 250	10R X 20	75	-	250	20	
2GBE 200 900 320	10R X 20	90	-	320	20	

2TGB

2 Flutes Taper Neck Ball End Mills for Graphite

2날 흑연가공용 테이퍼 넥 볼 엔드밀



- **그라파이트(흑연), 비철합금, 목업, 주철등 다양한 피삭재 가공**
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 초미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용이 가능합니다.

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- Excellent performance with low cutting force by ALTIN coating.
- Long flute length optimized for deep-side wall machining of graphite.
- Applied ultra fine WC grade optimized for various non-ferrous and non-metallic work materials.

2 | UWC 초미립자 | ALTIN Coating | R ±0.01 (0.5R~3R) | R ±0.015 (4R~6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

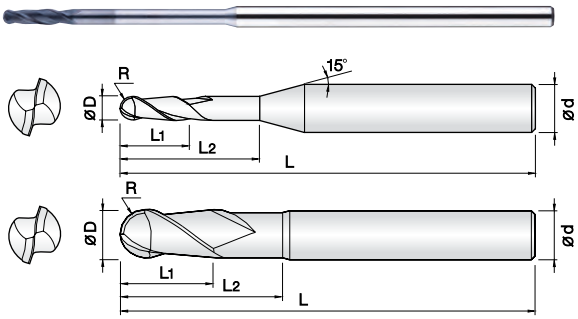
단위 : mm

Order Number	날경 Diameter R×D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2TGB 010 003 200	0.5R X 1	0°30	4	20	60	4	
2TGB 010 003 300	0.5R X 1	0°30	4	30	75	4	
2TGB 010 003 400	0.5R X 1	0°30	4	40	90	4	
2TGB 010 010 250	0.5R X 1	1°	4	25	60	4	
2TGB 010 010 350	0.5R X 1	1°	4	35	75	4	
2TGB 010 010 500	0.5R X 1	1°	4	50	100	4	
2TGB 015 003 300	0.75R X 1.5	0°30	6	30	75	4	
2TGB 015 003 400	0.75R X 1.5	0°30	6	40	80	4	
2TGB 015 003 500	0.75R X 1.5	0°30	6	50	100	4	
2TGB 015 010 300	0.75R X 1.5	1°	6	30	75	4	
2TGB 015 010 500	0.75R X 1.5	1°	6	50	100	4	
2TGB 015 010 600	0.75R X 1.5	1°	6	60	100	4	
2TGB 020 003 400	1R X 2	0°30	8	40	90	4	
2TGB 020 003 500	1R X 2	0°30	8	50	100	4	
2TGB 020 003 700	1R X 2	0°30	8	70	130	4	
2TGB 020 010 600	1R X 2	1°	8	60	110	6	
2TGB 020 010 900	1R X 2	1°	8	90	150	6	
2TGB 030 003 700	1.5R X 3	0°30	10	70	120	6	
2TGB 030 010 900	1.5R X 3	1°	10	90	150	6	
2TGB 040 003 700	2R X 4	0°30	14	70	120	6	
2TGB 040 010 800	2R X 4	1°	14	80	150	6	
2TGB 050 003 800	2.5R X 5	0°30	16	80	130	6	
2TGB 060 003 1000	3R X 6	0°30	16	100	150	8	
2TGB 060 010 1000	3R X 6	1°	16	100	150	10	
New 2TGB 080 010 1000	4R X 8	1°	20	100	150	12	
New 2TGB 100 010 830	5R X 10	1°	25	83	200	12	
New 2TGB 120 010 1100	6R X 12	1°	30	110	200	16	

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 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
- 다양한 피삭재의 형상에 적용하도록 규격을 다양화하여, 넓은 가공 영역에 뛰어난 수명과 성능을 발휘합니다.

- **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 | UWC 초미립자 | DIA. Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

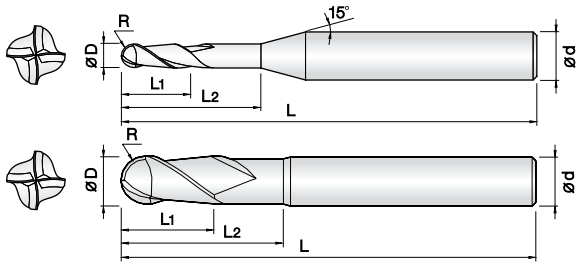
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2DBE 002 010 S04	0.1R X 0.2	1	-	45	4	
New 2DBE 003 012 S04	0.15R X 0.3	1.2	-	45	4	
New 2DBE 004 015 S04	0.2R X 0.4	1.5	-	45	4	
New 2DBE 004 030 S04	0.2R X 0.4	1.5	3	45	4	
New 2DBE 005 020 S04	0.25R X 0.5	2	-	45	4	
New 2DBE 005 050 S04	0.25R X 0.5	2	5	45	4	
New 2DBE 006 020 S04	0.3R X 0.6	2	-	45	4	
New 2DBE 006 050 S04	0.3R X 0.6	2	5	45	4	
New 2DBE 006 080 S04	0.3R X 0.6	2	8	45	4	
New 2DBE 006 100 S04	0.3R X 0.6	2	10	45	4	
New 2DBE 008 030 S04	0.4R X 0.8	3	-	45	4	
New 2DBE 008 050 S04	0.4R X 0.8	3	5	45	4	
New 2DBE 008 100 S04	0.4R X 0.8	3	10	45	4	
New 2DBE 008 150 S04	0.4R X 0.8	3	15	45	4	
New 2DBE 008 200 S04	0.4R X 0.8	3	20	45	4	
New 2DBE 010 030 S04	0.5R X 1	3	-	60	4	
2DBE 010 050 S04	0.5R X 1	3	5	60	4	
2DBE 010 100 S04	0.5R X 1	3	10	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	
New 2DBE 015 050 S04	0.75R X 1.5	5	-	60	4	
2DBE 015 100 S04	0.75R X 1.5	5	10	80	4	
2DBE 015 150 S04	0.75R X 1.5	5	15	80	4	
2DBE 015 200 S04	0.75R X 1.5	5	20	80	4	
2DBE 015 250 S04	0.75R X 1.5	5	25	80	4	
2DBE 015 300 S04	0.75R X 1.5	5	30	80	4	
New 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 020 300 S04	1R X 2	6	30	80	4	
2DBE 020 400 S04	1R X 2	6	40	100	4	
2DBE 020 500 S04	1R X 2	6	50	100	4	
New 2DBE 030 080 S04	1.5R X 3	8	-	60	4	
New 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 030 300 S04	1.5R X 3	8	30	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	
New 2DBE 040 160 060	2R X 4	16	-	60	4	
2DBE 040 160 080	2R X 4	16	-	80	4	
2DBE 040 160 100	2R X 4	16	-	100	4	
2DBE 040 160 130	2R X 4	16	-	130	4	
2DBE 050 200 S06	2.5R X 5	16	20	105	6	
New 2DBE 060 250 080	3R X 6	16	25	80	6	
2DBE 060 250 105	3R X 6	16	25	105	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
2DBE 060 300 150	3R X 6	16	30	150	6	
New 2DBE 080 300 080	4R X 8	20	30	80	8	
2DBE 080 300 105	4R X 8	20	30	105	8	
2DBE 080 350 150	4R X 8	20	35	150	8	
New 2DBE 080 400 200	4R X 8	20	40	200	8	
New 2DBE 100 350 080	5R X 10	22	35	80	10	
2DBE 100 350 105	5R X 10	22	35	105	10	
2DBE 100 400 160	5R X 10	22	40	160	10	
New 2DBE 100 500 200	5R X 10	22	50	200	10	
New 2DBE 120 500 105	6R X 12	25	50	105	12	
2DBE 120 500 160	6R X 12	25	50	160	12	
New 2DBE 120 600 200	6R X 12	25	60	200	12	

4DBE

4 Flutes Diamond Coated Ball End Mills for Graphite

4날 흑연가공용 다이아몬드 코팅 볼 엔드밀



- **그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀**
- CVD 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
- 다양한 피삭재의 형상에 적용하도록 규격을 다양화하여, 넓은 가공 영역에 뛰어난 수명과 성능을 발휘합니다.

- **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.

4 | UWC 초미립자 | DIA. Coating | R ±0.005 (0.5R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

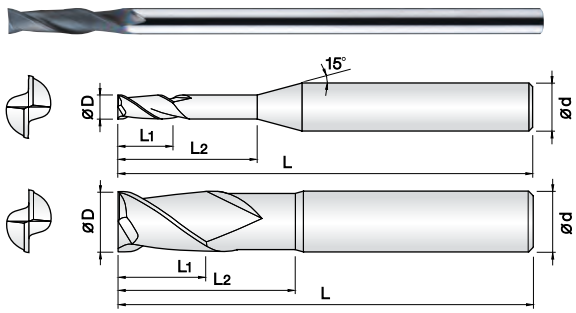
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 4DBE 010 030 S04	0.5R X 1	3	-	60	4	
New 4DBE 010 050 S04	0.5R X 1	3	5	60	4	
New 4DBE 010 100 S04	0.5R X 1	3	10	60	4	
New 4DBE 010 150 S04	0.5R X 1	3	15	60	4	
New 4DBE 010 200 S04	0.5R X 1	3	20	60	4	
New 4DBE 010 250 S04	0.5R X 1	3	25	60	4	
New 4DBE 015 050 S04	0.75R X 1	5	-	60	4	
New 4DBE 015 100 S04	0.75R X 1	5	10	60	4	
New 4DBE 015 150 S04	0.75R X 1	5	15	60	4	
New 4DBE 015 200 S04	0.75R X 1	5	20	60	4	
New 4DBE 015 250 S04	0.75R X 1	5	25	60	4	
New 4DBE 020 060 S04	1R X 2	6	-	60	4	
4DBE 020 100 S04	1R X 2	6	10	80	4	
4DBE 020 200 S04	1R X 2	6	20	80	4	
New 4DBE 020 300 S04	1R X 2	6	30	80	4	
New 4DBE 020 400 S04	1R X 2	6	40	80	4	
New 4DBE 030 080 S04	1.5R X 3	8	-	60	4	
New 4DBE 030 150 S04	1.5R X 3	8	15	100	4	
New 4DBE 030 200 S04	1.5R X 3	8	20	100	4	
4DBE 030 300 S04	1.5R X 3	8	30	100	4	
4DBE 030 400 S04	1.5R X 3	8	40	100	4	
4DBE 030 500 S04	1.5R X 3	8	50	100	4	
New 4DBE 040 160 060	2R X 4	16	-	60	4	
New 4DBE 040 160 080	2R X 4	16	-	80	4	
4DBE 040 160 100	2R X 4	16	-	100	4	
New 4DBE 060 250 080	3R X 6	16	25	80	6	
New 4DBE 060 250 105	3R X 6	16	25	105	6	
4DBE 060 300 150	3R X 6	16	30	150	6	
New 4DBE 080 300 080	4R X 8	20	30	80	8	
New 4DBE 080 300 105	4R X 8	20	30	105	8	
4DBE 080 350 150	4R X 8	20	35	150	8	
New 4DBE 080 400 200	4R X 8	20	40	200	8	
New 4DBE 100 350 080	5R X 10	22	35	80	10	
New 4DBE 100 350 105	5R X 10	22	35	105	10	
4DBE 100 400 160	5R X 10	22	40	160	10	
New 4DBE 100 500 200	5R X 10	22	50	200	10	
New 4DBE 120 500 105	6R X 12	25	50	105	12	
4DBE 120 500 160	6R X 12	25	50	160	12	
New 4DBE 120 600 200	6R X 12	25	60	200	12	

2DEM

2 Flutes Diamond Coated End Mills for Graphite

2날 흑연가공용 다이아몬드 코팅 엔드밀

New



- **그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀**
- CVD 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
- 다양한 피삭재의 형상에 적용하도록 규격을 다양화하여, 넓은 가공 영역에 뛰어난 수명과 성능을 발휘합니다.

- **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 | UWC 초미립자 | DIA. Coating | D +0 −0.01 (Ø0.2~Ø5) | D +0 −0.03 (Ø6~Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.03mm

단위 : mm

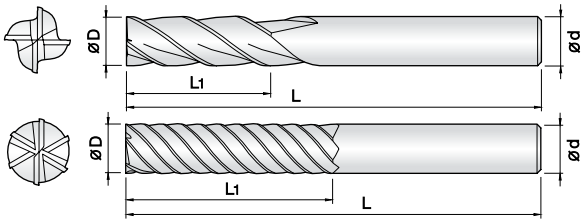
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DEM 002 004 S04	0.2	0.4	-	45	4	
2DEM 003 006 S04	0.3	0.6	-	45	4	
2DEM 004 008 S04	0.4	0.8	-	45	4	
2DEM 005 010 S04	0.5	1	-	45	4	
2DEM 006 012 S04	0.6	1.2	-	45	4	
2DEM 007 015 S04	0.7	1.5	-	45	4	
2DEM 008 020 S04	0.8	2	-	45	4	
2DEM 009 025 S04	0.9	2.5	-	45	4	
2DEM 010 032 S04	1	3.2	-	45	4	
2DEM 020 060 S04	2	6	-	45	4	
2DEM 030 090 S06	3	9	-	50	6	
2DEM 040 120 S06	4	12	-	50	6	
2DEM 050 150 S06	5	15	-	60	6	
2DEM 060 180 S06	6	18	-	60	6	
2DEM 080 240 S08	8	24	-	70	8	
2DEM 100 250 S10	10	25	-	80	10	
2DEM 120 250 S12	12	25	-	80	12	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DEM 010 030 S04	1	3	-	60	4	
2DEM 010 050 S04	1	3	5	60	4	
2DEM 010 100 S04	1	3	10	60	4	
2DEM 010 150 S04	1	3	15	60	4	
2DEM 010 200 S04	1	3	20	60	4	
2DEM 010 250 S04	1	3	25	60	4	
2DEM 015 060 S04	1.5	6	-	60	4	
2DEM 015 100 S04	1.5	6	10	60	4	
2DEM 015 150 S04	1.5	6	15	60	4	
2DEM 015 200 S04	1.5	6	20	60	4	
2DEM 015 250 S04	1.5	6	25	60	4	
2DEM 020 080 S04	2	8	-	80	4	
2DEM 020 120 S04	2	8	12	80	4	
2DEM 020 150 S04	2	8	15	80	4	
2DEM 020 200 S04	2	8	20	80	4	
2DEM 020 250 S04	2	8	25	80	4	
2DEM 020 300 S04	2	8	30	80	4	
2DEM 020 400 S04	2	8	40	80	4	
2DEM 030 120 S04	3	12	-	80	4	
2DEM 030 200 S04	3	12	20	80	4	
2DEM 030 250 S04	3	12	25	80	4	
2DEM 030 300 S04	3	12	30	80	4	
2DEM 030 400 S04	3	12	40	80	4	
2DEM 040 160 080	4	16	-	80	4	
2DEM 050 200 S06	5	20	-	105	6	
2DEM 060 250 105	6	25	-	105	6	
2DEM 060 250 150	6	25	-	150	6	
2DEM 080 400 150	8	25	40	150	8	
2DEM 100 500 160	10	25	50	160	10	
2DEM 120 600 160	12	25	60	160	12	

4&6DEM

4&6 Flutes Diamond Coated End Mills for Graphite

4&6날 흑연가공용 다이아몬드 코팅 엔드밀



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- Excellent wear resistance by applying qualified CVD diamond coating.
- Wide range products prepared for various work shape and excellent performance.

4 | 6 | UWC 초미립자 | DIA. Coating | D +0 −0.01 ø2~ø4 | D +0 −0.03 ø6~ø16 | 30° Helix Angle | 45° Helix Angle

Size	D Tolerance
D ≦ ø4	+0~ −0.01mm
D > ø4	+0~ −0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4DEM 020 060 S04	2	6	45	4	
New 4DEM 020 100 S04	2	10	60	4	
New 4DEM 030 090 S06	3	9	50	6	
New 4DEM 030 150 S03	3	15	60	3	
New 4DEM 030 150 S04	3	15	60	4	
New 4DEM 040 120 S06	4	12	50	6	
New 4DEM 040 200 080	4	20	80	4	
New 4DEM 060 180 060	6	18	60	6	
4DEM 060 250 105	6	25	105	6	
4DEM 060 250 150	6	25	150	6	
New 4DEM 080 240 070	8	24	70	8	
4DEM 080 350 105	8	35	105	8	
4DEM 080 350 150	8	35	150	8	
New 4DEM 100 250 080	10	25	80	10	
New 4DEM 100 400 105	10	40	105	10	
New 4DEM 120 250 080	12	25	80	12	
New 4DEM 120 450 105	12	45	105	12	

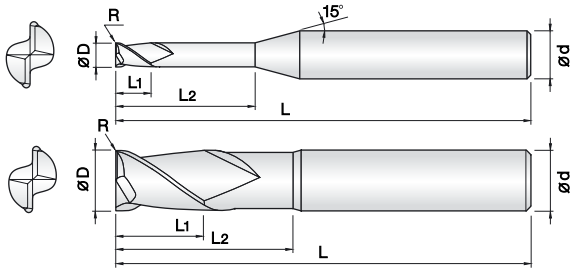
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
6DEM 100 400 105	10	40	105	10	
6DEM 100 400 160	10	40	160	10	
6DEM 120 450 105	12	45	105	12	
6DEM 120 450 160	12	45	160	12	
6DEM 160 500 105	16	50	105	16	
6DEM 160 500 160	16	50	160	16	

2DCR

2 Flutes Diamond Coated Corner Radius End Mills for Graphite

2날 흑연가공용 다이아몬드 코팅 코너 레디우스 엔드밀

New



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- Wide range products prepared for various work shape and excellent performance.

2 | UWC 초미립자 | DIA. Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø0.2 ~ Ø2 Ø3 ~ Ø6

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DCR 002 0002 015	0.2 X R0.02	0.5	1.5	60	4	
2DCR 003 0002 015	0.3 X R0.02	0.6	1.5	60	4	
2DCR 003 0002 030	0.3 X R0.02	0.6	3	60	4	
2DCR 003 0002 045	0.3 X R0.02	0.6	4.5	60	4	
2DCR 003 0002 060	0.3 X R0.02	0.6	6	60	4	
2DCR 004 0002 020	0.4 X R0.02	0.8	2	60	4	
2DCR 004 0002 040	0.4 X R0.02	0.8	4	60	4	
2DCR 004 0002 060	0.4 X R0.02	0.8	6	60	4	
2DCR 004 0002 080	0.4 X R0.02	0.8	8	60	4	
2DCR 005 0005 010	0.5 X R0.05	1	-	60	4	
2DCR 005 0005 025	0.5 X R0.05	1	2.5	60	4	
2DCR 005 0005 035	0.5 X R0.05	1	3.5	60	4	
2DCR 005 0005 050	0.5 X R0.05	1	5	60	4	
2DCR 005 0005 075	0.5 X R0.05	1	7.5	60	4	
2DCR 005 0005 100	0.5 X R0.05	1	10	60	4	
2DCR 006 0005 012	0.6 X R0.05	1.2	-	60	4	
2DCR 006 0005 030	0.6 X R0.05	1.2	3	60	4	
2DCR 006 0005 060	0.6 X R0.05	1.2	6	60	4	
2DCR 006 0005 090	0.6 X R0.05	1.2	9	60	4	
2DCR 006 0005 120	0.6 X R0.05	1.2	12	60	4	
2DCR 008 0005 016	0.8 X R0.05	1.6	-	60	4	
2DCR 008 0005 040	0.8 X R0.05	1.6	4	60	4	
2DCR 008 0005 080	0.8 X R0.05	1.6	8	60	4	
2DCR 008 0005 100	0.8 X R0.05	1.6	10	60	4	
2DCR 008 0005 160	0.8 X R0.05	1.6	16	60	4	
2DCR 010 0005 020	1 X R0.05	2	-	60	4	
2DCR 010 0005 050	1 X R0.05	2	5	60	4	
2DCR 010 0005 100	1 X R0.05	2	10	60	4	
2DCR 010 0005 150	1 X R0.05	2	15	60	4	
2DCR 010 0005 200	1 X R0.05	2	20	60	4	
2DCR 010 001 020	1 X R0.1	2	-	60	4	
2DCR 010 001 050	1 X R0.1	2	5	60	4	
2DCR 010 001 100	1 X R0.1	2	10	60	4	
2DCR 010 001 150	1 X R0.1	2	15	60	4	
2DCR 010 001 200	1 X R0.1	2	20	60	4	
2DCR 010 002 020	1 X R0.2	2	-	60	4	
2DCR 010 002 050	1 X R0.2	2	5	60	4	
2DCR 010 002 100	1 X R0.2	2	10	60	4	
2DCR 010 002 150	1 X R0.2	2	15	60	4	
2DCR 010 002 200	1 X R0.2	2	20	60	4	
2DCR 015 0005 030	1.5 X R0.05	3	-	60	4	
2DCR 015 0005 050	1.5 X R0.05	3	5	60	4	
2DCR 015 0005 100	1.5 X R0.05	3	10	60	4	
2DCR 015 0005 150	1.5 X R0.05	3	15	60	4	
2DCR 015 0005 200	1.5 X R0.05	3	20	60	4	
2DCR 015 001 030	1.5 X R0.1	3	-	60	4	
2DCR 015 001 050	1.5 X R0.1	3	5	60	4	
2DCR 015 001 100	1.5 X R0.1	3	10	60	4	

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DCR 015 001 150	1.5 X R0.1	3	15	60	4	
2DCR 015 001 200	1.5 X R0.1	3	20	60	4	
2DCR 015 0015 030	1.5 X R0.15	3	-	60	4	
2DCR 015 0015 050	1.5 X R0.15	3	5	60	4	
2DCR 015 0015 100	1.5 X R0.15	3	10	60	4	
2DCR 015 0015 150	1.5 X R0.15	3	15	60	4	
2DCR 015 0015 200	1.5 X R0.15	3	20	60	4	
2DCR 015 002 030	1.5 X R0.2	3	-	60	4	
2DCR 015 002 050	1.5 X R0.2	3	5	60	4	
2DCR 015 002 100	1.5 X R0.2	3	10	60	4	
2DCR 015 002 150	1.5 X R0.2	3	15	60	4	
2DCR 015 002 200	1.5 X R0.2	3	20	60	4	
2DCR 015 003 030	1.5 X R0.3	3	-	60	4	
2DCR 015 003 050	1.5 X R0.3	3	5	60	4	
2DCR 015 003 100	1.5 X R0.3	3	10	60	4	
2DCR 015 003 150	1.5 X R0.3	3	15	60	4	
2DCR 015 003 200	1.5 X R0.3	3	20	60	4	
2DCR 020 0005 035	2 X R0.05	3.5	-	60	4	
2DCR 020 0005 060	2 X R0.05	3.5	6	60	4	
2DCR 020 0005 120	2 X R0.05	3.5	12	60	4	
2DCR 020 0005 180	2 X R0.05	3.5	18	60	4	
2DCR 020 0005 250	2 X R0.05	3.5	25	60	4	
2DCR 020 0005 300	2 X R0.05	3.5	30	60	4	
2DCR 020 002 035	2 X R0.2	3.5	-	60	4	
2DCR 020 002 060	2 X R0.2	3.5	6	60	4	
2DCR 020 002 120	2 X R0.2	3.5	12	60	4	
2DCR 020 002 180	2 X R0.2	3.5	18	60	4	
2DCR 020 002 250	2 X R0.2	3.5	25	60	4	
2DCR 020 002 300	2 X R0.2	3.5	30	60	4	
2DCR 020 003 035	2 X R0.3	3.5	-	60	4	
2DCR 020 003 060	2 X R0.3	3.5	6	60	4	
2DCR 020 003 120	2 X R0.3	3.5	12	60	4	
2DCR 020 003 180	2 X R0.3	3.5	18	60	4	
2DCR 020 003 250	2 X R0.3	3.5	25	60	4	
2DCR 020 003 300	2 X R0.3	3.5	30	60	4	
2DCR 020 005 035	2 X R0.5	3.5	-	60	4	
2DCR 020 005 060	2 X R0.5	3.5	6	60	4	
2DCR 020 005 120	2 X R0.5	3.5	12	60	4	
2DCR 020 005 180	2 X R0.5	3.5	18	60	4	
2DCR 020 005 250	2 X R0.5	3.5	25	60	4	
2DCR 020 005 300	2 X R0.5	3.5	30	60	4	
2DCR 030 0005 040	3 X R0.05	4	-	80	4	
2DCR 030 0005 100	3 X R0.05	4	10	80	4	
2DCR 030 0005 200	3 X R0.05	4	20	80	4	
2DCR 030 0005 300	3 X R0.05	4	30	80	4	
2DCR 030 0005 400	3 X R0.05	4	40	80	4	
2DCR 030 002 040	3 X R0.2	4	-	80	4	
2DCR 030 002 100	3 X R0.2	4	10	80	4	

2DCR

2 Flutes Diamond Coated Corner Radius End Mills for Graphite

2날 흑연가공용 다이아몬드 코팅 코너 레디우스 엔드밀

New

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DCR 030 002 200	3 X R0.2	4	20	80	4	
2DCR 030 002 300	3 X R0.2	4	30	80	4	
2DCR 030 002 400	3 X R0.2	4	40	80	4	
2DCR 030 003 040	3 X R0.3	4	-	80	4	
2DCR 030 003 100	3 X R0.3	4	10	80	4	
2DCR 030 003 200	3 X R0.3	4	20	80	4	
2DCR 030 003 300	3 X R0.3	4	30	80	4	
2DCR 030 003 400	3 X R0.3	4	40	80	4	
2DCR 030 005 040	3 X R0.5	4	-	80	4	
2DCR 030 005 100	3 X R0.5	4	10	80	4	
2DCR 030 005 200	3 X R0.5	4	20	80	4	
2DCR 030 005 300	3 X R0.5	4	30	80	4	
2DCR 030 005 400	3 X R0.5	4	40	80	4	
2DCR 030 010 040	3 X R1	4	-	80	4	
2DCR 030 010 100	3 X R1	4	10	80	4	
2DCR 030 010 200	3 X R1	4	20	80	4	
2DCR 030 010 300	3 X R1	4	30	80	4	
2DCR 030 010 400	3 X R1	4	40	80	4	
2DCR 040 0005 050	4 X R0.05	5	-	80	4	
2DCR 040 0005 150	4 X R0.05	5	15	80	4	
2DCR 040 0005 250	4 X R0.05	5	25	80	4	
2DCR 040 0005 400	4 X R0.05	5	40	80	4	
2DCR 040 002 050	4 X R0.2	5	-	80	4	
2DCR 040 002 150	4 X R0.2	5	15	80	4	
2DCR 040 002 250	4 X R0.2	5	25	80	4	
2DCR 040 002 400	4 X R0.2	5	40	80	4	
2DCR 040 005 050	4 X R0.5	5	-	80	4	
2DCR 040 005 150	4 X R0.5	5	15	80	4	
2DCR 040 005 250	4 X R0.5	5	25	80	4	
2DCR 040 005 400	4 X R0.5	5	40	80	4	
2DCR 040 010 050	4 X R1	5	-	80	4	
2DCR 040 010 150	4 X R1	5	15	80	4	
2DCR 040 010 250	4 X R1	5	25	80	4	
2DCR 040 010 400	4 X R1	5	40	80	4	
2DCR 050 0005 060	5 X R0.05	6	-	105	6	
2DCR 050 0005 150	5 X R0.05	6	15	105	6	
2DCR 050 0005 300	5 X R0.05	6	30	105	6	
2DCR 050 0005 500	5 X R0.05	6	50	105	6	
2DCR 050 002 060	5 X R0.2	6	-	105	6	
2DCR 050 002 150	5 X R0.2	6	15	105	6	
2DCR 050 002 300	5 X R0.2	6	30	105	6	
2DCR 050 002 500	5 X R0.2	6	50	105	6	
2DCR 050 005 060	5 X R0.5	6	-	105	6	
2DCR 050 005 150	5 X R0.5	6	15	105	6	
2DCR 050 005 300	5 X R0.5	6	30	105	6	
2DCR 050 005 500	5 X R0.5	6	50	105	6	
2DCR 060 0005 070	6 X R0.05	7	-	105	6	
2DCR 060 0005 200	6 X R0.05	7	20	105	6	

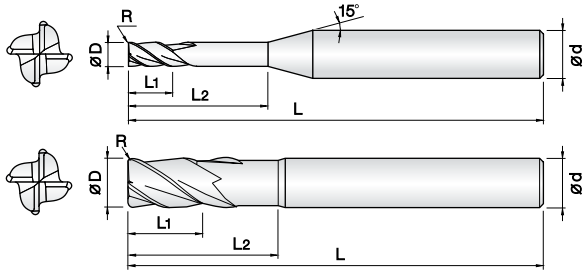
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DCR 060 0005 300	6 X R0.05	7	30	105	6	
2DCR 060 0005 500	6 X R0.05	7	50	105	6	
2DCR 060 002 070	6 X R0.2	7	-	105	6	
2DCR 060 002 200	6 X R0.2	7	20	105	6	
2DCR 060 002 300	6 X R0.2	7	30	105	6	
2DCR 060 002 500	6 X R0.2	7	50	105	6	
2DCR 060 005 070	6 X R0.5	7	-	105	6	
2DCR 060 005 200	6 X R0.5	7	20	105	6	
2DCR 060 005 300	6 X R0.5	7	30	105	6	
2DCR 060 005 500	6 X R0.5	7	50	105	6	
2DCR 060 010 070	6 X R1	7	-	105	6	
2DCR 060 010 200	6 X R1	7	20	105	6	
2DCR 060 010 300	6 X R1	7	30	105	6	
2DCR 060 010 500	6 X R1	7	50	105	6	

4DCR

4 Flutes Diamond Coated Corner Radius End Mills for Graphite

4날 흑연가공용 다이아몬드 코팅 코너 레디우스 엔드밀

New



- **그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀**
- CVD 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
- 다양한 피삭재의 형상에 적용하도록 규격을 다양화하여, 넓은 가공 영역에 뛰어난 수명과 성능을 발휘합니다.

- **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.

4 | UWC 초미립자 | DIA. Coating | R ±0.01 | 30° Helix Angle

Ø2 ~ Ø12

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4DCR 020 0005 035	2 X R0.05	3.5	-	60	4	
4DCR 020 0005 060	2 X R0.05	3.5	6	60	4	
4DCR 020 0005 120	2 X R0.05	3.5	12	60	4	
4DCR 020 0005 180	2 X R0.05	3.5	18	60	4	
4DCR 020 0005 250	2 X R0.05	3.5	25	60	4	
4DCR 020 0005 300	2 X R0.05	3.5	30	60	4	
4DCR 020 002 035	2 X R0.2	3.5	-	60	4	
4DCR 020 002 060	2 X R0.2	3.5	6	60	4	
4DCR 020 002 120	2 X R0.2	3.5	12	60	4	
4DCR 020 002 180	2 X R0.2	3.5	18	60	4	
4DCR 020 002 250	2 X R0.2	3.5	25	60	4	
4DCR 020 002 300	2 X R0.2	3.5	30	60	4	
4DCR 020 003 035	2 X R0.3	3.5	-	60	4	
4DCR 020 003 060	2 X R0.3	3.5	6	60	4	
4DCR 020 003 120	2 X R0.3	3.5	12	60	4	
4DCR 020 003 180	2 X R0.3	3.5	18	60	4	
4DCR 020 003 250	2 X R0.3	3.5	25	60	4	
4DCR 020 003 300	2 X R0.3	3.5	30	60	4	
4DCR 020 005 035	2 X R0.5	3.5	-	60	4	
4DCR 020 005 060	2 X R0.5	3.5	6	60	4	
4DCR 020 005 120	2 X R0.5	3.5	12	60	4	
4DCR 020 005 180	2 X R0.5	3.5	18	60	4	
4DCR 020 005 250	2 X R0.5	3.5	25	60	4	
4DCR 020 005 300	2 X R0.5	3.5	30	60	4	
4DCR 030 0005 040	3 X R0.05	4	-	80	4	
4DCR 030 0005 100	3 X R0.05	4	10	80	4	
4DCR 030 0005 200	3 X R0.05	4	20	80	4	
4DCR 030 0005 300	3 X R0.05	4	30	80	4	
4DCR 030 0005 400	3 X R0.05	4	40	80	4	
4DCR 030 002 040	3 X R0.2	4	-	80	4	
4DCR 030 002 100	3 X R0.2	4	10	80	4	
4DCR 030 002 200	3 X R0.2	4	20	80	4	
4DCR 030 002 300	3 X R0.2	4	30	80	4	
4DCR 030 002 400	3 X R0.2	4	40	80	4	
4DCR 030 003 040	3 X R0.3	4	-	80	4	
4DCR 030 003 100	3 X R0.3	4	10	80	4	
4DCR 030 003 200	3 X R0.3	4	20	80	4	
4DCR 030 003 300	3 X R0.3	4	30	80	4	
4DCR 030 003 400	3 X R0.3	4	40	80	4	
4DCR 030 005 040	3 X R0.5	4	-	80	4	
4DCR 030 005 100	3 X R0.5	4	10	80	4	
4DCR 030 005 200	3 X R0.5	4	20	80	4	
4DCR 030 005 300	3 X R0.5	4	30	80	4	
4DCR 030 005 400	3 X R0.5	4	40	80	4	
4DCR 030 010 040	3 X R1	4	-	80	4	
4DCR 030 010 100	3 X R1	4	10	80	4	
4DCR 030 010 200	3 X R1	4	20	80	4	
4DCR 030 010 300	3 X R1	4	30	80	4	

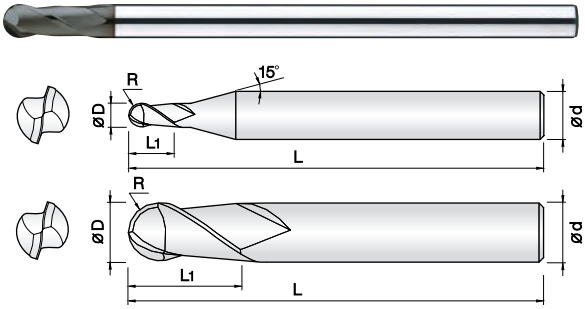
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4DCR 030 010 400	3 X R1	4	40	80	4	
4DCR 040 003 100	4 X R0.3	6	20	100	4	
4DCR 040 005 100	4 X R0.5	6	20	100	4	
4DCR 040 010 100	4 X R1	6	20	100	4	
4DCR 060 003 105	6 X R0.3	9	25	105	6	
4DCR 060 005 105	6 X R0.5	9	25	105	6	
4DCR 060 005 150	6 X R0.5	9	30	150	6	
4DCR 060 010 105	6 X R1	9	25	105	6	
4DCR 060 010 150	6 X R1	9	30	150	6	
4DCR 080 003 105	8 X R0.3	12	30	105	8	
4DCR 080 005 105	8 X R0.5	12	30	105	8	
4DCR 080 005 150	8 X R0.5	12	40	150	8	
4DCR 080 010 105	8 X R1	12	30	105	8	
4DCR 080 010 150	8 X R1	12	40	150	8	
4DCR 100 005 105	10 X R0.5	15	35	105	10	
4DCR 100 005 160	10 X R0.5	15	45	160	10	
4DCR 100 010 105	10 X R1	15	35	105	10	
4DCR 100 010 160	10 X R1	15	45	160	10	
4DCR 120 005 105	12 X R0.5	18	40	105	12	
4DCR 120 005 160	12 X R0.5	18	45	160	12	
4DCR 120 010 105	12 X R1	18	40	105	12	
4DCR 120 010 160	12 X R1	18	45	160	12	

2CPB

2 Flutes Ball End Mills for Composite

2날 복합소재 가공용 볼 엔드밀

New



- **강화플라스틱(CFRP), 유리/탄소섬유, 동 및 동합금 등 비철 비금속 계열의 다양한 복합소재 전용 엔드밀**
- 다양한 복합소재 가공영역에 뛰어난 성능을 발휘합니다.
- 코팅피막에 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- **Endmills for CFRP, glass/carbon fiber, copper, copper alloy, nonferrous and non-metallic materials.**
- Outstanding performance in machining of various composite materials.
- Excellent wear resistance by applying high hardness coating layer.
- Minimize built up edge by low friction diamond coating technology.

2 | UWC 초미립자 | DIA. Coating | R ±0.005 (0.25R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

단위 : mm

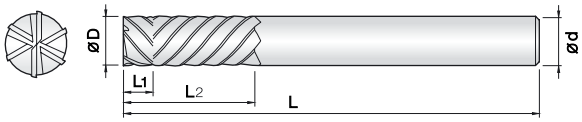
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CPB 005 010 S04	0.25R X 0.5	1	50	4	
2CPB 006 012 S04	0.3R X 0.6	1.2	50	4	
2CPB 008 020 S04	0.4R X 0.8	2	50	4	
2CPB 010 025 S04	0.5R X 1	2.5	50	4	
2CPB 015 040 S04	0.75R X 1.5	4	50	4	
2CPB 020 050 S04	1R X 2	5	50	4	
2CPB 025 060 S04	1.25R X 2.5	6	50	4	
2CPB 030 080 S06	1.5R X 3	8	60	6	
2CPB 040 080 S06	2R X 4	8	70	6	
2CPB 050 100 S06	2.5R X 5	10	80	6	
2CPB 060 120 080	3R X 6	12	80	6	
2CPB 060 120 105	3R X 6	12	105	6	
2CPB 080 140 080	4R X 8	14	80	8	
2CPB 080 140 105	4R X 8	14	105	8	
2CPB 100 180 080	5R X 10	18	80	10	
2CPB 100 180 105	5R X 10	18	105	10	
2CPB 120 220 080	6R X 12	22	80	12	
2CPB 120 220 105	6R X 12	22	105	12	

3~6CPR

3~6 Flutes Compresion Router for Composite

3~6날 복합소재 가공용 라우터

New



- **강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 복합소재 전용 라우터**
- 측벽가공시 공작물의 떠올림 현상이 없습니다.
- 피삭재에 버가 발생하지 않습니다.
- 코팅피막의 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- **Router for CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- No up-moving work material at wall cutting.
- No burr in work materials.
- Excellent wear resistance by applying high hardness coating layer.
- Minimize built up edge by low friction diamond coating technology.

3 | 4 | 6 | UWC 초미립자 | DIA. Coating | D +0 −0.02 (Ø6~ Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø12	+0~ −0.02mm

단위 : mm

Order Number DLC 코팅 DLC Coating	날경 Diameter D	날장 Length of cut L1	날장 Length of cut L2	전장 Overall Length L	생크 Shank Dia d	비고
3CPR 060 200 S06	6	5	20	70	6	
3CPR 080 250 S08	8	5	25	80	8	
3CPR 100 270 S10	10	6	27	80	10	
3CPR 120 300 S12	12	6	30	80	12	

Order Number 다이아코팅 DIA Coating	날경 Diameter D	날장 Length of cut L1	날장 Length of cut L2	전장 Overall Length L	생크 Shank Dia d	비고
4CPR 060 200 S06	6	5	20	70	6	
6CPR 080 250 S08	8	5	25	80	8	
6CPR 100 270 S10	10	6	27	80	10	
6CPR 120 300 S12	12	6	30	80	12	

4~12CPO

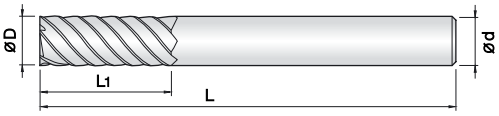
4~12 Flutes Router for Composite

4~12날 복합소재 가공용 라우터

New

A Type

B Type



- **강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 복합소재 전용 라우터**
- 다양한 복합소재의 황삭가공시 뛰어난 성능을 발휘합니다
- A type은 밑날이 2날로서 수직 및 수평가공시 탁월한 성능을 발휘합니다.
- B type은 밑날의 수가 많아 슬로팅 작업에 최적입니다.
- 코팅피막의 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- **Router for CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Outstanding performance in roughing of various composite materials.
- A type has two bottom edges and excellent performance in vertical, horizontal machining.
- B type has many bottom edges and optimized for slotting.
- Excellent wear resistance by applying high hardness coating layer.
- Minimize built up edge by low friction diamond coating technology.

4 ~ 12 | UWC 초미립자 | DIA. Coating | D +0 −0.01 (Ø4~Ø5) | D +0 −0.02 (Ø6~ Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
4CPOA 040 160 S04	4	16	60	A	4	
4CPOB 040 160 S04	4	16	60	B	4	
6CPOA 050 200 S06	5	20	60	A	6	
6CPOB 050 200 S06	5	20	60	B	6	
6CPOA 060 200 S06	6	20	70	A	6	
6CPOB 060 200 S06	6	20	70	B	6	
8CPOA 080 250 S08	8	25	80	A	8	
8CPOB 080 250 S08	8	25	80	B	8	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
10CPOA 100 270 S10	10	27	80	A	8	
10CPOB 100 270 S10	10	27	80	B	8	
12CPOA 120 300 S12	12	30	80	A	10	
12CPOB 120 300 S12	12	30	80	B	10	

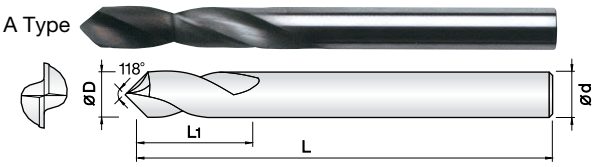
2DDC

2 Flutes Diamond Coated Drills for Composite

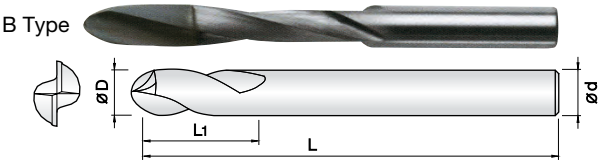
2날 복합소재 가공용 다이아몬드 코팅드릴

New

A Type



B Type



- **강화플라스틱(CFRP), 유리/탄소섬유, 동 및 동합금 등 비철 비금속 계열의 다양한 복합소재 전용 엔드밀**
- 다양한 복합소재 가공영역에 뛰어난 성능을 발휘합니다.
- 코팅피막에 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- **Endmills for CFRP, glass/carbon fiber, copper, copper alloy, nonferrous and non-metallic materials.**
- Outstanding performance in machining of various composite materials.
- Excellent wear resistance by applying high hardness coating layer.
- Minimize built up edge by low friction diamond coating technology.

2 | UWC 초미립자 | DIA. Coating | D +0 −0.01 (Ø2~Ø5.5) | D +0 −0.02 (Ø6~ Ø12) | 20° Helix Angle

Size	D Tolerance
D ≦ Ø5.5	+0~ −0.01mm
D > Ø5.5	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
2DDCA 020 160 S04	2	16	60	A	4	
2DDCA 023 180 S04	2.3	18	60	A	4	
2DDCA 025 200 S04	2.5 X M3	20	60	A	4	
2DDCA 030 220 S04	3	22	60	A	4	
2DDCA 033 230 S04	3.3 X M4	23	60	A	4	
2DDCA 035 270 S04	3.5	27	60	A	4	
2DDCA 040 300 S04	4	30	60	A	4	
2DDCA 042 300 S06	4.2 X M5	30	80	A	6	
2DDCA 045 330 S06	4.5	33	80	A	6	
2DDCA 050 360 S06	5 X M6	36	80	A	6	
2DDCA 055 380 S06	5.5	38	80	A	6	
2DDCA 060 380 S06	6	38	80	A	6	
2DDCA 065 450 S08	6.5	45	90	A	8	
2DDCA 068 450 S08	6.8 X M8	45	90	A	8	
2DDCA 070 450 S08	7	45	90	A	8	
2DDCA 075 480 S08	7.5	48	90	A	8	
2DDCA 080 480 S08	8	48	90	A	8	
2DDCA 085 510 S10	8.5 X M10	51	105	A	10	
2DDCA 090 540 S10	9	54	105	A	10	
2DDCA 095 540 S10	9.5	54	105	A	10	
2DDCA 100 600 S10	10	60	105	A	10	
2DDCA 103 600 S12	10.3 X M12	60	105	A	12	
2DDCA 105 600 S12	10.5	60	105	A	12	
2DDCA 110 650 S12	11	65	105	A	12	
2DDCA 115 650 S12	11.5	65	105	A	12	
2DDCA 120 700 S12	12	70	120	A	12	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	생크 Shank Dia d	비고
2DDCB 020 160 S04	2	16	60	B	4	
2DDCB 023 180 S04	2.3	18	60	B	4	
2DDCB 025 200 S04	2.5 X M3	20	60	B	4	
2DDCB 030 220 S04	3	22	60	B	4	
2DDCB 033 230 S04	3.3 X M4	23	60	B	4	
2DDCB 035 270 S04	3.5	27	60	B	4	
2DDCB 040 300 S04	4	30	60	B	4	
2DDCB 042 300 S06	4.2 X M5	30	80	B	6	
2DDCB 045 330 S06	4.5	33	80	B	6	
2DDCB 050 360 S06	5 X M6	36	80	B	6	
2DDCB 055 380 S06	5.5	38	80	B	6	
2DDCB 060 380 S06	6	38	80	B	6	
2DDCB 065 450 S08	6.5	45	90	B	8	
2DDCB 068 450 S08	6.8 X M8	45	90	B	8	
2DDCB 070 450 S08	7	45	90	B	8	
2DDCB 075 480 S08	7.5	48	90	B	8	
2DDCB 080 480 S08	8	48	90	B	8	
2DDCB 085 510 S10	8.5 X M10	51	105	B	10	
2DDCB 090 540 S10	9	54	105	B	10	
2DDCB 095 540 S10	9.5	54	105	B	10	
2DDCB 100 600 S10	10	60	105	B	10	
2DDCB 103 600 S12	10.3 X M12	60	105	B	12	
2DDCB 105 600 S12	10.5	60	105	B	12	
2DDCB 110 650 S12	11	65	105	B	12	
2DDCB 115 650 S12	11.5	65	105	B	12	
2DDCB 120 700 S12	12	70	120	B	12	

■ B type drills benefit (특장점)

버 발생을 최소화한 공구 설계
Minimize burr by the best drill design

Machining Sample

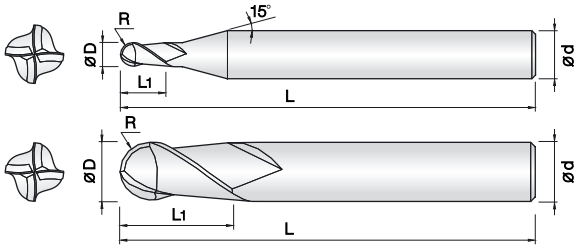
2DDCB type　　Other manufacturer

4SUB

4 Flutes 45° Helix Ball End Mills for SUS

4날 45° 헬릭스 SUS가공용 볼 엔드밀

New



- **합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Excellent work surface finish by 4 flute and deep chip pocket.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | JMAX Coating | R ±0.005 (1.5R ~ 3R) | R ±0.01 (4R ~ 8R) | 45° Helix Angle

Size	D Tolerance
D ≦ ø5	+0 ~ −0.01mm
D > ø5	+0 ~ −0.02mm

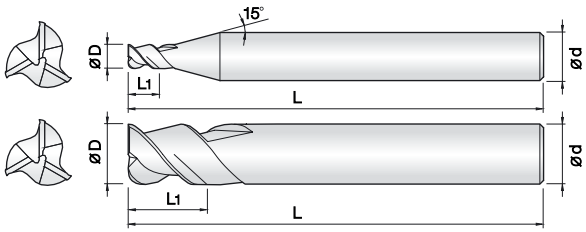
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4SUB 030 080 S06	1.5R X 3	8	60	6	
4SUB 040 080 S06	2R X 4	8	70	6	
4SUB 050 100 S06	2.5R X 5	10	80	6	
4SUB 060 120 S06	3R X 6	12	90	6	
4SUB 080 140 S08	4R X 8	14	100	8	
4SUB 100 180 S10	5R X 10	18	100	10	
4SUB 120 220 S12	6R X 12	22	110	12	
4SUB 160 300 S16	8R X 16	30	130	16	

3SUE

3 Flutes 45° Helix End Mills for SUS

3날 45°헬릭스 SUS가공용 엔드밀



- **합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 3날 적용 및 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- Good wear resistance by Si-based PVD coating.
- Excellent work surface finish by 3 flute and deep chip pocket.
- 45° degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø0.8~ Ø5) | D +0 −0.02 (Ø6~ Ø16) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 3SUE 008 020 S04	0.8	2	45	4	
3SUE 010 025 S04	1	2.5	45	4	
New 3SUE 010 025 S06	1	2.5	45	6	
New 3SUE 012 030 S04	1.2	3	45	4	
New 3SUE 012 030 S06	1.2	3	45	6	
3SUE 015 040 S04	1.5	4	45	4	
New 3SUE 015 040 S06	1.5	4	45	6	
3SUE 020 050 S04	2	5	45	4	
New 3SUE 020 050 S06	2	5	45	6	
3SUE 030 080 S04	3	8	45	4	
New 3SUE 030 080 S06	3	8	45	6	
3SUE 040 100 S04	4	10	50	4	
3SUE 040 100 S06	4	10	50	6	
3SUE 050 120 S06	5	12	50	6	
3SUE 060 120 S06	6	12	50	6	
3SUE 080 190 S08	8	19	60	8	
3SUE 100 220 S10	10	22	70	10	
3SUE 120 260 S12	12	26	80	12	
New 3SUE 160 360 S16	16	36	100	16	

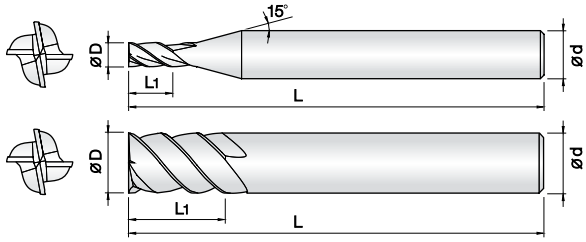
Max. 29% off

4SUE

4 Flutes Non Symmetry End Mills for SUS

4날 SUS가공용 부등분할 엔드밀

New



- **합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 부등분할 방식으로 설계하여 엔드밀의 진동을 최소화 하였습니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize chattering by unequal flute spacing design.
- Excellent work surface finish by 4 flute and deep chip pocket.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | JMAX Coating | D +0 −0.01 (Ø1~Ø5) | D −0.01 −0.03 (Ø6~Ø20) | 42° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	−0.01~ −0.03mm

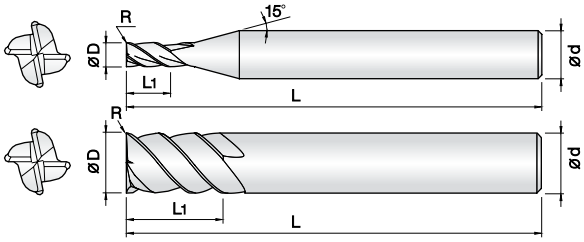
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4SUE 010 015 S04	1	1.5	50	4	
4SUE 010 025 S04	1	2.5	50	4	
4SUE 015 025 S04	1.5	2.5	50	4	
4SUE 015 040 S04	1.5	4	50	4	
4SUE 020 030 S04	2	3	50	4	
4SUE 020 060 S04	2	6	50	4	
4SUE 025 035 S04	2.5	3.5	50	4	
4SUE 025 080 S04	2.5	8	50	4	
4SUE 030 045 S06	3	4.5	60	6	
4SUE 030 100 S06	3	10	60	6	
4SUE 040 060 S06	4	6	60	6	
4SUE 040 120 S06	4	12	60	6	
4SUE 050 075 S06	5	7.5	60	6	
4SUE 050 150 S06	5	15	60	6	
4SUE 060 090 S06	6	9	60	6	
4SUE 060 150 S06	6	15	60	6	
4SUE 060 180 S06	6	18	60	6	
4SUE 070 110 S08	7	11	70	8	
4SUE 070 180 S08	7	18	70	8	
4SUE 070 210 S08	7	21	70	8	
4SUE 080 120 S08	8	12	70	8	
4SUE 080 200 S08	8	20	70	8	
4SUE 080 240 S08	8	24	70	8	
4SUE 090 140 S10	9	14	80	10	
4SUE 090 220 S10	9	22	80	10	
4SUE 090 270 S10	9	27	80	10	
4SUE 100 150 S10	10	15	80	10	
4SUE 100 250 S10	10	25	80	10	
4SUE 100 300 S10	10	30	80	10	
4SUE 110 170 S12	11	17	90	12	
4SUE 110 220 S12	11	22	90	12	
4SUE 110 330 S12	11	33	90	12	
4SUE 120 180 S12	12	18	90	12	
4SUE 120 300 S12	12	30	90	12	
4SUE 120 360 S12	12	36	90	12	
4SUE 160 240 S16	16	24	100	16	
4SUE 160 350 S16	16	35	100	16	
4SUE 200 300 S20	20	30	100	20	
4SUE 200 400 S20	20	40	100	20	

4SUC

4 Flutes Non Symmetry Corner Radius End Mills for SUS

4날 SUS가공용 부등분할 코너 레디우스 엔드밀



- **합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 부등분할 방식으로 설계하여 엔드밀의 진동을 최소화 하였습니다.
- 코너R부 적용으로 밑날 치핑을 방지 하였습니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize chattering by unequal flute spacing design.
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | JMAX Coating | R ±0.01 | 42° Helix Angle

Ø3~Ø20

Size	D Tolerance
D ≦ Ø5.5	+0~ −0.01mm
D > Ø5.5	+0~ −0.02mm

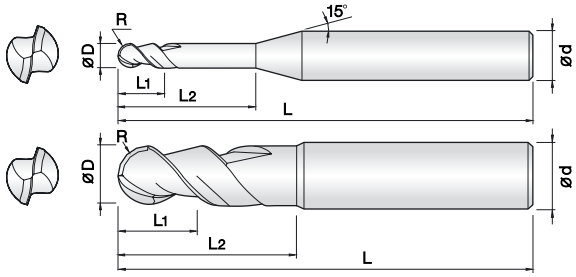
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4SUC 030 002 S06	3 X R0.2	10	60	6	
New 4SUC 030 005 S06	3 X R0.5	10	60	6	
4SUC 035 002 S06	3.5 X R0.2	10	60	6	
4SUC 040 002 S06	4 X R0.2	12	60	6	
New 4SUC 040 005 S06	4 X R0.5	12	60	6	
4SUC 045 002 S06	4.5 X R0.2	14	60	6	
4SUC 050 002 S06	5 X R0.2	15	60	6	
New 4SUC 050 005 S06	5 X R0.5	15	60	6	
4SUC 055 002 S06	5.5 X R0.2	15	60	6	
4SUC 060 003 S06	6 X R0.3	15	60	6	
New 4SUC 060 005 S06	6 X R0.5	15	60	6	
New 4SUC 060 010 S06	6 X R1	15	60	6	
4SUC 065 003 S08	6.5 X R0.3	18	60	8	
4SUC 070 003 S08	7 X R0.3	20	80	8	
4SUC 080 003 S08	8 X R0.3	20	80	8	
New 4SUC 080 005 S08	8 X R0.5	20	80	8	
New 4SUC 080 010 S08	8 X R1	20	80	8	
4SUC 085 003 S10	8.5 X R0.3	22	80	10	
4SUC 090 003 S10	9 X R0.3	25	80	10	
4SUC 100 003 S10	10 X R0.3	25	80	10	
New 4SUC 100 005 S10	10 X R0.5	25	80	10	
New 4SUC 100 010 S10	10 X R1	25	80	10	
New 4SUC 100 015 S10	10 X R1.5	25	80	10	
New 4SUC 100 020 S10	10 X R2	25	80	10	
4SUC 120 005 S12	12 X R0.5	30	100	12	
New 4SUC 120 010 S12	12 X R1	30	100	12	
New 4SUC 120 015 S12	12 X R1.5	30	100	12	
New 4SUC 120 020 S12	12 X R2	30	100	12	
New 4SUC 120 025 S12	12 X R2.5	30	100	12	
New 4SUC 120 030 S12	12 X R3	30	100	12	
4SUC 160 005 S16	16 X R0.5	42	110	16	
New 4SUC 160 010 S16	16 X R1	42	110	16	
4SUC 200 005 S20	20 X R0.5	48	110	20	
New 4SUC 200 010 S20	20 X R1	48	110	20	

2COB

2 Flutes 45° Helix Rib Ball End Mills for Copper

2날 45° 헬릭스 동가공 전용 리브볼 엔드밀



2 | UWC 초미립자 | JMAX Coating | R ±0.005 (0.5R ~ 3R) | R ±0.01 (4R ~ 8R) | 45° Helix Angle

- **동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 45° 헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 우수하며, 고속,고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- High speed, feed applicable by 45° degree helix and deep chip pocket design
- Outstanding performance at high speed machining by ultra fine(0.2㎛) WC grade.

