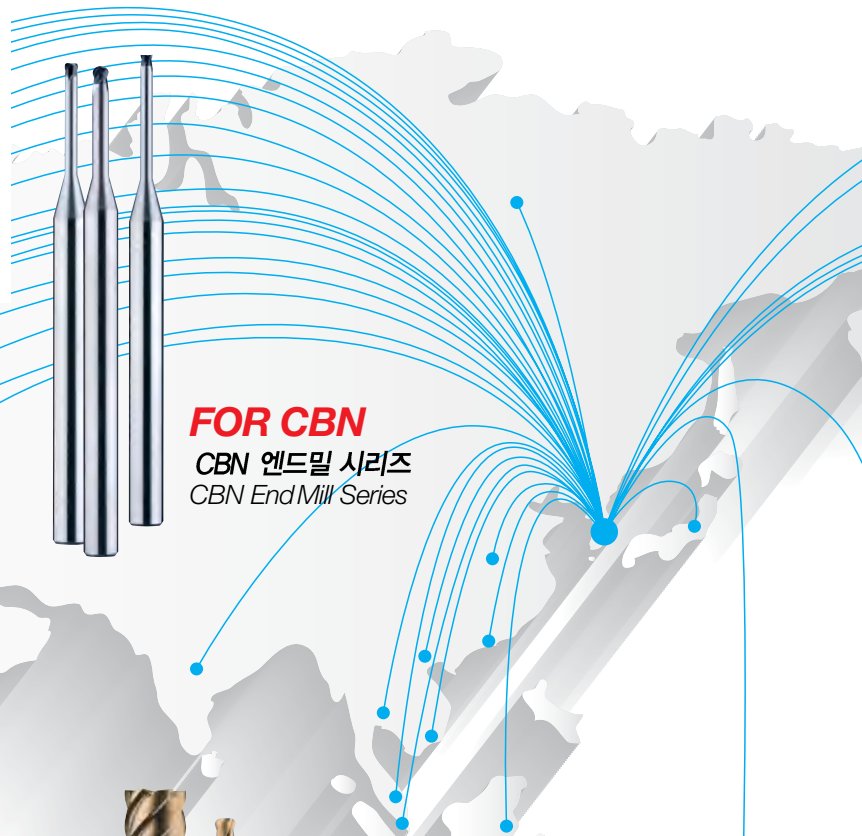




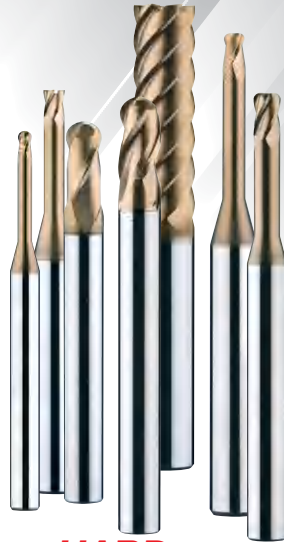
Представництво в Україні:  
 03067, м. Київ,  
 вул. Машинобудівна, 46  
 тел.: +38 044 227-57  
 +38 044 394-80-94  
[www.fractalnost.com.ua](http://www.fractalnost.com.ua)



**FOR CBN**  
**CBN 엔드밀 시리즈**  
**CBN End Mill Series**



**JJseries**  
**고경도용 엔드밀 시리즈**  
**End Mills for Hardened Steels**



**HARDseries**  
**고속가공용 엔드밀 시리즈**  
**High Speed End Mill Series**



**Eseries**  
**강력절삭 엔드밀 시리즈**  
**End Mills for Heavy Cuts**



**Gseries**  
**범용 엔드밀 시리즈**  
**End Mills for General purpose**



**G-TAC**  
G-TAC코팅 엔드밀 시리즈  
G-TAC Coated EndMill Series



**HARD series**  
고이송용 엔드밀 시리즈  
High Speed End Mill Series



**FOR GRAPHITE**  
흑연가공용 엔드밀 시리즈  
EndMills for Graphite



**FOR ALUMINUM**  
알루미늄 가공용 엔드밀 시리즈  
EndMills for Aluminum



**FOR SUS**  
SUS 가공용 엔드밀 시리즈  
EndMills for SUS

세계로 수출하는  
**명품 엔드 밀**

Globally exporting the outstanding quality

**JJ TOOLS**

[www.fractalnost.com.ua](http://www.fractalnost.com.ua)



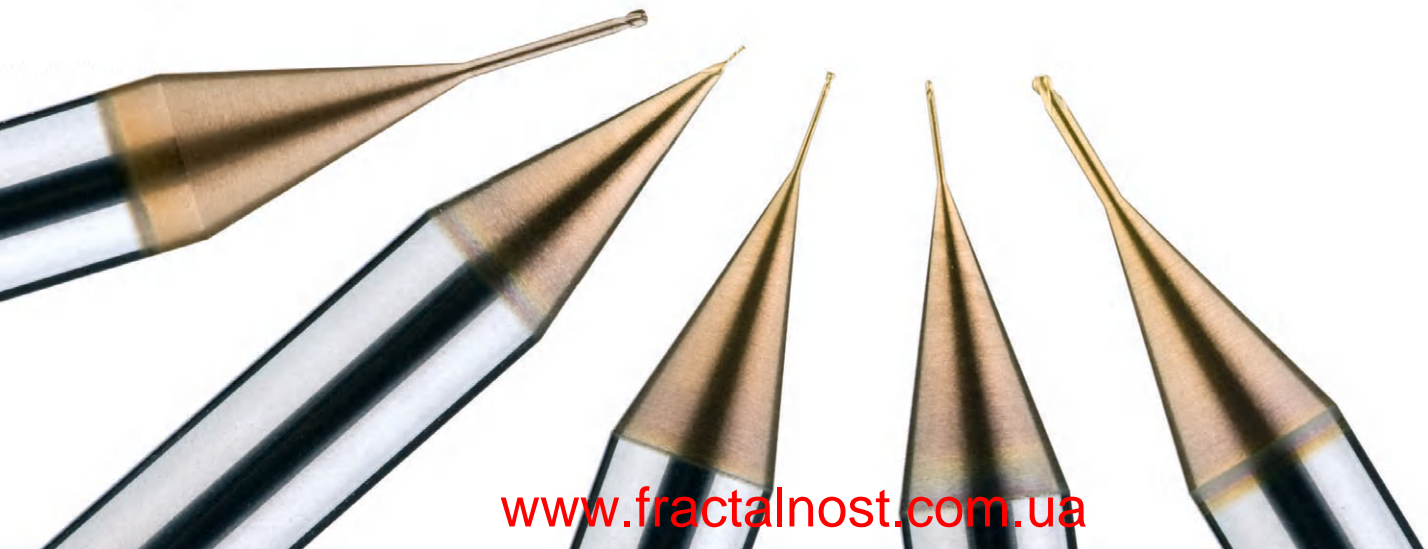
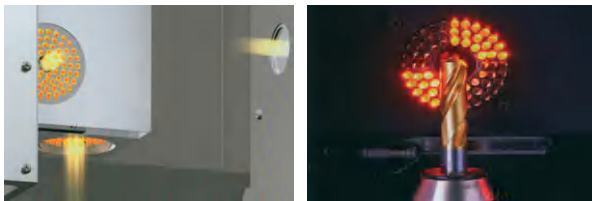
# 최신의 초정밀 장비! 한차원 높은 정밀 공차!

*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.*

<b>■ 공구 오차</b> <i>Tolerance</i>	$0.1R \leq R \leq 1R$	$\pm 0.003mm$
	$1R < R \leq 3R$	$\pm 0.005mm$
	$3R < R$	$\pm 0.008mm$



고경도재의 정밀 정삭가공에 적합한  
Optimised for precise machining of high hardness work material

**트 월한 내마모 품질!**

High Abrasion Resistance



**FOR CBN**

## CBN 엔드밀 시리즈

CBN End Mill series

**HRC72 고경도강의  
경면사상 가공에 최적!**

Optimised for mirror face machining of hardened steels (HRC72)!

CBN 시리즈는 고함량의 PCBN을 사용하여 탁월한 내마모성과 최적의 인선부 설계로 뛰어난 절삭력 및 경면 조도를 나타내며, 고경도강(HRC72)의 고속 가공시 최고의 성능을 발휘합니다.

- PCBN endmill for precise finishing ( $\pm 5 \mu\text{m}$ ) of hardened steel (HRC52-72)
- Long tool life by high quality PCBN

**다양한 인선형상 설계로  
최상의 맞춤품질 확보!**

Various helix design for the best quality!



**Helix 30°**

열처리 금형가공에 최적  
Optimum for hardened -  
mold machining



**Helix 0°**

경면사상 가공에 최적  
Optimum for mirror face  
machining

HRC 52~70

## 고경도재 가공용 JJ 시리즈

JJ series for hardened steels

고경도강(HRC52~70), 프리하든강 계열의 고정밀가공 엔드밀

Endmills for pre-hardened and hardened steel (HRC52~70)

- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- 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 $\mu$ m) WC grade.



HRC 50~65

## 고속가공용 HARD 시리즈

HARD series for high speed cutting

고경도강(HRC50~62), 프리하든강 계열의 고정밀가공 엔드밀

Endmills for pre-hardened and hardened steel (HRC50~62)

- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- 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 $\mu$ m) WC grade.



HRC ~52

## 강력절삭용 E시리즈

E series for heavy cuts

중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강 등

Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.

- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



HRC ~52

## 다양한 피삭가공, 범용 G시리즈

G series for general purpose

중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강 등

Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.

- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



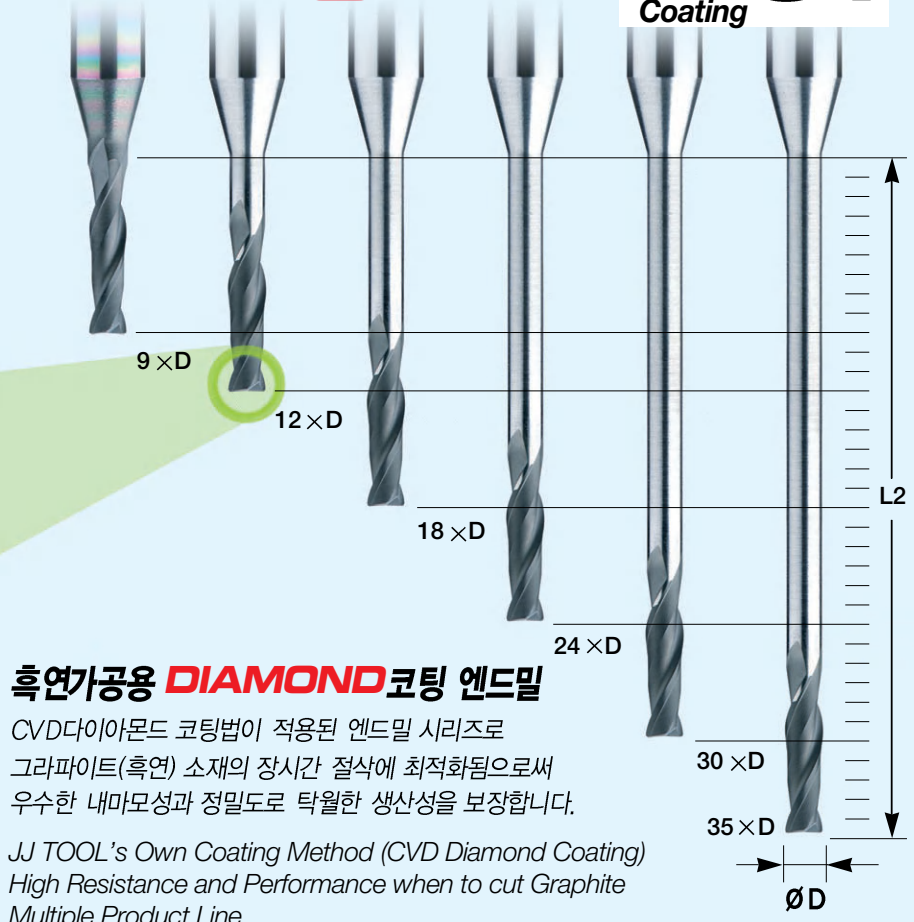
**탁월한 내마모성의**  
High abrasion resistance

**DIAMOND 코팅!**  
Coating



- CR** R0.02  
R0.05  
R0.1  
R0.15  
R0.2  
R0.3  
R0.5
- 2DBE**  
**3DBE**  
**4DBE**  
**2&3DEM**  
**4&6DEM**  
**2DCR**  
**4DCR**

φ 0.2 ~ 6.0mm



**흑연가공용 DIAMOND 코팅 엔드밀**  
CVD다이아몬드 코팅법이 적용된 엔드밀 시리즈로  
그라파이트(흑연) 소재의 장시간 절삭에 최적화됨으로써  
우수한 내마모성과 정밀도로 탁월한 생산성을 보장합니다.  
JJ TOOL's Own Coating Method (CVD Diamond Coating)  
High Resistance and Performance when to cut Graphite  
Multiple Product Line

**FOR GRAPHITE**

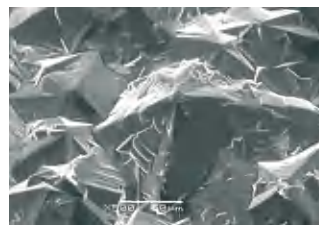
**다이아몬드 코팅 시리즈**

**DIAMOND Coated End Mills for Graphite**

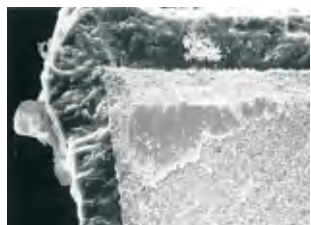
CVD 다이아몬드는 바인더(활성계면제)가 없는 순수결정체로서  
단결정 다이아몬드와 동일한 특성을 나타내며, 변형 없는  
코팅의 우수함으로 강력한 절삭력과 공구수명이 향상됩니다.  
CVD diamond is a binderless- pure crystal, delivering identical  
properties of single diamond crystal. JJ TOOLS is applying  
the latest CVD coating technology which has no residual  
stress at the 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 <sup>1/2</sup> ) Toughness	5 ~ 6	3.4	8 ~ 9	10.5
인장력(Gpa) Tensile strength	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

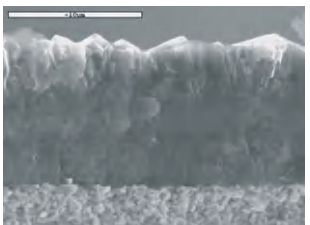
■ **다이아몬드 결정 SEM 사진** SEM Images of Diamond crystal



다이아몬드 표면 입자 확대  
Diamond surface image



다이아몬드 단면 확대  
Diamond cross section image



다이아몬드 단면 확대  
Diamond cross section image

고경도재 **고속가공**의  
High speed machining hardened steels

# 질 대 강 자!

Super End Mill

초경 코너R 인서트 대비

**2배 이상의 성능 실현!**

경도 HRc65이하소재의 황삭, 중삭 가공시

**More 2 times** performance than  
corner Insert end mills!

코너R 마모시

**6회 이상의 재연삭 가능!**

Guarantee **more 6 times** Re-grinding!



**HARD series**

고속·고이송 가공에 최적화된

## 고 이 송 CUTTER

The best of high speed cutting

## 우주항공 및 자동차 분야의 복합신소재 가공을 선도하는

Leading tools for machining of composite materials

**FOR COMPOSITE**

## 복합소재용 엔드밀

For Composite Materials

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

Endmills for CFRP, GFRP, 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.



230, 270도의 인선으로

230°, 270° degree ball shape

광범위한 3D가공에 최적 !

Optimized for wide range 3D machining

**HARD series**

**3D가공용 구형엔드밀**

**Spherical End Mills for 3D Machining**

고경도강(HRc50~65), 프리하트강 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 $\mu$ m)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  $\mu$ m) WC grade.

강력한 채터링 방지 설계로 **진동을 최소화 !**

Strong design for protection against chattering !

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.

- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 깊은 포켓으로 칩배출이 원활하며 피삭재 면조도가 우수
- 42° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 최적
- 항절력이 높은 미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Strong design for protection against chattering.
- Excellent work surface finish by deep chip pocket.
- 42° degree helix design for high speed, feed condition.
- Minimize fracturing at high feed by high TRS fine WC grade.

# 탁월한 피삭재의 경면조도 !

Ultra fine surface after machining

코팅피막이 우수한 Tetrabond TAC

**G-TAC**

## G-TAC 코팅 엔드밀

Tetrabond TAC Coated End Mills

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

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

- 코팅 피막에 경도가 높고 마찰계수가 낮은 SUPER TAC코팅을 적용해 내마모성이 우수하며, 피삭재 표면조도가 월등히 우수함
- 고정밀 공차 적용으로 초정밀가공에 적합
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화하였습니다.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5  $\mu$ m) WC grade.



인선부의 고광면 설계를 한층 업그레이드한

# R-TAC코팅으로 구현 !

Applied RTAC coating for excellent surface finish !

**FOR ALU**minimum

## AL가공용 엔드밀

End Mills for Aluminum

알루미늄 및 알루미늄 합금 등 비철, 비금속 피삭재 전용

Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- 날부 인선을 고광면 설계하여 절삭시 피삭재의 표면조도가 우수합니다.
- RTAC코팅 처리하여, 기존 비코팅 엔드밀 대비 2배이상 공구수명이 증가하였습니다.
- 다양한 날장(S, L, Exl, Et) 선택으로 맞춤 가공이 가능합니다.
- 2중 인선과 홈포켓의 깊게 설계로 흡착현상을 최소화하였습니다.
- 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Applied fine WC grade for excellent surface finish.
- With RTAC coating, the tool life improved more than two times over conventional uncoated endmills.
- Various flute length design for covering wide range application.
- Minimize built up edge by double edge and deep pocket design.
- Minimize fracturing by high TRS fine(0.5  $\mu$ m) WC grade.



CUSTOM MADE

# 질스기공 초조의 맞춤!

Optimal Custom-made Cutting :

고객요청에 즉시 대응하는  
Respond quickly to customer requests

## JJ 터퍼넥 볼 엔드밀 JJ Taper neck ball endmill - 3JJTBS 3JJTBS



Freely ~ 자유자재로 ~

최고 2일안에 납품 가능! Within a 2 days !

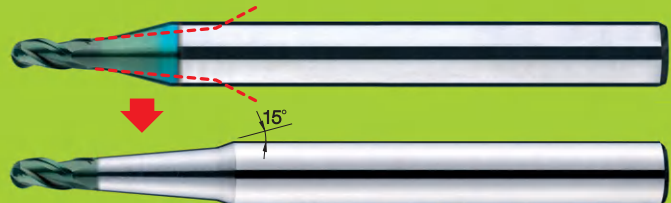
깊은 홈의 가공 방식이 다양해지고 빈번해진 요즘 흐름에 발맞추어, 주문제작으로 고객요청에 빠르게 대응하는 맞춤형 엔드밀입니다. 고객주문에 맞춰, 자사 재고품의 각도 및 유효길이를 재조정 가공합니다.

In accordance with the recent trend of frequent deep hole machining, It is an order to make system responding to customer' quick delivery request. (within a 2 days)

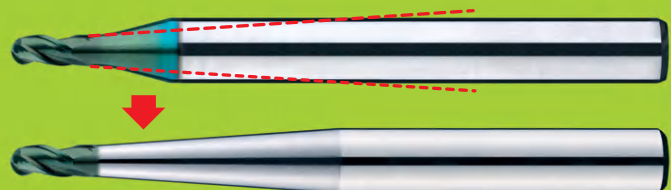
In accordance with the customer order, readjust the angle and effective length of own stock

재고품의 각도 · 유효길이를 고객이 주문하면 추가 가공  
Readjust the angle and effective length of own stock












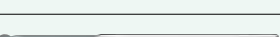
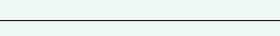





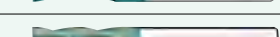
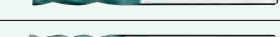
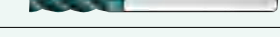





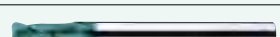





A 타입 가공예  
A Type Example



B 타입 가공예  
B Type Example



# Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날 수 Flutes	분류 Type	쪽 Page
<b>FOR CBN</b> Cubic Boron Nitride	고경도 고정밀 정삭 가공 HRc 50~72	2BCBN		2F	CBN 리브 볼 CBN Rib Ball End Mills	01
		2SBCBN		2F	CBN 직선날 리브 볼 CBN Straight Rib Ball End Mills	02
		2ECBN		2F	CBN 리브 엔드밀 CBN Rib End Mills	03
		2CCBN		2F	CBN 리브 코너 레디우스 CBN Rib Corner Radius	04
		2SCCBN		2F	CBN 직선날 리브 코너 레디우스 CBN Straight Rib Corner Radius	06
		4SCCBN		4F	CBN 직선날 리브 코너 레디우스 CBN Straight Rib Corner Radius	07
<b>JJ series</b> 고경도용	고경도 고속 가공 HRc 52~70	2JJRB		2F	제이제이 리브 볼 JJ Rib Ball End Mills	08
		3JJRB <i>New</i>		3F	제이제이 리브 볼 JJ Rib Ball End Mills	11
		2JJTB		2F	제이제이 테이퍼 넥 볼 Taper Neck Ball End Mills	12
		3JJTBS <i>New</i>		3F	소비자 맞춤 테이퍼 넥 볼 Taper Neck Ball End Mills	16
		2JJSP		2F	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°	17
		4JJSP		4F	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°	18
		4JJSPM		4F	3D 270° 가공용 구형 엔드밀 End Mills for 3D Cut 270°	19
		2JJSB		2F	제이제이 짧은 길이 볼 JJ Short Length Ball End Mills	20
		2JJB		2F	제이제이 볼 JJ Ball End Mills	21
	고경도 고속 가공 HRc 52~65	2JJRE		2F	제이제이 리브 엔드밀 JJ Rib End Mills	22
		4JJRE		4F	제이제이 리브 엔드밀 JJ Rib End Mills	24
		2JJE		2F	제이제이 엔드밀 JJ End Mills	25
		4JJE		4F	제이제이 엔드밀 JJ End Mills	26
		4JJHE		4F	제이제이 45° 헬릭스 엔드밀 JJ 45° Helix End Mills	27
		고경도 고속 가공 HRc 52~70	6&8JJHE		6&8	제이제이 45° 헬릭스 엔드밀 JJ 45° Helix End Mills
	2JJCR			2F	제이제이 리브 코너 레디우스 JJ Rib Corner Radius	29
	2JJTC			2F	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius	33
	4JJCR			4F	제이제이 리브 코너 레디우스 JJ Rib Corner Radius	35
	4JJTC			4F	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius	38
	2JJC			2F	제이제이 코너 레디우스 JJ Corner Radius	39
	4JJC			4F	제이제이 코너 레디우스 JJ Corner Radius	41
4&6JJRC			4&6	고이송 코너 레디우스 커터 High Speed Radius Cutter	43	
<b>HARD series</b> 고속 가공용	고경도 고속 가공 HRc 50~62	2HRB		2F	리브 볼 Rib Ball End Mills	44
		2PHCB		2F	초정밀 표준길이 볼 Ultra Precision Ball End Mills	47
		2HSB		2F	짧은 길이 볼 Short Length Ball End Mills	48
		2HCB		2F	표준 길이 볼 Standard Length Ball End Mills	49









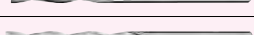

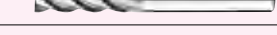
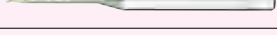






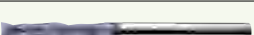
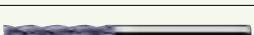



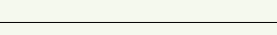








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EDP. Number and Specifications are can be changed without notification for quality improvement.

# Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분류 Type	쪽 Page
<b>HARD series</b> 고속 가공용	고경도 고속 가공 HRc 50~65	3HCB		3F	표준 길이 볼 Standard Length Ball End Mills	51
		4HCB		4F	표준 길이 볼 Standard Length Ball End Mills	51
	고경도 고속 가공 HRc 50~60	2HRE		2F	리브 엔드밀 Rib End Mills	52
		4HRE		4F	리브 엔드밀 Rib End Mills	54
		2HSE		2F	짧은 길이 엔드밀 Short Length End Mills	55
		2HCE		2F	표준 길이 엔드밀 Standard Length End Mills	56
	HRc ~55	2LEM		2F	긴 길이 엔드밀 Long Length End Mills	58
	고경도 고속 가공 HRc 50~60	4HSE		4F	짧은 길이 엔드밀 Short Length End Mills	59
		4HCE		4F	표준 길이 엔드밀 Standard Length End Mills	60
	HRc ~55	4LEM		4F	긴 길이 엔드밀 Long Length End Mills	61
	고경도 고속 가공 HRc 50~62	4HEM		4F	45° 헬릭스 엔드밀 45° Helix End Mills	62
		6&8HEM		6&8	45° 헬릭스 엔드밀 45° Helix End Mills	63
		2CRE		2F	리브 코너 레디우스 Rib Corner Radius	64
		4CRE		4F	리브 코너 레디우스 Rib Corner Radius	68
		2NCR		2F	코너 레디우스 Corner Radius End Mills	72
		4NCR		4F	코너 레디우스 Corner Radius End Mills	74
		4CRL		4F	45° 헬릭스 코너 레디우스 롱 45° Helix Radius Long	76
		6CRL		6F	45° 헬릭스 코너 레디우스 롱 45° Helix Radius Long	77
	고속 가공 고이송 커터 HRc 50~62	4RCU		4F	고이송 코너 레디우스 커터 High Speed Radius Cutter	78
		6RCU		6F	고이송 코너 레디우스 커터 High Speed Radius Cutter	79
고경도·일반강 황삭 가공 HRc ~50	3&4ROU		3&4	라핑 엔드밀 Roughing End Mills	80	
	3&4HROU		3&4	45° 헬릭스 파인피치형 라핑 45° Helix Fine Pitch Roughing	81	
<b>E series</b> 강력절삭용	중저경도강 탄소강 금형강 등 HRc ~52	2HRBE <i>New</i>		2F	강력절삭용 리브 볼 Rib Ball End Mills for Heavy Cuts	82
		2HCBE <i>New</i>		2F	강력절삭용 볼 Ball End Mills for Heavy Cuts	84
		2HCEE <i>New</i>		2F	강력절삭용 엔드밀 End Mills for Heavy Cuts	85
		4HCEE <i>New</i>		4F	강력절삭용 엔드밀 End Mills for Heavy Cuts	86
		4HEME <i>New</i>		4F	강력절삭용 45° 헬릭스 45° Helix End Mills for Heavy Cuts	87
	중저경도강 SUS·Ti/N계 인코넬 등 HRc ~52	3NSE <i>New</i>		3F	강력절삭용 엔드밀 End Mills for Heavy Cuts	88
		4NSE <i>New</i>		4F	강력절삭용 엔드밀 End Mills for Heavy Cuts	89
	중저경도강 탄소강 금형강 등 HRc ~52	2NCRE <i>New</i>		2F	강력절삭용 코너 레디우스 Corner Radius End Mills for Heavy Cuts	90
		4NCRE <i>New</i>		4F	강력절삭용 코너 레디우스 Corner Radius End Mills for Heavy Cuts	91
		4RCUE <i>New</i>		4F	강력절삭용 고이송 코너 레디우스 커터 High Speed Radius Cutter for Heavy Cuts	92

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# Carbide End Mills INDEX





















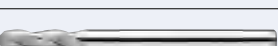

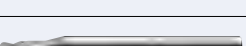




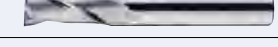

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날 수 Flutes	분류 Type	쪽 Page	
<b>G series</b> 범용	프리하든강 탄소강 금형강 HRc ~52	2HRBG		2F	리브 볼 Rib Ball End Mills	93	
		2HSBG		2F	짧은 길이 볼 Short Length Ball End Mills	95	
		2HCBG		2F	표준 길이 볼 Standard Length Ball End Mills	96	
		2HREG		2F	리브 엔드밀 Rib End Mills	97	
		4HREG		4F	리브 엔드밀 Rib End Mills	99	
		2HCEG		2F	표준 길이 엔드밀 Standard Length End Mills	100	
		2LEMG		2F	긴 길이 엔드밀 Long Length End Mills	101	
		4HCEG		4F	표준 길이 엔드밀 Standard Length End Mills	102	
		4LEMG		4F	긴 길이 엔드밀 Long Length End Mills	103	
		4HEMG		4F	45° 헬릭스 엔드밀 45° Helix End Mills	104	
		2CREG		2F	리브 코너 레디우스 Rib Corner Radius	105	
		4CREG		4F	리브 코너 레디우스 Rib Corner Radius	108	
		2NCRG		2F	코너 레디우스 Corner Radius End Mills	111	
		4NCRG		4F	코너 레디우스 Corner Radius End Mills	113	
		고경도·일반강 황삭 가공 HRc ~50	3&4ROUG		3&4	라핑 엔드밀 Roughing End Mills	115
			3&4HROUG		3&4	45° 헬릭스 파인피치형 라핑 45° Helix Fine Pitch Roughing	116
<b>FOR GRAPHITE</b> 흑연 가공용	프리하든강 일반강 비철·비금속 HRc ~48	2GBE		2F	롱 샹크 볼 Long Shank Ball End Mills	117	
		2TGB		2F	테이퍼 넥 볼 Taper Neck Ball End Mills	118	
		2GEM		2F	롱 샹크 엔드밀 Long Shank End Mills	119	
		4GEM		4F	롱 샹크 엔드밀 Long Shank End Mills	120	
	HRc ~50	6GEM		6F	45° 헬릭스 롱 샹크 엔드밀 45° Helix Long Shank End Mills	121	
	흑연 강화플라스틱 탄소섬유 등 비금속	2DBE		2F	다이아몬드 코팅 볼 Diamond Coated Ball End Mills	122	
		3DBE		3F	다이아몬드 코팅 볼 Diamond Coated Ball End Mills	124	
		3TBD		3F	다이아몬드 코팅 테이퍼 넥 볼 Diamond Coated Taper Neck Ball	125	
		4DBE		4F	다이아몬드 코팅 볼 Diamond Coated Ball End Mills	126	
		2DEM		2F	다이아몬드 코팅 엔드밀 Diamond Coated End Mills	127	
		3DEM		3F	다이아몬드 코팅 엔드밀 Diamond Coated End Mills	128	
		4&6DEM		4&6	다이아몬드 코팅 엔드밀 Diamond Coated End Mills	129	
		2DCR		2F	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius	130	
		4DCR		4F	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius	132	
<b>FOR COMPOSITE</b> 복합소재 가공용		강화플라스틱 동·동합금	2CPB		2F	복합소재용 볼 Ball End Mills for Composite	133
	유리/탄소섬유 비철·비금속의 복합소재	8~12CPE		8~12	복합소재용 정삭 엔드밀 Finishing End Mills for Composite	133	
		3&4&6CPR		3&4&6	복합소재용 라우터 Router for Composite	134	

# Carbide End Mills INDEX

시리즈 Series	특징 Hardness	주문 번호 EDP. NO	형상 Appearance	날수 Flutes	분류 Type	쪽 Page	
<b>FOR COMPOSITE</b> 복합소재 가공용	강화플라스틱 등 · 동합금	6~16CPO		6~16	복합소재용 라우터 Router for Composite	134	
	유리/탄소섬유 등 복합소재	2DDC		2F	복합소재용 다이아몬드 코팅 드릴 Diamond Coated Drill	135	
<b>FOR SUS</b> SUS 가공용	SUS계, Ti/Ni계 인코넬 등 난삭재	4SUB		4F	45° 헬릭스 볼 45° Helix Ball End Mills	136	
		3SUE		3F	45° 헬릭스 엔드밀 45° Helix End Mills	137	
	채터링 방지형	4SURE <i>New</i>		4F	리브 엔드밀 Rib End Mills	138	
		4SUE		4F	채터링 방지 엔드밀 Non Symmetry End Mills	139	
	가변 헬릭스 인선	4SUV <i>New</i>		4F	강력절삭용 엔드밀 Variable Helix End Mills	140	
		채터링 방지형	4SUCR <i>New</i>		4F	리브 코너 레디우스 Rib Corner Radius	141
	4SUC			4F	채터링 방지 코너 레디우스 Non Symmetry Corner Radius	142	
	4LSUC <i>New</i>			4F	긴길이 코너 레디우스 Long Length Corner Radius	143	
	파인피치 타입	3&4&5SUR		3&4&5	45° 헬릭스 라핑 코어 R 45° Helix Roughing Core R	144	
<b>FOR COPPER</b> 동 가공용	동 · 동합금 알루미늄 합금 비철합금	2COB		2F	45° 헬릭스 리브 볼 45° Helix Rib Ball End Mills	145	
		2COR		2F	리브 코너 레디우스 Rib Corner Radius	146	
		3COR		3F	45° 헬릭스 리브 코너 레디우스 45° Helix Rib Radius	148	
<b>G-TAC</b> Diamond Like Carbon	알루미늄 알루미늄 합금 동 · 동합금 강화플라스틱 (CFRP, GFRP) 비철 · 비금속	2DRB		2F	G-TAC코팅 리브 볼 T-DLC Coated Rib Ball End Mills	149	
		2DLB		2F	G-TAC코팅 볼 T-DLC Coated Ball End Mills	150	
		2DRE		2F	G-TAC코팅 리브 엔드밀 T-DLC Coated Rib End Mills	151	
		3DRE		3F	45° 헬릭스 G-TAC코팅 리브 45° Helix T-DLC Coated Rib	152	
		2DLE		2F	G-TAC코팅 엔드밀 T-DLC Coated End Mills	153	
		2DLC		2F	G-TAC코팅 코너레디우스 T-DLC Coated Corner Radius	154	
		<b>FOR ALUMINUM</b> 알루미늄 가공	알루미늄 알루미늄 합금 비철 · 비금속	3ALR		3F	45° 헬릭스 리브 엔드밀 45° Helix Rib End Mills
2ALE				2F	45° 헬릭스 엔드밀 45° Helix End Mills	157	
3ALE				3F	45° 헬릭스 엔드밀 45° Helix End Mills	159	
비철 · 비금속	3ALC			3F	45° 헬릭스 코너 레디우스 45° Helix Corner Radius	162	
	비철 · 비금속 고속 중삭 황삭		3ARE		3F	세미 피니싱& 라핑 Semi Finishing & Roughing	163
			3ARC		3F	세미 피니싱 & 라핑 레디우스 Semi Finishing & Roughing Radius	163
비철 · 비금속 황삭	3ARO			3F	45° 헬릭스 라핑 엔드밀 45° Helix Roughing End Mills	164	
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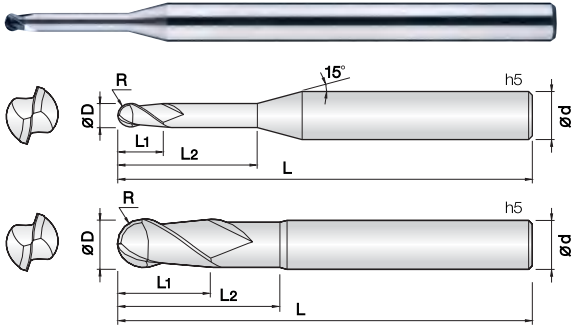
■ 상기 제품의 주문번호 및 사양은 품질개선을 위해 예고없이 변경될 수 있습니다.  
EDP. Number and Specifications are can be changed without notification for quality improvement.

# Carbide End Mills INDEX

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





0.1 ~ 1.25R 1.5 ~ 2R 3R

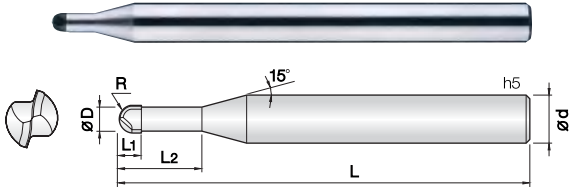
- 고경도강 (HRC50~72)의 고정밀 ( $\pm 5\mu\text{m}$ ) 정삭가공용 엔드밀
- 고함량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.
- **PCBN ENDMILL for precise finishing ( $\pm 5\mu\text{m}$ ) of hardened steel (HRC50~72)**
- Long tool life by high content 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)

D Size	D Tolerance
$\varnothing 0.2 \sim 6$	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2BCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4		2BCBN 015 040 S04	0.75R X 1.5	1	4	48	4	
2BCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4		2BCBN 015 060 S04	0.75R X 1.5	1	6	48	4	
2BCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4		2BCBN 015 080 S04	0.75R X 1.5	1	8	48	4	
2BCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4		2BCBN 015 100 S04	0.75R X 1.5	1	10	48	4	
2BCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4		2BCBN 015 120 S04	0.75R X 1.5	1	12	48	4	
2BCBN 004 020 S04	0.2R X 0.4	0.3	2	48	4		2BCBN 015 140 S04	0.75R X 1.5	1	14	48	4	
2BCBN 004 030 S04	0.2R X 0.4	0.3	3	48	4		2BCBN 015 160 S04	0.75R X 1.5	1	16	48	4	
2BCBN 004 040 S04	0.2R X 0.4	0.3	4	48	4		2BCBN 015 180 S04	0.75R X 1.5	1	18	48	4	
2BCBN 004 050 S04	0.2R X 0.4	0.3	5	48	4		2BCBN 020 040 S04	1R X 2	1.2	4	50	4	
2BCBN 004 060 S04	0.2R X 0.4	0.3	6	48	4		2BCBN 020 060 S04	1R X 2	1.2	6	50	4	
2BCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4		2BCBN 020 080 S04	1R X 2	1.2	8	50	4	
2BCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4		2BCBN 020 100 S04	1R X 2	1.2	10	50	4	
2BCBN 005 030 S04	0.25R X 0.5	0.4	3	48	4		2BCBN 020 120 S04	1R X 2	1.2	12	50	4	
2BCBN 005 040 S04	0.25R X 0.5	0.4	4	48	4		2BCBN 020 140 S04	1R X 2	1.2	14	50	4	
2BCBN 005 050 S04	0.25R X 0.5	0.4	5	48	4		2BCBN 020 160 S04	1R X 2	1.2	16	50	4	
2BCBN 005 060 S04	0.25R X 0.5	0.4	6	48	4		2BCBN 020 180 S04	1R X 2	1.2	18	50	4	
2BCBN 005 080 S04	0.25R X 0.5	0.4	8	48	4		2BCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6	
2BCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4		2BCBN 025 100 S06	1.25R X 2.5	1.6	10	66	6	
2BCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4		2BCBN 025 160 S06	1.25R X 2.5	1.6	16	66	6	
2BCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4		2BCBN 025 200 S06	1.25R X 2.5	1.6	20	66	6	
2BCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4		2BCBN 030 060 S06	1.5R X 3	1.8	6	66	6	
2BCBN 006 050 S04	0.3R X 0.6	0.5	5	48	4		2BCBN 030 080 S06	1.5R X 3	1.8	8	66	6	
2BCBN 006 060 S04	0.3R X 0.6	0.5	6	48	4		2BCBN 030 100 S06	1.5R X 3	1.8	10	66	6	
2BCBN 006 080 S04	0.3R X 0.6	0.5	8	48	4		2BCBN 030 120 S06	1.5R X 3	1.8	12	66	6	
2BCBN 006 100 S04	0.3R X 0.6	0.5	10	48	4		2BCBN 030 160 S06	1.5R X 3	1.8	16	66	6	
2BCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4		2BCBN 030 200 S06	1.5R X 3	1.8	20	66	6	
2BCBN 007 040 S04	0.35R X 0.7	0.5	4	48	4		2BCBN 040 060 S06	2R X 4	2.4	6	66	6	
2BCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4		2BCBN 040 080 S06	2R X 4	2.4	8	66	6	
2BCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4		2BCBN 040 100 S06	2R X 4	2.4	10	66	6	
2BCBN 008 060 S04	0.4R X 0.8	0.6	6	48	4		2BCBN 040 120 S06	2R X 4	2.4	12	66	6	
2BCBN 008 080 S04	0.4R X 0.8	0.6	8	48	4		2BCBN 040 160 S06	2R X 4	2.4	16	66	6	
2BCBN 008 100 S04	0.4R X 0.8	0.6	10	48	4		2BCBN 040 200 S06	2R X 4	2.4	20	66	6	
2BCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4		2BCBN 060 035 S06	3R X 6	3.5	-	83	6	
2BCBN 009 040 S04	0.45R X 0.9	0.6	4	48	4		2BCBN 060 100 S06	3R X 6	3.5	10	83	6	
2BCBN 010 025 S04	0.5R X 1	0.7	2.5	48	4		2BCBN 060 200 S06	3R X 6	3.5	20	83	6	
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								
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								

## 2날CBN 고속가공용 직선날 리브 볼 엔드밀



- 고경도강(HRc50~72)의 고정밀(±5μm) 정삭가공용 엔드밀
- 고함량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부 스트레이트 타입 형상으로 치핑을 더욱 최소화 하였습니다.
- 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 μm) of hardened steel (HRc50~72)**
- Long tool life by high content PCBN.
- Straight type Design for Minimizing edge chipping.
- 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

R  
±0.007

R  
±0.01

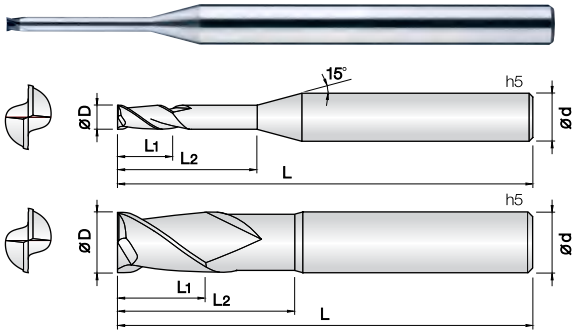
0°  
Helix Angle

0.1 ~ 1.25R    1.5 ~ 2R    3R

D Size	D Tolerance
ø0.2 ~ 6	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고					
2SBCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4						
2SBCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4						
2SBCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4						
2SBCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4						
2SBCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4						
2SBCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4						
2SBCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4						
2SBCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4						
2SBCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4						
2SBCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4						
2SBCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4						
2SBCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4						
2SBCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4						
2SBCBN 008 030 S04	0.4R X 0.8	0.6	3	48	4						
2SBCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4						
2SBCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4						
2SBCBN 010 025 S04	0.5R X 1	0.7	2.5	48	4						
2SBCBN 010 040 S04	0.5R X 1	0.7	4	48	4						
2SBCBN 010 050 S04	0.5R X 1	0.7	5	48	4						
2SBCBN 010 060 S04	0.5R X 1	0.7	6	48	4						
2SBCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4						
2SBCBN 015 040 S04	0.75R X 1.5	1	4	48	4						
2SBCBN 015 060 S04	0.75R X 1.5	1	6	48	4						
2SBCBN 015 080 S04	0.75R X 1.5	1	8	48	4						
2SBCBN 015 100 S04	0.75R X 1.5	1	10	48	4						
2SBCBN 020 040 S04	1R X 2	1.2	4	50	4						
2SBCBN 020 060 S04	1R X 2	1.2	6	50	4						
2SBCBN 020 080 S04	1R X 2	1.2	8	50	4						
2SBCBN 020 100 S04	1R X 2	1.2	10	50	4						
2SBCBN 020 120 S04	1R X 2	1.2	12	50	4						
2SBCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6						
2SBCBN 030 060 S06	1.5R X 3	1.8	6	66	6						
2SBCBN 030 080 S06	1.5R X 3	1.8	8	66	6						
2SBCBN 030 100 S06	1.5R X 3	1.8	10	66	6						
2SBCBN 030 120 S06	1.5R X 3	1.8	12	66	6						
2SBCBN 030 160 S06	1.5R X 3	1.8	16	66	6						
2SBCBN 030 200 S06	1.5R X 3	1.8	20	66	6						
2SBCBN 040 060 S06	2R X 4	2.4	6	66	6						
2SBCBN 040 080 S06	2R X 4	2.4	8	66	6						
2SBCBN 040 100 S06	2R X 4	2.4	10	66	6						
2SBCBN 040 120 S06	2R X 4	2.4	12	66	6						
2SBCBN 040 160 S06	2R X 4	2.4	16	66	6						
2SBCBN 040 200 S06	2R X 4	2.4	20	66	6						
2SBCBN 060 035 S06	3R X 6	3.5	-	83	6						
2SBCBN 060 100 S06	3R X 6	3.5	10	83	6						



ø0.2 ~ ø6

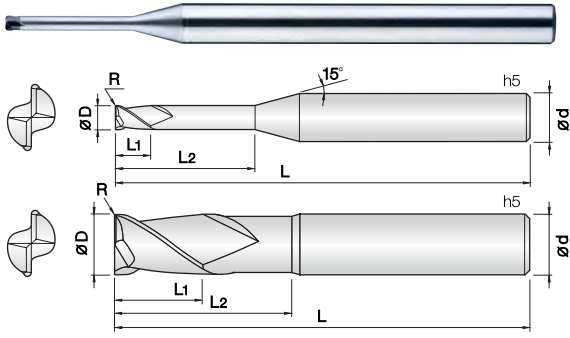
Shield Edge

- 고경도강(HRc50~72)의 고정밀( $\pm 5\mu\text{m}$ ) 정삭가공용 엔드밀
- 고힐량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
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- Long tool life by high content 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)

D Size	D Tolerance
ø0.2 ~ 6	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고
2ECBN 002 002 S04	0.2	0.2	-	48	4		2ECBN 012 060 S04	1.2	0.7	6	48	4	
2ECBN 002 004 S04	0.2	0.4	-	48	4		2ECBN 012 080 S04	1.2	0.7	8	48	4	
2ECBN 003 003 S04	0.3	0.3	-	48	4		2ECBN 012 100 S04	1.2	0.7	10	48	4	
2ECBN 003 005 S04	0.3	0.5	-	48	4		2ECBN 012 120 S04	1.2	0.7	12	48	4	
2ECBN 004 015 S04	0.4	0.3	1.5	48	4		2ECBN 012 160 S04	1.2	0.7	16	48	4	
2ECBN 004 020 S04	0.4	0.3	2	48	4		2ECBN 015 030 S04	1.5	0.8	3	48	4	
2ECBN 004 030 S04	0.4	0.3	3	48	4		2ECBN 015 060 S04	1.5	0.8	6	48	4	
2ECBN 004 040 S04	0.4	0.3	4	48	4		2ECBN 015 080 S04	1.5	0.8	8	48	4	
2ECBN 004 050 S04	0.4	0.3	5	48	4		2ECBN 015 100 S04	1.5	0.8	10	48	4	
2ECBN 004 060 S04	0.4	0.3	6	48	4		2ECBN 015 120 S04	1.5	0.8	12	48	4	
2ECBN 005 015 S04	0.5	0.4	1.5	48	4		2ECBN 015 140 S04	1.5	0.8	14	48	4	
2ECBN 005 020 S04	0.5	0.4	2	48	4		2ECBN 015 160 S04	1.5	0.8	16	48	4	
2ECBN 005 030 S04	0.5	0.4	3	48	4		2ECBN 015 180 S04	1.5	0.8	18	48	4	
2ECBN 005 040 S04	0.5	0.4	4	48	4		2ECBN 020 030 S04	2	0.9	3	50	4	
2ECBN 005 050 S04	0.5	0.4	5	48	4		2ECBN 020 060 S04	2	0.9	6	50	4	
2ECBN 005 060 S04	0.5	0.4	6	48	4		2ECBN 020 080 S04	2	0.9	8	50	4	
2ECBN 005 080 S04	0.5	0.4	8	48	4		2ECBN 020 100 S04	2	0.9	10	50	4	
2ECBN 006 015 S04	0.6	0.5	1.5	48	4		2ECBN 020 120 S04	2	0.9	12	50	4	
2ECBN 006 020 S04	0.6	0.5	2	48	4		2ECBN 020 140 S04	2	0.9	14	50	4	
2ECBN 006 030 S04	0.6	0.5	3	48	4		2ECBN 020 160 S04	2	0.9	16	50	4	
2ECBN 006 040 S04	0.6	0.5	4	48	4		2ECBN 020 180 S04	2	0.9	18	50	4	
2ECBN 006 060 S04	0.6	0.5	6	48	4		2ECBN 025 060 S06	2.5	1.2	6	66	6	
2ECBN 006 080 S04	0.6	0.5	8	48	4		2ECBN 025 100 S06	2.5	1.2	10	66	6	
2ECBN 006 100 S04	0.6	0.5	10	48	4		2ECBN 025 160 S06	2.5	1.2	16	66	6	
2ECBN 007 025 S04	0.7	0.5	2.5	48	4		2ECBN 025 200 S06	2.5	1.2	20	66	6	
2ECBN 007 040 S04	0.7	0.5	4	48	4		2ECBN 030 060 S06	3	1.2	6	66	6	
2ECBN 007 060 S04	0.7	0.5	6	48	4		2ECBN 030 080 S06	3	1.2	8	66	6	
2ECBN 008 025 S04	0.8	0.6	2.5	48	4		2ECBN 030 100 S06	3	1.2	10	66	6	
2ECBN 008 040 S04	0.8	0.6	4	48	4		2ECBN 030 120 S06	3	1.2	12	66	6	
2ECBN 008 060 S04	0.8	0.6	6	48	4		2ECBN 030 160 S06	3	1.2	16	66	6	
2ECBN 008 080 S04	0.8	0.6	8	48	4		2ECBN 030 200 S06	3	1.2	20	66	6	
2ECBN 008 100 S04	0.8	0.6	10	48	4		2ECBN 040 060 S06	4	1.5	6	66	6	
2ECBN 009 025 S04	0.9	0.6	2.5	48	4		2ECBN 040 080 S06	4	1.5	8	66	6	
2ECBN 009 040 S04	0.9	0.6	4	48	4		2ECBN 040 100 S06	4	1.5	10	66	6	
2ECBN 009 060 S04	0.9	0.6	6	48	4		2ECBN 040 120 S06	4	1.5	12	66	6	
2ECBN 009 080 S04	0.9	0.6	8	48	4		2ECBN 040 160 S06	4	1.5	16	66	6	
2ECBN 009 100 S04	0.9	0.6	10	48	4		2ECBN 040 200 S06	4	1.5	20	66	6	
2ECBN 010 025 S04	1	0.7	2.5	48	4		2ECBN 060 030 S06	6	3	-	83	6	
2ECBN 010 040 S04	1	0.7	4	48	4		2ECBN 060 100 S06	6	3	10	83	6	
2ECBN 010 050 S04	1	0.7	5	48	4		2ECBN 060 200 S06	6	3	20	83	6	
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								
2ECBN 012 030 S04	1.2	0.7	3	48	4								
2ECBN 012 040 S04	1.2	0.7	4	48	4								



- 고경도강(HRc50~72)의 고정밀(±5µm) 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(±5µm) of hardened steel (HRc50~72)**
- Long tool life by high content 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)



R0.02 ~ 1

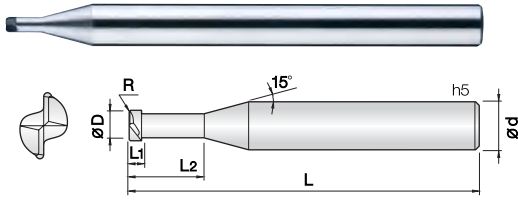
D Size	D Tolerance
Ø0.4 ~ 6	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4		2CCBN 010 002 025	1 X R0.2	0.7	2.5	48	4	
2CCBN 004 0002 020	0.4 X R0.02	0.3	2	48	4		2CCBN 010 002 040	1 X R0.2	0.7	4	48	4	
2CCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4		2CCBN 010 002 060	1 X R0.2	0.7	6	48	4	
2CCBN 004 0005 020	0.4 X R0.05	0.3	2	48	4		2CCBN 010 002 080	1 X R0.2	0.7	8	48	4	
2CCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4		2CCBN 010 002 100	1 X R0.2	0.7	10	48	4	
2CCBN 004 001 020	0.4 X R0.1	0.3	2	48	4		2CCBN 010 003 025	1 X R0.3	0.7	2.5	48	4	
2CCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4		2CCBN 010 003 040	1 X R0.3	0.7	4	48	4	
2CCBN 005 0005 020	0.5 X R0.05	0.4	2	48	4		2CCBN 010 003 060	1 X R0.3	0.7	6	48	4	
2CCBN 005 0005 030	0.5 X R0.05	0.4	3	48	4		2CCBN 010 003 080	1 X R0.3	0.7	8	48	4	
2CCBN 005 0005 040	0.5 X R0.05	0.4	4	48	4		2CCBN 010 003 100	1 X R0.3	0.7	10	48	4	
2CCBN 005 0005 050	0.5 X R0.05	0.4	5	48	4		2CCBN 012 001 030	1.2 X R0.1	0.7	3	48	4	
2CCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4		2CCBN 012 001 040	1.2 X R0.1	0.7	4	48	4	
2CCBN 005 001 020	0.5 X R0.1	0.4	2	48	4		2CCBN 012 001 060	1.2 X R0.1	0.7	6	48	4	
2CCBN 005 001 030	0.5 X R0.1	0.4	3	48	4		2CCBN 012 001 080	1.2 X R0.1	0.7	8	48	4	
2CCBN 005 001 040	0.5 X R0.1	0.4	4	48	4		2CCBN 012 001 100	1.2 X R0.1	0.7	10	48	4	
2CCBN 005 001 050	0.5 X R0.1	0.4	5	48	4		2CCBN 012 002 030	1.2 X R0.2	0.7	3	48	4	
2CCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4		2CCBN 012 002 040	1.2 X R0.2	0.7	4	48	4	
2CCBN 006 0005 030	0.6 X R0.05	0.5	3	48	4		2CCBN 012 002 060	1.2 X R0.2	0.7	6	48	4	
2CCBN 006 0005 040	0.6 X R0.05	0.5	4	48	4		2CCBN 012 002 080	1.2 X R0.2	0.7	8	48	4	
2CCBN 006 0005 060	0.6 X R0.05	0.5	6	48	4		2CCBN 012 002 100	1.2 X R0.2	0.7	10	48	4	
2CCBN 006 001 020	0.6 X R0.1	0.5	2	48	4		2CCBN 012 003 030	1.2 X R0.3	0.7	3	48	4	
2CCBN 006 001 030	0.6 X R0.1	0.5	3	48	4		2CCBN 012 003 040	1.2 X R0.3	0.7	4	48	4	
2CCBN 006 001 040	0.6 X R0.1	0.5	4	48	4		2CCBN 012 003 060	1.2 X R0.3	0.7	6	48	4	
2CCBN 006 001 060	0.6 X R0.1	0.5	6	48	4		2CCBN 012 003 080	1.2 X R0.3	0.7	8	48	4	
2CCBN 007 001 025	0.7 X R0.1	0.5	2.5	48	4		2CCBN 012 003 100	1.2 X R0.3	0.7	10	48	4	
2CCBN 007 001 040	0.7 X R0.1	0.5	4	48	4		2CCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4	
2CCBN 007 001 060	0.7 X R0.1	0.5	6	48	4		2CCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4	
2CCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4		2CCBN 015 0002 060	1.5 X R0.02	0.8	6	48	4	
2CCBN 008 001 040	0.8 X R0.1	0.6	4	48	4		2CCBN 015 0002 080	1.5 X R0.02	0.8	8	48	4	
2CCBN 008 001 060	0.8 X R0.1	0.6	6	48	4		2CCBN 015 0002 100	1.5 X R0.02	0.8	10	48	4	
2CCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4		2CCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4	
2CCBN 008 002 040	0.8 X R0.2	0.6	4	48	4		2CCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4	
2CCBN 008 002 060	0.8 X R0.2	0.6	6	48	4		2CCBN 015 0005 060	1.5 X R0.05	0.8	6	48	4	
2CCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4		2CCBN 015 0005 080	1.5 X R0.05	0.8	8	48	4	
2CCBN 010 0002 040	1 X R0.02	0.7	4	48	4		2CCBN 015 0005 100	1.5 X R0.05	0.8	10	48	4	
2CCBN 010 0002 060	1 X R0.02	0.7	6	48	4		2CCBN 015 001 030	1.5 X R0.1	0.8	3	48	4	
2CCBN 010 0002 080	1 X R0.02	0.7	8	48	4		2CCBN 015 001 040	1.5 X R0.1	0.8	4	48	4	
2CCBN 010 0002 100	1 X R0.02	0.7	10	48	4		2CCBN 015 001 060	1.5 X R0.1	0.8	6	48	4	
2CCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4		2CCBN 015 001 080	1.5 X R0.1	0.8	8	48	4	
2CCBN 010 0005 040	1 X R0.05	0.7	4	48	4		2CCBN 015 001 100	1.5 X R0.1	0.8	10	48	4	
2CCBN 010 0005 060	1 X R0.05	0.7	6	48	4		2CCBN 015 002 030	1.5 X R0.2	0.8	3	48	4	
2CCBN 010 0005 080	1 X R0.05	0.7	8	48	4		2CCBN 015 002 040	1.5 X R0.2	0.8	4	48	4	
2CCBN 010 0005 100	1 X R0.05	0.7	10	48	4		2CCBN 015 002 060	1.5 X R0.2	0.8	6	48	4	
2CCBN 010 001 025	1 X R0.1	0.7	2.5	48	4		2CCBN 015 002 080	1.5 X R0.2	0.8	8	48	4	
2CCBN 010 001 040	1 X R0.1	0.7	4	48	4		2CCBN 015 002 100	1.5 X R0.2	0.8	10	48	4	
2CCBN 010 001 060	1 X R0.1	0.7	6	48	4		2CCBN 015 003 030	1.5 X R0.3	0.8	3	48	4	
2CCBN 010 001 080	1 X R0.1	0.7	8	48	4		2CCBN 015 003 040	1.5 X R0.3	0.8	4	48	4	
2CCBN 010 001 100	1 X R0.1	0.7	10	48	4		2CCBN 015 003 060	1.5 X R0.3	0.8	6	48	4	

단위 : mm

Order Number	날경 D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CCBN 015 003 080	1.5 X R0.3	0.8	8	48	4		2CCBN 040 005 100	4 X R0.5	1.5	10	66	6	
2CCBN 015 003 100	1.5 X R0.3	0.8	10	48	4		2CCBN 040 005 160	4 X R0.5	1.5	16	66	6	
2CCBN 020 0002 030	2 X R0.02	0.9	3	50	4		2CCBN 040 010 060	4 X R1	1.5	6	66	6	
2CCBN 020 0002 060	2 X R0.02	0.9	6	50	4		2CCBN 040 010 100	4 X R1	1.5	10	66	6	
2CCBN 020 0002 080	2 X R0.02	0.9	8	50	4		2CCBN 040 010 160	4 X R1	1.5	16	66	6	
2CCBN 020 0002 100	2 X R0.02	0.9	10	50	4		2CCBN 060 003 030	6 X R0.3	3	-	83	6	
2CCBN 020 0005 030	2 X R0.05	0.9	3	50	4		2CCBN 060 003 150	6 X R0.3	3	15	83	6	
2CCBN 020 0005 060	2 X R0.05	0.9	6	50	4		2CCBN 060 005 030	6 X R0.5	3	-	83	6	
2CCBN 020 0005 080	2 X R0.05	0.9	8	50	4		2CCBN 060 005 150	6 X R0.5	3	15	83	6	
2CCBN 020 0005 100	2 X R0.05	0.9	10	50	4		2CCBN 060 010 030	6 X R1	3	-	83	6	
2CCBN 020 001 030	2 X R0.1	0.9	3	50	4		2CCBN 060 010 150	6 X R1	3	15	83	6	
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								
2CCBN 020 002 030	2 X R0.2	0.9	3	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								
2CCBN 020 003 030	2 X R0.3	0.9	3	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								
2CCBN 020 005 030	2 X R0.5	0.9	3	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								
2CCBN 025 001 060	2.5 X R0.1	1.2	6	66	6								
2CCBN 025 001 100	2.5 X R0.1	1.2	10	66	6								
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2CCBN 025 002 100	2.5 X R0.2	1.2	10	66	6								
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2CCBN 025 003 100	2.5 X R0.3	1.2	10	66	6								
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								
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								
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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								
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								
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								
2CCBN 040 001 060	4 X R0.1	1.5	6	66	6								
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								
2CCBN 040 002 060	4 X R0.2	1.5	6	66	6								
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								
2CCBN 040 003 060	4 X R0.3	1.5	6	66	6								
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								
2CCBN 040 005 060	4 X R0.5	1.5	6	66	6								



- **고경도강(HRc50~72)의 고정밀(±5μm) 정삭가공용 엔드밀**
- 고풍량의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부 스트레이트 타입 형상으로 치핑을 더욱 최소화 하였습니다.
- 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(±5μm) of hardened steel (HRc50~72)**
- Long tool life by high content PCBN.
- Straight type Design for Minimizing edge chipping.
- 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)

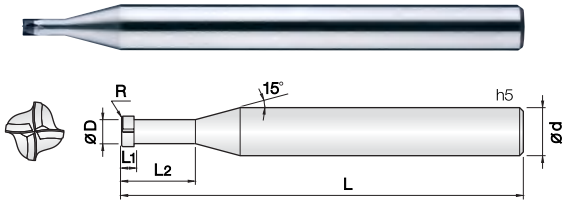


R0.02 ~ 1

D Size	D Tolerance
ø0.4 ~ 6	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2SCCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4		2SCCBN 030 002 060	3 X R0.2	1.2	6	66	6	
2SCCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4		2SCCBN 030 002 100	3 X R0.2	1.2	10	66	6	
2SCCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4		2SCCBN 030 003 060	3 X R0.3	1.2	6	66	6	
2SCCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4		2SCCBN 030 003 100	3 X R0.3	1.2	10	66	6	
2SCCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4		2SCCBN 030 005 060	3 X R0.5	1.2	6	66	6	
2SCCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4		2SCCBN 030 005 100	3 X R0.5	1.2	10	66	6	
2SCCBN 006 001 020	0.6 X R0.1	0.5	2	48	4		2SCCBN 030 005 160	3 X R0.5	1.2	16	66	6	
2SCCBN 008 001 020	0.8 X R0.1	0.6	2	48	4		2SCCBN 030 010 060	3 X R1	1.2	6	66	6	
2SCCBN 008 002 020	0.8 X R0.2	0.6	2	48	4		2SCCBN 030 010 100	3 X R1	1.2	10	66	6	
2SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4		2SCCBN 030 010 160	3 X R1	1.2	16	66	6	
2SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4		2SCCBN 040 001 060	4 X R0.1	1.5	6	66	6	
2SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4		2SCCBN 040 001 100	4 X R0.1	1.5	10	66	6	
2SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4		2SCCBN 040 001 160	4 X R0.1	1.5	16	66	6	
2SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4		2SCCBN 040 002 060	4 X R0.2	1.5	6	66	6	
2SCCBN 010 001 040	1 X R0.1	0.7	4	48	4		2SCCBN 040 002 100	4 X R0.2	1.5	10	66	6	
2SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4		2SCCBN 040 002 160	4 X R0.2	1.5	16	66	6	
2SCCBN 010 002 040	1 X R0.2	0.7	4	48	4		2SCCBN 040 003 060	4 X R0.3	1.5	6	66	6	
2SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4		2SCCBN 040 003 100	4 X R0.3	1.5	10	66	6	
2SCCBN 010 003 040	1 X R0.3	0.7	4	48	4		2SCCBN 040 003 160	4 X R0.3	1.5	16	66	6	
2SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4		2SCCBN 040 005 060	4 X R0.5	1.5	6	66	6	
2SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4		2SCCBN 040 005 100	4 X R0.5	1.5	10	66	6	
2SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4		2SCCBN 040 005 160	4 X R0.5	1.5	16	66	6	
2SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4		2SCCBN 040 010 060	4 X R1	1.5	6	66	6	
2SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4		2SCCBN 040 010 100	4 X R1	1.5	10	66	6	
2SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4		2SCCBN 040 010 160	4 X R1	1.5	16	66	6	
2SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4		2SCCBN 060 003 030	6 X R0.3	3	-	83	6	
2SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4		2SCCBN 060 003 150	6 X R0.3	3	15	83	6	
2SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4		2SCCBN 060 005 030	6 X R0.5	3	-	83	6	
2SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4		2SCCBN 060 005 150	6 X R0.5	3	15	83	6	
2SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4		2SCCBN 060 010 030	6 X R1	3	-	83	6	
2SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4		2SCCBN 060 010 150	6 X R1	3	15	83	6	
2SCCBN 020 0005 030	2 X R0.05	0.9	3	50	4								
2SCCBN 020 0005 060	2 X R0.05	0.9	6	50	4								
2SCCBN 020 001 030	2 X R0.1	0.9	3	50	4								
2SCCBN 020 001 060	2 X R0.1	0.9	6	50	4								
2SCCBN 020 002 030	2 X R0.2	0.9	3	50	4								
2SCCBN 020 002 060	2 X R0.2	0.9	6	50	4								
2SCCBN 020 003 030	2 X R0.3	0.9	3	50	4								
2SCCBN 020 003 060	2 X R0.3	0.9	6	50	4								
2SCCBN 020 005 030	2 X R0.5	0.9	3	50	4								
2SCCBN 020 005 060	2 X R0.5	0.9	6	50	4								
2SCCBN 025 001 060	2.5 X R0.1	1.2	6	66	6								
2SCCBN 025 002 060	2.5 X R0.2	1.2	6	66	6								
2SCCBN 025 003 060	2.5 X R0.3	1.2	6	66	6								
2SCCBN 030 001 060	3 X R0.1	1.2	6	66	6								
2SCCBN 030 001 100	3 X R0.1	1.2	10	66	6								



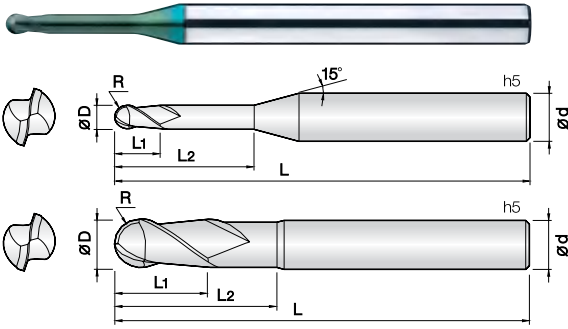
R0.1 ~ 1

- 고경도강(HRc50~72)의 고정밀( $\pm 5\mu\text{m}$ ) 정삭가공용 엔드밀
- 고품질의 PCBN을 적용하여 장시간 가공이 가능합니다.
- 날부 스트레이트 타입 형상으로 치핑을 더욱 최소화 하였습니다.
- 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( $\pm 5\mu\text{m}$ ) of hardened steel (HRc50~72)**
- Long tool life by high content PCBN.
- Straight type Design for Minimizing edge chipping.
- 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)

D Size	D Tolerance
$\varnothing 0.8 \sim 6$	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고
4SCCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4		4SCCBN 030 003 100	3 X R0.3	1.2	10	66	6	
4SCCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4		4SCCBN 030 005 060	3 X R0.5	1.2	6	66	6	
4SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4		4SCCBN 030 005 100	3 X R0.5	1.2	10	66	6	
4SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4		4SCCBN 030 005 160	3 X R0.5	1.2	16	66	6	
4SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4		4SCCBN 030 010 060	3 X R1	1.2	6	66	6	
4SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4		4SCCBN 030 010 100	3 X R1	1.2	10	66	6	
4SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4		4SCCBN 030 010 160	3 X R1	1.2	16	66	6	
4SCCBN 010 001 040	1 X R0.1	0.7	4	48	4		4SCCBN 040 001 060	4 X R0.1	1.5	6	66	6	
4SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4		4SCCBN 040 001 100	4 X R0.1	1.5	10	66	6	
4SCCBN 010 002 040	1 X R0.2	0.7	4	48	4		4SCCBN 040 001 160	4 X R0.1	1.5	16	66	6	
4SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4		4SCCBN 040 002 060	4 X R0.2	1.5	6	66	6	
4SCCBN 010 003 040	1 X R0.3	0.7	4	48	4		4SCCBN 040 002 100	4 X R0.2	1.5	10	66	6	
4SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4		4SCCBN 040 002 160	4 X R0.2	1.5	16	66	6	
4SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4		4SCCBN 040 003 060	4 X R0.3	1.5	6	66	6	
4SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4		4SCCBN 040 003 100	4 X R0.3	1.5	10	66	6	
4SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4		4SCCBN 040 003 160	4 X R0.3	1.5	16	66	6	
4SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4		4SCCBN 040 005 060	4 X R0.5	1.5	6	66	6	
4SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4		4SCCBN 040 005 100	4 X R0.5	1.5	10	66	6	
4SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4		4SCCBN 040 005 160	4 X R0.5	1.5	16	66	6	
4SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4		4SCCBN 040 010 060	4 X R1	1.5	6	66	6	
4SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4		4SCCBN 040 010 100	4 X R1	1.5	10	66	6	
4SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4		4SCCBN 040 010 160	4 X R1	1.5	16	66	6	
4SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4		4SCCBN 060 003 030	6 X R0.3	3	-	83	6	
4SCCBN 020 0002 040	2 X R0.02	0.9	4	50	4		4SCCBN 060 003 150	6 X R0.3	3	15	83	6	
4SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4		4SCCBN 060 005 030	6 X R0.5	3	-	83	6	
4SCCBN 020 0005 030	2 X R0.05	0.9	3	50	4		4SCCBN 060 005 150	6 X R0.5	3	15	83	6	
4SCCBN 020 0005 040	2 X R0.05	0.9	4	50	4		4SCCBN 060 010 030	6 X R1	3	-	83	6	
4SCCBN 020 0005 060	2 X R0.05	0.9	6	50	4		4SCCBN 060 010 150	6 X R1	3	15	83	6	
4SCCBN 020 001 030	2 X R0.1	0.9	3	50	4								
4SCCBN 020 001 040	2 X R0.1	0.9	4	50	4								
4SCCBN 020 001 060	2 X R0.1	0.9	6	50	4								
4SCCBN 020 002 030	2 X R0.2	0.9	3	50	4								
4SCCBN 020 002 040	2 X R0.2	0.9	4	50	4								
4SCCBN 020 002 060	2 X R0.2	0.9	6	50	4								
4SCCBN 020 003 030	2 X R0.3	0.9	3	50	4								
4SCCBN 020 003 040	2 X R0.3	0.9	4	50	4								
4SCCBN 020 003 060	2 X R0.3	0.9	6	50	4								
4SCCBN 020 005 030	2 X R0.5	0.9	3	50	4								
4SCCBN 020 005 040	2 X R0.5	0.9	4	50	4								
4SCCBN 020 005 060	2 X R0.5	0.9	6	50	4								
4SCCBN 025 001 060	2.5 X R0.1	1.2	6	66	6								
4SCCBN 025 002 060	2.5 X R0.2	1.2	6	66	6								
4SCCBN 025 003 060	2.5 X R0.3	1.2	6	66	6								
4SCCBN 030 001 060	3 X R0.1	1.2	6	66	6								
4SCCBN 030 001 100	3 X R0.1	1.2	10	66	6								
4SCCBN 030 002 060	3 X R0.2	1.2	6	66	6								
4SCCBN 030 002 100	3 X R0.2	1.2	10	66	6								
4SCCBN 030 003 060	3 X R0.3	1.2	6	66	6								



- 고경도강(HRC52~70), 프리하든강 계열의 고정밀가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRC52~70)
- 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 (0.2µm) WC grade.



D Size	D Tolerance
Ø0.1	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 001 003 S04	0.05R X 0.1	0.3	-	40	4		2JJRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2JJRB 001 005 S04	0.05R X 0.1	0.5	-	40	4		2JJRB 006 020 S06	0.3R X 0.6	0.6	2	50	6	
2JJRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2JJRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
2JJRB 002 010 S04	0.1R X 0.2	0.2	1	40	4		2JJRB 006 030 S06	0.3R X 0.6	0.6	3	50	6	
2JJRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2JJRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2JJRB 002 020 S04	0.1R X 0.2	0.2	2	40	4		2JJRB 006 040 S06	0.3R X 0.6	0.6	4	50	6	
2JJRB 002 025 S04	0.1R X 0.2	0.2	2.5	40	4		2JJRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
2JJRB 002 030 S04	0.1R X 0.2	0.2	3	40	4		2JJRB 006 050 S06	0.3R X 0.6	0.6	5	50	6	
2JJRB 003 010 S04	0.15R X 0.3	0.3	1	40	4		2JJRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2JJRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2JJRB 006 060 S06	0.3R X 0.6	0.6	6	50	6	
2JJRB 003 020 S04	0.15R X 0.3	0.3	2	40	4		2JJRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2JJRB 003 025 S04	0.15R X 0.3	0.3	2.5	40	4		2JJRB 006 080 S06	0.3R X 0.6	0.6	8	50	6	
2JJRB 003 030 S04	0.15R X 0.3	0.3	3	40	4		2JJRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2JJRB 003 035 S04	0.15R X 0.3	0.3	3.5	40	4		2JJRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2JJRB 003 040 S04	0.15R X 0.3	0.3	4	40	4		2JJRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
2JJRB 003 050 S04	0.15R X 0.3	0.3	5	40	4		2JJRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2JJRB 004 010 S04	0.2R X 0.4	0.4	1	40	4		2JJRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2JJRB 004 015 S04	0.2R X 0.4	0.4	1.5	40	4		2JJRB 007 060 S04	0.35R X 0.7	0.7	6	45	4	
2JJRB 004 020 S04	0.2R X 0.4	0.4	2	40	4		2JJRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
2JJRB 004 025 S04	0.2R X 0.4	0.4	2.5	40	4		2JJRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2JJRB 004 030 S04	0.2R X 0.4	0.4	3	40	4		2JJRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2JJRB 004 035 S04	0.2R X 0.4	0.4	3.5	40	4		2JJRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2JJRB 004 040 S04	0.2R X 0.4	0.4	4	40	4		2JJRB 008 020 S06	0.4R X 0.8	0.8	2	50	6	
2JJRB 004 045 S04	0.2R X 0.4	0.4	4.5	40	4		2JJRB 008 030 S04	0.4R X 0.8	0.8	3	45	4	
2JJRB 004 050 S04	0.2R X 0.4	0.4	5	40	4		2JJRB 008 030 S06	0.4R X 0.8	0.8	3	50	6	
2JJRB 004 060 S04	0.2R X 0.4	0.4	6	40	4		2JJRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2JJRB 004 080 S04	0.2R X 0.4	0.4	8	40	4		2JJRB 008 040 S06	0.4R X 0.8	0.8	4	50	6	
2JJRB 005 010 S04	0.25R X 0.5	0.5	1	45	4		2JJRB 008 050 S04	0.4R X 0.8	0.8	5	45	4	
2JJRB 005 010 S06	0.25R X 0.5	0.5	1	50	6		2JJRB 008 050 S06	0.4R X 0.8	0.8	5	50	6	
2JJRB 005 015 S04	0.25R X 0.5	0.5	1.5	45	4		2JJRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2JJRB 005 020 S04	0.25R X 0.5	0.5	2	45	4		2JJRB 008 060 S06	0.4R X 0.8	0.8	6	50	6	
2JJRB 005 020 S06	0.25R X 0.5	0.5	2	50	6		2JJRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2JJRB 005 025 S04	0.25R X 0.5	0.5	2.5	45	4		2JJRB 008 080 S06	0.4R X 0.8	0.8	8	50	6	
2JJRB 005 030 S04	0.25R X 0.5	0.5	3	45	4		2JJRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2JJRB 005 030 S06	0.25R X 0.5	0.5	3	50	6		2JJRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2JJRB 005 035 S04	0.25R X 0.5	0.5	3.5	45	4		2JJRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2JJRB 005 040 S04	0.25R X 0.5	0.5	4	45	4		2JJRB 009 060 S04	0.45R X 0.9	0.9	6	45	4	
2JJRB 005 040 S06	0.25R X 0.5	0.5	4	50	6		2JJRB 009 080 S04	0.45R X 0.9	0.9	8	45	4	
2JJRB 005 045 S04	0.25R X 0.5	0.5	4.5	45	4		2JJRB 009 100 S04	0.45R X 0.9	0.9	10	50	4	
2JJRB 005 050 S04	0.25R X 0.5	0.5	5	45	4		2JJRB 009 120 S04	0.45R X 0.9	0.9	12	50	4	
2JJRB 005 050 S06	0.25R X 0.5	0.5	5	50	6		2JJRB 010 020 S04	0.5R X 1	1	2	45	4	
2JJRB 005 060 S04	0.25R X 0.5	0.5	6	45	4		2JJRB 010 020 S06	0.5R X 1	1	2	50	6	
2JJRB 005 060 S06	0.25R X 0.5	0.5	6	50	6		2JJRB 010 030 S04	0.5R X 1	1	3	45	4	
2JJRB 005 080 S04	0.25R X 0.5	0.5	8	45	4		2JJRB 010 030 S06	0.5R X 1	1	3	50	6	
2JJRB 005 100 S04	0.25R X 0.5	0.5	10	45	4		2JJRB 010 040 S04	0.5R X 1	1	4	45	4	
2JJRB 005 120 S04	0.25R X 0.5	0.5	12	45	4		2JJRB 010 040 S06	0.5R X 1	1	4	50	6	
2JJRB 006 010 S04	0.3R X 0.6	0.6	1	45	4		2JJRB 010 050 S04	0.5R X 1	1	5	45	4	
2JJRB 006 010 S06	0.3R X 0.6	0.6	1	50	6		2JJRB 010 050 S06	0.5R X 1	1	5	50	6	



단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 010 060 S04	0.5R X 1	1	6	45	4		2JJRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2JJRB 010 060 S06	0.5R X 1	1	6	50	6		2JJRB 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2JJRB 010 080 S04	0.5R X 1	1	8	45	4		2JJRB 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2JJRB 010 080 S06	0.5R X 1	1	8	50	6		2JJRB 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2JJRB 010 100 S04	0.5R X 1	1	10	50	4		2JJRB 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2JJRB 010 100 S06	0.5R X 1	1	10	50	6		2JJRB 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2JJRB 010 120 S04	0.5R X 1	1	12	50	4		2JJRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2JJRB 010 120 S06	0.5R X 1	1	12	50	6		2JJRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2JJRB 010 140 S04	0.5R X 1	1	14	50	4		2JJRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2JJRB 010 160 S04	0.5R X 1	1	16	50	4		2JJRB 018 060 S04	0.9R X 1.8	1.8	6	50	4	
2JJRB 010 180 S04	0.5R X 1	1	18	50	4		2JJRB 018 080 S04	0.9R X 1.8	1.8	8	50	4	
2JJRB 010 200 S04	0.5R X 1	1	20	50	4		2JJRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	
2JJRB 010 220 S04	0.5R X 1	1	22	60	4		2JJRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2JJRB 010 250 S04	0.5R X 1	1	25	60	4		2JJRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
2JJRB 012 040 S04	0.6R X 1.2	1.2	4	45	4		2JJRB 020 040 S04	1R X 2	2	4	45	4	
2JJRB 012 040 S06	0.6R X 1.2	1.2	4	50	6		2JJRB 020 040 S06	1R X 2	2	4	50	6	
2JJRB 012 060 S04	0.6R X 1.2	1.2	6	45	4		2JJRB 020 060 S04	1R X 2	2	6	45	4	
2JJRB 012 060 S06	0.6R X 1.2	1.2	6	50	6		2JJRB 020 060 S06	1R X 2	2	6	50	6	
2JJRB 012 080 S04	0.6R X 1.2	1.2	8	45	4		2JJRB 020 080 S04	1R X 2	2	8	45	4	
2JJRB 012 080 S06	0.6R X 1.2	1.2	8	50	6		2JJRB 020 080 S06	1R X 2	2	8	50	6	
2JJRB 012 100 S04	0.6R X 1.2	1.2	10	50	4		2JJRB 020 100 S04	1R X 2	2	10	50	4	
2JJRB 012 100 S06	0.6R X 1.2	1.2	10	50	6		2JJRB 020 100 S06	1R X 2	2	10	50	6	
2JJRB 012 120 S04	0.6R X 1.2	1.2	12	50	4		2JJRB 020 120 S04	1R X 2	2	12	50	4	
2JJRB 012 120 S06	0.6R X 1.2	1.2	12	50	6		2JJRB 020 120 S06	1R X 2	2	12	50	6	
2JJRB 012 160 S04	0.6R X 1.2	1.2	16	50	4		2JJRB 020 140 S04	1R X 2	2	14	50	4	
2JJRB 012 200 S04	0.6R X 1.2	1.2	20	50	4		2JJRB 020 140 S06	1R X 2	2	14	50	6	
2JJRB 012 240 S04	0.6R X 1.2	1.2	24	60	4		2JJRB 020 160 S04	1R X 2	2	16	50	4	
2JJRB 014 060 S04	0.7R X 1.4	1.4	6	45	4		2JJRB 020 160 S06	1R X 2	2	16	60	6	
2JJRB 014 080 S04	0.7R X 1.4	1.4	8	45	4		2JJRB 020 180 S04	1R X 2	2	18	50	4	
2JJRB 014 120 S04	0.7R X 1.4	1.4	12	50	4		2JJRB 020 180 S06	1R X 2	2	18	60	6	
2JJRB 014 160 S04	0.7R X 1.4	1.4	16	50	4		2JJRB 020 200 S04	1R X 2	2	20	50	4	
2JJRB 015 030 S04	0.75R X 1.5	1.5	3	45	4		2JJRB 020 200 S06	1R X 2	2	20	60	6	
2JJRB 015 030 S06	0.75R X 1.5	1.5	3	50	6		2JJRB 020 220 S04	1R X 2	2	22	60	4	
2JJRB 015 040 S04	0.75R X 1.5	1.5	4	45	4		2JJRB 020 250 S04	1R X 2	2	25	60	4	
2JJRB 015 040 S06	0.75R X 1.5	1.5	4	50	6		2JJRB 020 300 S04	1R X 2	2	30	60	4	
2JJRB 015 060 S04	0.75R X 1.5	1.5	6	45	4		2JJRB 025 080 S04	1.25R X 2.5	2.5	8	45	4	
2JJRB 015 060 S06	0.75R X 1.5	1.5	6	50	6		2JJRB 025 080 S06	1.25R X 2.5	2.5	8	50	6	
2JJRB 015 080 S04	0.75R X 1.5	1.5	8	45	4		2JJRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2JJRB 015 080 S06	0.75R X 1.5	1.5	8	50	6		2JJRB 025 100 S06	1.25R X 2.5	2.5	10	50	6	
2JJRB 015 100 S04	0.75R X 1.5	1.5	10	50	4		New 2JJRB 025 120 S04	1.25R X 2.5	2.5	12	50	4	
2JJRB 015 100 S06	0.75R X 1.5	1.5	10	50	6		New 2JJRB 025 120 S06	1.25R X 2.5	2.5	12	50	6	
2JJRB 015 120 S04	0.75R X 1.5	1.5	12	50	4		2JJRB 025 160 S04	1.25R X 2.5	2.5	16	50	4	
2JJRB 015 120 S06	0.75R X 1.5	1.5	12	50	6		2JJRB 025 160 S06	1.25R X 2.5	2.5	16	60	6	
2JJRB 015 140 S04	0.75R X 1.5	1.5	14	50	4		2JJRB 025 200 S04	1.25R X 2.5	2.5	20	60	4	
2JJRB 015 140 S06	0.75R X 1.5	1.5	14	50	6		2JJRB 025 200 S06	1.25R X 2.5	2.5	20	60	6	
2JJRB 015 160 S04	0.75R X 1.5	1.5	16	50	4		2JJRB 025 250 S04	1.25R X 2.5	2.5	25	60	4	
2JJRB 015 160 S06	0.75R X 1.5	1.5	16	60	6		2JJRB 025 300 S04	1.25R X 2.5	2.5	30	70	4	
2JJRB 015 180 S04	0.75R X 1.5	1.5	18	50	4		2JJRB 030 060 S06	1.5R X 3	3	6	50	6	

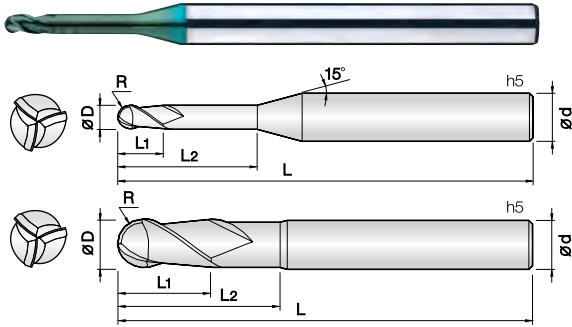


단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고									
2JJRB 030 080 S06	1.5R X 3	3	8	50	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	60	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										
New 2JJRB 030 500 S06	1.5R X 3	3	50	100	6										
2JJRB 035 100 S06	1.75R X 3.5	3.5	10	50	6										
2JJRB 035 150 S06	1.75R X 3.5	3.5	15	60	6										
2JJRB 035 200 S06	1.75R X 3.5	3.5	20	60	6										
2JJRB 035 250 S06	1.75R X 3.5	3.5	25	65	6										
2JJRB 035 300 S06	1.75R X 3.5	3.5	30	70	6										
2JJRB 035 350 S06	1.75R X 3.5	3.5	35	75	6										
2JJRB 035 400 S06	1.75R X 3.5	3.5	40	80	6										
2JJRB 040 080 S06	2R X 4	4	8	50	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	60	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										
New 2JJRB 040 500 S06	2R X 4	4	50	100	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	75	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										
New 2JJRB 050 500 S06	2.5R X 5	6	50	100	6										
2JJRB 060 150 S06	3R X 6	10	15	55	6										
New 2JJRB 060 300 100	3R X 6	10	30	100	6										
New 2JJRB 060 500 120	3R X 6	10	50	120	6										
2JJRB 080 250 060	4R X 8	12	25	60	8										
New 2JJRB 080 300 100	4R X 8	12	30	100	8										
New 2JJRB 080 600 120	4R X 8	12	60	120	8										
2JJRB 100 300 070	5R X 10	16	30	70	10										
New 2JJRB 100 450 100	5R X 10	16	45	100	10										
New 2JJRB 100 600 130	5R X 10	16	60	130	10										
2JJRB 120 300 075	6R X 12	18	30	75	12										
New 2JJRB 120 500 110	6R X 12	18	50	110	12										
New 2JJRB 120 600 130	6R X 12	18	60	130	12										

## 3날 고경도재 가공용 제이제이 리브 볼 엔드밀

JJ series



- 고경도강(HRc52~70), 프리하드강 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel(HRc52~70)**
- 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 $\mu$ m) WC grade.

3

UWC  
초미립자

TISIN-S  
Coating

R  
 $\pm 0.005$

R  
 $\pm 0.007$

R  
 $\pm 0.01$

30°  
Helix Angle

0.5 ~ 1.25R    1.5 ~ 3R    4 ~ 6R

D Size	D Tolerance
$\phi 1 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
3JJRB 010 040 S04	0.5R X 1	1.2	4	50	4		3JJRB 120 350 075	6R X 12	18	35	75	12	
3JJRB 010 060 S04	0.5R X 1	1.2	6	50	4		3JJRB 120 600 110	6R X 12	18	60	110	12	
3JJRB 010 080 S04	0.5R X 1	1.2	8	50	4								
3JJRB 010 100 S04	0.5R X 1	1.2	10	50	4								
3JJRB 010 120 S04	0.5R X 1	1.2	12	50	4								
3JJRB 010 160 S04	0.5R X 1	1.2	16	50	4								
3JJRB 015 060 S04	0.75R X 1.5	1.8	6	50	4								
3JJRB 015 080 S04	0.75R X 1.5	1.8	8	50	4								
3JJRB 015 100 S04	0.75R X 1.5	1.8	10	50	4								
3JJRB 015 120 S04	0.75R X 1.5	1.8	12	50	4								
3JJRB 015 160 S04	0.75R X 1.5	1.8	16	50	4								
3JJRB 015 200 S04	0.75R X 1.5	1.8	20	60	4								
3JJRB 020 080 S04	1R X 2	2.4	8	50	4								
3JJRB 020 100 S04	1R X 2	2.4	10	50	4								
3JJRB 020 120 S04	1R X 2	2.4	12	50	4								
3JJRB 020 160 S04	1R X 2	2.4	16	50	4								
3JJRB 020 200 S04	1R X 2	2.4	20	60	4								
3JJRB 020 250 S04	1R X 2	2.4	25	70	4								
3JJRB 025 080 S04	1.25R X 2.5	3	8	50	4								
3JJRB 025 100 S04	1.25R X 2.5	3	10	50	4								
3JJRB 025 120 S04	1.25R X 2.5	3	12	50	4								
3JJRB 025 160 S04	1.25R X 2.5	3	16	50	4								
3JJRB 025 200 S04	1.25R X 2.5	3	20	60	4								
3JJRB 025 250 S04	1.25R X 2.5	3	25	70	4								
3JJRB 030 120 S06	1.5R X 3	3.6	12	60	6								
3JJRB 030 160 S06	1.5R X 3	3.6	16	60	6								
3JJRB 030 200 S06	1.5R X 3	3.6	20	65	6								
3JJRB 030 250 S06	1.5R X 3	3.6	25	70	6								
3JJRB 030 300 S06	1.5R X 3	3.6	30	75	6								
3JJRB 030 400 S06	1.5R X 3	3.6	40	90	6								
3JJRB 030 500 S06	1.5R X 3	3.6	50	100	6								
3JJRB 040 160 S06	2R X 4	4.8	16	60	6								
3JJRB 040 200 S06	2R X 4	4.8	20	65	6								
3JJRB 040 250 S06	2R X 4	4.8	25	70	6								
3JJRB 040 300 S06	2R X 4	4.8	30	75	6								
3JJRB 040 400 S06	2R X 4	4.8	40	90	6								
3JJRB 040 500 S06	2R X 4	4.8	50	100	6								
3JJRB 040 600 S06	2R X 4	4.8	60	110	6								
3JJRB 050 300 S06	2.5R X 5	6	30	75	6								
3JJRB 050 400 S06	2.5R X 5	6	40	90	6								
3JJRB 050 500 S06	2.5R X 5	6	50	100	6								
3JJRB 050 600 S06	2.5R X 5	6	60	110	6								
3JJRB 060 200 060	3R X 6	9	20	60	6								
3JJRB 060 300 090	3R X 6	9	30	90	6								
3JJRB 080 250 060	4R X 8	12	25	60	8								
3JJRB 080 400 100	4R X 8	12	40	100	8								
3JJRB 100 300 070	5R X 10	15	30	70	10								
3JJRB 100 500 110	5R X 10	15	50	110	10								





Order Number	날경 Diameter R x D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJTB 008 003 080	0.4R X 0.8	0°30	0.8	8	45	4		2JJTB 010 013 250	0.5R X 1	1°30	1	25	60	4	
2JJTB 008 003 100	0.4R X 0.8	0°30	0.8	10	45	4		2JJTB 010 013 300	0.5R X 1	1°30	1	30	70	4	
2JJTB 008 003 120	0.4R X 0.8	0°30	0.8	12	50	4		New 2JJTB 010 013 350	0.5R X 1	1°30	1	35	80	4	
New 2JJTB 008 003 150	0.4R X 0.8	0°30	0.8	15	50	4		New 2JJTB 010 013 400	0.5R X 1	1°30	1	40	80	4	
New 2JJTB 008 003 200	0.4R X 0.8	0°30	0.8	20	60	4		2JJTB 010 020 150	0.5R X 1	2°	1	15	50	4	
2JJTB 008 010 040	0.4R X 0.8	1°	0.8	4	45	4		2JJTB 010 020 200	0.5R X 1	2°	1	20	50	4	
2JJTB 008 010 060	0.4R X 0.8	1°	0.8	6	45	4		2JJTB 010 020 250	0.5R X 1	2°	1	25	60	4	
2JJTB 008 010 080	0.4R X 0.8	1°	0.8	8	45	4		2JJTB 010 020 300	0.5R X 1	2°	1	30	70	4	
2JJTB 008 010 100	0.4R X 0.8	1°	0.8	10	45	4		New 2JJTB 010 020 400	0.5R X 1	2°	1	40	80	4	
2JJTB 008 010 120	0.4R X 0.8	1°	0.8	12	50	4		2JJTB 010 030 200	0.5R X 1	3°	1	20	50	4	
2JJTB 008 010 160	0.4R X 0.8	1°	0.8	16	50	4		2JJTB 010 030 300	0.5R X 1	3°	1	30	70	6	
New 2JJTB 008 010 200	0.4R X 0.8	1°	0.8	20	60	4		2JJTB 010 030 400	0.5R X 1	3°	1	40	80	6	
2JJTB 008 013 040	0.4R X 0.8	1°30	0.8	4	45	4		New 2JJTB 010 030 500	0.5R X 1	3°	1	50	90	6	
2JJTB 008 013 060	0.4R X 0.8	1°30	0.8	6	45	4		2JJTB 010 050 230	0.5R X 1	5°	1	23	60	6	
2JJTB 008 013 080	0.4R X 0.8	1°30	0.8	8	45	4		2JJTB 012 003 080	0.6R X 1.2	0°30	1.2	8	50	4	
2JJTB 008 013 100	0.4R X 0.8	1°30	0.8	10	45	4		2JJTB 012 003 120	0.6R X 1.2	0°30	1.2	12	50	4	
2JJTB 008 013 120	0.4R X 0.8	1°30	0.8	12	50	4		2JJTB 012 003 180	0.6R X 1.2	0°30	1.2	18	50	4	
2JJTB 008 013 160	0.4R X 0.8	1°30	0.8	16	50	4		2JJTB 012 003 240	0.6R X 1.2	0°30	1.2	24	60	4	
New 2JJTB 008 013 200	0.4R X 0.8	1°30	0.8	20	60	4		2JJTB 012 010 080	0.6R X 1.2	1°	1.2	8	50	4	
2JJTB 008 020 080	0.4R X 0.8	2°	0.8	8	50	4		2JJTB 012 010 120	0.6R X 1.2	1°	1.2	12	50	4	
2JJTB 008 020 100	0.4R X 0.8	2°	0.8	10	50	4		2JJTB 012 010 180	0.6R X 1.2	1°	1.2	18	50	4	
2JJTB 008 020 120	0.4R X 0.8	2°	0.8	12	50	4		2JJTB 012 010 240	0.6R X 1.2	1°	1.2	24	60	4	
2JJTB 008 020 160	0.4R X 0.8	2°	0.8	16	50	4		2JJTB 012 013 080	0.6R X 1.2	1°30	1.2	8	50	4	
New 2JJTB 008 020 200	0.4R X 0.8	2°	0.8	20	60	4		2JJTB 012 013 120	0.6R X 1.2	1°30	1.2	12	50	4	
2JJTB 008 030 080	0.4R X 0.8	3°	0.8	8	50	4		2JJTB 012 013 180	0.6R X 1.2	1°30	1.2	18	50	4	
2JJTB 008 030 120	0.4R X 0.8	3°	0.8	12	50	4		2JJTB 012 013 240	0.6R X 1.2	1°30	1.2	24	60	4	
2JJTB 008 030 160	0.4R X 0.8	3°	0.8	16	50	4		2JJTB 012 020 080	0.6R X 1.2	2°	1.2	8	50	4	
New 2JJTB 008 030 200	0.4R X 0.8	3°	0.8	20	60	4		2JJTB 012 020 120	0.6R X 1.2	2°	1.2	12	50	4	
2JJTB 010 003 060	0.5R X 1	0°30	1	6	50	4		2JJTB 012 020 180	0.6R X 1.2	2°	1.2	18	50	4	
2JJTB 010 003 080	0.5R X 1	0°30	1	8	50	4		2JJTB 012 020 240	0.6R X 1.2	2°	1.2	24	60	4	
2JJTB 010 003 100	0.5R X 1	0°30	1	10	50	4		2JJTB 015 003 080	0.75R X 1.5	0°30	1.5	8	50	4	
2JJTB 010 003 150	0.5R X 1	0°30	1	15	50	4		2JJTB 015 003 100	0.75R X 1.5	0°30	1.5	10	50	4	
2JJTB 010 003 200	0.5R X 1	0°30	1	20	60	4		2JJTB 015 003 120	0.75R X 1.5	0°30	1.5	12	50	4	
2JJTB 010 003 250	0.5R X 1	0°30	1	25	60	4		2JJTB 015 003 150	0.75R X 1.5	0°30	1.5	15	50	4	
2JJTB 010 003 300	0.5R X 1	0°30	1	30	70	4		2JJTB 015 003 200	0.75R X 1.5	0°30	1.5	20	60	4	
2JJTB 010 010 060	0.5R X 1	1°	1	6	50	4		2JJTB 015 003 300	0.75R X 1.5	0°30	1.5	30	70	4	
2JJTB 010 010 080	0.5R X 1	1°	1	8	50	4		New 2JJTB 015 003 400	0.75R X 1.5	0°30	1.5	40	80	4	
2JJTB 010 010 100	0.5R X 1	1°	1	10	50	4		2JJTB 015 010 080	0.75R X 1.5	1°	1.5	8	50	4	
2JJTB 010 010 150	0.5R X 1	1°	1	15	50	4		2JJTB 015 010 100	0.75R X 1.5	1°	1.5	10	50	4	
2JJTB 010 010 200	0.5R X 1	1°	1	20	50	4		2JJTB 015 010 120	0.75R X 1.5	1°	1.5	12	50	4	
2JJTB 010 010 250	0.5R X 1	1°	1	25	60	4		2JJTB 015 010 150	0.75R X 1.5	1°	1.5	15	50	4	
2JJTB 010 010 300	0.5R X 1	1°	1	30	70	4		2JJTB 015 010 200	0.75R X 1.5	1°	1.5	20	60	4	
2JJTB 010 010 350	0.5R X 1	1°	1	35	75	4		2JJTB 015 010 250	0.75R X 1.5	1°	1.5	25	60	4	
2JJTB 010 013 060	0.5R X 1	1°30	1	6	50	4		2JJTB 015 010 300	0.75R X 1.5	1°	1.5	30	70	4	
2JJTB 010 013 080	0.5R X 1	1°30	1	8	50	4		New 2JJTB 015 010 400	0.75R X 1.5	1°	1.5	40	80	4	
2JJTB 010 013 100	0.5R X 1	1°30	1	10	50	4		New 2JJTB 015 010 500	0.75R X 1.5	1°	1.5	50	90	4	
2JJTB 010 013 150	0.5R X 1	1°30	1	15	50	4		2JJTB 015 013 080	0.75R X 1.5	1°30	1.5	8	50	4	
2JJTB 010 013 200	0.5R X 1	1°30	1	20	50	4		2JJTB 015 013 100	0.75R X 1.5	1°30	1.5	10	50	4	

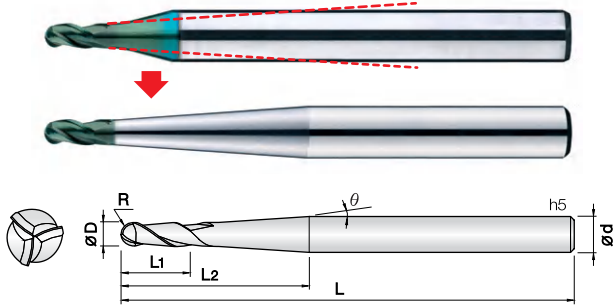


Order Number	날경 Diameter R x D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJTB 015 013 120	0.75R X 1.5	1°30'	1.5	12	50	4		2JJTB 020 050 250	1R X 2	5°	2	25	60	6	
2JJTB 015 013 150	0.75R X 1.5	1°30'	1.5	15	50	4		2JJTB 020 050 380	1R X 2	5°	2	38	80	8	
2JJTB 015 013 200	0.75R X 1.5	1°30'	1.5	20	60	4		2JJTB 030 003 160	1.5R X 3	0°30'	3	16	60	6	
2JJTB 015 013 250	0.75R X 1.5	1°30'	1.5	25	60	4		2JJTB 030 003 200	1.5R X 3	0°30'	3	20	65	6	
2JJTB 015 013 300	0.75R X 1.5	1°30'	1.5	30	70	4		2JJTB 030 003 300	1.5R X 3	0°30'	3	30	70	6	
New 2JJTB 015 013 400	0.75R X 1.5	1°30'	1.5	40	80	4		2JJTB 030 003 400	1.5R X 3	0°30'	3	40	80	6	
New 2JJTB 015 013 500	0.75R X 1.5	1°30'	1.5	50	90	4		2JJTB 030 003 500	1.5R X 3	0°30'	3	50	90	6	
2JJTB 015 020 100	0.75R X 1.5	2°	1.5	10	50	4		New 2JJTB 030 003 600	1.5R X 3	0°30'	3	60	100	6	
2JJTB 015 020 150	0.75R X 1.5	2°	1.5	15	50	4		2JJTB 030 010 160	1.5R X 3	1°	3	16	60	6	
2JJTB 015 020 200	0.75R X 1.5	2°	1.5	20	60	4		2JJTB 030 010 200	1.5R X 3	1°	3	20	65	6	
2JJTB 015 020 300	0.75R X 1.5	2°	1.5	30	70	4		2JJTB 030 010 300	1.5R X 3	1°	3	30	70	6	
New 2JJTB 015 020 400	0.75R X 1.5	2°	1.5	40	80	6		2JJTB 030 010 400	1.5R X 3	1°	3	40	80	6	
New 2JJTB 015 020 500	0.75R X 1.5	2°	1.5	50	90	6		2JJTB 030 010 500	1.5R X 3	1°	3	50	90	6	
2JJTB 015 030 420	0.75R X 1.5	3°	1.5	42	80	6		New 2JJTB 030 010 600	1.5R X 3	1°	3	60	100	6	
2JJTB 015 050 250	0.75R X 1.5	5°	1.5	25	70	6		New 2JJTB 030 010 700	1.5R X 3	1°	3	70	110	6	
2JJTB 020 003 080	1R X 2	0°30'	2	8	50	4		2JJTB 030 013 160	1.5R X 3	1°30'	3	16	60	6	
2JJTB 020 003 120	1R X 2	0°30'	2	12	50	4		2JJTB 030 013 200	1.5R X 3	1°30'	3	20	65	6	
2JJTB 020 003 160	1R X 2	0°30'	2	16	50	4		2JJTB 030 013 300	1.5R X 3	1°30'	3	30	70	6	
2JJTB 020 003 200	1R X 2	0°30'	2	20	60	4		2JJTB 030 013 400	1.5R X 3	1°30'	3	40	80	6	
2JJTB 020 003 300	1R X 2	0°30'	2	30	70	4		2JJTB 030 013 500	1.5R X 3	1°30'	3	50	90	6	
2JJTB 020 003 400	1R X 2	0°30'	2	40	80	4		New 2JJTB 030 013 600	1.5R X 3	1°30'	3	60	100	6	
New 2JJTB 020 003 500	1R X 2	0°30'	2	50	90	4		New 2JJTB 030 013 700	1.5R X 3	1°30'	3	70	120	8	
2JJTB 020 010 080	1R X 2	1°	2	8	50	4		2JJTB 030 020 160	1.5R X 3	2°	3	16	60	6	
2JJTB 020 010 120	1R X 2	1°	2	12	50	4		2JJTB 030 020 200	1.5R X 3	2°	3	20	65	6	
2JJTB 020 010 160	1R X 2	1°	2	16	50	4		2JJTB 030 020 300	1.5R X 3	2°	3	30	70	6	
2JJTB 020 010 200	1R X 2	1°	2	20	60	4		2JJTB 030 020 480	1.5R X 3	2°	3	48	90	6	
2JJTB 020 010 250	1R X 2	1°	2	25	60	4		New 2JJTB 030 020 600	1.5R X 3	2°	3	60	110	8	
2JJTB 020 010 300	1R X 2	1°	2	30	70	4		New 2JJTB 030 020 700	1.5R X 3	2°	3	70	120	8	
2JJTB 020 010 350	1R X 2	1°	2	35	75	4		2JJTB 030 030 300	1.5R X 3	3°	3	30	70	6	
2JJTB 020 010 400	1R X 2	1°	2	40	80	4		2JJTB 030 030 500	1.5R X 3	3°	3	50	90	8	
2JJTB 020 010 500	1R X 2	1°	2	50	90	4		New 2JJTB 030 030 700	1.5R X 3	3°	3	70	120	10	
New 2JJTB 020 010 600	1R X 2	1°	2	60	100	6		2JJTB 030 050 330	1.5R X 3	5°	3	33	90	6	
2JJTB 020 013 080	1R X 2	1°30'	2	8	50	4		2JJTB 040 003 600	2R X 4	0°30'	4	60	100	6	
2JJTB 020 013 120	1R X 2	1°30'	2	12	50	4		New 2JJTB 040 003 700	2R X 4	0°30'	4	70	110	6	
2JJTB 020 013 160	1R X 2	1°30'	2	16	50	4		New 2JJTB 040 003 900	2R X 4	0°30'	4	90	130	6	
2JJTB 020 013 200	1R X 2	1°30'	2	20	60	4		2JJTB 040 010 500	2R X 4	1°	4	50	90	6	
2JJTB 020 013 250	1R X 2	1°30'	2	25	60	4		2JJTB 040 010 600	2R X 4	1°	4	60	100	6	
2JJTB 020 013 300	1R X 2	1°30'	2	30	70	4		New 2JJTB 040 010 700	2R X 4	1°	4	70	120	8	
2JJTB 020 013 350	1R X 2	1°30'	2	35	75	6		New 2JJTB 040 010 900	2R X 4	1°	4	90	150	8	
2JJTB 020 013 400	1R X 2	1°30'	2	40	80	6		2JJTB 040 013 450	2R X 4	1°30'	4	45	90	6	
2JJTB 020 013 500	1R X 2	1°30'	2	50	90	6		2JJTB 040 013 600	2R X 4	1°30'	4	60	110	8	
New 2JJTB 020 013 600	1R X 2	1°30'	2	60	100	6		New 2JJTB 040 013 700	2R X 4	1°30'	4	70	120	8	
2JJTB 020 020 300	1R X 2	2°	2	30	70	6		2JJTB 040 030 250	2R X 4	3°	4	25	70	6	
2JJTB 020 020 400	1R X 2	2°	2	40	80	6		New 2JJTB 040 030 420	2R X 4	3°	4	42	100	8	
2JJTB 020 020 500	1R X 2	2°	2	50	90	6		2JJTB 040 050 290	2R X 4	5°	4	29	90	8	
2JJTB 020 030 300	1R X 2	3°	2	30	70	6		New 2JJTB 050 010 400	2.5R X 5	1°	5	40	90	8	
2JJTB 020 030 400	1R X 2	3°	2	40	80	6		New 2JJTB 050 010 600	2.5R X 5	1°	5	60	110	8	
New 2JJTB 020 030 500	1R X 2	3°	2	50	90	6		New 2JJTB 050 010 900	2.5R X 5	1°	5	90	150	8	



단위 : mm

Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJTB 050 013 400	2.5R X 5	1°30	5	40	90	8									
2JJTB 050 013 600	2.5R X 5	1°30	5	60	110	8									
<b>New</b> 2JJTB 050 013 900	2.5R X 5	1°30	5	90	150	10									
2JJTB 050 030 400	2.5R X 5	3°	5	40	90	8									
<b>New</b> 2JJTB 060 010 400	3R X 6	1°	9	40	90	8									
<b>New</b> 2JJTB 060 010 500	3R X 6	1°	9	50	100	8									
<b>New</b> 2JJTB 060 010 600	3R X 6	1°	9	60	110	8									
<b>New</b> 2JJTB 060 010 700	3R X 6	1°	9	70	120	10									
<b>New</b> 2JJTB 060 010 800	3R X 6	1°	9	80	130	10									
<b>New</b> 2JJTB 060 010 1000	3R X 6	1°	9	100	150	10									
2JJTB 060 013 490	3R X 6	1°30	9	49	110	8									
<b>New</b> 2JJTB 060 013 850	3R X 6	1°30	9	85	150	10									
2JJTB 060 020 600	3R X 6	2°	9	60	110	10									
<b>New</b> 2JJTB 060 020 900	3R X 6	2°	9	90	150	12									
2JJTB 060 030 290	3R X 6	3°	9	29	90	8									
2JJTB 060 050 320	3R X 6	5°	9	32	110	10									
<b>New</b> 2JJTB 080 010 500	4R X 8	1°	12	50	100	10									
<b>New</b> 2JJTB 080 010 600	4R X 8	1°	12	60	110	10									
<b>New</b> 2JJTB 080 010 800	4R X 8	1°	12	80	130	12									
<b>New</b> 2JJTB 080 010 1000	4R X 8	1°	12	100	150	12									
2JJTB 080 013 520	4R X 8	1°30	12	52	110	10									
<b>New</b> 2JJTB 080 013 890	4R X 8	1°30	12	89	150	12									
2JJTB 080 030 330	4R X 8	3°	12	33	100	10									
<b>New</b> 2JJTB 100 010 600	5R X 10	1°	18	60	130	12									
<b>New</b> 2JJTB 100 010 750	5R X 10	1°	18	75	110	12									
2JJTB 100 013 540	5R X 10	1°30	18	54	130	12									
2JJTB 100 030 370	5R X 10	3°	18	37	110	12									
2JJTB 120 013 850	6R X 12	1°30	22	85	160	16									
2JJTB 120 030 630	6R X 12	3°	22	63	130	16									



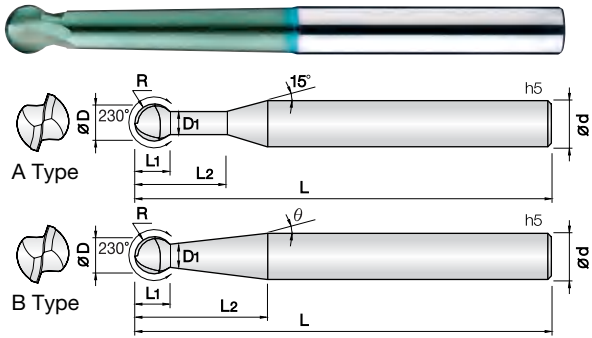
- 고정도강(HRc52~70), 프리하드강 계열의 고정밀가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 깊은 홀 가공이 빈번해진 추세에 맞춰, 고객 요구에 발빠르게 대응하는 맞춤제작 방식입니다. (최고 2일안에 납품 가능)
- 고객주문에 맞춰, 자사 재고품의 각도 및 유효길이를 재조정 가공합니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel (HRc52~70)
- Good wear resistance by high quality Si-based PVD coating.
- In accordance with the recent trend of frequent deep hole machining, It is an order to make system responding to customer' quick delivery request. (within a 2 days)
- In accordance with the customer order, readjust the angle and effective length of own stock
- Outstanding performance at high speed machining by ultra fine (0.2 $\mu$ m) WC grade.

단위 : mm

Order Number	날경 Diameter R x D	각도 Angle $\theta$	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샹크 Shank Dia d	비고
3JJTBS 010 060 S04	0.5R X 1	30°	1	Request the required effective length directly	60	4	
3JJTBS 010 080 S04	0.5R X 1		1		80	4	
3JJTBS 010 090 S06	0.5R X 1		1		90	6	
3JJTBS 015 060 S04	0.75R X 1.5		1.5		60	4	
3JJTBS 015 080 S04	0.75R X 1.5		1.5		80	4	
3JJTBS 015 090 S06	0.75R X 1.5		1.5		90	6	
3JJTBS 020 070 S04	1R X 2	Request the required angle directly	2	Request the required effective length directly	70	4	
3JJTBS 020 090 S04	1R X 2		2		90	4	
3JJTBS 020 090 S06	1R X 2		2		90	6	
3JJTBS 030 080 S06	1.5R X 3		3		80	6	
3JJTBS 030 100 S06	1.5R X 3		3		100	6	
3JJTBS 030 110 S08	1.5R X 3		3		110	8	
3JJTBS 040 080 S06	2R X 4	Request the required angle directly	5	Request the required effective length directly	80	6	
3JJTBS 040 110 S06	2R X 4		5		110	6	
3JJTBS 040 120 S08	2R X 4		5		120	8	
3JJTBS 050 090 S08	2.5R X 5		7		90	8	
3JJTBS 050 120 S08	2.5R X 5		7		120	8	
3JJTBS 060 110 S08	3R X 6		9		110	8	
3JJTBS 060 150 S10	3R X 6	Request the required angle directly	9	Request the required effective length directly	150	10	
3JJTBS 080 120 S10	4R X 8		12		120	10	
3JJTBS 080 160 S12	4R X 8		12		160	12	
3JJTBS 100 120 S12	5R X 10		15		120	12	
3JJTBS 100 160 S12	5R X 10		15		160	12	
3JJTBS 120 160 S16	6R X 12		18		160	16	
3JJTBS 120 200 S16	6R X 12	18	200	16			



## 2날 제이제이 3D 230도 가공용 구형 엔드밀



- **고경도강(HRc52~70), 프리하든강 계열의 고정밀가공 엔드밀**
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel (HRc52~70)**
- Good wear resistance by high quality 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 $\mu$ m) WC grade.

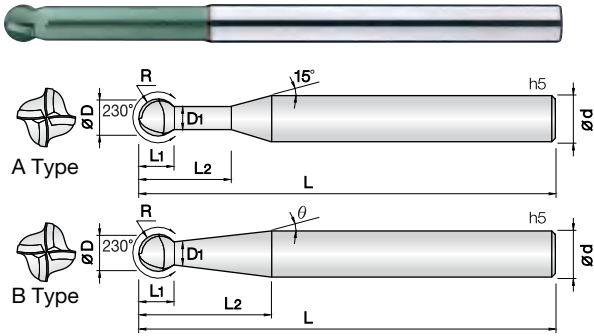


D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

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

### 4날 제이제이 3D 230도 가공용 구형 엔드밀

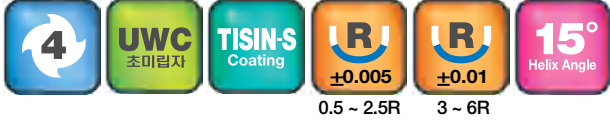
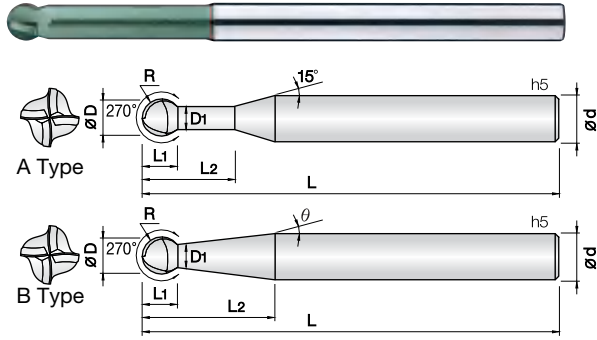


- 고경도강(HRc52~70), 프리하트강 계열의 고정밀가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel (HRc52~70)
- Good wear resistance by high quality 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 $\mu$ m) WC grade.

D Size	D Tolerance
$\phi$ 1 ~ 5	+0 ~ -0.01mm
$\phi$ 6 ~ 12	-0.005 ~ -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 $\theta$	전장 Overall Length L	타입 Type	샙크 Shank Dia d	비고
4JJSP 010 040 S06	0.5R X 1	0.91	0.7	4	0°	60	A	6	
4JJSP 010 060 S06	0.5R X 1	0.91	0.7	6	0°	60	A	6	
4JJSP 010 013 200	0.5R X 1	0.91	0.7	20	1°30'	80	B	6	
4JJSP 015 060 S06	0.75R X 1.5	1.36	1	6	0°	60	A	6	
4JJSP 015 080 S06	0.75R X 1.5	1.36	1	8	0°	60	A	6	
4JJSP 015 013 200	0.75R X 1.5	1.36	1	20	1°30'	80	B	6	
4JJSP 020 060 S06	1R X 2	1.8	1.4	6	0°	60	A	6	
4JJSP 020 100 S06	1R X 2	1.8	1.4	10	0°	60	A	6	
4JJSP 020 013 200	1R X 2	1.8	1.4	20	1°30'	80	B	6	
4JJSP 030 100 S06	1.5R X 3	2.7	2.1	10	0°	70	A	6	
4JJSP 030 150 S06	1.5R X 3	2.7	2.1	15	0°	70	A	6	
4JJSP 030 013 300	1.5R X 3	2.7	2.1	30	1°30'	80	B	6	
4JJSP 040120 S06	2R X 4	3.6	2.8	12	0°	70	A	6	
4JJSP 040 200 S06	2R X 4	3.6	2.8	20	0°	70	A	6	
4JJSP 040 030 250	2R X 4	3.6	2.8	25	3°	80	B	6	
4JJSP 050 010 400	2.5R X 5	4.5	3.5	40	1°	90	B	6	
4JJSP 060 150 S06	3R X 6	5.4	4.2	15	0°	90	A	6	
4JJSP 060 300 S06	3R X 6	5.4	4.2	30	0°	90	A	6	
4JJSP 060 010 210	3R X 6	5.4	4.2	21	1°	100	B	6	
4JJSP 080 010 280	4R X 8	7.2	5.7	28	1°	100	B	8	
4JJSP 100 010 350	5R X 10	9	7.1	35	1°	110	B	10	
4JJSP 120 010 420	6R X 12	10.8	8.5	42	1°	120	B	12	



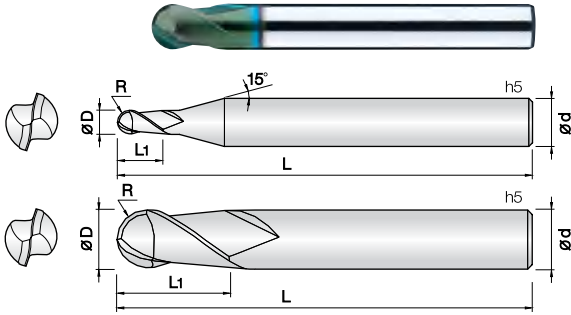
- **고경도강(HRC52~70), 프리하든강 계열의 고정밀가공 엔드밀**
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 270도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel (HRc52~70)**
- Good wear resistance by high quality 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 $\mu$ m) WC grade.

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -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 $\theta$	전장 Overall Length L	타입 Type	샵크 Shank Dia d	비고
4JJSPM 010 040 S06	0.5R X 1	0.7	0.8	4	0°	60	A	6	
4JJSPM 010 060 S06	0.5R X 1	0.7	0.8	6	0°	60	A	6	
4JJSPM 010 013 200	0.5R X 1	0.7	0.8	20	1°30'	80	B	6	
4JJSPM 015 060 S06	0.75R X 1.5	1	1.2	6	0°	60	A	6	
4JJSPM 015 080 S06	0.75R X 1.5	1	1.2	8	0°	60	A	6	
4JJSPM 015 013 200	0.75R X 1.5	1	1.2	20	1°30'	80	B	6	
4JJSPM 020 060 S06	1R X 2	1.4	1.7	6	0°	60	A	6	
4JJSPM 020 100 S06	1R X 2	1.4	1.7	10	0°	60	A	6	
4JJSPM 020 013 200	1R X 2	1.4	1.7	20	1°30'	80	B	6	
4JJSPM 030 100 S06	1.5R X 3	2.1	2.5	10	0°	70	A	6	
4JJSPM 030 150 S06	1.5R X 3	2.1	2.5	15	0°	70	A	6	
4JJSPM 030 013 300	1.5R X 3	2.1	2.5	30	1°30'	80	B	6	
4JJSPM 040120 S06	2R X 4	2.8	3.4	12	0°	70	A	6	
4JJSPM 040 200 S06	2R X 4	2.8	3.4	20	0°	70	A	6	
4JJSPM 040 030 250	2R X 4	2.8	3.4	25	3°	80	B	6	
4JJSPM 050 010 400	2.5R X 5	3.5	4.2	40	1°	90	B	6	
4JJSPM 060 150 S06	3R X 6	4.2	5.1	15	0°	90	A	6	
4JJSPM 060 300 S06	3R X 6	4.2	5.1	30	0°	90	A	6	
4JJSPM 060 010 210	3R X 6	4.2	5.1	21	1°	100	B	6	
4JJSPM 080 010 280	4R X 8	5.6	6.8	28	1°	100	B	8	
4JJSPM 100 010 350	5R X 10	7	8.5	35	1°	110	B	10	
4JJSPM 120 010 420	6R X 12	8.5	10	42	1°	120	B	12	

## 2날 고경도재 가공용 제이제이 짧은 길이 볼 엔드밀



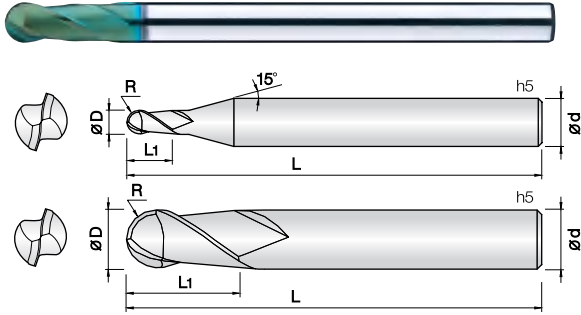
- 고경도강(HRc52~70), 프리하트강 계열의 고정밀가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel (HRc52~70)
- Good wear resistance by 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 $\mu$ m) WC grade.



D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2JJSB 001 001 S04	0.05R X 0.1	0.1	40	4		2JJSB 120 120 060	6R X 12	12	60	12	
2JJSB 001 0015 S04	0.05R X 0.1	0.15	40	4		2JJSB 120 150 060	6R X 12	15	60	12	
2JJSB 0015 0015 S04	0.075R X 0.15	0.15	40	4							
2JJSB 0015 002 S04	0.075R X 0.15	0.2	40	4							
2JJSB 002 002 S04	0.1R X 0.2	0.2	40	4							
2JJSB 002 003 S04	0.1R X 0.2	0.3	40	4							
2JJSB 003 003 S04	0.15R X 0.3	0.3	40	4							
2JJSB 003 0045 S04	0.15R X 0.3	0.45	40	4							
2JJSB 004 004 S04	0.2R X 0.4	0.4	40	4							
2JJSB 004 006 S04	0.2R X 0.4	0.6	40	4							
2JJSB 005 005 S04	0.25R X 0.5	0.5	40	4							
2JJSB 005 0075 S04	0.25R X 0.5	0.75	40	4							
2JJSB 006 006 S04	0.3R X 0.6	0.6	40	4							
2JJSB 006 009 S04	0.3R X 0.6	0.9	40	4							
2JJSB 007 007 S04	0.35R X 0.7	0.7	40	4							
2JJSB 007 010 S04	0.35R X 0.7	1	40	4							
2JJSB 008 008 S04	0.4R X 0.8	0.8	40	4							
2JJSB 008 012 S04	0.4R X 0.8	1.2	40	4							
2JJSB 009 009 S04	0.45R X 0.9	0.9	40	4							
2JJSB 009 013 S04	0.45R X 0.9	1.3	40	4							
2JJSB 010 010 S04	0.5R X 1	1	40	4							
2JJSB 010 010 S06	0.5R X 1	1	40	6							
2JJSB 010 015 S04	0.5R X 1	1.5	40	4							
2JJSB 010 015 S06	0.5R X 1	1.5	40	6							
2JJSB 015 015 S04	0.75R X 1.5	1.5	40	4							
2JJSB 015 015 S06	0.75R X 1.5	1.5	40	6							
2JJSB 015 023 S04	0.75R X 1.5	2.3	40	4							
2JJSB 015 023 S06	0.75R X 1.5	2.3	40	6							
2JJSB 020 020 S04	1R X 2	2	45	4							
2JJSB 020 020 S06	1R X 2	2	45	6							
2JJSB 020 030 S04	1R X 2	3	45	4							
2JJSB 020 030 S06	1R X 2	3	45	6							
2JJSB 030 030 S04	1.5R X 3	3	45	4							
2JJSB 030 030 S06	1.5R X 3	3	45	6							
2JJSB 030 045 S04	1.5R X 3	4.5	45	4							
2JJSB 030 045 S06	1.5R X 3	4.5	45	6							
2JJSB 040 040 S04	2R X 4	4	45	4							
2JJSB 040 040 S06	2R X 4	4	45	6							
2JJSB 040 060 S04	2R X 4	6	45	4							
2JJSB 040 060 S06	2R X 4	6	45	6							
2JJSB 050 050 S06	2.5R X 5	5	50	6							
2JJSB 050 075 S06	2.5R X 5	7.5	50	6							
2JJSB 060 060 050	3R X 6	6	50	6							
2JJSB 060 080 055	3R X 6	8	55	6							
2JJSB 080 080 050	4R X 8	8	50	8							
2JJSB 080 110 060	4R X 8	11	60	8							
2JJSB 100 100 060	5R X 10	10	60	10							
2JJSB 100 130 060	5R X 10	13	60	10							



- 고경도강(HRC52~70), 프리하든강 계열의 고속가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRC52~70)
- 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 µm) WC grade.