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

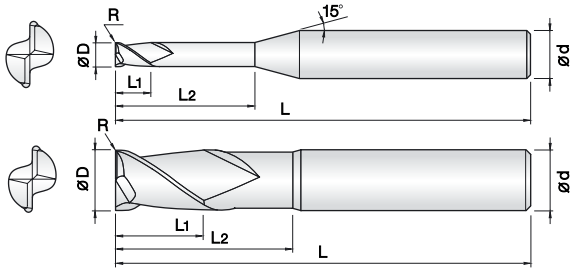
단위 : mm

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 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	
New 2COB 010 100 S04	0.5R X 1	1.5	10	50	4	
New 2COB 010 120 S04	0.5R X 1	1.5	12	50	4	
New 2COB 010 160 S04	0.5R X 1	1.5	16	50	4	
New 2COB 010 200 S04	0.5R X 1	1.5	20	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	
New 2COB 015 120 S04	0.75R X 1.5	2	12	50	4	
New 2COB 015 160 S04	0.75R X 1.5	2	16	50	4	
New 2COB 015 200 S04	0.75R X 1.5	2	20	50	4	
2COB 020 050 S06	1R X 2	3	5	60	6	
2COB 020 080 S06	1R X 2	3	8	60	6	
2COB 020 100 S06	1R X 2	3	10	60	6	
2COB 020 120 S06	1R X 2	3	12	60	6	
2COB 020 160 S06	1R X 2	3	16	60	6	
New 2COB 020 200 S06	1R X 2	3	20	60	6	
New 2COB 020 250 S06	1R X 2	3	25	60	6	
New 2COB 025 060 S06	1.25R X 2.5	4	6	60	6	
New 2COB 025 100 S06	1.25R X 2.5	4	10	60	6	
New 2COB 025 120 S06	1.25R X 2.5	4	12	60	6	
New 2COB 025 160 S06	1.25R X 2.5	4	16	60	6	
New 2COB 025 200 S06	1.25R X 2.5	4	20	60	6	
2COB 030 080 S06	1.5R X 3	4.5	8	70	6	
2COB 030 120 S06	1.5R X 3	4.5	12	70	6	
2COB 030 160 S06	1.5R X 3	4.5	16	70	6	
2COB 030 200 S06	1.5R X 3	4.5	20	70	6	
New 2COB 030 250 S06	1.5R X 3	4.5	25	70	6	
New 2COB 030 300 S06	1.5R X 3	4.5	30	70	6	
New 2COB 030 400 S06	1.5R X 3	4.5	40	80	6	
2COB 040 100 S06	2R X 4	6	10	70	6	
2COB 040 160 S06	2R X 4	6	16	70	6	
2COB 040 200 S06	2R X 4	6	20	70	6	
2COB 040 250 S06	2R X 4	6	25	70	6	
New 2COB 040 300 S06	2R X 4	6	30	70	6	
New 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	
New 2COB 060 300 S06	3R X 6	9	30	90	6	
New 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	
New 2COB 160 600 S16	8R X 16	30	60	160	16	

2COR

2 Flutes Rib Corner Radius End Mills for Copper

2날 동가공용 리브 코너 레디우스 엔드밀



- **동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 깊은 포켓으로 설계하여 칩배출이 원활합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Smooth chip outflow by deep chip pocket.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | JMAX Coating | R ±0.005 (Ø1~Ø6) | R ±0.01 (Ø8~Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

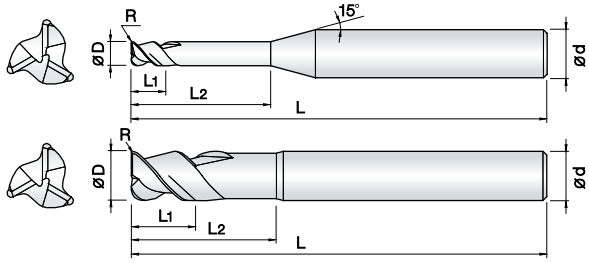
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2COR 010 001 040	1 X R0.1	1.5	4	50	4	
New 2COR 010 001 060	1 X R0.1	1.5	6	50	4	
New 2COR 010 001 080	1 X R0.1	1.5	8	50	4	
New 2COR 010 001 100	1 X R0.1	1.5	10	50	4	
New 2COR 010 001 120	1 X R0.1	1.5	12	50	4	
New 2COR 010 001 160	1 X R0.1	1.5	16	50	4	
New 2COR 010 001 200	1 X R0.1	1.5	20	50	4	
New 2COR 015 001 060	1.5 X R0.1	2	6	50	4	
New 2COR 015 001 100	1.5 X R0.1	2	10	50	4	
New 2COR 015 001 120	1.5 X R0.1	2	12	50	4	
New 2COR 015 001 160	1.5 X R0.1	2	16	50	4	
New 2COR 015 001 200	1.5 X R0.1	2	20	50	4	
New 2COR 015 001 250	1.5 X R0.1	2	25	60	4	
New 2COR 015 002 060	1.5 X R0.2	2	6	50	4	
New 2COR 015 002 100	1.5 X R0.2	2	10	50	4	
New 2COR 015 002 120	1.5 X R0.2	2	12	50	4	
New 2COR 015 002 160	1.5 X R0.2	2	16	50	4	
New 2COR 015 002 200	1.5 X R0.2	2	20	50	4	
New 2COR 015 002 250	1.5 X R0.2	2	25	60	4	
2COR 020 002 060	2 X R0.2	3	6	50	4	
2COR 020 002 100	2 X R0.2	3	10	50	4	
New 2COR 020 002 120	2 X R0.2	3	12	50	4	
New 2COR 020 002 160	2 X R0.2	3	16	50	4	
New 2COR 020 002 200	2 X R0.2	3	20	50	4	
New 2COR 020 002 250	2 X R0.2	3	25	60	4	
2COR 020 005 060	2 X R0.5	3	6	50	4	
2COR 020 005 100	2 X R0.5	3	10	50	4	
New 2COR 020 005 120	2 X R0.5	3	12	50	4	
2COR 020 005 140	2 X R0.5	3	14	50	4	
New 2COR 020 005 160	2 X R0.5	3	16	50	4	
New 2COR 020 005 200	2 X R0.5	3	20	50	4	
New 2COR 020 005 250	2 X R0.5	3	25	60	4	
New 2COR 025 002 060	2.5 X R0.2	3.5	6	50	4	
New 2COR 025 002 100	2.5 X R0.2	3.5	10	50	4	
New 2COR 025 002 120	2.5 X R0.2	3.5	12	50	4	
New 2COR 025 002 160	2.5 X R0.2	3.5	16	50	4	
New 2COR 025 002 200	2.5 X R0.2	3.5	20	50	4	
New 2COR 025 002 250	2.5 X R0.2	3.5	25	60	4	
New 2COR 025 005 060	2.5 X R0.5	3.5	6	50	4	
New 2COR 025 005 100	2.5 X R0.5	3.5	10	50	4	
New 2COR 025 005 120	2.5 X R0.5	3.5	12	50	4	
New 2COR 025 005 160	2.5 X R0.5	3.5	16	50	4	
New 2COR 025 005 200	2.5 X R0.5	3.5	20	50	4	
New 2COR 025 005 250	2.5 X R0.5	3.5	25	60	4	
2COR 030 002 100	3 X R0.2	4	10	55	6	
2COR 030 002 120	3 X R0.2	4	12	55	6	
2COR 030 002 160	3 X R0.2	4	16	55	6	
2COR 030 002 200	3 X R0.2	4	20	55	6	

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2COR 030 002 250	3 X R0.2	4	25	65	6	
New 2COR 030 002 300	3 X R0.2	4	30	70	6	
New 2COR 030 002 350	3 X R0.2	4	35	75	6	
New 2COR 030 002 400	3 X R0.2	4	40	80	6	
2COR 030 005 100	3 X R0.5	4	10	55	6	
2COR 030 005 120	3 X R0.5	4	12	55	6	
2COR 030 005 160	3 X R0.5	4	16	55	6	
2COR 030 005 200	3 X R0.5	4	20	55	6	
New 2COR 030 005 250	3 X R0.5	4	25	65	6	
New 2COR 030 005 300	3 X R0.5	4	30	70	6	
New 2COR 030 005 350	3 X R0.5	4	35	75	6	
New 2COR 030 005 400	3 X R0.5	4	40	80	6	
2COR 040 002 120	4 X R0.2	5	12	55	6	
2COR 040 002 160	4 X R0.2	5	16	55	6	
2COR 040 002 200	4 X R0.2	5	20	55	6	
New 2COR 040 002 300	4 X R0.2	5	30	70	6	
New 2COR 040 002 400	4 X R0.2	5	40	80	6	
2COR 040 005 120	4 X R0.5	5	12	55	6	
2COR 040 005 160	4 X R0.5	5	16	55	6	
2COR 040 005 200	4 X R0.5	5	20	55	6	
New 2COR 040 005 300	4 X R0.5	5	30	70	6	
New 2COR 040 005 400	4 X R0.5	5	40	80	6	
2COR 060 002 200	6 X R0.2	7	20	60	6	
2COR 060 005 200	6 X R0.5	7	20	60	6	
2COR 060 010 200	6 X R1	7	20	60	6	
2COR 060 015 200	6 X R1.5	7	20	60	6	
2COR 080 005 250	8 X R0.5	9	25	65	8	
2COR 080 010 250	8 X R1	9	25	65	8	
2COR 080 015 250	8 X R1.5	9	25	65	8	
2COR 100 005 320	10 X R0.5	11	32	70	10	
2COR 100 010 320	10 X R1	11	32	70	10	
2COR 100 015 320	10 X R1.5	11	32	70	10	
2COR 120 005 380	12 X R0.5	12	38	80	12	
2COR 120 010 380	12 X R1	12	38	80	12	
2COR 120 015 380	12 X R1.5	12	38	80	12	

3COR

3 Flutes 45° Helix Rib Corner Radius End Mills for Copper

3날 45° 헬릭스 동가공용 리브 코너 레디우스 엔드밀



- **동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 3날 45° 헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 원활하며, 고속,고이송 작업에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- High speed, feed applicable by 3 flute 45°degree helix and deep chip pocket design.
- Outstanding performance at high speed machining by ultra fine(0.2㎛) WC grade.

3 | UWC 초미립자 | JMAX Coating | R ±0.005 Ø1~Ø6 | R ±0.01 Ø8~Ø12 | 45° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3COR 010 001 030	1 X R0.1	1.5	3	45	4	
New 3COR 010 001 060	1 X R0.1	1.5	6	45	4	
New 3COR 010 001 100	1 X R0.1	1.5	10	45	4	
3COR 010 002 030	1 X R0.2	1.5	3	45	4	
New 3COR 010 002 060	1 X R0.2	1.5	6	45	4	
New 3COR 010 002 100	1 X R0.2	1.5	10	45	4	
3COR 015 001 050	1.5 X R0.1	2	5	45	4	
New 3COR 015 001 080	1.5 X R0.1	2	8	45	4	
New 3COR 015 001 120	1.5 X R0.1	2	12	45	4	
3COR 015 002 050	1.5 X R0.2	2	5	45	4	
New 3COR 015 002 080	1.5 X R0.2	2	8	45	4	
New 3COR 015 002 120	1.5 X R0.2	2	12	45	4	
3COR 020 001 060	2 X R0.1	3	6	45	4	
New 3COR 020 001 100	2 X R0.1	3	10	45	4	
New 3COR 020 001 140	2 X R0.1	3	14	45	4	
3COR 020 002 060	2 X R0.2	3	6	45	4	
New 3COR 020 002 100	2 X R0.2	3	10	45	4	
New 3COR 020 002 140	2 X R0.2	3	14	45	4	
3COR 025 001 080	2.5 X R0.1	3.5	8	45	4	
New 3COR 025 001 120	2.5 X R0.1	3.5	12	45	4	
New 3COR 025 001 160	2.5 X R0.1	3.5	16	45	4	
3COR 025 002 080	2.5 X R0.2	3.5	8	45	4	
New 3COR 025 002 120	2.5 X R0.2	3.5	12	45	4	
New 3COR 025 002 160	2.5 X R0.2	3.5	16	45	4	
3COR 025 005 080	2.5 X R0.5	3.5	8	45	4	
New 3COR 025 005 120	2.5 X R0.5	3.5	12	45	4	
New 3COR 025 005 160	2.5 X R0.5	3.5	16	45	4	
3COR 030 002 100	3 X R0.2	4	10	50	4	
New 3COR 030 002 160	3 X R0.2	4	16	50	4	
New 3COR 030 002 200	3 X R0.2	4	20	50	4	
3COR 030 003 100	3 X R0.3	4	10	50	4	
New 3COR 030 003 160	3 X R0.3	4	16	50	4	
New 3COR 030 003 200	3 X R0.3	4	20	50	4	
3COR 030 005 100	3 X R0.5	4	10	50	4	
New 3COR 030 005 160	3 X R0.5	4	16	50	4	
New 3COR 030 005 200	3 X R0.5	4	20	50	4	
3COR 040 002 120	4 X R0.2	6	12	50	4	
New 3COR 040 002 160	4 X R0.2	6	16	50	4	
New 3COR 040 002 200	4 X R0.2	6	20	50	4	
3COR 040 003 120	4 X R0.3	6	12	50	4	
New 3COR 040 003 160	4 X R0.3	6	16	50	4	
New 3COR 040 003 200	4 X R0.3	6	20	50	4	
3COR 040 005 120	4 X R0.5	6	12	50	4	
New 3COR 040 005 160	4 X R0.5	6	16	50	4	
New 3COR 040 005 200	4 X R0.5	6	20	50	4	
3COR 060 003 200	6 X R0.3	9	20	55	6	
New 3COR 060 003 300	6 X R0.3	9	30	70	6	
3COR 060 005 200	6 X R0.5	9	20	55	6	

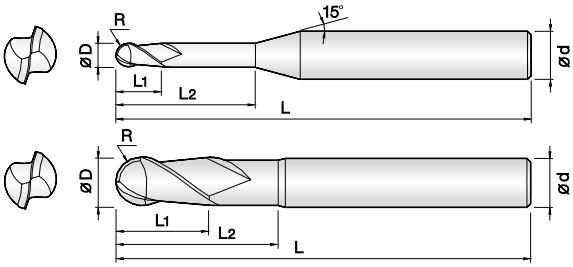
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 3COR 060 005 300	6 X R0.5	9	30	70	6	
3COR 060 010 200	6 X R1	9	20	55	6	
New 3COR 060 010 300	6 X R1	9	30	70	6	
3COR 080 003 S08	8 X R0.3	12	25	65	8	
3COR 080 005 S08	8 X R0.5	12	25	65	8	
3COR 080 010 S08	8 X R1	12	25	65	8	
3COR 100 005 S10	10 X R0.5	15	30	70	10	
3COR 100 010 S10	10 X R1	15	30	70	10	
New 3COR 120 005 S12	12 X R0.5	20	35	80	12	
New 3COR 120 010 S12	12 X R1	20	35	80	12	

2DRB

2 Flutes DLC Coated Rib Ball End Mills for Non-Ferrous Metal

2날 비철가공용 DLC코팅 리브 볼 엔드밀

New



- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

2 | UWC 초미립자 | DLC Coating | LR ±0.005 (0.05R ~ 3R) | LR ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

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
2DRB 001 003 S04	0.05R X 0.1	0.3	-	45	4	
2DRB 002 005 S04	0.1R X 0.2	0.5	-	45	4	
2DRB 002 010 S04	0.1R X 0.2	0.2	1	45	4	
2DRB 002 015 S04	0.1R X 0.2	0.2	1.5	45	4	
2DRB 002 020 S04	0.1R X 0.2	0.2	2	45	4	
2DRB 003 010 S04	0.15R X 0.3	0.3	1	45	4	
2DRB 003 015 S04	0.15R X 0.3	0.3	1.5	45	4	
2DRB 003 020 S04	0.15R X 0.3	0.3	2	45	4	
2DRB 004 010 S04	0.2R X 0.4	0.4	1	45	4	
2DRB 004 020 S04	0.2R X 0.4	0.4	2	45	4	
2DRB 004 030 S04	0.2R X 0.4	0.4	3	45	4	
2DRB 004 040 S04	0.2R X 0.4	0.4	4	45	4	
2DRB 004 050 S04	0.2R X 0.4	0.4	5	45	4	
2DRB 005 020 S04	0.25R X 0.5	0.5	2	45	4	
2DRB 005 040 S04	0.25R X 0.5	0.5	4	45	4	
2DRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	
2DRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	
2DRB 005 100 S04	0.25R X 0.5	0.5	10	45	4	
2DRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2DRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2DRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2DRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2DRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2DRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2DRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2DRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2DRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2DRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2DRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2DRB 010 040 S04	0.5R X 1	1	4	45	4	
2DRB 010 060 S04	0.5R X 1	1	6	45	4	
2DRB 010 080 S04	0.5R X 1	1	8	45	4	
2DRB 010 100 S04	0.5R X 1	1	10	45	4	
2DRB 010 120 S04	0.5R X 1	1	12	45	4	
2DRB 010 160 S04	0.5R X 1	1	16	50	4	
2DRB 015 060 S04	0.75R X 1.5	1.5	6	45	4	
2DRB 015 080 S04	0.75R X 1.5	1.5	8	45	4	
2DRB 015 100 S04	0.75R X 1.5	1.5	10	45	4	
2DRB 015 120 S04	0.75R X 1.5	1.5	12	45	4	
2DRB 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2DRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2DRB 020 060 S04	1R X 2	3	6	45	4	
2DRB 020 080 S04	1R X 2	3	8	45	4	
2DRB 020 100 S04	1R X 2	3	10	45	4	
2DRB 020 120 S04	1R X 2	3	12	45	4	
2DRB 020 160 S04	1R X 2	3	16	50	4	
2DRB 020 200 S04	1R X 2	3	20	50	4	
2DRB 020 250 S04	1R X 2	3	25	60	4	

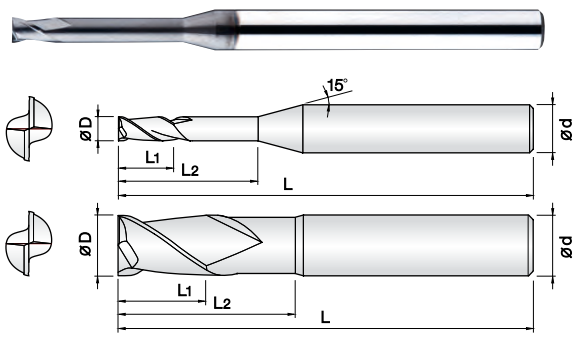
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DRB 020 300 S04	1R X 2	3	30	70	4	
2DRB 030 120 S06	1.5R X 3	4	12	50	6	
2DRB 030 160 S06	1.5R X 3	4	16	60	6	
2DRB 030 200 S06	1.5R X 3	4	20	60	6	
2DRB 030 250 S06	1.5R X 3	4	25	65	6	
2DRB 030 300 S06	1.5R X 3	4	30	70	6	
2DRB 030 400 S06	1.5R X 3	4	40	80	6	
2DRB 040 120 S06	2R X 4	5	12	50	6	
2DRB 040 160 S06	2R X 4	5	16	60	6	
2DRB 040 200 S06	2R X 4	5	20	60	6	
2DRB 040 250 S06	2R X 4	5	25	65	6	
2DRB 040 300 S06	2R X 4	5	30	70	6	
2DRB 050 200 S06	2.5R X 5	6	20	60	6	
2DRB 050 400 S06	2.5R X 5	6	40	80	6	
2DRB 060 200 S06	3R X 6	8	20	60	6	
2DRB 060 300 S06	3R X 6	8	30	90	6	
2DRB 080 200 S08	4R X 8	10	20	70	8	
2DRB 100 250 S10	5R X 10	12	25	80	10	
2DRB 120 250 S12	6R X 12	14	25	80	12	

2DRE

2 Flutes DLC Coated Rib End Mills for Non-Ferrous Metal

2날 비철가공용 DLC코팅리브 엔드밀

New



- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | DLC Coating | D +0 −0.01 (Ø0.1~Ø5) | D +0 −0.02 (Ø6~Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DRE 001 003 S04	0.1	0.3	-	45	4	
2DRE 001 005 S04	0.1	0.5	-	45	4	
2DRE 002 005 S04	0.2	0.5	-	45	4	
2DRE 002 010 S04	0.2	0.3	1	45	4	
2DRE 002 015 S04	0.2	0.3	1.5	45	4	
2DRE 002 020 S04	0.2	0.3	2	45	4	
2DRE 003 010 S04	0.3	0.5	1	45	4	
2DRE 003 015 S04	0.3	0.5	1.5	45	4	
2DRE 003 020 S04	0.3	0.5	2	45	4	
2DRE 004 010 S04	0.4	0.6	1	45	4	
2DRE 004 020 S04	0.4	0.6	2	45	4	
2DRE 004 030 S04	0.4	0.6	3	45	4	
2DRE 004 040 S04	0.4	0.6	4	45	4	
2DRE 004 050 S04	0.4	0.6	5	45	4	
2DRE 005 020 S04	0.5	0.7	2	45	4	
2DRE 005 040 S04	0.5	0.7	4	45	4	
2DRE 005 060 S04	0.5	0.7	6	45	4	
2DRE 005 080 S04	0.5	0.7	8	45	4	
2DRE 005 100 S04	0.5	0.7	10	45	4	
2DRE 006 020 S04	0.6	0.9	2	45	4	
2DRE 006 040 S04	0.6	0.9	4	45	4	
2DRE 006 060 S04	0.6	0.9	6	45	4	
2DRE 006 080 S04	0.6	0.9	8	45	4	
2DRE 006 100 S04	0.6	0.9	10	45	4	
2DRE 008 020 S04	0.8	1.2	2	45	4	
2DRE 008 040 S04	0.8	1.2	4	45	4	
2DRE 008 060 S04	0.8	1.2	6	45	4	
2DRE 008 080 S04	0.8	1.2	8	45	4	
2DRE 008 100 S04	0.8	1.2	10	45	4	
2DRE 008 120 S04	0.8	1.2	12	45	4	
2DRE 010 040 S04	1	1.5	4	45	4	
2DRE 010 060 S04	1	1.5	6	45	4	
2DRE 010 080 S04	1	1.5	8	45	4	
2DRE 010 100 S04	1	1.5	10	45	4	
2DRE 010 120 S04	1	1.5	12	45	4	
2DRE 010 160 S04	1	1.5	16	50	4	
2DRE 015 060 S04	1.5	2.3	6	45	4	
2DRE 015 080 S04	1.5	2.3	8	45	4	
2DRE 015 100 S04	1.5	2.3	10	45	4	
2DRE 015 120 S04	1.5	2.3	12	45	4	
2DRE 015 160 S04	1.5	2.3	16	50	4	
2DRE 015 200 S04	1.5	2.3	20	50	4	
2DRE 020 060 S04	2	3	6	45	4	
2DRE 020 080 S04	2	3	8	45	4	
2DRE 020 100 S04	2	3	10	45	4	
2DRE 020 120 S04	2	3	12	45	4	
2DRE 020 160 S04	2	3	16	50	4	
2DRE 020 200 S04	2	3	20	50	4	

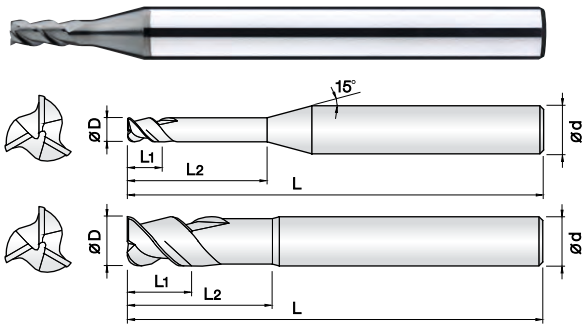
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DRE 030 120 S06	3	4.5	12	50	6	
2DRE 030 160 S06	3	4.5	16	60	6	
2DRE 030 200 S06	3	4.5	20	60	6	
2DRE 030 250 S06	3	4.5	25	65	6	
2DRE 030 300 S06	3	4.5	30	70	6	
2DRE 030 400 S06	3	4.5	40	80	6	
2DRE 040 120 S06	4	6	12	50	6	
2DRE 040 160 S06	4	6	16	60	6	
2DRE 040 200 S06	4	6	20	60	6	
2DRE 040 250 S06	4	6	25	65	6	
2DRE 040 300 S06	4	6	30	70	6	
2DRE 040 400 S06	4	6	40	80	6	
2DRE 050 200 S06	5	6	20	60	6	
2DRE 050 400 S06	5	6	40	80	6	
2DRE 060 200 S06	6	8	20	60	6	
2DRE 060 300 S06	6	8	30	90	6	
2DRE 080 200 S08	8	12	20	70	8	
2DRE 100 250 S10	10	15	25	80	10	
2DRE 120 300 S12	12	18	30	80	12	

3DRE

3 Flutes 45° Helix DLC Coated Rib End Mills for Non-Ferrous Metal

3날 45° 헬릭스 비철 가공용 DLC코팅 리브 엔드밀

New



- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 3날 45°헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 원활하며, 고속,고이송 작업에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- High speed, feed applicable by 3 flute 45°degree helix and deep chip pocket design.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | DLC Coating | D +0 −0.01 (Ø0.1~Ø5) | D +0 −0.02 (Ø6~Ø12) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

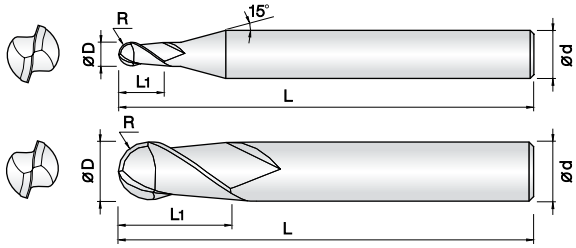
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3DRE 010 030 S04	1	2	3	50	4	
3DRE 015 045 S04	1.5	3	4.5	50	4	
3DRE 020 060 S04	2	4	6	50	4	
3DRE 025 075 S04	2.5	5	7.5	50	4	
3DRE 030 090 S06	3	6	9	60	6	
3DRE 040 120 S06	4	9	12	60	6	
3DRE 050 150 S06	5	10	15	70	6	
3DRE 060 180 S06	6	12	18	70	6	
3DRE 080 240 S08	8	16	24	80	8	
3DRE 100 300 S10	10	20	30	90	10	
3DRE 120 360 S12	12	24	36	100	12	

2DLB

2 Flutes DLC Coated Ball End Mills for Non-Ferrous Metal

2날 비철 가공용 DLC코팅 볼 엔드밀

New



- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | DLC Coating | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm
D > ø6	+0 ~ −0.015mm

단위 : mm

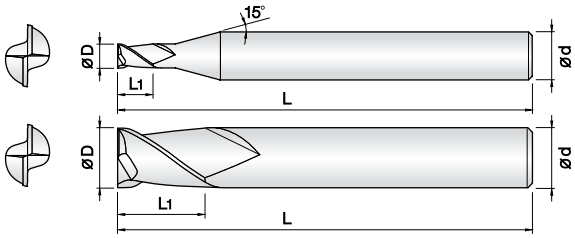
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2DLB 002 004 S04	0.1R X 0.2	0.4	45	4	
2DLB 003 006 S04	0.15R X 0.3	0.6	45	4	
2DLB 004 008 S04	0.2R X 0.4	0.8	45	4	
2DLB 005 010 S04	0.25R X 0.5	1	45	4	
2DLB 006 012 S04	0.3R X 0.6	1.2	45	4	
2DLB 008 020 S04	0.4R X 0.8	2	50	4	
2DLB 010 025 S04	0.5R X 1	2.5	50	4	
2DLB 012 030 S04	0.6R X 1.2	3	50	4	
2DLB 015 040 S04	0.75R X 1.5	4	50	4	
2DLB 020 050 S04	1R X 2	5	50	4	
2DLB 025 060 S04	1.25R X 2.5	6	50	4	
2DLB 030 080 S06	1.5R X 3	8	60	6	
2DLB 040 080 S06	2R X 4	8	70	6	
2DLB 050 100 S06	2.5R X 5	10	80	6	
2DLB 060 120 090	3R X 6	12	90	6	
2DLB 080 140 100	4R X 8	14	100	8	
2DLB 100 180 100	5R X 10	18	100	10	
2DLB 120 220 110	6R X 12	22	110	12	

2DLE

2 Flutes DLC Coated End Mills for Non-Ferrous Metal

2날 비철 가공용 DLC코팅 엔드밀

New



- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | DLC Coating | D +0 −0.01 (Ø0.4~Ø5) | D +0 −0.02 (Ø6~Ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

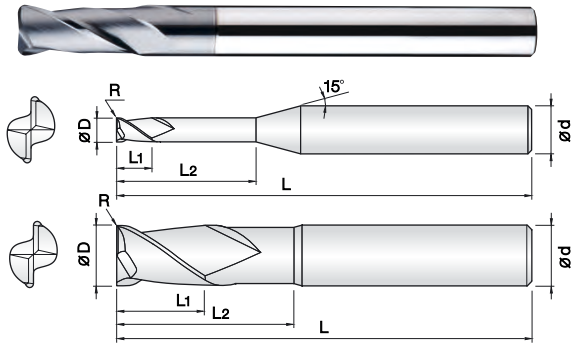
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2DLE 004 008 S04	0.4	0.8	45	4	
2DLE 005 010 S04	0.5	1	45	4	
2DLE 006 012 S04	0.6	1.2	45	4	
2DLE 007 014 S04	0.7	1.4	45	4	
2DLE 008 016 S04	0.8	1.6	45	4	
2DLE 010 025 S04	1	2.5	45	4	
2DLE 010 040 S04	1	4	45	4	
2DLE 012 040 S04	1.2	4	45	4	
2DLE 015 040 S04	1.5	4	45	4	
2DLE 020 060 S04	2	6	45	4	
2DLE 020 080 S04	2	8	45	4	
2DLE 025 080 S04	2.5	8	50	4	
2DLE 030 100 S06	3	10	50	6	
2DLE 030 120 S06	3	12	50	6	
2DLE 035 100 S06	3.5	10	50	6	
2DLE 040 120 S06	4	12	60	6	
2DLE 050 150 S06	5	15	60	6	
2DLE 060 150 S06	6	15	60	6	
2DLE 060 240 S06	6	24	60	6	
2DLE 080 200 S08	8	20	65	8	
2DLE 100 250 S10	10	25	70	10	
2DLE 120 300 S10	12	30	80	12	

2DLC

2 Flutes DLC Coated Coner Radius End Mills for Non-Ferrous Metal

2날 비철 가공용 DLC코팅 코너레디우스 엔드밀

New



2 | UWC 초미립자 | DLC Coating | R ±0.005 | R ±0.01 | 30° Helix Angle

Ø1 ~ Ø6 Ø8 ~ Ø12

- **알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀**
- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER DLC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 안정적인 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

Size	D Tolerance
D ≦ Ø6	+0~ −0.01mm
D > Ø6	+0~ −0.015mm

단위 : mm

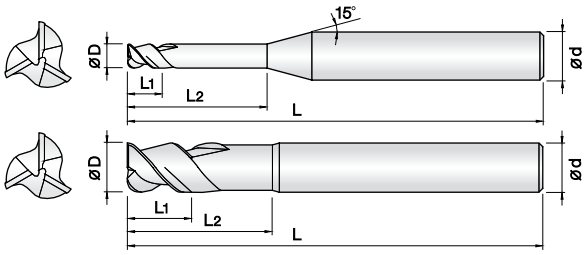
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DLC 010 001 040	1XR0.1	1.5	4	45	4	
2DLC 010 001 060	1XR0.1	1.5	6	45	4	
2DLC 010 001 080	1XR0.1	1.5	8	45	4	
2DLC 010 001 100	1XR0.1	1.5	10	45	4	
2DLC 010 002 040	1XR0.2	1.5	4	45	4	
2DLC 010 002 060	1XR0.2	1.5	6	45	4	
2DLC 010 002 080	1XR0.2	1.5	8	45	4	
2DLC 010 002 100	1XR0.2	1.5	10	45	4	
2DLC 015 001 060	1.5XR0.1	2.3	6	45	4	
2DLC 015 001 080	1.5XR0.1	2.3	8	45	4	
2DLC 015 001 100	1.5XR0.1	2.3	10	45	4	
2DLC 015 001 120	1.5XR0.1	2.3	12	50	4	
2DLC 015 002 060	1.5XR0.2	2.3	6	45	4	
2DLC 015 002 080	1.5XR0.2	2.3	8	45	4	
2DLC 015 002 100	1.5XR0.2	2.3	10	45	4	
2DLC 015 002 120	1.5XR0.2	2.3	12	50	4	
2DLC 020 002 080	2XR0.2	3	8	45	4	
2DLC 020 002 100	2XR0.2	3	10	45	4	
2DLC 020 002 120	2XR0.2	3	12	50	4	
2DLC 020 002 160	2XR0.2	3	16	50	4	
2DLC 020 005 080	2XR0.5	3	8	45	4	
2DLC 020 005 100	2XR0.5	3	10	45	4	
2DLC 020 005 120	2XR0.5	3	12	50	4	
2DLC 020 005 160	2XR0.5	3	16	50	4	
2DLC 030 002 100	3XR0.2	4.5	10	50	6	
2DLC 030 002 120	3XR0.2	4.5	12	50	6	
2DLC 030 002 160	3XR0.2	4.5	16	60	6	
2DLC 030 002 200	3XR0.2	4.5	20	60	6	
2DLC 030 002 250	3XR0.2	4.5	25	65	6	
2DLC 030 002 300	3XR0.2	4.5	30	70	6	
2DLC 030 003 100	3XR0.3	4.5	10	50	6	
2DLC 030 003 120	3XR0.3	4.5	12	50	6	
2DLC 030 003 160	3XR0.3	4.5	16	60	6	
2DLC 030 003 200	3XR0.3	4.5	20	60	6	
2DLC 030 003 250	3XR0.3	4.5	25	65	6	
2DLC 030 003 300	3XR0.3	4.5	30	70	6	
2DLC 030 005 100	3XR0.5	4.5	10	50	6	
2DLC 030 005 120	3XR0.5	4.5	12	50	6	
2DLC 030 005 160	3XR0.5	4.5	16	60	6	
2DLC 030 005 200	3XR0.5	4.5	20	60	6	
2DLC 030 005 250	3XR0.5	4.5	25	65	6	
2DLC 030 005 300	3XR0.5	4.5	30	70	6	
2DLC 040 002 120	4XR0.2	6	12	50	6	
2DLC 040 002 160	4XR0.2	6	16	60	6	
2DLC 040 002 200	4XR0.2	6	20	60	6	
2DLC 040 005 120	4XR0.5	6	12	50	6	
2DLC 040 005 160	4XR0.5	6	16	60	6	
2DLC 040 005 200	4XR0.5	6	20	60	6	
2DLC 040 005 250	4XR0.5	6	25	65	6	
2DLC 040 005 300	4XR0.5	6	30	70	6	
2DLC 040 010 120	4XR1	6	12	50	6	
2DLC 040 010 160	4XR1	6	16	60	6	
2DLC 040 010 200	4XR1	6	20	60	6	
2DLC 040 010 250	4XR1	6	25	65	6	
2DLC 040 010 300	4XR1	6	30	70	6	
2DLC 060 003 200	6XR0.3	9	20	60	6	
2DLC 060 005 200	6XR0.5	9	20	60	6	
2DLC 060 010 200	6XR1	9	20	60	6	
2DLC 080 003 250	8XR0.3	12	25	65	8	
2DLC 080 005 250	8XR0.5	12	25	65	8	
2DLC 080 010 250	8XR1	12	25	65	8	
2DLC 100 005 300	10XR0.5	15	30	70	10	
2DLC 100 010 300	10XR1	15	30	70	10	
2DLC 120 005 320	12XR0.5	18	32	80	12	
2DLC 120 010 320	12XR1	18	32	80	12	

3ALR

3 Flutes 45°Helix Rib End Mills for Aluminum

3날 45°헬릭스 알루미늄 전용 리브 엔드밀

New



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열 전용 엔드밀**
- 초미립자 초경합금(0.2㎛)을 사용, 날부 인선에 조밀도를 향상시켜 피삭재의 표면조도가 우수합니다.
- 다양한 작업에 맞추어 짧은 날장에 유효장을 적용하였습니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied ultra fine WC grade(0.2㎛) for excellent surface finish.
- Applied short flute length for various applications.
- Minimize built up edge by double edge and deep pocket design.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | D +0 −0.01 | 45° Helix Angle

ø1~ø12

Size	D Tolerance
D ≦ ø12	+0~ −0.01mm

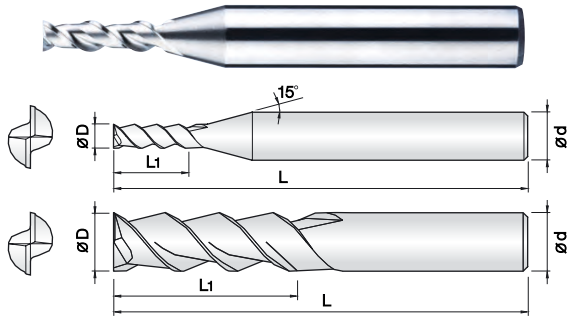
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3ALR 010 020 S06	1	2	-	60	6	
3ALR 010 040 S06	1	2	4	60	6	
3ALR 010 060 S06	1	2	6	60	6	
3ALR 010 080 S06	1	2	8	60	6	
3ALR 010 100 S06	1	2	10	60	6	
3ALR 015 030 S06	1.5	3	-	60	6	
3ALR 015 060 S06	1.5	3	6	60	6	
3ALR 015 090 S06	1.5	3	9	60	6	
3ALR 015 120 S06	1.5	3	12	60	6	
3ALR 020 040 S06	2	4	-	60	6	
3ALR 020 080 S06	2	4	8	60	6	
3ALR 020 120 S06	2	4	12	60	6	
3ALR 020 160 S06	2	4	16	60	6	
3ALR 025 050 S06	2.5	5	-	60	6	
3ALR 025 100 S06	2.5	5	10	60	6	
3ALR 025 150 S06	2.5	5	15	60	6	
3ALR 025 200 S06	2.5	5	20	60	6	
3ALR 030 060 S06	3	6	-	60	6	
3ALR 030 100 S06	3	6	10	60	6	
3ALR 030 150 S06	3	6	15	60	6	
3ALR 030 200 S06	3	6	20	70	6	
3ALR 030 250 S06	3	6	25	70	6	
3ALR 030 300 S06	3	6	30	80	6	
3ALR 040 080 S06	4	8	-	70	6	
3ALR 040 100 S06	4	8	10	70	6	
3ALR 040 150 S06	4	8	15	70	6	
3ALR 040 200 S06	4	8	20	70	6	
3ALR 040 250 S06	4	8	25	70	6	
3ALR 040 300 S06	4	8	30	80	6	
3ALR 050 100 S06	5	10	-	80	6	
3ALR 050 200 S06	5	10	20	80	6	
3ALR 050 300 S06	5	10	30	80	6	
3ALR 060 200 S06	6	12	20	80	6	
3ALR 060 400 S06	6	12	40	80	6	
3ALR 080 400 S08	8	16	40	100	8	
3ALR 100 500 S10	10	20	50	110	10	
3ALR 120 500 S12	12	24	50	110	12	

2ALE

2 Flutes 45° Helix End Mills for Aluminum

2날 45°헬릭스 알루미늄 전용 엔드밀



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열 전용 엔드밀**
- 초미립자 초경합금(0.2㎛)을 사용, 날부 인선에 조밀도를 향상시켜 피삭재의 표면조도가 우수합니다.
- 다양한 날장(S, L, Exl, Etc) 선택으로 맞춤 가공이 가능합니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied ultra fine WC grade(0.2㎛) for excellent surface finish.
- Various flute length design for covering wide range application.
- Minimize built up edge by double edge and deep pocket design.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | D +0 −0.01 | 45° Helix Angle

Ø1 ~ Ø20

Size	D Tolerance
D ≦ ø20	+0 ~ −0.01mm

단위 : mm

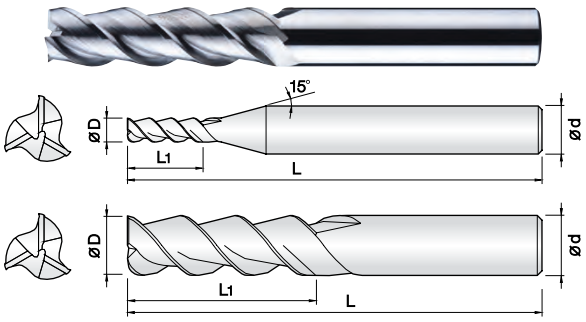
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	2ALE 010 025 S06	1	2.5	40	6	
New	2ALE 010 035 S06	1	3.5	40	6	
	2ALE 010 050 S06	1	5	45	6	
	2ALE 015 040 S06	1.5	4	40	6	
New	2ALE 015 060 S06	1.5	6	40	6	
	2ALE 015 080 S06	1.5	8	45	6	
	2ALE 020 050 S06	2	5	45	6	
	2ALE 020 070 S06	2	7	45	6	
New	2ALE 020 100 S06	2	10	50	6	
	2ALE 020 120 S06	2	12	50	6	
	2ALE 025 080 S06	2.5	8	45	6	
	2ALE 025 120 S06	2.5	12	50	6	
New	2ALE 030 080 S06	3	8	45	6	
	2ALE 030 100 S06	3	10	45	6	
New	2ALE 030 120 S06	3	12	50	6	
	2ALE 030 150 S06	3	15	50	6	
	2ALE 030 200 S06	3	20	60	6	
	2ALE 035 100 S06	3.5	10	45	6	
	2ALE 035 150 S06	3.5	15	50	6	
	2ALE 040 120 S06	4	12	50	6	
New	2ALE 040 150 S06	4	15	55	6	
	2ALE 040 180 S06	4	18	55	6	
	2ALE 040 250 S06	4	25	65	6	
	2ALE 045 120 S06	4.5	12	50	6	
	2ALE 045 180 S06	4.5	18	55	6	
	2ALE 050 150 S06	5	15	50	6	
	2ALE 050 200 S06	5	20	60	6	
	2ALE 050 250 S06	5	25	65	6	
	2ALE 055 150 S06	5.5	15	50	6	
	2ALE 060 150 S06	6	15	50	6	
	2ALE 060 200 S06	6	20	60	6	
	2ALE 060 250 S06	6	25	65	6	
	2ALE 070 200 S08	7	20	60	8	
	2ALE 070 300 S08	7	30	70	8	
	2ALE 080 200 S08	8	20	60	8	
	2ALE 080 250 S08	8	25	65	8	
	2ALE 080 300 S08	8	30	70	8	
	2ALE 080 400 S08	8	40	80	8	
	2ALE 100 250 S10	10	25	70	10	
	2ALE 100 300 S10	10	30	75	10	
	2ALE 100 350 S10	10	35	80	10	
	2ALE 100 450 S10	10	45	90	10	
	2ALE 120 300 S12	12	30	75	12	
	2ALE 120 350 S12	12	35	80	12	
	2ALE 120 400 S12	12	40	90	12	
	2ALE 120 500 S12	12	50	100	12	
New	2ALE 140 300 S14	14	30	80	14	
	2ALE 160 400 S16	16	40	90	16	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2ALE 160 550 S16	16	55	110	16	
2ALE 160 700 S16	16	70	120	16	
2ALE 200 450 S20	20	45	100	20	
2ALE 200 650 S20	20	65	120	20	
2ALE 200 800 S20	20	80	135	20	

3ALE

3 Flutes 45° Helix End Mills for Aluminum

3날 45° 헬릭스 알루미늄 전용 엔드밀



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열 가공 엔드밀**
- 초미립자 초경합금(0.2㎛)을 사용, 날부 인선에 조밀도를 향상시켜 피삭재의 표면조도가 우수합니다.
- 다양한 날장(S, L, Exl, Etc) 선택으로 맞춤 가공이 가능합니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied ultra fine WC grade(0.2㎛) for excellent surface finish.
- Various flute length design for covering wide range application.
- Minimize built up edge by double edge and deep pocket design.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | D +0 −0.01 | 45° Helix Angle

ø1~ø20

Size	D Tolerance
D ≦ ø20	+0~ −0.01mm

단위 : mm

	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New	3ALE 010 015 S06	1	1.5	40	6	
	3ALE 010 030 S06	1	3	40	6	
	3ALE 010 050 S06	1	5	45	6	
New	3ALE 015 025 S06	1.5	2.5	40	6	
	3ALE 015 040 S06	1.5	4	40	6	
New	3ALE 015 060 S06	1.5	6	45	6	
	3ALE 015 080 S06	1.5	8	45	6	
New	3ALE 020 030 S06	2	3	45	6	
	3ALE 020 050 S06	2	5	45	6	
	3ALE 020 070 S06	2	7	45	6	
New	3ALE 020 100 S06	2	10	50	6	
	3ALE 020 120 S06	2	12	50	6	
New	3ALE 025 040 S06	2.5	4	45	6	
	3ALE 025 080 S06	2.5	8	45	6	
	3ALE 025 120 S06	2.5	12	50	6	
New	3ALE 030 045 S06	3	4.5	45	6	
	3ALE 030 080 S06	3	8	45	6	
New	3ALE 030 120 S06	3	12	50	6	
	3ALE 030 150 S06	3	15	50	6	
	3ALE 030 200 S06	3	20	55	6	
	3ALE 030 250 S06	3	25	60	6	
	3ALE 030 300 S06	3	30	65	6	
New	3ALE 035 055 S06	3.5	5.5	45	6	
	3ALE 035 100 S06	3.5	10	45	6	
	3ALE 035 150 S06	3.5	15	50	6	
New	3ALE 040 060 S06	4	6	45	6	
	3ALE 040 110 S06	4	11	45	6	
	3ALE 040 160 S06	4	16	50	6	
	3ALE 040 200 S06	4	20	55	6	
	3ALE 040 250 S06	4	25	60	6	
	3ALE 040 300 S06	4	30	65	6	
	3ALE 045 120 S06	4.5	12	50	6	
	3ALE 045 180 S06	4.5	18	55	6	
New	3ALE 050 075 S06	5	7.5	50	6	
	3ALE 050 130 S06	5	13	50	6	
	3ALE 050 200 S06	5	20	55	6	
	3ALE 050 250 S06	5	25	60	6	
	3ALE 050 300 S06	5	30	65	6	
	3ALE 055 150 S06	5.5	15	50	6	
New	3ALE 060 090 050	6	9	50	6	
	3ALE 060 150 050	6	15	50	6	
	3ALE 060 200 055	6	20	55	6	
	3ALE 060 250 060	6	25	60	6	
	3ALE 060 300 070	6	30	70	6	
New	3ALE 080 120 060	8	12	60	8	
	3ALE 080 200 060	8	20	60	8	
	3ALE 080 250 065	8	25	65	8	
	3ALE 080 300 070	8	30	70	8	