2

UWC  
초미립자

TISIN-S  
Coating

R  
±0.005

R  
±0.01

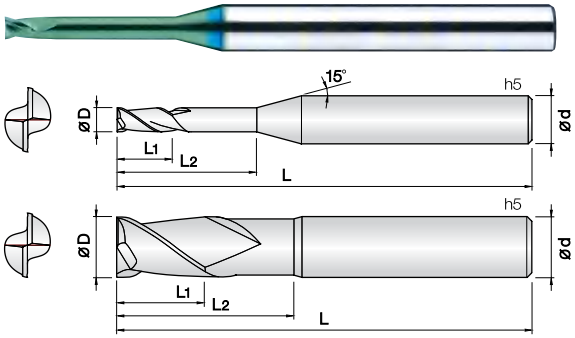
30°  
Helix Angle

0.05 ~ 2.5R    3 ~ 6R

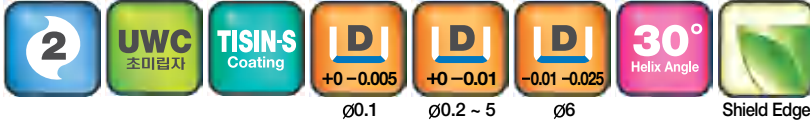
D Size	D Tolerance
ø0.1 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샙크 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 010 025 070	0.5R X 1	2.5	70	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 015 040 070	0.75R X 1.5	4	70	6						
2JJB 020 050 S04	1R X 2	5	50	4						
2JJB 020 050 S06	1R X 2	5	50	6						
2JJB 020 050 075	1R X 2	5	75	6						
2JJB 025 060 S04	1.25R X 2.5	6	50	4						
2JJB 025 060 S06	1.25R X 2.5	6	75	6						
2JJB 030 080 S04	1.5R X 3	8	50	4						
2JJB 030 080 S06	1.5R X 3	8	60	6						
2JJB 030 080 080	1.5R X 3	8	80	6						
2JJB 035 080 S06	1.75R X 3.5	8	60	6						
2JJB 040 080 S04	2R X 4	8	60	4						
2JJB 040 080 080	2R X 4	8	80	4						
2JJB 040 080 S06	2R X 4	8	70	6						
2JJB 040 080 090	2R X 4	8	90	6						
New 2JJB 045 080 S06	2.25R X 4.5	8	70	6						
2JJB 050 100 S06	2.5R X 5	10	75	6						
New 2JJB 055 100 S06	2.75R X 5.5	10	75	6						
2JJB 060 100 060	3R X 6	10	60	6						
New 2JJB 060 120 080	3R X 6	12	80	6						
2JJB 060 120 090	3R X 6	12	90	6						
New 2JJB 070 140 S08	3.5R X 7	14	80	8						
2JJB 080 120 060	4R X 8	12	60	8						
New 2JJB 080 140 090	4R X 8	14	90	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						



- **고경도강(HRC52~65), 프리하든강 계열의 고정밀가공 엔드밀**
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2 $\mu$ m)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 $\mu$ m) WC grade.



D Size	D Tolerance
Ø0.1	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6	-0.01 ~ -0.025mm

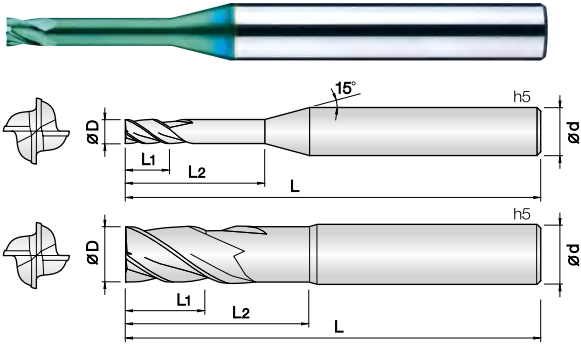
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRE 001 003 S04	0.1	0.3	-	40	4		2JJRE 008 030 S04	0.8	0.8	3	40	4	
2JJRE 001 005 S04	0.1	0.5	-	40	4		2JJRE 008 040 S04	0.8	0.8	4	40	4	
2JJRE 002 005 S04	0.2	0.2	0.5	40	4		2JJRE 008 050 S04	0.8	0.8	5	40	4	
2JJRE 002 010 S04	0.2	0.2	1	40	4		2JJRE 008 060 S04	0.8	0.8	6	40	4	
2JJRE 002 015 S04	0.2	0.2	1.5	40	4		2JJRE 008 080 S04	0.8	0.8	8	45	4	
2JJRE 002 020 S04	0.2	0.2	2	40	4		2JJRE 008 100 S04	0.8	0.8	10	45	4	
2JJRE 002 025 S04	0.2	0.2	2.5	40	4		2JJRE 008 120 S04	0.8	0.8	12	45	4	
2JJRE 002 030 S04	0.2	0.2	3	40	4		2JJRE 009 040 S04	0.9	0.9	4	40	4	
2JJRE 003 010 S04	0.3	0.3	1	40	4		2JJRE 009 060 S04	0.9	0.9	6	40	4	
2JJRE 003 015 S04	0.3	0.3	1.5	40	4		2JJRE 009 080 S04	0.9	0.9	8	45	4	
2JJRE 003 020 S04	0.3	0.3	2	40	4		2JJRE 009 100 S04	0.9	0.9	10	45	4	
2JJRE 003 025 S04	0.3	0.3	2.5	40	4		2JJRE 010 020 S04	1	1	2	45	4	
2JJRE 003 030 S04	0.3	0.3	3	40	4		2JJRE 010 030 S04	1	1	3	45	4	
2JJRE 003 035 S04	0.3	0.3	3.5	40	4		2JJRE 010 040 S04	1	1	4	45	4	
2JJRE 003 040 S04	0.3	0.3	4	40	4		2JJRE 010 050 S04	1	1	5	45	4	
2JJRE 004 010 S04	0.4	0.4	1	40	4		2JJRE 010 060 S04	1	1	6	45	4	
2JJRE 004 015 S04	0.4	0.4	1.5	40	4		2JJRE 010 080 S04	1	1	8	45	4	
2JJRE 004 020 S04	0.4	0.4	2	40	4		2JJRE 010 100 S04	1	1	10	45	4	
2JJRE 004 025 S04	0.4	0.4	2.5	40	4		2JJRE 010 120 S04	1	1	12	50	4	
2JJRE 004 030 S04	0.4	0.4	3	40	4		2JJRE 010 140 S04	1	1	14	50	4	
2JJRE 004 035 S04	0.4	0.4	3.5	40	4		2JJRE 010 160 S04	1	1	16	50	4	
2JJRE 004 040 S04	0.4	0.4	4	40	4		2JJRE 010 180 S04	1	1	18	50	4	
2JJRE 004 050 S04	0.4	0.4	5	40	4		2JJRE 010 200 S04	1	1	20	50	4	
2JJRE 004 060 S04	0.4	0.4	6	40	4		2JJRE 010 220 S04	1	1	22	60	4	
2JJRE 004 080 S04	0.4	0.5	8	40	4		2JJRE 010 250 S04	1	1	25	60	4	
2JJRE 005 010 S04	0.5	0.5	1	40	4		2JJRE 012 040 S04	1.2	1.2	4	45	4	
2JJRE 005 020 S04	0.5	0.5	2	40	4		2JJRE 012 060 S04	1.2	1.2	6	45	4	
2JJRE 005 030 S04	0.5	0.5	3	40	4		2JJRE 012 080 S04	1.2	1.2	8	45	4	
2JJRE 005 040 S04	0.5	0.5	4	40	4		2JJRE 012 100 S04	1.2	1.2	10	45	4	
2JJRE 005 050 S04	0.5	0.5	5	40	4		2JJRE 012 120 S04	1.2	1.2	12	50	4	
2JJRE 005 060 S04	0.5	0.5	6	40	4		2JJRE 012 160 S04	1.2	1.2	16	50	4	
2JJRE 005 080 S04	0.5	0.5	8	45	4		2JJRE 012 200 S04	1.2	1.2	20	50	4	
2JJRE 005 100 S04	0.5	0.6	10	45	4		2JJRE 012 250 S04	1.2	1.2	25	60	4	
2JJRE 006 010 S04	0.6	0.6	1	40	4		2JJRE 014 080 S04	1.4	1.4	8	45	4	
2JJRE 006 020 S04	0.6	0.6	2	40	4		2JJRE 014 100 S04	1.4	1.4	10	45	4	
2JJRE 006 030 S04	0.6	0.6	3	40	4		2JJRE 014 140 S04	1.4	1.4	14	50	4	
2JJRE 006 040 S04	0.6	0.6	4	40	4		2JJRE 014 160 S04	1.4	1.4	16	50	4	
2JJRE 006 050 S04	0.6	0.6	5	40	4		2JJRE 014 200 S04	1.4	1.4	20	50	4	
2JJRE 006 060 S04	0.6	0.6	6	40	4		2JJRE 015 040 S04	1.5	1.5	4	45	4	
2JJRE 006 080 S04	0.6	0.6	8	45	4		2JJRE 015 060 S04	1.5	1.5	6	45	4	
2JJRE 006 100 S04	0.6	0.7	10	45	4		2JJRE 015 080 S04	1.5	1.5	8	45	4	
2JJRE 007 020 S04	0.7	0.7	2	40	4		2JJRE 015 100 S04	1.5	1.5	10	50	4	
2JJRE 007 040 S04	0.7	0.7	4	40	4		2JJRE 015 120 S04	1.5	1.5	12	50	4	
2JJRE 007 060 S04	0.7	0.7	6	40	4		2JJRE 015 140 S04	1.5	1.5	14	50	4	
2JJRE 007 080 S04	0.7	0.7	8	45	4		2JJRE 015 160 S04	1.5	1.5	16	50	4	
2JJRE 007 100 S04	0.7	0.7	10	45	4		2JJRE 015 180 S04	1.5	1.5	18	50	4	
2JJRE 008 010 S04	0.8	0.8	1	40	4		2JJRE 015 200 S04	1.5	1.5	20	50	4	
2JJRE 008 020 S04	0.8	0.8	2	40	4		2JJRE 015 220 S04	1.5	1.5	22	60	4	

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRE 015 250 S04	1.5	1.5	25	60	4		2JJRE 040 350 S06	4	4	35	75	6	
2JJRE 016 060 S04	1.6	1.6	6	45	4		2JJRE 040 400 S06	4	4	40	80	6	
2JJRE 016 100 S04	1.6	1.6	10	50	4		2JJRE 040 450 S06	4	4	45	90	6	
2JJRE 016 140 S04	1.6	1.6	14	50	4		2JJRE 040 500 S06	4	4	50	100	6	
2JJRE 016 180 S04	1.6	1.6	18	50	4		2JJRE 050 160 S06	5	6	16	60	6	
2JJRE 018 100 S04	1.8	1.8	10	50	4		2JJRE 050 200 S06	5	6	20	60	6	
2JJRE 018 140 S04	1.8	1.8	14	50	4		2JJRE 050 250 S06	5	6	25	65	6	
2JJRE 018 180 S04	1.8	1.8	18	50	4		2JJRE 050 300 S06	5	6	30	70	6	
2JJRE 020 060 S04	2	2	6	45	4		2JJRE 050 350 S06	5	6	35	75	6	
2JJRE 020 080 S04	2	2	8	45	4		2JJRE 050 400 S06	5	6	40	80	6	
2JJRE 020 100 S04	2	2	10	50	4		2JJRE 050 500 S06	5	6	50	100	6	
2JJRE 020 120 S04	2	2	12	50	4		2JJRE 060 200 S06	6	10	20	60	6	
2JJRE 020 140 S04	2	2	14	50	4		2JJRE 060 300 S06	6	10	30	75	6	
2JJRE 020 160 S04	2	2	16	50	4		2JJRE 060 400 S06	6	10	40	80	6	
2JJRE 020 180 S04	2	2	18	50	4		2JJRE 060 500 S06	6	10	50	90	6	
2JJRE 020 200 S04	2	2	20	50	4		2JJRE 060 600 S06	6	10	60	110	6	
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 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 030 060 S06	3	3	6	45	6								
2JJRE 030 080 S06	3	3	8	45	6								
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 040 080 S06	4	4	8	50	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								

### 4날 고경도재 가공용 제이제이 리브 엔드밀



- 고경도강(HRc52~65), 프리하든강 계열의 고정밀가공 엔드밀
- 고품량 실리계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2 $\mu$ m)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 $\mu$ m) WC grade.

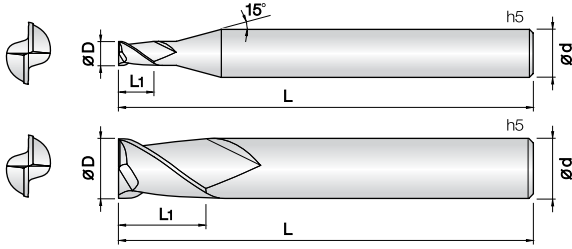


D Size	D Tolerance
$\phi 0.8 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4JJRE 008 010 S04	0.8	0.8	1	40	4		4JJRE 030 250 S06	3	3	25	65	6	
4JJRE 008 020 S04	0.8	0.8	2	40	4		4JJRE 030 300 S06	3	3	30	70	6	
4JJRE 008 030 S04	0.8	0.8	3	40	4		4JJRE 040 060 S06	4	4	6	50	6	
4JJRE 008 040 S04	0.8	0.8	4	40	4		4JJRE 040 080 S06	4	4	8	50	6	
4JJRE 008 050 S04	0.8	0.8	5	40	4		4JJRE 040 100 S06	4	4	10	50	6	
4JJRE 008 060 S04	0.8	0.8	6	40	4		4JJRE 040 120 S06	4	4	12	50	6	
4JJRE 008 080 S04	0.8	0.8	8	40	4		4JJRE 040 160 S06	4	4	16	55	6	
4JJRE 010 020 S04	1	1	2	45	4		4JJRE 040 200 S06	4	4	20	60	6	
4JJRE 010 030 S04	1	1	3	45	4		4JJRE 040 250 S06	4	4	25	65	6	
4JJRE 010 040 S04	1	1	4	45	4		4JJRE 040 300 S06	4	4	30	70	6	
4JJRE 010 060 S04	1	1	6	45	4		4JJRE 040 400 S06	4	4	40	80	6	
4JJRE 010 080 S04	1	1	8	45	4		4JJRE 050 160 S06	5	5	16	60	6	
4JJRE 010 100 S04	1	1	10	50	4		4JJRE 050 200 S06	5	5	20	60	6	
4JJRE 010 120 S04	1	1	12	50	4		4JJRE 050 250 S06	5	5	25	65	6	
4JJRE 010 140 S04	1	1	14	50	4		4JJRE 050 300 S06	5	5	30	70	6	
4JJRE 010 160 S04	1	1	16	50	4		4JJRE 050 400 S06	5	5	40	80	6	
4JJRE 012 040 S04	1.2	1.2	4	45	4		4JJRE 060 200 S06	6	6	20	60	6	
4JJRE 012 060 S04	1.2	1.2	6	45	4		4JJRE 060 300 S06	6	6	30	75	6	
4JJRE 012 080 S04	1.2	1.2	8	45	4		4JJRE 060 400 S06	6	6	40	80	6	
4JJRE 012 100 S04	1.2	1.2	10	50	4		4JJRE 060 500 S06	6	6	50	90	6	
4JJRE 012 120 S04	1.2	1.2	12	50	4		New 4JJRE 080 250 S08	8	12	25	65	8	
4JJRE 012 160 S04	1.2	1.2	16	50	4		New 4JJRE 080 400 S08	8	12	40	100	8	
4JJRE 015 040 S04	1.5	1.5	4	45	4		New 4JJRE 080 500 S08	8	12	50	110	8	
4JJRE 015 060 S04	1.5	1.5	6	45	4		New 4JJRE 100 300 S10	10	15	30	70	10	
4JJRE 015 080 S04	1.5	1.5	8	45	4		New 4JJRE 100 500 S10	10	15	50	100	10	
4JJRE 015 100 S04	1.5	1.5	10	50	4		New 4JJRE 100 600 S10	10	15	60	120	10	
4JJRE 015 120 S04	1.5	1.5	12	50	4		New 4JJRE 120 400 S12	12	18	40	80	12	
4JJRE 015 160 S04	1.5	1.5	16	50	4		New 4JJRE 120 600 S12	12	18	60	110	12	
4JJRE 020 040 S04	2	2	4	45	4		New 4JJRE 120 700 S12	12	18	70	130	12	
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 020 140 S04	2	2	14	50	4								
4JJRE 020 160 S04	2	2	16	50	4								
4JJRE 020 180 S04	2	2	18	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 030 060 S06	3	3	6	45	6								
4JJRE 030 080 S06	3	3	8	45	6								
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								





- 고경도강(HRc52~65), 프리하트강 계열의 고속가공 엔드밀
- 고품량 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 $\mu$ m)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 $\mu$ m) WC grade.

2

**UWC**  
초미립자

**TISIN-S**  
Coating

**D**  
+0 -0.005

**D**  
+0 -0.01

**D**  
-0.01 -0.025

**D**  
-0.015 -0.03

**30°**  
Helix Angle

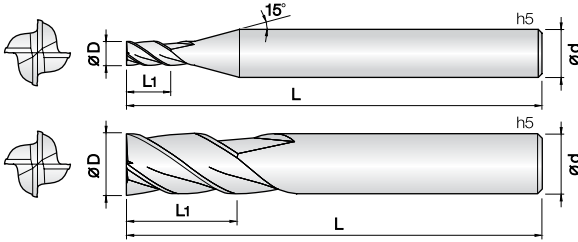
ø0.03~ 0.15
ø0.2 ~ 5.5
ø6 ~ 12
ø14 ~ 20
Shield Edge

D Size	D Tolerance
ø0.03 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5.5	+0 ~ -0.01mm
ø6 ~ 12	-0.001 ~ -0.025mm
ø14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 2JJE 0003 00045 S04	0.03	0.045	40	4		2JJE 029 080 S04	2.9	8	45	4	
New 2JJE 0004 0006 S04	0.04	0.06	40	4		2JJE 030 080 S04	3	8	45	4	
2JJE 0005 0008 S04	0.05	0.08	40	4		2JJE 030 080 S06	3	8	45	6	
2JJE 0006 001 S04	0.06	0.1	40	4		2JJE 035 100 S06	3.5	10	45	6	
2JJE 0007 0012 S04	0.07	0.12	40	4		2JJE 040 100 S04	4	10	45	4	
2JJE 0008 0015 S04	0.08	0.15	40	4		2JJE 040 110 S06	4	11	45	6	
2JJE 0009 0017 S04	0.09	0.17	40	4		2JJE 045 110 S06	4.5	11	45	6	
2JJE 001 002 S04	0.1	0.2	40	4		2JJE 050 130 S06	5	13	50	6	
2JJE 0015 003 S04	0.15	0.3	40	4		2JJE 055 130 S06	5.5	13	50	6	
2JJE 002 004 S04	0.2	0.4	40	4		2JJE 060 130 S06	6	13	50	6	
2JJE 0025 005 S04	0.25	0.5	40	4		2JJE 065 160 S08	6.5	16	60	8	
2JJE 003 006 S04	0.3	0.6	40	4		2JJE 070 160 S08	7	16	60	8	
2JJE 0035 007 S04	0.35	0.7	40	4		2JJE 075 160 S08	7.5	16	60	8	
2JJE 004 008 S04	0.4	0.8	40	4		2JJE 080 190 S08	8	19	60	8	
2JJE 0045 009 S04	0.45	0.9	40	4		2JJE 085 190 S10	8.5	19	70	10	
2JJE 005 010 S04	0.5	1	40	4		2JJE 090 190 S10	9	19	70	10	
2JJE 0055 011 S04	0.55	1.1	40	4		2JJE 095 190 S10	9.5	19	70	10	
2JJE 006 012 S04	0.6	1.2	40	4		2JJE 100 220 S10	10	22	70	10	
2JJE 0065 013 S04	0.65	1.3	40	4		2JJE 105 220 S12	10.5	22	75	12	
2JJE 007 014 S04	0.7	1.4	40	4		2JJE 110 220 S12	11	22	75	12	
2JJE 0075 015 S04	0.75	1.5	40	4		2JJE 115 220 S12	11.5	22	75	12	
2JJE 008 016 S04	0.8	1.6	40	4		2JJE 120 260 S12	12	26	75	12	
2JJE 0085 017 S04	0.85	1.7	40	4		2JJE 140 260 S14	14	26	80	14	
2JJE 009 020 S04	0.9	2	40	4		2JJE 140 260 S16	14	26	90	16	
2JJE 0095 020 S04	0.95	2	40	4		2JJE 160 350 S16	16	35	100	16	
2JJE 010 025 S04	1	2.5	40	4		2JJE 180 350 S18	18	35	100	18	
2JJE 010 025 S06	1	2.5	40	6		2JJE 200 400 S20	20	40	100	20	
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							

## 4날 고정도재 가공용 제이제이 엔드밀



- 고정도강(HRc52~65), 프리하든강 계열의 고속가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2 $\mu$ m)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  $\mu$ m) WC grade.



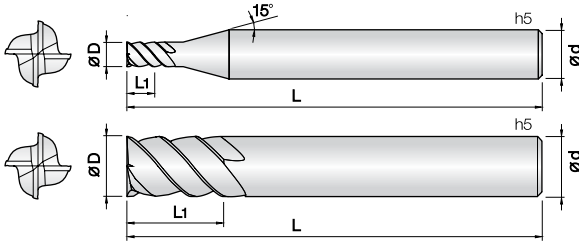
D Size	D Tolerance
$\varnothing$ 0.5 ~ 5.5	+0 ~ -0.01mm
$\varnothing$ 6 ~ 12	-0.01 ~ -0.025mm
$\varnothing$ 14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4JJE 005 010 S04	0.5	1	40	4	
4JJE 006 012 S04	0.6	1.2	40	4	
New 4JJE 007 014 S04	0.7	1.4	40	4	
4JJE 008 016 S04	0.8	1.6	40	4	
New 4JJE 009 018 S04	0.9	1.8	40	4	
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	
New 4JJE 140 300 S14	14	30	90	14	
New 4JJE 160 350 S16	16	35	100	16	
New 4JJE 200 400 S20	20	40	100	20	

## 4날 고경도재 가공용 제이제이 45° 헬릭스 엔드밀

series JJ



- 고경도강(HRc52~65), 프리하드강 계열의 고속가공 엔드밀
- 고품량 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(0.2µm)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 µm) WC grade.

4

UWC  
초미립자

TISIN-S  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

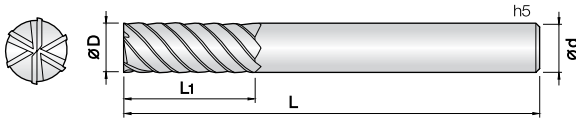
Shield Edge

D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4JJHE 010 015 S06	1	1.5	40	6		New 4JJHE 140 350 S14	14	35	90	14	
4JJHE 010 025 S06	1	2.5	40	6		New 4JJHE 140 550 S14	14	55	110	14	
4JJHE 010 035 S06	1	3.5	40	6		4JJHE 160 350 S16	16	35	90	16	
New 4JJHE 010 050 S06	1	5	45	6		4JJHE 160 500 S16	16	50	110	16	
New 4JJHE 015 040 S06	1.5	4	40	6		New 4JJHE 160 700 S16	16	70	130	16	
New 4JJHE 015 060 S06	1.5	6	40	6		New 4JJHE 180 380 S18	18	38	100	18	
New 4JJHE 015 080 S06	1.5	8	40	6		New 4JJHE 200 400 S20	20	40	100	20	
4JJHE 020 030 S06	2	3	40	6		New 4JJHE 200 550 S20	20	55	120	20	
4JJHE 020 050 S06	2	5	40	6		New 4JJHE 200 750 S20	20	75	150	20	
4JJHE 020 080 S06	2	8	40	6							
New 4JJHE 020 100 S06	2	10	45	6							
4JJHE 025 060 S06	2.5	6	45	6							
4JJHE 025 080 S06	2.5	8	45	6							
New 4JJHE 025 100 S06	2.5	10	50	6							
4JJHE 030 060 S06	3	6	45	6							
4JJHE 030 080 S06	3	8	45	6							
4JJHE 030 120 S06	3	12	50	6							
New 4JJHE 030 150 S06	3	15	50	6							
New 4JJHE 035 080 S06	3.5	8	45	6							
4JJHE 040 080 S06	4	8	45	6							
4JJHE 040 110 S06	4	11	45	6							
4JJHE 040 150 S06	4	15	55	6							
New 4JJHE 040 200 S06	4	20	60	6							
New 4JJHE 045 110 S06	4.5	11	50	6							
4JJHE 050 100 S06	5	10	50	6							
4JJHE 050 130 S06	5	13	50	6							
4JJHE 050 200 S06	5	20	60	6							
New 4JJHE 050 250 S06	5	25	70	6							
New 4JJHE 050 300 S06	5	30	75	6							
4JJHE 060 130 S06	6	13	50	6							
4JJHE 060 150 S06	6	15	55	6							
4JJHE 060 200 S06	6	20	60	6							
New 4JJHE 060 250 S06	6	25	70	6							
New 4JJHE 060 300 S06	6	30	75	6							
New 4JJHE 070 160 S08	7	16	60	8							
4JJHE 080 200 S08	8	20	60	8							
4JJHE 080 250 S08	8	25	70	8							
New 4JJHE 080 300 S08	8	30	80	8							
New 4JJHE 080 400 S08	8	40	90	8							
New 4JJHE 090 220 S10	9	22	70	10							
4JJHE 100 220 S10	10	22	70	10							
4JJHE 100 300 S10	10	30	80	10							
New 4JJHE 100 400 S10	10	40	90	10							
New 4JJHE 100 500 S10	10	50	100	10							
4JJHE 120 260 S12	12	26	75	12							
4JJHE 120 350 S12	12	35	90	12							
New 4JJHE 120 500 S12	12	50	100	12							
New 4JJHE 120 600 S12	12	60	110	12							

## 6&8날 고경도재 가공용 제이제이45° 헬릭스 엔드밀



- 고경도강(HRc52~70), 프리하든강 계열의 고속가공 엔드밀
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- 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 $\mu$ m) WC grade.

6

8

UWC  
초미립자

TISIN-S  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

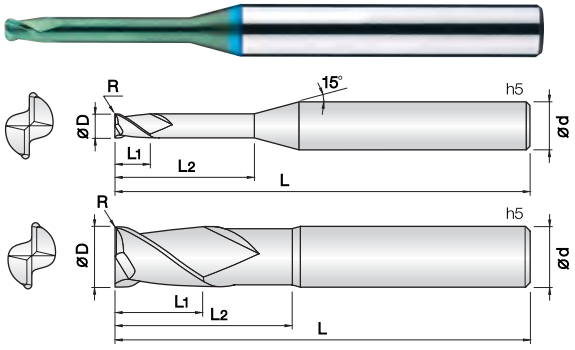
Shield Edge

D Size	D Tolerance
ø3 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
6JJHE 030 100 S06	3	10	50	6		6JJHE 200 1200 S20	20	120	180	20	
6JJHE 030 150 S06	3	15	50	6		8JJHE 250 1000 S25	25	100	160	25	
New 6JJHE 030 200 S06	3	20	60	6		8JJHE 250 1300 S25	25	130	200	25	
6JJHE 040 120 S06	4	12	50	6							
6JJHE 040 160 S06	4	16	50	6							
New 6JJHE 040 200 S06	4	20	60	6							
6JJHE 050 150 S06	5	15	50	6							
6JJHE 050 200 S06	5	20	60	6							
New 6JJHE 050 250 S06	5	25	60	6							
6JJHE 060 150 S06	6	15	50	6							
6JJHE 060 200 S06	6	20	60	6							
6JJHE 060 250 S06	6	25	65	6							
6JJHE 060 300 S06	6	30	70	6							
6JJHE 060 350 S06	6	35	75	6							
New 6JJHE 060 400 S06	6	40	80	6							
6JJHE 080 200 S08	8	20	60	8							
6JJHE 080 250 S08	8	25	65	8							
6JJHE 080 300 S08	8	30	75	8							
6JJHE 080 350 S08	8	35	80	8							
6JJHE 080 400 S08	8	40	90	8							
6JJHE 080 450 S08	8	45	100	8							
6JJHE 080 500 S08	8	50	100	8							
6JJHE 100 250 S10	10	25	70	10							
6JJHE 100 350 S10	10	35	90	10							
6JJHE 100 450 S10	10	45	100	10							
6JJHE 100 500 S10	10	50	100	10							
6JJHE 100 600 S10	10	60	110	10							
6JJHE 120 300 S12	12	30	80	12							
6JJHE 120 400 S12	12	40	90	12							
6JJHE 120 500 S12	12	50	100	12							
6JJHE 120 600 S12	12	60	110	12							
6JJHE 120 700 S12	12	70	120	12							
New 6JJHE 140 350 S14	14	35	90	14							
New 6JJHE 140 550 S14	14	55	110	14							
6JJHE 160 350 S16	16	35	90	16							
6JJHE 160 500 S16	16	50	110	16							
6JJHE 160 650 S16	16	65	120	16							
6JJHE 160 800 S16	16	80	150	16							
6JJHE 160 900 S16	16	90	160	16							
6JJHE 160 1000 S16	16	100	160	16							
New 6JJHE 180 400 S18	18	40	100	18							
New 6JJHE 180 650 S18	18	65	120	18							
6JJHE 200 450 S20	20	45	100	20							
6JJHE 200 600 S20	20	60	120	20							
6JJHE 200 800 S20	20	80	150	20							
6JJHE 200 900 S20	20	90	160	20							
6JJHE 200 1000 S20	20	100	160	20							
6JJHE 200 1100 S20	20	110	170	20							

### 2날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀



- 고경도강(HRC52~70), 프리하드강 계열의 고정밀가공 엔드밀
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel (HRc52~70)
- 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 $\mu$ m) WC grade.



R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 3

D Size	D Tolerance
∅0.2 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm
∅16	-0.01 ~ -0.02mm

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	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 005	0.2 X R0.02	0.2	0.5	40	4		2JJCR 005 001 060	0.5 X R0.1	0.5	6	45	4	
2JJCR 002 0002 010	0.2 X R0.02	0.2	1	40	4		2JJCR 006 0002 020	0.6 X R0.02	0.6	2	45	4	
2JJCR 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2JJCR 006 0002 030	0.6 X R0.02	0.6	3	45	4	
2JJCR 002 0005 005	0.2 X R0.05	0.2	0.5	40	4		2JJCR 006 0002 040	0.6 X R0.02	0.6	4	45	4	
2JJCR 002 0005 010	0.2 X R0.05	0.2	1	40	4		2JJCR 006 0002 060	0.6 X R0.02	0.6	6	45	4	
2JJCR 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2JJCR 006 0002 080	0.6 X R0.02	0.6	8	45	4	
2JJCR 003 0002 010	0.3 X R0.02	0.3	1	40	4		New 2JJCR 006 0002 100	0.6 X R0.02	0.6	10	45	4	
2JJCR 003 0002 020	0.3 X R0.02	0.3	2	40	4		2JJCR 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2JJCR 003 0002 030	0.3 X R0.02	0.3	3	40	4		2JJCR 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2JJCR 003 0005 010	0.3 X R0.05	0.3	1	40	4		2JJCR 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2JJCR 003 0005 020	0.3 X R0.05	0.3	2	40	4		2JJCR 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2JJCR 003 0005 030	0.3 X R0.05	0.3	3	40	4		2JJCR 006 0005 080	0.6 X R0.05	0.6	8	45	4	
2JJCR 004 0002 010	0.4 X R0.02	0.4	1	40	4		New 2JJCR 006 0005 100	0.6 X R0.05	0.6	10	45	4	
2JJCR 004 0002 020	0.4 X R0.02	0.4	2	40	4		2JJCR 006 001 020	0.6 X R0.1	0.6	2	45	4	
2JJCR 004 0002 030	0.4 X R0.02	0.4	3	40	4		2JJCR 006 001 030	0.6 X R0.1	0.6	3	45	4	
2JJCR 004 0002 040	0.4 X R0.02	0.4	4	40	4		2JJCR 006 001 040	0.6 X R0.1	0.6	4	45	4	
2JJCR 004 0005 010	0.4 X R0.05	0.4	1	40	4		2JJCR 006 001 060	0.6 X R0.1	0.6	6	45	4	
2JJCR 004 0005 020	0.4 X R0.05	0.4	2	40	4		2JJCR 006 001 080	0.6 X R0.1	0.6	8	45	4	
2JJCR 004 0005 030	0.4 X R0.05	0.4	3	40	4		New 2JJCR 006 001 100	0.6 X R0.1	0.6	10	45	4	
2JJCR 004 0005 040	0.4 X R0.05	0.4	4	40	4		2JJCR 007 001 020	0.7 X R0.1	0.7	2	45	4	
2JJCR 004 001 010	0.4 X R0.1	0.4	1	40	4		2JJCR 007 001 040	0.7 X R0.1	0.7	4	45	4	
2JJCR 004 001 015	0.4 X R0.1	0.4	1.5	40	4		2JJCR 007 001 060	0.7 X R0.1	0.7	6	45	4	
2JJCR 004 001 020	0.4 X R0.1	0.4	2	40	4		2JJCR 008 0002 020	0.8 X R0.02	0.8	2	45	4	
2JJCR 004 001 030	0.4 X R0.1	0.4	3	40	4		2JJCR 008 0002 040	0.8 X R0.02	0.8	4	45	4	
2JJCR 004 001 040	0.4 X R0.1	0.4	4	40	4		2JJCR 008 0002 060	0.8 X R0.02	0.8	6	45	4	
2JJCR 005 0002 010	0.5 X R0.02	0.5	1	45	4		2JJCR 008 0002 080	0.8 X R0.02	0.8	8	45	4	
2JJCR 005 0002 015	0.5 X R0.02	0.5	1.5	45	4		New 2JJCR 008 0002 100	0.8 X R0.02	0.8	10	45	4	
2JJCR 005 0002 020	0.5 X R0.02	0.5	2	45	4		2JJCR 008 0005 020	0.8 X R0.05	0.8	2	45	4	
2JJCR 005 0002 025	0.5 X R0.02	0.5	2.5	45	4		2JJCR 008 0005 040	0.8 X R0.05	0.8	4	45	4	
2JJCR 005 0002 030	0.5 X R0.02	0.5	3	45	4		2JJCR 008 0005 060	0.8 X R0.05	0.8	6	45	4	
2JJCR 005 0002 040	0.5 X R0.02	0.5	4	45	4		2JJCR 008 0005 080	0.8 X R0.05	0.8	8	45	4	
2JJCR 005 0002 050	0.5 X R0.02	0.5	5	45	4		New 2JJCR 008 0005 100	0.8 X R0.05	0.8	10	45	4	
2JJCR 005 0002 060	0.5 X R0.02	0.5	6	45	4		2JJCR 008 001 020	0.8 X R0.1	0.8	2	45	4	
2JJCR 005 0005 010	0.5 X R0.05	0.5	1	45	4		2JJCR 008 001 040	0.8 X R0.1	0.8	4	45	4	
2JJCR 005 0005 015	0.5 X R0.05	0.5	1.5	45	4		2JJCR 008 001 060	0.8 X R0.1	0.8	6	45	4	
2JJCR 005 0005 020	0.5 X R0.05	0.5	2	45	4		2JJCR 008 001 080	0.8 X R0.1	0.8	8	45	4	
2JJCR 005 0005 025	0.5 X R0.05	0.5	2.5	45	4		New 2JJCR 008 001 100	0.8 X R0.1	0.8	10	45	4	
2JJCR 005 0005 030	0.5 X R0.05	0.5	3	45	4		2JJCR 008 002 020	0.8 X R0.2	0.8	2	45	4	
2JJCR 005 0005 040	0.5 X R0.05	0.5	4	45	4		2JJCR 008 002 040	0.8 X R0.2	0.8	4	45	4	
2JJCR 005 0005 050	0.5 X R0.05	0.5	5	45	4		2JJCR 008 002 060	0.8 X R0.2	0.8	6	45	4	
2JJCR 005 0005 060	0.5 X R0.05	0.5	6	45	4		2JJCR 008 002 080	0.8 X R0.2	0.8	8	45	4	
2JJCR 005 001 010	0.5 X R0.1	0.5	1	45	4		New 2JJCR 008 002 100	0.8 X R0.2	0.8	10	45	4	
2JJCR 005 001 015	0.5 X R0.1	0.5	1.5	45	4		2JJCR 010 0002 040	1 X R0.02	1	4	45	4	
2JJCR 005 001 020	0.5 X R0.1	0.5	2	45	4		2JJCR 010 0002 060	1 X R0.02	1	6	45	4	
2JJCR 005 001 025	0.5 X R0.1	0.5	2.5	45	4		2JJCR 010 0002 080	1 X R0.02	1	8	45	4	
2JJCR 005 001 030	0.5 X R0.1	0.5	3	45	4		2JJCR 010 0002 100	1 X R0.02	1	10	50	4	
2JJCR 005 001 040	0.5 X R0.1	0.5	4	45	4		2JJCR 010 0002 120	1 X R0.02	1	12	50	4	
2JJCR 005 001 050	0.5 X R0.1	0.5	5	45	4		2JJCR 010 0002 160	1 X R0.02	1	16	50	4	



2날 고경도재 가공용 제이제이 리브 코너 레디우스 엔드밀

JJ series

단위 : mm

Table with columns: Order Number, Diameter (D x R), Length of cut (L1), Effective Length (L2), Overall Length (L), Shank Dia (d), and 비고. It lists various end mill specifications in two columns.

단위 : mm

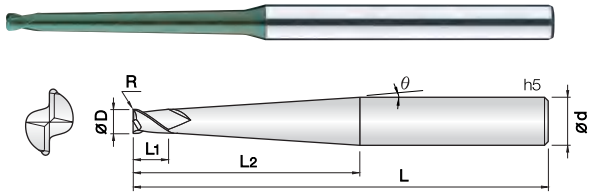
Order Number	날경 D×R	날장 L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 D×R	날장 L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJCR 020 001 250	2 X R0.1	2	25	60	4		2JJCR 030 003 400	3 X R0.3	3	40	80	6	
New 2JJCR 020 001 300	2 X R0.1	2	30	70	4		2JJCR 030 005 100	3 X R0.5	3	10	50	6	
2JJCR 020 002 060	2 X R0.2	2	6	45	4		2JJCR 030 005 120	3 X R0.5	3	12	50	6	
2JJCR 020 002 080	2 X R0.2	2	8	45	4		2JJCR 030 005 160	3 X R0.5	3	16	55	6	
2JJCR 020 002 100	2 X R0.2	2	10	50	4		2JJCR 030 005 200	3 X R0.5	3	20	60	6	
2JJCR 020 002 120	2 X R0.2	2	12	50	4		2JJCR 030 005 250	3 X R0.5	3	25	65	6	
2JJCR 020 002 160	2 X R0.2	2	16	50	4		2JJCR 030 005 300	3 X R0.5	3	30	70	6	
2JJCR 020 002 200	2 X R0.2	2	20	50	4		2JJCR 030 005 350	3 X R0.5	3	35	75	6	
2JJCR 020 002 250	2 X R0.2	2	25	60	4		2JJCR 030 005 400	3 X R0.5	3	40	80	6	
New 2JJCR 020 002 300	2 X R0.2	2	30	70	4		2JJCR 030 010 100	3 X R1	3	10	50	6	
2JJCR 020 003 060	2 X R0.3	2	6	45	4		2JJCR 030 010 120	3 X R1	3	12	50	6	
2JJCR 020 003 080	2 X R0.3	2	8	45	4		2JJCR 030 010 160	3 X R1	3	16	55	6	
2JJCR 020 003 100	2 X R0.3	2	10	50	4		2JJCR 030 010 200	3 X R1	3	20	60	6	
2JJCR 020 003 120	2 X R0.3	2	12	50	4		2JJCR 030 010 250	3 X R1	3	25	65	6	
2JJCR 020 003 160	2 X R0.3	2	16	50	4		2JJCR 030 010 300	3 X R1	3	30	70	6	
2JJCR 020 003 200	2 X R0.3	2	20	50	4		2JJCR 030 010 350	3 X R1	3	35	75	6	
2JJCR 020 003 250	2 X R0.3	2	25	60	4		2JJCR 030 010 400	3 X R1	3	40	80	6	
New 2JJCR 020 003 300	2 X R0.3	2	30	70	4		2JJCR 040 001 120	4 X R0.1	4	12	50	6	
2JJCR 020 005 060	2 X R0.5	2	6	45	4		2JJCR 040 001 160	4 X R0.1	4	16	55	6	
2JJCR 020 005 080	2 X R0.5	2	8	45	4		2JJCR 040 001 200	4 X R0.1	4	20	60	6	
2JJCR 020 005 100	2 X R0.5	2	10	50	4		2JJCR 040 001 250	4 X R0.1	4	25	65	6	
2JJCR 020 005 120	2 X R0.5	2	12	50	4		2JJCR 040 001 300	4 X R0.1	4	30	70	6	
2JJCR 020 005 160	2 X R0.5	2	16	50	4		2JJCR 040 001 350	4 X R0.1	4	35	75	6	
2JJCR 020 005 200	2 X R0.5	2	20	50	4		2JJCR 040 001 400	4 X R0.1	4	40	80	6	
2JJCR 020 005 250	2 X R0.5	2	25	60	4		2JJCR 040 002 120	4 X R0.2	4	12	50	6	
New 2JJCR 020 005 300	2 X R0.5	2	30	70	4		2JJCR 040 002 160	4 X R0.2	4	16	55	6	
2JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4		2JJCR 040 002 200	4 X R0.2	4	20	60	6	
2JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4		2JJCR 040 002 250	4 X R0.2	4	25	65	6	
2JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4		2JJCR 040 002 300	4 X R0.2	4	30	70	6	
New 2JJCR 025 001 250	2.5 X R0.1	2.5	25	60	4		2JJCR 040 002 350	4 X R0.2	4	35	75	6	
New 2JJCR 025 001 300	2.5 X R0.1	2.5	30	70	4		2JJCR 040 002 400	4 X R0.2	4	40	80	6	
2JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4		2JJCR 040 003 120	4 X R0.3	4	12	50	6	
2JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4		2JJCR 040 003 160	4 X R0.3	4	16	55	6	
2JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4		2JJCR 040 003 200	4 X R0.3	4	20	60	6	
2JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4		2JJCR 040 003 250	4 X R0.3	4	25	65	6	
2JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4		2JJCR 040 003 300	4 X R0.3	4	30	70	6	
2JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4		2JJCR 040 003 350	4 X R0.3	4	35	75	6	
2JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4		2JJCR 040 003 400	4 X R0.3	4	40	80	6	
2JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4		2JJCR 040 005 120	4 X R0.5	4	12	50	6	
2JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4		2JJCR 040 005 160	4 X R0.5	4	16	55	6	
2JJCR 030 001 100	3 X R0.1	3	10	50	6		2JJCR 040 005 200	4 X R0.5	4	20	60	6	
2JJCR 030 001 120	3 X R0.1	3	12	50	6		2JJCR 040 005 250	4 X R0.5	4	25	65	6	
2JJCR 030 001 160	3 X R0.1	3	16	55	6		2JJCR 040 005 300	4 X R0.5	4	30	70	6	
2JJCR 030 001 200	3 X R0.1	3	20	60	6		2JJCR 040 005 350	4 X R0.5	4	35	75	6	
2JJCR 030 001 250	3 X R0.1	3	25	65	6		2JJCR 040 005 400	4 X R0.5	4	40	80	6	
2JJCR 030 001 300	3 X R0.1	3	30	70	6		2JJCR 040 010 120	4 X R1	4	12	50	6	
2JJCR 030 001 350	3 X R0.1	3	35	75	6		2JJCR 040 010 160	4 X R1	4	16	55	6	
2JJCR 030 001 400	3 X R0.1	3	40	80	6		2JJCR 040 010 200	4 X R1	4	20	60	6	
2JJCR 030 002 100	3 X R0.2	3	10	50	6		2JJCR 040 010 250	4 X R1	4	25	65	6	
2JJCR 030 002 120	3 X R0.2	3	12	50	6		2JJCR 040 010 300	4 X R1	4	30	70	6	
2JJCR 030 002 160	3 X R0.2	3	16	55	6		2JJCR 040 010 350	4 X R1	4	35	75	6	
2JJCR 030 002 200	3 X R0.2	3	20	60	6		2JJCR 040 010 400	4 X R1	4	40	80	6	
2JJCR 030 002 250	3 X R0.2	3	25	65	6		2JJCR 050 002 150	5 X R0.2	6	15	60	6	
2JJCR 030 002 300	3 X R0.2	3	30	70	6		2JJCR 050 002 250	5 X R0.2	6	25	70	6	
2JJCR 030 002 350	3 X R0.2	3	35	75	6		2JJCR 050 002 300	5 X R0.2	6	30	70	6	
2JJCR 030 002 400	3 X R0.2	3	40	80	6		2JJCR 050 002 400	5 X R0.2	6	40	80	6	
2JJCR 030 003 100	3 X R0.3	3	10	50	6		2JJCR 050 005 150	5 X R0.5	6	15	60	6	
2JJCR 030 003 120	3 X R0.3	3	12	50	6		2JJCR 050 005 250	5 X R0.5	6	25	70	6	
2JJCR 030 003 160	3 X R0.3	3	16	55	6		2JJCR 050 005 300	5 X R0.5	6	30	70	6	
2JJCR 030 003 200	3 X R0.3	3	20	60	6		2JJCR 050 005 400	5 X R0.5	6	40	80	6	
2JJCR 030 003 250	3 X R0.3	3	25	65	6		2JJCR 050 010 150	5 X R1	6	15	60	6	
2JJCR 030 003 300	3 X R0.3	3	30	70	6		2JJCR 050 010 250	5 X R1	6	25	70	6	
2JJCR 030 003 350	3 X R0.3	3	35	75	6		2JJCR 050 010 300	5 X R1	6	30	70	6	

단위 : mm

Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고											
2JJCR 050 010 400	5 X R1	6	40	80	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 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												



## 2날 고정도재가공용 제이제이 테이퍼 넥 코너레디우스 엔드밀



- 고정도강(HRc52~70), 프리하드강 계열의 고정밀가공 엔드밀
- 고함량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- Good wear resistance by high quality 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 $\mu$ m) WC grade.



D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.01mm

단위 : mm

Order Number	날경 D x R	각도 $\theta$	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 D x R	각도 $\theta$	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJTC 010 001 0601	1 X R0.1	1°	1	6	50	4		2JJTC 020 003 1601	2 X R0.3	1°	2	16	50	4	
2JJTC 010 001 1001	1 X R0.1	1°	1	10	50	4		2JJTC 020 003 2001	2 X R0.3	1°	2	20	60	4	
2JJTC 010 001 1501	1 X R0.1	1°	1	15	50	4		2JJTC 020 003 2501	2 X R0.3	1°	2	25	60	4	
2JJTC 010 001 2001	1 X R0.1	1°	1	20	60	4		2JJTC 020 003 3001	2 X R0.3	1°	2	30	70	4	
2JJTC 010 001 2501	1 X R0.1	1°	1	25	60	4		2JJTC 020 003 3501	2 X R0.3	1°	2	35	75	4	
2JJTC 010 001 3001	1 X R0.1	1°	1	30	70	4		2JJTC 020 003 4001	2 X R0.3	1°	2	40	80	4	
2JJTC 010 001 3501	1 X R0.1	1°	1	35	75	4		2JJTC 020 003 5001	2 X R0.3	1°	2	50	90	4	
2JJTC 010 002 0601	1 X R0.2	1°	1	6	50	4		2JJTC 020 005 1201	2 X R0.5	1°	2	12	50	4	
2JJTC 010 002 1001	1 X R0.2	1°	1	10	50	4		2JJTC 020 005 1601	2 X R0.5	1°	2	16	50	4	
2JJTC 010 002 1501	1 X R0.2	1°	1	15	50	4		2JJTC 020 005 2001	2 X R0.5	1°	2	20	60	4	
2JJTC 010 002 2001	1 X R0.2	1°	1	20	60	4		2JJTC 020 005 2501	2 X R0.5	1°	2	25	60	4	
2JJTC 010 002 2501	1 X R0.2	1°	1	25	60	4		2JJTC 020 005 3001	2 X R0.5	1°	2	30	70	4	
2JJTC 010 002 3001	1 X R0.2	1°	1	30	70	4		2JJTC 020 005 3501	2 X R0.5	1°	2	35	75	4	
2JJTC 010 002 3501	1 X R0.2	1°	1	35	75	4		2JJTC 020 005 4001	2 X R0.5	1°	2	40	80	4	
2JJTC 010 003 0601	1 X R0.3	1°	1	6	50	4		2JJTC 020 005 5001	2 X R0.5	1°	2	50	90	4	
2JJTC 010 003 1001	1 X R0.3	1°	1	10	50	4		2JJTC 030 002 2001	3 X R0.2	1°	3	20	60	6	
2JJTC 010 003 1501	1 X R0.3	1°	1	15	50	4		2JJTC 030 002 3001	3 X R0.2	1°	3	30	70	6	
2JJTC 010 003 2001	1 X R0.3	1°	1	20	60	4		2JJTC 030 002 4001	3 X R0.2	1°	3	40	80	6	
2JJTC 010 003 2501	1 X R0.3	1°	1	25	60	4		2JJTC 030 002 5001	3 X R0.2	1°	3	50	90	6	
2JJTC 010 003 3001	1 X R0.3	1°	1	30	70	4		2JJTC 030 002 6001	3 X R0.2	1°	3	60	100	6	
2JJTC 010 003 3501	1 X R0.3	1°	1	35	75	4		2JJTC 030 003 2001	3 X R0.3	1°	3	20	60	6	
2JJTC 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4		2JJTC 030 003 3001	3 X R0.3	1°	3	30	70	6	
2JJTC 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4		2JJTC 030 003 4001	3 X R0.3	1°	3	40	80	6	
2JJTC 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4		2JJTC 030 003 5001	3 X R0.3	1°	3	50	90	6	
2JJTC 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4		2JJTC 030 003 6001	3 X R0.3	1°	3	60	100	6	
2JJTC 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4		2JJTC 030 005 2001	3 X R0.5	1°	3	20	60	6	
2JJTC 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4		2JJTC 030 005 3001	3 X R0.5	1°	3	30	70	6	
2JJTC 015 003 1001	1.5 X R0.3	1°	1.5	10	50	4		2JJTC 030 005 4001	3 X R0.5	1°	3	40	80	6	
2JJTC 015 003 1501	1.5 X R0.3	1°	1.5	15	50	4		2JJTC 030 005 5001	3 X R0.5	1°	3	50	90	6	
2JJTC 015 003 2001	1.5 X R0.3	1°	1.5	20	60	4		2JJTC 030 005 6001	3 X R0.5	1°	3	60	100	6	
2JJTC 015 003 2501	1.5 X R0.3	1°	1.5	25	60	4		2JJTC 030 010 2001	3 X R1	1°	3	20	60	6	
2JJTC 015 003 3001	1.5 X R0.3	1°	1.5	30	70	4		2JJTC 030 010 3001	3 X R1	1°	3	30	70	6	
2JJTC 015 003 3501	1.5 X R0.3	1°	1.5	35	75	4		2JJTC 030 010 4001	3 X R1	1°	3	40	80	6	
2JJTC 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4		2JJTC 030 010 5001	3 X R1	1°	3	50	90	6	
2JJTC 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4		2JJTC 030 010 6001	3 X R1	1°	3	60	100	6	
2JJTC 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4		2JJTC 040 002 2001	4 X R0.2	1°	4	20	60	6	
2JJTC 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4		2JJTC 040 002 3001	4 X R0.2	1°	4	30	70	6	
2JJTC 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4		2JJTC 040 002 4001	4 X R0.2	1°	4	40	80	6	
2JJTC 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4		2JJTC 040 002 5001	4 X R0.2	1°	4	50	90	6	
2JJTC 020 002 1201	2 X R0.2	1°	2	12	50	4		2JJTC 040 002 6001	4 X R0.2	1°	4	60	100	6	
2JJTC 020 002 1601	2 X R0.2	1°	2	16	50	4		2JJTC 040 003 2001	4 X R0.3	1°	4	20	60	6	
2JJTC 020 002 2001	2 X R0.2	1°	2	20	60	4		2JJTC 040 003 3001	4 X R0.3	1°	4	30	70	6	
2JJTC 020 002 2501	2 X R0.2	1°	2	25	60	4		2JJTC 040 003 4001	4 X R0.3	1°	4	40	80	6	
2JJTC 020 002 3001	2 X R0.2	1°	2	30	70	4		2JJTC 040 003 5001	4 X R0.3	1°	4	50	90	6	
2JJTC 020 002 3501	2 X R0.2	1°	2	35	75	4		2JJTC 040 003 6001	4 X R0.3	1°	4	60	100	6	
2JJTC 020 002 4001	2 X R0.2	1°	2	40	80	4		2JJTC 040 005 2001	4 X R0.5	1°	4	20	60	6	
2JJTC 020 002 5001	2 X R0.2	1°	2	50	90	4		2JJTC 040 005 3001	4 X R0.5	1°	4	30	70	6	
2JJTC 020 003 1201	2 X R0.3	1°	2	12	50	4		2JJTC 040 005 4001	4 X R0.5	1°	4	40	80	6	

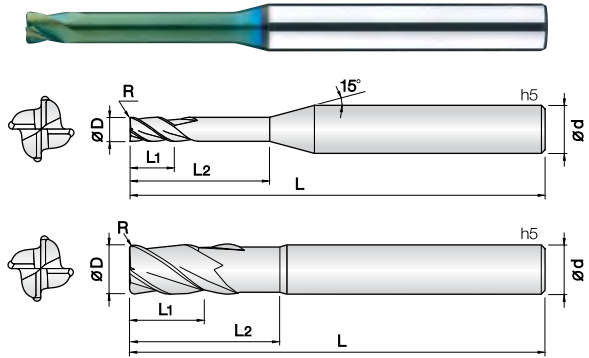


단위: mm

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

### 4날 고정도재 가공용 제이제이 리브 코너 레디우스 엔드밀

JJ series



- 고정도강(HRc52~70), 프리하드강 계열의 고정밀가공 엔드밀
- 고품질 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel (HRc52~70)**
- 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 $\mu$ m) WC grade.