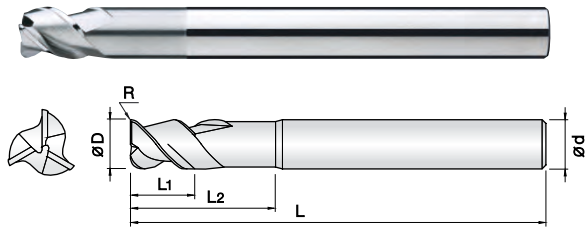
	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
	3ALE 080 350 075	8	35	75	8	
	3ALE 080 400 080	8	40	80	8	
	3ALE 080 450 090	8	45	90	8	
	3ALE 080 500 090	8	50	90	8	
	3ALE 080 550 100	8	55	100	8	
New	3ALE 100 150 070	10	15	70	10	
	3ALE 100 250 070	10	25	70	10	
	3ALE 100 300 075	10	30	75	10	
	3ALE 100 350 080	10	35	80	10	
	3ALE 100 400 090	10	40	90	10	
	3ALE 100 450 090	10	45	90	10	
	3ALE 100 500 100	10	50	100	10	
	3ALE 100 550 100	10	55	100	10	
	3ALE 100 600 110	10	60	110	10	
	3ALE 100 650 110	10	65	110	10	
New	3ALE 120 180 075	12	18	75	12	
	3ALE 120 260 075	12	26	75	12	
	3ALE 120 350 080	12	35	80	12	
	3ALE 120 400 090	12	40	90	12	
	3ALE 120 450 090	12	45	90	12	
	3ALE 120 500 100	12	50	100	12	
	3ALE 120 550 100	12	55	100	12	
	3ALE 120 650 110	12	65	110	12	
New	3ALE 140 300 080	14	30	80	14	
	3ALE 140 450 110	14	45	110	14	
	3ALE 160 300 085	16	30	85	16	
	3ALE 160 500 110	16	50	110	16	
	3ALE 160 650 120	16	65	120	16	
	3ALE 160 800 130	16	80	130	16	
	3ALE 200 500 100	20	50	100	20	
	3ALE 200 750 130	20	75	130	20	
	3ALE 200 1000 160	20	100	160	20	
	3ALE 200 1300 200	20	130	200	20	

3ALC

3 Flutes 45° Helix Coner Radius End Mills for Aluminum

3날 45°헬릭스 알루미늄 전용 코너 레디우스 엔드밀

New



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열 가공 엔드밀**
- 초미립자 초경합금(0.2㎛)을 사용, 날부 인선에 조밀도를 향상시켜 피삭재의 표면조도가 우수합니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- 3날 45° 헬릭스 형상과 짧은 날장으로 설계, 고속 고이송 작업에 적합합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied ultra fine WC grade(0.2㎛) for excellent surface finish.
- Minimize built up edge by double edge and deep pocket design.
- High speed, feed applicable by 3 flute 45°degree helix and short flute design.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

3 | UWC 초미립자 | DLC Coating | R ±0.005 (Ø6) | R ±0.01 (Ø8 ~ Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

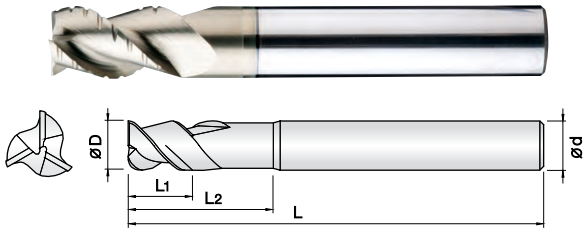
단위 : mm

Order Number 비코팅 Non coated	Order Number 코팅 Coated	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
3ALC 060 005 050	3ALCC 060 005 050	6 X R0.5	15	-	50	6		
3ALC 060 005 070	3ALCC 060 005 070	6 X R0.5	7	20	70	6		
3ALC 060 010 050	3ALCC 060 010 050	6 X R1	15	-	50	6		
3ALC 060 010 070	3ALCC 060 010 070	6 X R1	7	20	70	6		
3ALC 080 005 060	3ALCC 080 005 060	8 X R0.5	20	-	60	8		
3ALC 080 005 080	3ALCC 080 005 080	8 X R0.5	9	25	80	8		
3ALC 080 010 060	3ALCC 080 010 060	8 X R1	20	-	60	8		
3ALC 080 010 080	3ALCC 080 010 080	8 X R1	9	25	80	8		
3ALC 080 020 060	3ALCC 080 020 060	8 X R2	20	-	60	8		
3ALC 080 020 080	3ALCC 080 020 080	8 X R2	9	25	80	8		
3ALC 080 025 080	3ALCC 080 025 080	8 X R2.5	9	25	80	8		
3ALC 100 010 070	3ALCC 100 010 070	10 X R1	25	-	70	10		
3ALC 100 010 100	3ALCC 100 010 100	10 X R1	11	30	100	10		
3ALC 100 015 070	3ALCC 100 015 070	10 X R1.5	25	-	70	10		
3ALC 100 015 100	3ALCC 100 015 100	10 X R1.5	11	30	100	10		
3ALC 100 020 070	3ALCC 100 020 070	10 X R2	25	-	70	10		
3ALC 100 020 100	3ALCC 100 020 100	10 X R2	11	30	100	10		
3ALC 100 025 100	3ALCC 100 025 100	10 X R2.5	11	30	100	10		
3ALC 120 010 075	3ALCC 120 010 075	12 X R1	30	-	75	12		
3ALC 120 010 110	3ALCC 120 010 110	12 X R1	13	36	110	12		
3ALC 120 015 110	3ALCC 120 015 110	12 X R1.5	13	36	110	12		
3ALC 120 020 075	3ALCC 120 020 075	12 X R2	30	-	75	12		
3ALC 120 020 110	3ALCC 120 020 110	12 X R2	13	36	110	12		
3ALC 120 025 110	3ALCC 120 025 110	12 X R2.5	13	36	110	12		
3ALC 120 030 075	3ALCC 120 030 075	12 X R3	30	-	75	12		
3ALC 120 030 110	3ALCC 120 030 110	12 X R3	13	36	110	12		
3ALC 120 040 075	3ALCC 120 040 075	12 X R4	30	-	75	12		
3ALC 120 040 110	3ALCC 120 040 110	12 X R4	13	36	110	12		
3ALC 160 010 090	3ALCC 160 010 090	16 X R1	35	-	90	16		
3ALC 160 010 130	3ALCC 160 010 130	16 X R1	17	50	130	16		
3ALC 160 020 090	3ALCC 160 020 090	16 X R2	35	-	90	16		
3ALC 160 020 130	3ALCC 160 020 130	16 X R2	17	50	130	16		
3ALC 160 025 130	3ALCC 160 025 130	16 X R2.5	17	50	130	16		
3ALC 160 030 090	3ALCC 160 030 090	16 X R3	35	-	90	16		
3ALC 160 030 130	3ALCC 160 030 130	16 X R3	17	50	130	16		
3ALC 160 040 090	3ALCC 160 040 090	16 X R4	35	-	90	16		
3ALC 160 040 130	3ALCC 160 040 130	16 X R4	17	50	130	16		
3ALC 160 050 090	3ALCC 160 050 090	16 X R5	35	-	90	16		
3ALC 200 020 150	3ALCC 200 020 150	20 X R2	21	60	150	20		
3ALC 200 025 150	3ALCC 200 025 150	20 X R2.5	21	60	150	20		
3ALC 200 030 150	3ALCC 200 030 150	20 X R3	21	60	150	20		
3ALC 200 040 150	3ALCC 200 040 150	20 X R4	21	60	150	20		

3ARE

3 Flutes Semi-Finishing & Roughing End Mills for Aluminum

3날 알루미늄 세미 피니싱 & 라핑 엔드밀



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 칩 브레이커와 홈포켓을 깊게 설계하여 흡착현상을 최소화하며, 중삭 및 황삭의 고속 작업시 우수한 성능을 보입니다.
- 일반 알루미늄 라핑과 다르게 피삭재의 가공면이 깨끗합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize built up edge by chip braker and deep pocket design.
- Good surface integrity differently from competitor's AL roughing endmills.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | UWC 초미립자 | JMAX Coating | D +0 −0.03 | 45° Helix Angle

Ø6~Ø20

Size	D Tolerance
D ≦ Ø20	+0 ~ −0.03mm

단위 : mm

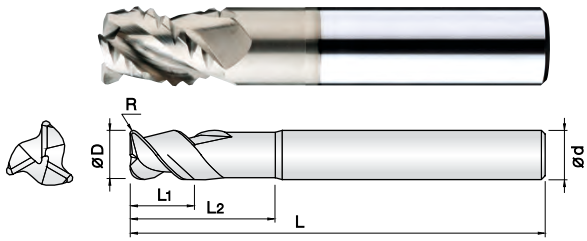
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3ARE 060 150 S06	6	10	15	50	6	
3ARE 060 200 S06	6	15	20	70	6	
3ARE 080 200 S08	8	15	20	60	8	
3ARE 080 250 S08	8	20	25	80	8	
3ARE 100 250 S10	10	18	25	70	10	
3ARE 100 300 S10	10	23	30	90	10	
3ARE 120 300 S12	12	20	30	80	12	
3ARE 120 400 S12	12	30	40	100	12	
3ARE 160 350 S16	16	25	35	110	16	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3ARE 160 500 S16	16	35	50	120	16	
3ARE 200 500 S20	20	35	50	110	20	
3ARE 200 600 S20	20	45	60	120	20	

3ARC

3 Flutes Semi-Finishing & Roughing Corner Radius End Mills for Aluminum

3날 알루미늄 세미 피니싱 & 라핑 코너 레디우스 엔드밀



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 칩 브레이커와 홈포켓을 깊게 설계하여 흡착현상을 최소화하며, 중삭 및 황삭의 고속 작업시 우수한 성능을 보입니다.
- 일반 알루미늄 라핑과 다르게 피삭재의 가공면이 깨끗합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize built up edge by chip braker and deep pocket design.
- Good surface integrity differently from competitor's AL roughing endmills.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | UWC 초미립자 | JMAX Coating | R ±0.03 | 45° Helix Angle

Ø6~Ø20

Size	D Tolerance
D ≦ Ø20	+0 ~ −0.03mm

단위 : mm

Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3ARC 060 005 S06	6 X R0.5	9	15	65	6	
3ARC 060 010 S06	6 X R1	9	15	65	6	
3ARC 080 005 S08	8 X R0.5	12	20	70	8	
3ARC 080 010 S08	8 X R1	12	20	70	8	
3ARC 100 010 S10	10 X R1	15	25	75	10	
3ARC 100 020 S10	10 X R2	15	25	75	10	
3ARC 120 010 S12	12 X R1	20	30	80	12	
3ARC 120 020 S12	12 X R2	20	30	80	12	
3ARC 120 030 S12	12 X R3	20	30	80	12	

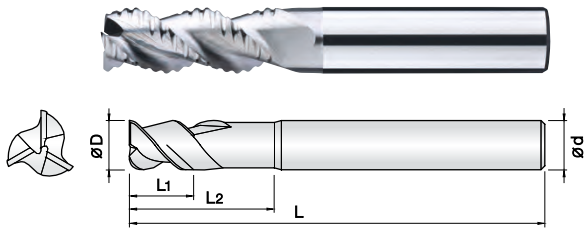
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3ARC 160 010 S16	16 X R1	25	35	110	16	
3ARC 160 020 S16	16 X R2	25	35	110	16	
3ARC 160 030 S16	16 X R3	25	35	110	16	
3ARC 200 020 S20	20 X R2	30	50	110	20	
3ARC 200 030 S20	20 X R3	30	50	110	20	

3ARO

3 Flutes 45° Helix Roughing End Mills for Aluminum

3날 45°헬릭스 알루미늄 전용 라핑 엔드밀

New



- **알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭**
- 칩 브레이커와 홈포켓을 깊게 설계하여 흡착현상을 최소화하며, 중삭 및 황삭의 고속 작업시 우수한 성능을 보입니다.
- 45° 헬릭스 파인피치 적용으로 고속, 황삭 가공이 가능합니다.
- 항절력이 높은 초미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다

- **High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Minimize built up edge by chip braker and deep pocket design.
- High speed roughing applicable by 45° helix fine pitch flute.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | UWC 초미립자 | DLC Coating | D +0 −0.02 (Ø4~Ø6) | D −0.02 −0.05 (Ø8~Ø20) | 45° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0~ −0.02mm
D > Ø6	−0.02~ −0.05mm

단위 : mm

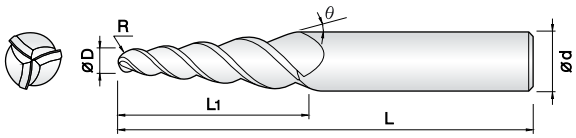
Order Number 비코팅 Non coated	코팅 Coated	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
3ARO 040 150 S06	3AROC 040 150 S06	4	10	15	60	6		
3ARO 050 200 S06	3AROC 050 200 S06	5	15	20	60	6		
3ARO 060 210 S06	3AROC 060 210 S06	6	16	21	65	6		
3ARO 080 270 S08	3AROC 080 270 S08	8	21	27	70	8		
3ARO 100 310 S10	3AROC 100 310 S10	10	26	31	75	10		
3ARO 120 380 S12	3AROC 120 380 S12	12	30	38	80	12		
3ARO 160 450 S16	3AROC 160 450 S16	16	36	45	100	16		
3ARO 200 550 S20	3AROC 200 550 S20	20	41	55	110	20		

3TBI

3 Flutes Taper Ball End Mills for Impellers

3날 임펠라 가공용 테이퍼 볼 엔드밀

New



- **비코팅 : 알루미늄 합금, NI/CR합금, 인코넬 가공 엔드밀**
- **코팅 : 프리하든강, 일반강, 주물, 비철합금 가공 엔드밀**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 공구의 교체없이 밑면과 경사면의 정삭,황삭 가공이 동시에 가능합니다.
- 임펠라, 브리스크, 타이어 프로파일, 터빈날 등 3축과 5축의 편측각이 있는 부품 가공에 적합합니다.

- **Non coating : AL alloy, NI-CR alloy, Inconel**
- **Coating : Pre-hardened steel, Cast iron, Non-metallic materials**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Suitable for special components with 3 axes and 5 axes sector such as impellers, blisks, tire profiles, turbine blades.
- Available for simultaneous machining of roughing and finishing with only one tool.

3 | UWC 초미립자 | JMAX Coating | R ±0.01 (0.5R ~ 1R) | R ±0.02 (1.5R ~ 3R) | 35° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.02mm

단위 : mm

Order Number 비코팅 Non coated	Order Number 코팅 Coated	날경 Diameter R ×D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
3TBI 010 010 120	3TBIC 010 010 120	R0.5 X 1	1°	12	50	6		
3TBI 010 010 200	3TBIC 010 010 200	R0.5 X 1	1°	20	60	6		
3TBI 010 020 150	3TBIC 010 020 150	R0.5 X 1	2°	15	55	6		
3TBI 010 020 200	3TBIC 010 020 200	R0.5 X 1	2°	20	60	6		
3TBI 010 030 150	3TBIC 010 030 150	R0.5 X 1	3°	15	55	6		
3TBI 010 030 200	3TBIC 010 030 200	R0.5 X 1	3°	20	60	6		
3TBI 010 040 200	3TBIC 010 040 200	R0.5 X 1	4°	20	60	6		
3TBI 010 050 200	3TBIC 010 050 200	R0.5 X 1	5°	20	60	6		
3TBI 010 060 200	3TBIC 010 060 200	R0.5 X 1	6°	20	60	6		
3TBI 010 070 200	3TBIC 010 070 200	R0.5 X 1	7°	20	60	6		
3TBI 010 080 180	3TBIC 010 080 180	R0.5 X 1	8°	18	60	6		
3TBI 020 010 120	3TBIC 020 010 120	R1 X 2	1°	12	50	6		
3TBI 020 010 200	3TBIC 020 010 200	R1 X 2	1°	20	60	6		
3TBI 020 020 150	3TBIC 020 020 150	R1 X 2	2°	15	55	6		
3TBI 020 020 200	3TBIC 020 020 200	R1 X 2	2°	20	60	6		
3TBI 020 030 150	3TBIC 020 030 150	R1 X 2	3°	15	55	6		
3TBI 020 030 200	3TBIC 020 030 200	R1 X 2	3°	20	60	6		
3TBI 020 030 300	3TBIC 020 030 300	R1 X 2	3°	30	70	6		
3TBI 020 040 200	3TBIC 020 040 200	R1 X 2	4°	20	60	6		
3TBI 020 050 200	3TBIC 020 050 200	R1 X 2	5°	20	60	6		
3TBI 020 050 300	3TBIC 020 050 300	R1 X 2	5°	30	75	8		
3TBI 020 060 190	3TBIC 020 060 190	R1 X 2	6°	19	60	6		
3TBI 020 060 290	3TBIC 020 060 290	R1 X 2	6°	29	75	8		
3TBI 020 070 160	3TBIC 020 070 160	R1 X 2	7°	16	60	6		
3TBI 020 070 250	3TBIC 020 070 250	R1 X 2	7°	25	70	8		
3TBI 020 080 150	3TBIC 020 080 150	R1 X 2	8°	15	60	6		
3TBI 020 080 220	3TBIC 020 080 220	R1 X 2	8°	22	70	8		
3TBI 030 010 200	3TBIC 030 010 200	R1.5 X 3	1°	20	60	6		
3TBI 030 010 320	3TBIC 030 010 320	R1.5 X 3	1°	32	75	6		
3TBI 030 020 200	3TBIC 030 020 200	R1.5 X 3	2°	20	60	6		
3TBI 030 030 200	3TBIC 030 030 200	R1.5 X 3	3°	20	60	6		
3TBI 030 030 300	3TBIC 030 030 300	R1.5 X 3	3°	30	70	6		
3TBI 030 030 390	3TBIC 030 030 390	R1.5 X 3	3°	39	80	6		
3TBI 030 040 200	3TBIC 030 040 200	R1.5 X 3	4°	20	65	6		
3TBI 030 050 180	3TBIC 030 050 180	R1.5 X 3	5°	18	60	6		
3TBI 030 050 300	3TBIC 030 050 300	R1.5 X 3	5°	30	75	8		
3TBI 030 060 150	3TBIC 030 060 150	R1.5 X 3	6°	15	60	6		
3TBI 030 060 250	3TBIC 030 060 250	R1.5 X 3	6°	25	70	8		
3TBI 030 070 190	3TBIC 030 070 190	R1.5 X 3	7°	19	70	8		
3TBI 030 070 300	3TBIC 030 070 300	R1.5 X 3	7°	30	80	10		
3TBI 030 080 190	3TBIC 030 080 190	R1.5 X 3	8°	19	70	8		
3TBI 030 080 260	3TBIC 030 080 260	R1.5 X 3	8°	26	75	10		
3TBI 040 010 200	3TBICI 040 010 200	R2 X 4	1°	20	60	6		
3TBI 040 010 320	3TBICI 040 010 320	R2 X 4	1°	32	75	6		
3TBI 040 020 200	3TBICI 040 020 200	R2 X 4	2°	20	60	6		
3TBI 040 020 300	3TBICI 040 020 300	R2 X 4	2°	30	70	6		
3TBI 040 030 210	3TBICI 040 030 210	R2 X 4	3°	21	70	6		
3TBI 040 030 320	3TBICI 040 030 320	R2 X 4	3°	32	80	8		

3TBI

3 Flutes Taper Ball End Mills for Impellers

3날 임펠라 가공용 테이퍼 볼 엔드밀

New

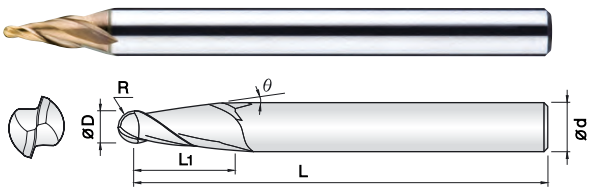
단위 : mm

Order Number		날경 Diameter	각도 Angle	날장 Length of cut	전장 Overall Length	생크 Shank Dia	비고	
비코팅 Non coated	코팅 Coated	R ×D	θ	L1	L	d	비코팅 Non coated	코팅 Coated
3TBI 040 030 400	3TBICI 040 030 400	R2 X 4	3°	40	90	8		
3TBI 040 040 200	3TBICI 040 040 200	R2 X 4	4°	20	70	8		
3TBI 040 040 300	3TBICI 040 040 300	R2 X 4	4°	30	75	8		
3TBI 040 050 200	3TBICI 040 050 200	R2 X 4	5°	20	70	8		
3TBI 040 050 320	3TBICI 040 050 320	R2 X 4	5°	32	80	10		
3TBI 040 060 200	3TBICI 040 060 200	R2 X 4	6°	20	70	8		
3TBI 040 060 300	3TBIC 040 060 300	R2 X 4	6°	30	80	10		
3TBI 040 070 180	3TBIC 040 070 180	R2 X 4	7°	18	70	8		
3TBI 040 070 260	3TBIC 040 070 260	R2 X 4	7°	26	80	10		
3TBI 040 080 230	3TBIC 040 080 230	R2 X 4	8°	23	75	10		
3TBI 060 010 320	3TBIC 060 010 320	R3 X 6	1°	32	75	8		
3TBI 060 020 300	3TBIC 060 020 300	R3 X 6	2°	30	75	8		
3TBI 060 030 220	3TBIC 060 030 220	R3 X 6	3°	22	75	8		
3TBI 060 030 320	3TBIC 060 030 320	R3 X 6	3°	32	80	10		
3TBI 060 030 400	3TBIC 060 030 400	R3 X 6	3°	40	90	10		
3TBI 060 040 250	3TBIC 060 040 250	R3 X 6	4°	25	75	10		
3TBI 060 040 310	3TBIC 060 040 310	R3 X 6	4°	31	80	10		
3TBI 060 050 210	3TBIC 060 050 210	R3 X 6	5°	21	75	10		
3TBI 060 050 320	3TBIC 060 050 320	R3 X 6	5°	32	80	12		
3TBI 060 060 210	3TBIC 060 060 210	R3 X 6	6°	21	75	10		
3TBI 060 060 310	3TBIC 060 060 310	R3 X 6	6°	31	80	12		
3TBI 060 070 190	3TBIC 060 070 190	R3 X 6	7°	19	75	10		
3TBI 060 070 270	3TBIC 060 070 270	R3 X 6	7°	27	80	12		

2CTB

2 Flutes Taper Ball End Mills

2날 고속가공용 테이퍼 볼 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀 가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | LR ±0.005 0.2R ~ 1R | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm

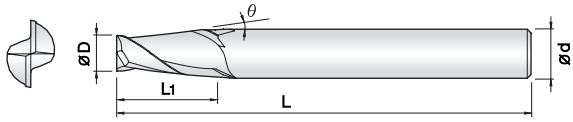
단위 : mm

Order Number	날경 Diameter R×D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CTB 004 020 030	0.2R X 0.4	2°	3	40	4	
2CTB 004 030 030	0.2R X 0.4	3°	3	40	4	
2CTB 004 040 030	0.2R X 0.4	4°	3	40	4	
2CTB 004 050 030	0.2R X 0.4	5°	3	40	4	
2CTB 004 070 030	0.2R X 0.4	7°	3	40	4	
2CTB 004 100 030	0.2R X 0.4	10°	3	40	4	
2CTB 005 020 030	0.25R X 0.5	2°	3	40	4	
2CTB 005 030 030	0.25R X 0.5	3°	3	40	4	
2CTB 005 040 035	0.25R X 0.5	4°	3.5	40	4	
2CTB 005 050 035	0.25R X 0.5	5°	3.5	40	4	
2CTB 005 070 035	0.25R X 0.5	7°	3.5	40	4	
2CTB 005 100 035	0.25R X 0.5	10°	3.5	40	4	
2CTB 006 020 030	0.3R X 0.6	2°	3	40	4	
2CTB 006 030 030	0.3R X 0.6	3°	3	40	4	
2CTB 006 040 035	0.3R X 0.6	4°	3.5	40	4	
2CTB 006 050 035	0.3R X 0.6	5°	3.5	40	4	
2CTB 006 070 035	0.3R X 0.6	7°	3.5	40	4	
2CTB 006 100 035	0.3R X 0.6	10°	3.5	40	4	
2CTB 008 020 030	0.4R X 0.8	2°	3	40	4	
2CTB 008 030 030	0.4R X 0.8	3°	3	40	4	
2CTB 008 040 040	0.4R X 0.8	4°	4	40	4	
2CTB 008 050 040	0.4R X 0.8	5°	4	40	4	
2CTB 008 070 040	0.4R X 0.8	7°	4	40	4	
2CTB 008 100 040	0.4R X 0.8	10°	4	40	4	
2CTB 010 003 030	0.5R X 1	0°30	3	40	4	
2CTB 010 010 030	0.5R X 1	1°	3	40	4	
2CTB 010 013 040	0.5R X 1	1°30	4	40	4	
2CTB 010 020 040	0.5R X 1	2°	4	40	4	
2CTB 010 030 040	0.5R X 1	3°	4	40	4	
2CTB 010 040 060	0.5R X 1	4°	6	45	4	
2CTB 010 050 060	0.5R X 1	5°	6	45	4	
2CTB 010 070 060	0.5R X 1	7°	6	45	4	
2CTB 010 100 060	0.5R X 1	10°	6	45	4	
2CTB 015 003 060	0.75R X 1.5	0°30	6	45	4	
2CTB 015 010 060	0.75R X 1.5	1°	6	45	4	
2CTB 015 013 060	0.75R X 1.5	1°30	6	45	4	
2CTB 015 020 060	0.75R X 1.5	2°	6	45	4	
2CTB 015 030 060	0.75R X 1.5	3°	6	45	4	
2CTB 015 040 060	0.75R X 1.5	4°	6	45	4	
2CTB 015 050 060	0.75R X 1.5	5°	6	45	4	
2CTB 015 070 060	0.75R X 1.5	7°	6	45	4	
2CTB 020 003 080	1R X 2	0°30	8	45	4	
2CTB 020 010 080	1R X 2	1°	8	45	4	
2CTB 020 013 080	1R X 2	1°30	8	45	4	
2CTB 020 020 080	1R X 2	2°	8	45	4	
2CTB 020 030 080	1R X 2	3°	8	45	4	
2CTB 020 040 080	1R X 2	4°	8	45	4	
2CTB 020 050 080	1R X 2	5°	8	45	4	
2CTB 020 070 080	1R X 2	7°	8	45	4	

2CTE

2 Flutes Taper End Mills

2날 고속가공용 테이퍼 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀 가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel(HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø0.3 ~ Ø4) | D +0 −0.015 (Ø6 ~ Ø8) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø4	+0 ~ −0.01mm
D > Ø4	+0 ~ −0.015mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CTE 003 003 012	0.3	0°30	1.2	40	4	
2CTE 003 010 012	0.3	1°	1.2	40	4	
2CTE 003 013 012	0.3	1°30	1.2	40	4	
2CTE 003 020 012	0.3	2°	1.2	40	4	
2CTE 003 030 012	0.3	3°	1.2	40	4	
2CTE 003 050 012	0.3	5°	1.2	40	4	
2CTE 003 070 015	0.3	7°	1.5	40	4	
2CTE 003 100 015	0.3	10°	1.5	40	4	
2CTE 004 003 016	0.4	0°30	1.6	40	4	
2CTE 004 010 016	0.4	1°	1.6	40	4	
2CTE 004 013 016	0.4	1°30	1.6	40	4	
2CTE 004 020 016	0.4	2°	1.6	40	4	
2CTE 004 030 016	0.4	3°	1.6	40	4	
2CTE 004 050 016	0.4	5°	1.6	40	4	
2CTE 004 070 020	0.4	7°	2	40	4	
2CTE 004 100 020	0.4	10°	2	40	4	
2CTE 005 003 020	0.5	0°30	2	40	4	
2CTE 005 010 020	0.5	1°	2	40	4	
2CTE 005 013 020	0.5	1°30	2	40	4	
2CTE 005 020 020	0.5	2°	2	40	4	
2CTE 005 030 020	0.5	3°	2	40	4	
2CTE 005 050 020	0.5	5°	2	40	4	
2CTE 005 070 025	0.5	7°	2.5	40	4	
2CTE 005 100 025	0.5	10°	2.5	40	4	
2CTE 006 003 020	0.6	0°30	2	40	4	
2CTE 006 010 020	0.6	1°	2	40	4	
2CTE 006 013 020	0.6	1°30	2	40	4	
2CTE 006 020 020	0.6	2°	2	40	4	
2CTE 006 030 020	0.6	3°	2	40	4	
2CTE 006 050 020	0.6	5°	2	40	4	
2CTE 006 070 025	0.6	7°	2.5	40	4	
2CTE 006 100 025	0.6	10°	2.5	40	4	
2CTE 007 010 025	0.7	1°	2.5	40	4	
2CTE 007 013 025	0.7	1°30	2.5	40	4	
2CTE 007 020 025	0.7	2°	2.5	40	4	
2CTE 007 030 025	0.7	3°	2.5	40	4	
2CTE 007 050 025	0.7	5°	2.5	40	4	
2CTE 007 070 030	0.7	7°	3	40	4	
2CTE 007 100 030	0.7	10°	3	40	4	
2CTE 008 003 030	0.8	0°30	3	40	4	
2CTE 008 010 030	0.8	1°	3	40	4	
2CTE 008 013 030	0.8	1°30	3	40	4	
2CTE 008 020 030	0.8	2°	3	40	4	
2CTE 008 030 030	0.8	3°	3	40	4	
2CTE 008 050 030	0.8	5°	3	40	4	
2CTE 008 070 030	0.8	7°	3	40	4	
2CTE 008 100 030	0.8	10°	3	40	4	
2CTE 010 003 040	1	0°30	4	45	4	

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CTE 010 010 040	1	1°	4	45	4	
2CTE 010 013 040	1	1°30	4	45	4	
2CTE 010 020 040	1	2°	4	45	4	
2CTE 010 030 040	1	3°	4	45	4	
2CTE 010 050 040	1	5°	4	45	4	
2CTE 010 070 040	1	7°	4	45	4	
2CTE 010 100 040	1	10°	4	45	4	
2CTE 015 003 050	1.5	0°30	5	45	4	
2CTE 015 010 050	1.5	1°	5	45	4	
2CTE 015 013 060	1.5	1°30	6	45	4	
2CTE 015 020 070	1.5	2°	7	45	4	
2CTE 015 030 080	1.5	3°	8	45	4	
2CTE 015 050 100	1.5	5°	10	50	4	
2CTE 015 070 100	1.5	7°	10	50	4	
2CTE 015 100 100	1.5	10°	10	50	6	
2CTE 020 003 060	2	0°30	6	45	4	
2CTE 020 010 060	2	1°	6	45	4	
2CTE 020 013 060	2	1°30	6	45	4	
2CTE 020 020 080	2	2°	8	45	4	
2CTE 020 030 100	2	3°	10	50	4	
2CTE 020 050 100	2	5°	10	50	4	
2CTE 020 070 100	2	7°	10	50	6	
2CTE 020 100 110	2	10°	11	50	6	
2CTE 025 003 080	2.5	0°30	8	45	6	
2CTE 025 010 100	2.5	1°	10	50	6	
2CTE 025 013 100	2.5	1°30	10	50	6	
2CTE 025 020 120	2.5	2°	12	50	6	
2CTE 025 030 120	2.5	3°	12	50	6	
2CTE 025 050 120	2.5	5°	12	50	6	
2CTE 025 070 120	2.5	7°	12	50	6	
2CTE 025 100 100	2.5	10°	10	50	6	
2CTE 030 003 120	3	0°30	12	50	6	
2CTE 030 010 120	3	1°	12	50	6	
2CTE 030 013 120	3	1°30	12	50	6	
2CTE 030 020 120	3	2°	12	50	6	
2CTE 030 030 120	3	3°	12	50	6	
2CTE 030 050 120	3	5°	12	50	6	
2CTE 030 070 120	3	7°	12	50	6	
2CTE 030 100 080	3	10°	8	50	6	
2CTE 040 003 150	4	0°30	15	60	6	
2CTE 040 010 150	4	1°	15	60	6	
2CTE 040 013 150	4	1°30	15	60	6	
2CTE 040 020 150	4	2°	15	60	6	
2CTE 040 030 180	4	3°	18	60	6	
2CTE 040 050 230	4	5°	23	65	8	
2CTE 060 003 200	6	0°30	20	65	8	
2CTE 060 010 200	6	1°	20	65	8	
2CTE 060 013 200	6	1°30	20	65	8	

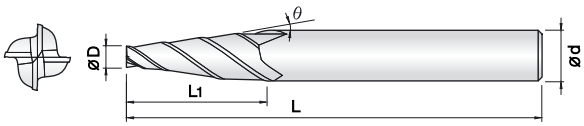
단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CTE 060 020 200	6	2°	20	65	8	
2CTE 060 030 190	6	3°	19	65	8	
2CTE 060 050 230	6	5°	23	75	10	
2CTE 060 070 240	6	7°	24	75	12	
2CTE 060 100 170	6	10°	17	75	12	
2CTE 070 003 250	7	0°30	25	70	8	
2CTE 070 010 250	7	1°	25	70	8	
2CTE 070 013 250	7	1°30	25	70	10	
2CTE 070 030 280	7	3°	28	80	10	
2CTE 070 050 280	7	5°	28	80	12	
2CTE 080 003 320	8	0°30	32	90	10	
2CTE 080 010 350	8	1°	35	90	10	
2CTE 080 013 350	8	1°30	35	90	10	
2CTE 080 020 280	8	2°	28	75	10	
2CTE 080 030 350	8	3°	35	90	12	
2CTE 080 050 450	8	5°	45	100	16	
2CTE 080 070 320	8	7°	32	90	16	
2CTE 080 100 340	8	10°	34	100	20	

4CTE

4 Flutes Taper End Mills

4날 고속가공용 테이퍼 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고정밀 가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (Ø3 ~ Ø6) | D +0 −0.015 (Ø8 ~ Ø10) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø6	+0 ~ −0.01mm
D > Ø6	+0 ~ −0.015mm

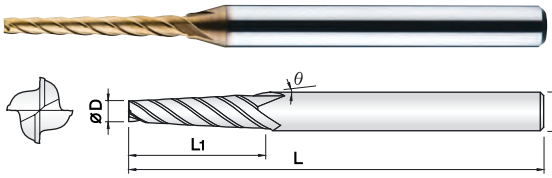
단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4CTE 030 003 110	3	0° 30	11	50	6	
4CTE 030 010 110	3	1°	11	50	6	
4CTE 030 013 110	3	1° 30	11	50	6	
4CTE 030 020 150	3	2°	15	60	6	
4CTE 030 023 150	3	2° 30	15	60	6	
4CTE 030 030 150	3	3°	15	60	6	
4CTE 030 050 150	3	5°	15	60	6	
4CTE 030 070 120	3	7°	12	60	6	
4CTE 040 003 150	4	0° 30	15	60	6	
4CTE 040 010 150	4	1°	15	60	6	
4CTE 040 013 150	4	1° 30	15	60	6	
4CTE 040 020 180	4	2°	18	60	6	
4CTE 040 023 180	4	2° 30	18	60	6	
4CTE 040 030 180	4	3°	18	60	6	
4CTE 040 050 230	4	5°	23	65	8	
4CTE 040 070 250	4	7°	25	75	10	
4CTE 050 003 180	5	0° 30	18	60	6	
4CTE 050 010 180	5	1°	18	60	6	
4CTE 050 013 180	5	1° 30	18	60	6	
4CTE 050 020 150	5	2°	15	60	6	
4CTE 050 023 200	5	2° 30	20	65	8	
4CTE 050 030 210	5	3°	21	65	8	
4CTE 050 050 280	5	5°	28	80	10	
4CTE 050 070 280	5	7°	28	80	12	
4CTE 060 003 200	6	0° 30	20	65	8	
4CTE 060 010 200	6	1°	20	65	8	
4CTE 060 013 200	6	1° 30	20	65	8	
4CTE 060 020 200	6	2°	20	65	8	
4CTE 060 023 200	6	2° 30	20	65	8	
4CTE 060 030 260	6	3°	26	75	10	
4CTE 060 050 230	6	5°	23	75	10	
4CTE 060 070 240	6	7°	24	80	12	
4CTE 080 003 250	8	0° 30	25	75	10	
4CTE 080 010 250	8	1°	25	75	10	
4CTE 080 013 250	8	1° 30	25	75	10	
4CTE 080 020 250	8	2°	25	75	10	
4CTE 080 023 230	8	2° 30	23	75	10	
4CTE 080 030 300	8	3°	30	80	12	
4CTE 080 050 230	8	5°	23	85	12	
4CTE 100 003 300	10	0° 30	30	80	12	
4CTE 100 010 300	10	1°	30	80	12	
4CTE 100 013 300	10	1° 30	30	80	12	
4CTE 100 020 280	10	2°	28	80	12	
4CTE 100 030 400	10	3°	40	100	16	
4CTE 100 050 340	10	5°	34	100	16	

4RTE

4 Flutes Rib Taper End Mills

4날 고속가공용 리브 테이퍼 엔드밀



- **고경도강(HRc50이상), 프리하든강 계열의 고속가공 엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 밑날2날 형상과 옆날4날 형상으로 깊은 홈 가공시 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Optimum for deep grooving by 2bottom edge with 4flutes.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2 ㎛) WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0 −0.01 | 30° Helix Angle

ø0.5~ø2.5

Size	D Tolerance
D ≦ ø6	+0 ~ −0.01mm

단위 : mm

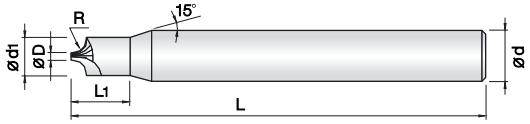
Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4RTE 005 030 040	0.5	0°30	4	45	4	
4RTE 005 030 060	0.5	0°30	6	45	4	
4RTE 005 045 040	0.5	0°45	4	45	4	
4RTE 005 045 060	0.5	0°45	6	45	4	
4RTE 005 100 040	0.5	1°	4	45	4	
4RTE 005 100 060	0.5	1°	6	45	4	
4RTE 006 030 040	0.6	0°30	4	45	4	
4RTE 006 030 060	0.6	0°30	6	45	4	
4RTE 006 045 040	0.6	0°45	4	45	4	
4RTE 006 045 060	0.6	0°45	6	45	4	
4RTE 006 100 040	0.6	1°	4	45	4	
4RTE 006 100 060	0.6	1°	6	45	4	
4RTE 007 030 060	0.7	0°30	6	45	4	
4RTE 007 030 080	0.7	0°30	8	45	4	
4RTE 007 045 060	0.7	0°45	6	45	4	
4RTE 007 045 080	0.7	0°45	8	45	4	
4RTE 007 100 060	0.7	1°	6	45	4	
4RTE 007 100 080	0.7	1°	8	45	4	
4RTE 008 030 060	0.8	0°30	6	45	4	
4RTE 008 030 080	0.8	0°30	8	45	4	
4RTE 008 030 100	0.8	0°30	10	45	4	
4RTE 008 045 060	0.8	0°45	6	45	4	
4RTE 008 045 080	0.8	0°45	8	45	4	
4RTE 008 045 100	0.8	0°45	10	45	4	
4RTE 008 100 060	0.8	1°	6	45	4	
4RTE 008 100 080	0.8	1°	8	45	4	
4RTE 008 100 100	0.8	1°	10	45	4	
4RTE 009 030 060	0.9	0°30	6	45	4	
4RTE 009 030 080	0.9	0°30	8	45	4	
4RTE 009 030 100	0.9	0°30	10	45	4	
4RTE 009 045 060	0.9	0°45	6	45	4	
4RTE 009 045 080	0.9	0°45	8	45	4	
4RTE 009 045 100	0.9	0°45	10	45	4	
4RTE 009 100 060	0.9	1°	6	45	4	
4RTE 009 100 080	0.9	1°	8	45	4	
4RTE 009 100 100	0.9	1°	10	45	4	
4RTE 010 030 080	1	0°30	8	45	4	
4RTE 010 030 100	1	0°30	10	45	4	
4RTE 010 030 120	1	0°30	12	45	4	
4RTE 010 045 080	1	0°45	8	45	4	
4RTE 010 045 100	1	0°45	10	45	4	
4RTE 010 045 120	1	0°45	12	45	4	
4RTE 010 100 080	1	1°	8	45	4	
4RTE 010 100 100	1	1°	10	45	4	
4RTE 010 100 120	1	1°	12	45	4	
4RTE 012 030 080	1.2	0°30	8	45	4	
4RTE 012 030 100	1.2	0°30	10	45	4	
4RTE 012 030 120	1.2	0°30	12	45	4	

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4RTE 012 030 160	1.2	0°30	16	50	4	
4RTE 012 045 080	1.2	0°45	8	45	4	
4RTE 012 045 100	1.2	0°45	10	45	4	
4RTE 012 045 120	1.2	0°45	12	45	4	
4RTE 012 045 160	1.2	0°45	16	50	4	
4RTE 012 100 080	1.2	1°	8	45	4	
4RTE 012 100 100	1.2	1°	10	45	4	
4RTE 012 100 120	1.2	1°	12	45	4	
4RTE 012 100 160	1.2	1°	16	50	4	
4RTE 015 030 060	1.5	0°30	6	45	4	
4RTE 015 030 100	1.5	0°30	10	45	4	
4RTE 015 030 160	1.5	0°30	16	50	4	
4RTE 015 030 200	1.5	0°30	20	60	4	
4RTE 015 100 060	1.5	1°	6	45	4	
4RTE 015 100 100	1.5	1°	10	45	4	
4RTE 015 100 160	1.5	1°	16	50	4	
4RTE 015 100 200	1.5	1°	20	60	4	
4RTE 015 100 250	1.5	1°	25	60	4	
4RTE 015 130 060	1.5	1°30	6	45	4	
4RTE 015 130 100	1.5	1°30	10	45	4	
4RTE 015 130 160	1.5	1°30	16	50	4	
4RTE 015 130 200	1.5	1°30	20	60	4	
4RTE 015 130 250	1.5	1°30	25	60	4	
4RTE 020 030 100	2	0°30	10	45	4	
4RTE 020 030 160	2	0°30	16	50	4	
4RTE 020 030 200	2	0°30	20	60	4	
4RTE 020 030 250	2	0°30	25	60	4	
4RTE 020 100 100	2	1°	10	45	4	
4RTE 020 100 160	2	1°	16	50	4	
4RTE 020 100 200	2	1°	20	60	4	
4RTE 020 100 250	2	1°	25	60	4	
4RTE 020 130 100	2	1°30	10	45	4	
4RTE 020 130 160	2	1°30	16	50	4	
4RTE 020 130 200	2	1°30	20	60	4	
4RTE 020 130 250	2	1°30	25	60	4	
4RTE 025 030 100	2.5	0°30	10	45	4	
4RTE 025 030 160	2.5	0°30	16	50	4	
4RTE 025 030 200	2.5	0°30	20	60	4	
4RTE 025 030 250	2.5	0°30	25	60	4	
4RTE 025 100 100	2.5	1°	10	45	4	
4RTE 025 100 160	2.5	1°	16	50	4	
4RTE 025 100 200	2.5	1°	20	60	4	
4RTE 025 100 250	2.5	1°	25	60	4	
4RTE 025 130 100	2.5	1°30	10	45	4	
4RTE 025 130 160	2.5	1°30	16	50	4	
4RTE 025 130 200	2.5	1°30	20	60	4	
4RTE 025 130 250	2.5	1°30	25	60	4	

2CRC

2 Flutes Corner Rounding Cutter

2날코너 역R 커터



- **HRc52이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2㎛)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for various work materials, hardened steed, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2㎛) WC grade.

2 | UWC 초미립자 | TISIN Coating | R ±0.02 | 0° Helix Angle

0.1R ~ 8R

Size	D Tolerance
D ≦ ø0.9	+0~ -0.01mm
D > ø0.9	+0~ -0.02mm

단위 : mm

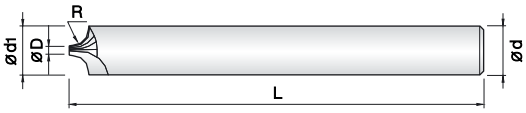
Order Number	선단경 Diameter D×R	외경 Length of cut d1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2CRC 005 001 S04	0.5XR0.1	0.8	2.5	45	4	
New 2CRC 005 0015 S04	0.5XR0.15	0.9	2.5	45	4	
New 2CRC 005 002 S04	0.5XR0.2	1	2.5	45	4	
New 2CRC 005 0025 S04	0.5XR0.25	1.1	2.5	45	4	
New 2CRC 005 003 S04	0.5XR0.3	1.2	2.5	45	4	
New 2CRC 005 0035 S04	0.5XR0.35	1.3	2.5	45	4	
New 2CRC 005 004 S04	0.5XR0.4	1.4	2.5	45	4	
New 2CRC 005 0045 S04	0.5XR0.45	1.5	2.5	45	4	
New 2CRC 005 005 S04	0.5XR0.5	1.6	2.5	45	4	
2CRC 009 005 S04	0.9XR0.5	2	3	45	4	
New 2CRC 049 005 S06	4.9XR0.5	6	-	50	6	
New 2CRC 005 0055 S04	0.5XR0.55	1.7	3	45	4	
New 2CRC 005 006 S04	0.5XR0.6	1.8	3	45	4	
New 2CRC 005 0065 S04	0.5XR0.65	1.9	3	45	4	
New 2CRC 005 007 S04	0.5XR0.7	2	3	45	4	
2CRC 009 0075 S04	0.9XR0.75	2.5	4	45	4	
New 2CRC 009 008 S04	0.9XR0.8	2.6	4	45	4	
New 2CRC 009 0085 S04	0.9XR0.85	2.7	4	45	4	
New 2CRC 009 009 S04	0.9XR0.9	2.8	4	45	4	
New 2CRC 009 0095 S04	0.9XR0.95	2.9	4	45	4	
2CRC 009 010 S06	0.9XR1	3	5	50	6	
New 2CRC 039 010 S06	3.9XR1	6	-	50	6	
2CRC 059 010 S08	5.9XR1	8	-	60	8	
New 2CRC 009 0125 S06	0.9XR1.25	3.5	5	50	6	
New 2CRC 034 0125 S06	3.4XR1.25	6	-	50	6	
2CRC 014 015 S06	1.4XR1.5	4.5	8	50	6	
2CRC 049 015 S08	4.9XR1.5	8	-	60	8	
2CRC 014 020 S06	1.4XR2	5.5	10	50	6	
2CRC 039 020 S08	3.9XR2	8	-	60	8	
2CRC 019 025 S08	1.9XR2.5	7	13	60	8	
2CRC 019 030 S08	1.9XR3	8	-	60	8	
2CRC 019 035 S10	1.9XR3.5	9	13	70	10	
2CRC 019 040 S10	1.9XR4	10	-	70	10	
2CRC 019 045 S12	1.9XR4.5	11	13	80	12	
2CRC 019 050 S12	1.9XR5	12	-	80	12	
2CRC 039 060 S16	3.9XR6	16	-	85	16	
2CRC 059 070 S20	5.9XR7	20	-	85	20	
2CRC 039 080 S20	3.9XR8	20	-	85	20	

4CRC

4 Flutes Corner Rounding Cutter

4날코너 역R 커터

New



- **HRc52이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | TISIN Coating | R ±0.02 | 0° Helix Angle

0.5R ~6R

Size	D Tolerance
D ≦ ø1.9	+0~ −0.01mm
D > ø1.9	+0~ −0.03mm

단위 : mm

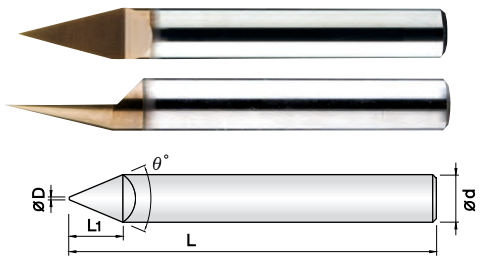
Order Number	선단경 Diameter D×R	외경 Length of cut d1	전장 Overall Length L	생크 Shank Dia d	비고
4CRC 029 005 S04	2.9XR0.5	4	50	4	
4CRC 019 010 S04	1.9XR1	4	50	4	
4CRC 049 005 S06	4.9XR0.5	6	50	6	
4CRC 039 010 S06	3.9XR1	6	50	6	
4CRC 059 010 S08	5.9XR1	8	60	8	
4CRC 049 015 S08	4.9XR1.5	8	60	8	
4CRC 059 020 S10	5.9XR2	10	70	10	
4CRC 049 025 S10	4.9XR2.5	10	70	10	
4CRC 059 030 S12	5.9XR3	12	75	12	
4CRC 039 040 S12	3.9XR4	12	75	12	
4CRC 059 050 S16	5.9XR5	16	80	16	
4CRC 039 060 S16	3.9XR6	16	80	16	

1STE

1 Flute Straight Flute Taper End Mills

1날 직선 날 테이퍼 엔드밀

New



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 직선날 타입 1날을 적용하여 조각NC 작업에 적합니다.
- 다양한 날경의 적용으로 조각 작업시 효율성을 최대화 하였습니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for NC engraving by straight type one edge.
- Maximize engraving efficiency by various edge diameter.

1 | UWC 초미립자 | TISIN Coating | D +0 −0.02 | 0° Helix Angle

Shank ø4~ø6

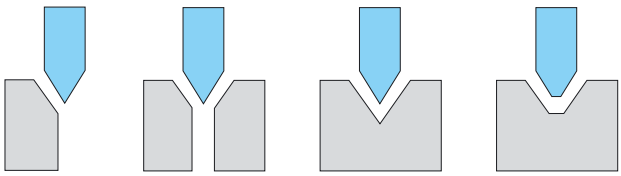
Size	D Tolerance
D = ø0	+0.05~ −0mm
D ≧ ø0.1	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
1STE 000 200 S04	0	20°	7	40	4	
1STE 000 300 S04	0	30°	7	40	4	
1STE 000 200 S06	0	20°	10	50	6	
1STE 000 300 S06	0	30°	10	50	6	
1STE 001 200 S04	0.1	20°	7	40	4	
1STE 001 300 S04	0.1	30°	7	40	4	
1STE 001 200 S06	0.1	20°	10	50	6	
1STE 001 300 S06	0.1	30°	10	50	6	
1STE 0015 200 S04	0.15	20°	7	40	4	
1STE 0015 300 S04	0.15	30°	7	40	4	
1STE 0015 200 S06	0.15	20°	10	50	6	
1STE 0015 300 S06	0.15	30°	10	50	6	
1STE 002 200 S04	0.2	20°	7	40	4	
1STE 002 300 S04	0.2	30°	7	40	4	
1STE 002 200 S06	0.2	20°	10	50	6	
1STE 002 300 S06	0.2	30°	10	50	6	

■ 가공 형상에 따른 절삭가능 여부

Available Cutting Shape



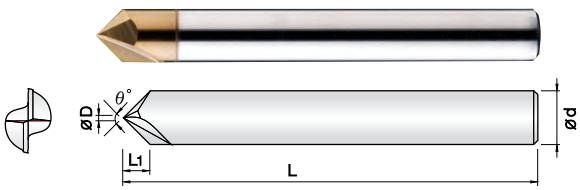
가능 (O) 가능 (O) 가능 (O) 가능 (O)

2STE

2 Flutes Straight Flute Taper End Mills

2날 직선날 테이퍼 엔드밀

New



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 직선날 타입 2날을 적용하여 조각NC 작업, 피삭재 모서리 면취, 센터링 작업에 적합합니다.
- 코팅과 비코팅으로 구분하여 수지, 아크릴 등의 가공도 가능합니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for NC engraving, chamfering and centering with straight 2flutes.
- Resin, plastic machining applicable witn coated or non coated endmill.

2 | UWC 초미립자 | TISIN Coating | D +0.05 –0 | 0° Helix Angle

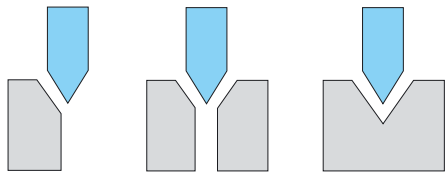
Shank ø3~ø12

Size	D Tolerance
D = ø0	+0.05~ −0mm

단위 : mm

Order Number 비코팅 Non coated	코팅 Coated	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
2STE 000 300 S03	2STEC 000 300 S03	0	30°	5.5	60	3		
2STE 000 600 S03	2STEC 000 600 S03	0	60°	2.5	60	3		
2STE 000 900 S03	2STEC 000 900 S03	0	90°	1.5	60	3		
2STE 000 300 S04	2STEC 000 300 S04	0	30°	7.4	60	4		
2STE 000 600 S04	2STEC 000 600 S04	0	60°	3.4	60	4		
2STE 000 900 S04	2STEC 000 900 S04	0	90°	2	60	4		
2STE 000 300 S06	2STEC 000 300 S06	0	30°	11.1	60	6		
2STE 000 600 S06	2STEC 000 600 S06	0	60°	5.1	60	6		
2STE 000 900 S06	2STEC 000 900 S06	0	90°	3	60	6		
2STE 000 600 S08	2STEC 000 600 S08	0	60°	6.9	65	8		
2STE 000 900 S08	2STEC 000 900 S08	0	90°	4	65	8		
2STE 000 600 S10	2STEC 000 600 S10	0	60°	8.6	70	10		
2STE 000 900 S10	2STEC 000 900 S10	0	90°	5	70	10		
2STE 000 600 S12	2STEC 000 600 S12	0	60°	10.3	75	12		
2STE 000 900 S12	2STEC 000 900 S12	0	90°	6	75	12		

■ 가공 형상에 따른 절삭가능 여부
Available Cutting Shape



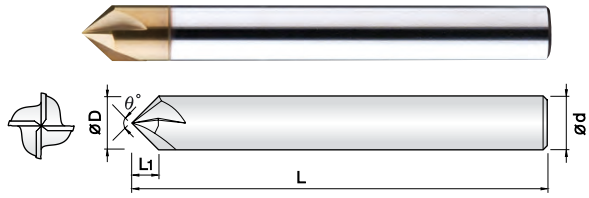
가능 (O) 가능 (O) 가능 (△)

4STE

4 Flutes Straight Flute Taper End Mills

4날 직선날 테이퍼 엔드밀

New



- **HRc52이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 직선날 타입 4날을 적용하여 피삭재 모서리 면취 작업에 최고의 성능을 발휘합니다.
- 항절력이 높은 초미립자 초경합금을 채택, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for chamfering with straight 4flutes.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

4 | UWC 초미립자 | TISIN Coating | D +0.05 −0 | 0° Helix Angle

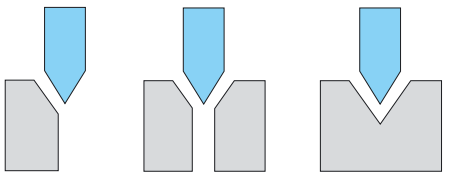
Shank Ø3~Ø12

Size	D Tolerance
D = Ø0	+0.05~ −0mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4STE 000 600 S03	0	60°	2.5	50	3	
4STE 000 900 S03	0	90°	1.5	50	3	
4STE 000 600 S04	0	60°	3.4	50	4	
4STE 000 900 S04	0	90°	2	50	4	
4STE 000 600 S06	0	60°	5.1	60	6	
4STE 000 900 S06	0	90°	3	60	6	
4STE 000 600 S08	0	60°	6.9	65	8	
4STE 000 900 S08	0	90°	4	65	8	
4STE 000 600 S10	0	60°	8.6	75	10	
4STE 000 900 S10	0	90°	5	75	10	
4STE 000 600 S12	0	60°	10.3	80	12	
4STE 000 900 S12	0	90°	6	80	12	

■ 가공 형상에 따른 절삭가능 여부
Available Cutting Shape

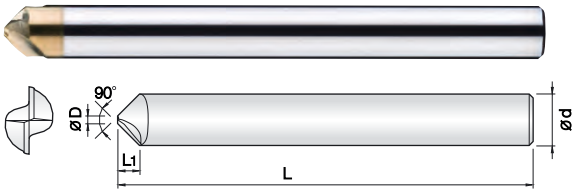


가능 (O) 가능 (O) 불가능 (X)

2CHA

2 Flutes 45° Chamfering Cutter

2날 45° 면취 커터



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 헬릭스 타입 2날을 적용하여 모서리 면취 가공시 절삭력이 좋으며, 피삭재의 조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Applied helix 2flutes design for better performance in corner chamfering.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.02 | 30° Helix Angle

Shank Ø3~Ø12

Size	D Tolerance
D ≧ Ø0.8	+0~ −0.02mm

단위 : mm

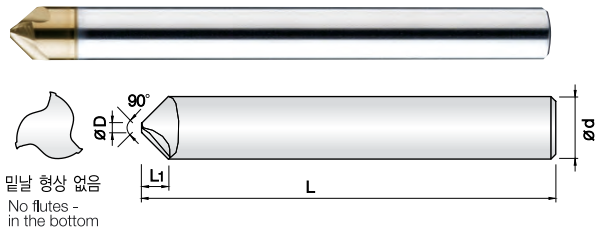
Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CHA 008 450 011	0.8	45°	1.1	50	3	
2CHA 008 450 016	0.8	45°	1.6	50	4	
2CHA 010 450 025	1	45°	2.5	60	6	
2CHA 010 450 035	1	45°	3.5	70	8	
2CHA 010 450 045	1	45°	4.5	80	10	
2CHA 010 450 055	1	45°	5.5	90	12	

3CHA

3 Flutes 45° Chamfering Cutter

New

3날 45° 면취 커터



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 헬릭스 타입 3날을 적용하여 모서리 면취 가공시 절삭력이 좋으며, 피삭재의 조도가 우수합니다.
- 항절력이 높은 초미립자 초경합금을 채택, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Applied helix 3flutes design for better performance in corner chamfering.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

3 | UWC 초미립자 | TISIN Coating | D +0 −0.02 | 30° Helix Angle

Shank Ø3~Ø12

Size	D Tolerance
D ≧ Ø0.8	+0~ −0.02mm

단위 : mm

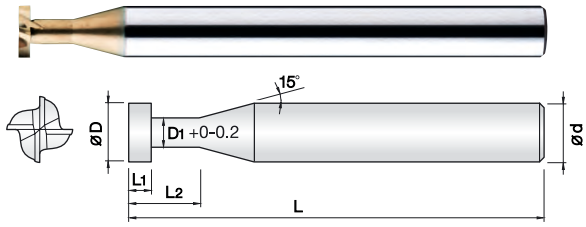
Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3CHA 008 450 011	0.8	45°	1.1	50	3	
3CHA 008 450 016	0.8	45°	1.6	50	4	
3CHA 010 450 025	1	45°	2.5	60	6	
3CHA 010 450 035	1	45°	3.5	65	8	
3CHA 020 450 045	2	45°	4.5	75	10	
3CHA 020 450 055	2	45°	5.5	80	12	

4TES

4 Flutes T-Slot Cutter

4날 T 커터

New



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 4날을 적용하여 인선부 치핑을 최소화 하였습니다.
- 다양한 형상과 유효장으로 공작물 간섭을 최소화하여 작업효율이 향상됩니다.
- 코팅과 비코팅으로 구분하여 수지, 아크릴 등의 가공도 가능합니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying 4flutes design.
- Various shapes and length provides optimum efficiency.
- Resin, plastic machining applicable witn coated or non coated endmill.

4 | UWC 초미립자 | JMAX Coating | D +0 −0.02 (ø2~ø5) | D −0.01 −0.03 (ø6~ø10) | 15° Helix Angle

Size	L1 Tolerance
D ≦ ø6	±0.03mm
D > ø6	±0.05mm

단위 : mm

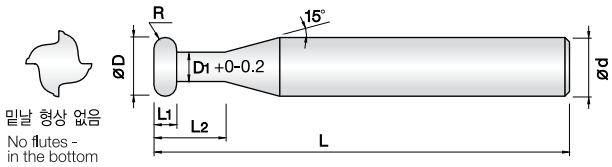
Order Number 비코팅 Non coated	Order Number 코팅 Coated	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
4TES 020 003 040	4TESC 020 003 040	2	0.3	4	1	50	6		
4TES 020 005 040	4TESC 020 005 040	2	0.5	4	1	50	6		
4TES 030 003 045	4TESC 030 003 045	3	0.3	4.5	1.5	50	6		
4TES 030 005 045	4TESC 030 005 045	3	0.5	4.5	1.5	50	6		
4TES 030 010 045	4TESC 030 010 045	3	1	4.5	1.5	50	6		
4TES 040 003 050	4TESC 040 003 050	4	0.3	5	2	50	6		
4TES 040 005 050	4TESC 040 005 050	4	0.5	5	2	50	6		
4TES 040 010 050	4TESC 040 010 050	4	1	5	2	50	6		
4TES 050 005 045	4TESC 050 005 045	5	0.5	4.5	2.5	50	6		
4TES 050 010 050	4TESC 050 010 050	5	1	5	2.5	50	6		
4TES 050 015 055	4TESC 050 015 055	5	1.5	5.5	2.5	50	6		
4TES 050 020 060	4TESC 050 020 060	5	2	6	2.5	50	6		
4TES 060 005 045	4TESC 060 005 045	6	0.5	4.5	3	60	6		
4TES 060 010 050	4TESC 060 010 050	6	1	5	3	60	6		
4TES 060 015 055	4TESC 060 015 055	6	1.5	5.5	3	60	6		
4TES 060 020 060	4TESC 060 020 060	6	2	6	3	60	6		
4TES 080 005 045	4TESC 080 005 045	8	0.5	4.5	4	60	8		
4TES 080 010 050	4TESC 080 010 050	8	1	5	4	60	8		
4TES 080 015 055	4TESC 080 015 055	8	1.5	5.5	4	60	8		
4TES 080 020 060	4TESC 080 020 060	8	2	6	4	60	8		
4TES 080 030 070	4TESC 080 030 070	8	3	7	4	60	8		
4TES 100 010 070	4TESC 100 010 070	10	1	7	5	70	10		
4TES 100 020 080	4TESC 100 020 080	10	2	8	5	70	10		
4TES 100 030 090	4TESC 100 030 090	10	3	9	5	70	10		

4TRS

4 Flutes T- R Slot Cutter

4날 T-R 커터

New



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 직선날 타입 4날을 적용하여 인선부 치핑을 최소화 하였습니다.
- 다양한 형상과 유효장으로 공작물 간섭을 최소화하여 작업효율이 향상됩니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

4 | UWC 초미립자 | JMAX Coating | R ±0.02 (0.5R~2R) | 0° Helix Angle

Size	L1 Tolerance
D ≦ ø6	±0.03mm
D > ø6	±0.05mm

단위 : mm

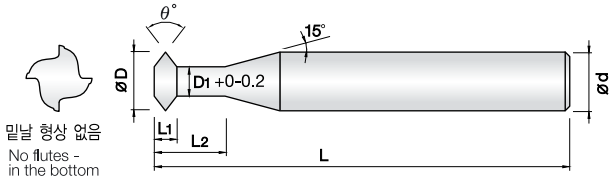
Order Number	날경 Diameter D ×R	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	생크 Shank Dia d	비고
4TRS 050 010 045	5 X 0.5R	1	4.5	2.5	50	6	
4TRS 050 020 055	5 X 1R	2	5.5	2.5	50	6	
4TRS 060 010 050	6 X 0.5R	1	5	3	50	6	
4TRS 060 015 055	6 X 0.75R	1.5	5.5	3	50	6	
4TRS 060 020 060	6 X 1R	2	6	3	50	6	
4TRS 080 020 070	8 X 1R	2	7	4	60	8	
4TRS 080 030 080	8 X 1.5R	3	8	4	60	8	
4TRS 100 040 100	10 X 2R	4	10	4.5	70	10	

4&6TDA

4&6 Flutes T-Double Angular Cutter

4&6날 T-더블앵글 커터

New



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- J MAX코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 직선날 타입 4날을 적용하여 인선부 치핑을 최소화 하였습니다.
- 다양한 형상과 유효장으로 공작물 간섭을 최소화하여 작업효율이 향상됩니다.
- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

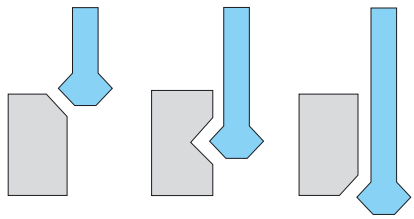
4 | 6 | UWC 초미립자 | JMAX Coating | D +0 –0.02 (Ø1.5~Ø5) | D –0.01 –0.03 (Ø6~Ø12) | 0° Helix Angle

Size	L1 Tolerance
D ≦ Ø6	±0.03mm
D > Ø6	±0.05mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	생크 Shank Dia d	비고
4TDA 015 600 030	1.5	60°	0.43	3	0.75	45	4	
4TDA 015 900 030	1.5	90°	0.75	3	0.75	45	4	
4TDA 020 600 050	2	60°	0.57	5	1	50	4	
4TDA 020 900 050	2	90°	1	5	1	50	4	
4TDA 025 600 060	2.5	60°	0.75	6	1.2	50	4	
4TDA 025 900 060	2.5	90°	1.3	6	1.2	50	4	
4TDA 030 600 075	3	60°	0.86	7.5	1.5	50	4	
4TDA 030 900 075	3	90°	1.5	7.5	1.5	50	4	
4TDA 040 600 100	4	60°	1.15	10	2	50	4	
4TDA 040 900 100	4	90°	2	10	2	50	4	
4TDA 050 600 125	5	60°	1.44	12.5	2.5	60	6	
4TDA 050 900 125	5	90°	2.4	12.5	2.5	60	6	
4TDA 060 600 150	6	60°	1.73	15	3	60	6	
4TDA 060 900 150	6	90°	2.8	15	3	60	6	
6TDA 080 600 200	8	60°	2.3	20	4	70	8	
6TDA 080 900 200	8	90°	3.8	20	4	70	8	
6TDA 100 600 250	10	60°	2.8	25	5	75	10	
6TDA 100 900 250	10	90°	4.8	25	5	75	10	
6TDA 120 600 300	12	60°	3.4	30	6	80	12	
6TDA 120 900 300	12	90°	5.8	30	6	80	12	

■ 가공 형상에 따른 절삭가능 여부
Available Cutting Shape



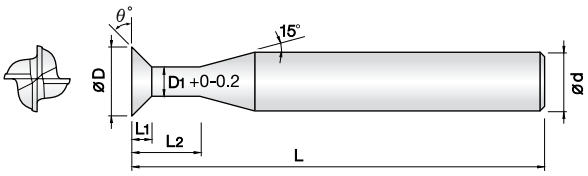
가능 (O) 가능 (O) 가능 (O)

4&6TAC

4&6 Flutes T-Angular Cutter

4&6날 T-앵글 커터

New



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- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- J-Max coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

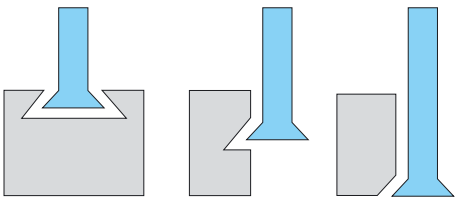
4 | 6 | UWC 초미립자 | JMAX Coating | D +0 –0.02 (ø1.5~ø5) | D –0.01 –0.03 (ø6~ø12) | 0° Helix Angle

Size	L1 Tolerance
D ≦ ø6	±0.03mm
D > ø6	±0.05mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	생크 Shank Dia d	비고
4TAC 015 300 030	1.5	30°	0.21	3	0.75	45	4	
4TAC 015 450 030	1.5	45°	0.37	3	0.75	45	4	
4TAC 020 300 050	2	30°	0.28	5	1	50	4	
4TAC 020 450 050	2	45°	0.5	5	1	50	4	
4TAC 025 300 060	2.5	30°	0.37	6	1.2	50	4	
4TAC 025 450 060	2.5	45°	0.65	6	1.2	50	4	
4TAC 030 300 075	3	30°	0.43	7.5	1.5	50	4	
4TAC 030 450 075	3	45°	0.75	7.5	1.5	50	4	
4TAC 040 300 100	4	30°	0.57	10	2	50	4	
4TAC 040 450 100	4	45°	1	10	2	50	4	
4TAC 050 300 125	5	30°	0.72	12.5	2.5	60	6	
4TAC 050 450 125	5	45°	1.25	12.5	2.5	60	6	
4TAC 060 300 150	6	30°	0.86	15	3	60	6	
4TAC 060 450 150	6	45°	1.5	15	3	60	6	
6TAC 080 300 200	8	30°	1.15	20	4	70	8	
6TAC 080 450 200	8	45°	2	20	4	70	8	
6TAC 100 300 250	10	30°	1.44	25	5	75	10	
6TAC 100 450 250	10	45°	2.5	25	5	75	10	
6TAC 120 300 300	12	30°	1.73	30	6	80	12	
6TAC 120 450 300	12	45°	3	30	6	80	12	

■ 가공 형상에 따른 절삭가능 여부
Available Cutting Shape

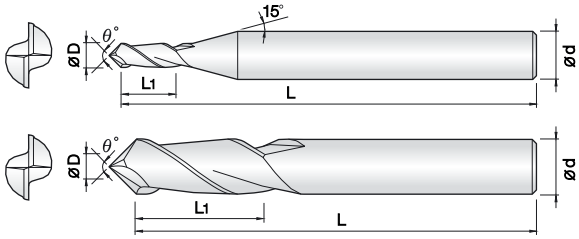


가능 (O) 가능 (O) 가능 (O)

2CEN

2 Flutes Centering End Mills

2날 센터링 엔드밀



- **아크릴, ABS, 알루미늄 등 비철, 비금속 피삭재 가공용 엔드밀**
- 센터링 작업이 가능하며, 모서리 면취와 측면절삭을 동시에 가공할 수 있는 다기능 엔드밀 입니다.
- 초미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용 가능합니다.
- 코팅과 비코팅을 구분하여 HRc50이하의 고경도강, 프리하든강, 주철 등 다양한 피삭재 가공이 가능합니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Multi function endmill for corner chamfering, side wall and centering.
- Applied ultra fine WC grade optimized for various non-ferrous and non-metallic work materials.
- Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.

2 | UWC 초미립자 | D +0 −0.01 (Ø0.3~ Ø5) | D +0 −0.02 (Ø6~Ø16) | 30° Helix Angle

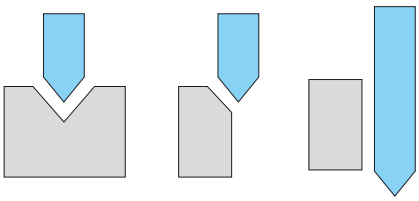
Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

Order Number 비코팅 Non coated	Order Number 코팅 Coated	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
New 2CEN 003 600 S03	2CENC 003 600 S03	0.3	60°	0.6	45	3		
New 2CEN 003 900 S03	2CENC 003 900 S03	0.3	90°	0.6	45	3		
New 2CEN 005 600 S03	2CENC 005 600 S03	0.5	60°	1	50	3		
New 2CEN 005 900 S03	2CENC 005 900 S03	0.5	90°	1	50	3		
New 2CEN 008 600 S03	2CENC 008 600 S03	0.8	60°	1.6	50	3		
New 2CEN 008 900 S03	2CENC 008 900 S03	0.8	90°	1.6	50	3		
New 2CEN 010 600 S03	2CENC 010 600 S03	1	60°	2	50	3		
New 2CEN 010 900 S03	2CENC 010 900 S03	1	90°	2	50	3		
New 2CEN 020 600 S03	2CENC 020 600 S03	2	60°	4	50	3		
New 2CEN 020 900 S03	2CENC 020 900 S03	2	90°	4	50	3		
New 2CEN 030 600 S03	2CENC 030 600 S03	3	60°	6	50	3		
2CEN 030 900 S03	2CENC 030 900 S03	3	90°	6	50	3		
New 2CEN 030 600 S06	2CENC 030 600 S06	3	60°	6	50	6		
2CEN 030 900 S06	2CENC 030 900 S06	3	90°	6	50	6		
New 2CEN 040 600 S06	2CENC 040 600 S06	4	60°	8	50	6		
2CEN 040 900 S06	2CENC 040 900 S06	4	90°	8	50	6		
New 2CEN 050 600 S06	2CENC 050 600 S06	5	60°	10	50	6		
2CEN 050 900 S06	2CENC 050 900 S06	5	90°	10	50	6		
New 2CEN 060 600 S06	2CENC 060 600 S06	6	60°	12	60	6		
2CEN 060 900 S06	2CENC 060 900 S06	6	90°	12	60	6		
New 2CEN 080 600 S08	2CENC 080 600 S08	8	60°	16	70	8		
2CEN 080 900 S08	2CENC 080 900 S08	8	90°	16	70	8		
New 2CEN 100 600 S10	2CENC 100 600 S10	10	60°	18	70	10		
2CEN 100 900 S10	2CENC 100 900 S10	10	90°	18	70	10		
New 2CEN 120 600 S12	2CENC 120 600 S12	12	60°	20	75	12		
2CEN 120 900 S12	2CENC 120 900 S12	12	90°	20	75	12		
New 2CEN 140 600 S14	2CENC 140 600 S14	14	60°	26	80	14		
2CEN 140 900 S14	2CENC 140 900 S14	14	90°	26	80	14		
New 2CEN 160 600 S16	2CENC 160 600 S16	16	60°	32	100	16		
2CEN 160 900 S16	2CENC 160 900 S16	16	90°	32	100	16		

■ 가공 형상에 따른 절삭가능 여부

Available Cutting Shape

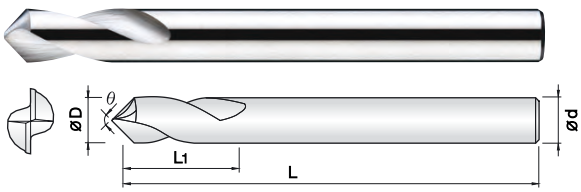


가능 (△) 가능 (O) 가능 (O)

2SPO

2 Flutes NC Spotting Drill

2날 NC 스포팅 드릴



- **HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 헬릭스 타입 2날을 적용하여 모서리 면취와 센터링 작업에 적합합니다.
- 코팅과 비코팅으로 구분하여 수지, 아크릴 등의 가공도 가능합니다.
- 초미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용 가능합니다.

- **Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for chamfering and centering with helix 2flutes.
- Resin, plastic machining applicable witn coated or non coated endmill.
- Applied ultra fine WC grade optimized for various non-ferrous and non-metallic work materials.

2 | UWC 초미립자 | TISIN Coating | D +0 −0.01 (ø2~ø4) | D +0 −0.015 (ø6~ø16) | 30° Helix Angle

Size	D Tolerance
D ≦ ø4	+0~ −0.01mm
D > ø4	+0~ −0.015mm

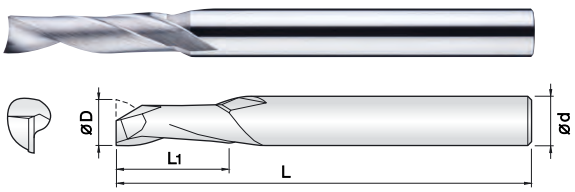
단위 : mm

Order Number 비코팅 Non coated	Order Number 코팅 Coated	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고 비코팅 Non coated	비고 코팅 Coated
New 2SPO 020 090 050	2SPOC 020 090 050	2	90°	6	50	3		
New 2SPO 020 120 050	2SPOC 020 120 050	2	120°	6	50	3		
2SPO 030 090 050	2SPOC 030 090 050	3	90°	10	50	3		
2SPO 030 120 050	2SPOC 030 120 050	3	120°	10	50	3		
New 2SPO 030 090 100	2SPOC 030 090 100	3	90°	10	100	3		
New 2SPO 030 120 100	2SPOC 030 120 100	3	120°	10	100	3		
2SPO 040 090 050	2SPOC 040 090 050	4	90°	12	50	4		
2SPO 040 120 050	2SPOC 040 120 050	4	120°	12	50	4		
New 2SPO 040 090 100	2SPOC 040 090 100	4	90°	12	100	4		
New 2SPO 040 120 100	2SPOC 040 120 100	4	120°	12	100	4		
2SPO 060 090 070	2SPOC 060 090 070	6	90°	15	70	6		
2SPO 060 120 070	2SPOC 060 120 070	6	120°	15	70	6		
New 2SPO 060 090 110	2SPOC 060 090 110	6	90°	15	110	6		
New 2SPO 060 120 110	2SPOC 060 120 110	6	120°	15	110	6		
2SPO 080 090 080	2SPOC 080 090 080	8	90°	25	80	8		
2SPO 080 120 080	2SPOC 080 120 080	8	120°	25	80	8		
2SPO 100 090 090	2SPOC 100 090 090	10	90°	25	90	10		
2SPO 100 120 090	2SPOC 100 120 090	10	120°	25	90	10		
New 2SPO 100 090 150	2SPOC 100 090 150	10	90°	25	150	10		
New 2SPO 100 120 150	2SPOC 100 120 150	10	120°	25	150	10		
2SPO 120 090 090	2SPOC 120 090 090	12	90°	30	90	12		
2SPO 120 120 090	2SPOC 120 120 090	12	120°	30	90	12		
New 2SPO 120 090 150	2SPOC 120 090 150	12	90°	30	150	12		
New 2SPO 120 120 150	2SPOC 120 120 150	12	120°	30	150	12		
2SPO 160 090 110	2SPOC 160 090 110	16	90°	35	110	16		
2SPO 160 120 110	2SPOC 160 120 110	16	120°	35	110	16		

1MEM

1 Flute End Mills

1날 엔드밀



- **아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공용 엔드밀**
- 헬릭스 1날 타입으로 칩 배출이 우수하여 비철,비금속 피삭재의 절단작업 및 측벽 작업에 적합합니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.
- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Excellent chip removing by a helix flute design. Optimum for cut-off and wall machining.
- Excellent wear resistance by applying ultra fine WC grade.

1 | UWC 초미립자 | D +0 −0.02 (ø0.2~ ø5) | D +0 −0.03 (ø6~ø12) | 30° Helix Angle

Size	D Tolerance
D ≦ ø5	+0~ −0.02mm
D > ø5	+0~ −0.03mm

단위 : mm

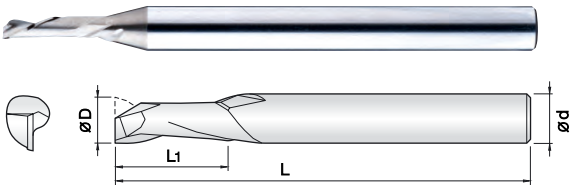
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 1MEM 002 005 S04	0.2	0.5	40	4	
New 1MEM 003 009 S04	0.3	0.9	40	4	
New 1MEM 004 012 S04	0.4	1.2	40	4	
New 1MEM 005 015 S04	0.5	1.5	40	4	
New 1MEM 006 018 S04	0.6	1.8	40	4	
New 1MEM 007 021 S04	0.7	2.1	40	4	
New 1MEM 008 024 S04	0.8	2.4	40	4	
New 1MEM 009 027 S04	0.9	2.7	40	4	
1MEM 010 030 S06	1	3	45	6	
New 1MEM 010 045 S06	1	4.5	45	6	
1MEM 010 060 S06	1	6	50	6	
New 1MEM 012 030 S06	1.2	3	45	6	
New 1MEM 012 050 S06	1.2	5	45	6	
New 1MEM 012 060 S06	1.2	6	50	6	
1MEM 015 040 S06	1.5	4	45	6	
1MEM 015 060 S06	1.5	6	50	6	
New 1MEM 015 080 S06	1.5	8	50	6	
1MEM 020 060 S06	2	6	50	6	
1MEM 020 080 S06	2	8	50	6	
New 1MEM 020 100 S06	2	10	50	6	
1MEM 030 080 S06	3	8	50	6	
1MEM 030 120 S06	3	12	50	6	
New 1MEM 030 150 S06	3	15	50	6	
1MEM 040 100 S06	4	10	50	6	
1MEM 040 150 S06	4	15	50	6	
New 1MEM 040 200 S06	4	20	60	6	
1MEM 050 130 S06	5	13	60	6	
New 1MEM 050 200 S06	5	20	60	6	
1MEM 050 250 S06	5	25	60	6	
1MEM 060 150 S06	6	15	60	6	
New 1MEM 060 200 S06	6	20	60	6	
1MEM 060 250 S06	6	25	60	6	
1MEM 080 190 S08	8	19	70	8	
1MEM 080 250 S08	8	25	75	8	
1MEM 100 220 S10	10	22	75	10	
1MEM 100 300 S10	10	30	80	10	
1MEM 120 260 S12	12	26	75	12	
1MEM 120 350 S12	12	35	90	12	

1REM

1 Flute Reverse Edge End Mills

1날 역날엔드밀

New



- **아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공용 엔드밀**
- 역 헬릭스 타입으로 칩 배출이 아래 방향으로 배출되어, 작업시 피삭재가 떠오르는 현상이 없습니다.
- 피삭재에 버가 발생하지 않습니다.
- 피삭재의 정착이 불안정한 경우 적합합니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Downward chip direction by reverse helix design helps chip control.
- No burr in work materials.
- Optimum for unstable work clamping.
- Excellent wear resistance by applying ultra fine WC grade.

1 | UWC 초미립자 | D +0 −0.02 Ø1~Ø5 | D +0 −0.03 Ø6~Ø8 | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.02mm
D > Ø5	+0~ −0.03mm

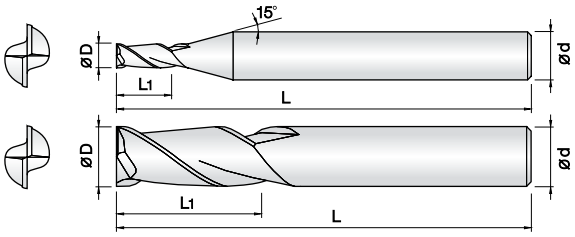
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
1REM 010 030 S06	1	3	50	6	
1REM 010 060 S06	1	6	60	6	
1REM 020 060 S06	2	6	60	6	
1REM 020 080 S06	2	8	60	6	
1REM 030 080 S06	3	8	60	6	
1REM 030 120 S06	3	12	65	6	
1REM 040 120 S06	4	12	65	6	
1REM 040 160 S06	4	16	70	6	
1REM 050 220 S06	5	22	75	6	
1REM 060 270 S06	6	27	75	6	
1REM 080 320 S08	8	32	90	8	

2MEM

2 Flutes End Mills

2날 범용 엔드밀



- **일반강, 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 인선부 강성을 보강하여 날부 치핑을 최소화 하였습니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Reinforced edge design for preventing edge chipping.
- Improve tool performance by even run-out and tolerance control.
- Excellent wear resistance by applying ultra fine WC grade.

2 | UWC 초미립자 | D +0 −0.01 (Ø0.1~Ø0.9) | D +0 −0.015 (Ø1~Ø5) | D +0 −0.02 (Ø6~Ø12) | 30° Helix Angle

Size	D Tolerance
D < Ø1	+0~ −0.01mm
D ≦ Ø5	+0~ −0.015mm
D > Ø5	+0~ −0.02mm

단위 : mm

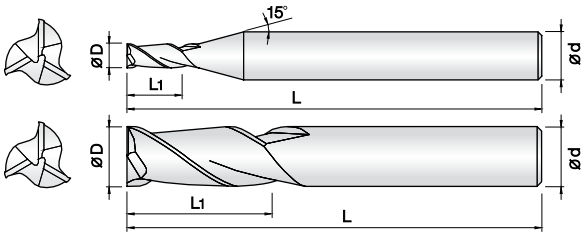
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2MEM 001 002 S03	0.1	0.2	40	3	
2MEM 0015 003 S03	0.15	0.3	40	3	
2MEM 002 004 S03	0.2	0.4	40	3	
2MEM 003 006 S03	0.3	0.6	40	3	
2MEM 004 008 S03	0.4	0.8	40	3	
2MEM 005 010 S03	0.5	1	40	3	
2MEM 006 012 S03	0.6	1.2	40	3	
2MEM 007 014 S03	0.7	1.4	40	3	
2MEM 008 016 S03	0.8	1.6	40	3	
2MEM 009 018 S03	0.9	1.8	40	3	
2MEM 010 025 S03	1	2.5	40	3	
2MEM 010 025 S06	1	2.5	40	6	
2MEM 011 025 S03	1.1	2.5	40	3	
2MEM 012 035 S03	1.2	3.5	40	3	
2MEM 013 040 S03	1.3	4	40	3	
2MEM 014 040 S03	1.4	4	40	3	
2MEM 015 040 S03	1.5	4	40	3	
2MEM 015 040 S06	1.5	4	40	6	
2MEM 016 040 S03	1.6	4	40	3	
2MEM 017 050 S03	1.7	5	40	3	
2MEM 018 055 S03	1.8	5.5	40	3	
2MEM 019 060 S03	1.9	6	40	3	
2MEM 020 060 S03	2	6	40	3	
2MEM 020 060 S06	2	6	40	6	
2MEM 025 080 S03	2.5	8	40	3	
2MEM 030 080 S03	3	8	45	3	
2MEM 030 080 S06	3	8	45	6	
2MEM 035 100 S06	3.5	10	45	6	
2MEM 040 110 S06	4	11	45	6	
2MEM 045 110 S06	4.5	11	45	6	
2MEM 050 130 S06	5	13	50	6	
2MEM 060 130 S06	6	13	50	6	
2MEM 070 160 S08	7	16	60	8	
2MEM 080 190 S08	8	19	60	8	
2MEM 090 190 S10	9	19	70	10	
2MEM 100 220 S10	10	22	70	10	
2MEM 120 260 S12	12	26	75	12	

3MEM

3 Flutes End Mills

3날 범용 엔드밀

New



- **일반강, 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 인선부 강성을 보강하여 날부 치핑을 최소화 하였습니다.
- 짧은 날장 채택으로 떨림을 최소화 하였습니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Reinforced edge design for preventing edge chipping.
- Minimize chattering by short flute design.
- Excellent wear resistance by applying ultra fine WC grade.

3 | UWC 초미립자 | D +0 −0.01 (Ø0.3~Ø0.9) | D +0 −0.015 (Ø1~Ø6) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø0.9	+0~ −0.01mm
D > Ø0.9	+0~ −0.015mm

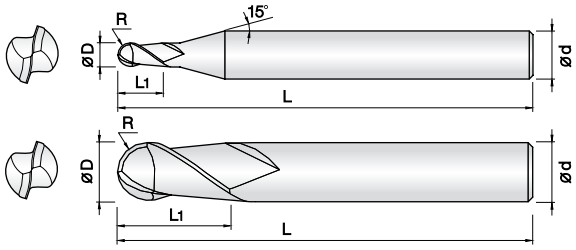
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3MEM 003 008 S04	0.3	0.8	40	4	
3MEM 003 012 S04	0.3	1.2	40	4	
3MEM 004 010 S04	0.4	1	40	4	
3MEM 004 015 S04	0.4	1.5	40	4	
3MEM 005 013 S04	0.5	1.3	40	4	
3MEM 005 020 S04	0.5	2	45	4	
3MEM 006 015 S04	0.6	1.5	40	4	
3MEM 006 024 S04	0.6	2.4	45	4	
3MEM 007 018 S04	0.7	1.8	40	4	
3MEM 007 028 S04	0.7	2.8	45	4	
3MEM 008 020 S04	0.8	2	40	4	
3MEM 008 032 S04	0.8	3.2	45	4	
3MEM 009 025 S04	0.9	2.5	40	4	
3MEM 009 036 S04	0.9	3.6	45	4	
3MEM 010 025 S04	1	2.5	40	4	
3MEM 010 040 S04	1	4	45	4	
3MEM 010 060 S04	1	6	50	4	
3MEM 012 030 S04	1.2	3	40	4	
3MEM 012 050 S04	1.2	5	40	4	
3MEM 012 070 S04	1.2	7	50	4	
3MEM 015 040 S04	1.5	4	40	4	
3MEM 015 060 S04	1.5	6	40	4	
3MEM 015 090 S04	1.5	9	60	4	
3MEM 020 050 S04	2	5	40	4	
3MEM 020 080 S04	2	8	50	4	
3MEM 020 100 S04	2	10	60	4	
3MEM 025 060 S04	2.5	6	45	4	
3MEM 025 100 S04	2.5	10	50	4	
3MEM 025 150 S04	2.5	15	60	4	
3MEM 030 080 S04	3	8	50	4	
3MEM 030 120 S04	3	12	60	4	
3MEM 030 150 S04	3	15	80	4	
3MEM 040 100 S04	4	10	50	4	
3MEM 040 150 S04	4	15	80	4	
3MEM 060 200 S06	6	20	80	6	
3MEM 060 300 S06	6	30	110	6	

2MBE

2 Flutes Ball End Mills

2날 범용 볼 엔드밀



- **일반강, 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 날부 인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Improve tool performance by even run-out and tolerance control.
- Very nice work surface finish.
- Excellent wear resistance by applying ultra fine WC grade.

2 | UWC 초미립자 | R ±0.005 (0.05R ~ 3R) | R ±0.01 (4R ~ 6R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

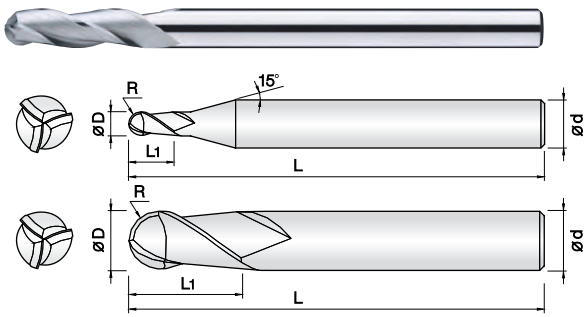
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2MBE 001 002 S03	0.05R X 0.1	0.2	38	3	
2MBE 0015 003 S03	0.075R X 0.15	0.3	38	3	
2MBE 002 004 S03	0.1R X 0.2	0.4	38	3	
2MBE 003 006 S03	0.15R X 0.3	0.6	38	3	
2MBE 004 008 S03	0.2R X 0.4	0.8	38	3	
2MBE 005 010 S03	0.25R X 0.5	1	38	3	
2MBE 006 012 S03	0.3R X 0.6	1.2	38	3	
2MBE 007 014 S03	0.35R X 0.7	1.4	38	3	
2MBE 008 016 S03	0.4R X 0 .8	1.6	38	3	
2MBE 009 018 S03	0.45R X 0.9	1.8	38	3	
2MBE 010 025 S03	0.5R X 1	2.5	50	3	
2MBE 010 025 S06	0.5R X 1	2.5	50	6	
New 2MBE 010 025 100	0.5R X 1	2.5	100	6	
2MBE 011 025 S03	0.55R X 1.1	2.5	50	3	
2MBE 012 030 S03	0.6R X 1.2	3	50	3	
2MBE 015 040 S03	0.75R X 1.5	4	50	3	
New 2MBE 015 040 100	0.75R X 1.5	4	100	6	
2MBE 020 050 S03	1R X 2	5	50	3	
2MBE 020 050 S06	1R X 2	5	50	6	
New 2MBE 020 050 100	1R X 2	5	100	6	
2MBE 025 060 S03	1.25R X 2.5	6	50	3	
New 2MBE 025 060 100	1.25R X 2.5	6	100	6	
2MBE 030 080 S03	1.5R X 3	8	60	3	
2MBE 030 080 S06	1.5R X 3	8	60	6	
New 2MBE 030 080 100	1.5R X 3	8	100	6	
2MBE 035 080 S06	1.75R X 3.5	8	65	6	
2MBE 040 080 S06	2R X 4	8	65	6	
New 2MBE 040 080 120	2R X 4	8	120	6	
2MBE 050 120 S06	2.5R X 5	12	75	6	
2MBE 060 120 080	3R X 6	12	80	6	
2MBE 060 120 100	3RX 6	12	100	6	
2MBE 080 140 090	4R X 8	14	90	8	
2MBE 080 140 110	4RX 8	14	110	8	
2MBE 100 180 100	5R X 10	18	100	10	
2MBE 100 180 120	5RX 10	18	120	10	
2MBE 120 220 110	6R X 12	22	110	12	
2MBE 120 220 130	6RX 12	22	130	12	

3MBE

3 Flutes Ball End Mills

3날 범용 볼엔드밀

New



- **일반강, 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 날부 인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Very nice work surface finish.
- Excellent wear resistance by applying ultra fine WC grade.

3 | UWC 초미립자 | R ±0.005 | R ±0.01 | 30° Helix Angle

0.15R ~ 2R 3R

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

단위 : mm

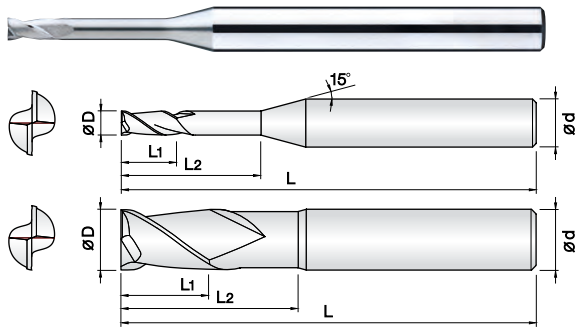
Order Number	날경 Diameter R×D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3MBE 003 008 S04	0.15R X 0.3	0.8	40	4	
3MBE 003 012 S04	0.15R X 0.3	1.2	40	4	
3MBE 004 010 S04	0.2R X 0.4	1	40	4	
3MBE 004 015 S04	0.2R X 0.4	1.5	40	4	
3MBE 005 013 S04	0.25R X 0.5	1.3	45	4	
3MBE 005 020 S04	0.25R X 0.5	2	45	4	
3MBE 006 015 S04	0.3R X 0.6	1.5	45	4	
3MBE 006 024 S04	0.3R X 0.6	2.4	45	4	
3MBE 007 018 S04	0.35R X 0.7	1.8	45	4	
3MBE 007 028 S04	0.35R X 0.7	2.8	45	4	
3MBE 008 020 S04	0.4R X 0.8	2	45	4	
3MBE 008 032 S04	0.4R X 0.8	3.2	45	4	
3MBE 009 025 S04	0.45R X 0.9	2.5	50	4	
3MBE 009 036 S04	0.45R X 0.9	3.6	50	4	
3MBE 010 025 S04	0.5R X 1	2.5	50	4	
3MBE 010 040 S04	0.5R X 1	4	50	4	
3MBE 010 060 S04	0.5R X 1	6	60	4	
3MBE 012 030 S04	0.6R X 1.2	3	50	4	
3MBE 012 050 S04	0.6R X 1.2	5	50	4	
3MBE 012 070 S04	0.6R X 1.2	7	60	4	
3MBE 015 040 S04	0.75R X 1.5	4	50	4	
3MBE 015 060 S04	0.75R X 1.5	6	50	4	
3MBE 015 090 S04	0.75R X 1.5	9	60	4	
3MBE 020 050 S04	1R X 2	5	50	4	
3MBE 020 080 S04	1R X 2	8	50	4	
3MBE 020 100 S04	1R X 2	10	60	4	
3MBE 025 060 S04	1.25R X 2.5	6	50	4	
3MBE 025 100 S04	1.25R X 2.5	10	60	4	
3MBE 025 150 S04	1.25R X 2.5	15	70	4	
3MBE 030 080 S04	1.5R X 3	8	50	4	
3MBE 030 120 S04	1.5R X 3	12	60	4	
3MBE 030 150 S04	1.5R X 3	15	80	4	
3MBE 040 100 S04	2R X 4	10	60	4	
3MBE 040 150 S04	2R X 4	15	80	4	
3MBE 060 200 S06	3R X 6	20	80	6	
3MBE 060 300 S06	3R X 6	30	110	6	

2MRE

2 Flutes Micro Rib End Mills

2날 범용 마이크로 리브 엔드밀

New



- **아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속,고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying ultra fine WC grade.

2 | UWC 초미립자 | D +0 −0.01 (Ø0.2 ~ Ø5) | D +0 −0.02 (Ø6) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0 ~ −0.01mm
D > Ø5	+0 ~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MRE 002 005 S04	0.2	0.3	0.5	40	4	
2MRE 002 010 S04	0.2	0.3	1	40	4	
2MRE 002 015 S04	0.2	0.3	1.5	40	4	
2MRE 002 020 S04	0.2	0.3	2	40	4	
2MRE 003 010 S04	0.3	0.45	1	40	4	
2MRE 003 020 S04	0.3	0.45	2	40	4	
2MRE 003 030 S04	0.3	0.45	3	40	4	
2MRE 003 050 S04	0.3	0.45	5	40	4	
2MRE 004 020 S04	0.4	0.6	2	40	4	
2MRE 004 030 S04	0.4	0.6	3	40	4	
2MRE 004 040 S04	0.4	0.6	4	40	4	
2MRE 004 050 S04	0.4	0.6	5	40	4	
2MRE 004 060 S04	0.4	0.6	6	40	4	
2MRE 005 020 S04	0.5	1	2	45	4	
2MRE 005 040 S04	0.5	1	4	45	4	
2MRE 005 060 S04	0.5	1	6	45	4	
2MRE 005 080 S04	0.5	1	8	45	4	
2MRE 005 100 S04	0.5	1	10	45	4	
2MRE 006 020 S04	0.6	1.2	2	45	4	
2MRE 006 040 S04	0.6	1.2	4	45	4	
2MRE 006 060 S04	0.6	1.2	6	45	4	
2MRE 006 080 S04	0.6	1.2	8	45	4	
2MRE 006 100 S04	0.6	1.2	10	45	4	
2MRE 007 040 S04	0.7	1.4	4	45	4	
2MRE 007 060 S04	0.7	1.4	6	45	4	
2MRE 007 080 S04	0.7	1.4	8	45	4	
2MRE 007 100 S04	0.7	1.4	10	45	4	
2MRE 008 040 S04	0.8	1.6	4	45	4	
2MRE 008 060 S04	0.8	1.6	6	45	4	
2MRE 008 080 S04	0.8	1.6	8	45	4	
2MRE 008 100 S04	0.8	1.6	10	45	4	
2MRE 008 120 S04	0.8	1.6	12	45	4	
2MRE 009 060 S04	0.9	1.8	6	45	4	
2MRE 009 100 S04	0.9	1.8	10	45	4	
2MRE 009 120 S04	0.9	1.8	12	45	4	
2MRE 010 060 S04	1	2	6	50	4	
2MRE 010 080 S04	1	2	8	50	4	
2MRE 010 100 S04	1	2	10	50	4	
2MRE 010 120 S04	1	2	12	50	4	
2MRE 010 160 S04	1	2	16	50	4	
2MRE 010 200 S04	1	2	20	60	4	
2MRE 010 250 S04	1	2	25	60	4	
2MRE 012 060 S04	1.2	2.4	6	50	4	
2MRE 012 080 S04	1.2	2.4	8	50	4	
2MRE 012 100 S04	1.2	2.4	10	50	4	
2MRE 012 120 S04	1.2	2.4	12	50	4	
2MRE 012 160 S04	1.2	2.4	16	50	4	
2MRE 014 060 S04	1.4	2.8	6	50	4	

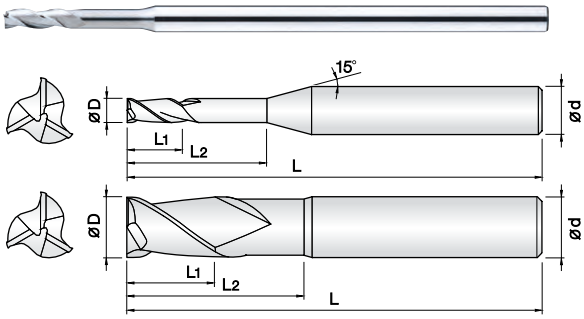
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MRE 014 100 S04	1.4	2.8	10	50	4	
2MRE 014 160 S04	1.4	2.8	16	50	4	
2MRE 015 060 S04	1.5	3	6	50	4	
2MRE 015 100 S04	1.5	3	10	50	4	
2MRE 015 140 S04	1.5	3	14	50	4	
2MRE 015 160 S04	1.5	3	16	50	4	
2MRE 015 200 S04	1.5	3	20	60	4	
2MRE 015 250 S04	1.5	3	25	60	4	
2MRE 015 300 S04	1.5	3	30	70	4	
2MRE 016 060 S04	1.6	3.2	6	50	4	
2MRE 020 080 S04	2	4	8	50	4	
2MRE 020 100 S04	2	4	10	50	4	
2MRE 020 120 S04	2	4	12	50	4	
2MRE 020 140 S04	2	4	14	50	4	
2MRE 020 160 S04	2	4	16	50	4	
2MRE 020 180 S04	2	4	18	50	4	
2MRE 020 200 S04	2	4	20	60	4	
2MRE 020 250 S04	2	4	25	60	4	
2MRE 020 300 S04	2	4	30	70	4	
2MRE 020 350 S04	2	4	35	80	4	
2MRE 020 400 S04	2	4	40	80	4	
2MRE 025 120 S04	2.5	5	12	60	4	
2MRE 025 200 S04	2.5	5	20	60	4	
2MRE 030 080 S06	3	6	8	70	6	
2MRE 030 120 S06	3	6	12	70	6	
2MRE 030 160 S06	3	6	16	70	6	
2MRE 030 200 S06	3	6	20	70	6	
2MRE 030 250 S06	3	6	25	70	6	
2MRE 030 300 S06	3	6	30	80	6	
2MRE 030 400 S06	3	6	40	90	6	
2MRE 030 450 S06	3	6	45	90	6	
2MRE 040 120 S06	4	8	12	70	6	
2MRE 040 160 S06	4	8	16	70	6	
2MRE 040 200 S06	4	8	20	70	6	
2MRE 040 250 S06	4	8	25	70	6	
2MRE 040 300 S06	4	8	30	70	6	
2MRE 040 350 S06	4	8	35	80	6	
2MRE 040 400 S06	4	8	40	80	6	
2MRE 040 500 S06	4	8	50	100	6	
2MRE 050 160 S06	5	10	16	80	6	
2MRE 050 250 S06	5	10	25	80	6	
2MRE 050 350 S06	5	10	35	80	6	
2MRE 060 250 S06	6	12	25	80	6	
2MRE 060 350 S06	6	12	35	80	6	
2MRE 060 500 S06	6	12	50	120	6	
2MRE 060 600 S06	6	12	60	120	6	

3MRE

3 Flutes Micro Rib End Mills

3날 범용 마이크로 리브 엔드밀

New



- **아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속,고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
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- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying ultra fine WC grade.