4
UWC 초미립자
TISIN-S Coating
R ±0.005
R ±0.01
R ±0.015
30° Helix Angle

R0.02 ~ 0.5    R1 ~ 1.5    R2 ~ 3

D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -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	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 4JJCR 005 0005 020	0.5 X R0.05	0.5	2	45	4		4JJCR 010 0005 100	1 X R0.05	1	10	50	4	
New 4JJCR 005 0005 040	0.5 X R0.05	0.5	4	45	4		4JJCR 010 0005 120	1 X R0.05	1	12	50	4	
New 4JJCR 005 0005 060	0.5 X R0.05	0.5	6	45	4		4JJCR 010 001 040	1 X R0.1	1	4	45	4	
New 4JJCR 005 0005 080	0.5 X R0.05	0.5	8	45	4		4JJCR 010 001 060	1 X R0.1	1	6	45	4	
New 4JJCR 005 001 020	0.5 X R0.1	0.5	2	45	4		4JJCR 010 001 080	1 X R0.1	1	8	45	4	
New 4JJCR 005 001 040	0.5 X R0.1	0.5	4	45	4		4JJCR 010 001 100	1 X R0.1	1	10	50	4	
New 4JJCR 005 001 060	0.5 X R0.1	0.5	6	45	4		4JJCR 010 001 120	1 X R0.1	1	12	50	4	
New 4JJCR 005 001 080	0.5 X R0.1	0.5	8	45	4		4JJCR 010 002 040	1 X R0.2	1	4	45	4	
New 4JJCR 006 0005 020	0.6 X R0.05	0.6	2	45	4		4JJCR 010 002 060	1 X R0.2	1	6	45	4	
New 4JJCR 006 0005 040	0.6 X R0.05	0.6	4	45	4		4JJCR 010 002 080	1 X R0.2	1	8	45	4	
New 4JJCR 006 0005 060	0.6 X R0.05	0.6	6	45	4		4JJCR 010 002 100	1 X R0.2	1	10	50	4	
New 4JJCR 006 0005 080	0.6 X R0.05	0.6	8	45	4		4JJCR 010 002 120	1 X R0.2	1	12	50	4	
New 4JJCR 006 001 020	0.6 X R0.1	0.6	2	45	4		4JJCR 010 003 040	1 X R0.3	1	4	45	4	
New 4JJCR 006 001 040	0.6 X R0.1	0.6	4	45	4		4JJCR 010 003 060	1 X R0.3	1	6	45	4	
New 4JJCR 006 001 060	0.6 X R0.1	0.6	6	45	4		4JJCR 010 003 080	1 X R0.3	1	8	45	4	
New 4JJCR 006 001 080	0.6 X R0.1	0.6	8	45	4		4JJCR 010 003 100	1 X R0.3	1	10	50	4	
New 4JJCR 007 0005 020	0.7 X R0.05	0.7	2	45	4		4JJCR 010 003 120	1 X R0.3	1	12	50	4	
New 4JJCR 007 0005 040	0.7 X R0.05	0.7	4	45	4		4JJCR 012 0002 040	1.2 X R0.02	1.2	4	45	4	
New 4JJCR 007 0005 060	0.7 X R0.05	0.7	6	45	4		4JJCR 012 0002 060	1.2 X R0.02	1.2	6	45	4	
New 4JJCR 007 0005 080	0.7 X R0.05	0.7	8	45	4		4JJCR 012 0002 080	1.2 X R0.02	1.2	8	45	4	
New 4JJCR 007 001 020	0.7 X R0.1	0.7	2	45	4		4JJCR 012 0002 100	1.2 X R0.02	1.2	10	50	4	
New 4JJCR 007 001 040	0.7 X R0.1	0.7	4	45	4		4JJCR 012 0002 120	1.2 X R0.02	1.2	12	50	4	
New 4JJCR 007 001 060	0.7 X R0.1	0.7	6	45	4		4JJCR 012 0005 040	1.2 X R0.05	1.2	4	45	4	
New 4JJCR 007 001 080	0.7 X R0.1	0.7	8	45	4		4JJCR 012 0005 060	1.2 X R0.05	1.2	6	45	4	
4JJCR 008 0002 020	0.8 X R0.02	0.8	2	45	4		4JJCR 012 0005 080	1.2 X R0.05	1.2	8	45	4	
4JJCR 008 0002 040	0.8 X R0.02	0.8	4	45	4		4JJCR 012 0005 100	1.2 X R0.05	1.2	10	50	4	
4JJCR 008 0002 060	0.8 X R0.02	0.8	6	45	4		4JJCR 012 0005 120	1.2 X R0.05	1.2	12	50	4	
4JJCR 008 0002 080	0.8 X R0.02	0.8	8	45	4		4JJCR 012 001 040	1.2 X R0.1	1.2	4	45	4	
4JJCR 008 0002 100	0.8 X R0.02	0.8	10	45	4		4JJCR 012 001 060	1.2 X R0.1	1.2	6	45	4	
4JJCR 008 0005 020	0.8 X R0.05	0.8	2	45	4		4JJCR 012 001 080	1.2 X R0.1	1.2	8	45	4	
4JJCR 008 0005 040	0.8 X R0.05	0.8	4	45	4		4JJCR 012 001 100	1.2 X R0.1	1.2	10	50	4	
4JJCR 008 0005 060	0.8 X R0.05	0.8	6	45	4		4JJCR 012 001 120	1.2 X R0.1	1.2	12	50	4	
4JJCR 008 0005 080	0.8 X R0.05	0.8	8	45	4		4JJCR 012 002 040	1.2 X R0.2	1.2	4	45	4	
4JJCR 008 0005 100	0.8 X R0.05	0.8	10	45	4		4JJCR 012 002 060	1.2 X R0.2	1.2	6	45	4	
4JJCR 008 001 020	0.8 X R0.1	0.8	2	45	4		4JJCR 012 002 080	1.2 X R0.2	1.2	8	45	4	
4JJCR 008 001 040	0.8 X R0.1	0.8	4	45	4		4JJCR 012 002 100	1.2 X R0.2	1.2	10	50	4	
4JJCR 008 001 060	0.8 X R0.1	0.8	6	45	4		4JJCR 012 002 120	1.2 X R0.2	1.2	12	50	4	
4JJCR 008 001 080	0.8 X R0.1	0.8	8	45	4		4JJCR 012 003 040	1.2 X R0.3	1.2	4	45	4	
4JJCR 008 001 100	0.8 X R0.1	0.8	10	45	4		4JJCR 012 003 060	1.2 X R0.3	1.2	6	45	4	
New 4JJCR 008 001 120	0.8 X R0.1	0.8	12	50	4		4JJCR 012 003 080	1.2 X R0.3	1.2	8	45	4	
4JJCR 010 0002 040	1 X R0.02	1	4	45	4		4JJCR 012 003 100	1.2 X R0.3	1.2	10	50	4	
4JJCR 010 0002 060	1 X R0.02	1	6	45	4		4JJCR 012 003 120	1.2 X R0.3	1.2	12	50	4	
4JJCR 010 0002 080	1 X R0.02	1	8	45	4		4JJCR 015 0002 060	1.5XR0.02	1.5	6	45	4	
4JJCR 010 0002 100	1 X R0.02	1	10	50	4		4JJCR 015 0002 080	1.5XR0.02	1.5	8	45	4	
4JJCR 010 0002 120	1 X R0.02	1	12	50	4		4JJCR 015 0002 100	1.5XR0.02	1.5	10	50	4	
4JJCR 010 0005 040	1 X R0.05	1	4	45	4		4JJCR 015 0002 120	1.5XR0.02	1.5	12	50	4	
4JJCR 010 0005 060	1 X R0.05	1	6	45	4		4JJCR 015 0002 160	1.5XR0.02	1.5	16	50	4	
4JJCR 010 0005 080	1 X R0.05	1	8	45	4		4JJCR 015 0005 060	1.5XR0.05	1.5	6	45	4	

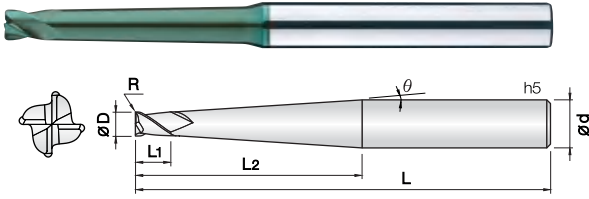
단위 : mm

Order Number	날경 D x R	날장 L1	유효장 L2	전장 L	샙크 Dia d	비고	Order Number	날경 D x R	날장 L1	유효장 L2	전장 L	샙크 Dia d	비고
4JJCR 015 0005 080	1.5XR0.05	1.5	8	45	4		4JJCR 020 005 120	2 X R0.5	2	12	50	4	
4JJCR 015 0005 100	1.5XR0.05	1.5	10	50	4		4JJCR 020 005 160	2 X R0.5	2	16	50	4	
4JJCR 015 0005 120	1.5XR0.05	1.5	12	50	4		4JJCR 020 005 200	2 X R0.5	2	20	50	4	
4JJCR 015 0005 160	1.5XR0.05	1.5	16	50	4		4JJCR 020 005 250	2 X R0.5	2	25	60	4	
4JJCR 015 001 060	1.5 X R0.1	1.5	6	45	4		4JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4	
4JJCR 015 001 080	1.5 X R0.1	1.5	8	45	4		4JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4	
4JJCR 015 001 100	1.5 X R0.1	1.5	10	50	4		4JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4	
4JJCR 015 001 120	1.5 X R0.1	1.5	12	50	4		4JJCR 025 001 250	2.5 X R0.1	2.5	25	60	4	
4JJCR 015 001 160	1.5 X R0.1	1.5	16	50	4		4JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4	
4JJCR 015 002 060	1.5 X R0.2	1.5	6	45	4		4JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4	
4JJCR 015 002 080	1.5 X R0.2	1.5	8	45	4		4JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4	
4JJCR 015 002 100	1.5 X R0.2	1.5	10	50	4		4JJCR 025 002 250	2.5 X R0.2	2.5	25	60	4	
4JJCR 015 002 120	1.5 X R0.2	1.5	12	50	4		4JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4	
4JJCR 015 002 160	1.5 X R0.2	1.5	16	50	4		4JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4	
4JJCR 015 003 060	1.5 X R0.3	1.5	6	45	4		4JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4	
4JJCR 015 003 080	1.5 X R0.3	1.5	8	45	4		4JJCR 025 003 250	2.5 X R0.3	2.5	25	60	4	
4JJCR 015 003 100	1.5 X R0.3	1.5	10	50	4		4JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4	
4JJCR 015 003 120	1.5 X R0.3	1.5	12	50	4		4JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4	
4JJCR 015 003 160	1.5 X R0.3	1.5	16	50	4		4JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4	
4JJCR 015 005 060	1.5 X R0.5	1.5	6	45	4		4JJCR 025 005 250	2.5 X R0.5	2.5	25	60	4	
4JJCR 015 005 080	1.5 X R0.5	1.5	8	45	4		4JJCR 030 001 100	3 X R0.1	3	10	50	6	
4JJCR 015 005 100	1.5 X R0.5	1.5	10	50	4		4JJCR 030 001 120	3 X R0.1	3	12	50	6	
4JJCR 015 005 120	1.5 X R0.5	1.5	12	50	4		4JJCR 030 001 160	3 X R0.1	3	16	55	6	
4JJCR 015 005 160	1.5 X R0.5	1.5	16	50	4		4JJCR 030 001 200	3 X R0.1	3	20	60	6	
4JJCR 020 0002 060	2 X R0.02	2	6	45	4		4JJCR 030 001 250	3 X R0.1	3	25	65	6	
4JJCR 020 0002 080	2 X R0.02	2	8	45	4		4JJCR 030 001 300	3 X R0.1	3	30	70	6	
4JJCR 020 0002 100	2 X R0.02	2	10	50	4		4JJCR 030 001 350	3 X R0.1	3	35	75	6	
4JJCR 020 0002 120	2 X R0.02	2	12	50	4		4JJCR 030 002 100	3 X R0.2	3	10	50	6	
4JJCR 020 0002 160	2 X R0.02	2	16	50	4		4JJCR 030 002 120	3 X R0.2	3	12	50	6	
4JJCR 020 0002 200	2 X R0.02	2	20	50	4		4JJCR 030 002 160	3 X R0.2	3	16	55	6	
4JJCR 020 0002 250	2 X R0.02	2	25	60	4		4JJCR 030 002 200	3 X R0.2	3	20	60	6	
4JJCR 020 0005 060	2 X R0.05	2	6	45	4		4JJCR 030 002 250	3 X R0.2	3	25	65	6	
4JJCR 020 0005 080	2 X R0.05	2	8	45	4		4JJCR 030 002 300	3 X R0.2	3	30	70	6	
4JJCR 020 0005 100	2 X R0.05	2	10	50	4		4JJCR 030 002 350	3 X R0.2	3	35	75	6	
4JJCR 020 0005 120	2 X R0.05	2	12	50	4		<b>New</b> 4JJCR 030 002 400	3 X R0.2	3	40	80	6	
4JJCR 020 0005 160	2 X R0.05	2	16	50	4		4JJCR 030 003 100	3 X R0.3	3	10	50	6	
4JJCR 020 0005 200	2 X R0.05	2	20	50	4		4JJCR 030 003 120	3 X R0.3	3	12	50	6	
4JJCR 020 0005 250	2 X R0.05	2	25	60	4		4JJCR 030 003 160	3 X R0.3	3	16	55	6	
4JJCR 020 001 060	2 X R0.1	2	6	45	4		4JJCR 030 003 200	3 X R0.3	3	20	60	6	
4JJCR 020 001 080	2 X R0.1	2	8	45	4		4JJCR 030 003 250	3 X R0.3	3	25	65	6	
4JJCR 020 001 100	2 X R0.1	2	10	50	4		4JJCR 030 003 300	3 X R0.3	3	30	70	6	
4JJCR 020 001 120	2 X R0.1	2	12	50	4		4JJCR 030 003 350	3 X R0.3	3	35	75	6	
4JJCR 020 001 160	2 X R0.1	2	16	50	4		<b>New</b> 4JJCR 030 003 400	3 X R0.3	3	40	80	6	
4JJCR 020 001 200	2 X R0.1	2	20	50	4		4JJCR 030 005 100	3 X R0.5	3	10	50	6	
4JJCR 020 001 250	2 X R0.1	2	25	60	4		4JJCR 030 005 120	3 X R0.5	3	12	50	6	
4JJCR 020 002 060	2 X R0.2	2	6	45	4		4JJCR 030 005 160	3 X R0.5	3	16	55	6	
4JJCR 020 002 080	2 X R0.2	2	8	45	4		4JJCR 030 005 200	3 X R0.5	3	20	60	6	
4JJCR 020 002 100	2 X R0.2	2	10	50	4		4JJCR 030 005 250	3 X R0.5	3	25	65	6	
4JJCR 020 002 120	2 X R0.2	2	12	50	4		4JJCR 030 005 300	3 X R0.5	3	30	70	6	
4JJCR 020 002 160	2 X R0.2	2	16	50	4		4JJCR 030 005 350	3 X R0.5	3	35	75	6	
4JJCR 020 002 200	2 X R0.2	2	20	50	4		<b>New</b> 4JJCR 030 005 400	3 X R0.5	3	40	80	6	
4JJCR 020 002 250	2 X R0.2	2	25	60	4		4JJCR 030 010 100	3 X R1	3	10	50	6	
4JJCR 020 003 060	2 X R0.3	2	6	45	4		4JJCR 030 010 120	3 X R1	3	12	50	6	
4JJCR 020 003 080	2 X R0.3	2	8	45	4		4JJCR 030 010 160	3 X R1	3	16	55	6	
4JJCR 020 003 100	2 X R0.3	2	10	50	4		4JJCR 030 010 200	3 X R1	3	20	60	6	
4JJCR 020 003 120	2 X R0.3	2	12	50	4		4JJCR 030 010 250	3 X R1	3	25	65	6	
4JJCR 020 003 160	2 X R0.3	2	16	50	4		4JJCR 030 010 300	3 X R1	3	30	70	6	
4JJCR 020 003 200	2 X R0.3	2	20	50	4		4JJCR 030 010 350	3 X R1	3	35	75	6	
4JJCR 020 003 250	2 X R0.3	2	25	60	4		<b>New</b> 4JJCR 030 010 400	3 X R1	3	40	80	6	
4JJCR 020 005 060	2 X R0.5	2	6	45	4		4JJCR 040 001 130	4 X R0.1	4	13	55	6	
4JJCR 020 005 080	2 X R0.5	2	8	45	4		4JJCR 040 001 160	4 X R0.1	4	16	55	6	
4JJCR 020 005 100	2 X R0.5	2	10	50	4		4JJCR 040 001 200	4 X R0.1	4	20	60	6	

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4JJCR 040 001 250	4 X R0.1	4	25	65	6		New 4JJCR 060 005 500	6 X R0.5	7	50	100	6	
4JJCR 040 001 300	4 X R0.1	4	30	70	6		4JJCR 060 010 200	6 X R1	7	20	60	6	
4JJCR 040 001 350	4 X R0.1	4	35	75	6		4JJCR 060 010 400	6 X R1	7	40	80	6	
4JJCR 040 001 400	4 X R0.1	4	40	80	6		New 4JJCR 060 010 500	6 X R1	7	50	100	6	
4JJCR 040 002 130	4 X R0.2	4	13	55	6		4JJCR 060 015 200	6 X R1.5	7	20	60	6	
4JJCR 040 002 160	4 X R0.2	4	16	55	6		4JJCR 060 015 400	6 X R1.5	7	40	80	6	
4JJCR 040 002 200	4 X R0.2	4	20	60	6		New 4JJCR 080 002 220	8 X R0.2	9	22	65	8	
4JJCR 040 002 250	4 X R0.2	4	25	65	6		New 4JJCR 080 002 400	8 X R0.2	9	40	100	8	
4JJCR 040 002 300	4 X R0.2	4	30	70	6		4JJCR 080 003 220	8 X R0.3	9	22	65	8	
4JJCR 040 002 350	4 X R0.2	4	35	75	6		New 4JJCR 080 003 400	8 X R0.3	9	40	100	8	
4JJCR 040 002 400	4 X R0.2	4	40	80	6		4JJCR 080 005 220	8 X R0.5	9	22	65	8	
New 4JJCR 040 002 450	4 X R0.2	4	45	90	6		4JJCR 080 005 400	8 X R0.5	9	40	100	8	
New 4JJCR 040 002 500	4 X R0.2	4	50	100	6		New 4JJCR 080 005 500	8 X R0.5	9	50	120	8	
4JJCR 040 003 130	4 X R0.3	4	13	55	6		4JJCR 080 010 220	8 X R1	9	22	65	8	
4JJCR 040 003 160	4 X R0.3	4	16	55	6		4JJCR 080 010 400	8 X R1	9	40	100	8	
4JJCR 040 003 200	4 X R0.3	4	20	60	6		New 4JJCR 080 010 500	8 X R1	9	50	120	8	
4JJCR 040 003 250	4 X R0.3	4	25	65	6		4JJCR 080 015 220	8 X R1.5	9	22	65	8	
4JJCR 040 003 300	4 X R0.3	4	30	70	6		New 4JJCR 080 015 400	8 X R1.5	9	40	100	8	
4JJCR 040 003 350	4 X R0.3	4	35	75	6		4JJCR 080 020 220	8 X R2	9	22	65	8	
4JJCR 040 003 400	4 X R0.3	4	40	80	6		New 4JJCR 080 020 400	8 X R2	9	40	100	8	
New 4JJCR 040 003 450	4 X R0.3	4	45	90	6		New 4JJCR 080 020 500	8 X R2	9	50	120	8	
New 4JJCR 040 003 500	4 X R0.3	4	50	100	6		New 4JJCR 100 002 240	10 X R0.2	11	24	70	10	
4JJCR 040 005 130	4 X R0.5	4	13	55	6		New 4JJCR 100 002 400	10 X R0.2	11	40	100	10	
4JJCR 040 005 160	4 X R0.5	4	16	55	6		4JJCR 100 003 240	10 X R0.3	11	24	70	10	
4JJCR 040 005 200	4 X R0.5	4	20	60	6		New 4JJCR 100 003 400	10 X R0.3	11	40	100	10	
4JJCR 040 005 250	4 X R0.5	4	25	65	6		4JJCR 100 005 240	10 X R0.5	11	24	70	10	
4JJCR 040 005 300	4 X R0.5	4	30	70	6		4JJCR 100 005 400	10 X R0.5	11	40	100	10	
4JJCR 040 005 350	4 X R0.5	4	35	75	6		New 4JJCR 100 005 500	10 X R0.5	11	50	120	10	
4JJCR 040 005 400	4 X R0.5	4	40	80	6		4JJCR 100 010 240	10 X R1	11	24	70	10	
New 4JJCR 040 005 450	4 X R0.5	4	45	90	6		4JJCR 100 010 400	10 X R1	11	40	100	10	
New 4JJCR 040 005 500	4 X R0.5	4	50	100	6		New 4JJCR 100 010 500	10 X R1	11	50	120	10	
4JJCR 040 010 130	4 X R1	4	13	55	6		4JJCR 100 015 240	10 X R1.5	11	24	70	10	
4JJCR 040 010 160	4 X R1	4	16	55	6		New 4JJCR 100 015 400	10 X R1.5	11	40	100	10	
4JJCR 040 010 200	4 X R1	4	20	60	6		4JJCR 100 020 240	10 X R2	11	24	70	10	
4JJCR 040 010 250	4 X R1	4	25	65	6		New 4JJCR 100 020 400	10 X R2	11	40	100	10	
4JJCR 040 010 300	4 X R1	4	30	70	6		New 4JJCR 100 020 500	10 X R2	11	50	120	10	
4JJCR 040 010 350	4 X R1	4	35	75	6		4JJCR 100 025 240	10 X R2.5	11	24	70	10	
4JJCR 040 010 400	4 X R1	4	40	80	6		4JJCR 120 003 260	12 X R0.3	13	26	80	12	
New 4JJCR 040 010 450	4 X R1	4	45	90	6		4JJCR 120 005 260	12 X R0.5	13	26	80	12	
New 4JJCR 040 010 500	4 X R1	4	50	100	6		4JJCR 120 005 400	12 X R0.5	13	40	110	12	
4JJCR 050 001 160	5 X R0.1	5	16	60	6		New 4JJCR 120 005 600	12 X R0.5	13	60	130	12	
4JJCR 050 001 300	5 X R0.1	5	30	70	6		4JJCR 120 010 260	12 X R1	13	26	80	12	
4JJCR 050 002 160	5 X R0.2	5	16	60	6		4JJCR 120 010 400	12 X R1	13	40	110	12	
4JJCR 050 002 300	5 X R0.2	5	30	70	6		New 4JJCR 120 010 600	12 X R1	13	60	130	12	
4JJCR 050 003 160	5 X R0.3	5	16	60	6		4JJCR 120 015 260	12 X R1.5	13	26	80	12	
4JJCR 050 003 300	5 X R0.3	5	30	70	6		4JJCR 120 020 260	12 X R2	13	26	80	12	
4JJCR 050 005 160	5 X R0.5	5	16	60	6		New 4JJCR 120 020 400	12 X R2	13	40	110	12	
4JJCR 050 005 300	5 X R0.5	5	30	70	6		4JJCR 120 030 260	12 X R3	13	26	80	12	
New 4JJCR 050 005 400	5 X R0.5	5	40	80	6								
New 4JJCR 050 005 500	5 X R0.5	5	50	100	6								
4JJCR 050 010 160	5 X R1	5	16	60	6								
4JJCR 050 010 300	5 X R1	5	30	70	6								
New 4JJCR 050 010 400	5 X R1	5	40	80	6								
New 4JJCR 050 010 500	5 X R1	5	50	100	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								

## 4날 고정도재 가공용 제이제이 테이퍼 넥 코너 레디우스 엔드밀



- 고정도강(HRc52~70), 프리하든강 계열의 고정밀가공 엔드밀
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel(HRc52~70)**
- Good wear resistance by high quality 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 $\mu$ m) WC grade.



R0.1 ~ 0.5

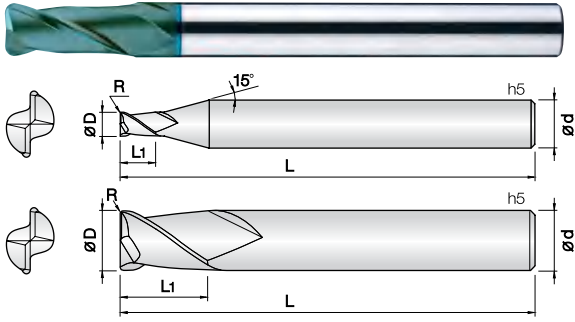
D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D×R	각도 Angle $\theta$	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	각도 Angle $\theta$	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4JJTC 010 001 0601	1 X R0.1	1°	1	6	50	4		4JJTC 020 005 3001	2 X R0.5	1°	2	30	70	4	
4JJTC 010 001 1001	1 X R0.1	1°	1	10	50	4		4JJTC 020 005 3501	2 X R0.5	1°	2	35	75	4	
4JJTC 010 001 1501	1 X R0.1	1°	1	15	50	4		4JJTC 020 005 4001	2 X R0.5	1°	2	40	80	4	
4JJTC 010 001 2001	1 X R0.1	1°	1	20	60	4		4JJTC 020 005 5001	2 X R0.5	1°	2	50	90	4	
4JJTC 010 001 2501	1 X R0.1	1°	1	25	60	4		4JJTC 030 002 2001	3 X R0.2	1°	3	20	60	6	
4JJTC 010 001 3001	1 X R0.1	1°	1	30	70	4		4JJTC 030 002 3001	3 X R0.2	1°	3	30	70	6	
4JJTC 010 001 3501	1 X R0.1	1°	1	35	75	4		4JJTC 030 002 4001	3 X R0.2	1°	3	40	80	6	
4JJTC 010 002 0601	1 X R0.2	1°	1	6	50	4		4JJTC 030 002 5001	3 X R0.2	1°	3	50	90	6	
4JJTC 010 002 1001	1 X R0.2	1°	1	10	50	4		4JJTC 030 002 6001	3 X R0.2	1°	3	60	100	6	
4JJTC 010 002 1501	1 X R0.2	1°	1	15	50	4		New 4JJTC 030 003 4001	3 X R0.3	1°	3	40	80	6	
4JJTC 010 002 2001	1 X R0.2	1°	1	20	60	4		New 4JJTC 030 003 5001	3 X R0.3	1°	3	50	90	6	
4JJTC 010 002 2501	1 X R0.2	1°	1	25	60	4		New 4JJTC 030 003 6001	3 X R0.3	1°	3	60	100	6	
4JJTC 010 002 3001	1 X R0.2	1°	1	30	70	4		4JJTC 030 005 2001	3 X R0.5	1°	3	20	60	6	
4JJTC 010 002 3501	1 X R0.2	1°	1	35	75	4		4JJTC 030 005 3001	3 X R0.5	1°	3	30	70	6	
New 4JJTC 010 003 1001	1 X R0.3	1°	1	10	50	4		4JJTC 030 005 4001	3 X R0.5	1°	3	40	80	6	
New 4JJTC 010 003 1501	1 X R0.3	1°	1	15	50	4		4JJTC 030 005 5001	3 X R0.5	1°	3	50	90	6	
New 4JJTC 010 003 2001	1 X R0.3	1°	1	20	60	4		4JJTC 030 005 6001	3 X R0.5	1°	3	60	100	6	
New 4JJTC 010 003 2501	1 X R0.3	1°	1	25	60	4		4JJTC 040 002 2001	4 X R0.2	1°	4	20	60	6	
4JJTC 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4		4JJTC 040 002 3001	4 X R0.2	1°	4	30	70	6	
4JJTC 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4		4JJTC 040 002 4001	4 X R0.2	1°	4	40	80	6	
4JJTC 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4		4JJTC 040 002 5001	4 X R0.2	1°	4	50	90	6	
4JJTC 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4		4JJTC 040 002 6001	4 X R0.2	1°	4	60	100	6	
4JJTC 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4		New 4JJTC 040 003 4001	4 X R0.3	1°	4	40	80	6	
4JJTC 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4		New 4JJTC 040 003 5001	4 X R0.3	1°	4	50	90	6	
New 4JJTC 015 003 1501	1.5 X R0.3	1°	1.5	15	50	4		New 4JJTC 040 003 6001	4 X R0.3	1°	4	60	100	6	
New 4JJTC 015 003 2001	1.5 X R0.3	1°	1.5	20	60	4		4JJTC 040 005 2001	4 X R0.5	1°	4	20	60	6	
New 4JJTC 015 003 2501	1.5 X R0.3	1°	1.5	25	60	4		4JJTC 040 005 3001	4 X R0.5	1°	4	30	70	6	
4JJTC 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4		4JJTC 040 005 4001	4 X R0.5	1°	4	40	80	6	
4JJTC 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4		4JJTC 040 005 5001	4 X R0.5	1°	4	50	90	6	
4JJTC 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4		4JJTC 040 005 6001	4 X R0.5	1°	4	60	100	6	
4JJTC 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4									
4JJTC 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4									
4JJTC 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4									
4JJTC 020 002 1201	2 X R0.2	1°	2	12	50	4									
4JJTC 020 002 1601	2 X R0.2	1°	2	16	50	4									
4JJTC 020 002 2001	2 X R0.2	1°	2	20	60	4									
4JJTC 020 002 2501	2 X R0.2	1°	2	25	60	4									
4JJTC 020 002 3001	2 X R0.2	1°	2	30	70	4									
4JJTC 020 002 3501	2 X R0.2	1°	2	35	75	4									
4JJTC 020 002 4001	2 X R0.2	1°	2	40	80	4									
4JJTC 020 002 5001	2 X R0.2	1°	2	50	90	4									
New 4JJTC 020 003 2001	2 X R0.3	1°	2	20	60	4									
New 4JJTC 020 003 3001	2 X R0.3	1°	2	30	70	4									
New 4JJTC 020 003 4001	2 X R0.3	1°	2	40	90	4									
4JJTC 020 005 1201	2 X R0.5	1°	2	12	50	4									
4JJTC 020 005 1601	2 X R0.5	1°	2	16	50	4									
4JJTC 020 005 2001	2 X R0.5	1°	2	20	60	4									
4JJTC 020 005 2501	2 X R0.5	1°	2	25	60	4									

# 2날 고경도재 가공용 제이제이 코너 레디우스 엔드밀

series JJ



- 고경도강(HRc52~70), 프리하든강 계열의 고속가공 엔드밀
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- 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 $\mu$ m) WC grade.

2

UWC  
초미립자

TISIN-S  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

30°  
Helix Angle

R0.02 ~ 0.5    R1 ~ 1.5    R2 ~ 5

D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2JJC 002 0002 S04	0.2 X R0.02	0.4	45	4		2JJC 025 003 S04	2.5 X R0.3	6	50	4	
2JJC 002 0005 S04	0.2 X R0.05	0.4	45	4		2JJC 025 005 S04	2.5 X R0.5	6	50	4	
2JJC 003 0002 S04	0.3 X R0.02	0.6	45	4		2JJC 030 001 S06	3 X R0.1	8	60	6	
2JJC 003 0005 S04	0.3 X R0.05	0.6	45	4		2JJC 030 002 S06	3 X R0.2	8	60	6	
2JJC 003 001 S04	0.3 X R0.1	0.6	45	4		2JJC 030 003 S06	3 X R0.3	8	60	6	
2JJC 004 0002 S04	0.4 X R0.02	0.8	45	4		2JJC 030 005 S06	3 X R0.5	8	60	6	
2JJC 004 0005 S04	0.4 X R0.05	0.8	45	4		2JJC 030 010 S06	3 X R1	8	60	6	
2JJC 004 001 S04	0.4 X R0.1	0.8	45	4		2JJC 040 001 S04	4 X R0.1	9	60	4	
2JJC 005 0002 S04	0.5 X R0.02	1	45	4		2JJC 040 001 S06	4 X R0.1	10	70	6	
2JJC 005 0005 S04	0.5 X R0.05	1	45	4		2JJC 040 002 S04	4 X R0.2	9	60	4	
2JJC 005 001 S04	0.5 X R0.1	1	45	4		2JJC 040 002 S06	4 X R0.2	10	70	6	
2JJC 006 0002 S04	0.6 X R0.02	1.2	45	4		2JJC 040 003 S04	4 X R0.3	9	60	4	
2JJC 006 0005 S04	0.6 X R0.05	1.2	45	4		2JJC 040 003 S06	4 X R0.3	10	70	6	
2JJC 006 001 S04	0.6 X R0.1	1.2	45	4		2JJC 040 005 S04	4 X R0.5	9	60	4	
2JJC 006 002 S04	0.6 X R0.2	1.2	45	4		2JJC 040 005 S06	4 X R0.5	10	70	6	
2JJC 007 0005 S04	0.7 X R0.05	1.4	45	4		2JJC 040 010 S04	4 X R1	9	60	4	
2JJC 007 001 S04	0.7 X R0.1	1.4	45	4		2JJC 040 010 S06	4 X R1	10	70	6	
2JJC 007 002 S04	0.7 X R0.2	1.4	45	4		2JJC 050 001 S06	5 X R0.1	13	75	6	
2JJC 008 0002 S04	0.8 X R0.02	1.6	45	4		2JJC 050 002 S06	5 X R0.2	13	75	6	
2JJC 008 0005 S04	0.8 X R0.05	1.6	45	4		2JJC 050 003 S06	5 X R0.3	13	75	6	
2JJC 008 001 S04	0.8 X R0.1	1.6	45	4		2JJC 050 005 S06	5 X R0.5	13	75	6	
2JJC 008 002 S04	0.8 X R0.2	1.6	45	4		2JJC 050 010 S06	5 X R1	13	75	6	
2JJC 009 0005 S04	0.9 X R0.05	1.8	45	4		2JJC 060 001 060	6 X R0.1	11	60	6	
2JJC 009 001 S04	0.9 X R0.1	1.8	45	4		2JJC 060 001 090	6 X R0.1	13	90	6	
2JJC 010 0002 S04	1 X R0.02	2.5	45	4		2JJC 060 002 060	6 X R0.2	11	60	6	
2JJC 010 0005 S04	1 X R0.05	2.5	45	4		2JJC 060 002 090	6 X R0.2	13	90	6	
2JJC 010 001 S04	1 X R0.1	2.5	45	4		2JJC 060 003 060	6 X R0.3	11	60	6	
2JJC 010 002 S04	1 X R0.2	2.5	45	4		2JJC 060 003 090	6 X R0.3	13	90	6	
2JJC 010 003 S04	1 X R0.3	2.5	45	4		2JJC 060 005 060	6 X R0.5	11	60	6	
2JJC 012 0002 S04	1.2 X R0.02	3.2	45	4		2JJC 060 005 090	6 X R0.5	13	90	6	
2JJC 012 0005 S04	1.2 X R0.05	3.2	45	4		New 2JJC 060 005 110	6 X R0.5	13	110	6	
2JJC 012 001 S04	1.2 X R0.1	3.2	45	4		2JJC 060 010 060	6 X R1	11	60	6	
2JJC 012 002 S04	1.2 X R0.2	3.2	45	4		2JJC 060 010 090	6 X R1	13	90	6	
2JJC 012 003 S04	1.2 X R0.3	3.2	45	4		New 2JJC 060 010 110	6 X R1	13	110	6	
2JJC 015 0002 S04	1.5 X R0.02	4	45	4		2JJC 060 015 060	6 X R1.5	11	60	6	
2JJC 015 0005 S04	1.5 X R0.05	4	45	4		2JJC 060 015 090	6 X R1.5	13	90	6	
2JJC 015 001 S04	1.5 X R0.1	4	45	4		2JJC 060 020 060	6 X R2	11	60	6	
2JJC 015 002 S04	1.5 X R0.2	4	45	4		2JJC 060 020 090	6 X R2	13	90	6	
2JJC 015 003 S04	1.5 X R0.3	4	45	4		2JJC 060 025 090	6 X R2.5	13	90	6	
2JJC 015 005 S04	1.5 X R0.5	4	45	4		2JJC 080 001 070	8 X R0.1	16	70	8	
2JJC 020 0002 S04	2 X R0.02	6	45	4		2JJC 080 001 100	8 X R0.1	19	100	8	
2JJC 020 0005 S04	2 X R0.05	6	45	4		2JJC 080 002 070	8 X R0.2	16	70	8	
2JJC 020 001 S04	2 X R0.1	6	45	4		2JJC 080 002 100	8 X R0.2	19	100	8	
2JJC 020 002 S04	2 X R0.2	6	45	4		2JJC 080 003 070	8 X R0.3	16	70	8	
2JJC 020 003 S04	2 X R0.3	6	45	4		2JJC 080 003 100	8 X R0.3	19	100	8	
2JJC 020 005 S04	2 X R0.5	6	45	4		2JJC 080 005 070	8 X R0.5	16	70	8	
2JJC 025 001 S04	2.5 X R0.1	6	50	4		2JJC 080 005 100	8 X R0.5	19	100	8	
2JJC 025 002 S04	2.5 X R0.2	6	50	4		New 2JJC 080 005 120	8 X R0.5	19	120	8	

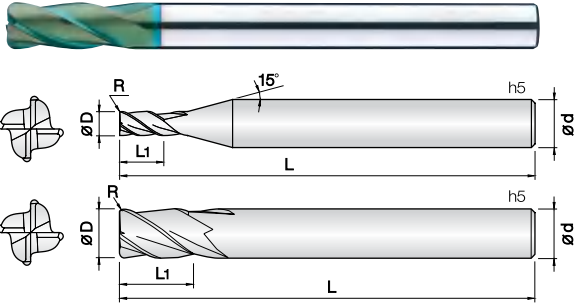


단위 : mm

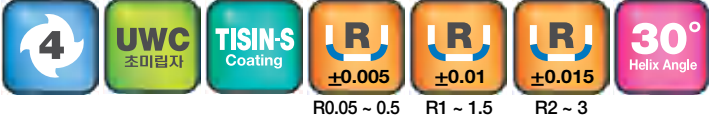
Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2JJC 080 010 070	8 X R1	16	70	8		2JJC 120 040 110	12 X R4	26	110	12	
2JJC 080 010 100	8 X R1	19	100	8		2JJC 120 050 110	12 X R5	26	110	12	
New 2JJC 080 010 120	8 X R1	19	120	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							
New 2JJC 100 005 120	10 X R0.5	22	120	10							
2JJC 100 010 075	10 X R1	19	75	10							
2JJC 100 010 100	10 X R1	22	100	10							
New 2JJC 100 010 120	10 X R1	22	120	10							
2JJC 100 015 075	10 X R1.5	19	75	10							
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							
New 2JJC 120 005 130	12 X R0.5	26	130	12							
2JJC 120 010 080	12 X R1	22	80	12							
2JJC 120 010 110	12 X R1	26	110	12							
New 2JJC 120 010 130	12 X R1	26	130	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							
New 2JJC 120 020 130	12 X R2	26	130	12							
2JJC 120 025 110	12 X R2.5	26	110	12							
2JJC 120 030 110	12 X R3	26	110	12							



## 4날 고경도재 가공용 제이제이 코너 레디우스 엔드밀



- 고경도강(HRC52~70), 프리하드강 계열의 고속가공 엔드밀
- 고품량 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRC52~70)
- 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 $\mu$ m) WC grade.



D Size	D Tolerance
$\varnothing 0.5 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 16$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4JJC 005 0005 S04	0.5 X R0.05	1	45	4		4JJC 045 005 S06	4.5 X R0.5	11	75	6	
New 4JJC 005 001 S04	0.5 X R0.1	1	45	4		4JJC 050 001 S06	5 X R0.1	13	75	6	
New 4JJC 006 0005 S04	0.6 X R0.05	1.2	45	4		4JJC 050 002 S06	5 X R0.2	13	75	6	
New 4JJC 006 001 S04	0.6 X R0.1	1.2	45	4		4JJC 050 003 S06	5 X R0.3	13	75	6	
New 4JJC 007 0005 S04	0.7 X R0.05	1.4	45	4		4JJC 050 005 S06	5 X R0.5	13	75	6	
New 4JJC 007 001 S04	0.7 X R0.1	1.4	45	4		4JJC 050 010 S06	5 X R1	13	75	6	
New 4JJC 008 0005 S04	0.8 X R0.05	1.6	45	4		4JJC 060 0005 055	6 X R0.05	11	55	6	
New 4JJC 008 001 S04	0.8 X R0.1	1.6	45	4		4JJC 060 0005 080	6 X R0.05	13	80	6	
New 4JJC 009 0005 S04	0.9 X R0.05	1.8	45	4		4JJC 060 001 055	6 X R0.1	11	55	6	
New 4JJC 009 001 S04	0.9 X R0.1	1.8	45	4		4JJC 060 001 080	6 X R0.1	13	80	6	
4JJC 010 0005 S04	1 X R0.05	2.5	45	4		4JJC 060 002 055	6 X R0.2	11	55	6	
4JJC 010 001 S04	1 X R0.1	2.5	45	4		4JJC 060 002 080	6 X R0.2	13	80	6	
4JJC 010 002 S04	1 X R0.2	2.5	45	4		New 4JJC 060 002 100	6 X R0.2	13	100	6	
4JJC 010 003 S04	1 X R0.3	2.5	45	4		New 4JJC 060 002 120	6 X R0.2	13	120	6	
4JJC 015 0005 S04	1.5 X R0.05	4	45	4		4JJC 060 003 055	6 X R0.3	11	55	6	
4JJC 015 001 S04	1.5 X R0.1	4	45	4		4JJC 060 003 080	6 X R0.3	13	80	6	
4JJC 015 002 S04	1.5 X R0.2	4	45	4		New 4JJC 060 003 100	6 X R0.3	13	100	6	
4JJC 015 003 S04	1.5 X R0.3	4	45	4		New 4JJC 060 003 120	6 X R0.3	13	120	6	
4JJC 015 005 S04	1.5 X R0.5	4	45	4		4JJC 060 005 055	6 X R0.5	11	55	6	
4JJC 020 0005 S04	2 X R0.05	6	45	4		4JJC 060 005 080	6 X R0.5	13	80	6	
4JJC 020 001 S04	2 X R0.1	6	45	4		New 4JJC 060 005 100	6 X R0.5	13	100	6	
4JJC 020 002 S04	2 X R0.2	6	45	4		New 4JJC 060 005 120	6 X R0.5	13	120	6	
4JJC 020 003 S04	2 X R0.3	6	45	4		4JJC 060 010 055	6 X R1	11	55	6	
4JJC 020 005 S04	2 X R0.5	6	45	4		4JJC 060 010 080	6 X R1	13	80	6	
4JJC 025 001 S04	2.5 X R0.1	6	50	4		New 4JJC 060 010 100	6 X R1	13	100	6	
4JJC 025 002 S04	2.5 X R0.2	6	50	4		New 4JJC 060 010 120	6 X R1	13	120	6	
4JJC 025 003 S04	2.5 X R0.3	6	50	4		4JJC 060 015 055	6 X R1.5	11	55	6	
4JJC 025 005 S04	2.5 X R0.5	6	50	4		4JJC 060 015 080	6 X R1.5	13	80	6	
4JJC 030 001 S06	3 X R0.1	8	60	6		4JJC 060 015 080	6 X R1.5	13	80	6	
4JJC 030 002 S06	3 X R0.2	8	60	6		4JJC 060 020 055	6 X R2	11	55	6	
4JJC 030 003 S06	3 X R0.3	8	60	6		4JJC 060 020 080	6 X R2	13	80	6	
4JJC 030 005 S06	3 X R0.5	8	60	6		New 4JJC 080 002 060	8 X R0.2	16	60	8	
4JJC 030 010 S06	3 X R1	8	60	6		New 4JJC 080 002 090	8 X R0.2	19	90	8	
4JJC 035 001 S06	3.5 X R0.1	9	70	6		4JJC 080 003 060	8 X R0.3	16	60	8	
4JJC 035 002 S06	3.5 X R0.2	9	70	6		4JJC 080 003 090	8 X R0.3	19	90	8	
4JJC 035 003 S06	3.5 X R0.3	9	70	6		4JJC 080 005 060	8 X R0.5	16	60	8	
4JJC 035 005 S06	3.5 X R0.5	9	70	6		4JJC 080 005 090	8 X R0.5	19	90	8	
4JJC 040 001 S04	4 X R0.1	9	60	4		New 4JJC 080 005 110	8 X R0.5	19	110	8	
4JJC 040 001 S06	4 X R0.1	10	70	6		New 4JJC 080 005 150	8 X R0.5	19	150	8	
4JJC 040 002 S04	4 X R0.2	9	60	4		4JJC 080 010 060	8 X R1	16	60	8	
4JJC 040 002 S06	4 X R0.2	10	70	6		4JJC 080 010 090	8 X R1	19	90	8	
4JJC 040 003 S04	4 X R0.3	9	60	4		New 4JJC 080 010 110	8 X R1	19	110	8	
4JJC 040 003 S06	4 X R0.3	10	70	6		New 4JJC 080 010 150	8 X R1	19	150	8	
4JJC 040 005 S04	4 X R0.5	9	60	4		4JJC 080 015 060	8 X R1.5	16	60	8	
4JJC 040 005 S06	4 X R0.5	10	70	6		4JJC 080 015 090	8 X R1.5	19	90	8	
4JJC 040 010 S04	4 X R1	9	60	4		4JJC 080 015 090	8 X R1.5	19	90	8	
4JJC 040 010 S06	4 X R1	10	70	6		4JJC 080 020 060	8 X R2	16	60	8	
4JJC 045 002 S06	4.5 X R0.2	11	75	6		4JJC 080 020 090	8 X R2	19	90	8	
						New 4JJC 100 002 070	10 X R0.2	19	70	10	
						New 4JJC 100 002 100	10 X R0.2	22	100	10	

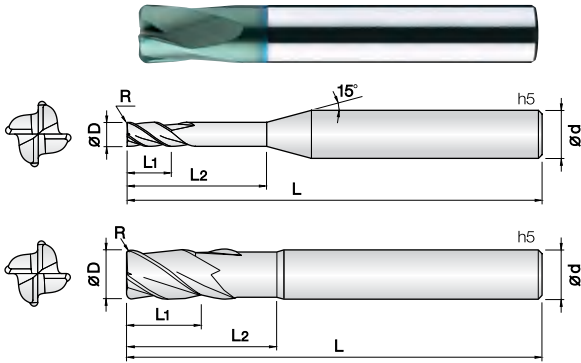


단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고						
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							
New 4JJC 100 005 120	10 X R0.5	22	120	10							
New 4JJC 100 005 150	10 X R0.5	22	150	10							
4JJC 100 010 070	10 X R1	19	70	10							
4JJC 100 010 100	10 X R1	22	100	10							
New 4JJC 100 010 120	10 X R1	22	120	10							
New 4JJC 100 010 150	10 X R1	22	150	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							
New 4JJC 100 020 120	10 X R2	22	120	10							
New 4JJC 100 020 150	10 X R2	22	150	10							
4JJC 100 025 070	10 X R2.5	19	70	10							
4JJC 100 025 100	10 X R2.5	22	100	10							
New 4JJC 120 002 075	12 X R0.2	22	75	12							
New 4JJC 120 002 110	12 X R0.2	26	110	12							
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							
New 4JJC 120 005 130	12 X R0.5	26	130	12							
New 4JJC 120 005 160	12 X R0.5	26	160	12							
4JJC 120 010 075	12 X R1	22	75	12							
4JJC 120 010 110	12 X R1	26	110	12							
New 4JJC 120 010 130	12 X R1	26	130	12							
New 4JJC 120 010 160	12 X R1	26	160	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							
New 4JJC 120 020 130	12 X R2	26	130	12							
New 4JJC 120 020 160	12 X R2	26	160	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							
New 4JJC 160 005 110	16 X R0.5	32	110	16							
New 4JJC 160 010 110	16 X R1	32	110	16							

## 4날 고정도재 가공용 제이제이 코너 레디우스 커터

JJ series



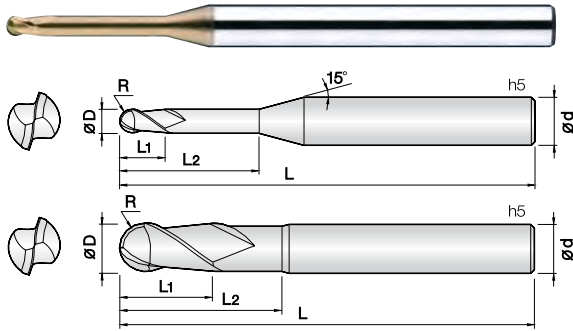
- 고정도강(HRc52~70), 프리하든강 계열의 고정밀가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능 하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- Good wear resistance by high quality Si-based PVD 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.



D Size	D Tolerance
1 ~ 5 $\phi$	+0 ~ -0.01mm
6 ~ 12 $\phi$	-0.005 ~ -0.015mm
16 $\phi$	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고
4JJRC 010 002 025	1 X R0.2	1	2.5	50	4		6JJRC 060 005 060	6 X R0.5	12	60	6	
4JJRC 015 005 040	1.5 X R0.5	1.5	4	50	4		6JJRC 060 010 060	6 X R1	12	60	6	
4JJRC 020 005 060	2 X R0.5	2	6	50	6		6JJRC 080 005 060	8 X R0.5	16	60	8	
4JJRC 030 005 080	3 X R0.5	3	8	50	6		6JJRC 080 010 060	8 X R1	16	60	8	
4JJRC 040 005 120	4 X R0.5	4	12	60	6		6JJRC 080 020 060	8 X R2	16	60	8	
4JJRC 040 005 160	4 X R0.5	4	16	60	6		6JJRC 100 005 070	10 X R0.5	20	70	10	
4JJRC 040 010 120	4 X R1	4	12	60	6		6JJRC 100 010 070	10 X R1	20	70	10	
4JJRC 040 010 160	4 X R1	4	16	60	6		6JJRC 100 020 070	10 X R2	20	70	10	
4JJRC 050 005 150	5 X R0.5	5	15	60	6		6JJRC 120 005 080	12 X R0.5	25	80	12	
4JJRC 050 010 150	5 X R1	5	15	60	6		6JJRC 120 010 080	12 X R1	25	80	12	
4JJRC 060 003 150	6 X R0.3	6	15	60	6		6JJRC 120 020 080	12 X R2	25	80	12	
4JJRC 060 005 150	6 X R0.5	6	15	60	6		6JJRC 160 005 100	16 X R0.5	30	100	16	
4JJRC 060 010 150	6 X R1	6	15	60	6		6JJRC 160 010 100	16 X R1	30	100	16	
4JJRC 060 015 150	6 X R1.5	6	15	60	6							
4JJRC 080 003 160	8 X R0.3	8	16	60	8							
4JJRC 080 005 160	8 X R0.5	8	16	60	8							
4JJRC 080 005 200	8 X R0.5	8	20	80	8							
4JJRC 080 005 300	8 X R0.5	8	30	110	8							
4JJRC 080 010 160	8 X R1	8	16	60	8							
4JJRC 080 010 200	8 X R1	8	20	80	8							
4JJRC 080 010 300	8 X R1	8	30	110	8							
4JJRC 080 020 160	8 X R2	8	16	60	8							
4JJRC 080 020 200	8 X R2	8	20	80	8							
4JJRC 080 020 300	8 X R2	8	30	110	8							
4JJRC 100 003 200	10 X R0.3	10	20	70	10							
4JJRC 100 005 200	10 X R0.5	10	20	70	10							
4JJRC 100 005 250	10 X R0.5	10	25	90	10							
4JJRC 100 005 300	10 X R0.5	10	30	120	10							
4JJRC 100 010 200	10 X R1	10	20	70	10							
4JJRC 100 010 250	10 X R1	10	25	90	10							
4JJRC 100 010 300	10 X R1	10	30	120	10							
4JJRC 100 020 200	10 X R2	10	20	70	10							
4JJRC 100 020 250	10 X R2	10	25	90	10							
4JJRC 100 020 300	10 X R2	10	30	120	10							
4JJRC 120 005 250	12 X R0.5	12	25	80	12							
4JJRC 120 005 300	12 X R0.5	12	30	100	12							
4JJRC 120 005 350	12 X R0.5	12	35	130	12							
4JJRC 120 010 250	12 X R1	12	25	80	12							
4JJRC 120 010 300	12 X R1	12	30	100	12							
4JJRC 120 010 350	12 X R1	12	35	130	12							
4JJRC 120 020 250	12 X R2	12	25	80	12							
4JJRC 120 020 300	12 X R2	12	30	100	12							
4JJRC 120 020 350	12 X R2	12	35	130	12							
4JJRC 120 030 250	12 X R3	12	25	80	12							
4JJRC 160 010 300	16 X R1	16	30	110	16							
4JJRC 160 010 400	16 X R1	16	40	160	16							
4JJRC 160 020 300	16 X R2	16	30	110	16							
4JJRC 160 020 400	16 X R2	16	40	160	16							



- 고경도강(HRC50~62), 프리하드강 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 $\mu$ m)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 $\mu$ m) WC grade.



0.05 ~ 2.5R 3 ~ 6R

D Size	D Tolerance
∅0.1	+0 ~ -0.005mm
∅0.2 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRB 001 003 S04	0.05R X 0.1	0.3	-	40	4		2HRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2HRB 001 005 S04	0.05R X 0.1	0.5	-	40	4		2HRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2HRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2HRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2HRB 002 010 S04	0.1R X 0.2	0.2	1	40	4		2HRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
2HRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2HRB 006 160 S04	0.3R X 0.6	0.6	16	45	4	
2HRB 002 020 S04	0.1R X 0.2	0.2	2	40	4		2HRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2HRB 002 025 S04	0.1R X 0.2	0.2	2.5	40	4		2HRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2HRB 002 030 S04	0.1R X 0.2	0.2	3	40	4		2HRB 007 060 S04	0.35R X 0.7	0.7	6	45	4	
2HRB 003 010 S04	0.15R X 0.3	0.3	1	40	4		2HRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
2HRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2HRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2HRB 003 020 S04	0.15R X 0.3	0.3	2	40	4		2HRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2HRB 003 025 S04	0.15R X 0.3	0.3	2.5	40	4		2HRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2HRB 003 030 S04	0.15R X 0.3	0.3	3	40	4		2HRB 008 030 S04	0.4R X 0.8	0.8	3	45	4	
2HRB 003 035 S04	0.15R X 0.3	0.3	3.5	40	4		2HRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2HRB 003 040 S04	0.15R X 0.3	0.3	4	40	4		2HRB 008 050 S04	0.4R X 0.8	0.8	5	45	4	
2HRB 003 050 S04	0.15R X 0.3	0.3	5	40	4		2HRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2HRB 004 010 S04	0.2R X 0.4	0.4	1	40	4		2HRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2HRB 004 015 S04	0.2R X 0.4	0.4	1.5	40	4		2HRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2HRB 004 020 S04	0.2R X 0.4	0.4	2	40	4		2HRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2HRB 004 025 S04	0.2R X 0.4	0.4	2.5	40	4		2HRB 008 140 S04	0.4R X 0.8	0.8	14	45	4	
2HRB 004 030 S04	0.2R X 0.4	0.4	3	40	4		2HRB 008 160 S04	0.4R X 0.8	0.8	16	45	4	
2HRB 004 035 S04	0.2R X 0.4	0.4	3.5	40	4		2HRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2HRB 004 040 S04	0.2R X 0.4	0.4	4	40	4		2HRB 010 020 S04	0.5R X 1	1	2	45	4	
2HRB 004 045 S04	0.2R X 0.4	0.4	4.5	40	4		2HRB 010 020 S06	0.5R X 1	1	2	50	6	
2HRB 004 050 S04	0.2R X 0.4	0.4	5	40	4		2HRB 010 030 S04	0.5R X 1	1	3	45	4	
2HRB 004 060 S04	0.2R X 0.4	0.4	6	40	4		2HRB 010 030 S06	0.5R X 1	1	3	50	6	
2HRB 004 080 S04	0.2R X 0.4	0.4	8	40	4		2HRB 010 040 S04	0.5R X 1	1	4	45	4	
2HRB 004 100 S04	0.2R X 0.4	0.4	10	40	4		2HRB 010 040 S06	0.5R X 1	1	4	50	6	
2HRB 005 010 S04	0.25R X 0.5	0.5	1	45	4		2HRB 010 050 S04	0.5R X 1	1	5	45	4	
2HRB 005 015 S04	0.25R X 0.5	0.5	1.5	45	4		2HRB 010 050 S06	0.5R X 1	1	5	50	6	
2HRB 005 020 S04	0.25R X 0.5	0.5	2	45	4		2HRB 010 060 S04	0.5R X 1	1	6	45	4	
2HRB 005 025 S04	0.25R X 0.5	0.5	2.5	45	4		2HRB 010 060 S06	0.5R X 1	1	6	50	6	
2HRB 005 030 S04	0.25R X 0.5	0.5	3	45	4		2HRB 010 080 S04	0.5R X 1	1	8	45	4	
2HRB 005 035 S04	0.25R X 0.5	0.5	3.5	45	4		2HRB 010 080 S06	0.5R X 1	1	8	50	6	
2HRB 005 040 S04	0.25R X 0.5	0.5	4	45	4		2HRB 010 100 S04	0.5R X 1	1	10	50	4	
2HRB 005 045 S04	0.25R X 0.5	0.5	4.5	45	4		2HRB 010 100 S06	0.5R X 1	1	10	50	6	
2HRB 005 050 S04	0.25R X 0.5	0.5	5	45	4		2HRB 010 120 S04	0.5R X 1	1	12	50	4	
2HRB 005 060 S04	0.25R X 0.5	0.5	6	45	4		2HRB 010 120 S06	0.5R X 1	1	12	50	6	
2HRB 005 080 S04	0.25R X 0.5	0.5	8	45	4		2HRB 010 140 S04	0.5R X 1	1	14	50	4	
2HRB 005 100 S04	0.25R X 0.5	0.5	10	45	4		2HRB 010 140 S06	0.5R X 1	1	14	50	6	
2HRB 005 120 S04	0.25R X 0.5	0.5	12	45	4		2HRB 010 160 S04	0.5R X 1	1	16	50	4	
2HRB 005 140 S04	0.25R X 0.5	0.5	14	45	4		2HRB 010 160 S06	0.5R X 1	1	16	60	6	
2HRB 006 010 S04	0.3R X 0.6	0.6	1	45	4		2HRB 010 180 S04	0.5R X 1	1	18	50	4	
2HRB 006 020 S04	0.3R X 0.6	0.6	2	45	4		2HRB 010 180 S06	0.5R X 1	1	18	60	6	
2HRB 006 030 S04	0.3R X 0.6	0.6	3	45	4		2HRB 010 200 S04	0.5R X 1	1	20	50	4	
2HRB 006 040 S04	0.3R X 0.6	0.6	4	45	4		2HRB 010 200 S06	0.5R X 1	1	20	60	6	
2HRB 006 050 S04	0.3R X 0.6	0.6	5	45	4		2HRB 010 220 S04	0.5R X 1	1	22	60	4	
2HRB 006 060 S04	0.3R X 0.6	0.6	6	45	4		2HRB 010 220 S06	0.5R X 1	1	22	65	6	

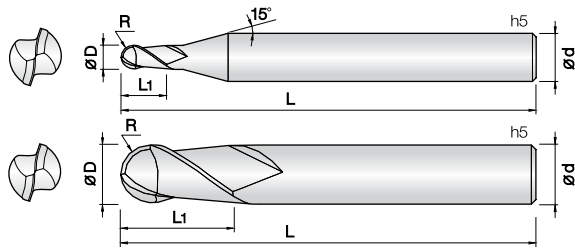
단위 : mm

Order Number	날경 Diameter R×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R×D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRB 010 250 S04	0.5R X 1	1	25	60	4		2HRB 015 350 S04	0.75R X 1.5	1.5	35	70	4	
2HRB 010 300 S04	0.5R X 1	1	30	70	4		2HRB 015 400 S04	0.75R X 1.5	1.5	40	80	4	
2HRB 012 040 S04	0.6R X 1.2	1.2	4	45	4		2HRB 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2HRB 012 040 S06	0.6R X 1.2	1.2	4	50	6		2HRB 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2HRB 012 060 S04	0.6R X 1.2	1.2	6	45	4		2HRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2HRB 012 060 S06	0.6R X 1.2	1.2	6	50	6		2HRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2HRB 012 080 S04	0.6R X 1.2	1.2	8	45	4		2HRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2HRB 012 080 S06	0.6R X 1.2	1.2	8	50	6		2HRB 018 060 S04	0.9R X 1.8	1.8	6	45	4	
2HRB 012 100 S04	0.6R X 1.2	1.2	10	50	4		2HRB 018 080 S04	0.9R X 1.8	1.8	8	45	4	
2HRB 012 100 S06	0.6R X 1.2	1.2	10	50	6		2HRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	
2HRB 012 120 S04	0.6R X 1.2	1.2	12	50	4		2HRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2HRB 012 120 S06	0.6R X 1.2	1.2	12	50	6		2HRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
2HRB 012 160 S04	0.6R X 1.2	1.2	16	50	4		2HRB 020 040 S04	1R X 2	2	4	45	4	
2HRB 012 160 S06	0.6R X 1.2	1.2	16	60	6		2HRB 020 040 S06	1R X 2	2	4	50	6	
2HRB 012 200 S04	0.6R X 1.2	1.2	20	50	4		2HRB 020 060 S04	1R X 2	2	6	45	4	
2HRB 012 200 S06	0.6R X 1.2	1.2	20	60	6		2HRB 020 060 S06	1R X 2	2	6	50	6	
2HRB 012 240 S04	0.6R X 1.2	1.2	24	60	4		2HRB 020 080 S04	1R X 2	2	8	45	4	
2HRB 012 240 S06	0.6R X 1.2	1.2	24	65	6		2HRB 020 080 S06	1R X 2	2	8	50	6	
2HRB 014 060 S04	0.7R X 1.4	1.4	6	45	4		2HRB 020 100 S04	1R X 2	2	10	50	4	
2HRB 014 080 S04	0.7R X 1.4	1.4	8	45	4		2HRB 020 100 S06	1R X 2	2	10	50	6	
2HRB 014 120 S04	0.7R X 1.4	1.4	12	50	4		2HRB 020 120 S04	1R X 2	2	12	50	4	
2HRB 014 160 S04	0.7R X 1.4	1.4	16	50	4		2HRB 020 120 S06	1R X 2	2	12	50	6	
2HRB 015 030 S04	0.75R X 1.5	1.5	3	45	4		2HRB 020 140 S04	1R X 2	2	14	50	4	
2HRB 015 030 S06	0.75R X 1.5	1.5	3	50	6		2HRB 020 140 S06	1R X 2	2	14	50	6	
2HRB 015 040 S04	0.75R X 1.5	1.5	4	45	4		2HRB 020 160 S04	1R X 2	2	16	50	4	
2HRB 015 040 S06	0.75R X 1.5	1.5	4	50	6		2HRB 020 160 S06	1R X 2	2	16	60	6	
2HRB 015 060 S04	0.75R X 1.5	1.5	6	45	4		2HRB 020 180 S04	1R X 2	2	18	50	4	
2HRB 015 060 S06	0.75R X 1.5	1.5	6	50	6		2HRB 020 180 S06	1R X 2	2	18	60	6	
2HRB 015 080 S04	0.75R X 1.5	1.5	8	45	4		2HRB 020 200 S04	1R X 2	2	20	50	4	
2HRB 015 080 S06	0.75R X 1.5	1.5	8	50	6		2HRB 020 200 S06	1R X 2	2	20	60	6	
2HRB 015 100 S04	0.75R X 1.5	1.5	10	50	4		2HRB 020 220 S04	1R X 2	2	22	60	4	
2HRB 015 100 S06	0.75R X 1.5	1.5	10	50	6		2HRB 020 220 S06	1R X 2	2	22	65	6	
2HRB 015 120 S04	0.75R X 1.5	1.5	12	50	4		2HRB 020 250 S04	1R X 2	2	25	60	4	
2HRB 015 120 S06	0.75R X 1.5	1.5	12	50	6		2HRB 020 250 S06	1R X 2	2	25	65	6	
2HRB 015 140 S04	0.75R X 1.5	1.5	14	50	4		2HRB 020 300 S04	1R X 2	2	30	70	4	
2HRB 015 140 S06	0.75R X 1.5	1.5	14	50	6		2HRB 020 300 S06	1R X 2	2	30	70	6	
2HRB 015 160 S04	0.75R X 1.5	1.5	16	50	4		2HRB 020 350 S04	1R X 2	2	35	70	4	
2HRB 015 160 S06	0.75R X 1.5	1.5	16	60	6		2HRB 020 350 S06	1R X 2	2	35	75	6	
2HRB 015 180 S04	0.75R X 1.5	1.5	18	50	4		2HRB 020 400 S04	1R X 2	2	40	80	4	
2HRB 015 180 S06	0.75R X 1.5	1.5	18	60	6		2HRB 020 400 S06	1R X 2	2	40	80	6	
2HRB 015 200 S04	0.75R X 1.5	1.5	20	50	4		2HRB 020 450 S04	1R X 2	2	45	80	4	
2HRB 015 200 S06	0.75R X 1.5	1.5	20	60	6		2HRB 020 500 S04	1R X 2	2	50	90	4	
2HRB 015 220 S04	0.75R X 1.5	1.5	22	60	4		2HRB 025 080 S04	1.25R X 2.5	2.5	8	45	4	
2HRB 015 220 S06	0.75R X 1.5	1.5	22	65	6		2HRB 025 080 S06	1.25R X 2.5	2.5	8	50	6	
2HRB 015 250 S04	0.75R X 1.5	1.5	25	60	4		2HRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2HRB 015 250 S06	0.75R X 1.5	1.5	25	65	6		2HRB 025 100 S06	1.25R X 2.5	2.5	10	50	6	
2HRB 015 300 S04	0.75R X 1.5	1.5	30	70	4		2HRB 025 120 S04	1.25R X 2.5	2.5	12	50	4	
2HRB 015 300 S06	0.75R X 1.5	1.5	30	70	6		2HRB 025 120 S06	1.25R X 2.5	2.5	12	50	6	



단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRB 025 160 S04	1.25R X 2.5	2.5	16	50	4		2HRB 060 300 S06	3R X 6	10	30	110	6	
2HRB 025 160 S06	1.25R X 2.5	2.5	16	60	6		2HRB 080 250 060	4R X 8	12	25	60	8	
2HRB 025 200 S04	1.25R X 2.5	2.5	20	60	4		2HRB 080 300 100	4R X 8	12	30	100	8	
2HRB 025 250 S04	1.25R X 2.5	2.5	25	60	4		2HRB 100 300 070	5R X 10	16	30	70	10	
2HRB 025 300 S04	1.25R X 2.5	2.5	30	70	4		2HRB 100 350 100	5R X 10	16	35	100	10	
2HRB 025 350 S04	1.25R X 2.5	2.5	35	70	4		2HRB 120 300 075	6R X 12	18	30	75	12	
2HRB 025 400 S04	1.25R X 2.5	2.5	40	80	4		2HRB 120 400 110	6R X 12	18	40	110	12	
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								
2HRB 030 600 S06	1.5R X 3	3	60	100	6								
2HRB 030 650 S06	1.5R X 3	3	65	110	6								
2HRB 030 700 S06	1.5R X 3	3	70	110	6								
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								
2HRB 040 550 S06	2R X 4	4	55	100	6								
2HRB 040 600 S06	2R X 4	4	60	100	6								
2HRB 040 650 S06	2R X 4	4	65	110	6								
2HRB 040 700 S06	2R X 4	4	70	110	6								
2HRB 050 160 S06	2.5R X 5	6	16	60	6								
2HRB 050 200 S06	2.5R X 5	6	20	60	6								
2HRB 050 250 S06	2.5R X 5	6	25	70	6								
2HRB 050 300 S06	2.5R X 5	6	30	75	6								
2HRB 050 400 S06	2.5R X 5	6	40	80	6								
2HRB 050 450 S06	2.5R X 5	6	45	90	6								
2HRB 050 500 S06	2.5R X 5	6	50	100	6								
2HRB 050 600 S06	2.5R X 5	6	60	100	6								
2HRB 050 650 S06	2.5R X 5	6	65	110	6								
2HRB 050 700 S06	2.5R X 5	6	70	110	6								
2HRB 060 150 S06	3R X 6	10	15	55	6								



- 고경도강(HRc50~62), 프리하든강 계열의 고정밀( $\pm 2\mu\text{m}$ ) 가공용
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금( $0.2\mu\text{m}$ )을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for precise cutting( $\pm 2\mu\text{m}$ ) 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 ( $0.2\mu\text{m}$ ) WC grade.