3 | UWC 초미립자 | D +0 −0.01 (Ø1 ~ Ø4) | D +0 −0.02 (Ø6 ~ Ø16) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø4	+0 ~ −0.01mm
D > Ø4	+0 ~ −0.02mm

단위 : mm

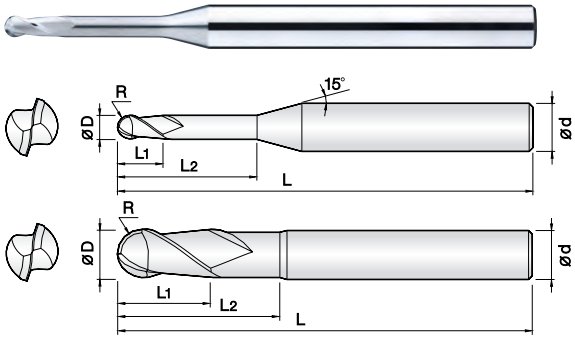
Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3MRE 010 050 S04	1	3	5	70	4	
3MRE 010 100 S04	1	3	10	70	4	
3MRE 010 150 S04	1	3	15	70	4	
3MRE 010 200 S04	1	3	20	70	4	
3MRE 010 250 S04	1	3	25	70	4	
3MRE 015 100 S04	1.5	4.5	10	70	4	
3MRE 015 150 S04	1.5	4.5	15	70	4	
3MRE 015 200 S04	1.5	4.5	20	70	4	
3MRE 015 250 S04	1.5	4.5	25	70	4	
3MRE 015 300 S04	1.5	4.5	30	70	4	
3MRE 020 100 S04	2	6	10	70	4	
3MRE 020 150 S04	2	6	15	70	4	
3MRE 020 200 S04	2	6	20	70	4	
3MRE 020 250 S04	2	6	25	70	4	
3MRE 020 300 S04	2	6	30	70	4	
3MRE 030 200 080	3	15	20	80	3	
3MRE 030 200 S04	3	9	20	80	4	
3MRE 030 300 100	3	15	30	100	3	
3MRE 030 300 S04	3	9	30	80	4	
3MRE 040 200 080	4	12	20	80	4	
3MRE 040 300 100	4	12	30	100	4	
3MRE 060 300 100	6	18	30	100	6	
3MRE 060 400 150	6	18	40	150	6	
3MRE 080 400 120	8	24	40	120	8	
3MRE 080 500 150	8	24	50	150	8	
3MRE 100 500 120	10	30	50	120	10	
3MRE 100 600 150	10	30	60	150	10	
3MRE 120 600 150	12	36	60	150	12	
3MRE 160 700 160	16	54	70	160	16	

2MRB

2 Flutes Micro Rib Ball End Mills

2날 범용 마이크로 리브 볼 엔드밀

New



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- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying ultra fine WC grade.

2 | UWC 초미립자 | R ±0.005 | 30° Helix Angle

0.1R ~ 3R

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

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
2MRB 002 005 S04	0.1R X 0.2	0.3	0.5	40	4	
2MRB 002 010 S04	0.1R X 0.2	0.3	1	40	4	
2MRB 002 015 S04	0.1R X 0.2	0.3	1.5	40	4	
2MRB 002 020 S04	0.1R X 0.2	0.3	2	40	4	
2MRB 003 010 S04	0.15R X 0.3	0.45	1	40	4	
2MRB 003 020 S04	0.15R X 0.3	0.45	2	40	4	
2MRB 003 030 S04	0.15R X 0.3	0.45	3	40	4	
2MRB 003 050 S04	0.15R X 0.3	0.45	5	40	4	
2MRB 004 020 S04	0.2R X 0.4	0.6	2	40	4	
2MRB 004 030 S04	0.2R X 0.4	0.6	3	40	4	
2MRB 004 040 S04	0.2R X 0.4	0.6	4	40	4	
2MRB 004 050 S04	0.2R X 0.4	0.6	5	40	4	
2MRB 004060 S04	0.2R X 0.4	0.6	6	40	4	
2MRB 005 020 S04	0.25R X 0.5	1	2	45	4	
2MRB 005 040 S04	0.25R X 0.5	1	4	45	4	
2MRB 005 060 S04	0.25R X 0.5	1	6	45	4	
2MRB 005 080 S04	0.25R X 0.5	1	8	45	4	
2MRB 005 100 S04	0.25R X 0.5	1	10	45	4	
2MRB 006 020 S04	0.3R X 0.6	1.2	2	45	4	
2MRB 006 040 S04	0.3R X 0.6	1.2	4	45	4	
2MRB 006 060 S04	0.3R X 0.6	1.2	6	45	4	
2MRB 006 080 S04	0.3R X 0.6	1.2	8	45	4	
2MRB 006 100 S04	0.3R X 0.6	1.2	10	45	4	
2MRB 007 040 S04	0.35R X 0.7	1.4	4	45	4	
2MRB 007 060 S04	0.35R X 0.7	1.4	6	45	4	
2MRB 007 080 S04	0.35R X 0.7	1.4	8	45	4	
2MRB 007 100 S04	0.35R X 0.7	1.4	10	45	4	
2MRB 008 040 S04	0.4R X 0.8	1.6	4	45	4	
2MRB 008 060 S04	0.4R X 0.8	1.6	6	45	4	
2MRB 008 080 S04	0.4R X 0.8	1.6	8	45	4	
2MRB 008 100 S04	0.4R X 0.8	1.6	10	45	4	
2MRB 008 120 S04	0.4R X 0.8	1.6	12	45	4	
2MRB 009 060 S04	0.45R X 0.9	1.8	6	45	4	
2MRB 009 100 S04	0.45R X 0.9	1.8	10	45	4	
2MRB 009 120 S04	0.45R X 0.9	1.8	12	45	4	
2MRB 010 060 S04	0.5R X 1	2	6	50	4	
2MRB 010 080 S04	0.5R X 1	2	8	50	4	
2MRB 010 100 S04	0.5R X 1	2	10	50	4	
2MRB 010 120 S04	0.5R X 1	2	12	50	4	
2MRB 010 160 S04	0.5R X 1	2	16	50	4	
2MRB 010 200 S04	0.5R X 1	2	20	60	4	
2MRB 010 250 S04	0.5R X 1	2	25	60	4	
2MRB 012 060 S04	0.6R X 1.2	2.4	6	50	4	
2MRB 012 080 S04	0.6R X 1.2	2.4	8	50	4	
2MRB 012 100 S04	0.6R X 1.2	2.4	10	50	4	
2MRB 012 120 S04	0.6R X 1.2	2.4	12	50	4	
2MRB 012 160 S04	0.6R X 1.2	2.4	16	50	4	
2MRB 014 060 S04	0.7R X 1.4	2.8	6	50	4	

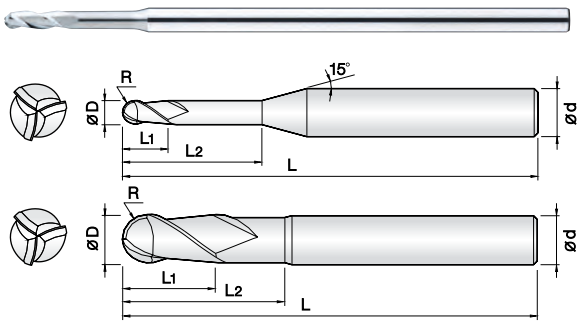
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MRB 014 100 S04	0.7R X 1.4	2.8	10	50	4	
2MRB 014 160 S04	0.7R X 1.4	2.8	16	50	4	
2MRB 015 060 S04	0.75R X 1.5	3	6	50	4	
2MRB 015 100 S04	0.75R X 1.5	3	10	50	4	
2MRB 015 140 S04	0.75R X 1.5	3	14	50	4	
2MRB 015 160 S04	0.75R X 1.5	3	16	50	4	
2MRB 015 200 S04	0.75R X 1.5	3	20	60	4	
2MRB 015 250 S04	0.75R X 1.5	3	25	60	4	
2MRB 015 300 S04	0.75R X 1.5	3	30	70	4	
2MRB 016 060 S04	0.8R X 1.6	3.2	6	50	4	
2MRB 020 080 S04	1R X 2	4	8	50	4	
2MRB 020 100 S04	1R X 2	4	10	50	4	
2MRB 020 120 S04	1R X 2	4	12	50	4	
2MRB 020 140 S04	1R X 2	4	14	50	4	
2MRB 020 160 S04	1R X 2	4	16	50	4	
2MRB 020 180 S04	1R X 2	4	18	50	4	
2MRB 020 200 S04	1R X 2	4	20	60	4	
2MRB 020 250 S04	1R X 2	4	25	60	4	
2MRB 020 300 S04	1R X 2	4	30	70	4	
2MRB 020 350 S04	1R X 2	4	35	80	4	
2MRB 020 400 S04	1R X 2	4	40	80	4	
2MRB 025 120 S04	1.25R X 2.5	5	12	60	4	
2MRB 025 200 S04	1.25R X 2.5	5	20	60	4	
2MRB 030 080 S06	1.5R X 3	6	8	70	6	
2MRB 030 120 S06	1.5R X 3	6	12	70	6	
2MRB 030 160 S06	1.5R X 3	6	16	70	6	
2MRB 030 200 S06	1.5R X 3	6	20	70	6	
2MRB 030 250 S06	1.5R X 3	6	25	70	6	
2MRB 030 300 S06	1.5R X 3	6	30	80	6	
2MRB 030 400 S06	1.5R X 3	6	40	90	6	
2MRB 030 450 S06	1.5R X 3	6	45	90	6	
2MRB 040 120 S06	2R X 4	8	12	70	6	
2MRB 040 160 S06	2R X 4	8	16	70	6	
2MRB 040 200 S06	2R X 4	8	20	70	6	
2MRB 040 250 S06	2R X 4	8	25	70	6	
2MRB 040 300 S06	2R X 4	8	30	70	6	
2MRB 040 350 S06	2R X 4	8	35	80	6	
2MRB 040 400 S06	2R X 4	8	40	80	6	
2MRB 040 500 S06	2R X 4	8	50	100	6	
2MRB 050 160 S06	2.5R X 5	10	16	80	6	
2MRB 050 250 S06	2.5R X 5	10	25	80	6	
2MRB 050 350 S06	2.5R X 5	10	35	80	6	
2MRB 060 250 S06	3R X 6	12	25	80	6	
2MRB 060 350 S06	3R X 6	12	35	80	6	
2MRB 060 500 S06	3R X 6	12	50	120	6	
2MRB 060 600 S06	3R X 6	12	60	120	6	

3MRB

3 Flutes Micro Rib Ball End Mills

3날 범용 마이크로 리브 볼 엔드밀

New



- **아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공**
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속,고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Optimum for high speed, feed condition by short flute design.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying ultra fine WC grade.

3 | UWC 초미립자 | R ±0.005 (0.5R ~ 3R) | R ±0.01 (4R ~ 8R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ −0.01mm
D > ø6	+0~ −0.015mm

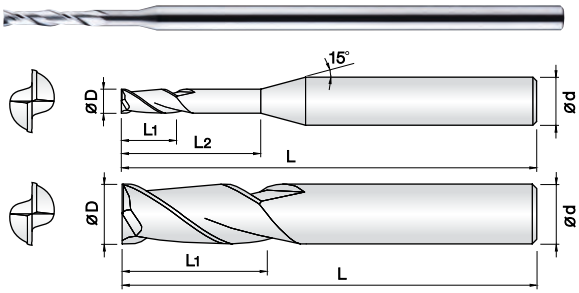
단위 : mm

Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3MRB 010 050 S04	0.5R X 1	3	5	70	4	
3MRB 010 100 S04	0.5R X 1	3	10	70	4	
3MRB 010 150 S04	0.5R X 1	3	15	70	4	
3MRB 010 200 S04	0.5R X 1	3	20	70	4	
3MRB 010 250 S04	0.5R X 1	3	25	70	4	
3MRB 015 100 S04	0.75R X 1.5	4.5	10	70	4	
3MRB 015 150 S04	0.75R X 1.5	4.5	15	70	4	
3MRB 015 200 S04	0.75R X 1.5	4.5	20	70	4	
3MRB 015 250 S04	0.75R X 1.5	4.5	25	70	4	
3MRB 015 300 S04	0.75R X 1.5	4.5	30	70	4	
3MRB 020 100 S04	1R X 2	6	10	70	4	
3MRB 020 150 S04	1R X 2	6	15	70	4	
3MRB 020 200 S04	1R X 2	6	20	70	4	
3MRB 020 250 S04	1R X 2	6	25	70	4	
3MRB 020 300 S04	1R X 2	6	30	70	4	
3MRB 030 200 080	1.5R X 3	15	20	80	3	
3MRB 030 200 S04	1.5R X 3	9	20	80	4	
3MRB 030 300 100	1.5R X 3	15	30	100	3	
3MRB 030 300 S04	1.5R X 3	9	30	80	4	
3MRB 040 200 080	2R X 4	12	20	80	4	
3MRB 040 300 100	2R X 4	12	30	100	4	
3MRB 060 300 100	3R X 6	18	30	100	6	
3MRB 060 400 150	3R X 6	18	40	150	6	
3MRB 080 400 120	4R X 8	24	40	120	8	
3MRB 080 500 150	4R X 8	24	50	150	8	
3MRB 100 500 120	5R X 10	30	50	120	10	
3MRB 100 600 150	5R X 10	30	60	150	10	
3MRB 120 600 150	6R X 12	36	60	150	12	
3MRB 160 700 160	8R X 16	54	70	160	16	

2MLE

2 Flutes Micro Long End Mills

2날 ABS수지 가공용 마이크로 롱 엔드밀



- **아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 전용 엔드밀**
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 깊은 피삭재 가공시 긴 날장을 채택하여 가공이 용이하며, 칩배출이 좋습니다.
- 인선부 강성을 보강하여 날부 치핑을 최소화 하였습니다.
- 초미립자 초경합금을 채택하여 내마모성이 좋습니다.

- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Improve tool performance by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying ultra fine WC grade.

2 | UWC 초미립자 | D +0 −0.01 (Ø0.2~Ø5) | D +0 −0.02 (Ø6~Ø16) | 30° Helix Angle

Size	D Tolerance
D ≦ Ø5	+0~ −0.01mm
D > Ø5	+0~ −0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MLE 002 010 S03	0.2	0.4	1	40	3	
2MLE 002 015 S03	0.2	0.4	1.5	40	3	
2MLE 002 020 S03	0.2	0.4	2	40	3	
2MLE 003 010 S03	0.3	1	-	45	3	
2MLE 003 015 S03	0.3	1	1.5	45	3	
2MLE 003 018 S03	0.3	1.8	-	45	3	
2MLE 003 020 S03	0.3	1	2	45	3	
2MLE 003 025 S03	0.3	1	2.5	45	3	
2MLE 003 030 S03	0.3	1	3	45	3	
New 2MLE 003 040 S03	0.3	1	4	45	3	
2MLE 004 012 S03	0.4	1.2	-	45	3	
2MLE 004 020 S03	0.4	2	-	45	3	
2MLE 004 030 S03	0.4	1.2	3	45	3	
New 2MLE 004 040 S03	0.4	1.2	4	45	3	
New 2MLE 004 050 S03	0.4	1.2	5	45	3	
2MLE 005 015 S03	0.5	1.5	-	50	3	
2MLE 005 020 S03	0.5	2	-	50	3	
New 2MLE 005 030 S03	0.5	1.5	3	50	3	
New 2MLE 005 040 S03	0.5	1.5	4	50	3	
2MLE 005 050 S03	0.5	1.5	5	50	3	
New 2MLE 005 060 S03	0.5	1.5	6	50	3	
New 2MLE 005 080 S03	0.5	1.5	8	50	3	
New 2MLE 005 100 S03	0.5	1.5	10	50	3	
2MLE 006 030 S03	0.6	3	-	50	3	
2MLE 006 060 S03	0.6	3	6	50	3	
New 2MLE 006 080 S03	0.6	3	8	50	3	
New 2MLE 006 100 S03	0.6	3	10	50	3	
2MLE 007 030 S03	0.7	3	-	50	3	
2MLE 007 070 S03	0.7	3	7	50	3	
New 2MLE 007 100 S03	0.7	3	10	50	3	
New 2MLE 007 120 S03	0.7	3	12	50	3	
2MLE 008 040 S03	0.8	4	-	50	3	
2MLE 008 080 S03	0.8	4	8	50	3	
New 2MLE 008 100 S03	0.8	4	10	50	3	
New 2MLE 008 120 S03	0.8	4	12	50	3	
2MLE 009 040 S03	0.9	4	-	50	3	
New 2MLE 009 060 S03	0.9	4	6	50	3	
New 2MLE 009 080 S03	0.9	4	8	50	3	
2MLE 009 100 S03	0.9	4	10	50	3	
2MLE 010 050 S03	1	5	-	70	3	
2MLE 010 050 S04	1	5	-	70	4	
2MLE 010 100 S03	1	5	10	70	3	
2MLE 010 100 S04	1	5	10	70	4	
2MLE 010 150 S03	1	5	15	70	3	
2MLE 010 150 S04	1	5	15	70	4	
2MLE 010 200 S03	1	5	20	70	3	
New 2MLE 010 200 S04	1	5	20	70	4	
2MLE 010 250 S03	1	5	25	70	3	

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2MLE 010 250 S04	1	5	25	70	4	
New 2MLE 010 300 S03	1	5	30	70	3	
New 2MLE 010 300 S04	1	5	30	70	4	
New 2MLE 010 350 S04	1	5	35	80	4	
New 2MLE 010 400 S04	1	5	40	80	4	
2MLE 015 100 S03	1.5	10	-	70	3	
2MLE 015 100 S04	1.5	10	-	70	4	
2MLE 015 150 S03	1.5	10	15	70	3	
2MLE 015 150 S04	1.5	10	15	70	4	
2MLE 015 200 S03	1.5	10	20	70	3	
2MLE 015 200 S04	1.5	10	20	70	4	
2MLE 015 250 S03	1.5	10	25	70	3	
New 2MLE 015 250 S04	1.5	10	25	70	4	
New 2MLE 015 300 S03	1.5	10	30	70	3	
New 2MLE 015 300 S04	1.5	10	30	70	4	
New 2MLE 015 350 S04	1.5	10	35	80	4	
New 2MLE 015 400 S04	1.5	10	40	80	4	
2MLE 020 100 S03	2	10	-	70	3	
2MLE 020 100 S04	2	10	-	70	4	
2MLE 020 150 S03	2	10	15	70	3	
2MLE 020 150 S04	2	10	15	70	4	
2MLE 020 200 S03	2	10	20	70	3	
2MLE 020 200 S04	2	10	20	70	4	
2MLE 020 250 S03	2	10	25	70	3	
New 2MLE 020 250 S04	2	10	25	70	4	
2MLE 020 300 S03	2	10	30	70	3	
New 2MLE 020 300 S04	2	10	30	70	4	
New 2MLE 020 350 S03	2	10	35	70	3	
New 2MLE 020 350 S04	2	10	35	80	4	
New 2MLE 020 400 S03	2	10	40	80	3	
New 2MLE 020 400 S04	2	10	40	80	4	
2MLE 025 100 S03	2.5	10	-	70	3	
2MLE 025 150 S03	2.5	15	-	70	3	
2MLE 025 200 S03	2.5	15	20	70	3	
2MLE 030 100 060	3	10	-	60	3	
2MLE 030 200 080	3	20	-	80	3	
2MLE 030 200 100	3	20	-	100	3	
2MLE 030 200 120	3	20	-	120	3	
2MLE 030 150 S06	3	15	-	80	6	
2MLE 030 200 S06	3	15	20	80	6	
2MLE 030 250 S06	3	15	25	80	6	
2MLE 030 300 S06	3	15	30	80	6	
2MLE 040 200 080	4	20	-	80	4	
2MLE 040 200 100	4	20	-	100	4	
2MLE 040 200 130	4	20	-	130	4	
2MLE 040 200 S06	4	20	-	80	6	
2MLE 040 250 S06	4	20	25	80	6	
2MLE 040 300 S06	4	20	30	80	6	

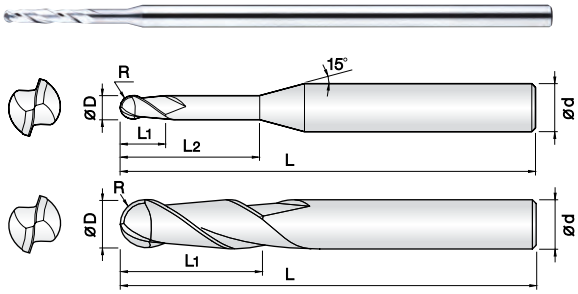
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MLE 040 400 S06	4	20	40	100	6	
New 2MLE 050 200 S06	5	20	-	80	6	
2MLE 050 300 100	5	30	-	100	5	
2MLE 050 300 120	5	30	-	120	5	
2MLE 060 250 080	6	25	-	80	6	
2MLE 060 300 080	6	30	-	80	6	
2MLE 060 400 100	6	40	-	100	6	
2MLE 060 400 120	6	40	-	120	6	
2MLE 060 400 150	6	40	-	150	6	
2MLE 080 300 080	8	30	-	80	8	
2MLE 080 350 090	8	35	-	90	8	
2MLE 080 400 100	8	40	-	100	8	
2MLE 080 450 120	8	45	-	120	8	
2MLE 080 450 150	8	45	-	150	8	
2MLE 100 300 080	10	30	-	80	10	
2MLE 100 350 090	10	35	-	90	10	
2MLE 100 400 100	10	40	-	100	10	
2MLE 100 500 120	10	50	-	120	10	
2MLE 100 500 150	10	50	-	150	10	
2MLE 120 300 090	12	30	-	90	12	
2MLE 120 400 100	12	40	-	100	12	
2MLE 120 500 110	12	50	-	110	12	
2MLE 120 550 130	12	55	-	130	12	
2MLE 120 550 150	12	55	-	150	12	
2MLE 160 700 160	16	70	-	160	16	

2MLB

2 Flutes Micro Long Ball End Mills

2날 ABS수지 가공용 마이크로 롱 볼 엔드밀



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2 | UWC 초미립자 | R ±0.005 (0.1R ~ 3R) | R ±0.01 (4R ~ 8R) | 30° Helix Angle

Size	D Tolerance
D ≦ ø6	+0~ -0.01mm
D > ø6	+0~ -0.015mm

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
2MLB 002 010 S03	0.1R X 0.2	0.4	-	40	3	
2MLB 002 015 S03	0.1R X 0.2	0.4	1.5	40	3	
2MLB 002 020 S03	0.1R X 0.2	0.4	2	40	3	
2MLB 003 010 S03	0.15R X 0.3	1	-	45	3	
2MLB 003 015 S03	0.15R X 0.3	1	1.5	45	3	
2MLB 003 018 S03	0.15R X 0.3	1.8	-	45	3	
2MLB 003 020 S03	0.15R X 0.3	1	2	45	3	
2MLB 003 025 S03	0.15R X 0.3	1	2.5	45	3	
2MLB 003 030 S03	0.15R X 0.3	1	3	45	3	
New 2MLB 003 040 S03	0.15R X 0.3	1	4	45	3	
2MLB 004 012 S03	0.2R X 0.4	1.2	-	45	3	
2MLB 004 020 S03	0.2R X 0.4	2	-	45	3	
2MLB 004 030 S03	0.2R X 0.4	1.2	3	45	3	
New 2MLB 004 040 S03	0.2R X 0.4	1.2	4	45	3	
New 2MLB 004 050 S03	0.2R X 0.4	1.2	5	45	3	
2MLB 005 015 S03	0.25R X 0.5	1.5	-	50	3	
2MLB 005 020 S03	0.25R X 0.5	2	-	50	3	
New 2MLB 005 030 S03	0.25R X 0.5	1.5	3	50	3	
New 2MLB 005 040 S03	0.25R X 0.5	1.5	4	50	3	
2MLB 005 050 S03	0.25R X 0.5	1.5	5	50	3	
New 2MLB 005 060 S03	0.25R X 0.5	1.5	6	50	3	
New 2MLB 005 080 S03	0.25R X 0.5	1.5	8	50	3	
New 2MLB 005 100 S03	0.25R X 0.5	1.5	10	50	3	
2MLB 006 030 S03	0.3R X 0.6	3	-	50	3	
2MLB 006 060 S03	0.3R X 0.6	3	6	50	3	
New 2MLB 006 080 S03	0.3R X 0.6	3	8	50	3	
New 2MLB 006 100 S03	0.3R X 0.6	3	10	50	3	
2MLB 007 030 S03	0.35R X 0.7	3	-	50	3	
2MLB 007 070 S03	0.35R X 0.7	3	7	50	3	
New 2MLB 007 100 S03	0.35R X 0.7	3	10	50	3	
New 2MLB 007 120 S03	0.35R X 0.7	3	12	50	3	
2MLB 008 040 S03	0.4R X 0.8	4	-	50	3	
2MLB 008 080 S03	0.4R X 0.8	4	8	50	3	
New 2MLB 008 100 S03	0.4R X 0.8	4	10	50	3	
New 2MLB 008 120 S03	0.4R X 0.8	4	12	50	3	
2MLB 009 040 S03	0.45R X 0.9	4	-	50	3	
New 2MLB 009 060 S03	0.45R X 0.9	4	6	50	3	
New 2MLB 009 080 S03	0.45R X 0.9	4	8	50	3	
2MLB 009 100 S03	0.45R X 0.9	4	10	50	3	
2MLB 010 050 S03	0.5R X 1	5	-	70	3	
2MLB 010 050 S04	0.5R X 1	5	-	70	4	
2MLB 010 100 S03	0.5R X 1	5	10	70	3	
2MLB 010 100 S04	0.5R X 1	5	10	70	4	
2MLB 010 150 S03	0.5R X 1	5	15	70	3	
2MLB 010 150 S04	0.5R X 1	5	15	70	4	
2MLB 010 200 S03	0.5R X 1	5	20	70	3	
New 2MLB 010 200 S04	0.5R X 1	5	20	70	4	
2MLB 010 250 S03	0.5R X 1	5	25	70	3	

Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
New 2MLB 010 250 S04	0.5R X 1	5	25	70	4	
New 2MLB 010 300 S03	0.5R X 1	5	30	70	3	
New 2MLB 010 300 S04	0.5R X 1	5	30	70	4	
New 2MLB 010 350 S04	0.5R X 1	5	35	80	4	
New 2MLB 010 400 S04	0.5R X 1	5	40	80	4	
2MLB 015 100 S03	0.75R X 1.5	10	-	70	3	
2MLB 015 100 S04	0.75R X 1.5	10	-	70	4	
2MLB 015 150 S03	0.75R X 1.5	10	15	70	3	
2MLB 015 150 S04	0.75R X 1.5	10	15	70	4	
2MLB 015 200 S03	0.75R X 1.5	10	20	70	3	
2MLB 015 200 S04	0.75R X 1.5	10	20	70	4	
2MLB 015 250 S03	0.75R X 1.5	10	25	70	3	
New 2MLB 015 250 S04	0.75R X 1.5	10	25	70	4	
New 2MLB 015 300 S03	0.75R X 1.5	10	30	70	3	
New 2MLB 015 300 S04	0.75R X 1.5	10	30	70	4	
New 2MLB 015 350 S04	0.75R X 1.5	10	35	80	4	
New 2MLB 015 400 S04	0.75R X 1.5	10	40	80	4	
2MLB 020 100 S03	1R X 2	10	-	70	3	
2MLB 020 100 S04	1R X 2	10	-	70	4	
2MLB 020 150 S03	1R X 2	10	15	70	3	
2MLB 020 150 S04	1R X 2	10	15	70	4	
2MLB 020 200 S03	1R X 2	10	20	70	3	
2MLB 020 200 S04	1R X 2	10	20	70	4	
2MLB 020 250 S03	1R X 2	10	25	70	3	
New 2MLB 020 250 S04	1R X 2	10	25	70	4	
2MLB 020 300 S03	1R X 2	10	30	70	3	
New 2MLB 020 300 S04	1R X 2	10	30	70	4	
New 2MLB 020 350 S03	1R X 2	10	35	70	3	
New 2MLB 020 350 S04	1R X 2	10	35	80	4	
New 2MLB 020 400 S03	1R X 2	10	40	80	3	
New 2MLB 020 400 S04	1R X 2	10	40	80	4	
2MLB 025 100 S03	1.25R X 2.5	10	-	70	3	
2MLB 025 150 S03	1.25R X 2.5	15	-	70	3	
2MLB 025 200 S03	1.25R X 2.5	15	20	70	3	
2MLB 030 100 060	1.5R X 3	10	-	60	3	
2MLB 030 200 080	1.5R X 3	20	-	80	3	
2MLB 030 200 100	1.5R X 3	20	-	100	3	
2MLB 030 200 120	1.5R X 3	20	-	120	3	
2MLB 030 150 S06	1.5R X 3	15	-	80	6	
2MLB 030 200 S06	1.5R X 3	15	20	80	6	
2MLB 030 250 S06	1.5R X 3	15	25	80	6	
2MLB 030 300 S06	1.5R X 3	15	30	80	6	
New 2MLB 030 400 S06	1.5R X 3	15	40	80	6	
2MLB 040 200 080	2R X 4	20	-	80	4	
2MLB 040 200 100	2R X 4	20	-	100	4	
2MLB 040 200 130	2R X 4	20	-	130	4	
2MLB 040 200 S06	2R X 4	20	-	80	6	
2MLB 040 250 S06	2R X 4	20	25	80	6	

2날 ABS수지 가공용 마이크로 롱 볼 엔드밀

단위 : mm

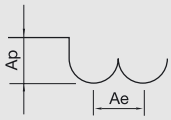
Order Number	날경 Diameter R ×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2MLB 040 300 S06	2R X 4	20	30	80	6	
2MLB 040 400 S06	2R X 4	20	40	100	6	
New 2MLB 040 500 S06	2R X 4	20	50	100	6	
2MLB 050 300 100	2.5R X 5	30	-	100	5	
2MLB 050 300 120	2.5R X 5	30	-	120	5	
2MLB 060 300 080	3R X 6	30	-	80	6	
2MLB 060 400 100	3R X 6	40	-	100	6	
2MLB 060 400 120	3R X 6	40	-	120	6	
2MLB 060 400 150	3R X 6	40	-	150	6	
2MLB 080 450 120	4R X 8	45	-	120	8	
2MLB 080 450 150	4R X 8	45	-	150	8	
2MLB 100 500 120	5R X 10	50	-	120	10	
2MLB 100 500 150	5R X 10	50	-	150	10	
2MLB 120 550 130	6R X 12	55	-	130	12	
2MLB 120 550 150	6R X 12	55	-	150	12	
2MLB 160 700 160	8R X 16	70	-	160	16	

추천 절삭 조건

Machining Parameter Guidelines

2BCBN

• RPM : rev./min • Feed : mm/min

피삭재 Material		고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD61				고경도강 Hardened Steels STAVX / SKD61				고경도강 Hardened Steels SKD11 / YXR7 / SKH51			
경도 Hardness		30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 68HRc			
반경 Radius	유효장/날장 Effective Length Length of cut	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.1	0.2	50,000	326	0.005	0.005	50,000	216	0.004	0.004	50,000	120	0.003	0.003
〃	0.5	50,000	308	0.004	0.004	50,000	198	0.003	0.003	50,000	110	0.002	0.003
R 0.15	0.3	50,000	800	0.006	0.010	50,000	520	0.004	0.005	50,000	410	0.003	0.005
〃	0.5	50,000	720	0.006	0.010	50,000	450	0.003	0.005	50,000	390	0.003	0.005
〃	1	50,000	650	0.006	0.010	50,000	410	0.003	0.005	50,000	350	0.003	0.004
R 0.2	0.3	50,000	1,120	0.010	0.010	50,000	750	0.005	0.006	50,000	650	0.005	0.005
〃	1	50,000	1,050	0.010	0.010	50,000	710	0.005	0.005	50,000	600	0.005	0.005
〃	3	50,000	540	0.005	0.005	50,000	360	0.003	0.003	50,000	310	0.002	0.003
R 0.25	0.4	50,000	1,420	0.010	0.020	50,000	1,210	0.050	0.010	50,000	1,030	0.005	0.001
〃	1	50,000	1,290	0.010	0.015	50,000	1,100	0.005	0.010	50,000	980	0.005	0.010
〃	3	50,000	1,090	0.010	0.015	50,000	850	0.005	0.010	50,000	730	0.005	0.010
R 0.3	0.5	50,000	2,300	0.020	0.020	50,000	1,890	0.015	0.015	50,000	1,520	0.010	0.010
〃	1	50,000	2,180	0.020	0.020	50,000	1,760	0.010	0.010	50,000	1,490	0.010	0.010
〃	3	40,000	1,300	0.015	0.020	40,000	1,060	0.010	0.010	40,000	870	0.010	0.010
〃	5	30,000	650	0.015	0.050	30,000	590	0.010	0.010	30,000	390	0.005	0.005
R 0.4	0.6	50,000	2,600	0.020	0.030	50,000	1,980	0.020	0.020	50,000	1,720	0.010	0.020
〃	2	40,000	2,100	0.015	0.020	40,000	1,450	0.015	0.015	40,000	1,210	0.010	0.010
〃	4	30,000	1,540	0.015	0.015	30,000	940	0.010	0.015	30,000	840	0.010	0.010
〃	8	24,000	970	0.010	0.010	24,000	650	0.005	0.010	24,000	470	0.005	0.005
R 0.5	1.5	40,000	2,560	0.030	0.040	40,000	1,980	0.020	0.030	40,000	1,590	0.020	0.020
〃	3	30,000	2,100	0.030	0.030	30,000	1,650	0.020	0.030	30,000	1,240	0.020	0.020
〃	5	30,000	1,700	0.030	0.030	30,000	1,360	0.015	0.020	30,000	1,080	0.010	0.015
〃	10	16,000	780	0.015	0.015	16,000	620	0.010	0.015	16,000	500	0.010	0.010
R 0.75	2	40,000	2,300	0.040	0.040	40,000	1,920	0.030	0.030	40,000	1,530	0.020	0.030
〃	4	30,000	2,010	0.030	0.030	30,000	1,600	0.025	0.025	30,000	1,280	0.020	0.020
〃	8	30,000	1,700	0.030	0.030	30,000	1,360	0.020	0.030	30,000	1,080	0.010	0.010
R 1	2	40,000	3,310	0.050	0.050	40,000	2,640	0.040	0.040	40,000	2,110	0.030	0.040
〃	6	40,000	3,020	0.030	0.040	40,000	2,410	0.030	0.030	40,000	1,930	0.020	0.030
〃	10	24,000	1,210	0.020	0.030	24,000	970	0.010	0.030	24,000	770	0.010	0.020
〃	14	16,000	920	0.010	0.020	16,000	780	0.010	0.010	16,000	630	0.010	0.010
R 1.5	3	40,000	2,500	0.030	0.040	40,000	2,000	0.030	0.030	40,000	1,600	0.020	0.030
〃	6	32,000	2,100	0.030	0.030	32,000	1,680	0.020	0.030	32,000	1,340	0.020	0.030
〃	10	21,000	1,700	0.020	0.030	21,000	1,360	0.020	0.020	21,000	1,080	0.010	0.020
〃	16	16,000	1,100	0.020	0.030	16,000	880	0.010	0.020	16,000	700	0.010	0.010
R 2	4	40,000	2,100	0.030	0.040	40,000	1,680	0.030	0.030	40,000	1,340	0.020	0.030
〃	10	21,000	1,620	0.020	0.030	21,000	1,290	0.020	0.020	21,000	1,030	0.010	0.020
〃	16	16,000	1,060	0.010	0.020	21,000	840	0.010	0.020	16,000	670	0.010	0.010
R 3		16,000~ 50,000	960~ 8000	0.050	0.060	13,000~ 50,000	780~ 6,000	0.050	0.060	11,000~ 50,000	540~ 4,000	0.050	0.060
절입량 Depth of Cut													

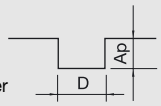
2ECBN

• RPM : rev./min • Feed : mm/min

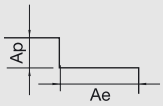
피삭재 Material		고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD61				고경도강 Hardened Steels STAVX / SKD61				고경도강 Hardened Steels SKD11 / YXR7 / SKH51			
경도 Hardness		30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 68HRc			
외경 Outside Diameter	유효장/날장 Effective Length Length of cut	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.2mm	0.2	50,000	211	0.005	0.005	50,000	140	0.004	0.004	50,000	78	0.003	0.003
〃	0.5	50,000	200	0.004	0.004	50,000	130	0.003	0.003	50,000	71	0.002	0.003
0.3mm	0.3	50,000	520	0.006	0.010	50,000	290	0.004	0.005	50,000	260	0.003	0.005
〃	0.5	50,000	460	0.006	0.010	50,000	270	0.003	0.005	50,000	250	0.003	0.005
〃	1	50,000	422	0.006	0.010	50,000	260	0.003	0.005	50,000	220	0.003	0.004
0.4mm	0.3	50,000	840	0.010	0.010	50,000	490	0.005	0.006	50,000	430	0.005	0.005
〃	1	50,000	690	0.010	0.010	50,000	470	0.005	0.005	50,000	420	0.005	0.005
〃	2	50,000	370	0.005	0.005	50,000	240	0.003	0.003	50,000	209	0.002	0.003
0.5mm	0.4	50,000	940	0.010	0.020	50,000	810	0.050	0.010	50,000	732	0.005	0.010
〃	1	50,000	850	0.010	0.015	50,000	560	0.005	0.010	50,000	523	0.005	0.010
〃	3	50,000	560	0.010	0.015	50,000	530	0.005	0.010	50,000	504	0.005	0.010
0.8mm	0.6	50,000	1,530	0.020	0.020	50,000	1,254	0.015	0.015	50,000	1,083	0.010	0.010
〃	2	50,000	1,440	0.020	0.020	50,000	1,169	0.010	0.010	50,000	1,064	0.010	0.010
〃	4	40,000	860	0.015	0.020	40,000	703	0.010	0.010	40,000	620	0.010	0.010
〃	6	30,000	440	0.015	0.050	30,000	390	0.010	0.010	30,000	280	0.005	0.005
1mm	0.7	50,000	1,730	0.020	0.030	50,000	1,311	0.020	0.020	50,000	1,230	0.010	0.020
〃	2	40,000	1,390	0.015	0.200	40,000	960	0.015	0.015	40,000	870	0.010	0.010
〃	4	30,000	1,030	0.015	0.015	30,000	620	0.010	0.015	30,000	600	0.010	0.010
〃	8	24,000	650	0.010	0.010	24,000	440	0.005	0.010	24,000	340	0.005	0.005
1.5mm	0.8	40,000	1,700	0.030	0.040	40,000	1,090	0.020	0.030	40,000	1,130	0.020	0.020
〃	2	30,000	1,400	0.030	0.030	30,000	1,100	0.020	0.030	30,000	880	0.020	0.020
〃	4	30,000	1,130	0.030	0.030	30,000	900	0.015	0.020	30,000	770	0.010	0.015
〃	8	16,000	520	0.015	0.015	16,000	410	0.010	0.015	16,000	350	0.010	0.010
2mm	2	40,000	1,530	0.040	0.040	40,000	1,270	0.030	0.030	40,000	1,090	0.020	0.030
〃	4	30,000	1,330	0.030	0.030	30,000	1,060	0.025	0.025	30,000	910	0.020	0.020
〃	8	30,000	1,130	0.030	0.030	30,000	900	0.020	0.030	30,000	770	0.010	0.010
2.5mm	1.2	40,000	2,200	0.050	0.050	40,000	1,760	0.040	0.040	40,000	1,500	0.030	0.040
〃	4	40,000	1,540	0.030	0.040	40,000	1,240	0.030	0.030	40,000	1,150	0.020	0.030
〃	10	24,000	810	0.020	0.030	24,000	650	0.010	0.030	24,000	260	0.010	0.020
3mm	6	40,000	1,400	0.030	0.030	40,000	1,120	0.020	0.030	40,000	960	0.020	0.030
〃	10	21,000	1,130	0.020	0.030	21,000	900	0.020	0.020	21,000	770	0.010	0.020
〃	16	16,000	730	0.020	0.030	16,000	590	0.010	0.020	16,000	500	0.010	0.010
4mm	6	40,000	1,430	0.030	0.040	40,000	1,120	0.030	0.030	40,000	1,040	0.020	0.030
〃	10	21,000	1,080	0.020	0.030	21,000	850	0.020	0.020	21,000	740	0.010	0.020
〃	16	16,000	700	0.010	0.020	21,000	560	0.010	0.020	16,000	470	0.010	0.010
6mm		16,000~ 50,000	740~ 6000	0.050	0.060	13,000~ 50,000	590~ 4,000	0.050	0.060	11,000~ 50,000	390~ 3,000	0.050	0.060

절입량 Depth of Cut

Slotting
- Ap : Axial Depth
- D : Outside Diameter



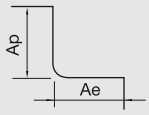
Side Milling
- Ap : Axial Depth
- Ae : Radial Depth



2CCBN

• RPM : rev./min • Feed : mm/min

피삭재 Material		고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD61				고경도강 Hardened Steels STAVX / SKD61				고경도강 Hardened Steels SKD11 / YXR7 / SKH51			
경도 Hardness		30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 68HRc			
외경 Outside Diameter	유효장/날장 Effective Length Length of cut	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.4mm	0.3	50,000	890	0.010	0.010	50,000	520	0.005	0.006	50,000	450	0.005	0.005
〃	1	50,000	730	0.010	0.010	50,000	500	0.005	0.005	50,000	430	0.005	0.005
〃	2	50,000	390	0.005	0.005	50,000	250	0.003	0.003	50,000	220	0.002	0.003
0.5mm	0.4	50,000	990	0.010	0.020	50,000	850	0.005	0.010	50,000	770	0.005	0.010
〃	1	50,000	900	0.010	0.015	50,000	590	0.005	0.010	50,000	550	0.005	0.010
〃	3	50,000	630	0.010	0.015	50,000	560	0.005	0.010	50,000	530	0.005	0.010
0.8mm	0.6	50,000	1,610	0.020	0.020	50,000	1,320	0.015	0.015	50,000	1,140	0.010	0.010
〃	2	50,000	1,520	0.020	0.020	50,000	1,230	0.010	0.010	50,000	1,120	0.010	0.010
〃	4	40,000	910	0.015	0.020	40,000	740	0.010	0.010	40,000	650	0.010	0.010
〃	6	30,000	460	0.015	0.050	30,000	410	0.010	0.010	30,000	290	0.005	0.005
1mm	0.7	50,000	1,820	0.020	0.030	50,000	1,380	0.020	0.020	50,000	1,290	0.010	0.020
〃	2	40,000	1,470	0.015	0.200	40,000	1,010	0.015	0.015	40,000	910	0.010	0.010
〃	4	30,000	1,080	0.015	0.015	30,000	660	0.010	0.015	30,000	630	0.010	0.010
〃	8	24,000	680	0.010	0.010	24,000	460	0.005	0.010	24,000	360	0.005	0.005
1.5mm	0.8	40,000	1,790	0.030	0.040	40,000	1,150	0.020	0.030	40,000	1,190	0.020	0.020
〃	2	30,000	1,470	0.030	0.030	30,000	1,160	0.020	0.030	30,000	930	0.020	0.020
〃	4	30,000	1,190	0.030	0.030	30,000	950	0.015	0.020	30,000	810	0.010	0.015
〃	8	16,000	550	0.015	0.015	16,000	430	0.010	0.015	16,000	370	0.010	0.010
2mm	2	40,000	1,610	0.040	0.040	40,000	1,340	0.030	0.030	40,000	1,150	0.020	0.030
〃	4	30,000	1,400	0.030	0.030	30,000	1,120	0.025	0.025	30,000	960	0.020	0.020
〃	8	30,000	1,190	0.030	0.030	30,000	950	0.020	0.030	30,000	810	0.010	0.010
2.5mm	1.2	40,000	2,317	0.050	0.050	40,000	1,850	0.040	0.040	40,000	1,580	0.030	0.040
〃	4	40,000	1,620	0.030	0.040	40,000	1,300	0.030	0.030	40,000	1,210	0.020	0.030
〃	10	24,000	850	0.020	0.030	24,000	680	0.010	0.030	24,000	280	0.010	0.020
3mm	6	40,000	1,470	0.030	0.030	40,000	1,180	0.020	0.030	40,000	1,010	0.020	0.030
〃	10	21,000	1,190	0.020	0.030	21,000	950	0.020	0.020	21,000	810	0.010	0.020
〃	16	16,000	770	0.020	0.030	16,000	620	0.010	0.020	16,000	530	0.010	0.010
4mm	6	40,000	1,510	0.030	0.040	40,000	1,180	0.030	0.030	40,000	1,100	0.020	0.030
〃	10	21,000	1,140	0.020	0.030	21,000	900	0.020	0.020	21,000	780	0.010	0.020
〃	16	16,000	740	0.010	0.020	21,000	590	0.010	0.020	16,000	500	0.010	0.010
6mm		16,000~ 50,000	740~ 6000	0.050	0.060	13,000~ 50,000	590~ 4,000	0.050	0.060	11,000~ 50,000	390~ 3,000	0.050	0.060
절입량 Depth of Cut		•Ap : Axial Depth •Ae : Radial Depth											

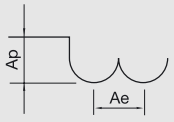


2JJRB

• RPM : rev./min • Feed : mm/min

피삭재 Material		고경도강/ 프리하든강 Prehardened Steels / Hardened Steels NAK / STAVAX				고경도강 Hardened Steels SKD11				고경도강 Hardened Steels HAP10				고경도강 Hardened Steels HAP72			
경도 Hardness		~ 55HRc				55HRc ~ 62HRc				62HRc ~ 66HRc				66HRc ~ 70HRc			
반경 Radius	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.1	0.5	60,000	180	0.003	0.005	60,000	180	0.002	0.003	60,000	120	0.002	0.003	45,000	60	0.002	0.003
〃	1	60,000	180	0.003	0.005	60,000	180	0.002	0.003	60,000	120	0.002	0.003	45,000	60	0.002	0.003
〃	1.5	60,000	120	0.002	0.003	48,000	60	0.001	0.002	48,000	60	0.001	0.002	36,000	30	0.001	0.002
R0.15	1	60,000	330	0.006	0.008	45,000	300	0.004	0.007	43,500	160	0.003	0.003	32,500	80	0.003	0.005
〃	3	42,500	120	0.002	0.004	32,000	70	0.002	0.004	32,000	60	0.001	0.002	24,000	30	0.001	0.002
R0.2	1	50,000	480	0.010	0.020	37,500	400	0.007	0.012	35,000	220	0.005	0.008	26,250	110	0.005	0.008
〃	3	40,000	240	0.005	0.008	31,900	200	0.004	0.008	30,500	150	0.003	0.005	22,800	70	0.002	0.005
〃	5	28,000	120	0.002	0.004	21,500	120	0.002	0.003	20,000	100	0.002	0.003	15,000	40	0.001	0.002
R0.25	1	44,000	630	0.015	0.040	33,000	520	0.010	0.020	30,000	280	0.007	0.010	22,500	140	0.007	0.010
〃	5	27,000	130	0.003	0.008	24,200	100	0.002	0.005	23,500	70	0.002	0.004	17,600	30	0.002	0.004
〃	10	14,000	40	0.001	0.002	14,000	30	0.001	0.002	14,000	20	0.001	0.002	10,350	10	0.001	0.002
R0.3	1	40,000	1,300	0.045	0.150	30,000	14,000	0.030	0.130	26,500	950	0.015	0.090	20,000	480	0.015	0.090
〃	5	32,000	370	0.010	0.075	25,000	380	0.007	0.050	23,000	250	0.005	0.040	18,000	120	0.005	0.040
〃	10	14,900	170	0.003	0.020	14,900	160	0.002	0.015	14,900	110	0.002	0.015	11,100	50	0.002	0.015
R0.4	2	35,000	1,500	0.060	0.210	27,000	1,500	0.040	0.170	23,500	950	0.020	0.120	17,500	480	0.020	0.120
〃	6	28,000	550	0.020	0.120	23,000	500	0.012	0.095	20,500	350	0.006	0.065	15,500	180	0.006	0.065
〃	10	15,000	250	0.010	0.085	14,700	320	0.005	0.060	14,650	220	0.004	0.050	11,000	100	0.004	0.050
R0.5	2	30,000	1,600	0.200	0.400	24,000	1,800	0.100	0.300	21,000	1,600	0.050	0.200	16,000	800	0.050	0.200
〃	5	30,000	1,600	0.010	0.300	24,000	1,800	0.050	0.200	21,000	1,600	0.030	0.170	16,000	800	0.030	0.170
〃	10	14,800	320	0.018	0.130	14,800	400	0.010	0.090	14,700	320	0.010	0.090	11,100	160	0.010	0.090
〃	16	12,750	220	0.008	0.080	10,500	230	0.005	0.045	10,500	150	0.005	0.045	7,850	70	0.005	0.045
R0.75	3	30,000	2,450	0.250	0.550	17,000	1,800	0.120	0.400	15,000	1,600	0.060	0.290	11,250	850	0.060	0.290
〃	10	23,500	1,200	0.100	0.350	15,000	1,100	0.045	0.250	14,000	1,000	0.030	0.210	10,500	500	0.030	0.210
〃	20	9,000	260	0.018	0.160	8,000	320	0.010	0.120	8,000	200	0.010	0.120	6,000	100	0.010	0.120
R1	4	28,000	2,700	0.300	0.700	14,000	2,000	0.150	0.500	12,250	1,800	0.080	0.350	9,200	800	0.080	0.350
〃	10	28,000	2,700	0.200	0.600	14,000	2,000	0.100	0.400	12,250	1,800	0.060	0.300	9,200	800	0.060	0.300
〃	20	8,650	360	0.035	0.250	8,650	450	0.020	0.190	8,560	340	0.020	0.190	6,400	170	0.020	0.190
〃	30	7,850	260	0.024	0.200	7,000	330	0.014	0.160	7,000	200	0.014	0.016	5,250	100	0.014	0.160
R1.5	6	21,000	2,800	0.400	1.000	10,500	2,000	0.200	0.700	9,200	1,700	0.120	0.550	6,900	900	0.120	0.550
〃	10	21,000	2,800	0.300	0.900	10,500	2,000	0.150	0.650	9,200	1,700	0.100	0.500	6,900	900	0.100	0.500
〃	20	14,500	1,300	0.180	0.700	9,250	1,300	0.100	0.500	8,400	1,050	0.075	0.450	6,450	500	0.075	0.450
〃	30	5,750	330	0.050	0.380	5,750	400	0.030	0.290	5,700	340	0.030	0.290	4,100	170	0.030	0.290
R2	8	18,000	3,000	0.500	1.300	9,000	2,100	0.250	0.950	7,900	1,800	0.150	0.750	5,900	900	0.150	0.750
〃	20	18,000	3,000	0.400	1.200	9,000	2,100	0.200	0.850	7,900	1,800	0.130	0.700	5,900	900	0.130	0.700
〃	30	7,000	500	0.100	0.600	7,000	600	0.060	0.450	7,000	500	0.060	0.450	5,250	240	0.060	0.450
〃	40	4,300	330	0.065	0.500	4,300	400	0.040	0.390	4,300	340	0.040	0.390	3,200	180	0.040	0.390
R2.5	20	14,400	3,000	0.500	1.500	7,200	2,100	0.250	1.050	6,350	1,800	0.160	0.880	4,750	900	0.160	0.088
〃	30	10,000	1,400	0.310	1.200	6,400	1,300	0.160	0.880	6,200	1,100	0.110	0.730	4,650	600	0.110	0.730
〃	40	6,000	550	0.125	0.780	6,000	670	0.080	0.625	6,000	530	0.080	0.625	4,500	270	0.080	0.625
R3	15	13,000	3,500	0.600	1.800	6,500	2,500	0.300	1.300	5,700	2,200	0.200	1.000	4,300	1,100	0.200	1.000
R4	25	9,500	2,800	0.700	2.100	5,200	2,100	0.400	1.700	4,500	1,800	0.250	1.350	3,400	900	0.250	1.350
R5	30	7,500	2,300	0.800	2.500	4,300	2,800	0.500	2.100	3,750	1,600	0.300	1.700	2,800	850	0.300	1.700
R6	30	6,200	1,800	0.900	3.000	3,600	1,600	0.600	2.600	3,150	1,400	0.350	2.000	2,350	680	0.350	2.000

절입량
Depth of Cut

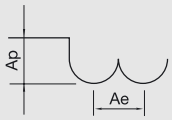


2JJSB / 2JJB

• RPM : rev./min • Feed : mm/min

피삭재 Material	고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / STAVAX				고경도강 Hardened Steels SKD11				고경도강 Hardened Steels HAP10				고경도강 Hardened Steels HAP72			
경도 Hardness	~ 55HRc				55HRc ~ 62HRc				62HRc ~ 66HRc				66HRc ~ 70HRc			
반경 Radius	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.2	60,000	180	0.003	0.005	60,000	180	0.002	0.003	60,000	120	0.002	0.003	45,000	60	0.002	0.003
R0.15	60,000	330	0.006	0.008	45,000	300	0.004	0.007	43,500	160	0.003	0.003	32,500	80	0.003	0.005
R0.1	50,000	480	0.010	0.020	37,500	400	0.007	0.012	35,000	220	0.005	0.008	26,250	110	0.005	0.008
R0.25	44,000	630	0.015	0.040	33,000	520	0.010	0.020	30,000	280	0.007	0.010	22,500	140	0.007	0.010
R0.3	40,000	1,000	0.030	0.130	30,000	1,100	0.020	0.100	26,500	700	0.010	0.075	20,000	380	0.010	0.075
R6	35,000	1,500	0.060	0.210	27,000	1,500	0.040	0.170	23,500	950	0.020	0.120	17,500	480	0.020	0.120
R3	30,000	1,600	0.200	0.400	24,000	1,800	0.100	0.300	21,000	1,600	0.050	0.200	16,000	800	0.050	0.200
R0.4	30,000	2,400	0.250	0.550	17,000	1,800	0.120	0.400	15,000	1,600	0.060	0.290	11,250	850	0.060	0.290
R0.5	28,000	2,700	0.300	0.700	14,000	2,000	0.150	0.500	12,250	1,800	0.080	0.350	9,200	800	0.080	0.350
R0.75	21,000	2,800	0.400	1.000	10,500	2,000	0.200	0.700	9,200	1,700	0.120	0.550	6,900	900	0.120	0.550
R1	18,000	3,000	0.500	1.300	9,000	2,100	0.250	0.950	7,900	1,800	0.150	0.750	5,900	900	0.150	0.750
R1.5	15,600	3,000	0.500	1.500	78,000	2,100	0.250	1.050	6,800	1,900	0.160	0.880	5,100	900	0.160	0.088
R2	13,000	3,300	0.600	1.800	6,500	2,300	0.300	1.300	5,700	2,000	0.200	1.000	4,300	1,000	0.200	1.000
R2.5	9,500	2,800	0.700	2.100	5,200	2,100	0.400	1.700	4,500	1,800	0.250	1.350	3,400	900	0.250	1.350
R4	7,500	2,300	0.800	2.500	4,300	2,800	0.500	2.100	3,750	1,600	0.300	1.700	2,800	850	0.300	1.700
R5	6,200	1,800	0.900	3.000	3,600	1,600	0.600	2.600	3,150	1,400	0.350	2.000	2,350	680	0.350	2.000

절입량 Depth of Cut



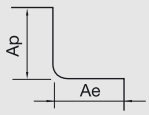
4JJCR / 4JJC

• RPM : rev./min • Feed : mm/min

피삭재 Material		고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness		30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
1mm	4	14,000	1,100	0.033	0.230	12,200	910	0.026	0.207	8,600	540	0.013	0.207
〃	10	9,000	430	0.009	0.107	7,800	430	0.008	0.085	5,500	300	0.005	0.043
1.2mm	4	13,400	1,200	0.027	0.383	12,200	930	0.020	0.255	9,400	700	0.017	0.170
〃	10	9,200	680	0.014	0.153	7,400	510	0.008	0.128	6,500	680	0.005	0.043
1.5mm	6	12,000	1,100	0.035	0.413	10,800	1,000	0.032	0.378	8,200	400	0.021	0.172
〃	12	8,600	710	0.025	0.275	7,900	660	0.022	0.252	6,000	250	0.009	0.138
2mm	6	13,200	1,100	0.054	0.551	12,200	1,020	0.051	0.620	9,800	590	0.024	0.275
〃	12	9,300	880	0.039	0.344	8,600	820	0.037	0.344	7,000	360	0.015	0.153
2.5mm	10	11,000	1,200	0.057	0.459	10,200	1,000	0.057	0.459	8,500	430	0.041	0.275
〃	20	8,000	1,000	0.041	0.230	7,600	570	0.026	0.191	6,500	250	0.019	0.077
3mm	10	11,500	1,800	0.082	0.595	10,700	1,800	0.051	0.595	9,100	620	0.038	0.476
〃	20	8,500	1,300	0.049	0.493	8,000	1,300	0.031	0.493	6,500	470	0.019	0.271
4mm	13	9,500	1,370	0.091	1.000	7,900	1,330	0.071	1.000	6,700	740	0.043	0.700
〃	20	7,500	1,200	0.060	0.800	6,200	1,120	0.047	0.800	5,400	630	0.022	0.560
〃	30	6,600	960	0.037	0.648	5,500	920	0.029	0.648	4,700	600	0.011	0.388
6mm	20	6,000	1,470	0.153	2.004	3,500	850	0.153	1.114	3,000	650	0.060	1.114
〃	40	3,000	680	0.085	1.148	1,700	400	0.085	0.638	1,400	300	0.034	0.468
8mm	22	4,800	1,600	0.184	2.540	2,900	680	0.184	1.320	2,400	650	0.087	1.320
10mm	24	3,840	1,750	0.210	2.730	2,300	540	0.220	1.430	1,900	460	0.094	1.450
12mm	26	3,000	1,800	0.230	2.700	1,800	430	0.240	1.490	1,600	450	0.110	1.500

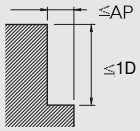
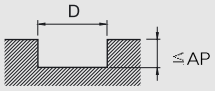
측면절삭 Milling amount of side milling

• Ap : Axial Depth
• Ae : Radial Depth



4JJE

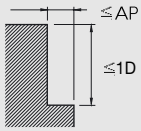
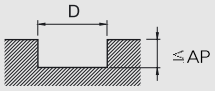
• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강/공구강/프리하든강 Alloy Steels / Tool Steels / Hardened Steels SKD61 / SK / NAK			고경도강 Hardened Steels SKD61			고경도강 Hardened Steels SKD11		
경도 Hardness				45HRc ~ 55HRc			55HRc ~ 62HRc		
외경 Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap
1mm	40,000	2,800	0.060	32,000	2,200	0.060	16,000	680	0.050
1.5mm	40,000	4,300	0.120	32,000	3,300	0.080	10,600	600	0.080
2mm	30,000	4,300	0.180	24,000	3,300	0.100	8,100	480	0.100
2.5mm	24,000	3,700	0.250	19,000	2,800	0.130	6,400	430	0.130
3mm	20,000	3,300	0.300	16,000	2,500	0.150	5,400	360	0.150
4mm	15,000	2,800	0.400	12,000	2,200	0.200	4,000	430	0.200
5mm	12,000	2,200	0.500	9,000	1,600	0.250	3,200	360	0.200
6mm	10,000	1,900	0.600	7,000	1,200	0.300	2,700	300	0.200
8mm	8,000	1,300	0.800	5,600	1,000	0.400	2,000	220	0.200
10mm	6,400	1,200	1.000	4,500	900	0.500	1,600	190	0.300
12mm	6,400	1,000	1.000	3,800	800	0.500	1,300	150	0.300
절입량 Milling Amount of Side Milling									

■ 상기표는 절입기준 내의 측면가공 기준입니다. The table is based on side machining.