HARD series

2

UWC  
초미립자

TISIN  
Coating

R  
 $\pm 0.002$

R  
 $\pm 0.003$

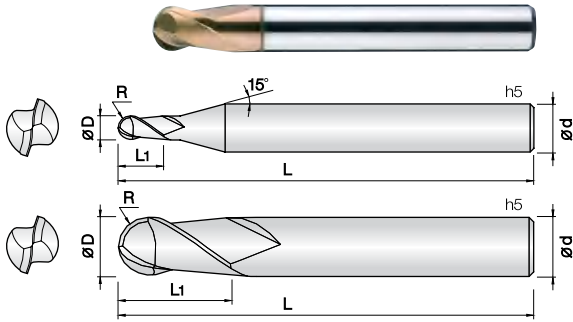
R  
 $\pm 0.005$

30°  
Helix Angle

D Size	D Tolerance
$\varnothing 0.2 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샙크 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	



- **고경도강(HRc50~62), 프리하드강 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 $\mu$ m)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  $\mu$ m) WC grade.



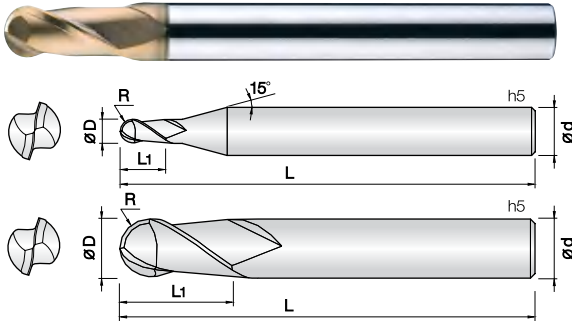
0.05 ~ 2.5R 3R ~ 6R

D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2HSB 001 001 S04	0.05R X 0.1	0.1	40	4		2HSB 120 120 060	6R X 12	12	60	12	
2HSB 001 001 S04	0.05R X 0.1	0.15	40	4		2HSB 120 120 070	6R X 12	12	70	12	
2HSB 001 5001 S04	0.075R X 0.15	0.15	40	4							
2HSB 001 5002 S04	0.075R X 0.15	0.2	40	4							
2HSB 002 002 S04	0.1R X 0.2	0.2	40	4							
2HSB 002 003 S04	0.1R X 0.2	0.3	40	4							
2HSB 003 003 S04	0.15R X 0.3	0.3	40	4							
2HSB 003 0045 S04	0.15R X 0.3	0.45	40	4							
2HSB 004 004 S04	0.2R X 0.4	0.4	40	4							
2HSB 004 006 S04	0.2R X 0.4	0.6	40	4							
2HSB 005 005 S04	0.25R X 0.5	0.5	40	4							
2HSB 005 0075 S04	0.25R X 0.5	0.75	40	4							
2HSB 006 006 S04	0.3R X 0.6	0.6	40	4							
2HSB 006 009 S04	0.3R X 0.6	0.9	40	4							
2HSB 007 007 S04	0.35R X 0.7	0.7	40	4							
2HSB 007 010 S04	0.35R X 0.7	1	40	4							
2HSB 008 008 S04	0.4R X 0.8	0.8	40	4							
2HSB 008 012 S04	0.4R X 0.8	1.2	40	4							
2HSB 009 009 S04	0.45R X 0.9	0.9	40	4							
2HSB 009 013 S04	0.45R X 0.9	1.3	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 010 015 S04	0.5R X 1	1.5	40	4							
2HSB 010 015 S06	0.5R X 1	1.5	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 015 023 S04	0.75R X 1.5	2.3	40	4							
2HSB 015 023 S06	0.75R X 1.5	2.3	40	6							
2HSB 020 020 S04	1R X 2	2	45	4							
2HSB 020 020 S06	1R X 2	2	45	6							
2HSB 020 030 S04	1R X 2	3	45	4							
2HSB 020 030 S06	1R X 2	3	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 030 045 S04	1.5R X 3	4.5	45	4							
2HSB 030 045 S06	1.5R X 3	4.5	45	6							
2HSB 040 040 S04	2R X 4	4	45	4							
2HSB 040 040 S06	2R X 4	4	45	6							
2HSB 040 060 S04	2R X 4	6	45	4							
2HSB 040 060 S06	2R X 4	6	45	6							
2HSB 050 050 S06	2.5R X 5	5	50	6							
2HSB 050 075 S06	2.5R X 5	7.5	50	6							
2HSB 060 060 050	3R X 6	6	50	6							
2HSB 060 060 060	3R X 6	6	60	6							
2HSB 080 080 050	4R X 8	8	50	8							
2HSB 080 080 060	4R X 8	8	60	8							
2HSB 100 100 060	5R X 10	10	60	10							
2HSB 100 100 070	5R X 10	10	70	10							





- **고경도강(HRc50~62), 프리하드강 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 $\mu$ m)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 $\mu$ m) WC grade.

2

UWC  
초미립자

TISIN  
Coating

R  
 $\pm 0.005$

R  
 $\pm 0.01$

R  
 $\pm 0.015$

30°  
Helix Angle

0.03 ~ 2.93R    3 ~ 6R    6.5 ~ 10R

D Size	D Tolerance
$\varnothing 0.06 \sim 0.19$	+0 ~ -0.005mm
$\varnothing 0.2 \sim 5.8$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm
$\varnothing 13 \sim 20$	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
2HCB 0006 001 S04	0.03R X 0.06	0.1	40	4		2HCB 030 080 S06	1.5R X 3	8	60	6	
2HCB 0007 0012 S04	0.035R X 0.07	0.12	40	4		2HCB 030 080 080	1.5R X 3	8	80	6	
2HCB 0008 0015 S04	0.04R X 0.08	0.15	40	4		2HCB 030 080 100	1.5R X 3	8	100	6	
2HCB 0009 0017 S04	0.045R X 0.09	0.17	40	4		2HCB 032 080 S04	1.6R X 3.2	8	60	4	
2HCB 001 002 S04	0.05R X 0.1	0.2	40	4		2HCB 034 080 S04	1.7R X 3.4	8	60	4	
2HCB 0015 003 S04	0.075R X 0.15	0.3	40	4		2HCB 035 080 S06	1.75R X 3.5	8	60	6	
2HCB 002 004 S04	0.1R X 0.2	0.4	40	4		2HCB 036 090 S04	1.8R X 3.6	9	60	4	
2HCB 003 006 S04	0.15R X 0.3	0.6	40	4		2HCB 038 090 S04	1.9R X 3.8	9	60	4	
2HCB 004 008 S04	0.2R X 0.4	0.8	40	4		2HCB 040 080 060	2R X 4	8	60	4	
2HCB 005 010 S04	0.25R X 0.5	1	45	4		2HCB 040 080 080	2R X 4	8	80	4	
2HCB 006 012 S04	0.3R X 0.6	1.2	45	4		2HCB 040 080 S06	2R X 4	8	70	6	
2HCB 007 015 S04	0.35R X 0.7	1.5	45	4		2HCB 040 080 090	2R X 4	8	90	6	
2HCB 008 020 S04	0.4R X 0.8	2	45	4		2HCB 040 080 120	2R X 4	8	120	6	
2HCB 009 020 S04	0.45R X 0.9	2	45	4		2HCB 042 100 S06	2.1R X 4.2	10	70	6	
2HCB 010 025 S03	0.5R X 1	2.5	50	3		2HCB 044 100 S06	2.2R X 4.4	10	70	6	
2HCB 010 025 S04	0.5R X 1	2.5	50	4		2HCB 045 080 S06	2.25R X 4.5	8	70	6	
2HCB 010 025 S06	0.5R X 1	2.5	50	6		2HCB 046 100 S06	2.3R X 4.6	10	70	6	
2HCB 010 025 070	0.5R X 1	2.5	70	6		2HCB 048 110 S06	2.4R X 4.8	11	70	6	
2HCB 010 025 100	0.5R X 1	2.5	100	6		2HCB 050 080 S05	2.5R X 5	8	80	5	
2HCB 011 027 S04	0.55R X 1.1	2.7	50	4		2HCB 050 100 S06	2.5R X 5	10	75	6	
2HCB 012 030 S03	0.6R X 1.2	3	50	3		2HCB 052 120 S06	2.6R X 5.2	12	75	6	
2HCB 012 030 S04	0.6R X 1.2	3	50	4		2HCB 054 120 S06	2.7R X 5.4	12	75	6	
2HCB 013 032 S04	0.65R X 1.3	3.2	50	4		2HCB 055 100 S06	2.75R X 5.5	10	75	6	
2HCB 014 035 S04	0.7R X 1.4	3.5	50	4		2HCB 056 120 S06	2.8R X 5.6	12	75	6	
2HCB 015 040 S03	0.75R X 1.5	4	50	3		2HCB 058 120 S06	2.9R X 5.8	12	75	6	
2HCB 015 040 S04	0.75R X 1.5	4	50	4		2HCB 060 100 060	3R X 6	10	60	6	
2HCB 015 040 S06	0.75R X 1.5	4	50	6		2HCB 060 120 080	3R X 6	12	80	6	
2HCB 015 040 070	0.75R X 1.5	4	70	6		2HCB 060 120 100	3R X 6	12	100	6	
2HCB 015 040 100	0.75R X 1.5	4	100	6		2HCB 060 120 120	3R X 6	12	120	6	
2HCB 016 040 S04	0.8R X 1.6	4	50	4		2HCB 060 120 150	3R X 6	12	150	6	
2HCB 017 042 S04	0.85R X 1.7	4.2	50	4		2HCB 070 140 S08	3.5R X 7	14	80	8	
2HCB 018 045 S04	0.9R X 1.8	4.5	50	4		2HCB 080 140 090	4R X 8	14	90	8	
2HCB 019 047 S04	0.95R X 1.9	4.7	50	4		2HCB 080 140 110	4R X 8	14	110	8	
2HCB 020 050 S03	1R X 2	5	50	3		2HCB 080 140 150	4R X 8	14	150	8	
2HCB 020 050 S04	1R X 2	5	50	4		2HCB 090 160 S10	4.5R X 9	16	100	10	
2HCB 020 050 S06	1R X 2	5	50	6		2HCB 100 180 100	5R X 10	18	100	10	
2HCB 020 050 075	1R X 2	5	75	6		2HCB 100 180 120	5R X 10	18	120	10	
2HCB 020 050 100	1R X 2	5	100	6		2HCB 100 180 150	5R X 10	18	150	10	
2HCB 022 055 S04	1.1R X 2.2	5.5	50	4		2HCB 100 180 180	5R X 10	18	180	10	
2HCB 024 060 S04	1.2R X 2.4	6	50	4		2HCB 110 200 S12	5.5R X 11	20	110	12	
2HCB 025 060 S03	1.25R X 2.5	6	50	3		2HCB 120 220 110	6R X 12	22	110	12	
2HCB 025 060 S04	1.25R X 2.5	6	50	4		2HCB 120 220 130	6R X 12	22	130	12	
2HCB 025 060 S06	1.25R X 2.5	6	75	6		2HCB 120 220 150	6R X 12	22	150	12	
2HCB 025 060 100	1.25R X 2.5	6	100	6		2HCB 120 220 200	6R X 12	22	200	12	
2HCB 026 060 S04	1.3R X 2.6	6	50	4		2HCB 130 240 S14	6.5R X 13	24	110	14	
2HCB 028 070 S04	1.4R X 2.8	7	50	4		2HCB 140 240 S14	7R X 14	24	110	14	
2HCB 030 080 S03	1.5R X 3	8	60	3		2HCB 160 300 130	8R X 16	30	130	16	
2HCB 030 080 S04	1.5R X 3	8	50	4		2HCB 160 300 160	8R X 16	30	160	16	

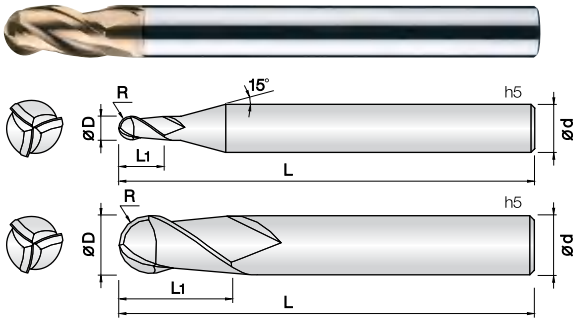
단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
2HCB 160 300 200	8R X 16	30	200	16						
2HCB 200 380 160	10R X 20	38	160	20						
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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- 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.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

HARD series



D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

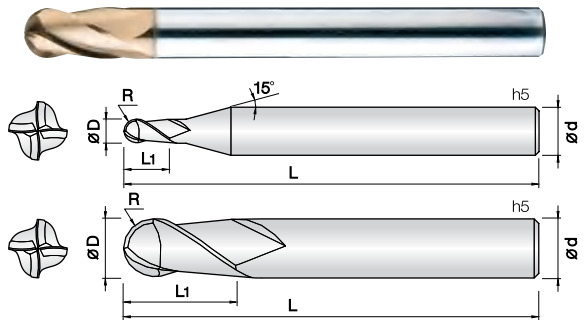
단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
New 3HCB 010 250 S04	0.5R X 1	2.5	50	4		3HCB 120 220 S12	6R X 12	22	110	12	
New 3HCB 015 040 S04	0.75R X 1.5	4	50	4							
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							

# 4HCB

4 Flutes High Speed Standard Length Ball End Mills

## 4날 고속가공용 표준 길이 볼 엔드밀



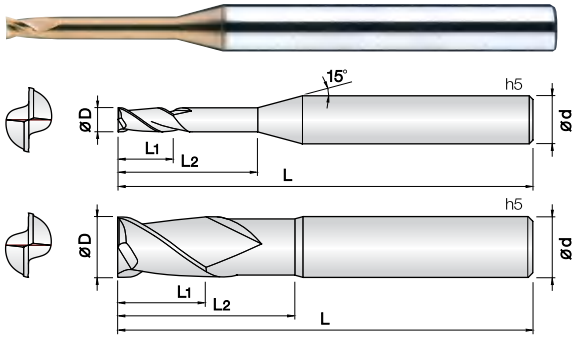
- 고경도강(HRc50~65), 프리하든강 계열의 고속가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 4날 볼타입 적용으로 고속, 고이송 작업이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel (HRc50~65)
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- High speed, feed applicable by 4 flute ball edge.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
4HCB 010 025 S06	0.5R X 1	2.5	50	6		4HCB 120 220 S12	6R X 12	22	110	12	
4HCB 015 040 S06	0.75R X 1.5	4	50	6		4HCB 160 300 S16	8R X 16	30	130	16	
4HCB 020 050 S06	1R X 2	5	50	6		4HCB 200 400 S20	10R X 20	40	160	20	
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							



- 고경도강(HRC50~60), 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRC50~60)
- 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 $\mu$ m) WC grade.



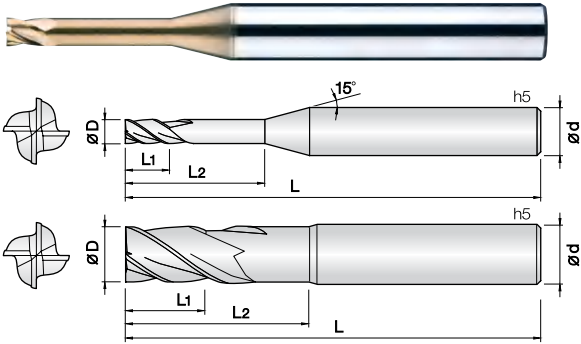
D Size	D Tolerance
Ø0.1	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRE 001 003 S04	0.1	0.3	-	40	4		2HRE 007 020 S04	0.7	0.7	2	40	4	
2HRE 001 005 S04	0.1	0.5	-	40	4		2HRE 007 040 S04	0.7	0.7	4	40	4	
2HRE 002 005 S04	0.2	0.2	0.5	40	4		2HRE 007 060 S04	0.7	0.7	6	40	4	
2HRE 002 010 S04	0.2	0.2	1	40	4		2HRE 007 080 S04	0.7	0.7	8	40	4	
2HRE 002 015 S04	0.2	0.2	1.5	40	4		2HRE 007 100 S04	0.7	0.7	10	40	4	
2HRE 002 020 S04	0.2	0.2	2	40	4		2HRE 007 120 S04	0.7	0.7	12	45	4	
2HRE 002 025 S04	0.2	0.2	2.5	40	4		2HRE 008 020 S04	0.8	0.8	2	40	4	
2HRE 002 030 S04	0.2	0.2	3	40	4		2HRE 008 030 S04	0.8	0.8	3	40	4	
2HRE 003 010 S04	0.3	0.3	1	40	4		2HRE 008 040 S04	0.8	0.8	4	40	4	
2HRE 003 015 S04	0.3	0.3	1.5	40	4		2HRE 008 050 S04	0.8	0.8	5	40	4	
2HRE 003 020 S04	0.3	0.3	2	40	4		2HRE 008 060 S04	0.8	0.8	6	40	4	
2HRE 003 025 S04	0.3	0.3	2.5	40	4		2HRE 008 080 S04	0.8	0.8	8	40	4	
2HRE 003 030 S04	0.3	0.3	3	40	4		2HRE 008100 S04	0.8	0.8	10	40	4	
2HRE 003 035 S04	0.3	0.3	3.5	40	4		2HRE 008120 S04	0.8	0.8	12	45	4	
2HRE 003 040 S04	0.3	0.3	4	40	4		2HRE 008140 S04	0.8	0.8	14	45	4	
2HRE 003 050 S04	0.3	0.3	5	40	4		2HRE 009 060 S04	0.9	0.9	6	40	4	
2HRE 004 010 S04	0.4	0.4	1	40	4		2HRE 009 080 S04	0.9	0.9	8	40	4	
2HRE 004 015 S04	0.4	0.4	1.5	40	4		2HRE 009 100 S04	0.9	0.9	10	40	4	
2HRE 004 020 S04	0.4	0.4	2	40	4		2HRE 010 020 S04	1	1	2	45	4	
2HRE 004 025 S04	0.4	0.4	2.5	40	4		2HRE 010 030 S04	1	1	3	45	4	
2HRE 004 030 S04	0.4	0.4	3	40	4		2HRE 010 040 S04	1	1	4	45	4	
2HRE 004 035 S04	0.4	0.4	3.5	40	4		2HRE 010 050 S04	1	1	5	45	4	
2HRE 004 040 S04	0.4	0.4	4	40	4		2HRE 010 060 S04	1	1	6	45	4	
2HRE 004 050 S04	0.4	0.4	5	40	4		2HRE 010 080 S04	1	1	8	45	4	
2HRE 004 060 S04	0.4	0.4	6	40	4		2HRE 010 100 S04	1	1	10	45	4	
2HRE 004 080 S04	0.4	0.4	8	40	4		2HRE 010 120 S04	1	1	12	45	4	
2HRE 004 100 S04	0.4	0.4	10	40	4		2HRE 010 140 S04	1	1	14	45	4	
2HRE 005 010 S04	0.5	0.5	1	40	4		2HRE 010 160 S04	1	1	16	50	4	
2HRE 005 020 S04	0.5	0.5	2	40	4		2HRE 010 180 S04	1	1	18	50	4	
2HRE 005 030 S04	0.5	0.5	3	40	4		2HRE 010 200 S04	1	1	20	50	4	
2HRE 005 040 S04	0.5	0.5	4	40	4		2HRE 010 250 S04	1	1	25	60	4	
2HRE 005 050 S04	0.5	0.5	5	40	4		2HRE 010 300 S04	1	1	30	70	4	
2HRE 005 060 S04	0.5	0.5	6	40	4		2HRE 012 040 S04	1.2	1.2	4	45	4	
2HRE 005 080 S04	0.5	0.5	8	40	4		2HRE 012 060 S04	1.2	1.2	6	45	4	
2HRE 005 100 S04	0.5	0.5	10	40	4		2HRE 012 080 S04	1.2	1.2	8	45	4	
2HRE 005 120 S04	0.5	0.5	12	45	4		2HRE 012 100 S04	1.2	1.2	10	45	4	
2HRE 005 140 S04	0.5	0.5	14	45	4		2HRE 012 120 S04	1.2	1.2	12	45	4	
2HRE 006 010 S04	0.6	0.6	1	40	4		2HRE 012 160 S04	1.2	1.2	16	50	4	
2HRE 006 020 S04	0.6	0.6	2	40	4		2HRE 012 200 S04	1.2	1.2	20	50	4	
2HRE 006 030 S04	0.6	0.6	3	40	4		2HRE 012 250 S04	1.2	1.2	25	60	4	
2HRE 006 040 S04	0.6	0.6	4	40	4		2HRE 012 300 S04	1.2	1.2	30	70	4	
2HRE 006 050 S04	0.6	0.6	5	40	4		2HRE 014 060 S04	1.4	1.4	6	45	4	
2HRE 006 060 S04	0.6	0.6	6	40	4		2HRE 014 080 S04	1.4	1.4	8	45	4	
2HRE 006 080 S04	0.6	0.6	8	40	4		2HRE 014 100 S04	1.4	1.4	10	45	4	
2HRE 006 100 S04	0.6	0.6	10	40	4		2HRE 014 140 S04	1.4	1.4	14	45	4	
2HRE 006 120 S04	0.6	0.6	12	45	4		2HRE 014 160 S04	1.4	1.4	16	50	4	
2HRE 006 140 S04	0.6	0.6	14	45	4		2HRE 014 200 S04	1.4	1.4	20	50	4	
2HRE 006 160 S04	0.6	0.6	16	45	4		2HRE 015 040 S04	1.5	1.5	4	45	4	

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRE 015 060 S04	1.5	1.5	6	45	4		2HRE 030 250 S06	3	3	25	65	6	
2HRE 015 080 S04	1.5	1.5	8	45	4		2HRE 030 300 S06	3	3	30	70	6	
2HRE 015 100 S04	1.5	1.5	10	45	4		2HRE 030 350 S06	3	3	35	75	6	
2HRE 015 120 S04	1.5	1.5	12	45	4		2HRE 030 400 S06	3	3	40	80	6	
2HRE 015 140 S04	1.5	1.5	14	50	4		2HRE 030 450 S06	3	3	45	90	6	
2HRE 015 160 S04	1.5	1.5	16	50	4		2HRE 030 500 S06	3	3	50	100	6	
2HRE 015 180 S04	1.5	1.5	18	50	4		2HRE 030 600 S06	3	3	60	100	6	
2HRE 015 200 S04	1.5	1.5	20	50	4		2HRE 040 080 S06	4	4	8	50	6	
2HRE 015 250 S04	1.5	1.5	25	60	4		2HRE 040 100 S06	4	4	10	50	6	
2HRE 015 300 S04	1.5	1.5	30	70	4		2HRE 040 120 S06	4	4	12	50	6	
2HRE 016 100 S04	1.6	1.6	10	45	4		2HRE 040 160 S06	4	4	16	55	6	
2HRE 016 140 S04	1.6	1.6	14	45	4		2HRE 040 200 S06	4	4	20	60	6	
2HRE 016 180 S04	1.6	1.6	18	60	4		2HRE 040 250 S06	4	4	25	65	6	
2HRE 018 100 S04	1.8	1.8	10	45	4		2HRE 040 300 S06	4	4	30	70	6	
2HRE 018 140 S04	1.8	1.8	14	45	4		2HRE 040 350 S06	4	4	35	75	6	
2HRE 018 180 S04	1.8	1.8	18	50	4		2HRE 040 400 S06	4	4	40	80	6	
2HRE 020 040 S04	2	2	4	45	4		2HRE 040 450 S06	4	4	45	90	6	
2HRE 020 060 S04	2	2	6	45	4		2HRE 040 500 S06	4	4	50	100	6	
2HRE 020 080 S04	2	2	8	45	4		2HRE 040 550 S06	4	4	55	100	6	
2HRE 020 100 S04	2	2	10	45	4		2HRE 040 600 S06	4	4	60	100	6	
2HRE 020 120 S04	2	2	12	45	4		2HRE 050 160 S06	5	6	16	55	6	
2HRE 020 140 S04	2	2	14	45	4		2HRE 050 200 S06	5	6	20	60	6	
2HRE 020 160 S04	2	2	16	50	4		2HRE 050 250 S06	5	6	25	65	6	
2HRE 020 180 S04	2	2	18	50	4		2HRE 050 300 S06	5	6	30	70	6	
2HRE 020 200 S04	2	2	20	50	4		2HRE 050 350 S06	5	6	35	75	6	
2HRE 020 220 S04	2	2	22	60	4		2HRE 050 400 S06	5	6	40	80	6	
2HRE 020 250 S04	2	2	25	60	4		2HRE 050 500 S06	5	6	50	100	6	
2HRE 020 300 S04	2	2	30	60	4		2HRE 050 600 S06	5	6	60	100	6	
2HRE 020 350 S04	2	2	35	70	4		2HRE 060 200 S06	6	10	20	60	6	
2HRE 020 400 S04	2	2	40	80	4		2HRE 060 300 S06	6	10	30	75	6	
2HRE 020 450 S04	2	2	45	80	4		2HRE 060 400 S06	6	10	40	80	6	
2HRE 020 500 S04	2	2	50	90	4		2HRE 060 500 S06	6	10	50	90	6	
2HRE 025 080 S04	2.5	2.5	8	45	4		2HRE 060 600 S06	6	10	60	110	6	
2HRE 025 100 S04	2.5	2.5	10	45	4		2HRE 080 200 S08	8	12	20	65	8	
2HRE 025 120 S04	2.5	2.5	12	45	4		2HRE 080 300 S08	8	12	30	80	8	
2HRE 025 160 S04	2.5	2.5	16	50	4		2HRE 080 400 S08	8	12	40	100	8	
2HRE 025 200 S04	2.5	2.5	20	50	4		2HRE 100 250 S10	10	15	25	70	10	
2HRE 025 250 S04	2.5	2.5	25	60	4		2HRE 100 350 S10	10	15	35	80	10	
2HRE 025 300 S04	2.5	2.5	30	70	4		2HRE 100 450 S10	10	15	45	100	10	
2HRE 025 350 S04	2.5	2.5	35	70	4		2HRE 120 300 S12	12	18	30	80	12	
2HRE 025 400 S04	2.5	2.5	40	80	4		2HRE 120 400 S12	12	18	40	100	12	
2HRE 025 500 S04	2.5	2.5	50	90	4		2HRE 120 500 S12	12	18	50	120	12	
2HRE 030 060 S06	3	3	6	45	6								
2HRE 030 080 S06	3	3	8	45	6								
2HRE 030 100 S06	3	3	10	45	6								
2HRE 030 120 S06	3	3	12	50	6								
2HRE 030 160 S06	3	3	16	55	6								
2HRE 030 200 S06	3	3	20	60	6								



- 고경도강(HRc50~60), 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 $\mu$ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc50~60)
- 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  $\mu$ m) WC grade.



D Size	D Tolerance
$\phi 0.8 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.01 ~ -0.025mm

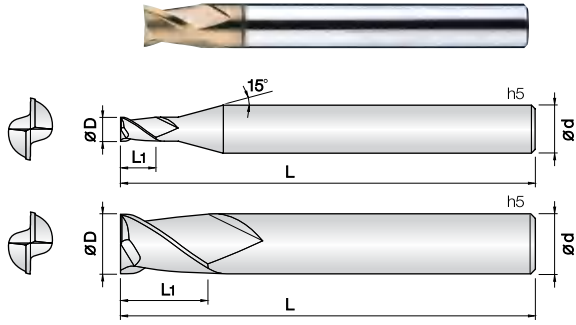
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4HRE 008 020 S04	0.8	0.8	2	45	4		4HRE 025 120 S04	2.5	2.5	12	45	4	
4HRE 008 040 S04	0.8	0.8	4	45	4		4HRE 025 160 S04	2.5	2.5	16	50	4	
4HRE 008 060 S04	0.8	0.8	6	45	4		4HRE 025 200 S04	2.5	2.5	20	50	4	
4HRE 008 080 S04	0.8	0.8	8	45	4		4HRE 025 250 S04	2.5	2.5	25	60	4	
4HRE 008 100 S04	0.8	0.8	10	45	4		4HRE 025 300 S04	2.5	2.5	30	70	4	
4HRE 008 120 S04	0.8	0.8	12	45	4		4HRE 030 060 S06	3	3	6	45	6	
4HRE 008 160 S04	0.8	0.8	16	50	4		4HRE 030 080 S06	3	3	8	45	6	
4HRE 009 020 S04	0.9	0.9	2	45	4		4HRE 030 100 S06	3	3	10	45	6	
4HRE 009 060 S04	0.9	0.9	6	45	4		4HRE 030 120 S06	3	3	12	50	6	
4HRE 009 080 S04	0.9	0.9	8	45	4		4HRE 030 160 S06	3	3	16	55	6	
4HRE 009 100 S04	0.9	0.9	10	45	4		4HRE 030 200 S06	3	3	20	60	6	
4HRE 010 020 S04	1	1	2	45	4		4HRE 030 250 S06	3	3	25	65	6	
4HRE 010 030 S04	1	1	3	45	4		4HRE 030 300 S06	3	3	30	70	6	
4HRE 010 040 S04	1	1	4	45	4		4HRE 030 350 S06	3	3	35	75	6	
4HRE 010 060 S04	1	1	6	45	4		4HRE 030 400 S06	3	3	40	80	6	
4HRE 010 080 S04	1	1	8	45	4		4HRE 040 060 S06	4	4	6	50	6	
4HRE 010 100 S04	1	1	10	45	4		4HRE 040 080 S06	4	4	8	50	6	
4HRE 010 120 S04	1	1	12	45	4		4HRE 040 100 S06	4	4	10	50	6	
4HRE 010 140 S04	1	1	14	50	4		4HRE 040 120 S06	4	4	12	50	6	
4HRE 010 160 S04	1	1	16	50	4		4HRE 040 160 S06	4	4	16	55	6	
4HRE 010 200 S04	1	1	20	50	4		4HRE 040 200 S06	4	4	20	60	6	
4HRE 010 250 S04	1	1	25	60	4		4HRE 040 250 S06	4	4	25	65	6	
4HRE 012 040 S04	1.2	1.2	4	45	4		4HRE 040 300 S06	4	4	30	70	6	
4HRE 012 060 S04	1.2	1.2	6	45	4		4HRE 040 400 S06	4	4	40	80	6	
4HRE 012 080 S04	1.2	1.2	8	45	4		4HRE 040 450 S06	4	4	45	90	6	
4HRE 012 100 S04	1.2	1.2	10	45	4		4HRE 040 500 S06	4	4	50	100	6	
4HRE 012 120 S04	1.2	1.2	12	45	4		4HRE 050 160 S06	5	5	16	55	6	
4HRE 012 160 S04	1.2	1.2	16	50	4		4HRE 050 200 S06	5	5	20	60	6	
4HRE 015 040 S04	1.5	1.5	4	45	4		4HRE 050 250 S06	5	5	25	65	6	
4HRE 015 060 S04	1.5	1.5	6	45	4		4HRE 050 300 S06	5	5	30	70	6	
4HRE 015 080 S04	1.5	1.5	8	45	4		4HRE 050 400 S06	5	5	40	80	6	
4HRE 015 100 S04	1.5	1.5	10	45	4		4HRE 050 500 S06	5	5	50	100	6	
4HRE 015 120 S04	1.5	1.5	12	45	4		4HRE 060 200 S06	6	6	20	60	6	
4HRE 015 160 S04	1.5	1.5	16	50	4		4HRE 060 300 S06	6	6	30	75	6	
4HRE 015 200 S04	1.5	1.5	20	50	4		4HRE 060 400 S06	6	6	40	80	6	
4HRE 015 250 S04	1.5	1.5	25	60	4		4HRE 060 500 S06	6	6	50	90	6	
4HRE 020 040 S04	2	2	4	45	4		4HRE 080 200 S08	8	10	20	65	8	
4HRE 020 060 S04	2	2	6	45	4		4HRE 080 300 S08	8	10	30	80	8	
4HRE 020 080 S04	2	2	8	45	4		4HRE 080 400 S08	8	10	40	100	8	
4HRE 020 100 S04	2	2	10	45	4		4HRE 100 250 S10	10	15	25	70	10	
4HRE 020 120 S04	2	2	12	45	4		4HRE 100 350 S10	10	15	35	90	10	
4HRE 020 140 S04	2	2	14	50	4		4HRE 100 450 S10	10	15	45	110	10	
4HRE 020 160 S04	2	2	16	50	4		4HRE 120 300 S12	12	18	30	80	12	
4HRE 020 180 S04	2	2	18	50	4		4HRE 120 400 S12	12	18	40	100	12	
4HRE 020 200 S04	2	2	20	50	4		4HRE 120 500 S12	12	18	50	120	12	
4HRE 020 250 S04	2	2	25	60	4								
4HRE 020 300 S04	2	2	30	70	4								
4HRE 025 100 S04	2.5	2.5	10	45	4								

# 2HSE 2 Flutes High Speed Short Length End Mills

## 2날 고속가공용 짧은 길이 엔드밀

HARD series



- **고경도강(HRc50~60), 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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for pre-hardened and hardened steel(HRc50~60)**
- 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.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

2

WC  
미립자

TISIN  
Coating

**|D|**  
+0 -0.005  
 $\varnothing 0.1$

**|D|**  
+0 -0.01  
 $\varnothing 0.2 \sim 5$

**|D|**  
-0.01 -0.025  
 $\varnothing 6 \sim 12$

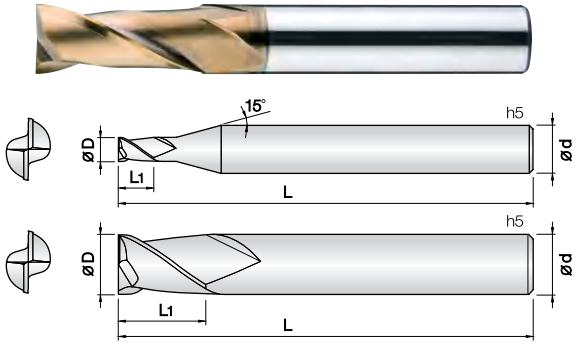
30°  
Helix Angle

Shield Edge

D Size	D Tolerance
$\varnothing 0.1$	+0 ~ -0.005mm
$\varnothing 0.2 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.01 ~ -0.025mm

단위 : mm

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



- 고경도강(HRC50~60), 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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화함.
- Endmills for pre-hardened and hardened steel(HRC50~60)
- 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.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
ø0.05 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5.9	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø13 ~ 20	-0.015 ~ -0.03mm

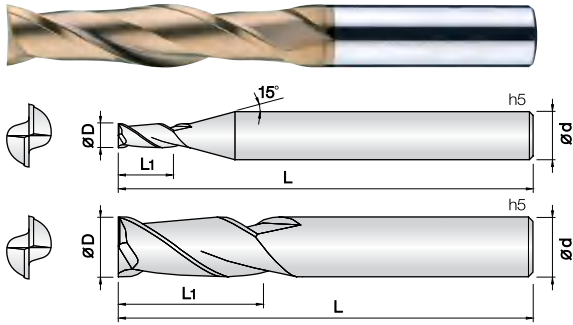
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2HCE 0005 0008 S04	0.05	0.08	40	4		2HCE 017 042 S04	1.7	4.2	40	4	
2HCE 0006 001 S04	0.06	0.1	40	4		2HCE 0175 042 S04	1.75	4.2	40	4	
2HCE 0007 0012 S04	0.07	0.12	40	4		2HCE 018 045 S04	1.8	4.5	40	4	
2HCE 0008 0015 S04	0.08	0.15	40	4		2HCE 0185 045 S04	1.85	4.5	40	4	
2HCE 0009 0017 S04	0.09	0.17	40	4		2HCE 019 050 S04	1.9	5	40	4	
2HCE 0010 002 S04	0.1	0.2	40	4		2HCE 0195 050 S04	1.95	5	40	4	
2HCE 0015 003 S04	0.15	0.3	40	4		2HCE 020 060 S03	2	6	40	3	
2HCE 002 004 S04	0.2	0.4	40	4		2HCE 020 060 S04	2	6	40	4	
2HCE 0025 005 S04	0.25	0.5	40	4		2HCE 020 060 S06	2	6	40	6	
2HCE 003 006 S04	0.3	0.6	40	4		2HCE 020 060 060	2	6	60	6	
2HCE 0035 007 S04	0.35	0.7	40	4		2HCE 021 060 S04	2.1	6	40	4	
2HCE 004 008 S04	0.4	0.8	40	4		2HCE 022 060 S04	2.2	6	40	4	
2HCE 0045 009 S04	0.45	0.9	40	4		2HCE 023 060 S04	2.3	6	40	4	
2HCE 005 010 S03	0.5	1	40	3		2HCE 024 080 S04	2.4	8	45	4	
2HCE 005 010 S04	0.5	1	40	4		2HCE 025 080 S03	2.5	8	45	3	
2HCE 0055 011 S04	0.55	1.1	40	4		2HCE 025 080 S04	2.5	8	45	4	
2HCE 006 012 S03	0.6	1.2	40	3		2HCE 025 080 S06	2.5	8	45	6	
2HCE 006 012 S04	0.6	1.2	40	4		2HCE 025 080 070	2.5	8	70	6	
2HCE 0065 013 S04	0.65	1.3	40	4		2HCE 026 080 S04	2.6	8	45	4	
2HCE 007 014 S04	0.7	1.4	40	4		2HCE 027 080 S04	2.7	8	45	4	
2HCE 0075 015 S04	0.75	1.5	40	4		2HCE 028 080 S04	2.8	8	45	4	
2HCE 008 016 S03	0.8	1.6	40	3		2HCE 029 080 S04	2.9	8	45	4	
2HCE 008 016 S04	0.8	1.6	40	4		2HCE 030 080 S03	3	8	45	3	
2HCE 0085 017 S04	0.85	1.7	40	4		2HCE 030 080 S04	3	8	45	4	
2HCE 009 020 S04	0.9	2	40	4		2HCE 030 080 S06	3	8	45	6	
2HCE 0095 020 S04	0.95	2	40	4		2HCE 030 080 070	3	8	70	6	
2HCE 010 025 S03	1	2.5	40	3		2HCE 031 080 S06	3.1	8	45	6	
2HCE 010 025 S04	1	2.5	40	4		2HCE 032 080 S06	3.2	8	45	6	
2HCE 010 025 S06	1	2.5	40	6		2HCE 033 080 S06	3.3	8	45	6	
2HCE 010 025 060	1	2.5	60	6		2HCE 034 080 S06	3.4	8	45	6	
2HCE 0105 025 S04	1.05	2.5	40	4		2HCE 035 100 S06	3.5	10	45	6	
2HCE 011 027 S04	1.1	2.7	40	4		2HCE 036 100 S06	3.6	10	45	6	
2HCE 0115 025 S04	1.15	2.5	40	4		2HCE 037 100 S06	3.7	10	45	6	
2HCE 012 030 S03	1.2	3	40	3		2HCE 038 100 S06	3.8	10	45	6	
2HCE 012 030 S04	1.2	3	40	4		2HCE 039 100 S06	3.9	10	45	6	
2HCE 012 030 060	1.2	3	60	6		2HCE 040 100 S04	4	10	45	4	
2HCE 0125 030 S04	1.25	3	40	4		2HCE 040 110 S06	4	11	45	6	
2HCE 013 032 S04	1.3	3.2	40	4		2HCE 040 110 070	4	11	70	6	
2HCE 0135 032 S04	1.35	3.2	40	4		2HCE 041 110 S06	4.1	11	45	6	
2HCE 014 035 S04	1.4	3.5	40	4		2HCE 042 110 S06	4.2	11	45	6	
2HCE 0145 035 S04	1.45	3.5	40	4		2HCE 043 110 S06	4.3	11	45	6	
2HCE 015 040 S03	1.5	4	40	3		2HCE 044 110 S06	4.4	11	45	6	
2HCE 015 040 S04	1.5	4	40	4		2HCE 045 110 S06	4.5	11	45	6	
2HCE 015 040 S06	1.5	4	40	6		2HCE 046 110 S06	4.6	11	45	6	
2HCE 015 040 060	1.5	4	60	6		2HCE 047 110 S06	4.7	11	45	6	
2HCE 0155 040 S04	1.55	4	40	4		2HCE 048 110 S06	4.8	11	45	6	
2HCE 016 040 S04	1.6	4	40	4		2HCE 049 110 S06	4.9	11	45	6	
2HCE 0165 040 S04	1.65	4	40	4		2HCE 050 130 S06	5	13	50	6	



단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
2HCE 050 130 080	5	13	80	6						
2HCE 051 130 S06	5.1	13	50	6						
2HCE 052 130 S06	5.2	13	50	6						
2HCE 053 130 S06	5.3	13	50	6						
2HCE 054 130 S06	5.4	13	50	6						
2HCE 055 130 S06	5.5	13	50	6						
2HCE 056 130 S06	5.6	13	50	6						
2HCE 057 130 S06	5.7	13	50	6						
2HCE 058 130 S06	5.8	13	50	6						
2HCE 059 130 S06	5.9	13	50	6						
2HCE 060 130 S06	6	13	50	6						
2HCE 060 130 080	6	13	80	6						
2HCE 061 150 S08	6.1	15	70	8						
2HCE 062 150 S08	6.2	15	70	8						
2HCE 063 150 S08	6.3	15	70	8						
2HCE 064 150 S08	6.4	15	70	8						
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						
2HCE 130 260 S14	13	26	80	14						
2HCE 140 260 S14	14	26	80	14						
2HCE 140 260 S16	14	26	90	16						
2HCE 150 350 S16	15	35	100	16						
2HCE 160 350 S16	16	35	100	16						
2HCE 170 350 S18	17	35	100	18						
2HCE 180 350 S18	18	35	100	18						
2HCE 200 400 S20	20	40	100	20						



- HRc55이하의 고경도강, 프리하드강, 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(HRc~55), 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.

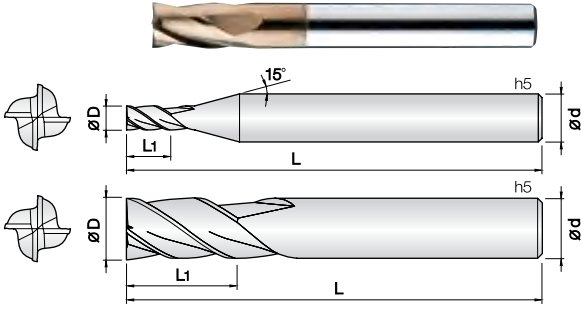


D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø14 ~ 25	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
2LEM 010 030 S06	1	3	60	6		2LEM 100 350 S10	10	35	90	10	
2LEM 010 050 S06	1	5	60	6		2LEM 100 400 S10	10	40	90	10	
2LEM 010 070 S06	1	7	60	6		2LEM 100 450 S10	10	45	100	10	
2LEM 010 100 S06	1	10	60	6		2LEM 100 500 S10	10	50	100	10	
2LEM 010 120 S06	1	12	60	6		2LEM 100 550 S10	10	55	110	10	
2LEM 010 150 S06	1	15	60	6		2LEM 100 600 S10	10	60	110	10	
2LEM 015 060 S06	1.5	6	60	6		2LEM 100 650 S10	10	65	120	10	
2LEM 015 075 S06	1.5	7.5	60	6		2LEM 100 700 S10	10	70	120	10	
2LEM 015 100 S06	1.5	10	60	6		2LEM 120 300 S12	12	30	90	12	
2LEM 015 150 S06	1.5	15	60	6		2LEM 120 350 110	12	35	110	12	
2LEM 015 200 S06	1.5	20	60	6		2LEM 120 400 S12	12	40	100	12	
2LEM 020 060 S06	2	6	60	6		2LEM 120 450 S12	12	45	100	12	
2LEM 020 100 S06	2	10	60	6		2LEM 120 500 S12	12	50	100	12	
2LEM 020 150 S06	2	15	60	6		2LEM 120 550 S12	12	55	110	12	
2LEM 020 200 S06	2	20	60	6		2LEM 120 600 S12	12	60	110	12	
2LEM 030 120 S06	3	12	70	6		2LEM 120 700 S12	12	70	130	12	
2LEM 030 150 S06	3	15	70	6		2LEM 120 800 S12	12	80	130	12	
2LEM 030 200 S06	3	20	70	6		2LEM 140 500 S14	14	50	110	14	
2LEM 030 250 S06	3	25	70	6		2LEM 160 400 160	16	40	160	16	
2LEM 030 300 S06	3	30	70	6		2LEM 160 550 S16	16	55	120	16	
2LEM 040 150 S06	4	15	70	6		2LEM 160 700 S16	16	70	130	16	
2LEM 040 200 S06	4	20	70	6		2LEM 160 800 S16	16	80	160	16	
2LEM 040 300 S06	4	30	75	6		2LEM 160 1000 S16	16	100	160	16	
2LEM 040 350 S06	4	35	75	6		2LEM 200 500 160	20	50	160	20	
2LEM 040 400 S06	4	40	80	6		2LEM 200 600 S20	20	60	130	20	
2LEM 050 200 S06	5	20	80	6		2LEM 200 1000 S20	20	100	200	20	
2LEM 050 250 S06	5	25	70	6		2LEM 250 750 S25	25	75	160	25	
2LEM 050 300 S06	5	30	75	6							
2LEM 050 400 S06	5	40	80	6							
2LEM 060 200 S06	6	20	75	6							
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 060 350 S06	6	35	80	6							
2LEM 060 400 S06	6	40	90	6							
New 2LEM 060 450 S06	6	45	90	6							
New 2LEM 060 500 S06	6	50	100	6							
2LEM 080 250 S08	8	25	75	8							
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							
2LEM 080 450 S08	8	45	100	8							
2LEM 080 500 S08	8	50	100	8							
2LEM 080 550 S08	8	55	100	8							
New 2LEM 080 600 S08	8	60	110	8							
2LEM 100 300 S10	10	30	80	10							
2LEM 100 300 110	10	30	110	10							

### 4날 고속가공용 짧은 길이 엔드밀



- 고경도강(HRc50~60), 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.
- 항절력이 높은 미립자 초경합금(0.5μm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for pre-hardened and hardened steel(HRc50~60)**
- 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.
- Minimize fracturing by high TRS fine(0.5μm) WC grade.

4

WC  
미립자

TISIN  
Coating

D  
+0 -0.01  
∅0.5 ~ 5

D  
-0.01 -0.025  
∅6 ~ 12

D  
-0.015 -0.03  
∅16

30°  
Helix Angle

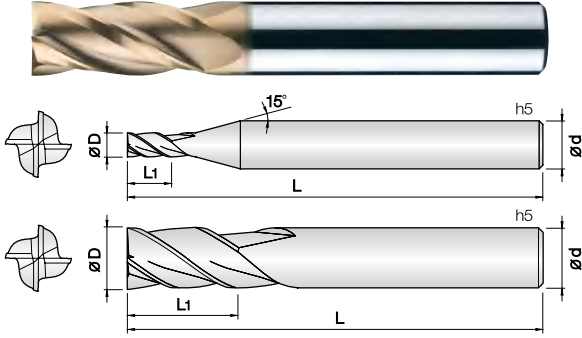
Shield Edge

D Size	D Tolerance
∅0.5 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.01 ~ -0.025mm
∅16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고					
4HSE 005 0075 S04	0.5	0.75	40	4						
4HSE 006 009 S04	0.6	0.9	40	4						
4HSE 008 012 S04	0.8	1.2	40	4						
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	55	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						

## 4날 고속가공용 표준 길이 엔드밀



- 고경도강(HRc50~60), 프리하든강 계열의 고정밀가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel(HRc50~60)
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
ø0.5 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø13 ~ 20	-0.015 ~ -0.03mm

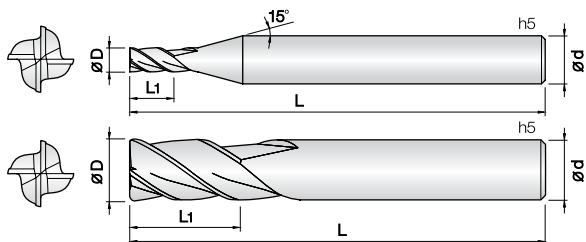
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4HCE 005 010 S04	0.5	1	40	4		4HCE 070 160 S08	7	16	60	8	
4HCE 006 012 S04	0.6	1.2	40	4		4HCE 075 160 S08	7.5	16	60	8	
4HCE 007 014 S04	0.7	1.4	40	4		4HCE 080 190 S08	8	19	60	8	
4HCE 008 020 S04	0.8	2	40	4		4HCE 085 190 S10	8.5	19	70	10	
4HCE 009 018 S04	0.9	1.8	40	4		4HCE 090 190 S10	9	19	70	10	
4HCE 010 025 S03	1	2.5	40	3		4HCE 095 190 S10	9.5	19	70	10	
4HCE 010 025 S04	1	2.5	40	4		4HCE 100 220 S10	10	22	70	10	
4HCE 010 025 S06	1	2.5	40	6		4HCE 105 220 S12	10.5	22	75	12	
4HCE 010 025 060	1	2.5	60	6		4HCE 110 220 S12	11	22	75	12	
4HCE 010 025 080	1	2.5	80	6		4HCE 115 220 S12	11.5	22	75	12	
4HCE 012 030 S03	1.2	3	40	3		4HCE 120 260 S12	12	26	75	12	
4HCE 012 030 S04	1.2	3	40	4		4HCE 130 260 S14	13	26	80	14	
4HCE 012 030 S06	1.2	3	40	6		4HCE 140 260 S14	14	26	80	14	
4HCE 012 030 060	1.2	3	60	6		4HCE 140 260 S16	14	26	90	16	
4HCE 015 040 S03	1.5	4	40	3		4HCE 150 350 S16	15	35	100	16	
4HCE 015 040 S04	1.5	4	40	4		4HCE 160 350 S16	16	35	100	16	
4HCE 015 040 S06	1.5	4	40	6		4HCE 170 350 S18	17	35	100	18	
4HCE 015 040 060	1.5	4	60	6		4HCE 180 350 S18	18	35	100	18	
4HCE 015 040 080	1.5	4	80	6		4HCE 200 400 S20	20	40	100	20	
4HCE 020 060 S03	2	6	40	3							
4HCE 020 060 S04	2	6	40	4							
4HCE 020 060 S06	2	6	40	6							
4HCE 020 060 060	2	6	60	6							
4HCE 020 060 100	2	6	100	6							
4HCE 025 080 S03	2.5	8	45	3							
4HCE 025 080 S04	2.5	8	45	4							
4HCE 025 080 S06	2.5	8	45	6							
4HCE 025 080 070	2.5	8	70	6							
4HCE 025 080 100	2.5	8	100	6							
4HCE 030 080 S03	3	8	45	3							
4HCE 030 080 S04	3	8	45	4							
4HCE 030 080 S06	3	8	45	6							
4HCE 030 080 070	3	8	70	6							
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							
4HCE 040 110 070	4	11	70	6							
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							
4HCE 050 130 080	5	13	80	6							
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							
4HCE 060 130 080	6	13	80	6							
4HCE 060 130 100	6	13	100	6							
4HCE 065 160 S08	6.5	16	60	8							

# 4LEM 4Flutes Long Length End Mills

## 4날 긴 길이 엔드밀

HARD series



- HRC55이하의 고경도강, 프리하드강, 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(HRC~55), 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

WC  
미립자

TISIN  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

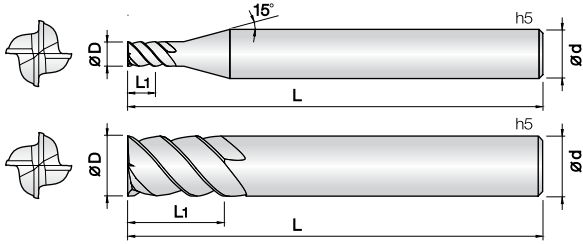
30°  
Helix Angle

Shield Edge

D Size	D Tolerance
ø0.5 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 25	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4LEM 005 015 S04	0.5	1.5	40	4		4LEM 080 450 S08	8	45	100	8	
New 4LEM 006 018 S04	0.6	1.8	40	4		4LEM 080 500 S08	8	50	100	8	
New 4LEM 008 024 S04	0.8	2.4	40	4		4LEM 080 550 S08	8	55	100	8	
4LEM 010 030 S06	1	3	60	6		New 4LEM 080 600 S08	8	60	110	8	
4LEM 010 050 S06	1	5	60	6		4LEM 100 300 S10	10	30	80	10	
4LEM 010 070 S06	1	7	60	6		4LEM 100 300 110	10	30	110	10	
New 4LEM 010 100 S06	1	10	60	6		4LEM 100 350 S10	10	35	90	10	
New 4LEM 010 120 S06	1	12	60	6		4LEM 100 400 S10	10	40	90	10	
4LEM 015 060 S06	1.5	6	60	6		4LEM 100 450 S10	10	45	100	10	
4LEM 015 080 S06	1.5	8	60	6		4LEM 100 500 S10	10	50	100	10	
4LEM 015 100 S06	1.5	10	60	6		4LEM 100 550 S10	10	55	100	10	
New 4LEM 150 120 S06	1.5	12	60	6		4LEM 100 600 S10	10	60	110	10	
New 4LEM 150 150 S06	1.5	15	60	6		4LEM 100 650 S10	10	65	120	10	
4LEM 020 080 S06	2	8	60	6		4LEM 100 700 S10	10	70	120	10	
4LEM 020 100 S06	2	10	60	6		4LEM 120 300 S12	12	30	90	12	
4LEM 020 120 S06	2	12	60	6		4LEM 120 350 110	12	35	110	12	
4LEM 020 150 S06	2	15	60	6		4LEM 120 400 S12	12	40	100	12	
4LEM 030 100 S06	3	10	70	6		4LEM 120 450 S12	12	45	100	12	
4LEM 030 150 S06	3	15	70	6		4LEM 120 500 S12	12	50	100	12	
4LEM 030 200 S06	3	20	70	6		4LEM 120 550 S12	12	55	110	12	
4LEM 030 250 S06	3	25	70	6		4LEM 120 600 S12	12	60	110	12	
4LEM 030 300 S06	3	30	70	6		4LEM 120 700 S12	12	70	130	12	
4LEM 040 120 S06	4	12	70	6		4LEM 120 800 S12	12	80	130	12	
4LEM 040 150 S04	4	15	70	4		4LEM 140 500 S14	14	50	110	14	
4LEM 040 150 S06	4	15	70	6		4LEM 160 400 160	16	40	160	16	
4LEM 040 200 S04	4	20	70	4		4LEM 160 550 S16	16	55	120	16	
4LEM 040 200 S06	4	20	70	6		4LEM 160 700 S16	16	70	130	16	
4LEM 040 250 S06	4	25	70	6		4LEM 160 900 S16	16	90	150	16	
4LEM 040 300 S06	4	30	75	6		4LEM 160 1000 S16	16	100	160	16	
4LEM 040 350 S06	4	35	75	6		4LEM 200 500 160	20	50	160	20	
4LEM 040 400 S06	4	40	80	6		4LEM 200 600 S20	20	60	130	20	
4LEM 050 200 S06	5	20	70	6		4LEM 200 800 S20	20	80	160	20	
4LEM 050 250 S06	5	25	75	6		4LEM 200 1000 S20	20	100	200	20	
4LEM 050 300 S06	5	30	80	6		4LEM 250 750 S25	25	75	160	25	
4LEM 050 400 S06	5	40	80	6							
4LEM 060 200 S06	6	20	75	6							
4LEM 060 200 100	6	20	100	6							
4LEM 060 250 S06	6	25	75	6							
4LEM 060 300 S06	6	30	80	6							
4LEM 060 350 S06	6	35	80	6							
4LEM 060 400 S06	6	40	90	6							
New 4LEM 060 450 S06	6	45	90	6							
New 4LEM 060 500 S06	6	50	100	6							
4LEM 080 250 S08	8	25	75	8							
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							



- 고경도강(HRc50~62), 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 $\mu$ m)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.
- 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  $\mu$ m) WC grade.

HARD series

4

UWC  
초미립자

TISIN  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

Shield Edge

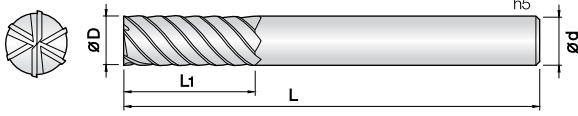
D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 25	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고					
4HEM 010 025 S06	1	2.5	40	6						
4HEM 010 035 S06	1	3.5	40	6						
4HEM 010 050 S06	1	5	45	6						
4HEM 012 030 S06	1.2	3	40	6						
4HEM 015 040 S06	1.5	4	40	6						
4HEM 015 060 S06	1.5	6	40	6						
4HEM 015 080 S06	1.5	8	45	6						
4HEM 020 050 S06	2	5	40	6						
4HEM 020 080 S06	2	8	45	6						
4HEM 020 100 S06	2	10	50	6						
4HEM 030 080 S06	3	8	45	6						
4HEM 030 120 S06	3	12	50	6						
4HEM 030 150 S06	3	15	55	6						
4HEM 040 110 S06	4	11	45	6						
4HEM 040 160 S06	4	16	55	6						
4HEM 040 200 S06	4	20	60	6						
4HEM 050 130 S06	5	13	50	6						
4HEM 050 180 S06	5	18	60	6						
4HEM 050 250 S06	5	25	70	6						
4HEM 060 130 S06	6	13	50	6						
4HEM 060 200 S06	6	20	60	6						
4HEM 060 250 S06	6	25	70	6						
4HEM 080 200 S08	8	20	60	8						
4HEM 080 250 S08	8	25	70	8						
4HEM 080 300 S08	8	30	75	8						
4HEM 080 400 S08	8	40	90	8						
4HEM 100 220 S10	10	22	70	10						
4HEM 100 300 S10	10	30	80	10						
4HEM 100 400 S10	10	40	90	10						
4HEM 100 500 S10	10	50	100	10						
4HEM 120 260 S12	12	26	75	12						
4HEM 120 400 S12	12	40	90	12						
4HEM 120 500 S12	12	50	100	12						
4HEM 120 600 S12	12	60	110	12						
4HEM 140 300 S14	14	30	80	14						
4HEM 140 500 S14	14	50	110	14						
4HEM 160 350 S16	16	35	90	16						
4HEM 160 500 S16	16	50	110	16						
4HEM 160 650 S16	16	65	120	16						
4HEM 200 400 S20	20	40	100	20						
4HEM 200 500 S20	20	50	110	20						
4HEM 200 700 S20	20	70	130	20						
4HEM 250 800 S25	25	80	160	25						

## 6&8날 고속가공용 45° 헬릭스 엔드밀

HARD series



- 고경도강(HRc50~62), 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(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc50~62)
- 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 µm) WC grade.

6

8

UWC  
초미립자

TISIN  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

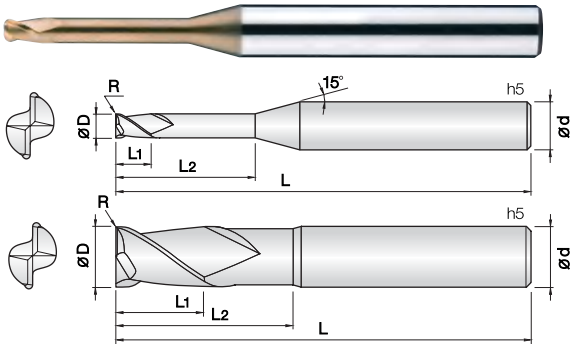
Shield Edge

D Size	D Tolerance
ø3 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16 ~ 25	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고					
6HEM 030 100 S06	3	10	50	6						
6HEM 030 150 S06	3	15	50	6						
6HEM 040 120 S06	4	12	50	6						
6HEM 040 160 S06	4	16	50	6						
6HEM 050 150 S06	5	15	50	6						
6HEM 050 200 S06	5	20	60	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 060 300 S06	6	30	70	6						
6HEM 060 350 S06	6	35	75	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	80	8						
6HEM 080 400 S08	8	40	90	8						
6HEM 080 450 S08	8	45	100	8						
6HEM 080 500 S08	8	50	100	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 100 500 S10	10	50	100	10						
6HEM 100 600 S10	10	60	110	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 120 600 S12	12	60	110	12						
6HEM 120 700 S12	12	70	120	12						
6HEM 160 350 S16	16	35	90	16						
6HEM 160 500 S16	16	50	110	16						
6HEM 160 650 S16	16	65	120	16						
6HEM 160 800 S16	16	80	150	16						
6HEM 160 900 S16	16	90	160	16						
6HEM 160 1000 S16	16	100	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						
6HEM 200 1000 S20	20	100	160	20						
6HEM 200 1100 S20	20	110	170	20						
6HEM 200 1200 S20	20	120	180	20						
8HEM 250 1000 S25	25	100	160	25						
8HEM 250 1250 S25	25	125	200	25						

## 2날 리브코너 레디우스 엔드밀



- 고경도강(HRc50~62), 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 $\mu$ m)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.
- 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 $\mu$ m) WC grade.