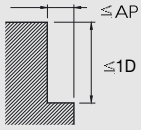
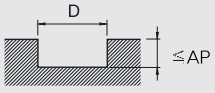
4JJHE

• RPM : rev./min • Feed : mm/min

피삭재 Material	고경도강 Hardened Steels SKD61			고경도강 Hardened Steels SKD11			고경도강 Hardened Steels SKS / SKH		
경도 Hardness	45HRc ~ 55HRc			55HRc ~ 62HRc			60HRc ~ 70HRc		
외경 Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap
2mm	40,000	1,800	0.100	24,000	900	0.050	16,000	500	0.050
3mm	32,000	3,600	0.200	1,500	1,700	0.100	11,000	1,100	0.050
4mm	24,000	4,000	0.200	12,000	2,000	0.100	8,000	1,100	0.050
5mm	20,000	4,600	0.250	10,000	2,200	0.150	6,500	1,300	0.075
6mm	16,000	5,300	0.300	8,000	2,600	0.200	5,300	1,600	0.100
8mm	12,000	5,400	0.400	6,000	2,600	0.200	4,000	1,600	0.100
10mm	9,600	5,500	0.500	4,400	2,600	0.300	3,200	1,600	0.200
12mm	8,000	4,600	0.600	4,000	2,200	0.300	2,500	1,300	0.200
절입량 Milling Amount of Side Milling									

6JJHE

• RPM : rev./min • Feed : mm/min

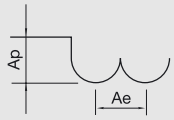
피삭재 Material	고경도강 Hardened Steels SKD61			고경도강 Hardened Steels SKD11			고경도강 Hardened Steels SKS / SKH		
경도 Hardness	45HRc ~ 55HRc			55HRc ~ 62HRc			60HRc ~ 70HRc		
외경 Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap
6mm	16,000	5,300	0.300	8,000	2,600	0.200	5,300	1,600	0.100
8mm	12,000	5,400	0.400	6,000	2,600	0.200	4,000	1,600	0.100
10mm	9,600	5,500	0.500	4,400	2,600	0.300	3,200	1,600	0.200
12mm	8,000	4,600	0.600	4,000	2,200	0.300	2,500	1,300	0.200
16mm	6,000	3,200	0.800	3,000	1,600	0.500	2,000	1,000	0.300
20mm	4,800	2,700	1.000	2,400	1,200	0.500	1,600	800	0.300
절입량 Milling Amount of Side Milling									

2HRB

• RPM : rev./min • Feed : mm/min

피삭재 Material		동 Copper				고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness						30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
반경 Radius	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.05	0.3	50,000	80	0.004	0.004	45,000	70	0.004	0.004	45,000	50	0.002	0.002	45,000	40	0.002	0.002
〃	0.5	50,000	70	0.004	0.004	45,000	60	0.002	0.002	45,000	30	0.002	0.002	45,000	30	0.002	0.002
R0.1	0.5	50,000	410	0.010	0.010	45,000	330	0.006	0.007	45,000	260	0.006	0.006	45,000	220	0.005	0.006
〃	1	50,000	360	0.007	0.008	45,000	310	0.004	0.005	45,000	230	0.004	0.004	45,000	200	0.004	0.004
〃	1.5	42,000	300	0.006	0.006	42,000	230	0.003	0.004	42,000	180	0.003	0.004	42,000	150	0.003	0.003
R0.15	1	50,000	620	0.012	0.013	45,000	460	0.010	0.010	38,000	350	0.090	0.010	38,000	290	0.007	0.009
〃	3	40,000	440	0.008	0.009	34,000	300	0.006	0.007	28,000	220	0.005	0.005	28,000	180	0.004	0.005
〃	5	33,000	280	0.004	0.005	24,000	180	0.003	0.003	20,000	140	0.003	0.003	18,000	100	0.002	0.002
R0.2	1	51,000	850	0.021	0.034	45,000	640	0.016	0.022	33,000	430	0.013	0.022	33,000	360	0.011	0.021
〃	3	46,000	640	0.015	0.016	37,000	400	0.010	0.010	27,000	260	0.009	0.010	27,000	220	0.008	0.010
〃	5	33,000	390	0.008	0.016	25,000	310	0.008	0.010	22,000	240	0.006	0.010	22,000	190	0.004	0.005
R0.25	1	53,000	1,300	0.026	0.047	38,000	800	0.020	0.033	28,000	530	0.014	0.032	28,000	260	0.007	0.020
〃	5	44,000	860	0.012	0.014	29,000	460	0.008	0.008	26,000	370	0.007	0.010	26,000	180	0.006	0.009
〃	10	32,000	440	0.008	0.016	24,000	380	0.007	0.010	24,000	310	0.005	0.010	23,000	180	0.005	0.009
R0.3	1	53,000	1,630	0.030	0.140	33,000	800	0.022	0.091	23,000	500	0.019	0.091	22,000	430	0.014	0.091
〃	5	42,000	920	0.014	0.068	24,000	420	0.012	0.043	22,000	330	0.008	0.042	22,000	280	0.007	0.040
〃	10	26,000	450	0.006	0.032	20,000	300	0.005	0.020	19,000	260	0.004	0.020	19,000	200	0.003	0.018
R0.4	2	51,000	1,900	0.054	0.160	29,000	680	0.045	0.100	23,000	460	0.038	0.100	22,000	380	0.030	0.010
〃	6	43,000	1,210	0.035	0.100	24,000	530	0.028	0.068	18,000	350	0.020	0.068	18,000	290	0.015	0.065
〃	10	19,000	560	0.022	0.080	1,700	390	0.020	0.050	16,000	340	0.015	0.050	14,000	280	0.010	0.050
R0.5	2	42,000	1,800	0.068	0.320	28,000	750	0.052	0.220	18,000	450	0.040	0.220	15,000	450	0.008	0.140
〃	5	42,000	1,800	0.068	0.320	28,000	750	0.052	0.220	18,000	450	0.040	0.220	15,000	450	0.008	0.014
〃	10	25,000	970	0.024	0.086	13,600	500	0.020	0.056	12,500	380	0.014	0.056	11,400	260	0.008	0.050
〃	16	14,700	600	0.018	0.086	11,400	400	0.016	0.056	10,300	320	0.012	0.056	9,600	210	0.005	0.030
R0.75	3	26,000	2,000	0.167	0.320	18,000	960	0.120	0.210	10,800	560	0.100	0.210	10,000	500	0.090	0.210
〃	10	22,000	1,400	0.100	0.220	12,300	650	0.080	0.170	8,100	400	0.062	0.170	8,100	380	0.050	0.160
〃	18	10,100	520	0.030	0.160	10,100	420	0.022	0.110	8,000	360	0.020	0.110	8,000	340	0.012	0.110
〃	30	8,200	430	0.014	0.080	8,200	380	0.012	0.050	7,900	350	0.010	0.050	7,900	330	0.010	0.050
R1	4	22,000	2,040	0.220	0.520	17,500	1,160	0.180	0.350	12,200	900	0.140	0.350	12,200	750	0.120	0.350
〃	10	22,000	1,880	0.180	0.350	17,500	1,020	0.140	0.230	12,200	810	0.110	0.230	12,200	660	0.090	0.230
〃	20	13,300	970	0.090	0.165	13,300	500	0.060	0.110	10,600	500	0.055	0.110	10,600	410	0.035	0.110
〃	30	8,500	530	0.025	0.070	8,500	400	0.020	0.050	8,500	400	0.015	0.050	8,500	320	0.015	0.045
R1.5	6	14,000	2,700	0.250	0.500	12,000	1,520	0.200	0.340	8,200	1,100	0.160	0.320	5,400	610	0.160	0.320
〃	10	14,000	2,700	0.250	0.500	12,000	1,520	0.200	0.340	8,200	1,100	0.160	0.320	5,400	610	0.160	0.300
〃	20	11,700	1,870	0.200	0.450	10,300	1,230	0.145	0.320	7,100	940	0.120	0.310	4,800	550	0.080	0.300
〃	30	9,100	1,350	0.120	0.220	7,800	680	0.100	0.150	7,100	680	0.080	0.150	4,800	320	0.070	0.300
R2	8	10,500	2,510	0.350	0.850	8,700	1,460	0.290	0.550	6,000	1,110	0.220	0.500	6,000	880	0.150	0.500
〃	20	10,500	2,510	0.350	0.850	8,700	1,460	0.290	0.550	6,000	1,110	0.220	0.500	6,000	880	0.150	0.500
〃	30	9,300	1,700	0.250	0.500	7,400	1,150	0.200	0.320	5,500	880	0.150	0.300	5,500	680	0.130	0.300
〃	40	6,800	1,220	0.150	0.500	6,000	880	0.132	0.320	5,500	880	0.100	0.300	5,500	680	0.090	0.300
R2.5	15	9,000	2,400	0.380	0.800	7,000	1,250	0.300	0.700	5,000	950	0.220	0.700	5,000	750	0.200	0.650
〃	25	9,000	2,000	0.380	0.800	7,000	1,150	0.300	0.550	5,000	900	0.220	0.550	5,000	680	0.200	0.500
〃	40	7,800	1,100	0.250	0.800	5,600	700	0.200	0.550	4,100	550	0.150	0.550	4,100	420	0.130	0.500
R3	15	7,000	2,230	0.500	1.000	6,800	1,470	0.420	0.800	4,800	1,100	0.300	0.800	3,700	720	0.300	0.800
〃	30	7,000	1,510	0.380	0.900	6,000	1,400	0.300	0.650	4,200	980	0.220	0.650	3,700	660	0.220	0.600
R4	25	6,800	1,470	0.410	1.000	6,000	980	0.350	0.750	4,100	760	0.180	0.600	3,800	610	0.200	0.630
〃	30	6,400	1,400	0.380	1.000	5,800	940	0.300	0.750	4,000	720	0.160	0.600	3,600	600	0.200	0.600
R5	30	5,200	1,120	0.560	1.200	4,900	940	0.370	0.900	4,000	710	0.200	0.670	3,500	590	0.200	0.650
〃	35	5,000	1,080	0.500	1.000	4,500	900	0.350	0.850	3,800	680	0.150	0.600	3,200	540	0.200	0.600
R6	30	4,300	920	0.650	1.400	4,000	820	0.420	0.900	3,600	690	0.250	0.600	3,000	500	0.250	0.600
〃	40	4,100	900	0.600	1.200	3,800	8,000	0.400	0.850	3,400	650	0.200	0.600	3,000	500	0.200	0.600

절입량
Depth of Cut



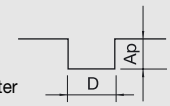
2HRE

• RPM : rev./min • Feed : mm/min

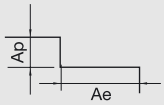
피삭재 Material		탄소강 Carbon Steels			합금강 Alloy Steels SK / SCM / SUS			고경도강/ 프리하든강 Prehardened Steels / Hardened Steels NAK / SKD			고경도강 Hardened Steels SKD / SKT			고경도강 Hardened Steels SKD / SKT			Ae Milling amount for side Milling
경도 Hardness		(S45C/S50C) ~225HB			225 ~ 325HB			35HRc ~ 45HRc			45HRc ~ 55HRc			55HRc ~ 60HRc			
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.1mm	0.3	50,000	70	0.004	50,000	60	0.004	50,000	50	0.002	40,800	30	0.001	X	X	X	X
〃	0.5	50,000	60	0.004	50,000	50	0.004	50,000	40	0.002	40,800	20	0.001	X	X	X	X
0.2mm	0.5	52,000	310	0.006	52,000	290	0.005	52,000	250	0.003	40,800	160	0.002	13,000	8	0.001	0.096
〃	1	46,900	270	0.005	46,900	240	0.005	46,900	210	0.004	36,800	140	0.003	X	X	X	0.014
〃	1.5	45,200	220	0.003	45,200	210	0.003	45,200	180	0.002	35,500	120	0.002	X	X	X	0.004
0.3mm	1	56,000	520	0.009	56,000	460	0.008	56,000	410	0.006	48,100	310	0.004	11,600	12	0.003	0.064
〃	3	29,800	210	0.002	29,800	200	0.002	29,800	170	0.001	22,500	110	0.001	11,600	8	0.001	0.002
〃	5	20,400	90	0.001	20,400	80	0.001	20,400	70	0.001	16,300	50	0.001	X	X	X	X
0.4mm	1	52,000	610	0.012	52,000	580	0.010	44,600	420	0.008	35,700	280	0.005	11,600	17	0.003	0.024
〃	5	36,500	350	0.003	31,200	280	0.003	28,100	220	0.002	21,100	140	0.001	11,600	12	0.001	0.002
〃	10	30,000	140	0.001	22,500	100	0.001	20,700	80	0.001	16,500	60	0.001	X	X	X	0.001
0.5mm	2	52,800	840	0.020	50,000	720	0.016	37,600	470	0.014	28,500	310	0.010	11,000	15	0.005	0.072
〃	6	30,400	400	0.005	26,500	300	0.005	20,700	220	0.004	17,700	150	0.002	11,000	14	0.001	0.002
〃	10	22,500	220	0.002	19,200	160	0.001	17,900	140	0.001	12,600	90	0.001	11,000	11	0.001	0.001
0.8mm	4	34,100	830	0.032	28,100	650	0.028	21,100	450	0.022	17,300	300	0.015	7,000	17	0.010	0.056
〃	8	21,100	490	0.011	17,300	370	0.010	15,200	270	0.008	10,800	180	0.005	7,000	15	0.003	0.007
〃	12	16,700	310	0.005	11,800	240	0.004	11,000	180	0.003	9,300	120	0.002	7,000	10	0.001	0.002
1mm	4	30,100	1,070	0.050	24,400	770	0.040	19,500	480	0.030	15,200	370	0.025	5,700	13	0.010	0.136
〃	10	17,200	500	0.012	14,200	370	0.010	11,800	280	0.008	10,000	190	0.006	5,700	10	0.003	0.009
〃	20	10,500	180	0.004	9,600	140	0.003	8,800	120	0.002	6,900	80	0.001	X	X	X	0.002
〃	30	8,700	50	0.002	7,200	30	0.002	7,100	20	0.001	5,500	20	0.001	X	X	X	0.001
1.5mm	6	20,000	980	0.065	17,500	740	0.055	12,400	450	0.050	10,500	300	0.035	8,900	50	0.020	0.200
〃	10	14,600	650	0.040	12,800	500	0.030	10,200	350	0.025	7,800	250	0.020	8,900	11	0.010	0.040
〃	20	9,700	320	0.010	8,200	260	0.009	7,200	200	0.008	5,900	130	0.005	X	X	X	0.006
〃	30	7,900	180	0.006	6,500	130	0.005	6,000	110	0.004	4,800	80	0.002	X	X	X	0.002
2mm	6	18,500	1,250	0.085	16,400	930	0.070	11,500	550	0.055	9,000	400	0.042	8,900	200	0.020	0.656
〃	10	13,500	820	0.060	11,600	600	0.050	8,700	450	0.040	6,800	300	0.030	8,900	40	0.015	0.120
〃	20	8,700	450	0.025	7,500	360	0.022	6,000	260	0.015	5,000	170	0.012	X	X	X	0.016
〃	30	700	280	0.010	5,900	210	0.008	5,000	160	0.006	4,000	120	0.005	X	X	X	0.005
〃	40	5,300	180	0.005	4,500	130	0.004	4,200	110	0.003	3,000	60	0.002	X	X	X	0.002
2.5mm	8	14,000	1,240	0.100	11,800	950	0.080	8,800	650	0.070	7,200	420	0.050	8,900	200	0.030	0.680
〃	20	8,000	620	0.045	6,900	470	0.040	5,700	330	0.030	4,500	230	0.020	8,900	12	0.010	0.040
〃	30	6,000	420	0.018	5,300	300	0.015	4,500	230	0.012	3,700	150	0.008	X	X	X	0.012
〃	40	5,100	270	0.006	4,500	200	0.005	4,100	150	0.004	3,100	110	0.003	X	X	X	0.006
3mm	10	10,600	1,150	0.120	8,700	850	0.100	6,200	560	0.080	5,000	400	0.055	7,300	200	0.030	0.800
〃	20	6,800	670	0.060	6,000	520	0.055	4,900	380	0.040	3,900	260	0.030	7,300	25	0.015	0.088
〃	30	5,900	500	0.035	4,800	370	0.030	4,200	270	0.020	3,200	180	0.015	7,300	8	0.008	0.024
〃	40	4,900	350	0.015	4,200	260	0.015	3,600	200	0.010	2,800	130	0.008	X	X	X	0.011
4mm	10	8,500	1,280	0.130	7,100	950	0.100	5,100	600	0.090	4,100	410	0.060	6,000	380	0.040	1.456
〃	20	5,800	800	0.100	4,800	600	0.800	3,500	400	0.065	2,900	280	0.050	5,800	72	0.030	0.320
〃	30	4,800	590	0.060	3,700	440	0.050	3,100	310	0.045	2,300	210	0.025	5,800	22	0.015	0.080
〃	40	3,900	450	0.040	3,200	310	0.035	2,600	230	0.025	2,100	160	0.020	5,800	8	0.009	0.032
5mm	16	5,800	1,040	0.150	4,800	760	0.150	3,300	460	0.110	2,600	330	0.080	4,600	430	0.050	1.440
〃	30	4,100	610	0.120	3,200	480	0.100	2,400	320	0.070	1,800	200	0.060	4,600	60	0.025	0.200
6mm	20	3,900	890	0.160	3,600	680	0.140	2,400	440	0.120	1,900	310	0.080	3,800	580	0.050	1.480
〃	40	2,800	570	0.110	2,100	390	0.100	1,600	240	0.070	1,200	150	0.050	3,800	72	0.030	0.176
8mm	20	3,200	910	0.180	2,800	710	0.160	2,300	450	0.130	1,700	330	0.090	3,400	580	0.050	1.600
〃	40	2,600	600	0.120	2,000	410	0.100	1,500	250	0.800	1,100	160	0.060	3,400	84	0.035	0.200
10mm	25	2,900	890	0.200	2,700	680	0.180	2,100	430	0.130	1,500	310	0.080	3,200	540	0.050	1.760
〃	45	2,200	580	0.140	2,000	400	0.120	1,300	220	0.700	900	150	0.050	3,200	76	0.030	0.240
12mm	30	2,500	710	0.220	2,300	580	0.200	2,000	400	0.140	1,400	280	0.080	3,000	540	0.050	1.840
〃	50	1,900	420	0.160	1,700	350	0.130	1,500	200	0.800	800	140	0.050	3,000	72	0.030	0.280

절입량
Depth of Cut

Slotting
- Ap : Axial Depth
- D : Outside Diameter



Side Milling
- Ap : Axial Depth
- Ae : Radial Depth



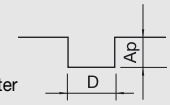
4HRE

• RPM : rev./min • Feed : mm/min

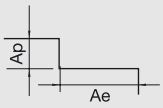
피삭재 Material		탄소강/합금강 Carbon Steels / Alloy Steels S45C / S50C / SK / SCM / SUS				고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness		~ 325HB				30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.8mm	4	21,000	950	0.015	0.150	21,500	640	0.010	0.160	17,200	450	0.010	0.150	9,800	220	0.005	0.100
〃	8	17,800	710	0.010	0.020	13,800	480	0.007	0.019	11,000	340	0.005	0.018	8,500	170	0.003	0.012
〃	12	14,700	500	0.007	0.006	11,000	360	0.006	0.006	8,800	250	0.004	0.006	7,200	120	0.002	0.003
1mm	4	19,800	900	0.030	0.300	20,500	620	0.020	0.300	16,200	440	0.015	0.250	9,100	210	0.008	0.185
〃	10	15,800	620	0.012	0.020	12,000	430	0.010	0.020	9,400	300	0.008	0.018	7,300	140	0.004	0.010
〃	16	10,500	300	0.007	0.005	10,000	200	0.006	0.005	8,000	140	0.004	0.004	5,300	70	0.002	0.002
1.2mm	6	17,200	1,000	0.034	0.200	15,200	700	0.025	0.190	12,000	500	0.018	0.170	8,800	250	0.010	0.110
〃	10	15,000	750	0.025	0.040	12,000	520	0.020	0.030	9,500	360	0.012	0.035	7,000	180	0.007	0.026
〃	16	10,700	320	0.012	0.010	9,700	250	0.006	0.008	7,500	170	0.004	0.008	5,100	80	0.004	0.005
1.5mm	6	14,800	1,100	0.065	0.450	13,300	740	0.050	0.440	10,400	570	0.030	0.400	7,600	290	0.020	0.250
〃	10	13,100	850	0.041	0.100	10,300	600	0.038	0.100	8,500	430	0.025	0.080	6,500	210	0.015	0.050
〃	20	8,500	260	0.010	0.010	7,500	200	0.010	0.010	6,000	130	0.007	0.010	3,800	38	0.003	0.007
2mm	6	14,300	1,500	0.065	0.070	11,900	1,000	0.050	0.050	9,500	760	0.030	0.050	7,000	380	0.020	0.040
〃	10	12,000	980	0.050	0.340	9,500	800	0.040	0.300	7,500	570	0.025	0.250	6,000	280	0.015	0.200
〃	20	8,100	380	0.015	0.040	6,700	250	0.010	0.035	5,100	180	0.008	0.030	3,200	40	0.003	0.020
〃	30	6,300	220	0.006	0.010	5,400	160	0.005	0.010	4,300	110	0.003	0.010	2,200	10	0.001	0.005
2.5mm	12	10,000	800	0.050	0.450	7,600	680	0.040	0.420	6,000	480	0.025	0.400	5,300	310	0.016	0.250
〃	20	7,300	480	0.025	0.090	6,300	400	0.020	0.090	4,800	280	0.015	0.080	3,300	270	0.010	0.050
〃	30	5,600	300	0.010	0.025	4,200	330	0.009	0.025	3,300	230	0.006	0.025	2,100	200	0.002	0.015
3mm	10	8,600	820	0.070	0.925	6,800	710	0.050	0.900	5,200	500	0.030	0.800	4,800	380	0.020	0.550
〃	20	6,400	540	0.040	0.200	5,800	480	0.030	0.200	4,500	330	0.020	0.150	3,200	320	0.012	0.110
〃	30	5,000	370	0.020	0.060	4,100	400	0.015	0.055	3,200	270	0.012	0.050	2,100	240	0.008	0.035
〃	40	4,400	260	0.010	0.022	3,900	300	0.012	0.025	3,000	220	0.008	0.022	1,800	150	0.005	0.014
4mm	12	7,000	940	0.100	2.700	4,700	720	0.100	2.500	3,900	500	0.070	2.300	3,900	440	0.040	1.400
〃	20	5,100	600	0.060	0.650	4,100	540	0.074	0.612	3,400	380	0.060	0.500	3,100	360	0.032	0.350
〃	30	4,000	440	0.040	0.200	3,600	440	0.050	0.165	2,800	310	0.040	0.160	2,100	270	0.025	0.100
〃	40	3,400	340	0.025	0.080	2,800	360	0.040	0.070	2,200	250	0.025	0.070	1,700	170	0.015	0.050
5mm	16	5,000	850	0.120	2.800	3,900	650	0.100	2.700	3,100	460	0.070	2.600	3,100	460	0.043	1.530
〃	35	3,000	440	0.070	0.300	2,700	470	0.055	0.255	2,100	320	0.040	0.240	1,800	250	0.020	0.162
〃	50	2,300	280	0.030	0.090	1,800	300	0.020	0.090	1,400	210	0.012	0.080	1,300	100	0.009	0.055
6mm	20	3,700	760	0.150	3.220	3,100	680	0.120	3.200	2,400	480	0.090	3.000	3,100	570	0.050	2.000
〃	40	2,100	400	0.075	0.400	1,900	440	0.050	0.380	1,600	310	0.040	0.350	1,600	220	0.025	0.230
8mm	20	3,500	800	0.170	3.540	2,900	690	0.140	3.500	2,400	490	0.100	3.200	2,900	580	0.052	2.100
〃	40	2,000	430	0.085	0.550	1,800	450	0.055	0.350	1,400	320	0.040	0.420	1,800	230	0.027	0.240
10mm	25	2,700	820	0.175	3.620	2,500	700	0.150	3.560	2,100	490	0.110	3.250	2,500	580	0.055	2.250
〃	45	1,600	400	0.090	0.554	1,400	430	0.050	0.354	1,100	310	0.045	0.430	1,400	240	0.028	0.255
12mm	30	2,300	790	0.188	3.660	2,100	730	0.155	3.600	1,700	490	0.120	3.330	2,100	590	0.058	2.450
〃	50	1,300	360	0.094	0.560	1,050	380	0.052	0.360	1,000	320	0.050	0.440	1,000	250	0.029	0.260

절입량
Depth of Cut

Slotting
- Ap : Axial Depth
- D : Outside Diameter



Side Milling
- Ap : Axial Depth
- Ae : Radial Depth



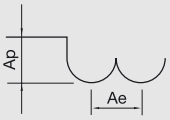
2TBE

• RPM : rev./min • Feed : mm/min

피삭재 Material		동/ 탄소강 Copper / Carbon Steels Cu / S45C / S50C			고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD			고경도강 Hardened Steels SKD / SKT			고경도강 Hardened Steels SKD / SKT		
경도 Hardness		30HRC~45HRC			30HRC~45HRC			45HRC~55HRC			55HRc ~ 65HRc		
반경 Radius	유효장 Effective Length	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth
R0.1	1.5	40,000	600	0.007	27,000	410	0.005	26,000	310	0.005	26,000	240	0.004
〃	2	31,000	350	0.005	21,500	240	0.004	20,000	190	0.003	20,000	170	0.003
R0.15	2	33,000	610	0.008	22,200	380	0.006	20,500	320	0.005	20,500	280	0.004
〃	3	31,000	470	0.003	21,000	310	0.002	19,000	230	0.002	19,000	180	0.001
R0.2	3	40,000	1,100	0.015	27,000	750	0.012	25,000	640	0.010	25,000	450	0.008
〃	6	24,000	500	0.004	17,000	310	0.003	16,000	280	0.003	16,000	240	0.002
R0.25	4	33,000	1,130	0.018	27,000	820	0.014	23,500	600	0.012	23,500	580	0.010
〃	8	20,500	580	0.006	17,000	410	0.005	15,000	350	0.004	15,000	310	0.003
R0.3	4	41,000	2,040	0.030	30,000	1,350	0.021	22,500	750	0.020	22,500	670	0.015
〃	8	25,500	950	0.015	21,000	700	0.012	16,000	490	0.010	16,000	390	0.008
〃	12	2,500	850	0.008	21,500	680	0.006	14,000	380	0.005	13,000	320	0.004
R0.4	4	41,000	2,200	0.035	28,000	1,400	0.027	23,000	820	0.025	23,000	680	0.015
〃	8	25,500	1,300	0.020	18,000	900	0.015	15,000	600	0.015	15,000	550	0.010
〃	12	25,500	1,000	0.015	15,500	500	0.012	12,000	440	0.010	12,000	400	0.007
R0.5	8	25,000	2,000	0.045	17,000	1,300	0.035	17,000	1,000	0.030	16,000	820	0.025
〃	15	17,000	1,050	0.022	12,000	730	0.018	11,000	650	0.016	11,000	500	0.012
〃	25	15,000	900	0.013	10,000	650	0.010	9,000	540	0.008	9,000	440	0.008
〃	35	9,000	580	0.008	6,000	380	0.006	6,000	360	0.005	6,000	260	0.004
R0.75	10	18,000	2,100	0.060	12,000	1,400	0.040	12,000	1,100	0.035	12,000	850	0.030
〃	20	13,000	1,200	0.030	9,000	900	0.020	9,000	700	0.015	9,000	600	0.013
〃	30	9,000	850	0.015	7,000	620	0.012	7,000	520	0.010	7,000	480	0.010
R1	12	15,000	2,350	0.080	11,000	1,700	0.065	10,500	1,360	0.056	10,500	1,070	0.046
〃	20	10,000	1,400	0.060	8,000	1,000	0.050	9,000	1,000	0.045	9,000	880	0.035
〃	30	9,000	1,200	0.045	7,000	800	0.035	7,000	780	0.030	7,000	640	0.025
〃	40	9,000	1,200	0.035	6,700	780	0.030	6,000	700	0.025	6,000	580	0.020
R1.5	20	10,000	2,200	0.090	8,000	1,300	0.070	7,000	1,200	0.060	7,000	1,100	0.050
〃	30	9,000	1,800	0.075	7,000	1,050	0.060	6,000	1,000	0.050	6,000	880	0.042
〃	40	7,500	1,400	0.060	5,000	880	0.050	5,100	800	0.040	5,100	700	0.035
〃	50	7,500	1,300	0.040	5,000	800	0.030	5,100	750	0.025	5,100	650	0.023
R2	40	6,000	1,200	0.081	3,500	600	0.065	3,200	530	0.050	3,200	500	0.043
〃	60	4,000	730	0.060	3,000	450	0.045	2,800	400	0.040	2,800	350	0.031
R3	29	9,000	2,100	0.140	7,000	1,050	0.100	6,000	950	0.080	6,000	850	0.058
〃	49	4,500	1,400	0.070	3,900	700	0.060	3,400	650	0.050	3,400	550	0.040
R4	33	8,900	2,200	0.180	7,000	1,100	0.140	6,000	1,000	0.100	6,000	800	0.082
〃	52	4,300	1,300	0.090	3,200	650	0.080	2,900	550	0.065	2,900	450	0.040
R5	37	5,500	1,700	0.185	3,500	850	0.160	3,400	700	0.120	3,400	600	0.080
〃	54	4,000	950	0.089	3,000	480	0.065	2,800	400	0.050	2,800	320	0.032
R6	63	3,800	700	0.120	2,800	350	0.082	2,500	310	0.060	2,500	220	0.045
〃	85	2,800	320	0.060	1,900	160	0.030	1,500	150	0.015	1,500	100	0.010
Milling Amount	Roughing	Ae≦0.1D			Ae≦0.1D			Ae≦0.08D			Ae≦0.06D		
	Finishing	Ae = Vf/n											

절입량 Depth of Cut

- Ap : Axial Depth
- Ae : Radial Depth
- D : Outside Diameter
- n : Speed
- Vf : Feed



2SPH/4SPH/4SPHM

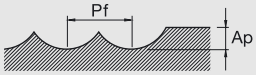
: 4SPH/4SPHM은 아래 수치의 **20% Up** 적용
: Apply 20% up values of below condition for 4SPH/4SPHM

• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강/ 공구강 Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		고경도강/프리하든강 Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM11		스테인레스강/ 고경도강 Stainless Steels / Hardened Steels SUS304 / SKD		고경도강 Hardened Steels		고경도강 Hardened Steels	
경도 Hardness	~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc		55 ~ 60HRc	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.5	25,600	680	25,600	680	25,600	680	25,600	680	25,600	610
R0.75	22,000	850	22,000	850	22,000	850	22,000	850	22,000	750
R1	19,200	1,080	19,200	1,080	19,200	1,080	19,200	1,080	17,600	960
R2	12,400	1,440	11,200	1,240	10,800	1,160	10,000	1,080	8,800	920
R3	8,400	1,480	7,600	1,360	7,200	1,280	6,800	1,200	5,900	1,040
R4	6,400	1,120	5,700	1,000	5,500	960	5,100	880	4,400	790
R5	5,100	880	4,600	800	4,400	784	4,000	720	3,600	640
R6	4,800	840	3,800	670	3,640	640	3,400	600	3,000	540

절입량 Depth of Cut

Ap	Pf
0.05D	0.1D



Ap	Pf
0.02D	0.1D

2TCR/4TCR

: 4TCR은 아래 수치의 **20% Up** 적용
: Apply 20% up values of below condition for 4TCR

• RPM : rev./min • Feed : mm/min

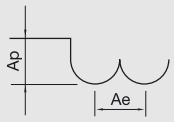
피삭재 Material				탄소강/ 프리하든강 Carbon Steels / Prehardened Steels S50C / NAK55 / NAK80 / HPM-1				고경도강 Hardened Steels SKD11 / SKD61 / STAVAX / HPM-38				동/ 알루미늄 Copper / Aluminum			
경도 Hardness				~ 43HRc				~ 55HRc							
외경 Outside Diameter	반경 Radius	각도 Taper Angle	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
1mm		1°	6	22,000	1,300	0.08	0.35	17,000	900	0.06	0.35	22,000	1,500	0.24	0.50
〃		〃	10	18,000	1,000	0.05	0.35	14,000	700	0.05	0.35	18,000	1,200	0.15	0.50
〃	R0.1	〃	15	18,000	850	0.03	0.20	14,000	600	0.03	0.13	18,000	1,000	0.09	0.50
〃	R0.2	〃	20	14,000	700	0.03	0.10	11,000	500	0.03	0.06	14,000	850	0.08	0.30
〃	R0.3	〃	25	14,000	600	0.02	0.05	11,000	400	0.02	0.03	14,000	700	0.06	0.15
〃		〃	30	10,000	480	0.02	0.03	8,000	300	0.02	0.02	10,000	600	0.05	0.09
〃		〃	35	10,000	350	0.01	0.02	8,000	250	0.01	0.01	10,000	400	0.03	0.06
1.5mm		1°	10	16,000	1,300	0.10	0.55	12,800	900	0.10	0.55	16,000	1,500	0.30	0.60
〃	R0.2	〃	15	14,000	1,000	0.07	0.55	12,800	700	0.07	0.55	14,000	1,200	0.20	0.60
〃	R0.3	〃	20	14,000	800	0.05	0.30	11,200	550	0.05	0.20	14,000	900	0.16	0.50
〃	R0.5	〃	25	14,000	600	0.03	0.10	11,200	400	0.03	0.06	14,000	700	0.10	0.30
〃		〃	30	12,000	450	0.03	0.05	9,600	300	0.03	0.03	12,000	550	0.09	0.15
2mm		1°	15	14,000	1,200	0.10	0.70	11,200	850	0.07	0.70	14,000	1,400	0.30	0.70
〃	R0.2	〃	20	12,000	1,200	0.07	0.70	9,600	850	0.07	0.70	12,000	1,400	0.20	0.70
〃	R0.3	〃	25	12,000	1,000	0.05	0.50	9,600	700	0.04	0.50	12,000	1,200	0.15	0.70
〃	R0.5	〃	30	10,000	750	0.04	0.30	8,000	500	0.03	0.30	10,000	900	0.13	0.70
〃		〃	40	8,000	400	0.03	0.20	6,400	300	0.02	0.20	8,000	500	0.10	0.50
〃		〃	50	6,000	350	0.02	0.10	4,800	250	0.01	0.10	6,000	400	0.05	0.30
3mm		1°	15	11,000	1,600	0.15	1.05	8,800	1,100	0.10	1.05	11,000	1,900	0.60	1.10
〃	R0.2	〃	20	11,000	1,600	0.13	1.05	8,800	1,100	0.10	1.05	11,000	1,900	0.45	1.10
〃	R0.3	〃	30	9,000	1,200	0.10	1.05	7,200	850	0.07	1.05	9,000	1,400	0.30	1.10
〃	R0.5	〃	40	9,000	1,000	0.07	0.60	7,200	700	0.05	0.60	9,000	1,200	0.21	0.90
〃	R1	〃	50	8,000	640	0.05	0.35	6,400	450	0.04	0.35	8,000	750	0.15	0.80
〃		〃	60	8,000	480	0.03	0.20	6,400	300	0.02	0.20	8,000	550	0.10	0.70
4mm		1°	20	10,000	1,800	0.18	2.00	7,500	1,200	0.20	2.00	10,000	2,000	0.90	2.00
〃	R0.2	〃	30	8,000	1,400	0.15	2.00	6,500	1,000	0.14	2.00	8,000	1,600	0.60	2.00
〃	R0.3	〃	40	8,000	1,200	0.12	1.20	5,800	850	0.10	1.20	8,000	1,400	0.40	1.60
〃	R0.5	〃	50	7,000	800	0.10	0.70	4,800	600	0.08	0.70	7,000	1,000	0.30	1.20
〃	R1	〃	60	7,000	600	0.80	0.40	4,800	400	0.04	0.40	7,000	800	0.20	0.80

2PHCB / 2HSB / 2HCB

• RPM : rev./min • Feed : mm/min

피삭재 Material		동 Copper				고경도강/ 프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness						30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
반경 Radius	날장 Cutting Length	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth
R0.05	0.2	40,000	250	0.040	0.008	40,000	250	0.040	0.004	30,000	180	0.030	0.003	X	X	X	X
R0.1	0.2	50,000	400	0.006	0.010	50,000	600	0.050	0.015	41,300	450	0.040	0.012	30,000	300	0.023	0.008
〃	0.4	50,000	400	0.005	0.004	50,000	230	0.035	0.015	41,300	240	0.030	0.080	30,000	220	0.018	0.006
R0.15	0.3	50,000	680	0.010	0.015	50,000	680	0.080	0.025	41,300	550	0.062	0.020	30,000	410	0.035	0.012
〃	0.6	50,000	680	0.010	0.010	50,000	620	0.065	0.022	41,300	530	0.045	0.020	30,000	380	0.025	0.010
R0.2	0.4	50,000	790	0.014	0.023	50,000	910	0.110	0.035	41,300	750	0.086	0.028	30,000	540	0.050	0.015
〃	0.8	50,000	790	0.014	0.010	50,000	800	0.100	0.035	41,300	600	0.080	0.028	30,000	490	0.044	0.015
R0.25	0.5	52,000	1,050	0.017	0.030	49,000	1,050	0.140	0.045	40,800	900	0.110	0.035	28,800	700	0.065	0.021
〃	1	52,000	1,050	0.017	0.018	46,000	950	0.120	0.040	38,300	700	0.080	0.030	26,600	550	0.053	0.020
R0.3	0.6	54,000	1,210	0.021	0.038	48,000	1,180	0.150	0.055	39,600	1,000	0.120	0.043	27,500	750	0.078	0.025
〃	1.2	54,000	1,210	0.020	0.020	45,500	920	0.145	0.050	37,500	720	0.110	0.040	27,000	520	0.067	0.020
R0.4	0.8	48,000	1,570	0.030	0.050	45,000	1,200	0.180	0.070	36,500	1,100	0.180	0.060	26,500	810	0.100	0.035
〃	2	48,000	1,570	0.025	0.030	42,000	980	0.150	0.060	33,500	800	0.150	0.050	23,800	550	0.080	0.035
R0.5	1	32,800	1,300	0.032	0.050	36,000	1,200	0.240	0.080	29,500	1,000	0.192	0.064	21,840	750	0.112	0.040
〃	2.5	32,800	1,300	0.032	0.020	33,600	1,000	0.204	0.080	28,000	800	0.160	0.064	20,700	600	0.094	0.040
R0.6	3	21,760	1,120	0.032	0.014	25,600	640	0.141	0.077	20,160	520	0.112	0.061	14,700	380	0.079	0.038
R0.75	1.5	21,600	1,500	0.054	0.070	28,000	1,280	0.360	0.120	23,000	1,024	0.288	0.096	17,200	760	0.168	0.060
〃	4	21,600	1,500	0.054	0.042	27,200	800	0.260	0.120	20,800	640	0.208	0.096	15,400	480	0.122	0.060
R1	2	16,000	1,500	0.071	0.090	24,000	1,480	0.480	0.160	20,000	1,184	0.360	0.128	14,600	890	0.224	0.080
〃	5	16,000	1,400	0.071	0.054	21,200	1,080	0.348	0.160	17,600	864	0.278	0.128	13,000	650	0.162	0.080
R1.25	6	12,800	1,500	0.012	0.054	20,400	1,280	0.434	0.200	16,800	1,024	0.344	0.160	12,400	760	0.201	0.100
R1.5	3	10,400	1,800	0.137	0.158	20,400	2,010	0.766	0.240	16,800	1,640	0.613	0.192	12,400	1,200	0.358	0.120
〃	8	10,400	1,800	0.137	0.080	20,400	1,900	0.612	0.240	16,800	1,500	0.490	0.192	12,400	1,100	0.286	0.120
R2	4	8,000	1,700	0.166	0.213	16,800	1,960	0.880	0.320	14,000	1,560	0.880	0.256	10,200	1,200	0.512	0.160
〃	8	8,000	1,700	0.166	0.107	16,800	1,880	0.800	0.320	14,000	1,500	0.653	0.256	10,200	1,120	0.381	0.160
R2.5	5	6,600	1,600	0.192	0.172	14,400	2,040	1.328	0.400	11,800	1,600	1.064	0.320	8,800	1,200	0.616	0.200
〃	10	6,600	1,600	0.192	0.160	14,400	1,960	1.200	0.400	11,800	1,600	0.960	0.320	8,800	1,170	0.560	0.200
R3	6	5,500	1,500	0.225	0.232	12,800	2,160	1.872	0.480	10,400	1,720	1.496	0.384	7,700	1,200	1.520	0.240
〃	12	5,500	1,500	0.225	0.184	12,800	1,920	1.224	0.480	10,400	1,500	0.980	0.384	7,700	1,150	0.572	0.240
R4	8	4,500	800	0.140	0.320	10,000	1,840	2.480	0.640	8,200	1,400	1.984	0.512	6,000	1,100	1.157	0.320
〃	14	4,500	800	0.140	0.320	10,000	1,600	2.000	0.640	8,200	1,200	1.312	0.512	6,000	960	0.766	0.320
R5	10	3,600	560	0.123	0.400	8,400	1,760	3.000	0.800	6,900	1,400	2.400	0.640	5,100	1,070	1.400	0.400
〃	18	3,600	560	0.123	0.400	8,400	1,300	2.040	0.800	6,900	1,100	1.632	0.640	5,100	810	0.952	0.400
R6	22	3,000	480	0.127	0.480	7,200	1,400	3.530	0.960	5,900	1,180	2.224	0.768	4,300	890	1.648	0.480
R8	30	2,200	460	0.115	0.450	6,800	1,630	3.870	1.120	4,900	1,100	2.350	0.790	4,000	810	1.742	0.500
R10	38	2,000	470	0.100	0.400	6,200	1,450	4.120	1.100	3,900	1,100	2.530	0.840	3,100	800	1.866	0.520

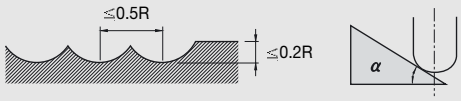
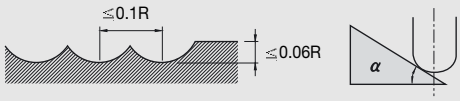
절입량 Depth of Cut



■ 홈가공의 경우, 상기표 Feed를 50%이상 감소하십시오. ■ In case of slotting, decrease feed rate more than 50% the table.

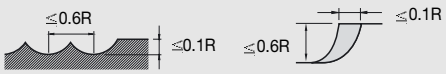
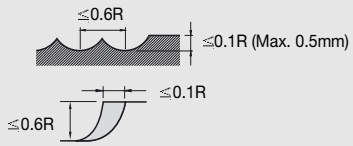
3HCB

• RPM : rev./min • Feed : mm/min

피삭재 Material	황삭 가공 for Roughing								정삭가공 for Finishing							
	합금강/ 공구강/프리하든강 Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK				고경도강 Hardened Steels SKD61				합금강/ 공구강/ 프리하든강 Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK				고경도강 Hardened Steels SKD61			
경도 Hardness	~ 45HRc				45 ~ 55HRc				~ 45HRc				45 ~ 55HRc			
반경 Radius	α ≦15°		α >15°		α ≦15°		α >15°		α ≦15°		α >15°		α ≦15°		α >15°	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1	28,800	2,700	22,500	1,100	16,200	1,300	14,400	580	28,800	2,900	28,800	1,400	22,500	1,800	18,000	700
R1.5	22,800	3,000	18,000	1,200	13,100	1,500	11,400	630	22,900	3,700	23,400	1,600	18,900	2,100	14,900	800
R2	16,700	3,300	13,000	1,300	10,000	1,600	8,300	670	23,000	4,500	18,000	1,800	15,300	2,400	11,700	900
R2.5	14,200	3,500	11,000	1,300	8,500	1,700	7,100	700	21,000	5,000	15,800	1,900	13,500	2,500	10,400	1,000
R3	11,700	3,600	9,000	1,400	6,900	1,700	5,800	720	18,000	5,500	13,500	2,000	11,700	2,900	9,000	1,100
R4	9,000	4,500	7,000	1,800	5,400	2,100	4,300	830	13,500	6,800	10,000	2,400	9,000	3,400	6,800	1,300
R5	7,200	4,500	5,900	1,800	4,300	2,000	3,400	780	10,800	6,800	8,100	2,400	7,200	3,400	5,400	1,300
R6	5,900	4,100	4,800	1,600	3,600	1,900	2,900	760	9,000	6,300	6,800	2,300	6,000	3,200	4,500	1,200
절입량 Depth of Cut																

4HCB

• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강/ 프리하든강 Alloy Steels/ Prehardened Steels SCM / SKD61 / SKD11 / NAK		고경도강(열처리강) Hardened Steels SKD61 / SUS420		고경도강(열처리강) Hardened Steels SKD11 / SKH / SKS	
경도 Hardness	~ 45HRc		45 ~ 55HRc		55 ~ 62HRc	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED
R1	28,000	1600 ~ 4800	20,000	1040 ~ 2880	12,800	640 ~ 1200
R1.5	26,400	1600 ~ 4800	16,000	960 ~ 2720	10,400	640 ~ 1200
R2	20,000	1600 ~ 4800	13,600	960 ~ 2720	8,000	640 ~ 1200
R2.5	18,400	1600 ~ 4800	12,000	960 ~ 2720	7,200	640 ~ 1200
R3	16,000	1440 ~ 4400	10,400	960 ~ 2960	6,600	560 ~ 1200
R4	12,000	1760 ~ 4000	8,000	1120 ~ 2720	5,000	560 ~ 1040
R5	9,600	1840 ~ 3680	6,400	1200 ~ 2400	4,000	560 ~ 800
R6	8,000	1520 ~ 3280	5,300	1040 ~ 2160	3,300	560 ~ 800
R8	6,000	1280 ~ 2560	4,000	880 ~ 1760	2,500	480 ~ 640
절입량 Depth of Cut						

2HSE / 2HCE

- 2HSE는 아래 수치의 **20% Up** 적용
- Apply 20% up values of below condition for 2HSE

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강/ 합금강 Carbon Steels /Alloy Steels S45C / S50C / SK / SCM		고경도강/프리하든강 Hardened Steels/ Prehardened Steels NAK / SKD		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels/ SKD11 / SKD61 / SKT		High Speed Spindle Milling
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc		
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	
0.05mm	40,000	40	40,000	35	40,000	30	40,000	20	o
0.08mm	40,000	70	40,000	60	40,000	55	40,000	40	o
0.1mm	40,000	90	40,000	80	40,000	70	40,000	60	o
0.3mm	40,000	140	40,000	130	40,000	130	40,000	80	o
0.5mm	40,000	300	40,000	280	30,000	220	30,000	100	o
1mm	28,000 (18,000)	550 (120)	18,000 (11,000)	350 (70)	14,000 (9,000)	28 (60)	14,000 (8,500)	140 (30)	o
2mm	14,000 (10,000)	850 (180)	90,00 (6800)	550 (110)	7,000 (5,500)	420 (90)	7,200 (4,500)	140 (45)	o
3mm	8,000	200	5,000	130	4,200	110	3,000	55	x
4mm	7,000	290	4,000	180	3,400	110	2,500	60	x
5mm	5,600	300	3,200	180	2,400	110	2,200	65	x
6mm	4,900	340	2,900	190	2,200	130	1,800	80	x
8mm	3,600	360	2,200	190	1,600	130	1,300	95	x
10mm	2,800	310	1,700	150	1,300	110	1,200	80	x
12mm	2,400	260	1,400	130	1,000	90	950	70	x
14mm	2,000	230	1,250	110	900	80	800	60	x
16mm	1,800	190	1,100	100	800	70	700	50	x
18mm	1,600	175	1,000	90	710	65	650	45	x
20mm	1,400	160	900	80	640	60	600	40	x
절입량 Milling Amount of Side Milling	≤0.1D (D≤Ø3) ≤0.2D (D>Ø3) ≤1.5D		D ≤0.1D (D<Ø2) ≤0.3D (Ø2≤D≤Ø3) ≤0.5D (D>Ø3)				≤0.05D D ≤0.05D ≤1D		D ≤0.05D (D<Ø2) ≤0.1D (D=Ø2)

4HSE / 4HCE

- 4HSE는 아래 수치의 **20% Up** 적용
- Apply 20% up values of below condition for 4HSE

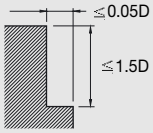
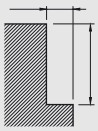
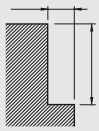
• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강/ 합금강 Carbon Steels/ Alloy Steels S45C / S50C / SK / SCM		고경도강/프리하든강 Hardened Steels/ Prehardened Steels NAK / SKD		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels SKD11 / SKD61 / SKT		고경도강 Hardened Steels SKD / SKT	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc		55 ~ 60HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.8mm	14,000	220	8,000	120	7,600	90	6,000	40	3,500	18
1mm	13,000	230	7,500	140	7,200	100	5,500	50	3,000	20
1.5mm	11,000	240	7,000	150	6,000	110	5,000	55	2,600	23
2mm	10,000	250	6,800	160	5,800	120	4,500	60	2,200	25
3mm	7,500	270	4,900	180	4,000	150	3,000	75	1,700	50
4mm	6,800	500	4,000	300	3,400	250	2,500	100	1,300	65
5mm	5,600	540	3,200	320	2,800	270	2,000	110	1,100	65
6mm	5,000	580	3,000	320	2,500	290	1,800	120	900	65
8mm	3,700	650	2,100	320	1,800	300	1,400	150	700	60
10mm	2,800	540	1,700	260	1,400	270	1,200	130	600	60
12mm	2,700	470	1,400	220	1,200	210	1,000	120	490	50
14mm	2,200	390	1,300	190	1,050	180	850	100	420	40
16mm	1,800	340	1,100	160	910	160	700	90	380	35
18mm	1,600	280	900	140	750	130	600	70	300	25
20mm	1,200	220	700	110	590	100	490	50	230	20
절입량 Milling Amount of Side Milling	≤0.05D (Max. 0.5mm) ≤2.5D		D ≤0.05D (D=Ø1) ≤0.1D (Ø1<D≤Ø2) ≤0.15D (Ø2<D≤Ø3) ≤0.3D (D>Ø3) (Max. 0.5mm)				≤0.02D (Max. 0.3mm) ≤2D D ≤0.05D (Max. 3mm)			

- 상기표는 절입기준 내의 측면가공 기준입니다. 홈가공의 경우에는 이송속도만 상기표의 80%를 기준으로 해 주십시오.
  또한 스테인레스강 홈가공의 경우에, 회전속도는 상기표의 60%, 이송송도는 40% 기준입니다.
- The table is based on side machining.
  In cace of slotting, please refer to only 80% of Feed and as for slotting for sus, RPM is 60% of above table / 40% of Feed.

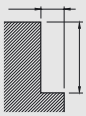
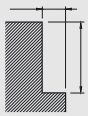
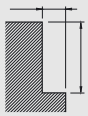
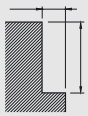
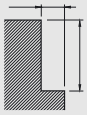
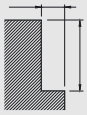
4HEM

• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강/ 공구강/프리하든강 Alloy Steels / Tool Steels Prehardened Steels SKD11 / SKD61 / NAK		고경도강 Hardened Steels SKD61 / SKD11 / STAVAX		고경도강 Hardened Steels SKD11 / SKD / SKS	
경도 Hardness	~ 55HRc		55 ~ 65HRc		60 ~ 65HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	32,000	800	16,000	400	8,000	200
1.5mm	28,000	1,000	14,000	500	7,000	250
2mm	25,600	1,200	12,800	600	6,400	300
3mm	21,600	2,500	10,400	1,300	5,500	660
4mm	16,800	3,000	8,000	1,400	4,500	800
5mm	14,400	3,400	7,100	1,700	3,600	900
6mm	12,800	4,600	6,400	2,300	3,200	1,120
8mm	9,600	4,600	4,800	2,300	2,400	1,120
10mm	7,600	4,600	3,800	2,300	1,900	1,120
12mm	6,400	3,800	3,200	1,900	1,600	960
16mm	4,800	2,900	2,400	1,400	1,200	720
20mm	3,800	2,300	1,900	1,100	1,000	570
절입량 Depth of Cut	 ≦0.05D ≦1.5D		 ≦0.03D (D < Ø3) ≦0.05D (D ≧ Ø3) (Max. 0.5mm) ≦1D		 ≦0.03D (Max. 0.2mm) ≦1D	

6HEM / 8HEM

• RPM : rev./min • Feed : mm/min

피삭재 Material		합금강 / 공구강 / 프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD11 / SKD61 / NAK		고경도강 Hardened Steels SKD61 / SKD11 / SUS420		고경도강 Hardened Steels SKD11 / SKH / SKS		고경도강 Hardened Steels SKD11 / SKH / SKS	
경도 Hardness		~ 45HRc		45HRc ~ 55HRc		55HRc ~ 60HRc		60HRc ~ 65HRc	
외경 Outside Diameter	날장 Length of Cut	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	15mm	3,200	820	2,600	600	2,200	540	2,000	500
〃	25	1,700	360	1,300	260	1,100	190	900	150
8mm	20	2,400	750	2,000	600	1,700	510	1,500	470
〃	30	1,300	340	1,000	250	800	180	700	170
10mm	25	1,900	680	1,600	480	1,400	400	1,200	360
〃	45	1,000	330	800	230	700	180	500	120
12mm	30	1,600	650	1,300	500	1,100	440	1,000	380
〃	50	650	250	500	170	400	130	320	100
16mm	35	1,200	570	1,000	430	900	360	740	330
〃	65	640	250	500	180	400	130	320	100
20mm	45	1,000	500	800	370	660	320	600	290
〃	80	510	220	400	150	320	110	300	90
25mm (8F)	125	510	230	400	160	320	120	300	90
절입량 Depth of Cut	Short type	 ≦0.03D ≦1D		 ≦0.02D ≦1D		 ≦0.015D ≦1D		 ≦0.01D ≦1D	
	Long type	 ≦0.01D 3D-4D				 ≦0.005D 3D-4D			

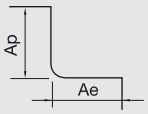
2CRE

• RPM : rev./min • Feed : mm/min

피삭재 Material		동 Copper				고경도강/ 프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness						30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.2mm	1mm	47,000	170	0.230	0.017	47,000	170	0.005	0.017	30,000	130	0.003	0.017	13,000	21	0.001	0.013
〃	1.5	47,000	150	0.014	0.009	47,000	150	0.004	0.009	23,000	90	0.003	0.009	10,200	17	0.001	0.006
0.3mm	1	51,000	420	0.026	0.017	51,000	430	0.006	0.017	30,000	300	0.004	0.013	18,700	30	0.003	0.013
〃	3	44,000	180	0.026	0.013	44,200	190	0.005	0.013	21,000	70	0.003	0.009	12,700	17	0.002	0.009
0.4mm	1	41,000	520	0.041	0.054	43,200	430	0.011	0.061	34,500	320	0.009	0.061	20,500	34	0.003	0.061
〃	3	29,000	390	0.023	0.046	23,000	330	0.007	0.023	23,000	240	0.006	0.023	13,700	26	0.003	0.023
0.5mm	1	42,000	1,160	0.069	0.099	42,000	970	0.029	0.104	34,000	730	0.026	0.104	21,000	80	0.011	0.104
〃	3	27,000	650	0.048	0.077	27,000	540	0.020	0.096	22,100	400	0.017	0.096	13,700	44	0.007	0.096
〃	5	22,400	480	0.023	0.038	22,400	400	0.009	0.009	18,000	300	0.009	0.009	11,300	33	0.003	0.009
0.6mm	2	24,300	520	0.097	0.138	24,300	430	0.009	0.186	20,000	330	0.009	0.186	12,900	37	0.003	0.186
〃	6	14,300	250	0.031	0.038	14,300	210	0.003	0.009	11,800	160	0.003	0.009	7,600	18	0.001	0.009
0.8mm	4	15,000	460	0.112	0.168	14,800	380	0.012	0.099	12,800	300	0.013	0.099	8,600	35	0.006	0.099
〃	8	11,000	260	0.026	0.085	11,000	230	0.004	0.077	9,300	160	0.003	0.077	6,500	17	0.002	0.077
1mm	4	12,000	830	0.171	0.344	12,000	700	0.026	0.230	10,200	570	0.030	0.230	7,200	68	0.014	0.230
〃	10	7,500	330	0.041	0.268	7,500	270	0.009	0.107	6,500	230	0.011	0.107	4,600	27	0.005	0.107
〃	16	6,000	200	0.015	0.191	6,000	160	0.003	0.023	5,200	140	0.004	0.023	3,700	16	0.002	0.023
1.2mm	6	8,000	600	0.158	0.398	8,000	500	0.015	0.077	7,100	420	0.187	0.077	5,300	51	0.009	0.077
〃	12	5,800	380	0.046	0.344	5,800	320	0.006	0.061	5,200	260	0.007	0.061	3,800	32	0.003	0.061
1.5mm	4	11,200	1,100	0.255	0.574	11,200	930	0.038	0.383	10,200	800	0.051	0.383	7,800	105	0.028	0.383
〃	10	7,200	760	0.128	0.482	7,200	640	0.027	0.245	6,600	550	0.036	0.245	5,100	72	0.020	0.245
〃	20	5,100	410	0.036	0.306	5,100	350	0.004	0.092	4,700	300	0.005	0.092	3,600	39	0.003	0.092
2mm	6	10,900	1,030	0.273	0.727	10,900	870	0.037	0.689	10,200	790	0.051	0.689	8,200	113	0.031	0.689
〃	12	8,000	830	0.158	0.612	8,000	700	0.026	0.383	7,200	630	0.037	0.383	5,900	91	0.022	0.383
〃	20	6,000	650	0.079	0.566	6,000	550	0.014	0.168	5,600	490	0.020	0.168	4,500	71	0.012	0.168
〃	30	5,100	570	0.043	0.383	5,100	470	0.004	0.115	4,700	430	0.004	0.115	3,700	60	0.002	0.115
2.5mm	10	9,000	1,030	0.288	0.727	9,000	870	0.044	0.459	8,500	820	0.064	0.459	7,100	131	0.041	0.459
〃	30	5,400	460	0.059	0.536	5,400	380	0.009	0.153	5,100	360	0.014	0.153	4,200	57	0.009	0.153
3mm	12	9,000	1,360	0.332	0.723	9,000	980	0.089	0.536	8,500	760	0.089	0.570	7,600	170	0.064	0.570
〃	20	7,100	890	0.221	0.663	7,100	750	0.062	0.493	6,700	580	0.062	0.493	6,000	128	0.037	0.493
〃	30	6,000	740	0.119	0.587	6,000	610	0.043	0.323	5,500	470	0.043	0.323	5,100	100	0.025	0.306
4mm	12	7,600	1,100	0.349	1.326	7,600	920	0.071	0.978	6,400	800	0.102	0.978	5,400	183	0.072	0.978
〃	20	5,900	1,000	0.326	1.152	5,900	850	0.046	0.765	5,000	730	0.068	0.765	4,200	168	0.049	0.765
〃	30	5,000	780	0.170	1.052	5,000	650	0.024	0.583	4,100	570	0.036	0.583	3,500	130	0.026	0.616
〃	45	4,100	380	0.084	0.972	4,100	320	0.006	0.284	3,500	280	0.009	0.284	3,000	65	0.006	0.284
5mm	15	6,700	1,780	0.606	1.980	6,700	1,480	0.092	1.170	4,800	990	0.130	1.170	4,000	297	0.096	1.170
〃	30	4,600	850	0.297	1.530	4,600	710	0.046	0.900	3,300	470	0.065	0.900	2,800	143	0.048	0.900
6mm	20	5,200	1,200	0.522	1.908	5,200	1,060	0.414	1.179	3,100	900	0.162	1.179	2,700	342	0.126	1.179
〃	40	4,000	1,000	0.491	1.782	4,000	790	0.356	1.134	2,300	660	0.142	1.134	2,000	265	0.107	1.134
8mm	22	4,800	1,100	0.459	2.210	4,800	940	0.364	1.320	2,800	790	0.143	1.320	2,400	301	0.111	1.320
〃	40	3,600	840	0.432	1.980	3,600	700	0.314	1.150	2,100	580	0.125	1.150	1,700	233	0.094	1.150
10mm	24	4,000	900	0.390	2.510	3,900	800	0.310	1.430	2,400	670	0.121	1.430	2,000	256	0.094	1.430
〃	45	3,000	710	0.368	2.120	3,000	590	0.267	1.160	1,700	490	0.106	1.160	1,500	198	0.080	1.160
12mm	26	3,300	760	0.328	2.620	3,300	670	0.260	1.760	2,000	560	0.102	1.760	1,700	215	0.079	1.760
〃	50	2,500	600	0.309	2.100	2,500	500	0.224	1.220	1,500	420	0.089	1.220	1,200	166	0.067	1.220
16mm	35	2,600	610	0.262	2.540	2,600	530	0.208	1.880	1,500	450	0.081	1.880	1,400	172	0.063	1.880

측면절삭 Milling amount of side milling

• Ap : Axial Depth
• Ae : Radial Depth



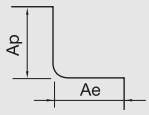
4CRE

• RPM : rev./min • Feed : mm/min

피삭재 Material		고경도강/프리하든강 Prehardened Steels / Hardened Steels NAK / SKD				고경도강 Hardened Steels SKD / SKT				고경도강 Hardened Steels SKD / SKT			
경도 Hardness		30HRc ~ 45HRc				45HRc ~ 55HRc				55HRc ~ 65HRc			
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
1mm	4mm	11,700	1,100	0.033	0.230	10,200	910	0.026	0.207	7,200	540	0.013	0.207
〃	10	7,500	430	0.009	0.107	6,500	430	0.008	0.085	4,600	300	0.005	0.043
1.2mm	4	11,200	1,200	0.027	0.383	10,200	930	0.020	0.255	7,800	700	0.017	0.170
〃	10	7,700	680	0.014	0.153	6,200	510	0.008	0.128	5,400	680	0.005	0.043
1.5mm	6	9,900	1,100	0.035	0.413	9,000	1,000	0.032	0.378	6,900	400	0.021	0.172
〃	12	7,200	710	0.025	0.275	6,600	660	0.022	0.252	5,000	250	0.009	0.138
2mm	6	11,000	1,100	0.054	0.551	10,200	1,020	0.051	0.620	8,200	590	0.024	0.275
〃	12	7,800	880	0.039	0.344	7,200	820	0.037	0.344	5,900	360	0.015	0.153
2.5mm	10	9,200	1,200	0.057	0.459	8,500	1,000	0.057	0.459	7,100	430	0.041	0.275
〃	20	6,600	1,000	0.041	0.230	6,400	570	0.026	0.191	5,400	250	0.019	0.077
3mm	10	9,600	1,800	0.082	0.595	8,900	1,800	0.051	0.595	7,600	620	0.038	0.476
〃	20	7,100	1,300	0.049	0.493	6,700	1,300	0.031	0.493	5,400	470	0.019	0.271
4mm	13	7,900	1,370	0.091	1.000	6,600	1,330	0.071	1.000	5,600	740	0.043	0.700
〃	20	6,200	1,200	0.060	0.800	5,200	1,120	0.047	0.800	4,500	630	0.022	0.560
〃	30	5,500	960	0.037	0.648	4,600	920	0.029	0.648	3,900	600	0.011	0.388
6mm	20	4,900	1,470	0.153	2.004	2,900	850	0.153	1.114	2,550	650	0.060	1.114
〃	40	2,500	680	0.085	1.148	1,400	400	0.085	0.638	1,200	300	0.034	0.468
8mm	22	4,000	1,600	0.184	2.540	2,400	680	0.184	1.320	2,000	650	0.087	1.320
10mm	24	3,200	1,750	0.210	2.730	1,900	540	0.220	1.430	1,600	460	0.094	1.450
12mm	26	2,500	1,800	0.230	2.700	1,500	430	0.240	1.490	1,300	450	0.110	1.500

측면절삭 Milling amount of side milling

• Ap : Axial Depth
• Ae : Radial Depth

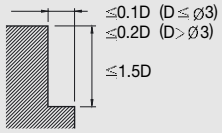


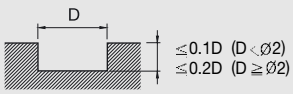
2NCR

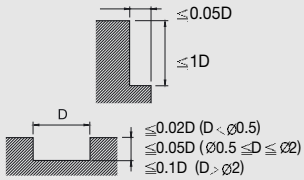
• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S50 / SCM		합금강 / 공구강 / 프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels SKD61	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.4mm	36,000	230	36,000	180	36,000	140	31,500	110
0.5mm	36,000	180	36,000	180	36,000	140	31,500	110
0.6mm	34,200	340	29,700	240	27,000	200	22,500	110
0.7mm	32,400	380	25,200	270	23,400	220	19,800	110
0.8mm	30,600	430	22,500	310	20,700	230	17,100	110
0.9mm	28,800	490	19,800	330	18,000	250	15,300	110
1mm	27,000	540	18,000	360	16,200	270	13,500	110
1.5mm	18,000	540	12,600	360	10,800	270	9,000	110
2mm	13,500	540	9,000	360	8,200	270	7,200	110
2.5mm	10,800	540	7,400	360	6,600	270	5,500	110
3mm	9,000	540	6,300	360	5,400	270	4,500	110
4mm	6,800	540	4,700	360	4,100	270	3,600	110
5mm	5,400	540	3,800	360	3,200	270	2,900	110
6mm	4,500	540	3,200	360	2,700	270	2,400	110
8mm	3,600	470	2,500	320	2,200	230	1,800	100
10mm	2,900	410	2,000	270	1,700	210	1,400	90
12mm	2,400	370	1,700	240	1,400	190	1,200	90

절입량 Depth of Cut





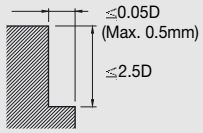
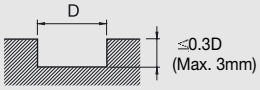
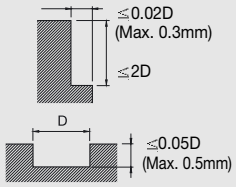


■ 홈가공의 경우, 상기표 Feed를 80%이상 감소하십시오.또한, SUS 홈가공시에 회전속도는 상기표의 70%, 이송속도는 60%를 기준으로 하여주십시오.

■ In case of slotting, decrease feed rate more than 80% the table.70% of speed and 60% of feed on the talbe , when to slottting SUS.

4NCR

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S50 / SCM		합금강 / 공구강 / 프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels SKD61		고경도강 Hardened Steels SKD11	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc		55 ~ 60HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	5,100	70	4,500	60	3,600	40	3,000	25	2,200	10
2mm	4,200	80	3,600	70	2,900	50	2,200	35	1,800	15
3mm	3,600	90	2,900	80	2,200	60	1,800	40	1,500	25
4mm	2,900	120	2,300	90	1,800	70	1,400	50	1,200	30
5mm	2,500	150	2,000	120	1,500	90	1,300	60	1,000	30
6mm	2,100	170	1,700	150	1,300	110	1,100	70	900	40
8mm	1,600	190	1,300	150	1,000	130	900	70	680	40
10mm	1,400	190	1,100	150	800	110	700	70	550	40
12mm	1,100	150	900	120	700	90	570	60	450	30
12mm	900	120	700	90	500	70	420	43	340	26
절입량 Depth of Cut	 									

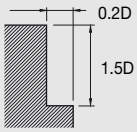
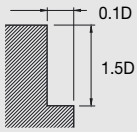
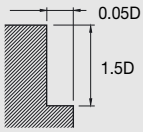
■ 홈가공의 경우, 상기표 Feed를 50%이상 감소하십시오. 또한, SUS 홈가공시에 회전속도는 상기표의 60%, 이송속도는 40%를 기준으로 하여주십시오.

■ In case of slotting, decrease feed rate more than 50% the table. 60% of speed and 40% of feed on the talbe , when to slottting SUS.

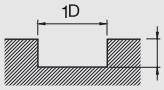
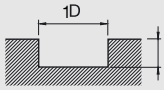
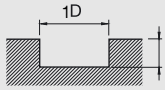
4CRL

• RPM : rev./min • Feed : mm/min

측면 가공 Side Milling

피삭재 Material	탄소강 / 합금강 Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		합금강 / 공구강 / 프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강 / 티탄합금 Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		고경도강 Hardened Steels SKD61		초내열합금 / 인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	9,400	700	6,300	430	6,300	400	4,000	210	3,400	150
4mm	6,800	770	7,800	460	4,800	440	3,000	230	2,700	200
6mm	5,400	850	3,800	510	3,800	500	2,500	250	2,200	200
8mm	3,700	930	2,400	560	2,400	510	1,500	280	1,400	190
10mm	3,000	850	2,000	540	2,000	480	1,200	270	1,100	170
12mm	2,500	850	1,600	540	1,600	450	1,000	270	930	150
절입량 Depth of Cut										

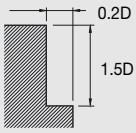
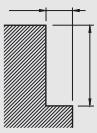
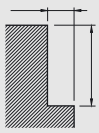
홈 가공 Slotting

피삭재 Material	탄소강 / 합금강 Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		합금강 / 공구강 / 프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강 / 티탄합금 Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		고경도강 Hardened Steels SKD61		초내열합금 / 인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	7,700	510	4,500	250	4,500	130	2,700	110	1,600	60
4mm	6,100	610	3,400	300	3,400	150	2,000	120	1,200	80
6mm	4,300	680	2,300	340	2,300	170	1,400	140	800	80
8mm	3,100	680	1,700	340	1,700	170	1,000	150	610	80
10mm	2,600	610	1,400	300	1,400	150	810	140	490	70
12mm	2,100	610	1,100	300	1,100	150	680	140	410	60
절입량 Depth of Cut										

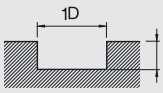
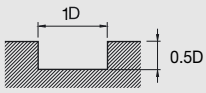
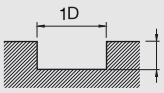
6CRL

• RPM : rev./min • Feed : mm/min

측면 가공 Side Milling

피삭재 Material	탄소강/합금강 Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		합금강/공구강/프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강/티탄합금 Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		고경도강 Hardened Steels SKD61		초내열합금/인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,700	880	3,000	510	3,000	480	1,900	265	1,700	185
8mm	3,500	880	2,200	530	2,200	480	1,400	265	1,300	180
10mm	2,800	800	1,800	450	1,100	260	1,100	260	1,000	160
12mm	2,300	800	1,500	510	1,500	420	1,000	260	900	140
16mm	1,800	640	1,100	400	1,100	360	700	200	650	100
절입량 Depth of Cut										

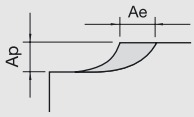
홈 가공 Slotting

피삭재 Material	탄소강/합금강 Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		합금강/공구강/프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		스테인레스강/티탄합금 Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		고경도강 Hardened Steels SKD61		초내열합금/인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,000	640	2,200	320	2,200	160	1,300	130	800	75
8mm	3,000	640	1,600	320	1,600	160	1,000	140	600	70
10mm	2,400	580	1,300	290	1,300	140	800	130	500	65
12mm	2,000	580	1,000	290	1,000	140	650	130	400	60
16mm	1,600	480	800	220	800	120	500	100	300	40
절입량 Depth of Cut										

4RCU/6RCU

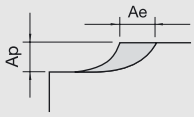
1TYPE

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강/합금강 Carbon Steels/ Alloy Steels S50C / SCM				합금강/공구강/프리하든강 Alloy Steels / Tools Steels / Prehardened Steels SKD61 / SKD11 / NAK			
경도 Hardness	~ 30HRc				30 ~ 45HRc			
외경 Outside Diameter	RPM	Feed	Ae(mm)	Ap(mm)	RPM	Feed	Ae(mm)	Ap(mm)
1mm	37,000	9,000	0.400	0.040	33,000	7,200	0.400	0.025
2mm	33,000	10,000	0.800	0.080	27,000	8,400	0.800	0.050
3mm	22,000	11,000	1.200	0.120	18,000	9,000	1.200	0.080
4mm	17,000	12,000	1.500	0.150	14,000	9,500	1.500	0.120
5mm	13,000	13,000	2.000	0.200	11,000	10,000	2.000	0.150
6mm	11,000	13,000	2.500	0.250	9,000	11,000	2.000	0.150
8mm	8,200	13,000	3.000	0.300	7,000	11,000	3.000	0.200
10mm	6,500	13,000	4.500	0.300	5,500	11,000	4.500	0.200
12mm	5,500	12,000	5.500	0.300	5,000	10,000	5.500	0.200
16mm	4,100	10,000	7.500	0.450	3,400	8,800	7.500	0.300
절입량 Depth of Cut								

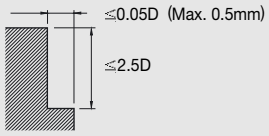
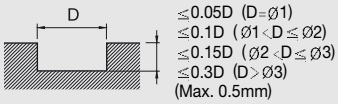
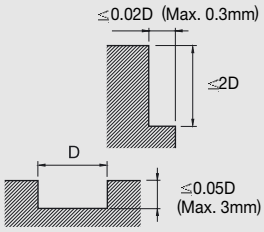
2TYPE

• RPM : rev./min • Feed : mm/min

피삭재 Material	고경도강 Hardened Steels SKD61 / STAVAX				고경도강 Hardened Steels SKD11 / SKH			
경도 Hardness	45 ~ 55HRc				55 ~ 60HRc			
외경 Outside Diameter	RPM	Feed	Ae(mm)	Ap(mm)	RPM	Feed	Ae(mm)	Ap(mm)
1mm	27,000	6,500	0.400	0.020	22,000	2,600	0.400	0.015
2mm	24,000	7,500	0.800	0.040	16,000	3,000	0.800	0.030
3mm	16,000	8,500	1.200	0.060	11,000	3,300	1.200	0.050
4mm	12,000	8,800	1.500	0.080	8,000	3,500	1.500	0.070
5mm	9,600	9,500	2.000	0.100	6,400	3,800	2.000	0.080
6mm	8,000	9,600	2.500	0.100	5,300	3,800	2.500	0.100
8mm	6,000	9,600	3.000	0.150	4,000	3,800	3.000	0.130
10mm	4,800	9,500	4.500	0.150	3,200	3,800	4.500	0.130
12mm	4,100	9,000	4.500	0.250	2,700	3,500	4.500	0.200
16mm	3,000	7,800	7.500	0.250	2,000	3,200	7.500	0.200
절입량 Depth of Cut								

2LEM

• RPM : rev./min • Feed : mm/min

	측면 가공 Side Milling							
피삭재 Material	탄소강 / 합금강 Carbon Steels / Alloy Steels S45C / S50C / SK / SCM		고경도강 / 프리하든강 Hardened Steels / Prehardened Steels NAK / SKD		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels SKD61	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	9,400	40	7,700	30	5,500	15	4,900	15
1.5mm	6,000	45	5,500	35	4,000	20	3,500	18
2mm	5,100	50	4,100	40	3,000	25	2,600	20
3mm	3,600	55	2,900	50	2,200	35	1,800	25
4mm	2,900	70	2,300	55	1,800	45	1,400	30
5mm	2,500	85	2,000	70	1,500	50	1,300	35
6mm	2,100	100	1,700	85	1,300	65	1,100	45
8mm	1,600	110	1,300	85	1,000	70	900	45
10mm	1,400	110	1,100	85	800	65	700	45
12mm	1,100	85	950	80	700	50	600	35
16mm	900	70	700	55	500	40	430	25
20mm	700	55	550	40	400	35	340	20
25mm	600	40	440	35	300	25	300	15
	홈 가공 Slotting							
1mm	9,400	40	7,700	30	5,500	15	4,900	12
1.5mm	6,000	45	5,500	35	4,000	20	3,500	12
2mm	5,100	45	4,100	40	3,000	25	2,600	12
3mm	3,600	55	2,900	50	2,200	35	1,800	15
4mm	2,900	35	2,300	25	1,400	15	1,400	15
5mm	2,500	40	2,000	35	1,200	20	1,300	15
6mm	2,100	50	1,700	45	1,000	25	1,100	20
8mm	1,600	55	1,300	45	800	30	900	20
10mm	1,400	55	1,100	45	650	25	700	20
12mm	1,100	40	950	40	550	20	600	15
16mm	900	35	700	25	400	15	430	12
20mm	700	25	550	20	320	13	340	11
25mm	600	20	440	15	250	10	300	8
절입량 Depth of Cut	 							

4LEM

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S50 / SCM		합금강/공구강/프리하든강 Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK		스테인레스강 Stainless Steels SUS304 / SUS316		고경도강 Hardened Steels SKD61		고경도강 Hardened Steels SKD11	
경도 Hardness	~ 30HRc		30 ~ 45HRc				45 ~ 55HRc		55 ~ 60HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	4,500	60	4,000	50	3,000	40	2,500	20	2,000	15
1.5mm	4,200	70	3,600	60	2,700	45	2,200	25	1,800	18
2mm	4,000	80	3,300	70	2,500	50	2,000	30	1,600	20
3mm	3,600	90	2,900	80	2,200	60	1,800	40	1,500	25
4mm	2,900	120	2,300	90	1,800	70	1,400	50	1,200	30
5mm	2,500	150	2,000	120	1,500	90	1,300	60	1,000	30
6mm	2,100	170	1,700	150	1,300	110	1,100	70	900	40
8mm	1,600	190	1,300	150	1,000	130	900	70	680	40
10mm	1,400	190	1,100	150	800	110	700	70	550	40
12mm	1,100	150	900	120	700	90	570	60	450	30
16mm	900	120	700	90	500	70	420	40	340	25
20mm	680	90	550	70	400	60	340	35	270	20
25mm	550	70	450	60	300	40	270	30	210	17
절입량 Depth of Cut	≤0.05D (Max. 0.5mm) ≤2.5D D ≤0.3D (Max. 3mm)						≤0.02D (Max. 0.3mm) ≤2D D ≤0.05D (Max. 0.5mm)			

■ 홈가공의 경우, 상기표 Feed를 50%이상 감소하십시오. 또한, SUS 홈가공시에 회전속도는 상기표의 60%, 이송속도는 40%를 기준으로 하여주십시오.
■ In case of slotting, decrease feed rate more than 50% the table. 60% of speed and 40% of feed on the talbe , when to slottting SUS.

3&4ROU

• RPM : rev./min • Feed : mm/min

측면 절삭 Side Cutting

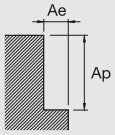
피삭재 Material	일반구조강/탄소강 Mild Steels/ Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels/ Tool Steels SCM / SKT / SKD		공구강/프리하든강 Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		공구강/스테인레스강 Tool Steels/ Stainless Steels SUS304 / SKD	
경도 Hardness	~750N/mm²		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,200	510	3,600	290	2,800	220	2,100	170
8mm	3,200	510	2,700	330	2,100	250	1,600	190
10mm	2,600	510	2,200	345	1,600	260	1,300	210
12mm	2,100	510	1,800	360	1,400	270	1,100	215
16mm	1,600	510	1,400	385	1,000	290	800	220
20mm	1,300	480	1,100	375	800	280	640	210
절입량 Depth of Cut	Ap 1.5D, Ae 0.4D; Ae, Ap				Ap 1.5D, Aa 0.3D			

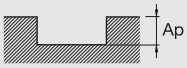
홈절삭 Slotting

피삭재 Material	일반구조강/탄소강 Mild Steels/ Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels/ Tool Steels SCM / SKT / SKD		공구강/프리하든강 Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		공구강/스테인레스강 Tool Steels/ Stainless Steels SUS304 / SKD	
경도 Hardness	~750N/mm²		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	3,600	430	3,000	240	2,300	185	1,920	150
8mm	2,700	430	2,200	270	1,800	210	1,440	180
10mm	2,200	430	1,800	290	1,400	220	1,160	185
12mm	1,800	430	1,500	300	1,200	230	960	190
16mm	1,400	430	1,100	310	900	250	720	200
20mm	1,100	410	900	310	700	240	560	185
절입량 Depth of Cut	Ap : 0.75D ApMax=12mm Ap				Ap : 0.5D			

3&4HROU

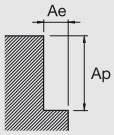
• RPM : rev./min • Feed : mm/min

측면 절삭 Side Cutting								
피삭재 Material	일반구조강 / 탄소강 Mild Steels/ Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels/ Tool Steels SCM / SKT / SKD		공구강/프리하든강 Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		공구강/ 스테인레스강 Tool Steels/ Stainless Steels SUS304 / SKD	
경도 Hardness	~750N/mm²		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4mm	5,800	600	4,800	300	4,100	200	3,200	150
5mm	5,800	600	4,800	310	3,700	230	2,800	170
6mm	4,800	600	4,200	330	3,200	250	2,400	200
8mm	3,700	600	3,100	380	2,400	290	1,800	220
10mm	3,000	600	2,500	400	1,800	300	1,500	250
12mm	2,400	600	2,100	410	1,600	310	1,300	250
16mm	1,850	600	1,600	440	1,200	330	1,000	250
20mm	1,500	550	1,300	430	900	320	750	240
절입량 Depth of Cut	Ap: 1.5D, Ae: 0.4D 				Ap: 1.5D, Aa: 0.3D			

홈절삭 Slotting								
피삭재 Material	일반구조강 / 탄소강 Mild Steels/ Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels/ Tool Steels SCM / SKT / SKD		공구강/프리하든강 Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		공구강/ 스테인레스강 Tool Steels/ Stainless Steels SUS304 / SKD	
경도 Hardness	~750N/mm²		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4mm	4,600	500	4,400	230	3,200	160	2,800	130
5mm	4,600	500	4,000	250	2,900	180	2,500	150
6mm	4,100	500	3,500	280	2,700	210	2,200	170
8mm	3,100	500	2,500	310	2,100	240	1,700	210
10mm	2,500	500	2,100	330	1,600	250	1,300	210
12mm	2,100	500	1,700	350	1,400	270	1,100	220
16mm	1,600	500	1,300	360	1,000	290	800	230
20mm	1,300	480	1,000	360	800	270	650	210
절입량 Depth of Cut	Ap : 0.75D ApMax=12mm 				Ap : 0.5D			

2GEM / 4GEM / 6GEM

• RPM : rev./min • Feed : mm/min

	2GEM		4GEM		6GEM	
피삭재 Material	흑연 Graphite		흑연 Graphite		흑연 Graphite	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	8,000	160	-	-	-	-
2mm	8,000	250	-	-	-	-
3mm	8,000	380	8,000	430	-	-
4mm	8,000	510	8,000	570	-	-
5mm	8,000	640	8,000	720	-	-
6mm	8,000	770	8,000	860	8,000	960
8mm	8,000	1,000	8,000	1,100	8,000	1,300
10mm	8,000	1,250	8,000	1,400	8,000	1,600
12mm	8,000	1,500	7,000	1,400	7,000	1,600
16mm	8,000	1,600	7,000	1,500	7,000	1,800
20mm	8,000	1,600	7,000	1,500	7,000	1,800
절입량 Depth of Cut	Ap: 1D, Ae: 0.1D 					

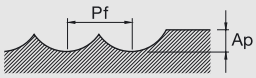
2GBE/2TGB

• RPM : rev./min • Feed : mm/min

	2GBE		2TGB	
피삭재 Material	흑연 Graphite		흑연 Graphite	
반경 Radius	RPM	FEED	RPM	FEED
R0.25	32,000	1,000	-	-
R0.5	32,000	1,600	20,000	650
R0.75	28,000	1,600	20,000	1,000
R1	24,000	1,600	17,000	1,000
R1.5	16,000	1,600	15,000	1,000
R2	12,000	1,600	10,000	1,000
R2.5	9,600	1,400	7,500	1,000
R3	8,000	1,200	5,000	800
R4	6,400	640	4,500	800
R5	5,200	650	4,000	600
R6	4,300	600	-	-
R8	3,500	500	-	-
R10	3,000	400	-	-

절입량
Depth of Cut

Ap	Pf
1.0D	0.3D

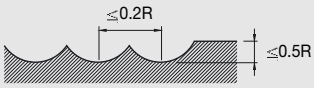


2DBE/4DBE

• RPM : rev./min • Feed : mm/min

	2DBE		4DBE	
피삭재 Material	흑연 Graphite		흑연 Graphite	
반경 Radius	RPM	FEED	RPM	FEED
R0.2	40,000	1,200	-	-
R0.3	40,000	1,600	-	-
R0.4	40,000	1,800	-	-
R0.5	40,000	2,000	-	-
R1	40,000	2,200	-	-
R1.5	30,000	2,400	-	-
R2	24,000	2,600	24,000	3,600
R2.5	19,000	2,600	19,000	3,600
R3	16,000	2,600	16,000	3,600
R4	12,000	2,800	12,000	3,800
R5	10,000	3,000	10,000	4,000
R6	8,000	3,000	8,000	4,000

절입량
Depth of Cut



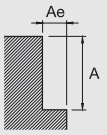
2DEM / 4DEM / 6DEM / 2DCR / 4DCR

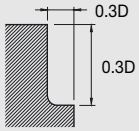
• RPM : rev./min • Feed : mm/min

	2DEM		4DEM		6DEM		2DCR		4DCR	
피삭재 Material	흑연 Graphite		흑연 Graphite		흑연 Graphite		흑연 Graphite		흑연 Graphite	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2mm	40,000	50	-	-	-	-	40,000	100	-	-
0.4mm	40,000	100	-	-	-	-	40,000	200	-	-
0.5mm	40,000	200	-	-	-	-	40,000	300	-	-
0.6mm	40,000	250	-	-	-	-	40,000	400	-	-
0.8mm	40,000	300	-	-	-	-	40,000	500	-	-
1mm	40,000	400	-	-	-	-	40,000	900	-	-
2mm	30,000	470	30,000	800	-	-	36,000	900	-	-
3mm	21,000	640	21,000	1,200	-	-	32,000	1,300	-	-
4mm	16,000	540	16,000	1,200	-	-	26,000	1,500	40,000	3,500
5mm	12,500	560	-	-	-	-	24,000	1,100	-	-
6mm	10,500	590	10,500	1,200	-	-	21,000	1,100	40,000	5,600
8mm	8,000	610	8,000	1,250	-	-	-	-	32,000	5,600
10mm	6,400	640	-	-	13,000	6,000	-	-	26,000	5,700
12mm	5,300	630	-	-	11,200	5,600	-	-	21,000	5,500
16mm	-	-	-	-	7,000	4,000	-	-	15,800	5,500

절입량
Depth of Cut

D	Ap	Ae
Dc ≤ Ø2.5	1.5D	0.05D
Ø2.5 < Dc	1.5D	0.1D



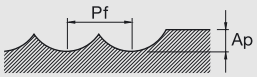


2CPB

• RPM : rev./min • Feed : mm/min

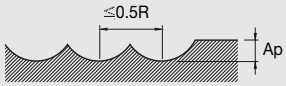
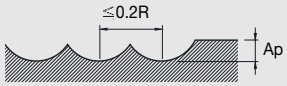
피삭재 Material	알루미늄 합금재 Aluminum Alloys Expanding Material A7075				알루미늄 합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si13%				탄소섬유 / 동합금 Magnesium Alloy Copper Alloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Alloy C1100	
	일반가공 Regular Milling		고속 가공 High Speed Milling		일반 가공 Regular Milling		고속 가공 High Speed Milling		일반가공 Regular Milling		고속 가공 High Speed Milling	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.3	32,000	385	44,000	600	32,000	400	40,000	550	32,000	400	35,000	470
R0.5	25,700	800	35,000	1,100	25,700	800	28,000	1,000	28,000	800	23,000	900
R1	24,700	1,100	35,000	1,400	24,800	1,100	28,000	1,210	19,000	800	23,000	900
R1.5	17,000	1,100	23,000	1,400	17,000	1,100	18,500	1,210	12,500	800	15,000	900
R2	12,500	1,100	17,000	1,400	12,500	1,100	14,000	1,210	10,000	800	11,500	900
R3	10,000	1,100	14,500	1,400	10,000	1,100	14,000	1,210	6,500	800	10,000	900
R4	7,000	1,300	12,800	1,400	7,000	1,300	11,000	1,100	5,300	1,000	7,000	1,100
R5	5,700	1,200	11,000	1,200	5,800	1,200	8,600	1,000	4,300	850	5,800	1,000
R6	4,500	1,100	7,400	1,100	4,500	1,100	6,000	600	3,300	820	5,000	1,000
	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf
	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.02D	0.05D

절입량
Depth of Cut



4SUB

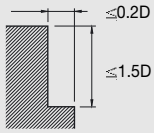
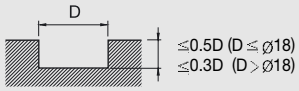
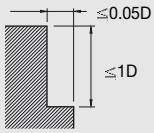
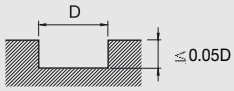
• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강/공구강/프리하든강 Alloy steels / Tool Steels / Prehardened Steels SKD11 / SKD61 / NAK					오스테나이트계 스테인레스강/티탄합금 Prehardened Steels SUS304 / SUS316 / Ti-6Al-4V					초내열합금 Inconel718				
반경 Radius	α≦15°		α>15°		Ap Axial Depth	α≦15°		α>15°		Ap Axial Depth	α≦15°		α>15°		Ap Axial Depth
	RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED	
R3	16,000	4,800	10,600	2,100	0.50	12,000	3,200	8,000	1,400	0.50	3,200	500	2,100	210	0.25
R4	12,000	4,300	8,000	1,900	0.80	9,000	3,200	6,000	1,400	0.80	2,400	430	1,600	190	0.40
R5	9,600	4,100	6,400	1,800	1.00	7,200	3,000	4,800	1,300	1.00	2,000	420	1,300	180	0.50
R6	8,000	4,000	5,300	1,800	1.20	6,000	3,000	4,000	1,300	1.20	700	350	1,100	150	0.60
R8	6,000	3,200	4,000	1,400	1.60	4,500	2,500	3,000	1,100	1.60	1,200	300	800	130	0.80
절입량 Depth of Cut															

3SUE / 4SUE

■ 4SUE는 아래 수치의 **10% Up** 적용
■ Apply 10% up values of below condition for 4SUE

• RPM : rev./min • Feed : mm/min

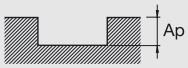
피삭재 Material	탄소강/합금강 Carbon Steels / Alloy Steels SS400 / S50C / SCM		스테인레스강/ 티탄합금 Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		고경도강 Hardened Steels SKD61		초내열합금 /인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 45HRc				45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.8mm (3F)	7,200	80	6,400	60	3,900	30	2,000	10
1mm (3F)	6,400	100	5,600	70	3,500	30	1,700	15
2mm (3F)	5,600	110	4,800	80	2,900	34	1,400	20
3mm (3F)	4,800	200	4,000	90	2,200	45	1,400	25
4mm (3F)	4,000	200	3,300	140	1,800	70	1,200	35
5mm (3F)	3,200	230	2,700	170	1,500	90	1,000	45
6mm (3F)	2,900	250	2,400	180	1,400	90	900	45
8mm (3F)	2,200	270	1,800	190	1,000	100	720	40
10mm (3F)	1,700	260	1,400	190	900	110	600	40
12mm (3F)	1,400	230	1,200	150	700	90	500	35
16mm (3F)	1,000	160	900	120	550	60	360	30
20mm (4F)	900	170	700	130	400	70	300	25
절입량 Depth of Cut	 				 			

■ 상기표는 측면가공기준입니다. 홈가공의 경우, 회전속도는 상기표의 80~100%, 이송속도는 60~80%를 기준으로 하여주십시오.
■ In case of slotting, 80~100% of speed and 60~80% of feed on the talbe.