**2**

**UWC**  
초미립자

**TISIN**  
Coating

**R**  
 $\pm 0.005$

**R**  
 $\pm 0.01$

**R**  
 $\pm 0.015$

**30°**  
Helix Angle

R0.02 ~ 0.5
R1 ~ 1.5
R2 ~ 3

D Size	D Tolerance
$\varnothing 0.2 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm
$\varnothing 16$	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤펅크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤펅크 Shank Dia d	비고
2CRE 002 0002 010	0.2 X R0.02	0.2	1	40	4		2CRE 006 0002 040	0.6 X R0.02	0.6	4	45	4	
2CRE 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2CRE 006 0002 060	0.6 X R0.02	0.6	6	45	4	
2CRE 002 0005 010	0.2 X R0.05	0.2	1	40	4		2CRE 006 0002 080	0.6 X R0.02	0.6	8	45	4	
2CRE 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2CRE 006 0002 100	0.6 X R0.02	0.6	10	50	4	
2CRE 003 0005 010	0.3 X R0.05	0.3	1	40	4		2CRE 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2CRE 003 0005 020	0.3 X R0.05	0.3	2	40	4		2CRE 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2CRE 003 0005 030	0.3 X R0.05	0.3	3	40	4		2CRE 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2CRE 004 0005 010	0.4 X R0.05	0.4	1	40	4		2CRE 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2CRE 004 0005 020	0.4 X R0.05	0.4	2	40	4		2CRE 006 0005 080	0.6 X R0.05	0.6	8	45	4	
2CRE 004 0005 030	0.4 X R0.05	0.4	3	40	4		2CRE 006 0005 100	0.6 X R0.05	0.6	10	50	4	
2CRE 004 0005 040	0.4 X R0.05	0.4	4	40	4		2CRE 006 001 020	0.6 X R0.1	0.6	2	45	4	
2CRE 004 001 010	0.4 X R0.1	0.4	1	40	4		2CRE 006 001 030	0.6 X R0.1	0.6	3	45	4	
2CRE 004 001 015	0.4 X R0.1	0.4	1.5	40	4		2CRE 006 001 040	0.6 X R0.1	0.6	4	45	4	
2CRE 004 001 020	0.4 X R0.1	0.4	2	40	4		2CRE 006 001 060	0.6 X R0.1	0.6	6	45	4	
2CRE 004 001 030	0.4 X R0.1	0.4	3	40	4		2CRE 006 001 080	0.6 X R0.1	0.6	8	45	4	
2CRE 004 001 040	0.4 X R0.1	0.4	4	40	4		2CRE 006 001 100	0.6 X R0.1	0.6	10	50	4	
2CRE 005 0002 010	0.5 X R0.02	0.5	1	45	4		2CRE 007 001 020	0.7 X R0.1	0.7	2	45	4	
2CRE 005 0002 015	0.5 X R0.02	0.5	1.5	45	4		2CRE 007 001 040	0.7 X R0.1	0.7	4	45	4	
2CRE 005 0002 020	0.5 X R0.02	0.5	2	45	4		2CRE 007 001 060	0.7 X R0.1	0.7	6	45	4	
2CRE 005 0002 025	0.5 X R0.02	0.5	2.5	45	4		2CRE 008 0002 020	0.8 X R0.02	0.8	2	45	4	
2CRE 005 0002 030	0.5 X R0.02	0.5	3	45	4		2CRE 008 0002 040	0.8 X R0.02	0.8	4	45	4	
2CRE 005 0002 040	0.5 X R0.02	0.5	4	45	4		2CRE 008 0002 060	0.8 X R0.02	0.8	6	45	4	
2CRE 005 0002 050	0.5 X R0.02	0.5	5	45	4		2CRE 008 0002 080	0.8 X R0.02	0.8	8	45	4	
2CRE 005 0002 060	0.5 X R0.02	0.5	6	45	4		2CRE 008 0002 100	0.8 X R0.02	0.8	10	50	4	
2CRE 005 0002 080	0.5 X R0.02	0.5	8	45	4		2CRE 008 0005 020	0.8 X R0.05	0.8	2	45	4	
2CRE 005 0002 100	0.5 X R0.02	0.5	10	50	4		2CRE 008 0005 040	0.8 X R0.05	0.8	4	45	4	
2CRE 005 0005 010	0.5 X R0.05	0.5	1	45	4		2CRE 008 0005 060	0.8 X R0.05	0.8	6	45	4	
2CRE 005 0005 015	0.5 X R0.05	0.5	1.5	45	4		2CRE 008 0005 080	0.8 X R0.05	0.8	8	45	4	
2CRE 005 0005 020	0.5 X R0.05	0.5	2	45	4		2CRE 008 0005 100	0.8 X R0.05	0.8	10	50	4	
2CRE 005 0005 025	0.5 X R0.05	0.5	2.5	45	4		2CRE 008 001 020	0.8 X R0.1	0.8	2	45	4	
2CRE 005 0005 030	0.5 X R0.05	0.5	3	45	4		2CRE 008 001 040	0.8 X R0.1	0.8	4	45	4	
2CRE 005 0005 040	0.5 X R0.05	0.5	4	45	4		2CRE 008 001 060	0.8 X R0.1	0.8	6	45	4	
2CRE 005 0005 050	0.5 X R0.05	0.5	5	45	4		2CRE 008 001 080	0.8 X R0.1	0.8	8	45	4	
2CRE 005 0005 060	0.5 X R0.05	0.5	6	45	4		2CRE 008 001 100	0.8 X R0.1	0.8	10	50	4	
2CRE 005 0005 080	0.5 X R0.05	0.5	8	45	4		2CRE 008 002 020	0.8 X R0.2	0.8	2	45	4	
2CRE 005 0005 100	0.5 X R0.05	0.5	10	50	4		2CRE 008 002 040	0.8 X R0.2	0.8	4	45	4	
2CRE 005 001 010	0.5 X R0.1	0.5	1	45	4		2CRE 008 002 060	0.8 X R0.2	0.8	6	45	4	
2CRE 005 001 015	0.5 X R0.1	0.5	1.5	45	4		2CRE 008 002 080	0.8 X R0.2	0.8	8	45	4	
2CRE 005 001 020	0.5 X R0.1	0.5	2	45	4		2CRE 008 002 100	0.8 X R0.2	0.8	10	50	4	
2CRE 005 001 025	0.5 X R0.1	0.5	2.5	45	4		2CRE 010 0005 040	1 X R0.05	1	4	45	4	
2CRE 005 001 030	0.5 X R0.1	0.5	3	45	4		2CRE 010 0005 060	1 X R0.05	1	6	45	4	
2CRE 005 001 040	0.5 X R0.1	0.5	4	45	4		2CRE 010 0005 080	1 X R0.05	1	8	45	4	
2CRE 005 001 050	0.5 X R0.1	0.5	5	45	4		2CRE 010 0005 100	1 X R0.05	1	10	50	4	
2CRE 005 001 060	0.5 X R0.1	0.5	6	45	4		2CRE 010 0005 120	1 X R0.05	1	12	50	4	
2CRE 005 001 080	0.5 X R0.1	0.5	8	45	4		2CRE 010 0005 160	1 X R0.05	1	16	50	4	
2CRE 005 001 100	0.5 X R0.1	0.5	10	50	4		2CRE 010 0005 200	1 X R0.05	1	20	50	4	
2CRE 006 0002 020	0.6 X R0.02	0.6	2	45	4		2CRE 010 0005 220	1 X R0.05	1	22	60	4	
2CRE 006 0002 030	0.6 X R0.02	0.6	3	45	4		2CRE 010 0005 250	1 X R0.05	1	25	60	4	



단위 : mm

HARD series

Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CRE 010 001 040	1 X R0.1	1	4	45	4		2CRE 015 002 200	1.5 X R0.2	1.5	20	50	4	
2CRE 010 001 060	1 X R0.1	1	6	45	4		2CRE 015 002 220	1.5 X R0.2	1.5	22	60	4	
2CRE 010 001 080	1 X R0.1	1	8	45	4		2CRE 015 002 250	1.5 X R0.2	1.5	25	60	4	
2CRE 010 001 100	1 X R0.1	1	10	50	4		2CRE 015 003 040	1.5 X R0.3	1.5	4	45	4	
2CRE 010 001 120	1 X R0.1	1	12	50	4		2CRE 015 003 060	1.5 X R0.3	1.5	6	45	4	
2CRE 010 001 160	1 X R0.1	1	16	50	4		2CRE 015 003 080	1.5 X R0.3	1.5	8	45	4	
2CRE 010 001 200	1 X R0.1	1	20	50	4		2CRE 015 003 100	1.5 X R0.3	1.5	10	50	4	
2CRE 010 001 220	1 X R0.1	1	22	60	4		2CRE 015 003 120	1.5 X R0.3	1.5	12	50	4	
2CRE 010 001 250	1 X R0.1	1	25	60	4		2CRE 015 003 160	1.5 X R0.3	1.5	16	50	4	
2CRE 010 002 040	1 X R0.2	1	4	45	4		2CRE 015 003 200	1.5 X R0.3	1.5	20	50	4	
2CRE 010 002 060	1 X R0.2	1	6	45	4		2CRE 015 003 220	1.5 X R0.3	1.5	22	60	4	
2CRE 010 002 080	1 X R0.2	1	8	45	4		2CRE 015 003 250	1.5 X R0.3	1.5	25	60	4	
2CRE 010 002 100	1 X R0.2	1	10	50	4		2CRE 015 005 040	1.5 X R0.5	1.5	4	45	4	
2CRE 010 002 120	1 X R0.2	1	12	50	4		2CRE 015 005 060	1.5 X R0.5	1.5	6	45	4	
2CRE 010 002 160	1 X R0.2	1	16	50	4		2CRE 015 005 080	1.5 X R0.5	1.5	8	45	4	
2CRE 010 002 200	1 X R0.2	1	20	50	4		2CRE 015 005 100	1.5 X R0.5	1.5	10	50	4	
2CRE 010 002 220	1 X R0.2	1	22	60	4		2CRE 015 005 120	1.5 X R0.5	1.5	12	50	4	
2CRE 010 002 250	1 X R0.2	1	25	60	4		2CRE 015 005 160	1.5 X R0.5	1.5	16	50	4	
2CRE 010 003 040	1 X R0.3	1	4	45	4		2CRE 015 005 200	1.5 X R0.5	1.5	20	50	4	
2CRE 010 003 060	1 X R0.3	1	6	45	4		2CRE 015 005 220	1.5 X R0.5	1.5	22	60	4	
2CRE 010 003 080	1 X R0.3	1	8	45	4		2CRE 015 005 250	1.5 X R0.5	1.5	25	60	4	
2CRE 010 003 100	1 X R0.3	1	10	50	4		2CRE 020 001 060	2 X R0.1	2	6	45	4	
2CRE 010 003 120	1 X R0.3	1	12	50	4		2CRE 020 001 080	2 X R0.1	2	8	45	4	
2CRE 010 003 160	1 X R0.3	1	16	50	4		2CRE 020 001 100	2 X R0.1	2	10	50	4	
2CRE 010 003 200	1 X R0.3	1	20	50	4		2CRE 020 001 120	2 X R0.1	2	12	50	4	
2CRE 010 003 220	1 X R0.3	1	22	60	4		2CRE 020 001 160	2 X R0.1	2	16	50	4	
2CRE 010 003 250	1 X R0.3	1	25	60	4		2CRE 020 001 200	2 X R0.1	2	20	50	4	
2CRE 012 001 040	1.2 X R0.1	1.2	4	45	4		2CRE 020 001 250	2 X R0.1	2	25	60	4	
2CRE 012 001 060	1.2 X R0.1	1.2	6	45	4		2CRE 020 001 300	2 X R0.1	2	30	70	4	
2CRE 012 001 080	1.2 X R0.1	1.2	8	45	4		2CRE 020 002 060	2 X R0.2	2	6	45	4	
2CRE 012 001 100	1.2 X R0.1	1.2	10	50	4		2CRE 020 002 080	2 X R0.2	2	8	45	4	
2CRE 012 001 120	1.2 X R0.1	1.2	12	50	4		2CRE 020 002 100	2 X R0.2	2	10	50	4	
2CRE 012 001 160	1.2 X R0.1	1.2	16	50	4		2CRE 020 002 120	2 X R0.2	2	12	50	4	
2CRE 012 001 200	1.2 X R0.1	1.2	20	50	4		2CRE 020 002 160	2 X R0.2	2	16	50	4	
2CRE 012 002 040	1.2 X R0.2	1.2	4	45	4		2CRE 020 002 200	2 X R0.2	2	20	50	4	
2CRE 012 002 060	1.2 X R0.2	1.2	6	45	4		2CRE 020 002 250	2 X R0.2	2	25	60	4	
2CRE 012 002 080	1.2 X R0.2	1.2	8	45	4		2CRE 020 002 300	2 X R0.2	2	30	70	4	
2CRE 012 002 100	1.2 X R0.2	1.2	10	50	4		2CRE 020 003 060	2 X R0.3	2	6	45	4	
2CRE 012 002 120	1.2 X R0.2	1.2	12	50	4		2CRE 020 003 080	2 X R0.3	2	8	45	4	
2CRE 012 002 160	1.2 X R0.2	1.2	16	50	4		2CRE 020 003 100	2 X R0.3	2	10	50	4	
2CRE 012 002 200	1.2 X R0.2	1.2	20	50	4		2CRE 020 003 120	2 X R0.3	2	12	50	4	
2CRE 012 003 040	1.2 X R0.3	1.2	4	45	4		2CRE 020 003 160	2 X R0.3	2	16	50	4	
2CRE 012 003 060	1.2 X R0.3	1.2	6	45	4		2CRE 020 003 200	2 X R0.3	2	20	50	4	
2CRE 012 003 080	1.2 X R0.3	1.2	8	45	4		2CRE 020 003 250	2 X R0.3	2	25	60	4	
2CRE 012 003 100	1.2 X R0.3	1.2	10	50	4		2CRE 020 003 300	2 X R0.3	2	30	70	4	
2CRE 012 003 120	1.2 X R0.3	1.2	12	50	4		2CRE 020 005 060	2 X R0.5	2	6	45	4	
2CRE 012 003 160	1.2 X R0.3	1.2	16	50	4		2CRE 020 005 080	2 X R0.5	2	8	45	4	
2CRE 012 003 200	1.2 X R0.3	1.2	20	50	4		2CRE 020 005 100	2 X R0.5	2	10	50	4	
2CRE 015 001 040	1.5 X R0.1	1.5	4	45	4		2CRE 020 005 120	2 X R0.5	2	12	50	4	
2CRE 015 001 060	1.5 X R0.1	1.5	6	45	4		2CRE 020 005 160	2 X R0.5	2	16	50	4	
2CRE 015 001 080	1.5 X R0.1	1.5	8	45	4		2CRE 020 005 200	2 X R0.5	2	20	50	4	
2CRE 015 001 100	1.5 X R0.1	1.5	10	50	4		2CRE 020 005 250	2 X R0.5	2	25	60	4	
2CRE 015 001 120	1.5 X R0.1	1.5	12	50	4		2CRE 020 005 300	2 X R0.5	2	30	70	4	
2CRE 015 001 160	1.5 X R0.1	1.5	16	50	4		2CRE 025 001 100	2.5 X R0.1	2.5	10	50	4	
2CRE 015 001 200	1.5 X R0.1	1.5	20	50	4		2CRE 025 001 160	2.5 X R0.1	2.5	16	50	4	
2CRE 015 001 220	1.5 X R0.1	1.5	22	60	4		2CRE 025 001 200	2.5 X R0.1	2.5	20	50	4	
2CRE 015 001 250	1.5 X R0.1	1.5	25	60	4		2CRE 025 001 250	2.5 X R0.1	2.5	25	60	4	
2CRE 015 002 040	1.5 X R0.2	1.5	4	45	4		2CRE 025 001 300	2.5 X R0.1	2.5	30	70	4	
2CRE 015 002 060	1.5 X R0.2	1.5	6	45	4		2CRE 025 002 100	2.5 X R0.2	2.5	10	50	4	
2CRE 015 002 080	1.5 X R0.2	1.5	8	45	4		2CRE 025 002 160	2.5 X R0.2	2.5	16	50	4	
2CRE 015 002 100	1.5 X R0.2	1.5	10	50	4		2CRE 025 002 200	2.5 X R0.2	2.5	20	50	4	
2CRE 015 002 120	1.5 X R0.2	1.5	12	50	4		2CRE 025 002 250	2.5 X R0.2	2.5	25	60	4	
2CRE 015 002 160	1.5 X R0.2	1.5	16	50	4		2CRE 025 002 300	2.5 X R0.2	2.5	30	70	4	

단위 : mm

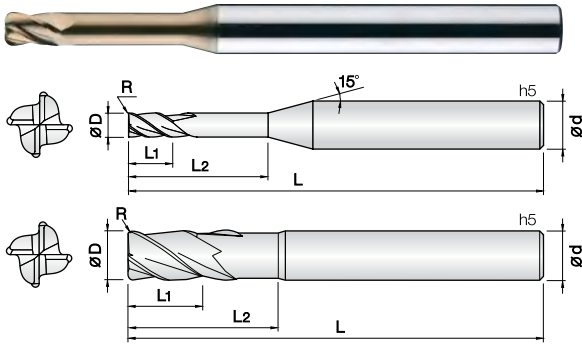
Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CRE 025 003 100	2.5 X R0.3	2.5	10	50	4		2CRE 040 002 120	4 X R0.2	4	12	55	6	
2CRE 025 003 160	2.5 X R0.3	2.5	16	50	4		2CRE 040 002 160	4 X R0.2	4	16	55	6	
2CRE 025 003 200	2.5 X R0.3	2.5	20	50	4		2CRE 040 002 200	4 X R0.2	4	20	60	6	
2CRE 025 003 250	2.5 X R0.3	2.5	25	60	4		2CRE 040 002 250	4 X R0.2	4	25	65	6	
2CRE 025 003 300	2.5 X R0.3	2.5	30	70	4		2CRE 040 002 300	4 X R0.2	4	30	70	6	
2CRE 025 005 100	2.5 X R0.5	2.5	10	50	4		2CRE 040 002 350	4 X R0.2	4	35	75	6	
2CRE 025 005 160	2.5 X R0.5	2.5	16	50	4		2CRE 040 002 400	4 X R0.2	4	40	80	6	
2CRE 025 005 200	2.5 X R0.5	2.5	20	50	4		2CRE 040 002 450	4 X R0.2	4	45	90	6	
2CRE 025 005 250	2.5 X R0.5	2.5	25	60	4		2CRE 040 002 500	4 X R0.2	4	50	100	6	
2CRE 025 005 300	2.5 X R0.5	2.5	30	70	4		2CRE 040 003 050	4 X R0.3	4	12	50	4	
2CRE 030 001 100	3 X R0.1	3	10	50	6		2CRE 040 003 070	4 X R0.3	4	20	70	4	
2CRE 030 001 120	3 X R0.1	3	12	55	6		2CRE 040 003 120	4 X R0.3	4	12	55	6	
2CRE 030 001 160	3 X R0.1	3	16	55	6		2CRE 040 003 160	4 X R0.3	4	16	55	6	
2CRE 030 001 200	3 X R0.1	3	20	60	6		2CRE 040 003 200	4 X R0.3	4	20	60	6	
2CRE 030 001 250	3 X R0.1	3	25	65	6		2CRE 040 003 250	4 X R0.3	4	25	65	6	
2CRE 030 001 300	3 X R0.1	3	30	70	6		2CRE 040 003 300	4 X R0.3	4	30	70	6	
2CRE 030 001 350	3 X R0.1	3	35	75	6		2CRE 040 003 350	4 X R0.3	4	35	75	6	
2CRE 030 001 400	3 X R0.1	3	40	80	6		2CRE 040 003 400	4 X R0.3	4	40	80	6	
2CRE 030 002 100	3 X R0.2	3	10	50	6		2CRE 040 003 450	4 X R0.3	4	45	90	6	
2CRE 030 002 120	3 X R0.2	3	12	55	6		2CRE 040 003 500	4 X R0.3	4	50	100	6	
2CRE 030 002 160	3 X R0.2	3	16	55	6		2CRE 040 005 050	4 X R0.5	4	12	50	4	
2CRE 030 002 200	3 X R0.2	3	20	60	6		2CRE 040 005 070	4 X R0.5	4	20	70	4	
2CRE 030 002 250	3 X R0.2	3	25	65	6		2CRE 040 005 120	4 X R0.5	4	12	55	6	
2CRE 030 002 300	3 X R0.2	3	30	70	6		2CRE 040 005 160	4 X R0.5	4	16	55	6	
2CRE 030 002 350	3 X R0.2	3	35	75	6		2CRE 040 005 200	4 X R0.5	4	20	60	6	
2CRE 030 002 400	3 X R0.2	3	40	80	6		2CRE 040 005 250	4 X R0.5	4	25	65	6	
2CRE 030 003 100	3 X R0.3	3	10	50	6		2CRE 040 005 300	4 X R0.5	4	30	70	6	
2CRE 030 003 120	3 X R0.3	3	12	55	6		2CRE 040 005 350	4 X R0.5	4	35	75	6	
2CRE 030 003 160	3 X R0.3	3	16	55	6		2CRE 040 005 400	4 X R0.5	4	40	80	6	
2CRE 030 003 200	3 X R0.3	3	20	60	6		2CRE 040 005 450	4 X R0.5	4	45	90	6	
2CRE 030 003 250	3 X R0.3	3	25	65	6		2CRE 040 005 500	4 X R0.5	4	50	100	6	
2CRE 030 003 300	3 X R0.3	3	30	70	6		2CRE 040 010 050	4 X R1	4	12	50	4	
2CRE 030 003 350	3 X R0.3	3	35	75	6		2CRE 040 010 070	4 X R1	4	20	70	4	
2CRE 030 003 400	3 X R0.3	3	40	80	6		2CRE 040 010 120	4 X R1	4	12	55	6	
2CRE 030 005 100	3 X R0.5	3	10	50	6		2CRE 040 010 160	4 X R1	4	16	55	6	
2CRE 030 005 120	3 X R0.5	3	12	55	6		2CRE 040 010 200	4 X R1	4	20	60	6	
2CRE 030 005 160	3 X R0.5	3	16	55	6		2CRE 040 010 250	4 X R1	4	25	65	6	
2CRE 030 005 200	3 X R0.5	3	20	60	6		2CRE 040 010 300	4 X R1	4	30	70	6	
2CRE 030 005 250	3 X R0.5	3	25	65	6		2CRE 040 010 350	4 X R1	4	35	75	6	
2CRE 030 005 300	3 X R0.5	3	30	70	6		2CRE 040 010 400	4 X R1	4	40	80	6	
2CRE 030 005 350	3 X R0.5	3	35	75	6		2CRE 040 010 450	4 X R1	4	45	90	6	
2CRE 030 005 400	3 X R0.5	3	40	80	6		2CRE 040 010 500	4 X R1	4	50	100	6	
2CRE 030 010 100	3 X R1	3	10	50	6		2CRE 050 002 150	5 X R0.2	6	15	60	6	
2CRE 030 010 120	3 X R1	3	12	55	6		2CRE 050 002 250	5 X R0.2	6	25	70	6	
2CRE 030 010 160	3 X R1	3	16	55	6		2CRE 050 002 300	5 X R0.2	6	30	70	6	
2CRE 030 010 200	3 X R1	3	20	60	6		2CRE 050 002 400	5 X R0.2	6	40	80	6	
2CRE 030 010 250	3 X R1	3	25	65	6		2CRE 050 002 500	5 X R0.2	6	50	100	6	
2CRE 030 010 300	3 X R1	3	30	70	6		2CRE 050 005 150	5 X R0.5	6	15	60	6	
2CRE 030 010 350	3 X R1	3	35	75	6		2CRE 050 005 250	5 X R0.5	6	25	70	6	
2CRE 030 010 400	3 X R1	3	40	80	6		2CRE 050 005 300	5 X R0.5	6	30	70	6	
2CRE 040 001 050	4 X R0.1	4	12	50	4		2CRE 050 005 400	5 X R0.5	6	40	80	6	
2CRE 040 001 070	4 X R0.1	4	20	70	4		2CRE 050 005 500	5 X R0.5	6	50	100	6	
2CRE 040 001 120	4 X R0.1	4	12	55	6		2CRE 050 010 150	5 X R1	6	15	60	6	
2CRE 040 001 160	4 X R0.1	4	16	55	6		2CRE 050 010 250	5 X R1	6	25	70	6	
2CRE 040 001 200	4 X R0.1	4	20	60	6		2CRE 050 010 300	5 X R1	6	30	70	6	
2CRE 040 001 250	4 X R0.1	4	25	65	6		2CRE 050 010 400	5 X R1	6	40	80	6	
2CRE 040 001 300	4 X R0.1	4	30	70	6		2CRE 050 010 500	5 X R1	6	50	100	6	
2CRE 040 001 350	4 X R0.1	4	35	75	6		2CRE 060 001 200	6 X R0.1	7	20	60	6	
2CRE 040 001 400	4 X R0.1	4	40	80	6		2CRE 060 001 400	6 X R0.1	7	40	90	6	
2CRE 040 001 450	4 X R0.1	4	45	90	6		2CRE 060 002 200	6 X R0.2	7	20	60	6	
2CRE 040 001 500	4 X R0.1	4	50	100	6		2CRE 060 002 400	6 X R0.2	7	40	90	6	
2CRE 040 002 050	4 X R0.2	4	12	50	4		2CRE 060 003 200	6 X R0.3	7	20	60	6	
2CRE 040 002 070	4 X R0.2	4	20	70	4		2CRE 060 003 400	6 X R0.3	7	40	90	6	

단위 : mm

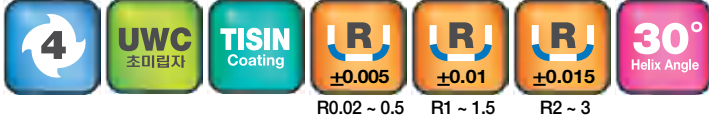
HARD series

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

## 4날 리브코너 레디우스 엔드밀



- 고경도강(HRc50~62), 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 $\mu$ m)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.
- 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 $\mu$ m) WC grade.



D Size	D Tolerance
$\varnothing 0.8 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4CRE 008 0002 020	0.8 X R0.02	0.8	2	45	4		4CRE 010 003 160	1 X R0.3	1	16	50	4	
4CRE 008 0002 040	0.8 X R0.02	0.8	4	45	4		4CRE 010 003 200	1 X R0.3	1	20	50	4	
4CRE 008 0002 060	0.8 X R0.02	0.8	6	45	4		4CRE 012 0002 040	1.2 X R0.02	1.2	4	45	4	
4CRE 008 0002 080	0.8 X R0.02	0.8	8	45	4		4CRE 012 0002 060	1.2 X R0.02	1.2	6	45	4	
4CRE 008 0002 100	0.8 X R0.02	0.8	10	45	4		4CRE 012 0002 080	1.2 X R0.02	1.2	8	45	4	
4CRE 008 0005 020	0.8 X R0.05	0.8	2	45	4		4CRE 012 0002 100	1.2 X R0.02	1.2	10	50	4	
4CRE 008 0005 040	0.8 X R0.05	0.8	4	45	4		4CRE 012 0002 120	1.2 X R0.02	1.2	12	50	4	
4CRE 008 0005 060	0.8 X R0.05	0.8	6	45	4		4CRE 012 0002 160	1.2 X R0.02	1.2	16	50	4	
4CRE 008 0005 080	0.8 X R0.05	0.8	8	45	4		4CRE 012 0002 200	1.2 X R0.02	1.2	20	50	4	
4CRE 008 0005 100	0.8 X R0.05	0.8	10	45	4		4CRE 012 0005 040	1.2 X R0.05	1.2	4	45	4	
4CRE 008 001 020	0.8 X R0.1	0.8	2	45	4		4CRE 012 0005 060	1.2 X R0.05	1.2	6	45	4	
4CRE 008 001 040	0.8 X R0.1	0.8	4	45	4		4CRE 012 0005 080	1.2 X R0.05	1.2	8	45	4	
4CRE 008 001 060	0.8 X R0.1	0.8	6	45	4		4CRE 012 0005 100	1.2 X R0.05	1.2	10	50	4	
4CRE 008 001 080	0.8 X R0.1	0.8	8	45	4		4CRE 012 0005 120	1.2 X R0.05	1.2	12	50	4	
4CRE 008 001 100	0.8 X R0.1	0.8	10	45	4		4CRE 012 0005 160	1.2 X R0.05	1.2	16	50	4	
4CRE 010 0002 040	1 X R0.02	1	4	45	4		4CRE 012 0005 200	1.2 X R0.05	1.2	20	50	4	
4CRE 010 0002 060	1 X R0.02	1	6	45	4		4CRE 012 001 040	1.2 X R0.1	1.2	4	45	4	
4CRE 010 0002 080	1 X R0.02	1	8	45	4		4CRE 012 001 060	1.2 X R0.1	1.2	6	45	4	
4CRE 010 0002 100	1 X R0.02	1	10	50	4		4CRE 012 001 080	1.2 X R0.1	1.2	8	45	4	
4CRE 010 0002 120	1 X R0.02	1	12	50	4		4CRE 012 001 100	1.2 X R0.1	1.2	10	50	4	
4CRE 010 0002 160	1 X R0.02	1	16	50	4		4CRE 012 001 120	1.2 X R0.1	1.2	12	50	4	
4CRE 010 0002 200	1 X R0.02	1	20	50	4		4CRE 012 001 160	1.2 X R0.1	1.2	16	50	4	
4CRE 010 0005 040	1 X R0.05	1	4	45	4		4CRE 012 001 200	1.2 X R0.1	1.2	20	50	4	
4CRE 010 0005 060	1 X R0.05	1	6	45	4		4CRE 012 002 040	1.2 X R0.2	1.2	4	45	4	
4CRE 010 0005 080	1 X R0.05	1	8	45	4		4CRE 012 002 060	1.2 X R0.2	1.2	6	45	4	
4CRE 010 0005 100	1 X R0.05	1	10	50	4		4CRE 012 002 080	1.2 X R0.2	1.2	8	45	4	
4CRE 010 0005 120	1 X R0.05	1	12	50	4		4CRE 012 002 100	1.2 X R0.2	1.2	10	50	4	
4CRE 010 0005 160	1 X R0.05	1	16	50	4		4CRE 012 002 120	1.2 X R0.2	1.2	12	50	4	
4CRE 010 0005 200	1 X R0.05	1	20	50	4		4CRE 012 002 160	1.2 X R0.2	1.2	16	50	4	
4CRE 010 001 040	1 X R0.1	1	4	45	4		4CRE 012 002 200	1.2 X R0.2	1.2	20	50	4	
4CRE 010 001 060	1 X R0.1	1	6	45	4		4CRE 012 003 040	1.2 X R0.3	1.2	4	45	4	
4CRE 010 001 080	1 X R0.1	1	8	45	4		4CRE 012 003 060	1.2 X R0.3	1.2	6	45	4	
4CRE 010 001 100	1 X R0.1	1	10	50	4		4CRE 012 003 080	1.2 X R0.3	1.2	8	45	4	
4CRE 010 001 120	1 X R0.1	1	12	50	4		4CRE 012 003 100	1.2 X R0.3	1.2	10	50	4	
4CRE 010 001 160	1 X R0.1	1	16	50	4		4CRE 012 003 120	1.2 X R0.3	1.2	12	50	4	
4CRE 010 001 200	1 X R0.1	1	20	50	4		4CRE 012 003 160	1.2 X R0.3	1.2	16	50	4	
4CRE 010 002 040	1 X R0.2	1	4	45	4		4CRE 012 003 200	1.2 X R0.3	1.2	20	50	4	
4CRE 010 002 060	1 X R0.2	1	6	45	4		4CRE 015 0002 060	1.5 X R0.02	1.5	6	45	4	
4CRE 010 002 080	1 X R0.2	1	8	45	4		4CRE 015 0002 080	1.5 X R0.02	1.5	8	45	4	
4CRE 010 002 100	1 X R0.2	1	10	50	4		4CRE 015 0002 100	1.5 X R0.02	1.5	10	50	4	
4CRE 010 002 120	1 X R0.2	1	12	50	4		4CRE 015 0002 120	1.5 X R0.02	1.5	12	50	4	
4CRE 010 002 160	1 X R0.2	1	16	50	4		4CRE 015 0002 160	1.5 X R0.02	1.5	16	50	4	
4CRE 010 002 200	1 X R0.2	1	20	50	4		4CRE 015 0002 200	1.5 X R0.02	1.5	20	50	4	
4CRE 010 003 040	1 X R0.3	1	4	45	4		4CRE 015 0002 220	1.5 X R0.02	1.5	22	60	4	
4CRE 010 003 060	1 X R0.3	1	6	45	4		4CRE 015 0002 250	1.5 X R0.02	1.5	25	60	4	
4CRE 010 003 080	1 X R0.3	1	8	45	4		4CRE 015 0005 060	1.5 X R0.05	1.5	6	45	4	
4CRE 010 003 100	1 X R0.3	1	10	50	4		4CRE 015 0005 080	1.5 X R0.05	1.5	8	45	4	
4CRE 010 003 120	1 X R0.3	1	12	50	4		4CRE 015 0005 100	1.5 X R0.05	1.5	10	50	4	



단위 : mm

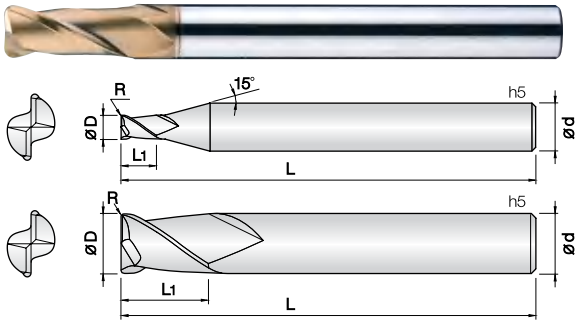
Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	셱크 Shank Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	셱크 Shank Dia d	비고
4CRE 025 003 300	2.5 X R0.3	2.5	30	70	4		4CRE 040 002 050	4 X R0.2	4	12	50	4	
4CRE 025 005 100	2.5 X R0.5	2.5	10	50	4		4CRE 040 002 070	4 X R0.2	4	20	70	4	
4CRE 025 005 120	2.5 X R0.5	2.5	12	50	4		4CRE 040 002 130	4 X R0.2	4	13	55	6	
4CRE 025 005 160	2.5 X R0.5	2.5	16	50	4		4CRE 040 002 160	4 X R0.2	4	16	55	6	
4CRE 025 005 200	2.5 X R0.5	2.5	20	50	4		4CRE 040 002 200	4 X R0.2	4	20	60	6	
4CRE 025 005 250	2.5 X R0.5	2.5	25	60	4		4CRE 040 002 250	4 X R0.2	4	25	65	6	
4CRE 025 005 300	2.5 X R0.5	2.5	30	70	4		4CRE 040 002 300	4 X R0.2	4	30	70	6	
4CRE 030 001 100	3 X R0.1	3	10	50	6		4CRE 040 002 350	4 X R0.2	4	35	75	6	
New 4CRE 030 001 120	3 X R0.1	3	12	50	6		4CRE 040 002 400	4 X R0.2	4	40	80	6	
4CRE 030 001 160	3 X R0.1	3	16	55	6		4CRE 040 002 450	4 X R0.2	4	45	90	6	
4CRE 030 001 200	3 X R0.1	3	20	60	6		4CRE 040 002 500	4 X R0.2	4	50	100	6	
4CRE 030 001 250	3 X R0.1	3	25	65	6		4CRE 040 003 050	4 X R0.3	4	12	50	4	
4CRE 030 001 300	3 X R0.1	3	30	70	6		4CRE 040 003 070	4 X R0.3	4	20	70	4	
4CRE 030 001 350	3 X R0.1	3	35	75	6		4CRE 040 003 130	4 X R0.3	4	13	55	6	
4CRE 030 001 400	3 X R0.1	3	40	80	6		4CRE 040 003 160	4 X R0.3	4	16	55	6	
4CRE 030 001 500	3 X R0.1	3	50	100	6		4CRE 040 003 200	4 X R0.3	4	20	60	6	
4CRE 030 002 100	3 X R0.2	3	10	50	6		4CRE 040 003 250	4 X R0.3	4	25	65	6	
New 4CRE 030 002 120	3 X R0.2	3	12	50	6		4CRE 040 003 300	4 X R0.3	4	30	70	6	
4CRE 030 002 160	3 X R0.2	3	16	55	6		4CRE 040 003 350	4 X R0.3	4	35	75	6	
4CRE 030 002 200	3 X R0.2	3	20	60	6		4CRE 040 003 400	4 X R0.3	4	40	80	6	
4CRE 030 002 250	3 X R0.2	3	25	65	6		4CRE 040 003 450	4 X R0.3	4	45	90	6	
4CRE 030 002 300	3 X R0.2	3	30	70	6		4CRE 040 003 500	4 X R0.3	4	50	100	6	
4CRE 030 002 350	3 X R0.2	3	35	75	6		4CRE 040 005 050	4 X R0.5	4	12	50	4	
4CRE 030 002 400	3 X R0.2	3	40	80	6		4CRE 040 005 070	4 X R0.5	4	20	70	4	
4CRE 030 002 500	3 X R0.2	3	50	100	6		4CRE 040 005 130	4 X R0.5	4	13	55	6	
4CRE 030 003 100	3 X R0.3	3	10	50	6		4CRE 040 005 160	4 X R0.5	4	16	55	6	
New 4CRE 030 003 120	3 X R0.3	3	12	50	6		4CRE 040 005 200	4 X R0.5	4	20	60	6	
4CRE 030 003 160	3 X R0.3	3	16	55	6		4CRE 040 005 250	4 X R0.5	4	25	65	6	
4CRE 030 003 200	3 X R0.3	3	20	60	6		4CRE 040 005 300	4 X R0.5	4	30	70	6	
4CRE 030 003 250	3 X R0.3	3	25	65	6		4CRE 040 005 350	4 X R0.5	4	35	75	6	
4CRE 030 003 300	3 X R0.3	3	30	70	6		4CRE 040 005 400	4 X R0.5	4	40	80	6	
4CRE 030 003 350	3 X R0.3	3	35	75	6		4CRE 040 005 450	4 X R0.5	4	45	90	6	
4CRE 030 003 400	3 X R0.3	3	40	80	6		4CRE 040 005 500	4 X R0.5	4	50	100	6	
4CRE 030 003 500	3 X R0.3	3	50	100	6		4CRE 040 010 050	4 X R1	4	12	50	4	
4CRE 030 005 100	3 X R0.5	3	10	50	6		4CRE 040 010 070	4 X R1	4	20	70	4	
New 4CRE 030 005 120	3 X R0.5	3	12	50	6		4CRE 040 010 130	4 X R1	4	13	55	6	
4CRE 030 005 160	3 X R0.5	3	16	55	6		4CRE 040 010 160	4 X R1	4	16	55	6	
4CRE 030 005 200	3 X R0.5	3	20	60	6		4CRE 040 010 200	4 X R1	4	20	60	6	
4CRE 030 005 250	3 X R0.5	3	25	65	6		4CRE 040 010 250	4 X R1	4	25	65	6	
4CRE 030 005 300	3 X R0.5	3	30	70	6		4CRE 040 010 300	4 X R1	4	30	70	6	
4CRE 030 005 350	3 X R0.5	3	35	75	6		4CRE 040 010 350	4 X R1	4	35	75	6	
4CRE 030 005 400	3 X R0.5	3	40	80	6		4CRE 040 010 400	4 X R1	4	40	80	6	
4CRE 030 005 500	3 X R0.5	3	50	100	6		4CRE 040 010 450	4 X R1	4	45	90	6	
4CRE 030 010 100	3 X R1	3	10	50	6		4CRE 040 010 500	4 X R1	4	50	100	6	
New 4CRE 030 010 120	3 X R1	3	12	50	6		4CRE 050 001 160	5 X R0.1	5	16	60	6	
4CRE 030 010 160	3 X R1	3	16	55	6		4CRE 050 001 300	5 X R0.1	5	30	70	6	
4CRE 030 010 200	3 X R1	3	20	60	6		4CRE 050 001 400	5 X R0.1	5	40	80	6	
4CRE 030 010 250	3 X R1	3	25	65	6		4CRE 050 001 500	5 X R0.1	5	50	100	6	
4CRE 030 010 300	3 X R1	3	30	70	6		4CRE 050 002 160	5 X R0.2	5	16	60	6	
4CRE 030 010 350	3 X R1	3	35	75	6		4CRE 050 002 300	5 X R0.2	5	30	70	6	
4CRE 030 010 400	3 X R1	3	40	80	6		4CRE 050 002 400	5 X R0.2	5	40	80	6	
4CRE 030 010 500	3 X R1	3	50	100	6		4CRE 050 002 500	5 X R0.2	5	50	100	6	
4CRE 040 001 050	4 X R0.1	4	12	50	4		4CRE 050 003 160	5 X R0.3	5	16	60	6	
4CRE 040 001 070	4 X R0.1	4	20	70	4		4CRE 050 003 300	5 X R0.3	5	30	70	6	
4CRE 040 001 130	4 X R0.1	4	13	55	6		4CRE 050 003 400	5 X R0.3	5	40	80	6	
4CRE 040 001 160	4 X R0.1	4	16	55	6		4CRE 050 003 500	5 X R0.3	5	50	100	6	
4CRE 040 001 200	4 X R0.1	4	20	60	6		4CRE 050 005 160	5 X R0.5	5	16	60	6	
4CRE 040 001 250	4 X R0.1	4	25	65	6		4CRE 050 005 300	5 X R0.5	5	30	70	6	
4CRE 040 001 300	4 X R0.1	4	30	70	6		4CRE 050 005 400	5 X R0.5	5	40	80	6	
4CRE 040 001 350	4 X R0.1	4	35	75	6		4CRE 050 005 500	5 X R0.5	5	50	100	6	
4CRE 040 001 400	4 X R0.1	4	40	80	6		4CRE 050 010 160	5 X R1	5	16	60	6	
4CRE 040 001 450	4 X R0.1	4	45	90	6		4CRE 050 010 300	5 X R1	5	30	70	6	
4CRE 040 001 500	4 X R0.1	4	50	100	6		4CRE 050 010 400	5 X R1	5	40	80	6	

HARD series

단위 : mm

HARD series

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고								
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									
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									
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									
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									
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									
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									
4CRE 060 015 500	6 X R1.5	7	50	100	6									
4CRE 080 002 220	8 X R0.2	9	22	65	8									
4CRE 080 003 220	8 X R0.3	9	22	65	8									
4CRE 080 005 220	8 X R0.5	9	22	65	8									
4CRE 080 005 400	8 X R0.5	9	40	100	8									
4CRE 080 010 220	8 X R1	9	22	65	8									
4CRE 080 010 400	8 X R1	9	40	100	8									
4CRE 080 015 220	8 X R1.5	9	22	65	8									
4CRE 080 015400	8 X R1.5	9	40	100	8									
4CRE 080 020 220	8 X R2	9	22	65	8									
4CRE 100 002 240	10 X R0.2	11	24	70	10									
4CRE 100 003 240	10 X R0.3	11	24	70	10									
4CRE 100 005 240	10 X R0.5	11	24	70	10									
4CRE 100 005 400	10 X R0.5	11	40	100	10									
4CRE 100 010 240	10 X R1	11	24	70	10									
4CRE 100 010 400	10 X R1	11	40	100	10									
4CRE 100 015 240	10 X R1.5	11	24	70	10									
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									
4CRE 120 005 400	12 X R0.5	13	40	110	12									
4CRE 120 010 260	12 X R1	13	26	80	12									
4CRE 120 010 400	12 X R1	13	40	110	12									
4CRE 120 015 260	12 X R1.5	13	26	80	12									
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									



- 고경도강(HRc50~62), 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 $\mu$ m)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.
- 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 $\mu$ m) WC grade.

2

UWC  
초미립자

TISIN  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

30°  
Helix Angle

R0.02 ~ 0.5
R1 ~ 1.5
R2 ~ 5

D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

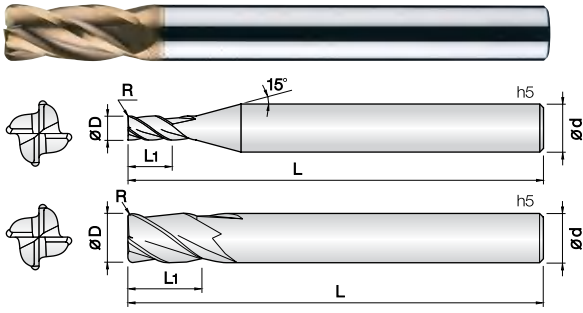
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2NCR 002 0002 S04	0.2 X R0.02	0.6	45	4		2NCR 025 0005 S04	2.5 X R0.05	6	50	4	
2NCR 002 0005 S04	0.2 X R0.05	0.6	45	4		2NCR 025 001 S04	2.5 X R0.1	6	50	4	
2NCR 003 0002 S04	0.3 X R0.02	0.6	45	4		2NCR 025 002 S04	2.5 X R0.2	6	50	4	
2NCR 003 0005 S04	0.3 X R0.05	0.6	45	4		2NCR 025 003 S04	2.5 X R0.3	6	50	4	
2NCR 003 001 S04	0.3 X R0.1	0.6	45	4		2NCR 025 004 S04	2.5 X R0.4	6	50	4	
2NCR 004 0002 S04	0.4 X R0.02	0.8	45	4		2NCR 025 005 S04	2.5 X R0.5	6	50	4	
2NCR 004 0005 S04	0.4 X R0.05	0.8	45	4		2NCR 030 0005 S06	3 X R0.05	8	60	6	
2NCR 004 001 S04	0.4 X R0.1	0.8	45	4		2NCR 030 001 S06	3 X R0.1	8	60	6	
2NCR 005 0002 S04	0.5 X R0.02	1	45	4		2NCR 030 002 S06	3 X R0.2	8	60	6	
2NCR 005 0005 S04	0.5 X R0.05	1	45	4		2NCR 030 003 S06	3 X R0.3	8	60	6	
2NCR 005 001 S04	0.5 X R0.1	1	45	4		2NCR 030 004 S06	3 X R0.4	8	60	6	
2NCR 006 0002 S04	0.6 X R0.02	1.2	45	4		2NCR 030 005 S06	3 X R0.5	8	60	6	
2NCR 006 0005 S04	0.6 X R0.05	1.2	45	4		2NCR 030 010 S06	3 X R1	8	60	6	
2NCR 006 001 S04	0.6 X R0.1	1.2	45	4		2NCR 035 001 S06	3.5 X R0.1	9	70	6	
2NCR 006 002 S04	0.6 X R0.2	1.2	45	4		2NCR 035 002 S06	3.5 X R0.2	9	70	6	
2NCR 007 0005 S04	0.7 X R0.05	1.4	45	4		2NCR 035 003 S06	3.5 X R0.3	9	70	6	
2NCR 007 001 S04	0.7 X R0.1	1.4	45	4		2NCR 035 005 S06	3.5 X R0.5	9	70	6	
2NCR 007 002 S04	0.7 X R0.2	1.4	45	4		2NCR 040 0005 060	4 X R0.05	9	60	4	
2NCR 008 0002 S04	0.8 X R0.02	1.6	45	4		2NCR 040 0005 080	4 X R0.05	9	80	4	
2NCR 008 0005 S04	0.8 X R0.05	1.6	45	4		2NCR 040 0005 S06	4 X R0.05	9	70	6	
2NCR 008 001 S04	0.8 X R0.1	1.6	45	4		2NCR 040 001 060	4 X R0.1	9	60	4	
2NCR 008 002 S04	0.8 X R0.2	1.6	45	4		2NCR 040 001 080	4 X R0.1	9	80	4	
2NCR 009 0005 S04	0.9 X R0.05	1.8	45	4		2NCR 040 001 S06	4 X R0.1	10	70	6	
2NCR 009 001 S04	0.9 X R0.1	1.8	45	4		2NCR 040 002 060	4 X R0.2	9	60	4	
2NCR 010 0002 S04	1 X R0.02	2.5	45	4		2NCR 040 002 080	4 X R0.2	9	80	4	
2NCR 010 0005 S04	1 X R0.05	2.5	45	4		2NCR 040 002 S06	4 X R0.2	10	70	6	
2NCR 010 001 S04	1 X R0.1	2.5	45	4		2NCR 040 003 060	4 X R0.3	9	60	4	
2NCR 010 002 S04	1 X R0.2	2.5	45	4		2NCR 040 003 080	4 X R0.3	9	80	4	
2NCR 010 003 S04	1 X R0.3	2.5	45	4		2NCR 040 003 S06	4 X R0.3	10	70	6	
2NCR 010 004 S04	1 X R0.4	2.5	45	4		2NCR 040 004 060	4 X R0.4	9	60	4	
2NCR 012 0005 S04	1.2 X R0.05	3.2	45	4		2NCR 040 004 080	4 X R0.4	9	80	4	
2NCR 012 001 S04	1.2 X R0.1	3.2	45	4		2NCR 040 004 S06	4 X R0.4	10	70	6	
2NCR 012 002 S04	1.2 X R0.2	3.2	45	4		2NCR 040 005 060	4 X R0.5	9	60	4	
2NCR 012 003 S04	1.2 X R0.3	3.2	45	4		2NCR 040 005 080	4 X R0.5	9	80	4	
2NCR 015 0002 S04	1.5 X R0.02	4	45	4		2NCR 040 005 S06	4 X R0.5	10	70	6	
2NCR 015 0005 S04	1.5 X R0.05	4	45	4		2NCR 040 010 060	4 X R1	9	60	4	
2NCR 015 001 S04	1.5 X R0.1	4	45	4		2NCR 040 010 080	4 X R1	9	80	4	
2NCR 015 002 S04	1.5 X R0.2	4	45	4		2NCR 040 010 S06	4 X R1	10	70	6	
2NCR 015 003 S04	1.5 X R0.3	4	45	4		2NCR 045 001 S06	4.5 X R0.1	11	75	6	
2NCR 015 004 S04	1.5 X R0.4	4	45	4		2NCR 045 002 S06	4.5 X R0.2	11	75	6	
2NCR 015 005 S04	1.5 X R0.5	4	45	4		2NCR 045 003 S06	4.5 X R0.3	11	75	6	
2NCR 020 0002 S04	2 X R0.02	6	45	4		2NCR 045 005 S06	4.5 X R0.5	11	75	6	
2NCR 020 0005 S04	2 X R0.05	6	45	4		2NCR 045 010 S06	4.5 X R1	11	75	6	
2NCR 020 001 S04	2 X R0.1	6	45	4		2NCR 050001 S06	5 X R0.1	13	75	6	
2NCR 020 002 S04	2 X R0.2	6	45	4		2NCR 050 002 S06	5 X R0.2	13	75	6	
2NCR 020 003 S04	2 X R0.3	6	45	4		2NCR 050 003 S06	5 X R0.3	13	75	6	
2NCR 020 004 S04	2 X R0.4	6	45	4		2NCR 050 004 S06	5 X R0.4	13	75	6	
2NCR 020 005 S04	2 X R0.5	6	45	4		2NCR 050 005 S06	5 X R0.5	13	75	6	



단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2NCR 050 010 S06	5 X R1	13	75	6		2NCR 100 010 075	10 X R1	19	75	10	
2NCR 060 0005 060	6 X R0.05	11	60	6		2NCR 100 010 100	10 X R1	22	100	10	
2NCR 060 0005 090	6 X R0.05	13	90	6		2NCR 100 010 130	10 X R1	22	130	10	
2NCR 060 001 060	6 X R0.1	11	60	6		2NCR 100 015 075	10 X R1.5	19	75	10	
2NCR 060 001 090	6 X R0.1	13	90	6		2NCR 100 015 100	10 X R1.5	22	100	10	
2NCR 060 002 060	6 X R0.2	11	60	6		2NCR 100 015 130	10 X R1.5	22	130	10	
2NCR 060 002 090	6 X R0.2	13	90	6		2NCR 100 020 075	10 X R2	19	75	10	
2NCR 060 003 060	6 X R0.3	11	60	6		2NCR 100 020 100	10 X R2	22	100	10	
2NCR 060 003 090	6 X R0.3	13	90	6		2NCR 100 025 100	10 X R2.5	22	100	10	
2NCR 060 004 060	6 X R0.4	11	60	6		2NCR 100 030 100	10 X R3	22	100	10	
2NCR 060 004 090	6 X R0.4	13	90	6		2NCR 100 040 100	10 X R4	22	100	10	
2NCR 060 005 060	6 X R0.5	11	60	6		2NCR 120 001 080	12 X R0.1	22	80	12	
2NCR 060 005 090	6 X R0.5	13	90	6		2NCR 120 001 110	12 X R0.1	26	110	12	
2NCR 060 010 060	6 X R1	11	60	6		2NCR 120 002 080	12 X R0.2	22	80	12	
2NCR 060 010 090	6 X R1	13	90	6		2NCR 120 002 110	12 X R0.2	26	110	12	
2NCR 060 015 060	6 X R1.5	11	60	6		2NCR 120 003 080	12 X R0.3	22	80	12	
2NCR 060 015 090	6 X R1.5	13	90	6		2NCR 120 003 110	12 X R0.3	26	110	12	
2NCR 060 020 060	6 X R2	11	60	6		2NCR 120 005 080	12 X R0.5	22	80	12	
2NCR 060 020 090	6 X R2	13	90	6		2NCR 120 005 110	12 X R0.5	26	110	12	
2NCR 060 025 090	6 X R2.5	13	90	6		2NCR 120 005 130	12 X R0.5	26	130	12	
2NCR 080 001 070	8 X R0.1	16	70	8		2NCR 120 010 080	12 X R1	22	80	12	
2NCR 080 001 100	8 X R0.1	19	100	8		2NCR 120 010 110	12 X R1	26	110	12	
2NCR 080 002 070	8 X R0.2	16	70	8		2NCR 120 010 130	12 X R1	26	130	12	
2NCR 080 002 100	8 X R0.2	19	100	8		2NCR 120 015 080	12 X R1.5	22	80	12	
2NCR 080 003 070	8 X R0.3	16	70	8		2NCR 120 015 110	12 X R1.5	26	110	12	
2NCR 080 003 100	8 X R0.3	19	100	8		2NCR 120 015 130	12 X R1.5	26	130	12	
2NCR 080 005 070	8 X R0.5	16	70	8		2NCR 120 020 080	12 X R2	22	80	12	
2NCR 080 005 100	8 X R0.5	19	100	8		2NCR 120 020 110	12 X R2	26	110	12	
2NCR 080 005 120	8 X R0.5	19	120	8		2NCR 120 020 130	12 X R2	26	130	12	
2NCR 080 010 070	8 X R1	16	70	8		2NCR 120 025 110	12 X R2.5	26	110	12	
2NCR 080 010 100	8 X R1	19	100	8		2NCR 120 030 110	12 X R3	26	110	12	
2NCR 080 010 120	8 X R1	19	120	8		2NCR 120 040 110	12 X R4	26	110	12	
2NCR 080 015 070	8 X R1.5	16	70	8		2NCR 120 050 110	12 X R5	26	110	12	
2NCR 080 015 100	8 X R1.5	19	100	8							
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							
2NCR 080 035 100	8 X R3.5	19	100	8							
2NCR 100 001 075	10 X R0.1	19	75	10							
2NCR 100 001 100	10 X R0.1	22	100	10							
2NCR 100 002 075	10 X R0.2	19	75	10							
2NCR 100 002 100	10 X R0.2	22	100	10							
2NCR 100 003 075	10 X R0.3	19	75	10							
2NCR 100 003 100	10 X R0.3	22	100	10							
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							

## 4날 코너레디우스 엔드밀



- 고경도강(HRc50~62), 프리하드강 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 $\mu$ m)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.
- 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  $\mu$ m) WC grade.



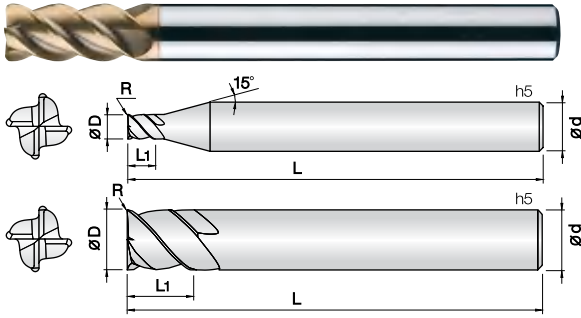
D Size	D Tolerance
$\varnothing 1 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm
$\varnothing 16 \sim 20$	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고
4NCR 010 0002 S04	1 X R0.02	2.5	45	4		4NCR 040 004 060	4 X R0.4	9	60	4	
4NCR 010 0005 S04	1 X R0.05	2.5	45	4		4NCR 040 004 080	4 X R0.4	9	80	4	
4NCR 010 001 S04	1 X R0.1	2.5	45	4		4NCR 040 004 S06	4 X R0.4	10	70	6	
4NCR 010 002 S04	1 X R0.2	2.5	45	4		4NCR 040 005 060	4 X R0.5	9	60	4	
4NCR 010 003 S04	1 X R0.3	2.5	45	4		4NCR 040 005 080	4 X R0.5	9	80	4	
4NCR 012 0002 S04	1.2 X R0.02	4	45	4		4NCR 040 005 S06	4 X R0.5	10	70	6	
4NCR 012 0005 S04	1.2 X R0.05	4	45	4		4NCR 040 010 060	4 X R1	9	60	4	
4NCR 012 001 S04	1.2 X R0.1	4	45	4		4NCR 040 010 080	4 X R1	9	80	4	
4NCR 012 002 S04	1.2 X R0.2	4	45	4		4NCR 040 010 S06	4 X R1	10	70	6	
4NCR 012 003 S04	1.2 X R0.3	4	45	4		4NCR 050 0005 S06	5 X R0.05	13	75	6	
4NCR 015 0002 S04	1.5 X R0.02	4	45	4		4NCR 050 001 S06	5 X R0.1	13	75	6	
4NCR 015 0005 S04	1.5 X R0.05	4	45	4		4NCR 050 002 S06	5 X R0.2	13	75	6	
4NCR 015 001 S04	1.5 X R0.1	4	45	4		4NCR 050 003 S06	5 X R0.3	13	75	6	
4NCR 015 002 S04	1.5 X R0.2	4	45	4		4NCR 050 004 S06	5 X R0.4	13	75	6	
4NCR 015 003 S04	1.5 X R0.3	4	45	4		4NCR 050 005 S06	5 X R0.5	13	75	6	
4NCR 015 004 S04	1.5 X R0.4	4	45	4		4NCR 050 010 S06	5 X R1	13	75	6	
4NCR 015 005 S04	1.5 X R0.5	4	45	4		4NCR 060 0005 080	6 X R0.05	13	80	6	
4NCR 020 0002 S04	2 X R0.02	6	45	4		4NCR 060 001 060	6 X R0.1	11	60	6	
4NCR 020 0005 S04	2 X R0.05	6	45	4		4NCR 060 001 080	6 X R0.1	13	80	6	
4NCR 020 001 S04	2 X R0.1	6	45	4		4NCR 060 002 060	6 X R0.2	11	60	6	
4NCR 020 002 S04	2 X R0.2	6	45	4		4NCR 060 002 080	6 X R0.2	13	80	6	
4NCR 020 003 S04	2 X R0.3	6	45	4		4NCR 060 003 060	6 X R0.3	11	60	6	
4NCR 020 004 S04	2 X R0.4	6	45	4		4NCR 060 003 080	6 X R0.3	13	80	6	
4NCR 020 005 S04	2 X R0.5	6	45	4		4NCR 060 004 080	6 X R0.4	13	80	6	
4NCR 025 0005 S04	2.5 X R0.05	6	50	4		4NCR 060 005 060	6 X R0.5	11	60	6	
4NCR 025 001 S04	2.5 X R0.1	6	50	4		4NCR 060 005 080	6 X R0.5	13	80	6	
4NCR 025 002 S04	2.5 X R0.2	6	50	4		4NCR 060 010 060	6 X R1	11	60	6	
4NCR 025 003 S04	2.5 X R0.3	6	50	4		4NCR 060 010 080	6 X R1	13	80	6	
4NCR 025 005 S04	2.5 X R0.5	6	50	4		4NCR 060 015 060	6 X R1.5	11	60	6	
4NCR 030 0005 S06	3 X R0.05	8	60	6		4NCR 060 015 080	6 X R1.5	13	80	6	
4NCR 030 001 S06	3 X R0.1	8	60	6		4NCR 060 020 060	6 X R2	11	60	6	
4NCR 030 002 S06	3 X R0.2	8	60	6		4NCR 060 020 080	6 X R2	13	80	6	
4NCR 030 003 S06	3 X R0.3	8	60	6		4NCR 080 001 070	8 X R0.1	16	70	8	
4NCR 030 004 S06	3 X R0.4	8	60	6		4NCR 080 001 090	8 X R0.1	19	90	8	
4NCR 030 005 S06	3 X R0.5	8	60	6		4NCR 080 002 070	8 X R0.2	16	70	8	
4NCR 030 010 S06	3 X R1	8	60	6		4NCR 080 002 090	8 X R0.2	19	90	8	
4NCR 040 0005 060	4 X R0.05	9	60	4		4NCR 080 003 070	8 X R0.3	16	70	8	
4NCR 040 0005 080	4 X R0.05	9	80	4		4NCR 080 003 090	8 X R0.3	19	90	8	
4NCR 040 0005 S06	4 X R0.05	10	70	6		4NCR 080 005 070	8 X R0.5	16	70	8	
4NCR 040 001 060	4 X R0.1	9	60	4		4NCR 080 005 090	8 X R0.5	19	90	8	
4NCR 040 001 080	4 X R0.1	9	80	4		4NCR 080 005 110	8 X R0.5	19	110	8	
4NCR 040 001 S06	4 X R0.1	10	70	6		4NCR 080 010 070	8 X R1	16	70	8	
4NCR 040 002 060	4 X R0.2	9	60	4		4NCR 080 010 090	8 X R1	19	90	8	
4NCR 040 002 080	4 X R0.2	9	80	4		4NCR 080 010 110	8 X R1	19	110	8	
4NCR 040 002 S06	4 X R0.2	10	70	6		4NCR 080 015 070	8 X R1.5	16	70	8	
4NCR 040 003 060	4 X R0.3	9	60	4		4NCR 080 015 090	8 X R1.5	19	90	8	
4NCR 040 003 080	4 X R0.3	9	80	4		4NCR 080 015 110	8 X R1.5	19	110	8	
4NCR 040 003 S06	4 X R0.3	10	70	6		4NCR 080 020 070	8 X R2	16	70	8	

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
4NCR 080 020 090	8 X R2	19	90	8		4NCR 120 030 130	12 X R3	26	130	12	
4NCR 080 020 110	8 X R2	19	110	8		4NCR 120 035 110	12 X R3.5	26	110	12	
4NCR 080 025 090	8 X R2.5	19	90	8		4NCR 120 040 110	12 X R4	26	110	12	
4NCR 100 001 075	10 X R0.1	19	75	10		4NCR 160 005 110	16 X R0.5	32	110	16	
4NCR 100 001 100	10 X R0.1	22	100	10		4NCR 160 005 160	16 X R0.5	32	160	16	
4NCR 100 002 075	10 X R0.2	19	75	10		4NCR 160 010 110	16 X R1	32	110	16	
4NCR 100 002 100	10 X R0.2	22	100	10		4NCR 160 010 160	16 X R1	32	160	16	
New 4NCR 100 002 120	10 X R0.2	22	120	10		4NCR 160 015 110	16 X R1.5	32	110	16	
4NCR 100 003 075	10 X R0.3	19	75	10		4NCR 160 020 110	16 X R2	32	110	16	
4NCR 100 003 100	10 X R0.3	22	100	10		4NCR 160 030 110	16 X R3	32	110	16	
4NCR 100 005 075	10 X R0.5	19	75	10		4NCR 200 005 160	20 X R0.5	38	160	20	
4NCR 100 005 100	10 X R0.5	22	100	10		4NCR 200 010 160	20 X R1	38	160	20	
4NCR 100 005 120	10 X R0.5	22	120	10		4NCR 200 015 160	20 X R1.5	38	160	20	
4NCR 100 010 075	10 X R1	19	75	10		4NCR 200 020 160	20 X R2	38	160	20	
4NCR 100 010 100	10 X R1	22	100	10							
4NCR 100 010 120	10 X R1	22	120	10							
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							
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							
4NCR 100 025 120	10 X R2.5	22	120	10							
4NCR 100 030 100	10 X R3	22	100	10							
4NCR 120 002 080	12 X R0.2	22	80	12							
4NCR 120 002 110	12 X R0.2	26	110	12							
New 4NCR 120 002 130	12 X R0.2	26	130	12							
4NCR 120 003 080	12 X R0.3	22	80	12							
4NCR 120 003 110	12 X R0.3	26	110	12							
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							
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							
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							
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							
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							
4NCR 120 030 080	12 X R3	22	80	12							
4NCR 120 030 110	12 X R3	26	110	12							



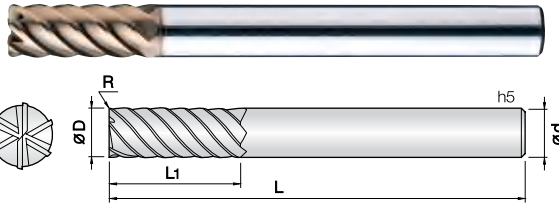
- 고경도강(HRc50~62), 프리하드강 계열의 고속가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc50~62)
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- 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 µm) WC grade.