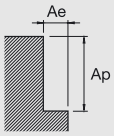
4SUC

• RPM : rev./min • Feed : mm/min

홈 가공 Slotting

피삭재 Material	합금강/공구강 Alloy Steels / Tool Steels SKD11 / SKD61 / NAK		고경도강/ 프리하든강 Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM1		고경도강/ 스테인레스강 Hardened Steels/ Stainless Steels SUS304 / SKD		고경도강/티탄합금 Hardened Steels/ Titanium Alloy Steels		초내열합금/ 인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	7,700	620	7,100	470	6,700	420	6,500	400	2,300	110
4mm	5,800	700	5,300	470	5,000	460	4,900	440	1,700	120
5mm	4,600	680	4,200	490	4,000	490	3,900	480	1,300	130
6mm	3,800	570	3,600	520	3,300	510	3,200	490	1,100	130
8mm	2,900	500	2,700	500	2,500	470	2,400	450	850	140
10mm	2,300	490	2,100	430	2,000	430	2,000	410	690	130
12mm	1,900	430	1,800	410	1,700	400	1,600	400	570	130
16mm	1,400	400	1,400	330	1,300	330	1,200	330	420	100
20mm	1,200	340	1,100	320	1,000	300	1,000	300	340	100
절입량 Depth of Cut	 Ap / ≤1D Ap Max=12mm				Ap / ≤0.5D		Ap / ≤0.2D			

측면 가공 Side Milling

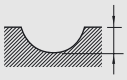
피삭재 Material	합금강/공구강 Alloy Steels / Tool Steels SKD11 / SKD61 / NAK		고경도강/ 프리하든강 Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM1		고경도강/ 스테인레스강 Hardened Steels/ Stainless Steels SUS304 / SKD		고경도강/티탄합금 Hardened Steels/ Titanium Alloy Steels		초내열합금/ 인코넬 Superhit resistance / Inconel	
경도 Hardness	~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc			
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	8,600	800	7,300	560	6,900	550	6,700	490	3,400	200
4mm	6,700	900	5,800	610	5,400	640	5,300	570	2,700	220
5mm	7,200	1,200	5,500	950	4,700	650	4,500	700	4,300	600
6mm	4,700	1,100	4,000	800	3,800	750	3,600	630	1,900	230
8mm	3,600	1,000	3,000	730	2,800	730	2,700	600	1,400	200
10mm	2,900	950	2,400	650	2,300	640	2,200	570	1,100	190
12mm	2,400	900	2,000	650	1,900	600	1,800	550	1,000	190
16mm	1,800	850	1,500	570	1,400	500	1,400	450	700	190
20mm	1,400	680	1,200	530	1,100	460	1,100	410	600	180
절입량 Depth of Cut	 Ap ≤1.5D, Ae ≤0.2D				Ap ≤1.5D, Ae ≤0.1D		Ap ≤1.5D, Ae ≤0.05D			

2COB

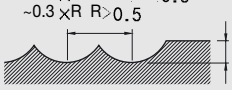
• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금 Aluminum Alloys		동 합금 Copper Alloys	
반경 Radius	RPM	FEED	RPM	FEED
R0.5	43,200	1,300	43,200	900
R0.75	31,500	1,200	31,500	1,000
R1	21,600	1,000	21,600	1,100
R1.5	14,400	840	14,400	1,100
R2	11,000	840	10,800	1,100
R2.5	8,700	840	8,700	1,100
R3	7,200	840	7,200	1,100
R4	5,400	810	5,400	1,100
R5	4,300	810	4,300	1,000
R6	3,600	810	3,600	950
R8	2,700	810	2,700	900

절입량 Depth of Cut



0.1 ×R (~45HRc)
~0.08 ×R (~55H Rc)



~0.15 ×R R<0.1
~0.2 ×R 0.1≤R≤0.5
~0.3 ×R R>0.5

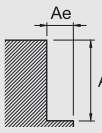
~0.16 ×R R≤0.3(~45 HRc)
~0.25 ×R R≤ 3 (~45 HRc)
~0.17 ×R R≥4 (~45 HRc)
~0.05 ×R (~55H Rc)

2COR/3COR

■ 2COR은 아래 수치의 10% Down 적용
■ Apply 10% down values of below condition for 2COR

• RPM : rev./min • Feed : mm/min

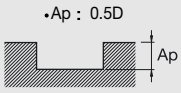
측면 가공 Side Milling

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄 합금재 Aluminum Alloy Casting < Si1 3%				알루미늄합금/동 Aluminum Alloy Steels / Copper AZ91 / AZ80A / C1100			
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	24,000	680	40,000	1,100	24,000	690	27,000	580	12,700	200	19,200	220
2mm	20,600	800	37,000	1,400	20,600	800	24,000	800	9,600	230	15,200	340
3mm	16,800	900	32,000	1,700	16,800	900	19,200	1,000	6,400	260	13,600	500
4mm	12,400	1,000	25,600	2,000	12,400	1,000	15,400	1,200	4,800	290	11,400	640
6mm	8,400	1,100	21,200	2,800	8,300	1,120	12,700	1,700	3,200	320	8,500	770
8mm	6,400	1,200	16,000	3,000	6,400	1,200	9,600	1,800	2,400	370	6,400	900
10mm	5,100	1,360	12,800	3,400	5,100	1,360	7,700	2,000	1,900	380	5,100	920
12mm	4,200	1,400	10,600	3,500	4,200	1,400	6,400	2,100	1,600	400	4,200	1,000
절입량 Depth of Cut	 •Ap: 1D •Ae: 0.2D		•Ap : 1D •Ae : 0.1D		•Ap : 1D •Ae : 0.2D		•Ap : 1D •Ae : 0.1D		•Ap : 1D •Ae : 0.2D		•Ap : 1D •Ae : 0.1D	

■ 2COR은 아래 수치의 10% Down 적용 ■ Apply 10% down values of below condition for 2COR

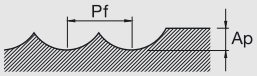
• RPM : rev./min • Feed : mm/min

홈 가공 Slotting

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄 합금재 Aluminum Alloy Casting < Si1 3%				알루미늄합금/동 Aluminum Alloy Steels / Copper AZ91 / AZ80A / C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	24,000	520	40,000	660	24,000	520	27,000	480	12,700	130
2mm	20,600	590	37,000	940	20,600	590	24,000	600	9,600	200
3mm	16,800	620	32,000	1,200	16,800	620	19,200	700	6,400	260
4mm	12,400	650	25,600	1,400	12,400	650	15,400	800	4,800	300
6mm	8,400	760	21,200	1,900	8,300	760	12,700	1,160	3,200	320
8mm	6,400	800	16,000	2,000	6,400	800	9,600	1,200	2,400	370
10mm	5,100	920	12,800	2,200	5,100	920	7,700	1,360	1,900	380
12mm	4,200	960	10,600	2,400	4,200	960	6,400	1,440	1,600	410
절입량 Depth of Cut	 •Ap : 0.5D		•Ap : 0.25D		•Ap : 0.5D		•Ap : 0.25D		•Ap : 0.5D	

2DRB

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Allloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Allloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.1	32,000	220	45,000	290	32,000	220	45,000	290	32,000	220	45,000	290
R0.3	32,000	480	45,000	660	32,000	480	45,000	660	32,000	480	45,000	660
R0.5	28,800	760	45,000	1,100	28,800	760	45,000	1,100	28,800	760	45,000	1,100
R0.8	28,800	850	45,000	1,400	28,800	850	45,000	1,400	25,200	850	35,900	1,300
R1	28,600	1,400	45,000	2,000	28,600	1,400	43,000	1,900	21,500	1,000	35,900	1,600
R1.5	19,100	1,400	45,000	3,000	19,100	1,400	28,600	1,900	14,300	1,000	23,900	1,600
R2	14,300	1,400	35,900	3,200	14,300	1,400	21,400	1,900	10,700	1,000	17,900	1,600
R3	9,500	1,400	23,900	3,200	9,500	1,400	14,300	1,900	7,200	1,000	12,000	1,600
R4	7,200	1,800	17,600	4,100	7,200	1,800	10,700	2,400	5,400	1,300	8,900	2,000
R5	5,700	1,600	14,000	3,600	5,700	1,600	8,600	2,200	4,300	1,200	7,200	1,800
R6	4,800	1,500	11,700	3,400	4,800	1,500	7,200	2,000	3,600	1,100	5,900	1,700
	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf
	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.02D	0.05D
절입량 Depth of Cut												

2DRE / 3DRE

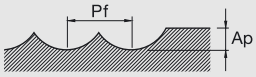
▪ 3DRE는 아래 수치의 **20% Up** 적용
▪ Apply 20% up values of below condition for 3DRE

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075					알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%					탄소섬유 / 동합금 Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100			동합금 Copper Alloy C1100		
	일반가공 Regular Milling			고속가공 High Speed Milling		일반가공 Regular Milling			고속가공 High Speed Milling		일반가공 Regular Milling			고속가공 High Speed Milling		
Outside Diameter	RPM	FEED		RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED		RPM	FEED	
0.5mm	28,800	160		45,000	500	28,800	160		45,000	450	28,800	140		45,000	410	
0.6mm	28,800	180		45,000	590	28,800	180		45,000	540	28,800	160		45,000	500	
0.8mm	28,800	200		45,000	770	28,800	200		45,000	720	26,100	180		45,000	590	
1mm	28,800	200		45,000	900	28,800	200		45,000	960	20,700	200		37,800	630	
1.2mm	28,800	210		45,000	1,100	28,800	210		45,000	1,000	17,100	200		32,400	630	
1.5mm	28,800	250		45,000	1,400	28,800	250		45,000	1,100	14,000	200		26,600	630	
2mm	28,800	400		45,000	1,800	28,800	380		45,000	1,100	13,000	200		25,200	680	
2.5mm	22,500	540		43,200	1,900	22,500	540		27,900	1,100	8,600	230		18,000	680	
3mm	18,900	630		36,000	1,900	18,900	630		23,400	1,100	7,200	230		15,300	680	
4mm	14,000	650		29,700	2,000	14,000	650		18,000	1,200	5,400	250		12,600	720	
5mm	11,300	680		27,900	2,500	11,300	680		17,280	1,500	4,300	270		11,300	860	
6mm	9,500	750		23,400	2,500	9,500	750		14,310	1,500	3,600	280		9,500	900	
8mm	7,200	800		17,550	2,600	7,200	800		10,800	1,600	2,600	270		7,100	900	
10mm	5,700	900		13,950	2,900	5,700	900		8,640	1,700	2,100	330		5,700	1,000	
12mm	4,800	950		11,700	2,900	4,800	950		7,200	1,700	1,800	350		4,800	1,000	
	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap
	1.5D	0.1D	0.3D Ø0.5≤Dc ≤Ø0.8 0.5D Ø1 ≤Dc	1D	0.1D	0.15D	1.5D	0.1D	0.3D Ø0.5≤Dc ≤Ø0.8 0.5D Ø1≤Dc	1D	0.1D	0.15D	1.5D	0.1D	0.3D Ø0.5≤Dc≤ Ø0.8 0.5D Ø1≤Dc	1D	0.05D	0.1D
절입량 Depth of Cut																		

2DLB

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Allloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Allloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.1	28,800	180	40,000	240	28,800	180	36,100	230	28,800	180	31,600	200
R0.3	28,800	350	40,000	490	28,800	350	36,100	480	28,800	350	31,600	420
R0.5	23,400	720	31,500	950	23,400	720	25,200	900	23,400	720	20,700	800
R0.8	23,400	760	35,900	1,120	23,400	760	25,200	1,000	22,500	720	20,700	800
R1	22,500	950	31,500	1,260	22,500	950	25,200	1,100	17,100	720	20,700	800
R1.5	15,300	950	20,700	1,260	15,300	950	16,700	1,100	11,300	720	13,500	800
R2	11,300	950	15,800	1,260	11,300	950	12,600	1,100	8,600	720	10,400	800
R3	9,000	950	13,200	1,260	9,000	950	12,600	1,100	5,900	720	8,900	800
R4	6,400	1,150	11,600	1,260	6,400	1,150	9,800	1,000	4,800	880	6,400	950
R5	5,200	1,050	9,400	1,120	5,200	1,050	7,800	860	3,900	760	5,300	880
R6	4,100	1,000	6,700	950	4,100	1,000	5,400	520	3,000	740	4,600	840
	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf
	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.02D	0.05D
절입량 Depth of Cut												

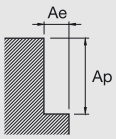
2DLE

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Allloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Allloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.1mm	32,000	35	45,000	120	32,000	35	45,000	120	32,000	35	45,000	100
0.3mm	32,000	60	45,000	300	32,000	60	45,000	300	32,000	60	45,000	210
0.5mm	28,800	90	45,000	500	28,800	90	45,000	500	28,800	90	45,000	390
0.8mm	28,800	120	45,000	700	28,800	130	45,000	700	23,000	110	45,000	500
1mm	28,800	170	45,000	900	28,800	170	45,000	900	20,700	125	37,800	630
1.5mm	28,800	230	40,500	1,100	28,800	230	40,500	1,100	14,000	130	26,700	630
2mm	23,000	270	30,600	1,100	23,000	270	30,600	1,100	10,400	135	21,600	675
3mm	15,300	460	20,700	1,100	15,300	460	20,700	1,100	7,200	200	15,300	675
4mm	11,300	470	15,300	1,100	11,300	470	15,300	1,100	5,400	210	11,700	675
5mm	9,000	490	12,200	1,100	9,000	490	12,200	1,100	4,300	225	9,000	675
6mm	7,700	540	10,000	1,100	7,700	540	10,000	1,100	3,600	225	7,200	675
8mm	6,000	600	8,200	1,200	6,000	600	8,200	1,200	2,600	300	5,900	720
10mm	4,500	650	6,000	1,400	4,500	650	6,000	1,400	2,100	300	4,300	800
12mm	3,100	690	4,500	1,500	3,100	690	4,500	1,500	1,600	320	3,200	850
	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap
	1.2D 0.1D	0.3D	1D 0.1D	0.15D	1.2D 0.1D	0.3D	1D 0.1D	0.15D	1D 0.1D	0.3D	1D 0.05D	0.1D
절입량 Depth of Cut												

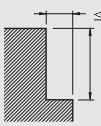
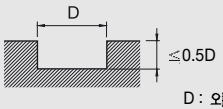
2DLC

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Allloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Allloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	37,500	220	50,000	1,170	37,400	220	50,000	1,170	27,000	160	49,000	820
1.5mm	37,500	300	50,000	1,430	37,400	300	50,000	1,430	18,000	170	34,700	820
2mm	30,000	350	40,000	1,430	30,000	350	40,000	1,430	13,500	180	28,000	880
3mm	20,000	600	27,000	1,430	20,000	600	27,000	1,430	9,400	260	20,000	880
4mm	15,000	610	20,000	1,430	14,700	610	20,000	1,430	7,000	270	15,200	880
6mm	10,000	700	13,000	1,430	10,000	700	13,000	1,430	4,700	290	9,400	880
8mm	7,800	780	11,000	1,560	7,800	780	10,700	1,560	3,400	390	7,700	940
10mm	5,900	850	7,800	1,820	5,900	850	7,800	1,820	2,700	390	5,600	1,000
12mm	4,000	900	5,900	1,950	4,000	900	5,900	1,950	2,100	410	4,200	1,100
	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap	Ap Ae	Ap
	1.2D 0.1D	0.3D	1D 0.1D	0.15D	1.2D 0.1D	0.3D	1D 0.1D	0.15D	1D 0.1D	0.3D	1D 0.05D	0.1D
절입량 Depth of Cut												

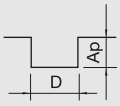
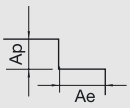
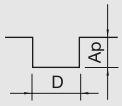
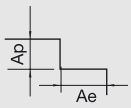
3ALC

• RPM : rev./min • Feed : mm/min

	측면 절삭 Side Cutting		홈 절삭 Slotting	
피삭재 Material	알루미늄 합금 Aluminum Alloys / A7075 etc.		알루미늄 합금 Aluminum Alloys / A7075 etc.	
외경 Outside Diameter	RPM	FEED	RPM	FEED
6mm	20,000	8,400	20,000	6,600
8mm	18,000	7,500	18,000	5,400
10mm	15,000	6,000	15,000	4,000
12mm	13,000	5,400	13,000	3,200
16mm	10,000	5,400	10,000	3,200
20mm	8,000	5,000	8,000	3,000
절입량 Depth of Cut	 D : 외경 Outside Diameter		 D : 외경 Outside Diameter	

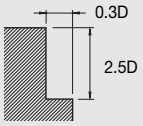
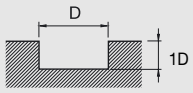
3ALR / 3ALE

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금 Aluminum Alloys etc.							
	3ALE				3ALR			
외경 Outside Diameter	RPM	FEED			RPM	FEED		
		수직 Vertical	홈절삭 Soltting	측면절삭 Side Milling		수직 Vertical	홈절삭 Soltting	측면절삭 Side Milling
1mm	25,500	130	770	930	30,000	150	900	1,100
2mm	25,500	190	1,530	1,800	30,000	225	1,800	2,150
3mm	18,400	190	1,700	2,000	21,600	225	2,000	2,400
4mm	14,000	255	1,700	2,000	16,200	300	2,000	2,400
5mm	11,000	255	1,700	2,000	13,000	300	2,000	2,400
6mm	9,200	255	1,700	2,000	10,800	300	2,000	2,400
8mm	7,000	255	1,700	2,000	8,100	300	2,000	2,400
10mm	5,500	210	1,700	2,000	6,480	250	2,000	2,400
12mm	4,400	170	1,700	2,000	5,400	200	2,000	2,400
16mm	3,200	130	1,530	1,900	-	-	-	-
20mm	2,000	85	1,360	1,700	-	-	-	-
Milling Amount (mm)		Ap=0.75D	Ap=0.75D	Ap=0.75D/ Ae=0.3D		Ap=0.75D	Ap=0.75D	Ap=0.75D/ Ae=0.3D
절입량 Depth of Cut								

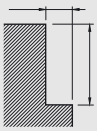
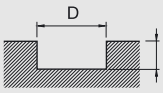
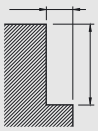
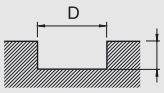
3ARE / 3ARC

• RPM : rev./min • Feed : mm/min

피삭재 Material	동 Copper		알루미늄 Aluminum	
절삭속도 Speed	80m/min		80 ~ 150m/min	
외경 Outside Diameter	RPM	FEED	RPM	FEED
6mm	4,200	320	8,000	1,200
8mm	3,200	320	6,000	1,200
10mm	2,600	320	4,800	1,200
12mm	2,100	320	4,000	1,200
16mm	1,600	320	3,000	1,200
20mm	1,300	320	2,400	1,200
절입량 Depth of Cut				

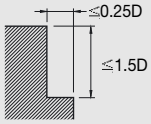
2ALE

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄 합금 Aluminum Alloys / A7075 etc.				알루미늄합금 주물 Aluminum Alloys / AC4B etc.			
절삭속도 Speed	300m/min		240m/min		240m/min		200m/min	
	측면 가공 Side Milling		홈가공 Soltting		측면 가공 Side Milling		홈가공 Soltting	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	34,000	500	34,000	400	34,000	400	34,000	300
2mm	34,000	950	32,300	720	32,300	720	27,200	470
3mm	27,200	1,200	21,300	800	21,300	800	18,000	510
4mm	20,400	1,300	16,000	850	16,000	850	14,000	550
5mm	16,200	1,400	13,000	850	13,000	850	11,000	600
6mm	13,600	1,600	11,000	940	11,000	940	9,400	640
8mm	10,200	1,600	8,000	1,000	8,000	1,000	6,800	680
10mm	8,100	1,600	6,500	1,000	6,500	1,000	5,400	680
12mm	6,800	1,600	5,400	1,000	5,400	1,000	4,500	680
16mm	5,100	1,600	4,100	1,000	4,100	1,000	3,400	610
20mm	4,100	1,300	3,200	850	3,200	850	2,700	560
절입량 Depth of Cut								

3ARO

• RPM : rev./min • Feed : mm/min

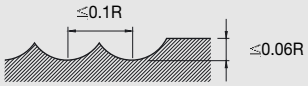
	측면 절삭 Side Cutting			
피삭재 Material	알루미늄 합금 Aluminum Alloys / A7075 etc.		알루미늄합금 주물 Aluminum Alloys / AC4B etc.	
외경 Outside Diameter	RPM	FEED	RPM	FEED
4mm	30,000	4,200	16,000	1,800
5mm	27,000	4,900	14,400	2,000
6mm	24,300	5,500	11,700	2,100
8mm	18,000	5,400	9,000	2,200
10mm	14,400	5,200	7,200	2,100
12mm	11,700	4,800	5,900	1,900
16mm	9,000	4,600	4,500	1,800
20mm	7,200	4,300	3,600	1,700
절입량 Depth of Cut				

2CTB

• RPM : rev./min • Feed : mm/min

피삭재 Material	합금강 / 공구강 / 프리하든강 Alloy Steels / Tool Steels / / Prehardened Steels SKD61 / NAK				고경도강 Hardened Steels SKD61			
경도 Hardness	~ 45HRc				45 ~ 55HRc			
반경 Radius	α≦15°		α>15°		α≦15°		α>15°	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.2	32,000	480	32,000	360	32,000	400	32,000	300
R0.25	32,000	640	32,000	480	32,000	550	32,000	400
R0.3	32,000	800	32,000	600	32,000	680	32,000	500
R0.4	32,000	1,200	32,000	880	32,000	1,040	28,000	680
R0.5	32,000	1,600	28,000	1,100	28,000	1,200	24,000	720
R0.75	32,000	1,800	24,000	1,100	24,000	1,200	20,000	720
R1	28,000	2,000	20,000	1,200	20,000	1,200	16,000	720

절입량 Depth of Cut



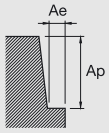
2CTE

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조용강/탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		고경도강/ 프리하든강 Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM1		고경도강/ 스테인레스강 Hardened Steels/ Stainless Steels SUS304 / SKD		고경도강 Hardened Steels	
경도 Hardness	~750HN/mm²		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	14,000	140	14,000	117	11,700	80	10,800	80	9,500	35
1.5mm	9,500	140	9,500	117	8,000	80	7,400	80	6,300	35
2mm	7,200	140	7,200	117	6,000	80	5,600	80	4,700	35
2.5mm	5,600	130	5,600	113	4,800	80	4,500	80	3,800	35
3mm	4,700	130	4,700	113	4,000	80	3,700	80	3,200	35
4mm	3,500	130	3,500	113	3,000	80	2,800	75	2,300	35
5mm	2,800	130	2,800	113	2,400	80	2,200	75	1,900	35
6mm	2,300	130	2,300	113	2,000	80	1,800	75	1,600	35
8mm	1,800	130	1,800	113	1,500	80	1,400	75	1,200	35
10mm	1,400	130	1,400	108	1,200	80	1,100	75	950	35

절입량 Depth of Cut

Ap	Ae
2.5D	0.02D



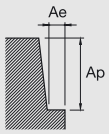
4CTE

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조용강/탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강/공구강 Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		고경도강/프리하든강 Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM1		고경도강/ 스테인레스강 Hardened Steels/ Stainless Steels SUS304 / SKD		고경도강 Hardened Steels	
경도 Hardness	~750HN/mm^2		~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	4,800	200	4,000	200	4,800	160	3,700	120	3,150	120
4mm	3,600	220	3,000	220	3,000	180	2,800	135	2,340	145
5mm	2,800	250	2,400	250	2,400	200	2,200	145	1,890	145
6mm	2,400	250	2,000	340	2,000	200	1,800	160	1,575	160
8mm	1,800	240	1,500	240	1,500	200	1,400	170	1,170	170
10mm	1,400	240	1,200	240	1,200	200	1,100	160	945	160

절입량 Depth of Cut

Ap	Ae
2.5D	0.02D

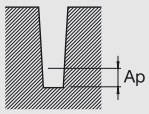


4RTE

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조용강/탄소강 Mild Steels / Carbon Steels SS400 / S55C			합금강/공구강 Alloy Steels / Tool Steels SCM / SKT / SKS / SKD			고경도강/프리하든강 Prehardened Steels / Hardened Steels SKT / SKD / NAK55 / HPM1			고경도강/스테인레스강 Hardened Steels / Stainless Steels SUS304 / SKD			고경도강 Hardened Steels SUS304 / SKD		
경도 Hardness	~750HN/mm^2			~ 30HRc			30HRc ~ 38HRc			38HRc ~ 45HRc			45HRc ~ 55HRc		
외경 Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap
0.5mm	25,200	500	0.01~0.020	25,200	450	0.01~0.020	25,200	380	0.01~0.020	25,200	350	0.01~0.020	15,200	200	0.005~0.01
0.6mm	25,200	600	0.012~0.025	25,200	545	0.012~0.025	23,600	420	0.012~0.025	21,200	355	0.012~0.025	12,400	210	0.006~0.012
0.7mm	23,200	750	0.014~0.030	21,600	545	0.014~0.030	20,000	420	0.014~0.030	18,000	355	0.014~0.030	10,800	210	0.007~0.014
0.8mm	20,000	750	0.016~0.035	18,800	545	0.016~0.035	17,600	420	0.016~0.035	15,600	355	0.016~0.035	9,200	210	0.008~0.016
0.9mm	18,000	750	0.018~0.040	16,800	545	0.018~0.040	15,600	420	0.018~0.040	14,000	355	0.018~0.040	8,400	210	0.009~0.018
1mm	16,000	745	0.02~0.045	15,200	545	0.02~0.045	14,000	420	0.02~0.045	12,400	355	0.02~0.045	7,600	210	0.01~0.02
1.2mm	13,200	745	0.024~0.055	12,400	545	0.024~0.055	11,600	420	0.024~0.055	10,400	355	0.024~0.055	6,400	210	0.012~0.024
1.5mm	10,800	745	0.03~0.07	10,000	545	0.03~0.07	9,200	420	0.03~0.07	8,400	355	0.03~0.07	5,100	210	0.015~0.03
2mm	8,000	745	0.04~0.1	7,600	545	0.04~0.1	7,100	420	0.04~0.1	6,400	355	0.04~0.1	3,800	210	0.02~0.04
2.5mm	6,500	745	0.05~0.12	6,100	545	0.05~0.12	5,700	420	0.05~0.12	5,100	355	0.05~0.12	3,000	210	0.025~0.05

절입량 Depth of Cut



2CRC / 4CRC

: 4CRC는 아래 수치의 **20% Up** 적용
: Apply 20% up values of below condition for 4CRC

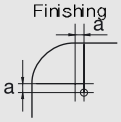
• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S50C			합금강 Alloy steels SCM / SKD / SUS			프리하든강/고경도강 Prehardened Steels / Hardened Steels NAK / SKD		
절삭속도 Speed	30~40m/min			20~30m/min			15~25m/min		
반경 Radius	RPM	FEED		RPM	FEED		RPM	FEED	
		황삭가공 Roughing	정삭가공 Finishing		황삭가공 Roughing	정삭가공 Finishing		황삭가공 Roughing	정삭가공 Finishing
R0.1	14,800	50	80	11,000	40	55	8,500	30	50
R0.2	12,800	50	80	9,100	40	55	7,300	30	50
R0.3	11,200	50	80	8,000	40	55	6,400	30	50
R0.4	10,000	50	80	7,000	40	55	5,700	30	50
R0.5	8,800	50	80	6,400	40	55	5,100	30	50
R0.75	7,200	50	80	5,100	40	55	4,100	30	50
R0.8	5,600	50	80	4,000	40	55	3,900	30	50
R1	5,000	50	80	3,500	40	55	3,400	30	50
R1.25	4,300	50	80	3,100	40	55	2,900	30	50
R1.5	3,000	50	80	2,200	40	55	2,600	30	50
R2	2,600	50	80	1,900	40	55	2,200	30	50
R2.5	2,200	50	80	1,800	40	55	2,000	30	50
R3	2,000	50	80	1,600	40	55	1,700	30	50
R3.5	1,600	50	80	1,400	40	55	1,400	30	50
R4	1,500	50	80	1,200	40	55	1,300	30	50
R4.5	1,400	50	80	1,040	40	55	1,100	30	50
R5	1,300	50	80	960	40	55	1,000	30	50
R6	1,200	50	80	880	40	55	900	30	50
R7	1,100	50	80	720	40	55	800	30	50
R8	1,000	50	80	560	40	55	640	30	50

절입량
Depth of Cut

Roughing

Finishing



a=0.02 (R <0.5)
a=0.05 (R ≧0.5)

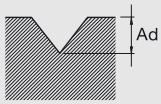
1STE / 2STE / 4STE

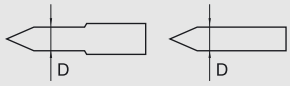
• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조강 /탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강 Alloy Steels SKD / SUS / SCM		프리하든강 Prehardened Steelss NAK / HPM	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	3,400 ~ 7,000	70 ~100	2,600 ~ 5,200	50 ~ 90	2,000 ~ 4,000	40 ~ 60
3mm	2,700 ~ 5,300	60 ~ 85	2,100 ~ 4,200	45 ~ 70	1,600 ~ 3,200	35 ~ 50
4mm	2,000 ~ 4,000	50 ~ 70	1,600 ~ 3,200	40 ~ 55	1,200 ~ 2,400	30 ~ 40
5mm	1,700 ~ 3,400	45 ~ 60	1,400 ~ 2,600	35 ~ 50	1,000 ~ 2,000	26 ~ 35
6mm	1,300 ~ 2,700	40 ~ 50	1,100 ~ 2,100	30 ~ 40	800 ~ 1,600	22 ~ 30
7mm	1,150 ~ 2,400	35 ~ 45	950 ~ 1,900	28 ~ 37	700 ~ 1,400	21 ~ 28
8mm	1,000 ~ 2,000	30 ~ 40	800 ~ 1,600	26 ~ 34	600 ~ 1,200	20 ~ 25
9mm	900 ~ 1,800	30 ~ 40	700 ~ 1,450	24 ~ 32	550 ~ 1,100	18 ~ 23
10mm	800 ~ 1,600	30 ~ 37	600 ~ 1,300	23 ~ 29	500 ~ 1,000	17 ~ 22
11mm	750 ~ 1,450	30 ~ 37	550 ~ 1,200	22 ~ 28	450 ~ 900	16 ~ 21
12mm	700 ~ 1,300	28 ~ 35	500 ~ 1,100	21 ~ 27	400 ~ 800	16 ~ 20

절입량
Depth of Cut

Ad : 0.05D이하



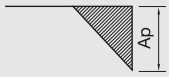


2CHA / 3CHA

3CHA는 아래 수치의 20% Up 적용
Apply 20% up values of below condition for 3CHA

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S45C / S50C		합금강 Alloy steels SK / SCM / SUS		프리하든강 / 고경도강 Prehardened Steels/ Hardened Steels NAK / SKD	
경도 Hardness	~ 225HB		225 ~ 325HB		30 ~ 45HRc	
절삭속도 Speed	Vc = 25 ~ 50m/min		Vc = 20 ~ 40m/min		Vc = 15 ~ 40m/min	
Shank Diameter	RPM	FEED	RPM	FEED	RPM	FEED
3mm	2,200 ~ 4200	47 ~ 69	1,700 ~ 3400	37 ~ 38	1,300 ~ 1800	25 ~ 41
4mm	1,600 ~ 3200	38 ~ 54	1,300 ~ 2600	30 ~ 43	1,000 ~ 2000	23 ~ 33
6mm	1,100 ~ 2200	29 ~ 39	900 ~ 1700	25 ~ 34	650 ~ 1300	18 ~ 24
8mm	800 ~ 1600	26 ~ 34	650 ~ 1280	21 ~ 27	500 ~ 1000	18 ~ 24
10mm	640 ~ 1300	24 ~ 30	510 ~ 1050	18 ~ 23	500 ~ 1000	14 ~ 18
12mm	560 ~ 1050	22 ~ 28	420 ~ 880	17 ~ 22	320 ~ 640	14 ~ 18
절입량 Depth of Cut	Ap : 0.1d d=Shank diameter					

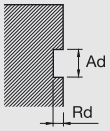


4TES / 4TRS / 4&6TDA / 4&6TAC

• RPM : rev./min • Feed : mm/min

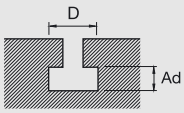
측면 절삭 Side Cutting

피삭재 Material	일반구조강 / 탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강 Alloy Steels SKD / SUS / SCM		프리하든강 Prehardened Steelss NAK / HPM	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1.5mm	3,050	162	1,890	94	1,530	76
2mm	2,850	149	1,790	88	1,440	70
2.5mm	2,680	135	1,700	83	1,350	65
3mm	2,500	122	1,610	79	1,260	59
4mm	2,150	108	1,430	72	1,080	54
5mm	1,800	95	1,200	65	900	49
6mm	1,430	86	950	58	720	43
8mm	1,070	64	720	43	540	32
10mm	860	52	580	34	430	26
12mm	720	43	480	29	360	22
절입량 Depth of Cut	RD = 0.1D					



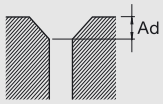
홈절삭 Slotting

피삭재 Material	일반구조강 / 탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강 Alloy Steels SKD / SUS / SCM		프리하든강 Prehardened Steelss NAK / HPM	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1.5mm	3,050	117	1,890	77	1,530	59
2mm	2,850	110	1,790	72	1,440	55
2.5mm	2,680	99	1,700	66	1,350	50
3mm	2,500	92	1,610	60	1,260	45
4mm	2,150	81	1,430	54	1,080	41
5mm	1,800	70	1,200	47	900	35
6mm	1,430	59	950	39	720	30
8mm	1,070	44	720	30	540	22
10mm	860	35	580	23	430	17
12mm	720	30	480	20	360	14
절입량 Depth of Cut						



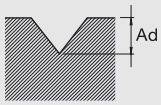
2CEN

• RPM : rev./min • Feed : mm/min

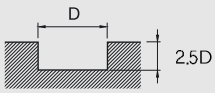
피삭재 Material	일반구조강 /탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강 / 공구강 Alloy Steels / Tools Steels SKD / SUS / SCM		프리하든강 Prehardened Steels HPM / NAK (30~45HRC)		알루미늄 합금 Aluminum Alloys	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2mm	1,400	100	800	50	650	40	4,800	280
3mm	1,400	100	800	50	650	40	4,800	280
4mm	1,280	100	690	50	580	40	4,200	280
5mm	1,300	100	640	50	520	40	3,300	280
6mm	1,150	100	600	50	480	40	2,900	280
8mm	1,000	100	530	50	420	40	2,600	280
10mm	850	90	490	40	390	30	2,400	260
12mm	720	90	410	40	310	30	1,900	260
14mm	610	90	340	40	270	30	1,700	240
16mm	550	90	310	40	250	30	1,500	230
절입량 Depth of Cut	Ad : 0.5D~1.0D 							

2SPO

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조강 /탄소강 Mild Steels / Carbon Steels SS400 / S55C		합금강 / 공구강 Alloy Steels / Tools Steels SKD / SUS / SCM		알루미늄 합금 Aluminum Alloys	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	900	11,000	530	8,600	1,300	2,000
3mm	860	9,600	480	8,000	1,150	1,800
4mm	650	7,200	360	6,000	860	9,600
6mm	430	4,800	240	4,000	580	6,400
8mm	430	3,600	180	3,000	580	4,800
10mm	410	2,900	140	2,400	530	3,800
12mm	380	2,400	120	2,000	510	3,200
16mm	300	1,800	100	1,500	400	2,400
절입량 Depth of Cut	Ad ≤ 0.3D 					

1MEM / 1REM

피삭재 Material	아크릴 Acrylic		합금강 Alloy Steels	
외경 Outside Diameter	RPM	FEED	RPM	FEED
1mm	32,000	2,000	23,000	1,300
2mm	32,000	2,200	23,000	1,500
3mm	25,000	2,400	18,000	1,700
4mm	20,000	2,400	15,000	1,800
5mm	15,000	2,200	12,000	1,800
6mm	13,500	2,300	10,000	1,800
8mm	10,000	2,400	7,800	1,900
10mm	8,000	2,400	6,000	2,000
12mm	7,000	2,200	5,000	1,900
절입량 Depth of Cut				

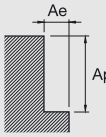
2MEM / 3MEM

▪ 3MEM은 아래 수치의 **10% Up** 적용
▪ Apply 10% up values of below condition for 3MEM

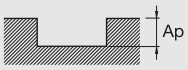
• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강 Carbon Steels S50C			합금강 Alloy steels SCM / SKD / SUS			프리하든강 Prehardened Steels HPM / NAK			알루미늄 Aluminum			동 Copper		
절삭속도 Speed	40~50m/min			35~45m/min			23~35m/min			100~200m/min			60~80m/min		
외경 Outside Diameter	RPM	FEED 측면가공 Side Milling	FEED 홈가공 Soltting	RPM	FEED 측면가공 Side Milling	FEED 홈가공 Soltting	RPM	FEED 측면가공 Side Milling	FEED 홈가공 Soltting	RPM	FEED 측면가공 Side Milling	FEED 홈가공 Soltting	RPM	FEED 측면가공 Side Milling	FEED 홈가공 Soltting
1mm	12,900	125	60	11,400	90	30	8,600	70	35	43,000	510	180	20,100	240	90
1.5mm	8,600	125	60	7,700	90	30	5,800	70	35	29,000	580	200	13,400	270	90
2mm	6,500	125	60	5,800	110	35	4,300	80	40	22,000	650	225	10,000	300	110
2.5mm	5,100	150	80	4,600	110	34	3,400	85	45	17,200	680	240	8,000	325	110
3mm	4,300	170	85	3,800	120	40	2,900	90	45	14,300	720	240	6,700	330	120
4mm	3,200	200	100	2,900	120	40	2,200	90	45	10,700	750	240	5,000	350	120
5mm	2,600	210	110	2,300	135	45	1,700	115	60	8,600	775	250	4,000	370	120
6mm	2,200	220	110	1,900	150	50	1,400	125	65	7,200	790	260	3,300	370	120
8mm	1,600	200	100	1,400	145	45	1,100	115	60	5,400	700	230	2,500	320	110
10mm	1,300	180	90	1,200	145	45	900	115	60	4,300	650	220	2,000	300	100
12mm	1,100	170	85	1,000	135	45	700	110	55	3,600	610	200	1,700	290	100

절입량 Depth of Cut



Ae
Ø1 ~ 2.9=0.07D
Ø3 ~ 6=0.15D



Ap
Ø1 ~ 1.2=0.15D
Ø1.5 ~ 3.5=0.5D
Ø4 ~ 6=0.75D

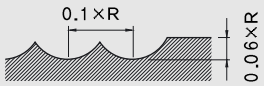
2MBE / 3MBE

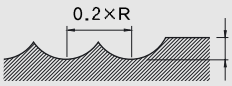
▪ 3MBE는 아래 수치의 **10% Up** 적용
▪ Apply 10% up values of below condition for 3MBE

• RPM : rev./min • Feed : mm/min

피삭재 Material	탄소강/ 합금강/ 프리하든강 Carbon/ Alloy steels/ Prehardened Steels S50C / SCM / SKD / SUS / HPM / NAK		탄소강 Carbon Steels S50C		합금강 Alloy steels SCM / SKD / SUS		프리하든강 Prehardened Steels HPM / NAK	
	R <1		R >1					
절삭속도 Speed	50m/min		80m/min		70m/min		60m/min	
반경 Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.2	36,000	630	-	-	-	-	-	-
R0.3	24,300	675	-	-	-	-	-	-
R0.4	11,800	780	-	-	-	-	-	-
R0.5	12,000	780	-	-	-	-	-	-
R0.6	10,200	780	-	-	-	-	-	-
R0.75	9,000	780	-	-	-	-	-	-
R1	-	-	11,400	630	10,000	520	8,700	400
R1.5	-	-	7,700	630	6,700	520	5,800	400
R2	-	-	5,800	630	5,000	520	4,300	400
R3	-	-	3,800	630	3,300	520	2,900	400
R4	-	-	2,900	630	2,500	520	2,200	400
R5	-	-	2,300	630	2,000	520	1,700	400
R6	-	-	1,900	630	1,700	520	1,400	400

절입량 Depth of Cut





0.1×R (R1~3=0.15×R)

2MRE / 3MRE

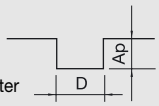
■ 3MRE는 아래 수치의 **10% Up** 적용
■ Apply 10% up values of below condition for 3MRE

• RPM : rev./min • Feed : mm/min

피삭재 Material		ABS / MC Nylon			Acrylic / Polyaetal			Polycabonate		
외경 Outside Diameter	유효장 Effective Length	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth
0.5mm	2	6,000	300	0.20	15,000	300	0.20	9,000	300	0.20
〃	4	6,000	300	0.20	15,000	300	0.20	9,000	300	0.20
〃	6	6,000	300	0.20	15,000	300	0.20	9,000	300	0.20
0.6mm	4	6,000	340	0.20	14,400	300	0.20	8,800	540	0.20
〃	6	6,000	340	0.20	14,400	300	0.20	8,800	540	0.20
0.7mm	4	6,000	380	0.20	13,800	300	0.20	8,600	780	0.20
〃	6	6,000	380	0.20	13,800	300	0.20	8,600	780	0.20
0.8mm	6	6,000	420	0.20	13,200	300	0.20	8,400	1,000	0.20
〃	8	6,000	420	0.20	12,900	280	0.20	8,200	960	0.20
0.9mm	6	6,000	460	0.20	12,600	300	0.20	8,200	1,300	0.20
〃	10	6,000	460	0.20	11,800	260	0.20	7,800	1,000	0.20
1mm	6	6,000	500	0.30	12,000	300	0.30	8,000	1,500	0.30
〃	8	6,000	500	0.30	11,500	270	0.30	7,700	1,400	0.30
〃	10	6,000	500	0.30	11,000	240	0.30	7,500	1,200	0.30
〃	12	6,000	500	0.30	10,400	220	0.30	7,200	1,100	0.30
〃	16	6,000	500	0.30	9,300	160	0.30	6,700	830	0.30
〃	20	6,000	500	0.30	8,000	90	0.30	6,000	500	0.30
1.2mm	6	6,000	610	0.40	11,700	330	0.40	8,000	1,500	0.40
〃	8	6,000	610	0.40	11,200	300	0.40	7,700	1,400	0.40
〃	10	6,000	600	0.40	10,700	280	0.40	7,500	1,300	0.40
〃	12	6,000	600	0.40	10,200	250	0.40	7,200	1,200	0.40
1.4mm	6	6,000	720	0.40	11,340	360	0.40	8,000	1,600	0.40
〃	10	6,000	700	0.40	10,700	310	0.40	7,700	1,400	0.40
〃	16	6,000	680	0.40	9,800	230	0.40	7,200	1,000	0.40
1.5mm	6	6,100	780	0.50	11,200	380	0.50	8,000	1,600	0.50
〃	10	6,000	760	0.50	10,200	330	0.50	7,500	1,400	0.50
〃	14	6,000	730	0.50	9,600	270	0.50	7,000	1,100	0.50
〃	16	6,000	730	0.50	8,800	250	0.50	6,700	1,000	0.50
〃	20	5,900	700	0.50	7,600	180	0.50	6,100	750	0.50
1.6mm	6	6,100	830	0.80	11,000	390	0.80	8,000	1,600	0.80
2mm	8	6,100	1,000	1.00	10,100	440	1.00	7,900	1,700	1.00
〃	10	6,000	980	1.00	9,800	420	1.00	7,700	1,600	1.00
〃	12	6,000	970	1.00	9,500	400	1.00	7,500	1,600	1.00
〃	14	5,900	950	1.00	9,100	380	1.00	7,300	1,500	1.00
〃	16	5,900	930	1.00	8,800	360	1.00	7,100	1,400	1.00
〃	18	5,800	920	1.00	8,500	340	1.00	6,900	1,300	1.00
〃	20	5,700	890	1.00	8,000	300	1.00	6,500	1,200	1.00
〃	25	5,600	850	1.00	7,200	250	1.00	6,000	1,100	1.00
〃	30	5,400	800	1.00	6,200	190	1.00	5,400	850	1.00
2.5mm	12	6,000	1,300	1.20	8,600	480	1.20	7,400	1,600	1.20
〃	20	5,700	1,100	1.00	6,800	350	1.00	6,200	1,300	1.00
3mm	8	6,200	1,600	1.50	8,700	610	1.50	8,000	1,900	1.50
〃	12	6,000	1,500	1.50	8,000	560	1.50	7,500	1,800	1.50
〃	16	5,800	1,400	1.50	7,300	510	1.50	7,000	1,700	1.50
〃	20	5,600	1,300	1.50	6,400	440	1.50	6,300	1,800	1.50
〃	25	5,400	1,200	1.50	5,500	370	1.50	5,600	1,400	1.50
〃	30	5,200	1,100	1.50	4,500	290	1.50	4,800	1,200	1.50
〃	40	4,800	960	1.50	2,700	160	1.50	3,500	840	1.50
4mm	12	5,000	1,400	2.00	7,000	520	2.00	5,800	1,500	2.00
〃	16	4,900	1,400	2.00	6,500	480	2.00	5,500	1,400	2.00
〃	18	4,800	1,400	2.00	6,300	470	2.00	5,400	1,400	2.00
〃	20	4,800	1,400	2.00	6,000	440	2.00	5,100	1,300	2.00
〃	25	4,700	1,300	2.00	5,600	410	2.00	4,900	1,300	2.00
〃	30	4,500	1,300	2.00	4,700	340	2.00	4,400	1,100	2.00
〃	35	4,300	1,300	2.00	4,200	300	2.00	4,100	1,100	2.00
〃	40	4,200	1,300	2.00	3,600	250	2.00	3,600	960	2.00
〃	50	3,900	1,200	2.00	2,400	160	2.00	2,900	780	2.00
5mm	16	3,400	1,200	2.50	5,800	470	2.50	4,000	1,200	2.50
〃	35	3,200	1,100	2.50	3,900	260	2.50	2,900	910	2.50
6mm	35	2,400	960	3.00	2,600	240	3.00	1,900	760	3.00
〃	50	2,200	890	3.00	1,900	170	3.00	1,700	670	3.00
〃	60	2,000	800	3.00	1,000	90	3.00	1,500	600	3.00

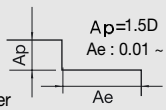
절입량
Depth of Cut

Slotting
• Ap : Axial Depth
• D : Outside Diameter



Ap≦0.5D

Side Milling
• Ap : Axial Depth
• Ae : Radial Depth
• D : Outside Diameter

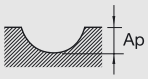


Ap=1.5D
Ae : 0.01 ~ 0.015D (Min. 0.01mm)

2MRB / 3MRB

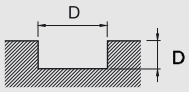
▪ 3MRB는 아래 수치의 10% Up 적용
▪ Apply 10% up values of below condition for 3MRB

• RPM : rev./min • Feed : mm/min

피삭재 Material	Aluminium Alloys			Plastic		
절삭속도 Velocity	Vc = 65 ~ 70m/min			Vc = 40 ~ 45m/min		
반경 Radius	RPM	FEED	Ap	RPM	FEED	Ap
R0.1	35,000	420	0.008~0.01	35,000	1,000	0.05~0.15
R0.2	35,000	560	0.005~0.01	35,000	1,100	0.07~0.2
R0.25	35,000	700	0.003~0.01	28,000	1,200	0.08~0.25
R0.3	35,000	910	0.006~0.03	24,000	1,200	0.1~0.3
R0.4	26,000	940	0.006~0.05	18,000	900	0.13~0.3
R0.5	21,000	970	0.005~0.08	14,000	700	0.17~0.5
R0.6	18,000	1,010	0.04~0.09	12,000	600	0.2~0.6
R0.7	15,000	1,020	0.05~0.1	10,000	500	0.23~0.7
R0.75	14,000	1,010	0.06~0.12	9,500	480	0.25~0.75
R0.8	13,000	1,010	0.08~0.13	9,000	450	0.27~0.8
R0.9	12,000	1,060	0.09~0.15	8,000	400	0.3~0.9
R1	11,000	1,100	0.03~0.21	7,000	350	0.33~1
R1.5	6,900	760	0.03~0.23	4,800	240	0.5~1.5
R2	5,200	690	0.01~0.28	3,600	180	0.6~2
R2.5	4,200	590	0.16~0.31	2,900	150	0.8~2.5
R3	3,500	550	0.22~0.36	2,400	120	1~3
절입량 Depth of Cut	Slotting • Ap : Axial Depth 					

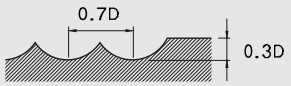
2MLE

• RPM : rev./min • Feed : mm/min

피삭재 Material	ABS 수지 /Acrylic	
외경 Outside Diameter	RPM	FEED
0.2mm	50,000	100
0.4mm	50,000	200
0.5mm	50,000	240
0.6mm	40,000	240
0.8mm	30,000	240
1mm	24,000	240
2mm	12,000	240
3mm	8,000	240
4mm	6,000	240
5mm	4,800	240
6mm	4,000	260
8mm	3,000	260
10mm	3,000	260
12mm	2,000	260
16mm	1,400	260
절입량 Depth of Cut		

2MLB

• RPM : rev./min • Feed : mm/min

피삭재 Material	ABS 수지 /Acrylic	
외경 Outside Diameter	RPM	FEED
R0.1	37,000	50
R0.2	37,000	100
R0.3	37,000	140
R0.4	37,000	190
R0.5	32,000	210
R1	16,000	210
R1.5	11,000	210
R2	8,200	210
R2.5	6,000	250
R3	5,500	250
R4	4,100	280
R5	3,200	280
R6	2,700	330
R8	2,200	330
절입량 Depth of Cut		

엔드밀 재연삭가격 안내

초경 Ball & Radius 엔드밀

• BG초경 : X1.3

날 경		1이하	6이하	10이하	12이하	16이하	20이하	25이하	32이하
무코팅	2날	7,500	5,500	6,000	7,000	9,000	12,000	15,000	35,000
	3, 4, 6날	9,000	7,500	8,500	10,000	11,000	15,000	20,000	45,000
TISIN 코팅	2날	9,300	7,300	9,000	11,000	13,300	21,300	23,300	50,000
	3, 4, 6날	10,800	9,300	11,500	14,000	16,300	26,300	28,300	60,000

초경 엔드밀 절단 & 밑날

• 다이야코팅 : X2

날 경		1이하	6이하	10이하	12이하	16이하	20이하	25이하
무코팅	2날	5,000	4,000	4,500	6,000	8,000	10,000	13,000
	3, 4, 6날	6,000	5,000	5,500	7,000	10,000	11,500	16,000
TISIN 코팅	2날	6,800	5,800	6,300	8,300	12,300	15,300	18,300
	3, 4, 6날	7,800	6,800	7,300	9,800	14,300	16,800	21,300

초경 Taper 엔드밀 외경연삭

• 30도 미만 제작수리 : X2
• 30도 이상 제작수리 : X1.5

생크경 (Ø)	6	8	10	12	16	20	25	32
2° 미만	9,000	10,000	11,000	12,000	15,000	20,000	25,000	30,000
2° 이상	9,000	10,000	12,000	14,000	18,000	24,000	28,000	32,000
30° 이상	6,000	7,000	8,000	9,000	11,000	15,000	19,000	25,000

HSS Taper 엔드밀

• Long : X1.5 • 제작수리 : X2 • 역 : X2

생크경 (Ø)	16이하	20이하	25이하	32이하	35이하
2° 미만	7,000	8,000	9,000	12,000	15,000
2° 이상	8,000	10,000	12,000	15,000	18,000
30° 이상	6,000	7,000	8,000	10,000	12,000

초경 엔드밀 외경연삭

• Long : X1.2 • EX. Long : X1.5

날 경	12이하	16이하	20이하	25이하	30이하
2날	5,000	7,000	10,000	15,000	21,000
4날	6,000	8,000	12,000	18,000	25,000

• 골수리(홈연삭) : X1.5

HSS 엔드밀 외경연삭

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하	60이하
2날	3,000	4,000	7,000	12,000	15,000
4날	4,000	5,000	8,000	15,000	18,000

• 골수리(홈연삭) : X1.5

초경 High Helix 엔드밀 외경연삭

• Long : X1.2 • EX. Long : X1.5

날 경	10이하	12이하	16이하	20이하	25이하	32이하
6날	10,000	12,000	15,000	18,000	28,000	33,000

• 골수리(홈연삭) : X1.5

HSS Roughing 엔드밀

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하
-	4,000	5,000	8,000	15,000

날붙이(BG) 초경 엔드밀 외경연삭

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하	60이하
2날	5,000	8,000	10,000	15,000	23,000
4날	6,000	9,000	12,000	20,000	29,000

• 골수리(홈연삭) : X1.5

HITACHI Ball & Radius 인서트

R X D	R6X12,13	R8X16,17	R10X20,21	R12.5X25,26	R15X30
무코팅	6,000	7,000	8,000	9,000	12,000
TIALN 코팅	10,000	12,000	13,000	14,000	17,000

초경 엔드밀 TISIN 코팅 가격

• Long : X1.2 (전장 150L이상)

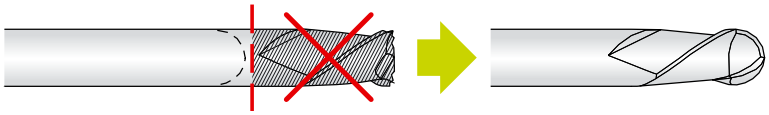
날 경	6이하	8이하	10이하	12이하	16이하	20이하	25이하	32이하
-	1,800	2,200	3,000	4,000	7,500	9,000	13,000	18,000

• 초경 Roughing 엔드밀 : 초경 엔드밀 X 1.5
• 초경 Roughing 코너R : 초경 코너R X 1.5
• 초경 부등분할 엔드밀 : 초경 엔드밀 X 1.1
• 초경 부등분할 코너R : 초경 코너R X 1.1

• 초경 외경 연삭시 절단비 : 12이하 2,000 / 16이하 5,000 / 20이하 7,000 / 30이하 13,000 / 40이하 16,000
• HSS 외경 연삭시 절단비 : 16이하 2,000 / 20이하 2,500 / 30이하 3,000 / 40이하 4,000 / 50이하 5,000
• 날붙이(BG) 초경 외경 연삭시 절단비 : 20이하 7,000 / 30이하 13,000 / 40이하 16,000

파손 엔드밀 재가공 가격 안내

- 손상된 인선부를 절단 폐기 후 볼타입으로만 재가공 합니다.



초경 Ball 엔드밀 (TISIN코팅 포함)

날 경	6이하	8이하	10 이하	12이하	16이하	20이하
날 장 (mm)	10	12	15	18	25	30
가 격	11,000	16,000	19,000	22,000	35,000	48,000

■ 상기 날장보다 긴 엔드밀의 의뢰시는 별도문의 바랍니다.

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131 Items

9434 Tools

JJ TOOLS managing the huge inventories the 9,434 products from CBN to general purpose WC endmills for customer satisfaction not only for quality but on time delivery. And we have been introducing new products by continual R&D and investment. Excellent quality and dimensional accuracy, outstanding tool life - the passion of JJ TOOLS for delivering the best quality cutting tools to the market will be continued.

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