D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4CRL 010 0005 S06	1 X R0.05	2	50	6		4CRL 100 015 S10	10 X R1.5	20	100	10	
4CRL 010 001 S06	1 X R0.1	2	50	6		4CRL 100 020 S10	10 X R2	20	100	10	
4CRL 010 002 S06	1 X R0.2	2	50	6		4CRL 120 003 S12	12 X R0.3	24	110	12	
4CRL 010 003 S06	1 X R0.3	2	50	6		4CRL 120 005 S12	12 X R0.5	24	110	12	
4CRL 012 0005 S06	1.2 X R0.05	2.5	50	6		4CRL 120 010 S12	12 X R1	24	110	12	
4CRL 012 001 S06	1.2 X R0.1	2.5	50	6		4CRL 120 015 S12	12 X R1.5	24	110	12	
4CRL 012 002 S06	1.2 X R0.2	2.5	50	6		4CRL 120 020 S12	12 X R2	24	110	12	
4CRL 012 003 S06	1.2 X R0.3	2.5	50	6		4CRL 120 030 S12	12 X R3	24	110	12	
4CRL 015 0005 S06	1.5 X R0.05	3	50	6		4CRL 160 005 S16	16 X R0.5	32	120	16	
4CRL 015 001 S06	1.5 X R0.1	3	50	6		4CRL 160 010 S16	16 X R1	32	120	16	
4CRL 015 002 S06	1.5 X R0.2	3	50	6		4CRL 160 020 S16	16 X R2	32	120	16	
4CRL 015 003 S06	1.5 X R0.3	3	50	6		4CRL 160 030 S16	16 X R3	32	120	16	
4CRL 015 005 S06	1.5 X R0.5	3	50	6		4CRL 200 005 S20	20 X R0.5	38	130	20	
4CRL 020 001 S06	2 X R0.1	5	50	6		4CRL 200 010 S20	20 X R1	38	130	20	
4CRL 020 002 S06	2 X R0.2	5	50	6		4CRL 200 020 S20	20 X R2	38	130	20	
4CRL 020 003 S06	2 X R0.3	5	50	6		4CRL 200 030 S20	20 X R3	38	130	20	
4CRL 020 005 S06	2 X R0.5	5	50	6		4CRL 200 040 S20	20 X R4	38	130	20	
4CRL 025 001 S06	2.5 X R0.1	6	60	6		4CRL 200 050 S20	20 X R5	38	130	20	
4CRL 025 002 S06	2.5 X R0.2	6	60	6							
4CRL 025 003 S06	2.5 X R0.3	6	60	6							
4CRL 025 005 S06	2.5 X R0.5	6	60	6							
4CRL 030 001 S06	3 X R0.1	6	70	6							
4CRL 030 002 S06	3 X R0.2	6	70	6							
4CRL 030 003 S06	3 X R0.3	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 040 001 S06	4 X R0.1	8	70	6							
4CRL 040 002 S06	4 X R0.2	8	70	6							
4CRL 040 003 S06	4 X R0.3	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 060 001 S06	6 X R0.1	12	90	6							
4CRL 060 002 S06	6 X R0.2	12	90	6							
4CRL 060 003 S06	6 X R0.3	12	90	6							
4CRL 060 005 S06	6 X R0.5	12	90	6							
4CRL 060 010 S06	6 X R1	12	90	6							
4CRL 060 015 S06	6 X R1.5	12	90	6							
4CRL 060 020 S06	6 X R2	12	90	6							
4CRL 080 002 S08	8 X R0.2	16	90	8							
4CRL 080 003 S08	8 X R0.3	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 080 015 S08	8 X R1.5	16	90	8							
4CRL 080 020 S08	8 X R2	16	90	8							
4CRL 100 002 S10	10 X R0.2	20	100	10							
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							



HARD series

- 고경도강(HRc50~62), 프리하든강 계열의 고속가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 축삭가공, 코너부, 무구배면 가공시 가공물의 표면조도가 뛰어나며, 인선날 길이 증가로 내마모성이 더욱 좋아집니다.
- 초미립자 초경합금(0.2μm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- **Endmills for pre-hardened and hardened steel(HRc50~62)**
- 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 μm) WC grade.

6

UWC  
초미립자

TISIN  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

45°  
Helix Angle

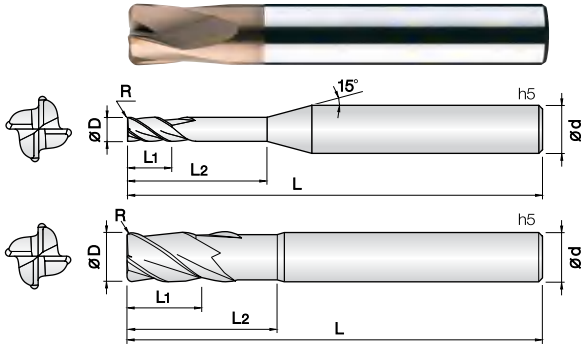
R0.2 ~ 0.5    R1 ~ 1.5    R2

D Size	D Tolerance
ø5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고					
6CRL 050 002 060	5 X R0.2	13	60	6						
6CRL 050 003 060	5 X R0.3	13	60	6						
6CRL 050 005 060	5 X R0.5	13	60	6						
6CRL 050 010 060	5 X R1	13	60	6						
6CRL 060 002 060	6 X R0.2	15	60	6						
6CRL 060 002 080	6 X R0.2	15	80	6						
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 080 015 070	8 X R1.5	20	70	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 100 020 075	10 X R2	25	75	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 120 020 080	12 X R2	30	80	12						
6CRL 160 005 110	16 X R0.5	50	110	16						
6CRL 160 010 110	16 X R1	50	110	16						
6CRL 160 020 110	16 X R2	50	110	16						

## 4날고이송 코너레디우스 커터



- 고경도강(HRc50~62), 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 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.

• Cutter for pre-hardened and hardened steel (HRc50~62)

- 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 fine WC grade.



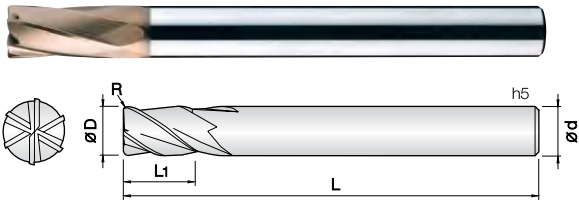
D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 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													

# 6RCU 6 Flutes High Speed Corner Radius Cutter

## 6날고이송 코너레디우스 커터



HARD series

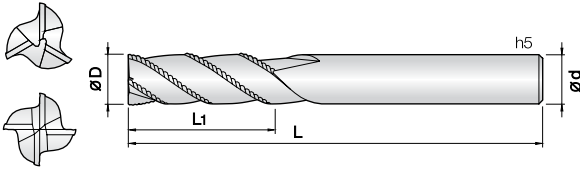
- 고경도강(HRc50~62), 프리하든강 계열의 고이송 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능 하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- **Cutter for pre-hardened and hardened steel(HRc50~62)**
- Good wear resistance by Si-based PVD coating.
- Designed for low speed with high feed condition.
- Suitable for heavy duty and roughing application.
- Minimize fracturing at high feed by high TRS fine WC grade.



D Size	D Tolerance
∅6 ~ 12	-0.005 ~ -0.015mm
∅16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 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											



- 공구강, 합금강 및 고경도 일반강 황삭가공 엔드밀**
  - JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
  - 뛰어난 칩배출력으로 가공시간을 단축하였습니다.
  - 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Roughing Endmills for tool steel, alloy steel**
  - JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
  - Reduce machining time by excellent chip control.
  - Minimize fracturing at high feed by high TRS fine WC grade.

Shield Edge

D Size	D Tolerance
Ø4 ~ 9	-0.02 ~ -0.04mm
Ø10 ~ 20	-0.02 ~ -0.05mm

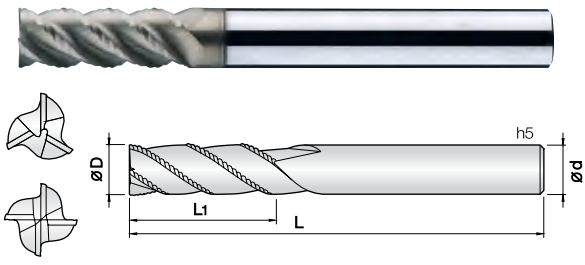
단위 : mm

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



## 3&4날 45° 헬릭스 파인피치형 리핑 엔드밀

HARD series



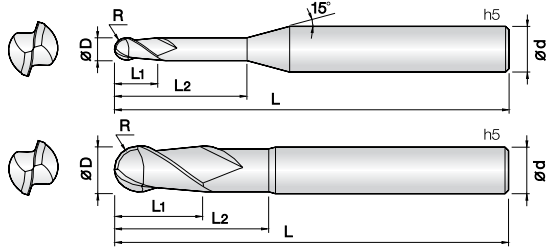
- 합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재의 황삭가공
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 45° 헬릭스 적용으로 절삭 저항이 감소되어 장시간 가공에 적합합니다.
- 파인피치 형상 채택으로 고속, 황삭가공 작업에 적합합니다.
- **Roughing Endmills for hard to cut materials, alloy steel, SUS, Inconel and structural steel.**
- JCRO coating provides wear 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.



D Size	D Tolerance
ø4 ~ 9	-0.02 ~ -0.04mm
ø10 ~ 20	-0.02 ~ -0.05mm

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									
New 3HROU 080 300 075	8	30	75	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									
New 4HROU 100 400 090	10	40	90	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									
New 4HROU 120 500 100	12	50	100	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									



- 중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강등 다양한 피삭재 가공 엔드밀
  - 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
  - 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
  - 항절력이 높은 미립자 초경합금(0.5μm)을 채택, 엔드밀의 파손을 최소화하였습니다.
- Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.
  - Good wear resistance by high quality Si-based PVD coating.
  - Suitable shape is designed for tooling in wide areas.
  - Minimize fracturing by high TRS fine(0.5 μm) WC grade.



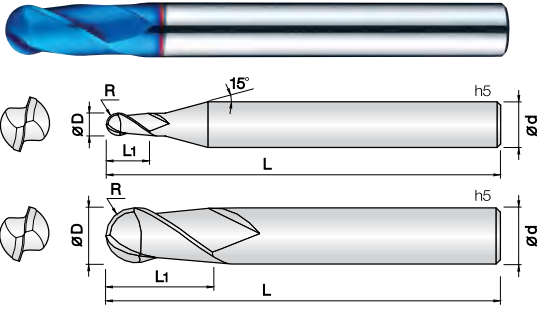
D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HRBE 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2HRBE 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2HRBE 002 010 S04	0.1R X 0.2	0.2	1	40	4		2HRBE 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2HRBE 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2HRBE 009 060 S04	0.45R X 0.9	0.9	6	45	4	
2HRBE 002 020 S04	0.1R X 0.2	0.2	2	40	4		2HRBE 009 080 S04	0.45R X 0.9	0.9	8	45	4	
2HRBE 003 010 S04	0.15R X 0.3	0.3	1	40	4		2HRBE 009 100 S04	0.45R X 0.9	0.9	10	50	4	
2HRBE 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2HRBE 010 020 S04	0.5R X 1	1	2	45	4	
2HRBE 003 020 S04	0.15R X 0.3	0.3	2	40	4		2HRBE 010 030 S04	0.5R X 1	1	3	45	4	
2HRBE 003 030 S04	0.15R X 0.3	0.3	3	40	4		2HRBE 010 040 S04	0.5R X 1	1	4	45	4	
2HRBE 003 040 S04	0.15R X 0.3	0.3	4	40	4		2HRBE 010 050 S04	0.5R X 1	1	5	45	4	
2HRBE 004 010 S04	0.2R X 0.4	0.4	1	40	4		2HRBE 010 060 S04	0.5R X 1	1	6	45	4	
2HRBE 004 020 S04	0.2R X 0.4	0.4	2	40	4		2HRBE 010 080 S04	0.5R X 1	1	8	45	4	
2HRBE 004 030 S04	0.2R X 0.4	0.4	3	40	4		2HRBE 010 100 S04	0.5R X 1	1	10	50	4	
2HRBE 004 040 S04	0.2R X 0.4	0.4	4	40	4		2HRBE 010 120 S04	0.5R X 1	1	12	50	4	
2HRBE 004 050 S04	0.2R X 0.4	0.4	5	40	4		2HRBE 010 140 S04	0.5R X 1	1	14	50	4	
2HRBE 004 060 S04	0.2R X 0.4	0.4	6	40	4		2HRBE 010 160 S04	0.5R X 1	1	16	50	4	
2HRBE 004 080 S04	0.2R X 0.4	0.4	8	40	4		2HRBE 010 180 S04	0.5R X 1	1	18	50	4	
2HRBE 005 010 S04	0.25R X 0.5	0.5	1	45	4		2HRBE 010 200 S04	0.5R X 1	1	20	50	4	
2HRBE 005 020 S04	0.25R X 0.5	0.5	2	45	4		2HRBE 010 220 S04	0.5R X 1	1	22	60	4	
2HRBE 005 030 S04	0.25R X 0.5	0.5	3	45	4		2HRBE 010 250 S04	0.5R X 1	1	25	60	4	
2HRBE 005 040 S04	0.25R X 0.5	0.5	4	45	4		2HRBE 012 040 S04	0.6R X 1.2	1.2	4	45	4	
2HRBE 005 050 S04	0.25R X 0.5	0.5	5	45	4		2HRBE 012 060 S04	0.6R X 1.2	1.2	6	45	4	
2HRBE 005 060 S04	0.25R X 0.5	0.5	6	45	4		2HRBE 012 080 S04	0.6R X 1.2	1.2	8	45	4	
2HRBE 005 080 S04	0.25R X 0.5	0.5	8	45	4		2HRBE 012 100 S04	0.6R X 1.2	1.2	10	50	4	
2HRBE 005 100 S04	0.25R X 0.5	0.5	10	45	4		2HRBE 012 120 S04	0.6R X 1.2	1.2	12	50	4	
2HRBE 005 120 S04	0.25R X 0.5	0.5	12	45	4		2HRBE 012 160 S04	0.6R X 1.2	1.2	16	50	4	
2HRBE 006 010 S04	0.3R X 0.6	0.6	1	45	4		2HRBE 012 200 S04	0.6R X 1.2	1.2	20	50	4	
2HRBE 006 020 S04	0.3R X 0.6	0.6	2	45	4		2HRBE 012 240 S04	0.6R X 1.2	1.2	24	60	4	
2HRBE 006 030 S04	0.3R X 0.6	0.6	3	45	4		2HRBE 014 060 S04	0.7R X 1.4	1.4	6	45	4	
2HRBE 006 040 S04	0.3R X 0.6	0.6	4	45	4		2HRBE 014 080 S04	0.7R X 1.4	1.4	8	45	4	
2HRBE 006 050 S04	0.3R X 0.6	0.6	5	45	4		2HRBE 014 120 S04	0.7R X 1.4	1.4	12	50	4	
2HRBE 006 060 S04	0.3R X 0.6	0.6	6	45	4		2HRBE 014 160 S04	0.7R X 1.4	1.4	16	50	4	
2HRBE 006 080 S04	0.3R X 0.6	0.6	8	45	4		2HRBE 015 030 S04	0.75R X 1.5	1.5	3	45	4	
2HRBE 006 100 S04	0.3R X 0.6	0.6	10	45	4		2HRBE 015 040 S04	0.75R X 1.5	1.5	4	45	4	
2HRBE 006 120 S04	0.3R X 0.6	0.6	12	45	4		2HRBE 015 060 S04	0.75R X 1.5	1.5	6	45	4	
2HRBE 006 140 S04	0.3R X 0.6	0.6	14	45	4		2HRBE 015 080 S04	0.75R X 1.5	1.5	8	45	4	
2HRBE 007 020 S04	0.35R X 0.7	0.7	2	45	4		2HRBE 015 100 S04	0.75R X 1.5	1.5	10	50	4	
2HRBE 007 040 S04	0.35R X 0.7	0.7	4	45	4		2HRBE 015 120 S04	0.75R X 1.5	1.5	12	50	4	
2HRBE 007 060 S04	0.35R X 0.7	0.7	6	45	4		2HRBE 015 140 S04	0.75R X 1.5	1.5	14	50	4	
2HRBE 007 080 S04	0.35R X 0.7	0.7	8	45	4		2HRBE 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2HRBE 007 100 S04	0.35R X 0.7	0.7	10	45	4		2HRBE 015 180 S04	0.75R X 1.5	1.5	18	50	4	
2HRBE 007 120 S04	0.35R X 0.7	0.7	12	45	4		2HRBE 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2HRBE 008 020 S04	0.4R X 0.8	0.8	2	45	4		2HRBE 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2HRBE 008 030 S04	0.4R X 0.8	0.8	3	45	4		2HRBE 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2HRBE 008 040 S04	0.4R X 0.8	0.8	4	45	4		2HRBE 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2HRBE 008 050 S04	0.4R X 0.8	0.8	5	45	4		2HRBE 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2HRBE 008 060 S04	0.4R X 0.8	0.8	6	45	4		2HRBE 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2HRBE 008 080 S04	0.4R X 0.8	0.8	8	45	4		2HRBE 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2HRBE 008 100 S04	0.4R X 0.8	0.8	10	45	4		2HRBE 016 160 S04	0.8R X 1.6	1.6	16	50	4	

단위 : mm

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



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공 엔드밀
- 고풍량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절삭력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), prehardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

2

WC  
미립자

BLUE  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

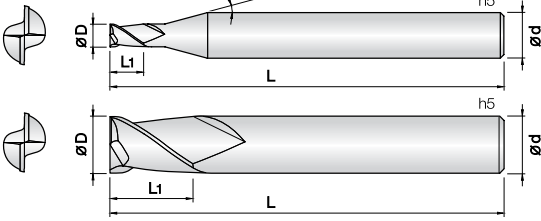
30°  
Helix Angle

0.1 ~ 2.5R
3 ~ 6R
8R

D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고						
2HCBE 002 004 S04	0.1R X 0.2	0.4	40	4							
2HCBE 003 006 S04	0.15R X 0.3	0.6	40	4							
2HCBE 004 008 S04	0.2R X 0.4	0.8	40	4							
2HCBE 005 010 S04	0.25R X 0.5	1	45	4							
2HCBE 006 012 S04	0.3R X 0.6	1.2	45	4							
2HCBE 007 014 S04	0.35R X 0.7	1.4	45	4							
2HCBE 008 016 S04	0.4R X 0.8	1.6	45	4							
2HCBE 009 018 S04	0.45R X 0.9	1.8	45	4							
2HCBE 010 025 S04	0.5R X 1	2.5	50	4							
2HCBE 010 025 S06	0.5R X 1	2.5	50	6							
2HCBE 012 030 S04	0.6R X 1.2	3	50	4							
2HCBE 015 040 S04	0.75R X 1.5	4	50	4							
2HCBE 015 040 S06	0.75R X 1.5	4	50	6							
2HCBE 020 050 S04	1R X 2	5	50	4							
2HCBE 020 050 S06	1R X 2	5	50	6							
2HCBE 025 050 S04	1.25R X 2.5	5	50	4							
2HCBE 025 050 S06	1.25R X 2.5	5	50	6							
2HCBE 030 060 S04	1.5R X 3	6	50	4							
2HCBE 030 060 S06	1.5R X 3	6	50	6							
2HCBE 030 060 060	1.5R X 3	6	60	6							
2HCBE 040 080 S04	2R X 4	8	50	4							
2HCBE 040 080 080	2R X 4	8	80	4							
2HCBE 040 080 S06	2R X 4	8	50	6							
2HCBE 040 080 070	2R X 4	8	70	6							
2HCBE 050 100 S06	2.5R X 5	10	50	6							
2HCBE 050 120 S06	2.5R X 5	12	80	6							
2HCBE 060 100 050	3R X 6	10	50	6							
2HCBE 060 100 060	3R X 6	10	60	6							
2HCBE 060 120 080	3R X 6	12	80	6							
2HCBE 060 120 100	3R X 6	12	100	6							
2HCBE 080 120 060	4R X 8	12	60	8							
2HCBE 080 140 080	4R X 8	14	80	8							
2HCBE 080 140 100	4R X 8	14	100	8							
2HCBE 100 150 075	5R X 10	15	75	10							
2HCBE 100 180 100	5R X 10	18	100	10							
2HCBE 120 180 080	6R X 12	18	80	12							
2HCBE 120 220 110	6R X 12	22	110	12							
2HCBE 160 300 110	8R X 16	30	110	16							



- 중저경도강(HRC52이하), 프리하트강 계열, 탄소강, 금형강 등 다양한 피삭재 가공 엔드밀
- 고품량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절삭력이 높은 미립자 초경합금(0.5μm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), prehardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.

2

WC  
미립자

BLUE  
Coating

D  
+0 -0.01  
ø0.2~ø5

D  
-0.01 -0.025  
ø6~ø12

D  
-0.015 -0.03  
ø16

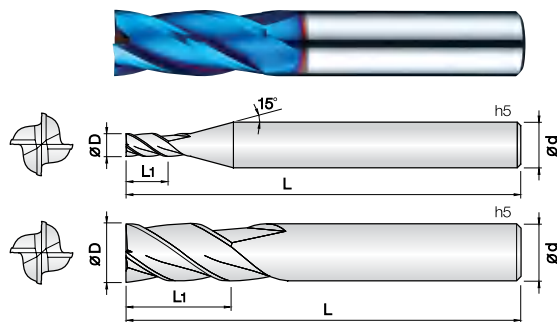
30°  
Helix Angle

Shield Edge

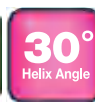
D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샹크 Dia d	비고
2HCEE 002 004 S04	0.2	0.4	40	4	
2HCEE 003 006 S04	0.3	0.6	40	4	
2HCEE 004 008 S04	0.4	0.8	40	4	
2HCEE 005 010 S04	0.5	1	40	4	
2HCEE 006 012 S04	0.6	1.2	40	4	
2HCEE 007 014 S04	0.7	1.4	40	4	
2HCEE 008 016 S04	0.8	1.6	40	4	
2HCEE 009 018 S04	0.9	1.8	40	4	
2HCEE 010 025 S04	1	2.5	45	4	
2HCEE 012 030 S04	1.2	3	45	4	
2HCEE 015 040 S04	1.5	4	45	4	
2HCEE 020 060 S04	2	6	45	4	
2HCEE 025 080 S04	2.5	8	45	4	
2HCEE 030 080 S04	3	8	50	4	
2HCEE 030 080 S06	3	8	50	6	
2HCEE 040 110 S04	4	11	50	4	
2HCEE 040 110 S06	4	11	50	6	
2HCEE 050 130 S06	5	13	50	6	
2HCEE 060 130 050	6	13	50	6	
2HCEE 060 160 055	6	16	55	6	
2HCEE 080 200 060	8	20	60	8	
2HCEE 080 240 070	8	24	70	8	
2HCEE 100 220 070	10	22	70	10	
2HCEE 100 250 075	10	25	75	10	
2HCEE 120 260 075	12	26	75	12	
2HCEE 120 300 080	12	30	80	12	
2HCEE 160 400 090	16	40	90	16	



- 중저경도강(HRC52이하), 프리하트강 계열, 탄소강, 금형강 등 다양한 피삭재 가공 엔드밀
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- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRC52), prehardened steel, carbon steel, mold steel.
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

 $\varnothing$ 1~ $\varnothing$ 5 $\varnothing$ 6~ $\varnothing$ 12 $\varnothing$ 16

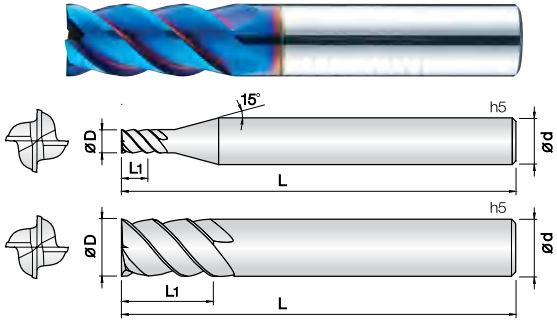
Shield Edge

D Size	D Tolerance
$\varnothing$ 1 ~ 5	+0 ~ -0.01mm
$\varnothing$ 6 ~ 12	-0.01 ~ -0.025mm
$\varnothing$ 16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
4HCEE 010 025 S04	1	2.5	45	4						
4HCEE 015 040 S04	1.5	4	45	4						
4HCEE 020 060 S04	2	6	45	4						
4HCEE 025 080 S04	2.5	8	45	4						
4HCEE 030 080 S04	3	8	50	4						
4HCEE 030 080 S06	3	8	50	6						
4HCEE 040 110 S04	4	11	50	4						
4HCEE 040 110 S06	4	11	50	6						
4HCEE 050 130 S06	5	13	50	6						
4HCEE 060 130 050	6	13	50	6						
4HCEE 060 160 055	6	16	55	6						
4HCEE 080 200 060	8	20	60	8						
4HCEE 080 240 070	8	24	70	8						
4HCEE 100 220 070	10	22	70	10						
4HCEE 100 250 075	10	25	75	10						
4HCEE 120 260 075	12	26	75	12						
4HCEE 120 300 080	12	30	80	12						
4HCEE 160 400 090	16	40	90	16						

## 4날 고속·강력 절삭용 45° 헬릭스 엔드밀



- 중저경도강(HRC52이하), 프리하트강 계열, 탄소강, 금형강 등 다양한 피삭재 가공 엔드밀
- 고풍량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5μm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), prehardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- 45° degree helix design for high speed, feed condition.
- Minimize fracturing by high TRS fine(0.5μm) WC grade.

E series

4

WC  
미립자

BLUE  
Coating

|D|  
+0 -0.01

|D|  
-0.01 -0.025

|D|  
-0.015 -0.03

45°  
Helix Angle

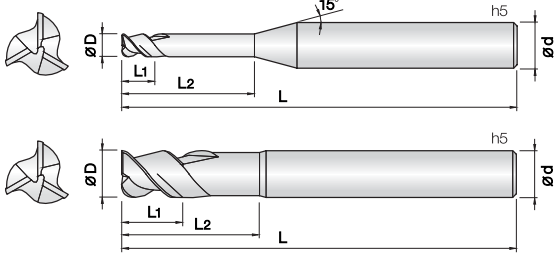
Shield Edge

Ø1~Ø5    Ø6~Ø12    Ø14~Ø16

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø14 ~ 16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고				
4HEME 010 025 S04	1	2.5	40	4					
4HEME 010 035 S04	1	3.5	40	4					
4HEME 012 030 S04	1.2	3	40	4					
4HEME 015 040 S04	1.5	4	40	4					
4HEME 015 060 S04	1.5	6	40	4					
4HEME 020 050 S04	2	5	40	4					
4HEME 020 080 S04	2	8	45	4					
4HEME 030 080 S06	3	8	45	6					
4HEME 030 120 S06	3	12	50	6					
4HEME 040 110 S06	4	11	45	6					
4HEME 040 160 S06	4	16	55	6					
4HEME 050 130 S06	5	13	50	6					
4HEME 050 180 S06	5	18	60	6					
4HEME 060 130 S06	6	13	50	6					
4HEME 060 200 S06	6	20	60	6					
4HEME 080 200 S08	8	20	60	8					
4HEME 080 250 S08	8	25	70	8					
4HEME 080 300 S08	8	30	75	8					
4HEME 100 220 S10	10	22	70	10					
4HEME 100 300 S10	10	30	80	10					
4HEME 100 400 S10	10	40	90	10					
4HEME 120 260 S12	12	26	75	12					
4HEME 120 400 S12	12	40	90	12					
4HEME 120 500 S12	12	50	100	12					
4HEME 140 300 S14	14	30	80	14					
4HEME 140 500 S14	14	50	110	14					
4HEME 160 350 S16	16	35	90	16					
4HEME 160 500 S16	16	50	110	16					



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강, SUS계열, Ti/Ni계 합금, 인코넬 등 다양한 피삭재 가공 엔드밀
- 고함량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 3날 적용 및 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel, SUS, Ti/Ni-base alloy, Inconel.**
- Good wear resistance by high quality Si-based PVD coating.
- Excellent work surface finish by 3 flute and deep chip pocket.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

3

WC  
미립자

BLUE  
Coating

|D|  
+0 -0.01

|D|  
-0.01 -0.025

45°  
Helix Angle

Shield Edge

D Size	D Tolerance
$\varnothing 1 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.01 ~ -0.025mm

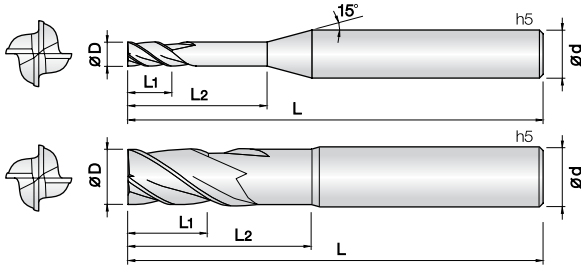
E series

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
3NSE 010 025 S04	1	2.5	45	4						
3NSE 012 030 S04	1.2	3	45	4						
3NSE 015 040 S04	1.5	4	45	4						
3NSE 020 060 S04	2	6	45	4						
3NSE 030 080 S06	3	8	45	6						
3NSE 040 110 S06	4	11	50	6						
3NSE 050 130 S06	5	13	50	6						
3NSE 060 130 S06	6	13	55	6						
3NSE 080 190 S08	8	19	60	8						
3NSE 100 220 S10	10	22	70	10						
3NSE 120 260 S12	12	26	80	12						

단위 : mm



## 4날 강력 절삭용 엔드밀



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강, SUS계열, Ti/Ni계 합금, 인코넬 등 다양한 피삭재 가공 엔드밀
- 고효율 실리코네 코팅(Si)처리하여 내마모성이 우수합니다.
- 강력한 체터링방지 설계로 엔드밀의 진동을 최소화하였습니다
- 항절력이 높은 미립자 초경합금(0.5µm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel, SUS, Ti/Ni-base alloy, Inconel.**
- Good wear resistance by high quality Si-based PVD coating.
- Minimize chattering by unequal flute spacing design.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

E series

4

WC  
미립자

BLUE  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015-0.03

42°  
Helix Angle

다중  
분할

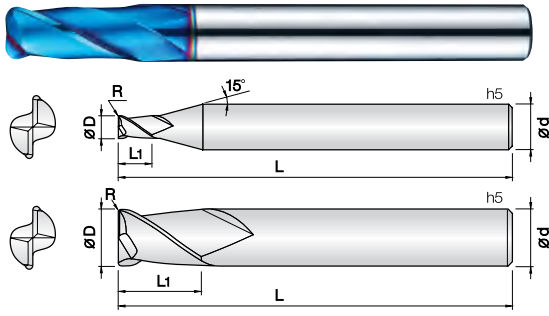
Ø1~Ø5      Ø6~Ø12      Ø16~Ø20      Shield Edge      Multi-Flute

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홅크 Shank Dia d	비고													
4NSE 010 025 S04	1	2.5	-	45	4														
4NSE 010 040 S04	1	2.5	4	45	4														
4NSE 012 030 S04	1.2	3	-	45	4														
4NSE 012 050 S04	1.2	3	5	45	4														
4NSE 015 040 S04	1.5	4	-	45	4														
4NSE 015 060 S04	1.5	4	6	45	4														
4NSE 020 060 S04	2	6	-	45	4														
4NSE 020 100 S04	2	6	10	45	4														
4NSE 025 070 S04	2.5	7	-	45	4														
4NSE 025 100 S04	2.5	7	10	45	4														
4NSE 030 080 S06	3	8	-	50	6														
4NSE 030 100 S06	3	10	-	50	6														
4NSE 030 120 S06	3	8	12	50	6														
4NSE 040 100 S06	4	10	-	50	6														
4NSE 040 120 S06	4	12	-	50	6														
4NSE 040 160 S06	4	10	16	50	6														
4NSE 050 120 S06	5	12	-	55	6														
4NSE 050 160 S06	5	16	-	55	6														
4NSE 050 200 S06	5	12	20	55	6														
4NSE 060 130 S06	6	13	-	55	6														
4NSE 060 180 S06	6	18	-	55	6														
4NSE 060 210 055	6	13	21	55	6														
4NSE 080 200 S08	8	20	-	60	8														
4NSE 080 250 S08	8	25	-	70	8														
4NSE 080 270 070	8	20	27	70	8														
4NSE 100 220 S10	10	22	-	70	10														
4NSE 100 300 S10	10	30	-	75	10														
4NSE 100 320 075	10	22	32	75	10														
4NSE 120 260 S12	12	26	-	75	12														
4NSE 120 300 S12	12	30	-	80	12														
4NSE 120 380 080	12	26	38	80	12														
4NSE 160 450 S16	16	35	45	90	16														
4NSE 200 520 S20	20	40	52	100	20														

## 2날 강력 절삭용 코너 레디우스 엔드밀



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 가공
- 고품량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality Si-based PVD coating.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

2

WC  
미립자

BLUE  
Coating

R  
 $\pm 0.005$

R  
 $\pm 0.01$

R  
 $\pm 0.015$

D  
 $+0-0.01$

D  
 $-0.005-0.015$

30°  
Helix Angle

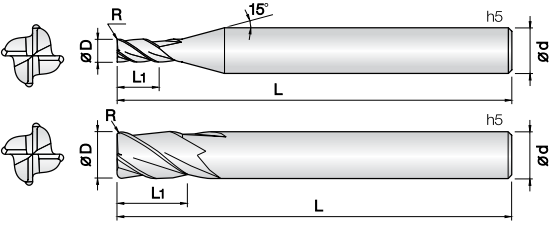
0.1 ~ 0.5R
1 ~ 1.5R
2R
 $\phi 1 \sim \phi 5$ 
 $\phi 6 \sim \phi 12$

D Size	D Tolerance
$\phi 1 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2NCRE 010 001 S04	1 X R0.1	3	50	4		2NCRE 120 020 110	12 X R2	26	110	12	
2NCRE 010 002 S04	1 X R0.2	3	50	4							
2NCRE 010 003 S04	1 X R0.3	3	50	4							
2NCRE 015 001 S04	1.5 X R0.1	4	50	4							
2NCRE 015 002 S04	1.5 X R0.2	4	50	4							
2NCRE 015 003 S04	1.5 X R0.3	4	50	4							
2NCRE 015 005 S04	1.5 X R0.5	4	50	4							
2NCRE 020 001 S04	2 X R0.1	6	50	4							
2NCRE 020 002 S04	2 X R0.2	6	50	4							
2NCRE 020 003 S04	2 X R0.3	6	50	4							
2NCRE 020 005 S04	2 X R0.5	6	50	4							
2NCRE 025 001 S04	2.5 X R0.1	6	50	4							
2NCRE 025 002 S04	2.5 X R0.2	6	50	4							
2NCRE 025 003 S04	2.5 X R0.3	6	50	4							
2NCRE 025 005 S04	2.5 X R0.5	6	50	4							
2NCRE 030 001 S06	3 X R0.1	8	60	6							
2NCRE 030 002 S06	3 X R0.2	8	60	6							
2NCRE 030 003 S06	3 X R0.3	8	60	6							
2NCRE 030 005 S06	3 X R0.5	8	60	6							
2NCRE 030 010 S06	3 X R1	8	60	6							
2NCRE 040 001 S04	4 X R0.1	10	50	4							
2NCRE 040 001 S06	4 X R0.1	10	70	6							
2NCRE 040 002 S04	4 X R0.2	10	50	4							
2NCRE 040 002 S06	4 X R0.2	10	70	6							
2NCRE 040 003 S04	4 X R0.3	10	50	4							
2NCRE 040 003 S06	4 X R0.3	10	70	6							
2NCRE 040 005 S04	4 X R0.5	10	50	4							
2NCRE 040 005 S06	4 X R0.5	10	70	6							
2NCRE 040 010 S04	4 X R1	10	50	4							
2NCRE 040 010 S06	4 X R1	10	70	6							
2NCRE 050 001 S06	5 X R0.1	13	75	6							
2NCRE 050 002 S06	5 X R0.2	13	75	6							
2NCRE 050 003 S06	5 X R0.3	13	75	6							
2NCRE 050 005 S06	5 X R0.5	13	75	6							
2NCRE 050 010 S06	5 X R1	13	75	6							
2NCRE 060 002 080	6 X R0.2	13	80	6							
2NCRE 060 003 080	6 X R0.3	13	80	6							
2NCRE 060 005 080	6 X R0.5	13	80	6							
2NCRE 060 010 080	6 X R1	13	80	6							
2NCRE 080 003 090	8 X R0.3	19	90	8							
2NCRE 080 005 090	8 X R0.5	19	90	8							
2NCRE 080 010 090	8 X R1	19	90	8							
2NCRE 100 003 100	10 X R0.3	22	100	10							
2NCRE 100 005 100	10 X R0.5	22	100	10							
2NCRE 100 010 100	10 X R1	22	100	10							
2NCRE 120 003 110	12 X R0.3	26	110	12							
2NCRE 120 005 110	12 X R0.5	26	110	12							
2NCRE 120 010 110	12 X R1	26	110	12							

## 4날 강력 절삭용 코너 레디우스 엔드밀



- 중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강 등 가공
- 고품량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality Si-based PVD coating.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

4

WC  
미립자

BLUE  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

D  
+0-0.01

D  
-0.005-0.015

30°  
Helix Angle

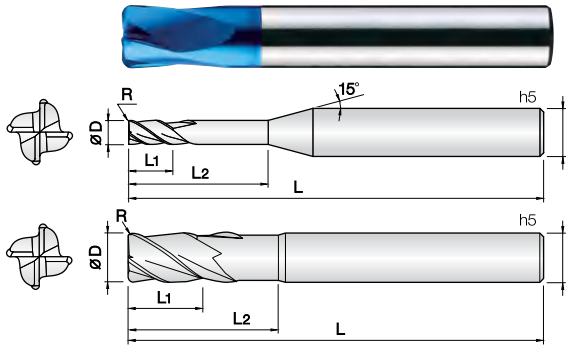
0.1 ~ 0.5R
1 ~ 1.5R
2R
Ø1~Ø5
Ø6~Ø12

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 D x R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 D x R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4NCRE 010 001 S04	1 X R0.1	3	50	4		4NCRE 050 002 075	5 X R0.2	13	75	6	
4NCRE 010 002 S04	1 X R0.2	3	50	4		4NCRE 050 003 S06	5 X R0.3	10	50	6	
4NCRE 010 003 S04	1 X R0.3	3	50	4		4NCRE 050 003 075	5 X R0.3	13	75	6	
4NCRE 015 001 S04	1.5 X R0.1	4	50	4		4NCRE 050 005 S06	5 X R0.5	10	50	6	
4NCRE 015 002 S04	1.5 X R0.2	4	50	4		4NCRE 050 005 075	5 X R0.5	13	75	6	
4NCRE 015 003 S04	1.5 X R0.3	4	50	4		4NCRE 050 010 S06	5 X R1	10	50	6	
4NCRE 015 005 S04	1.5 X R0.5	4	50	4		4NCRE 050 010 075	5 X R1	13	75	6	
4NCRE 020 001 S04	2 X R0.1	6	50	4		4NCRE 060 001 050	6 X R0.1	10	50	6	
4NCRE 020 002 S04	2 X R0.2	6	50	4		4NCRE 060 001 080	6 X R0.1	13	80	6	
4NCRE 020 003 S04	2 X R0.3	6	50	4		4NCRE 060 002 050	6 X R0.2	10	50	6	
4NCRE 020 005 S04	2 X R0.5	6	50	4		4NCRE 060 002 080	6 X R0.2	13	80	6	
4NCRE 025 001 S04	2.5 X R0.1	6	50	4		4NCRE 060 003 050	6 X R0.3	10	50	6	
4NCRE 025 002 S04	2.5 X R0.2	6	50	4		4NCRE 060 003 080	6 X R0.3	13	80	6	
4NCRE 025 003 S04	2.5 X R0.3	6	50	4		4NCRE 060 005 050	6 X R0.5	10	50	6	
4NCRE 025 005 S04	2.5 X R0.5	6	50	4		4NCRE 060 005 080	6 X R0.5	13	80	6	
4NCRE 030 001 S04	3 X R0.1	8	50	4		4NCRE 060 010 050	6 X R1	10	50	6	
4NCRE 030 001 S06	3 X R0.1	8	50	6		4NCRE 060 010 080	6 X R1	13	80	6	
4NCRE 030 001 060	3 X R0.1	8	60	6		4NCRE 080 002 060	8 X R0.2	16	60	8	
4NCRE 030 002 S04	3 X R0.2	8	50	4		4NCRE 080 002 090	8 X R0.2	19	90	8	
4NCRE 030 002 S06	3 X R0.2	8	50	6		4NCRE 080 003 060	8 X R0.3	16	60	8	
4NCRE 030 002 060	3 X R0.2	8	60	6		4NCRE 080 003 090	8 X R0.3	19	90	8	
4NCRE 030 003 S04	3 X R0.3	8	50	4		4NCRE 080 005 060	8 X R0.5	16	60	8	
4NCRE 030 003 S06	3 X R0.3	8	50	6		4NCRE 080 005 090	8 X R0.5	19	90	8	
4NCRE 030 003 060	3 X R0.3	8	60	6		4NCRE 080 010 060	8 X R1	16	60	8	
4NCRE 030 005 S04	3 X R0.5	8	50	4		4NCRE 080 010 090	8 X R1	19	90	8	
4NCRE 030 005 S06	3 X R0.5	8	50	6		4NCRE 080 020 060	8 X R2	16	60	8	
4NCRE 030 005 060	3 X R0.5	8	60	6		4NCRE 080 020 090	8 X R2	19	90	8	
4NCRE 030 010 S04	3 X R1	8	50	4		4NCRE 100 002 075	10 X R0.2	18	75	10	
4NCRE 030 010 S06	3 X R1	8	50	6		4NCRE 100 002 100	10 X R0.2	22	100	10	
4NCRE 030 010 060	3 X R1	8	60	6		4NCRE 100 003 075	10 X R0.3	18	75	10	
4NCRE 040 001 S04	4 X R0.1	10	50	4		4NCRE 100 003 100	10 X R0.3	22	100	10	
4NCRE 040 001 S06	4 X R0.1	10	50	6		4NCRE 100 005 075	10 X R0.5	18	75	10	
4NCRE 040 001 070	4 X R0.1	10	70	6		4NCRE 100 005 100	10 X R0.5	22	100	10	
4NCRE 040 002 S04	4 X R0.2	10	50	4		4NCRE 100 010 075	10 X R1	18	75	10	
4NCRE 040 002 S06	4 X R0.2	10	50	6		4NCRE 100 010 100	10 X R1	22	100	10	
4NCRE 040 002 070	4 X R0.2	10	70	6		4NCRE 100 020 075	10 X R2	18	75	10	
4NCRE 040 003 S04	4 X R0.3	10	50	4		4NCRE 100 020 100	10 X R2	22	100	10	
4NCRE 040 003 S06	4 X R0.3	10	50	6		4NCRE 120 002 075	12 X R0.2	22	75	12	
4NCRE 040 003 070	4 X R0.3	10	70	6		4NCRE 120 002 110	12 X R0.2	26	110	12	
4NCRE 040 005 S04	4 X R0.5	10	50	4		4NCRE 120 003 075	12 X R0.3	22	75	12	
4NCRE 040 005 S06	4 X R0.5	10	50	6		4NCRE 120 003 110	12 X R0.3	26	110	12	
4NCRE 040 005 070	4 X R0.5	10	70	6		4NCRE 120 005 075	12 X R0.5	22	75	12	
4NCRE 040 010 S04	4 X R1	10	50	4		4NCRE 120 005 110	12 X R0.5	26	110	12	
4NCRE 040 010 S06	4 X R1	10	50	6		4NCRE 120 010 075	12 X R1	22	75	12	
4NCRE 040 010 070	4 X R1	10	70	6		4NCRE 120 010 110	12 X R1	26	110	12	
4NCRE 050 001 S06	5 X R0.1	10	50	6		4NCRE 120 020 075	12 X R2	22	75	12	
4NCRE 050 001 075	5 X R0.1	13	75	6		4NCRE 120 020 110	12 X R2	26	110	12	
4NCRE 050 002 S06	5 X R0.2	10	50	6							

## 4날 강력 절삭용 고이송 코너 레디우스 커터



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 가공
- 고풍량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능 하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.**
- Good wear resistance by high quality 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

WC  
미립자

BLUE  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

D  
+0-0.01

D  
-0.005-0.015

15°  
Helix Angle

0.2 ~ 0.5R    1 ~ 1.5R    2 ~ 3R    Ø1~Ø5    Ø6~Ø12

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

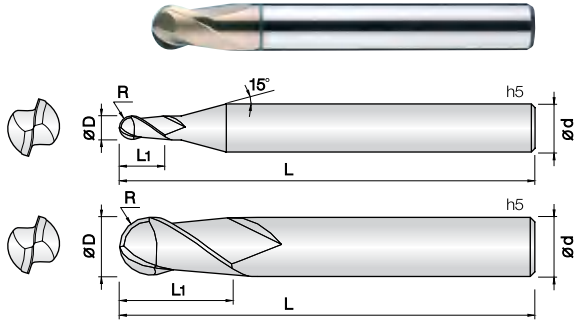
E series

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홅크 Shank Dia d	비고										
4RCUE 010 002 025	1 X R0.2	0.75	2.5	50	4											
4RCUE 015 005 040	1.5 X R0.5	1.2	4	50	4											
4RCUE 020 005 060	2 X R0.5	1.5	6	50	6											
4RCUE 030 005 080	3 X R0.5	2.3	8	50	6											
4RCUE 040 005 120	4 X R0.5	3	12	60	6											
4RCUE 040 005 160	4 X R0.5	3	16	60	6											
4RCUE 040 010 120	4 X R1	3	12	60	6											
4RCUE 040 010 160	4 X R1	3	16	60	6											
4RCUE 050 005 150	5 X R0.5	4	15	60	6											
4RCUE 050 010 150	5 X R1	4	15	60	6											
4RCUE 060 005 150	6 X R0.5	4.5	15	60	6											
4RCUE 060 005 250	6 X R0.5	4.5	25	80	6											
4RCUE 060 010 150	6 X R1	4.5	15	60	6											
4RCUE 060 010 250	6 X R1	4.5	25	80	6											
4RCUE 060 015 150	6 X R1.5	4.5	15	60	6											
4RCUE 060 015 250	6 X R1.5	4.5	25	80	6											
4RCUE 080 005 200	8 X R0.5	6	20	60	8											
4RCUE 080 005 300	8 X R0.5	6	30	90	8											
4RCUE 080 010 200	8 X R1	6	20	60	8											
4RCUE 080 010 300	8 X R1	6	30	90	8											
4RCUE 080 020 200	8 X R2	6	20	60	8											
4RCUE 080 020 300	8 X R2	6	30	90	8											
4RCUE 100 005 250	10 X R0.5	7.5	25	70	10											
4RCUE 100 005 400	10 X R0.5	7.5	40	100	10											
4RCUE 100 010 250	10 X R1	7.5	25	70	10											
4RCUE 100 010 400	10 X R1	7.5	40	100	10											
4RCUE 100 020 250	10 X R2	7.5	25	70	10											
4RCUE 100 020 400	10 X R2	7.5	40	100	10											
4RCUE 120 005 300	12 X R0.5	9	30	80	12											
4RCUE 120 005 400	12 X R0.5	9	40	100	12											
4RCUE 120 010 300	12 X R1	9	30	80	12											
4RCUE 120 010 400	12 X R1	9	40	100	12											
4RCUE 120 020 300	12 X R2	9	30	80	12											
4RCUE 120 020 400	12 X R2	9	40	100	12											
4RCUE 120 030 300	12 X R3	9	30	80	12											







• 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공

• JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.

• 고정밀 공차 적용으로 초정밀 가공에 적합합니다.  
• 짧은 전장을 채택하여 열박음척 사용이 용이합니다.  
• 항절력이 높은 미립자 초경합금(0.5µm)을 채택, 엔드밀의 파손을 최소화 하였습니다.

• Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.

• Optimum for various work materials by JCRO coating.  
• High precise edge tolerance.  
• Short overall length for easy use with shrinking chuck  
• Minimize fracturing by high TRS fine(0.5 µm) WC grade.

2

WC  
미립자

JCRO  
Coating

R  
±0.005

R  
±0.01

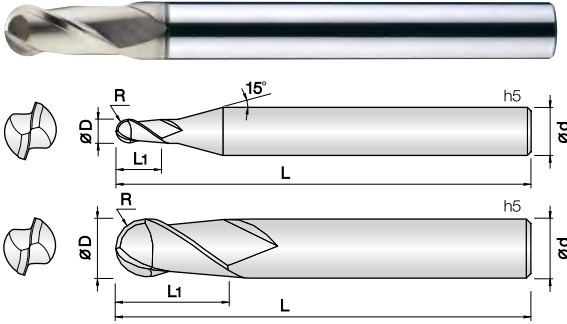
35°  
Helix Angle

0.1R ~ 2.5R
3R ~ 6R

D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	생크 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							



- 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

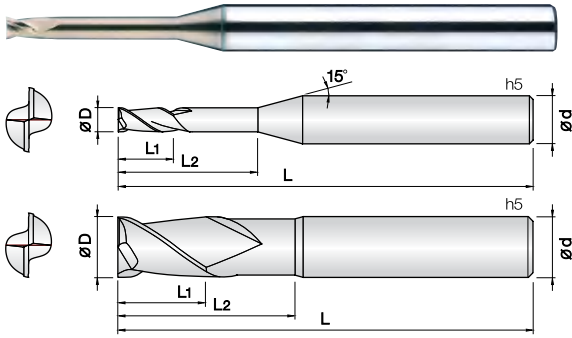


D Size	D Tolerance
∅0.2 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm
∅16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2HCBG 001 002 S04	0.05R X 0.1	0.2	40	4		2HCBG 080 140 090	4R X 8	14	90	8	
2HCBG 0015 003 S04	0.075R X 0.15	0.3	40	4		2HCBG 080 140 110	4R X 8	14	110	8	
2HCBG 002 004 S04	0.1R X 0.2	0.4	40	4		2HCBG 080 140 150	4R X 8	14	150	8	
2HCBG 003 006 S04	0.15R X 0.3	0.6	40	4		2HCBG 090 160 S10	4.5R X 9	16	100	10	
2HCBG 004 008 S04	0.2R X 0.4	0.8	40	4		2HCBG 100 150 070	5R X 10	15	70	10	
2HCBG 005 010 S04	0.25R X 0.5	1	45	4		2HCBG 100 180 100	5R X 10	18	100	10	
2HCBG 006 012 S04	0.3R X 0.6	1.2	45	4		2HCBG 100 180 120	5R X 10	18	120	10	
2HCBG 007 015 S04	0.35R X 0.7	1.5	45	4		2HCBG 100 180 150	5R X 10	18	150	10	
2HCBG 008 020 S04	0.4R X 0.8	2	45	4		2HCBG 100 180 180	5R X 10	18	180	10	
2HCBG 009 020 S04	0.45R X 0.9	2	45	4		2HCBG 110 200 S12	5.5R X 11	20	110	12	
2HCBG 010 025 S04	0.5R X 1	2.5	50	4		2HCBG 120 180 070	6R X 12	18	70	12	
2HCBG 010 025 S06	0.5R X 1	2.5	50	6		2HCBG 120 220 110	6R X 12	22	110	12	
2HCBG 010 025 070	0.5R X 1	2.5	70	6		2HCBG 120 220 130	6R X 12	22	130	12	
2HCBG 010 025 100	0.5R X 1	2.5	100	6		2HCBG 120 220 150	6R X 12	22	150	12	
2HCBG 012 030 S04	0.6R X 1.2	3	50	4		2HCBG 120 220 200	6R X 12	22	200	12	
2HCBG 015 040 S04	0.75R X 1.5	4	50	4		2HCBG 130 240 S14	6.5R X 13	24	110	14	
2HCBG 015 040 S06	0.75R X 1.5	4	50	6		2HCBG 140 240 S14	7R X 14	24	110	14	
2HCBG 015 040 070	0.75R X 1.5	4	70	6		2HCBG 160 300 130	8R X 16	30	130	16	
2HCBG 015 040 100	0.75R X 1.5	4	100	6		2HCBG 160 300 160	8R X 16	30	160	16	
2HCBG 020 050 S04	1R X 2	5	50	4		2HCBG 160 300 200	8R X 16	30	200	16	
2HCBG 020 050 S06	1R X 2	5	50	6		2HCBG 200 380 160	10R X 20	38	160	20	
2HCBG 020 050 075	1R X 2	5	75	6		2HCBG 200 380 200	10R X 20	38	200	20	
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	60	6							
2HCBG 025 060 075	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							





- 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
ø0.1	+0 ~ -0.05mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

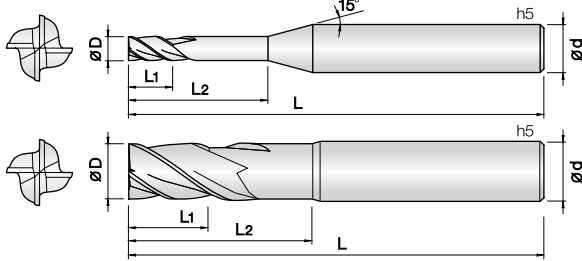
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프트 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프트 Shank Dia d	비고
2HREG 001 003 S04	0.1	0.3	-	40	4		2HREG 008 080 S04	0.8	0.9	8	45	4	
2HREG 001 005 S04	0.1	0.5	-	40	4		2HREG 008 100 S04	0.8	0.9	10	45	4	
2HREG 002 005 S04	0.2	0.3	0.5	40	4		2HREG 008 120 S04	0.8	0.9	12	45	4	
2HREG 002 010 S04	0.2	0.2	1	40	4		2HREG 008 140 S04	0.8	0.9	14	45	4	
2HREG 002 015 S04	0.2	0.2	1.5	40	4		2HREG 009 060 S04	0.9	1	6	45	4	
2HREG 002 020 S04	0.2	0.2	2	40	4		2HREG 009 080 S04	0.9	1	8	45	4	
2HREG 003 010 S04	0.3	0.3	1	40	4		2HREG 009 100 S04	0.9	1	10	45	4	
2HREG 003 015 S04	0.3	0.3	1.5	40	4		2HREG 010 020 S04	1	1.2	2	45	4	
2HREG 003 020 S04	0.3	0.3	2	40	4		2HREG 010 030 S04	1	1.2	3	45	4	
2HREG 003 030 S04	0.3	0.3	3	40	4		2HREG 010 040 S04	1	1.2	4	45	4	
2HREG 003 040 S04	0.3	0.3	4	40	4		2HREG 010 050 S04	1	1.2	5	45	4	
2HREG 003 050 S04	0.3	0.3	5	40	4		2HREG 010 060 S04	1	1.2	6	45	4	
2HREG 004 010 S04	0.4	0.5	1	40	4		2HREG 010 080 S04	1	1.2	8	45	4	
2HREG 004 020 S04	0.4	0.5	2	40	4		2HREG 010 100 S04	1	1.2	10	50	4	
2HREG 004 030 S04	0.4	0.5	3	40	4		2HREG 010 120 S04	1	1.2	12	50	4	
2HREG 004 040 S04	0.4	0.5	4	40	4		2HREG 010 140 S04	1	1.2	14	50	4	
2HREG 004 050 S04	0.4	0.5	5	40	4		2HREG 010 160 S04	1	1.2	16	50	4	
2HREG 004 060 S04	0.4	0.5	6	40	4		2HREG 010 180 S04	1	1.2	18	50	4	
2HREG 004 080 S04	0.4	0.5	8	40	4		2HREG 010 200 S04	1	1.2	20	50	4	
2HREG 004 100 S04	0.4	0.5	10	40	4		2HREG 010 250 S04	1	1.2	25	60	4	
2HREG 005 020 S04	0.5	0.6	2	45	4		2HREG 010 300 S04	1	1.2	30	70	4	
2HREG 005 030 S04	0.5	0.6	3	45	4		2HREG 012 040 S04	1.2	1.4	4	45	4	
2HREG 005 040 S04	0.5	0.6	4	45	4		2HREG 012 060 S04	1.2	1.4	6	45	4	
2HREG 005 050 S04	0.5	0.6	5	45	4		2HREG 012 080 S04	1.2	1.4	8	45	4	
2HREG 005 060 S04	0.5	0.6	6	45	4		2HREG 012 100 S04	1.2	1.4	10	50	4	
2HREG 005 080 S04	0.5	0.6	8	45	4		2HREG 012 120 S04	1.2	1.4	12	50	4	
2HREG 005 100 S04	0.5	0.6	10	45	4		2HREG 012 160 S04	1.2	1.4	16	50	4	
2HREG 005 120 S04	0.5	0.6	12	45	4		2HREG 012 200 S04	1.2	1.4	20	50	4	
2HREG 005 140 S04	0.5	0.6	14	45	4		2HREG 012 250 S04	1.2	1.4	25	60	4	
2HREG 006 020 S04	0.6	0.7	2	45	4		2HREG 012 300 S04	1.2	1.4	30	70	4	
2HREG 006 030 S04	0.6	0.7	3	45	4		2HREG 014 060 S04	1.4	1.6	6	45	4	
2HREG 006 040 S04	0.6	0.7	4	45	4		2HREG 014 080 S04	1.4	1.6	8	45	4	
2HREG 006 050 S04	0.6	0.7	5	45	4		2HREG 014 100 S04	1.4	1.6	10	50	4	
2HREG 006 060 S04	0.6	0.7	6	45	4		2HREG 014 140 S04	1.4	1.6	14	50	4	
2HREG 006 080 S04	0.6	0.7	8	45	4		2HREG 014 160 S04	1.4	1.6	16	50	4	
2HREG 006 100 S04	0.6	0.7	10	45	4		2HREG 014 200 S04	1.4	1.6	20	50	4	
2HREG 006 120 S04	0.6	0.7	12	45	4		2HREG 015 040 S04	1.5	1.8	4	45	4	
2HREG 006 140 S04	0.6	0.7	14	45	4		2HREG 015 060 S04	1.5	1.8	6	45	4	
2HREG 006 160 S04	0.6	0.7	16	45	4		2HREG 015 080 S04	1.5	1.8	8	45	4	
2HREG 007 020 S04	0.7	0.8	2	45	4		2HREG 015 100 S04	1.5	1.8	10	50	4	
2HREG 007 040 S04	0.7	0.8	4	45	4		2HREG 015 120 S04	1.5	1.8	12	50	4	
2HREG 007 060 S04	0.7	0.8	6	45	4		2HREG 015 140 S04	1.5	1.8	14	50	4	
2HREG 007 080 S04	0.7	0.8	8	45	4		2HREG 015 160 S04	1.5	1.8	16	50	4	
2HREG 007 100 S04	0.7	0.8	10	45	4		2HREG 015 180 S04	1.5	1.8	18	50	4	
2HREG 007 120 S04	0.7	0.8	12	45	4		2HREG 015 200 S04	1.5	1.8	20	50	4	
2HREG 008 020 S04	0.8	0.9	2	45	4		2HREG 015 250 S04	1.5	1.8	25	60	4	
2HREG 008 040 S04	0.8	0.9	4	45	4		2HREG 015 300 S04	1.5	1.8	30	70	4	
2HREG 008 060 S04	0.8	0.9	6	45	4		2HREG 016 100 S04	1.6	1.9	10	50	4	

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2HREG 016 140 S04	1.6	1.9	14	50	4		2HREG 040 200 S06	4	4.8	20	60	6	
2HREG 016 180 S04	1.6	1.9	18	50	4		2HREG 040 250 S06	4	4.8	25	65	6	
2HREG 018 100 S04	1.8	2.1	10	50	4		2HREG 040 300 S06	4	4.8	30	70	6	
2HREG 018 140 S04	1.8	2.1	14	50	4		2HREG 040 350 S06	4	4.8	35	75	6	
2HREG 018 180 S04	1.8	2.1	18	50	4		2HREG 040 400 S06	4	4.8	40	80	6	
2HREG 020 040 S04	2	2.4	4	45	4		2HREG 040 450 S06	4	4.8	45	90	6	
2HREG 020 060 S04	2	2.4	6	45	4		2HREG 040 500 S06	4	4.8	50	100	6	
2HREG 020 080 S04	2	2.4	8	45	4		2HREG 040 550 S06	4	4.8	55	100	6	
2HREG 020 100 S04	2	2.4	10	50	4		2HREG 040 600 S06	4	4.8	60	100	6	
2HREG 020 120 S04	2	2.4	12	50	4		2HREG 050 150 S06	5	6	15	55	6	
2HREG 020 140 S04	2	2.4	14	50	4		2HREG 050 200 S06	5	6	20	60	6	
2HREG 020 160 S04	2	2.4	16	50	4		2HREG 050 250 S06	5	6	25	70	6	
2HREG 020 180 S04	2	2.4	18	50	4		2HREG 050 300 S06	5	6	30	75	6	
2HREG 020 200 S04	2	2.4	20	50	4		2HREG 050 350 S06	5	6	35	75	6	
2HREG 020 220 S04	2	2.4	22	60	4		2HREG 050 400 S06	5	6	40	80	6	
2HREG 020 250 S04	2	2.4	25	60	4		2HREG 050 500 S06	5	6	50	100	6	
2HREG 020 300 S04	2	2.4	30	70	4		2HREG 050 600 S06	5	6	60	100	6	
2HREG 020 350 S04	2	2.4	35	70	4		2HREG 060 200 S06	6	10	20	60	6	
2HREG 020 400 S04	2	2.4	40	80	4		2HREG 060 300 S06	6	10	30	75	6	
2HREG 020 450 S04	2	2.4	45	80	4		2HREG 060 400 S06	6	10	40	80	6	
2HREG 020 500 S04	2	2.4	50	90	4		2HREG 060 500 S06	6	10	50	90	6	
2HREG 025 080 S04	2.5	3	8	45	4		2HREG 060 600 S06	6	10	60	110	6	
2HREG 025 100 S04	2.5	3	10	50	4		2HREG 080 200 S08	8	12	20	65	8	
2HREG 025 120 S04	2.5	3	12	50	4		2HREG 080 300 S08	8	12	30	80	8	
2HREG 025 160 S04	2.5	3	16	50	4		2HREG 080 400 S08	8	12	40	100	8	
2HREG 025 200 S04	2.5	3	20	50	4		2HREG 100 250 S10	10	15	25	70	10	
2HREG 025 250 S04	2.5	3	25	60	4		2HREG 100 350 S10	10	15	35	80	10	
2HREG 025 300 S04	2.5	3	30	70	4		2HREG 100 450 S10	10	15	45	100	10	
2HREG 025 350 S04	2.5	3	35	70	4		2HREG 120 300 S12	12	18	30	80	12	
2HREG 025 400 S04	2.5	3	40	80	4		2HREG 120 400 S12	12	18	40	100	12	
2HREG 025 500 S04	2.5	3	50	90	4		2HREG 120 500 S12	12	18	50	120	12	
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								

## 4날 범용 리브 엔드밀



• 중저경도강(HRc52이하), 프리하드강 계열, 탄소강, 금형강 등 다양한 피삭재 가공

- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.

• Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.

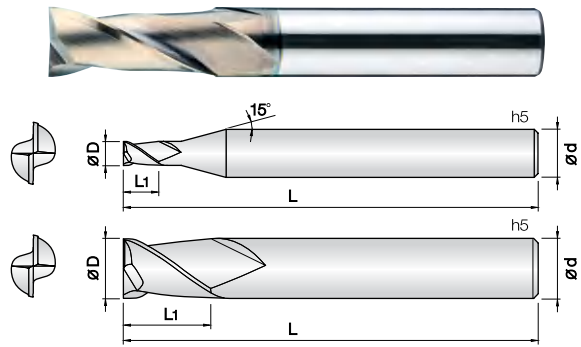
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
$\varnothing 0.8 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4HREG 008 020 S04	0.8	0.9	2	45	4		4HREG 030 160 S06	3	3.6	16	55	6	
4HREG 008 040 S04	0.8	0.9	4	45	4		4HREG 030 200 S06	3	3.6	20	60	6	
4HREG 008 060 S04	0.8	0.9	6	45	4		4HREG 030 250 S06	3	3.6	25	65	6	
4HREG 008 080 S04	0.8	0.9	8	45	4		4HREG 030 300 S06	3	3.6	30	70	6	
4HREG 008 100 S04	0.8	0.9	10	45	4		4HREG 030 350 S06	3	3.6	35	75	6	
4HREG 008 120 S04	0.8	0.9	12	45	4		4HREG 030 400 S06	3	3.6	40	80	6	
4HREG 008 160 S04	0.8	0.9	16	45	4		4HREG 040 100 S06	4	4.8	10	50	6	
4HREG 009 020 S04	0.9	1	2	45	4		4HREG 040 120 S06	4	4.8	12	50	6	
4HREG 009 060 S04	0.9	1	6	45	4		4HREG 040 160 S06	4	4.8	16	55	6	
4HREG 009 080 S04	0.9	1	8	45	4		4HREG 040 200 S06	4	4.8	20	60	6	
4HREG 009 100 S04	0.9	1	10	45	4		4HREG 040 250 S06	4	4.8	25	65	6	
4HREG 010 030 S04	1	1.2	3	45	4		4HREG 040 300 S06	4	4.8	30	70	6	
4HREG 010 040 S04	1	1.2	4	45	4		4HREG 040 400 S06	4	4.8	40	80	6	
4HREG 010 060 S04	1	1.2	6	45	4		4HREG 040 450 S06	4	4.8	45	90	6	
4HREG 010 080 S04	1	1.2	8	45	4		4HREG 040 500 S06	4	4.8	50	100	6	
4HREG 010 100 S04	1	1.2	10	50	4		4HREG 050 150 S06	5	6	15	55	6	
4HREG 010 120 S04	1	1.2	12	50	4		4HREG 050 200 S06	5	6	20	60	6	
4HREG 010 160 S04	1	1.2	16	50	4		4HREG 050 250 S06	5	6	25	65	6	
4HREG 010 200 S04	1	1.2	20	50	4		4HREG 050 300 S06	5	6	30	70	6	
4HREG 010 250 S04	1	1.2	25	60	4		4HREG 050 400 S06	5	6	40	80	6	
4HREG 012 060 S04	1.2	1.4	6	45	4		4HREG 050 500 S06	5	6	50	100	6	
4HREG 012 080 S04	1.2	1.4	8	45	4		4HREG 060 200 S06	6	10	20	60	6	
4HREG 012 100 S04	1.2	1.4	10	50	4		4HREG 060 300 S06	6	10	30	75	6	
4HREG 012 120 S04	1.2	1.4	12	50	4		4HREG 060 400 S06	6	10	40	80	6	
4HREG 012 160 S04	1.2	1.4	16	50	4		4HREG 060 500 S06	6	10	50	90	6	
4HREG 015 060 S04	1.5	1.8	6	45	4		4HREG 080 200 S08	8	12	20	65	8	
4HREG 015 080 S04	1.5	1.8	8	45	4		4HREG 080 300 S08	8	12	30	80	8	
4HREG 015 100 S04	1.5	1.8	10	50	4		4HREG 080 400 S08	8	12	40	100	8	
4HREG 015 120 S04	1.5	1.8	12	50	4		4HREG 100 250 S10	10	15	25	70	10	
4HREG 015 160 S04	1.5	1.8	16	50	4		4HREG 100 350 S10	10	15	35	90	10	
4HREG 015 200 S04	1.5	1.8	20	50	4		4HREG 100 450 S10	10	15	45	110	10	
4HREG 015 250 S04	1.5	1.8	25	60	4		4HREG 120 300 S12	12	18	30	80	12	
4HREG 020 060 S04	2	2.4	6	45	4		4HREG 120 400 S12	12	18	40	100	12	
4HREG 020 080 S04	2	2.4	8	45	4		4HREG 120 500 S12	12	18	50	120	12	
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								



- 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

2

WC  
미립자

JCRO  
Coating

D  
+0 -0.005

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

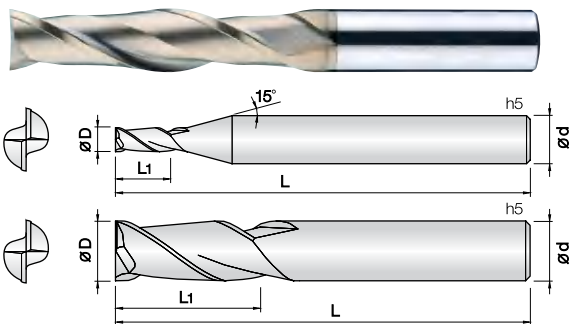
35°  
Helix Angle

Shield Edge

D Size	D Tolerance
ø0.1 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5.5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고
2HCEG 001 002 S04	0.1	0.2	40	4		2HCEG 025 080 S06	2.5	8	45	6	
2HCEG 0015 003 S04	0.15	0.3	40	4		2HCEG 025 080 070	2.5	8	70	6	
2HCEG 002 004 S04	0.2	0.4	40	4		2HCEG 026 080 S04	2.6	8	45	4	
2HCEG 0025 005 S04	0.25	0.5	40	4		2HCEG 027 080 S04	2.7	8	45	4	
2HCEG 003 006 S04	0.3	0.6	40	4		2HCEG 028 080 S04	2.8	8	45	4	
2HCEG 0035 007 S04	0.35	0.7	40	4		2HCEG 029 080 S04	2.9	8	45	4	
2HCEG 004 008 S04	0.4	0.8	40	4		2HCEG 030 030 S04	3	3	40	4	
2HCEG 0045 009 S04	0.45	0.9	40	4		2HCEG 030 080 S04	3	8	45	4	
2HCEG 005 010 S04	0.5	1	40	4		2HCEG 030 080 S06	3	8	45	6	
2HCEG 0055 011 S04	0.55	1.1	40	4		2HCEG 030 080 070	3	8	70	6	
2HCEG 006 012 S04	0.6	1.2	40	4		2HCEG 035 100 S06	3.5	10	45	6	
2HCEG 0065 013 S04	0.65	1.3	40	4		2HCEG 040 040 S04	4	4	40	4	
2HCEG 007 014 S04	0.7	1.4	40	4		2HCEG 040 100 S04	4	10	45	4	
2HCEG 0075 015 S04	0.75	1.5	40	4		2HCEG 040 110 S06	4	11	45	6	
2HCEG 008 016 S04	0.8	1.6	40	4		2HCEG 040 110 070	4	11	70	6	
2HCEG 0085 017 S04	0.85	1.7	40	4		2HCEG 045 110 S06	4.5	11	45	6	
2HCEG 009 020 S04	0.9	2	40	4		2HCEG 050 130 S06	5	13	50	6	
2HCEG 0095 020 S04	0.95	2	40	4		2HCEG 050 130 080	5	13	80	6	
2HCEG 010 010 S04	1	1	40	4		2HCEG 055 130 S06	5.5	13	50	6	
2HCEG 010 025 S04	1	2.5	40	4		2HCEG 060 060 S06	6	6	45	6	
2HCEG 010 025 S06	1	2.5	40	6		2HCEG 060 130 S06	6	13	50	6	
2HCEG 010 025 060	1	2.5	60	6		2HCEG 060 130 080	6	13	80	6	
2HCEG 010 040 S06	1	4	50	6		2HCEG 060 150 S06	6	15	60	6	
2HCEG 011 027 S04	1.1	2.7	40	4		2HCEG 065 160 S08	6.5	16	60	8	
2HCEG 012 012 S04	1.2	1.2	40	4		2HCEG 070 160 S08	7	16	60	8	
2HCEG 012 030 S04	1.2	3	40	4		2HCEG 075 160 S08	7.5	16	60	8	
2HCEG 012 030 S06	1.2	3	40	6		2HCEG 080 080 S08	8	8	50	8	
2HCEG 012 030 060	1.2	3	60	6		2HCEG 080 190 S08	8	19	60	8	
2HCEG 012 060 S06	1.2	6	50	6		2HCEG 080 200 S08	8	20	70	8	
2HCEG 013 032 S04	1.3	3.2	40	4		2HCEG 085 190 S10	8.5	19	70	10	
2HCEG 014 035 S04	1.4	3.5	40	4		2HCEG 090 190 S10	9	19	70	10	
2HCEG 015 015 S04	1.5	1.5	40	4		2HCEG 095 190 S10	9.5	19	70	10	
2HCEG 015 040 S04	1.5	4	40	4		2HCEG 100 100 S10	10	10	60	10	
2HCEG 015 040 S06	1.5	4	40	6		2HCEG 100 220 S10	10	22	70	10	
2HCEG 015 040 060	1.5	4	60	6		2HCEG 100 250 S10	10	25	75	10	
2HCEG 016 040 S04	1.6	4	40	4		2HCEG 105 220 S12	10.5	22	75	12	
2HCEG 017 042 S04	1.7	4.2	40	4		2HCEG 110 220 S12	11	22	75	12	
2HCEG 018 045 S04	1.8	4.5	40	4		2HCEG 115 220 S12	11.5	22	75	12	
2HCEG 019 050 S04	1.9	5	40	4		2HCEG 120 120 S12	12	12	65	12	
2HCEG 020 020 S04	2	2	40	4		2HCEG 120 260 S12	12	26	75	12	
2HCEG 020 060 S04	2	6	40	4		2HCEG 120 300 S12	12	30	80	12	
2HCEG 020 060 S06	2	6	40	6		2HCEG 140 260 S14	14	26	80	14	
2HCEG 020 060 060	2	6	60	6		2HCEG 140 260 S16	14	26	85	16	
2HCEG 021 060 S04	2.1	6	40	4		2HCEG 160 350 S16	16	35	100	16	
2HCEG 022 060 S04	2.2	6	40	4		2HCEG 160 400 S16	16	40	100	16	
2HCEG 023 060 S04	2.3	6	40	4		2HCEG 180 350 S18	18	35	100	18	
2HCEG 024 080 S04	2.4	8	45	4		2HCEG 200 400 S20	20	40	100	20	
2HCEG 025 080 S04	2.5	8	45	4		2HCEG 200 500 S20	20	50	110	20	



- 중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치평을 최소화 하였습니다.
- **Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- Improve tool performance by even run-out and tolerance control.
- Various flute and overall length design for covering wide range applications as well as high efficiency machining.
- Minimize edge chipping by improving corner strength.

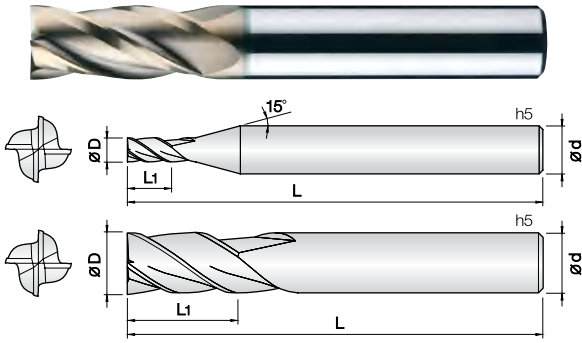


D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø14 ~ 25	-0.015 ~ -0.03mm

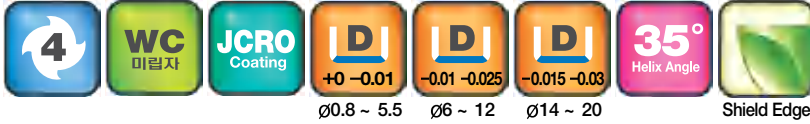
G series

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2LEMG 010 030 S06	1	3	60	6		2LEMG 160 400 160	16	40	160	16	
2LEMG 010 050 S06	1	5	60	6		2LEMG 160 550 S16	16	55	120	16	
2LEMG 010 070 S06	1	7	60	6		2LEMG 160 700 S16	16	70	130	16	
2LEMG 010 100 S06	1	10	60	6		2LEMG 160 800 S16	16	80	160	16	
2LEMG 010 150 S06	1	15	60	6		2LEMG 200 500 160	20	50	160	20	
2LEMG 015 060 S06	1.5	6	60	6		2LEMG 200 600 S20	20	60	130	20	
2LEMG 015 075 S06	1.5	7.5	60	6		2LEMG 200 1000 S20	20	100	200	20	
2LEMG 015 100 S06	1.5	10	60	6		2LEMG 250 750 S25	25	75	160	25	
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							



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

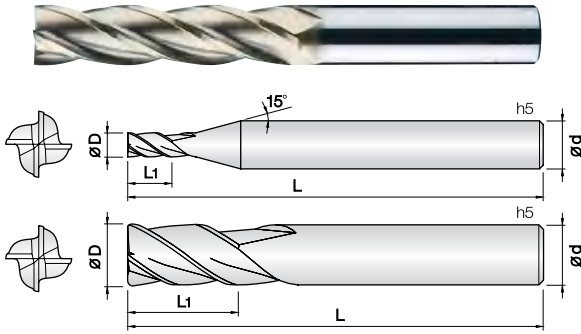


D Size	D Tolerance
ø0.8 ~ 5.5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4HCEG 008 020 S04	0.8	2	40	4		4HCEG 070 160 S08	7	16	60	8	
4HCEG 010 010 S04	1	1	40	4		4HCEG 075 160 S08	7.5	16	60	8	
4HCEG 010 025 S04	1	2.5	40	4		4HCEG 080 080 S08	8	8	50	8	
4HCEG 010 025 S06	1	2.5	40	6		4HCEG 080 190 S08	8	19	60	8	
4HCEG 010 025 060	1	2.5	60	6		4HCEG 080 200 S08	8	20	70	8	
4HCEG 010 025 080	1	2.5	80	6		4HCEG 085 190 S10	8.5	19	70	10	
4HCEG 010 040 S06	1	4	50	6		4HCEG 090 190 S10	9	19	70	10	
4HCEG 012 012 S04	1.2	1.2	40	4		4HCEG 095 190 S10	9.5	19	70	10	
4HCEG 012 030 S04	1.2	3	40	4		4HCEG 100 100 S10	10	10	60	10	
4HCEG 012 030 S06	1.2	3	40	6		4HCEG 100 220 S10	10	22	70	10	
4HCEG 012 030 060	1.2	3	60	6		4HCEG 100 250 S10	10	25	75	10	
4HCEG 012 060 S06	1.5	6	50	6		4HCEG 105 220 S12	10.5	22	75	12	
4HCEG 015 015 S04	1.5	1.5	40	4		4HCEG 110 220 S12	11	22	75	12	
4HCEG 015 040 S04	1.5	4	40	4		4HCEG 115 220 S12	11.5	22	75	12	
4HCEG 015 040 S06	1.5	4	40	6		4HCEG 120 120 S12	12	12	65	12	
4HCEG 015 040 060	1.5	4	60	6		4HCEG 120 260 S12	12	26	75	12	
4HCEG 015 040 080	1.5	4	80	6		4HCEG 120 300 S12	12	30	80	12	
4HCEG 020 020 S04	2	2	40	4		4HCEG 140 260 S14	14	26	80	14	
4HCEG 020 060 S04	2	6	40	4		4HCEG 140 260 S16	14	26	85	16	
4HCEG 020 060 S06	2	6	40	6		4HCEG 160 350 S16	16	35	100	16	
4HCEG 020 060 060	2	6	60	6		4HCEG 160 400 S16	16	40	100	16	
4HCEG 020 060 100	2	6	100	6		4HCEG 180 350 S18	18	35	100	18	
4HCEG 025 080 S04	2.5	8	45	4		4HCEG 200 400 S20	20	40	100	20	
4HCEG 025 080 S06	2.5	8	45	6		4HCEG 200 450 S20	20	45	100	20	
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							

## 4날 범용 긴 길이 엔드밀



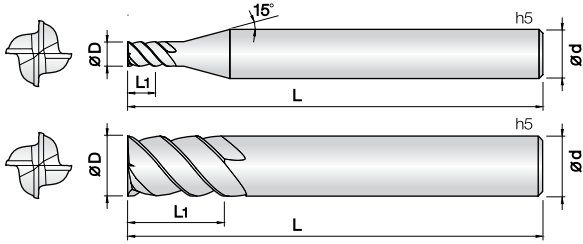
- 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- **Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- Improve tool performance by even run-out and tolerance control.
- Various flute and overall length design for covering wide range applications as well as high efficiency machining.
- Minimize edge chipping by improving corner strength.



D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø14 ~ 25	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	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 200 500 160	20	50	160	20	
4LEMG 010 050 S06	1	5	60	6		4LEMG 200 600 S20	20	60	130	20	
4LEMG 015 060 S06	1.5	6	60	6		4LEMG 200 1000 S20	20	100	200	20	
4LEMG 015 080 S06	1.5	8	60	6		4LEMG 250 750 S25	25	75	160	25	
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							
New 4LEMG 180 800 160	18	80	160	18							



- 중저경도강(HRc52이하), 프리하든강 계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 45° 헬릭스 형상으로 설계하여 고속,고이송 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for various work materials(~HRc52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- 45° degree helix design for high speed, feed condition.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

4

WC  
미립자

JCRO  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

Shield Edge

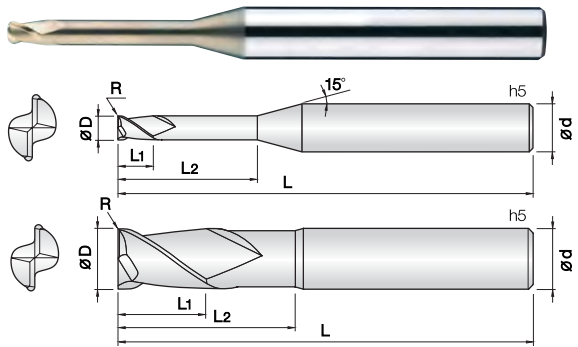
D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고										
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											

G series





- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화
- **Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



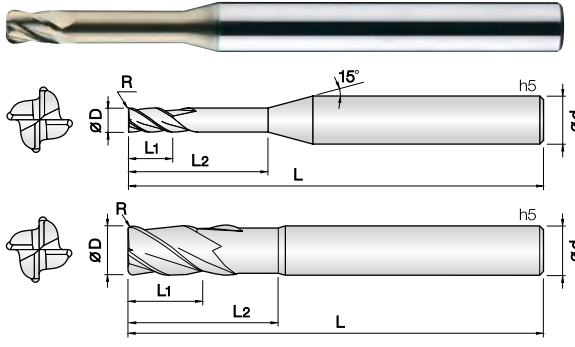
D Size	D Tolerance
∅0.2 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm
∅16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CREG 002 0002 010	0.2 X R0.02	0.2	1	40	4		2CREG 008 001 080	0.8 X R0.1	0.9	8	45	4	
2CREG 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2CREG 008 002 020	0.8 X R0.2	0.9	2	45	4	
2CREG 002 0005 010	0.2 X R0.05	0.2	1	40	4		2CREG 008 002 040	0.8 X R0.2	0.9	4	45	4	
2CREG 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2CREG 008 002 060	0.8 X R0.2	0.9	6	45	4	
2CREG 003 0005 010	0.3 X R0.05	0.3	1	40	4		2CREG 008 002 080	0.8 X R0.2	0.9	8	45	4	
2CREG 003 0005 020	0.3 X R0.05	0.3	2	40	4		2CREG 010 001 040	1 X R0.1	1.2	4	45	4	
2CREG 003 0005 030	0.3 X R0.05	0.3	3	40	4		2CREG 010 001 060	1 X R0.1	1.2	6	45	4	
2CREG 004 0005 010	0.4 X R0.05	0.5	1	40	4		2CREG 010 001 080	1 X R0.1	1.2	8	45	4	
2CREG 004 0005 020	0.4 X R0.05	0.5	2	40	4		2CREG 010 001 100	1 X R0.1	1.2	10	50	4	
2CREG 004 0005 030	0.4 X R0.05	0.5	3	40	4		2CREG 010 001 120	1 X R0.1	1.2	12	50	4	
2CREG 004 0005 040	0.4 X R0.05	0.5	4	40	4		2CREG 010 001 160	1 X R0.1	1.2	16	50	4	
2CREG 004 001 010	0.4 X R0.1	0.5	1	40	4		2CREG 010 001 200	1 X R0.1	1.2	20	50	4	
2CREG 004 001 015	0.4 X R0.1	0.5	1.5	40	4		2CREG 010 002 040	1 X R0.2	1.2	4	45	4	
2CREG 004 001 020	0.4 X R0.1	0.5	2	40	4		2CREG 010 002 060	1 X R0.2	1.2	6	45	4	
2CREG 004 001 030	0.4 X R0.1	0.5	3	40	4		2CREG 010 002 080	1 X R0.2	1.2	8	45	4	
2CREG 004 001 040	0.4 X R0.1	0.5	4	40	4		2CREG 010 002 100	1 X R0.2	1.2	10	50	4	
2CREG 005 0005 010	0.5 X R0.05	0.6	1	45	4		2CREG 010 002 120	1 X R0.2	1.2	12	50	4	
2CREG 005 0005 015	0.5 X R0.05	0.6	1.5	45	4		2CREG 010 002 160	1 X R0.2	1.2	16	50	4	
2CREG 005 0005 020	0.5 X R0.05	0.6	2	45	4		2CREG 010 002 200	1 X R0.2	1.2	20	50	4	
2CREG 005 0005 025	0.5 X R0.05	0.6	2.5	45	4		2CREG 010 003 040	1 X R0.3	1.2	4	45	4	
2CREG 005 0005 030	0.5 X R0.05	0.6	3	45	4		2CREG 010 003 060	1 X R0.3	1.2	6	45	4	
2CREG 005 0005 040	0.5 X R0.05	0.6	4	45	4		2CREG 010 003 080	1 X R0.3	1.2	8	45	4	
2CREG 005 0005 050	0.5 X R0.05	0.6	5	45	4		2CREG 010 003 100	1 X R0.3	1.2	10	50	4	
2CREG 005 0005 060	0.5 X R0.05	0.6	6	45	4		2CREG 010 003 120	1 X R0.3	1.2	12	50	4	
2CREG 005 001 010	0.5 X R0.1	0.6	1	45	4		2CREG 010 003 160	1 X R0.3	1.2	16	50	4	
2CREG 005 001 015	0.5 X R0.1	0.6	1.5	45	4		2CREG 010 003 200	1 X R0.3	1.2	20	50	4	
2CREG 005 001 020	0.5 X R0.1	0.6	2	45	4		2CREG 012 001 040	1.2 X R0.1	1.4	4	45	4	
2CREG 005 001 025	0.5 X R0.1	0.6	2.5	45	4		2CREG 012 001 060	1.2 X R0.1	1.4	6	45	4	
2CREG 005 001 030	0.5 X R0.1	0.6	3	45	4		2CREG 012 001 080	1.2 X R0.1	1.4	8	45	4	
2CREG 005 001 040	0.5 X R0.1	0.6	4	45	4		2CREG 012 001 100	1.2 X R0.1	1.4	10	50	4	
2CREG 005 001 050	0.5 X R0.1	0.6	5	45	4		2CREG 012 001 120	1.2 X R0.1	1.4	12	50	4	
2CREG 005 001 060	0.5 X R0.1	0.6	6	45	4		2CREG 012 001 160	1.2 X R0.1	1.4	16	50	4	
2CREG 006 0005 020	0.6 X R0.05	0.7	2	45	4		2CREG 012 001 200	1.2 X R0.1	1.4	20	50	4	
2CREG 006 0005 030	0.6 X R0.05	0.7	3	45	4		2CREG 012 002 040	1.2 X R0.2	1.4	4	45	4	
2CREG 006 0005 040	0.6 X R0.05	0.7	4	45	4		2CREG 012 002 060	1.2 X R0.2	1.4	6	45	4	
2CREG 006 0005 060	0.6 X R0.05	0.7	6	45	4		2CREG 012 002 080	1.2 X R0.2	1.4	8	45	4	
2CREG 006 0005 080	0.6 X R0.05	0.7	8	45	4		2CREG 012 002 100	1.2 X R0.2	1.4	10	50	4	
2CREG 006 001 020	0.6 X R0.1	0.7	2	45	4		2CREG 012 002 120	1.2 X R0.2	1.4	12	50	4	
2CREG 006 001 030	0.6 X R0.1	0.7	3	45	4		2CREG 012 002 160	1.2 X R0.2	1.4	16	50	4	
2CREG 006 001 040	0.6 X R0.1	0.7	4	45	4		2CREG 012 002 200	1.2 X R0.2	1.4	20	50	4	
2CREG 006 001 060	0.6 X R0.1	0.7	6	45	4		2CREG 012 003 040	1.2 X R0.3	1.4	4	45	4	
2CREG 006 001 080	0.6 X R0.1	0.7	8	45	4		2CREG 012 003 060	1.2 X R0.3	1.4	6	45	4	
2CREG 007 001 020	0.7 X R0.1	0.8	2	45	4		2CREG 012 003 080	1.2 X R0.3	1.4	8	45	4	
2CREG 007 001 040	0.7 X R0.1	0.8	4	45	4		2CREG 012 003 100	1.2 X R0.3	1.4	10	50	4	
2CREG 007 001 060	0.7 X R0.1	0.8	6	45	4		2CREG 012 003 120	1.2 X R0.3	1.4	12	50	4	
2CREG 008 001 020	0.8 X R0.1	0.9	2	45	4		2CREG 012 003 160	1.2 X R0.3	1.4	16	50	4	
2CREG 008 001 040	0.8 X R0.1	0.9	4	45	4		2CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
2CREG 008 001 060	0.8 X R0.1	0.9	6	45	4		2CREG 015 001 040	1.5 X R0.1	1.8	4	45	4	







- 중저경도강(HRC52이하), 프리하드강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화

**• Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.**

- Optimum for various work materials by JCROcoating.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

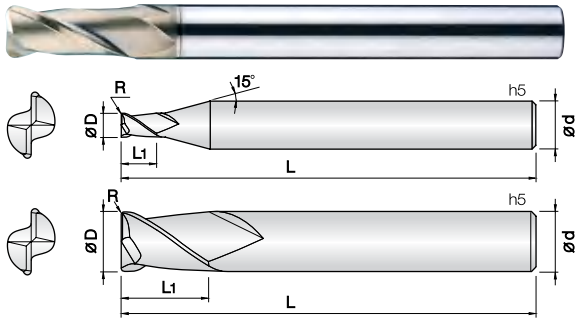
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4CREG 010 0005 040	1 X R0.05	1.2	4	45	4		4CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
4CREG 010 0005 060	1 X R0.05	1.2	6	45	4		4CREG 015 001 060	1.5 X R0.1	1.8	6	45	4	
4CREG 010 0005 080	1 X R0.05	1.2	8	45	4		4CREG 015 001 080	1.5 X R0.1	1.8	8	45	4	
4CREG 010 0005 100	1 X R0.05	1.2	10	50	4		4CREG 015 001 100	1.5 X R0.1	1.8	10	50	4	
4CREG 010 0005 120	1 X R0.05	1.2	12	50	4		4CREG 015 001 120	1.5 X R0.1	1.8	12	50	4	
4CREG 010 0005 160	1 X R0.05	1.2	16	50	4		4CREG 015 001 160	1.5 X R0.1	1.8	16	50	4	
4CREG 010 0005 200	1 X R0.05	1.2	20	50	4		4CREG 015 001 200	1.5 X R0.1	1.8	20	50	4	
4CREG 010 001 040	1 X R0.1	1.2	4	45	4		4CREG 015 001 220	1.5 X R0.1	1.8	22	60	4	
4CREG 010 001 060	1 X R0.1	1.2	6	45	4		4CREG 015 001 250	1.5 X R0.1	1.8	25	60	4	
4CREG 010 001 080	1 X R0.1	1.2	8	45	4		4CREG 015 002 060	1.5 X R0.2	1.8	6	45	4	
4CREG 010 001 100	1 X R0.1	1.2	10	50	4		4CREG 015 002 080	1.5 X R0.2	1.8	8	45	4	
4CREG 010 001 120	1 X R0.1	1.2	12	50	4		4CREG 015 002 100	1.5 X R0.2	1.8	10	50	4	
4CREG 010 001 160	1 X R0.1	1.2	16	50	4		4CREG 015 002 120	1.5 X R0.2	1.8	12	50	4	
4CREG 010 001 200	1 X R0.1	1.2	20	50	4		4CREG 015 002 160	1.5 X R0.2	1.8	16	50	4	
4CREG 010 002 040	1 X R0.2	1.2	4	45	4		4CREG 015 002 200	1.5 X R0.2	1.8	20	50	4	
4CREG 010 002 060	1 X R0.2	1.2	6	45	4		4CREG 015 002 220	1.5 X R0.2	1.8	22	60	4	
4CREG 010 002 080	1 X R0.2	1.2	8	45	4		4CREG 015 002 250	1.5 X R0.2	1.8	25	60	4	
4CREG 010 002 100	1 X R0.2	1.2	10	50	4		4CREG 015 003 060	1.5 X R0.3	1.8	6	45	4	
4CREG 010 002 120	1 X R0.2	1.2	12	50	4		4CREG 015 003 080	1.5 X R0.3	1.8	8	45	4	
4CREG 010 002 160	1 X R0.2	1.2	16	50	4		4CREG 015 003 100	1.5 X R0.3	1.8	10	50	4	
4CREG 010 002 200	1 X R0.2	1.2	20	50	4		4CREG 015 003 120	1.5 X R0.3	1.8	12	50	4	
4CREG 010 003 040	1 X R0.3	1.2	4	45	4		4CREG 015 003 160	1.5 X R0.3	1.8	16	50	4	
4CREG 010 003 060	1 X R0.3	1.2	6	45	4		4CREG 015 003 200	1.5 X R0.3	1.8	20	50	4	
4CREG 010 003 080	1 X R0.3	1.2	8	45	4		4CREG 015 003 220	1.5 X R0.3	1.8	22	60	4	
4CREG 010 003 100	1 X R0.3	1.2	10	50	4		4CREG 015 003 250	1.5 X R0.3	1.8	25	60	4	
4CREG 010 003 120	1 X R0.3	1.2	12	50	4		4CREG 015 005 060	1.5 X R0.5	1.8	6	45	4	
4CREG 010 003 160	1 X R0.3	1.2	16	50	4		4CREG 015 005 080	1.5 X R0.5	1.8	8	45	4	
4CREG 010 003 200	1 X R0.3	1.2	20	50	4		4CREG 015 005 100	1.5 X R0.5	1.8	10	50	4	
4CREG 012 001 040	1.2 X R0.1	1.4	4	45	4		4CREG 015 005 120	1.5 X R0.5	1.8	12	50	4	
4CREG 012 001 060	1.2 X R0.1	1.4	6	45	4		4CREG 015 005 160	1.5 X R0.5	1.8	16	50	4	
4CREG 012 001 080	1.2 X R0.1	1.4	8	45	4		4CREG 015 005 200	1.5 X R0.5	1.8	20	50	4	
4CREG 012 001 100	1.2 X R0.1	1.4	10	50	4		4CREG 015 005 220	1.5 X R0.5	1.8	22	60	4	
4CREG 012 001 120	1.2 X R0.1	1.4	12	50	4		4CREG 015 005 250	1.5 X R0.5	1.8	25	60	4	
4CREG 012 001 160	1.2 X R0.1	1.4	16	50	4		4CREG 020 001 060	2 X R0.1	2.4	6	45	4	
4CREG 012 001 200	1.2 X R0.1	1.4	20	50	4		4CREG 020 001 080	2 X R0.1	2.4	8	45	4	
4CREG 012 002 040	1.2 X R0.2	1.4	4	45	4		4CREG 020 001 100	2 X R0.1	2.4	10	50	4	
4CREG 012 002 060	1.2 X R0.2	1.4	6	45	4		4CREG 020 001 120	2 X R0.1	2.4	12	50	4	
4CREG 012 002 080	1.2 X R0.2	1.4	8	45	4		4CREG 020 001 160	2 X R0.1	2.4	16	50	4	
4CREG 012 002 100	1.2 X R0.2	1.4	10	50	4		4CREG 020 001 200	2 X R0.1	2.4	20	50	4	
4CREG 012 002 120	1.2 X R0.2	1.4	12	50	4		4CREG 020 001 250	2 X R0.1	2.4	25	60	4	
4CREG 012 002 160	1.2 X R0.2	1.4	16	50	4		4CREG 020 001 300	2 X R0.1	2.4	30	70	4	
4CREG 012 002 200	1.2 X R0.2	1.4	20	50	4		4CREG 020 001 350	2 X R0.1	2.4	35	70	4	
4CREG 012 003 040	1.2 X R0.3	1.4	4	45	4		4CREG 020 002 060	2 X R0.2	2.4	6	45	4	
4CREG 012 003 060	1.2 X R0.3	1.4	6	45	4		4CREG 020 002 080	2 X R0.2	2.4	8	45	4	
4CREG 012 003 080	1.2 X R0.3	1.4	8	45	4		4CREG 020 002 100	2 X R0.2	2.4	10	50	4	
4CREG 012 003 100	1.2 X R0.3	1.4	10	50	4		4CREG 020 002 120	2 X R0.2	2.4	12	50	4	
4CREG 012 003 120	1.2 X R0.3	1.4	12	50	4		4CREG 020 002 160	2 X R0.2	2.4	16	50	4	
4CREG 012 003 160	1.2 X R0.3	1.4	16	50	4		4CREG 020 002 200	2 X R0.2	2.4	20	50	4	



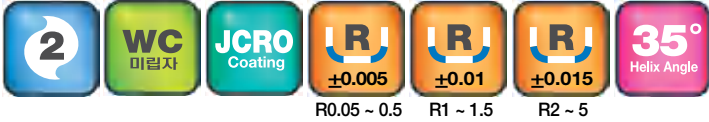
단위 : mm

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

### 2날 범용 코너 레디우스 엔드밀



- 중저경도강(HRC52이하), 프리하트강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치평이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화
- **Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Minimize fracturing by high TRS fine(0.5  $\mu$ m) WC grade.



D Size	D Tolerance
$\phi 0.4 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

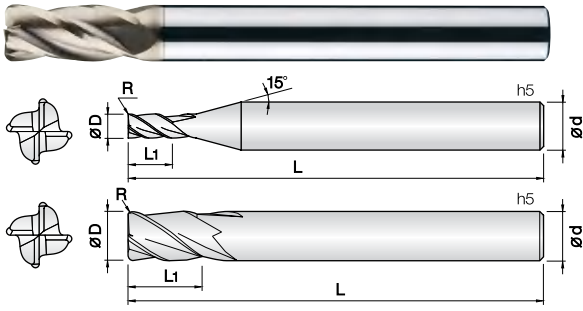
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2NCRG 004 0005 S04	0.4 X R0.05	0.8	45	4		2NCRG 040 005 080	4 X R0.5	9	80	4	
2NCRG 004 001 S04	0.4 X R0.1	0.8	45	4		2NCRG 040 005 S06	4 X R0.5	10	70	6	
2NCRG 005 0005 S04	0.5 X R0.05	1	45	4		2NCRG 040 010 060	4 X R1	9	60	4	
2NCRG 005 001 S04	0.5 X R0.1	1	45	4		2NCRG 040 010 080	4 X R1	9	80	4	
2NCRG 006 0005 S04	0.6 X R0.05	1.2	45	4		2NCRG 040 010 S06	4 X R1	10	70	6	
2NCRG 006 001 S04	0.6 X R0.1	1.2	45	4		2NCRG 050 001 S06	5 X R0.1	13	75	6	
2NCRG 006 002 S04	0.6 X R0.2	1.2	45	4		2NCRG 050 002 S06	5 X R0.2	13	75	6	
2NCRG 007 0005 S04	0.7 X R0.05	1.4	45	4		2NCRG 050 003 S06	5 X R0.3	13	75	6	
2NCRG 007 001 S04	0.7 X R0.1	1.4	45	4		2NCRG 050 005 S06	5 X R0.5	13	75	6	
2NCRG 007 002 S04	0.7 X R0.2	1.4	45	4		2NCRG 050 010 S06	5 X R1	13	75	6	
2NCRG 008 0005 S04	0.8 X R0.05	1.6	45	4		2NCRG 060 001 060	6 X R0.1	11	60	6	
2NCRG 008 001 S04	0.8 X R0.1	1.6	45	4		2NCRG 060 001 090	6 X R0.1	13	90	6	
2NCRG 008 002 S04	0.8 X R0.2	1.6	45	4		2NCRG 060 002 060	6 X R0.2	11	60	6	
2NCRG 009 0005 S04	0.9 X R0.05	1.8	45	4		2NCRG 060 002 090	6 X R0.2	13	90	6	
2NCRG 009 001 S04	0.9 X R0.1	1.8	45	4		2NCRG 060 003 060	6 X R0.3	11	60	6	
2NCRG 010 001 S04	1 X R0.1	2.5	45	4		2NCRG 060 003 090	6 X R0.3	13	90	6	
2NCRG 010 002 S04	1 X R0.2	2.5	45	4		2NCRG 060 005 060	6 X R0.5	11	60	6	
2NCRG 010 003 S04	1 X R0.3	2.5	45	4		2NCRG 060 005 090	6 X R0.5	13	90	6	
2NCRG 012 001 S04	1.2 X R0.1	3.2	45	4		2NCRG 060 010 060	6 X R1	11	60	6	
2NCRG 012 002 S04	1.2 X R0.2	3.2	45	4		2NCRG 060 010 090	6 X R1	13	90	6	
2NCRG 012 003 S04	1.2 X R0.3	3.2	45	4		2NCRG 060 015 060	6 X R1.5	11	60	6	
2NCRG 015 001 S04	1.5 X R0.1	4	45	4		2NCRG 060 015 090	6 X R1.5	13	90	6	
2NCRG 015 002 S04	1.5 X R0.2	4	45	4		2NCRG 060 020 060	6 X R2	11	60	6	
2NCRG 015 003 S04	1.5 X R0.3	4	45	4		2NCRG 060 020 090	6 X R2	13	90	6	
2NCRG 015 005 S04	1.5 X R0.5	4	45	4		2NCRG 060 025 090	6 X R2.5	13	90	6	
2NCRG 020 001 S04	2 X R0.1	6	45	4		2NCRG 080 001 070	8 X R0.1	16	70	8	
2NCRG 020 002 S04	2 X R0.2	6	45	4		2NCRG 080 001 100	8 X R0.1	19	100	8	
2NCRG 020 003 S04	2 X R0.3	6	45	4		2NCRG 080 002 070	8 X R0.2	16	70	8	
2NCRG 020 005 S04	2 X R0.5	6	45	4		2NCRG 080 002 100	8 X R0.2	19	100	8	
2NCRG 025 001 S04	2.5 X R0.1	6	50	4		2NCRG 080 003 070	8 X R0.3	16	70	8	
2NCRG 025 002 S04	2.5 X R0.2	6	50	4		2NCRG 080 003 100	8 X R0.3	19	100	8	
2NCRG 025 003 S04	2.5 X R0.3	6	50	4		2NCRG 080 005 070	8 X R0.5	16	70	8	
2NCRG 025 005 S04	2.5 X R0.5	6	50	4		2NCRG 080 005 100	8 X R0.5	19	100	8	
2NCRG 030 001 S06	3 X R0.1	8	60	6		2NCRG 080 005 120	8 X R0.5	19	120	8	
2NCRG 030 002 S06	3 X R0.2	8	60	6		2NCRG 080 010 070	8 X R1	16	70	8	
2NCRG 030 003 S06	3 X R0.3	8	60	6		2NCRG 080 010 100	8 X R1	19	100	8	
2NCRG 030 005 S06	3 X R0.5	8	60	6		2NCRG 080 010 120	8 X R1	19	120	8	
2NCRG 030 010 S06	3 X R1	8	60	6		2NCRG 080 015 070	8 X R1.5	16	70	8	
2NCRG 040 001 060	4 X R0.1	9	60	4		2NCRG 080 015 100	8 X R1.5	19	100	8	
2NCRG 040 001 080	4 X R0.1	9	80	4		2NCRG 080 020 070	8 X R2	16	70	8	
2NCRG 040 001 S06	4 X R0.1	10	70	6		2NCRG 080 020 100	8 X R2	19	100	8	
2NCRG 040 002 060	4 X R0.2	9	60	4		2NCRG 080 025 100	8 X R2.5	19	100	8	
2NCRG 040 002 080	4 X R0.2	9	80	4		2NCRG 080 030 100	8 X R3	19	100	8	
2NCRG 040 002 S06	4 X R0.2	10	70	6		2NCRG 080 035 100	8 X R3.5	19	100	8	
2NCRG 040 003 060	4 X R0.3	9	60	4		2NCRG 100 001 075	10 X R0.1	19	75	10	
2NCRG 040 003 080	4 X R0.3	9	80	4		2NCRG 100 001 100	10 X R0.1	22	100	10	
2NCRG 040 003 S06	4 X R0.3	10	70	6		2NCRG 100 002 075	10 X R0.2	19	75	10	
2NCRG 040 005 060	4 X R0.5	9	60	4		2NCRG 100 002 100	10 X R0.2	22	100	10	

단위 : mm

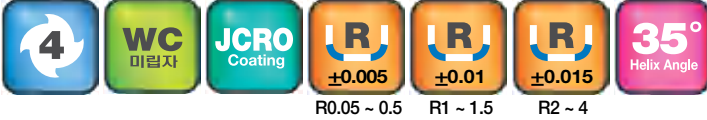
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
2NCRG 100 003 075	10 X R0.3	19	75	10	
2NCRG 100 003 100	10 X R0.3	22	100	10	
2NCRG 100 005 075	10 X R0.5	19	75	10	
2NCRG 100 005 100	10 X R0.5	22	100	10	
2NCRG 100 005 130	10 X R0.5	22	130	10	
2NCRG 100 010 075	10 X R1	19	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	



## 4날 범용 코너 레디우스 엔드밀



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강 등 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 전장으로 맞춤 가공이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)을 채택, 엔드밀의 파손을 최소화
- **Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.**
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.
- Minimize fracturing by high TRS fine(0.5 µm) WC grade.



D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16	-0.01 ~ -0.02mm

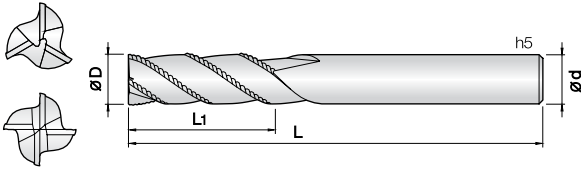
단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	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 060 003 080	6 X R0.3	13	80	6	
4NCRG 010 001 S04	1 X R0.1	2.5	45	4		4NCRG 060 005 060	6 X R0.5	11	60	6	
4NCRG 010 002 S04	1 X R0.2	2.5	45	4		4NCRG 060 005 080	6 X R0.5	13	80	6	
4NCRG 010 003 S04	1 X R0.3	2.5	45	4		4NCRG 060 010 060	6 X R1	11	60	6	
4NCRG 015 0005 S04	1.5 X R0.05	4	45	4		4NCRG 060 010 080	6 X R1	13	80	6	
4NCRG 015 001 S04	1.5 X R0.1	4	45	4		4NCRG 060 015 060	6 X R1.5	11	60	6	
4NCRG 015 002 S04	1.5 X R0.2	4	45	4		4NCRG 060 015 080	6 X R1.5	13	80	6	
4NCRG 015 003 S04	1.5 X R0.3	4	45	4		4NCRG 060 020 060	6 X R2	11	60	6	
4NCRG 015 005 S04	1.5 X R0.5	4	45	4		4NCRG 060 020 080	6 X R2	13	80	6	
4NCRG 020 0005 S04	2 X R0.05	6	45	4		4NCRG 080 001 070	8 X R0.1	16	70	8	
4NCRG 020 001 S04	2 X R0.1	6	45	4		4NCRG 080 001 090	8 X R0.1	19	90	8	
4NCRG 020 002 S04	2 X R0.2	6	45	4		4NCRG 080 002 070	8 X R0.2	16	70	8	
4NCRG 020 003 S04	2 X R0.3	6	45	4		4NCRG 080 002 090	8 X R0.2	19	90	8	
4NCRG 020 005 S04	2 X R0.5	6	45	4		4NCRG 080 003 070	8 X R0.3	16	70	8	
4NCRG 025 001 S04	2.5 X R0.1	6	50	4		4NCRG 080 003 090	8 X R0.3	19	90	8	
4NCRG 025 002 S04	2.5 X R0.2	6	50	4		4NCRG 080 005 070	8 X R0.5	16	70	8	
4NCRG 025 003 S04	2.5 X R0.3	6	50	4		4NCRG 080 005 090	8 X R0.5	19	90	8	
4NCRG 025 005 S04	2.5 X R0.5	6	50	4		4NCRG 080 005 110	8 X R0.5	19	110	8	
4NCRG 030 001 S06	3 X R0.1	8	60	6		4NCRG 080 010 070	8 X R1	16	70	8	
4NCRG 030 002 S06	3 X R0.2	8	60	6		4NCRG 080 010 090	8 X R1	19	90	8	
4NCRG 030 003 S06	3 X R0.3	8	60	6		4NCRG 080 010 110	8 X R1	19	110	8	
4NCRG 030 005 S06	3 X R0.5	8	60	6		4NCRG 080 015 070	8 X R1.5	16	70	8	
4NCRG 030 010 S06	3 X R1	8	60	6		4NCRG 080 015 090	8 X R1.5	19	90	8	
4NCRG 040 001 060	4 X R0.1	9	60	4		4NCRG 080 015 110	8 X R1.5	19	110	8	
4NCRG 040 001 080	4 X R0.1	9	80	4		4NCRG 080 020 070	8 X R2	16	70	8	
4NCRG 040 001 S06	4 X R0.1	10	70	6		4NCRG 080 020 090	8 X R2	19	90	8	
4NCRG 040 002 060	4 X R0.2	9	60	4		4NCRG 080 020 110	8 X R2	19	110	8	
4NCRG 040 002 080	4 X R0.2	9	80	4		4NCRG 080 025 090	8 X R2.5	19	90	8	
4NCRG 040 002 S06	4 X R0.2	10	70	6		4NCRG 100 001 075	10 X R0.1	19	75	10	
4NCRG 040 003 060	4 X R0.3	9	60	4		4NCRG 100 001 100	10 X R0.1	22	100	10	
4NCRG 040 003 080	4 X R0.3	9	80	4		4NCRG 100 002 075	10 X R0.2	19	75	10	
4NCRG 040 003 S06	4 X R0.3	10	70	6		4NCRG 100 002 100	10 X R0.2	22	100	10	
4NCRG 040 005 060	4 X R0.5	9	60	4		4NCRG 100 003 075	10 X R0.3	19	75	10	
4NCRG 040 005 080	4 X R0.5	9	80	4		4NCRG 100 003 100	10 X R0.3	22	100	10	
4NCRG 040 005 S06	4 X R0.5	10	70	6		4NCRG 100 005 075	10 X R0.5	19	75	10	
4NCRG 040 010 060	4 X R1	9	60	4		4NCRG 100 005 100	10 X R0.5	22	100	10	
4NCRG 040 010 080	4 X R1	9	80	4		4NCRG 100 005 120	10 X R0.5	22	120	10	
4NCRG 040 010 S06	4 X R1	10	70	6		4NCRG 100 010 075	10 X R1	19	75	10	
4NCRG 050 001 S06	5 X R0.1	13	75	6		4NCRG 100 010 100	10 X R1	22	100	10	
4NCRG 050 002 S06	5 X R0.2	13	75	6		4NCRG 100 010 120	10 X R1	22	120	10	
4NCRG 050 003 S06	5 X R0.3	13	75	6		4NCRG 100 015 075	10 X R1.5	19	75	10	
4NCRG 050 005 S06	5 X R0.5	13	75	6		4NCRG 100 015 100	10 X R1.5	22	100	10	
4NCRG 050 010 S06	5 X R1	13	75	6		4NCRG 100 015 120	10 X R1.5	22	120	10	
4NCRG 060 001 060	6 X R0.1	11	60	6		4NCRG 100 020 075	10 X R2	19	75	10	
4NCRG 060 001 080	6 X R0.1	13	80	6		4NCRG 100 020 100	10 X R2	22	100	10	
4NCRG 060 002 060	6 X R0.2	11	60	6		4NCRG 100 020 120	10 X R2	22	120	10	
4NCRG 060 002 080	6 X R0.2	13	80	6		4NCRG 100 025 075	10 X R2.5	19	75	10	
4NCRG 060 003 060	6 X R0.3	11	60	6		4NCRG 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	샙크 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						

### 3&4날 범용 라핑 엔드밀



- 공구강, 합금강 및 고경도 일반강 황삭가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 뛰어난 칩배출력으로 가공시간을 단축하였습니다.
- 고속가공으로 작업의 효율성을 극대화합니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 엔드밀의 파손을 최소화함.
- **Roughing Endmills for tool steel, alloy steel**
- JCRO 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 fine WC grade.

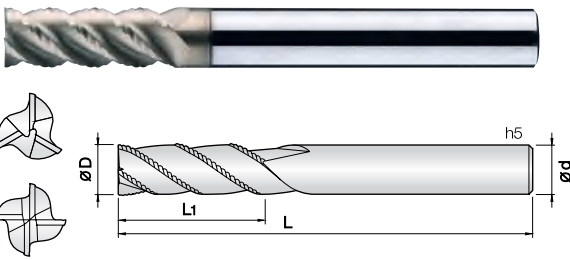


D Size	D Tolerance
ø4 ~ 9	0.02~ -0.04mm
ø10 ~ 20	0.02~ -0.05mm

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&4날 범용 45° 헬릭스 파인피치형 리핑 엔드밀



- 합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재의 황삭가공
- JCRO 코팅 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.**
- JCRO 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.

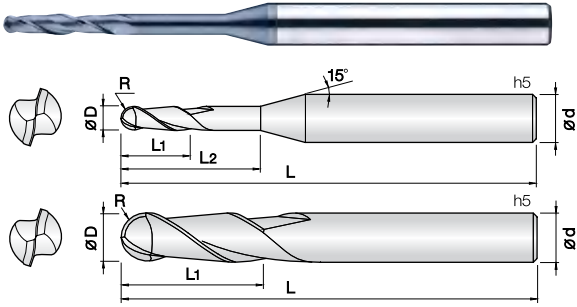


D Size	D Tolerance
ø4 ~ 9	0.02~ -0.04mm
ø10 ~ 20	0.02~ -0.05mm

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															

G series



- 그래파이트(흑연), HRC48 이하의 고경도강, 프리하든강, 공구강, 주철등 다양한 피삭재 가공
- ALTiN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용이 가능합니다.
- Endmill for various work materials, graphite, hardened steel(HRC~48), 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 fine WC grade optimized for various non-ferrous and non-metallic work materials.

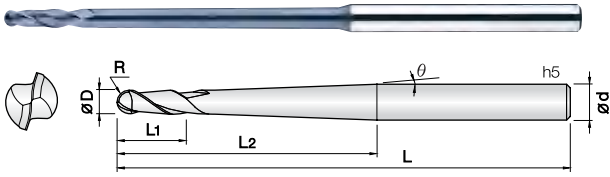


D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16 ~ 25	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R x 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 050 250 100	2.5R X 5	25	-	100	5	
2GBE 005 050 S04	0.25R X 0.5	2	5	50	4		2GBE 050 250 130	2.5R X 5	25	-	130	5	
2GBE 010 050 S04	0.5R X 1	5	-	60	4		2GBE 050 250 S06	2.5R X 5	25	-	90	6	
2GBE 010 050 S06	0.5R X 1	5	-	60	6		2GBE 050 500 S06	2.5R X 5	25	50	110	6	
2GBE 010 100 S04	0.5R X 1	5	10	60	4		2GBE 060 250 110	3R X 6	25	-	110	6	
2GBE 010 100 S06	0.5R X 1	5	10	60	6		2GBE 060 300 150	3R X 6	30	-	150	6	
2GBE 010 150 S04	0.5R X 1	5	15	60	4		2GBE 060 300 200	3R X 6	30	-	200	6	
2GBE 010 200 S04	0.5R X 1	5	20	60	4		2GBE 060 300 220	3R X 6	30	-	220	6	
2GBE 010 250 S04	0.5R X 1	5	25	70	4		2GBE 080 350 110	4R X 8	35	-	110	8	
2GBE 010 300 S04	0.5R X 1	5	30	80	4		2GBE 080 400 150	4R X 8	40	-	150	8	
2GBE 010 350 S04	0.5R X 1	5	35	80	4		2GBE 080 400 200	4R X 8	40	-	200	8	
2GBE 010 400 S04	0.5R X 1	5	40	90	4		2GBE 080 400 220	4R X 8	40	-	220	8	
2GBE 015 080 S06	0.75R X 1.5	8	-	60	6		2GBE 100 400 120	5R X 10	40	-	120	10	
2GBE 015 100 S04	0.75R X 1.5	8	10	60	4		2GBE 100 450 150	5R X 10	45	-	150	10	
2GBE 015 150 S04	0.75R X 1.5	8	15	60	4		2GBE 100 450 200	5R X 10	45	-	200	10	
2GBE 015 150 S06	0.75R X 1.5	8	15	60	6		2GBE 100 450 230	5R X 10	45	-	230	10	
2GBE 015 200 S04	0.75R X 1.5	8	20	60	4		2GBE 120 500 130	6R X 12	50	-	130	12	
2GBE 015 250 S04	0.75R X 1.5	8	25	70	4		2GBE 120 500 150	6R X 12	50	-	150	12	
2GBE 015 300 S04	0.75R X 1.5	8	30	80	4		2GBE 120 550 200	6R X 12	55	-	200	12	
2GBE 015 350 S04	0.75R X 1.5	8	35	80	4		2GBE 120 550 250	6R X 12	55	-	250	12	
2GBE 015 400 S04	0.75R X 1.5	8	40	90	4		2GBE 160 600 160	8R X 16	60	-	160	16	
2GBE 020 100 S04	1R X 2	10	-	60	4		2GBE 160 650 200	8R X 16	65	-	200	16	
2GBE 020 100 S06	1R X 2	10	-	70	6		2GBE 160 650 250	8R X 16	65	-	250	16	
2GBE 020 150 S04	1R X 2	10	15	60	4		2GBE 160 700 320	8R X 16	70	-	320	16	
2GBE 020 200 S04	1R X 2	10	20	60	4		2GBE 200 700 160	10R X 20	70	-	160	20	
2GBE 020 200 S06	1R X 2	10	20	70	6		2GBE 200 750 200	10R X 20	75	-	200	20	
2GBE 020 250 S04	1R X 2	10	25	70	4		2GBE 200 750 250	10R X 20	75	-	250	20	
2GBE 020 300 S04	1R X 2	10	30	80	4		2GBE 200 900 320	10R X 20	90	-	320	20	
2GBE 020 350 S04	1R X 2	10	35	80	4		2GBE 250 1000 250	12.5R X 25	100	-	250	25	
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 030 150 S06	1.5R X 3	15	-	70	6								
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 030 300 S06	1.5R X 3	15	30	75	6								
2GBE 030 400 S04	1.5R X 3	15	40	90	4								
2GBE 030 400 S06	1.5R X 3	15	40	90	6								
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 040 200 S06	2R X 4	20	-	75	6								
2GBE 040 350 S06	2R X 4	20	35	90	6								
2GBE 040 450 S06	2R X 4	20	45	100	6								

## 2날 흑연가공용 테이퍼 넥 볼 엔드밀



- 그래파이트(흑연), HRC48 이하의 고경도강, 프리하트강, 공구강, 주철등 다양한 피삭재 가공
- ALTIN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용이 가능합니다.
- **Endmill for various work materials, graphite, hardened steel(HRC~48), 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 fine WC grade optimized for various non-ferrous and non-metallic work materials.

2

WC  
미립자

ALTIN  
Coating

R  
±0.005

R  
±0.01

30°  
Helix Angle

0.5R~2.5R      3R~6R

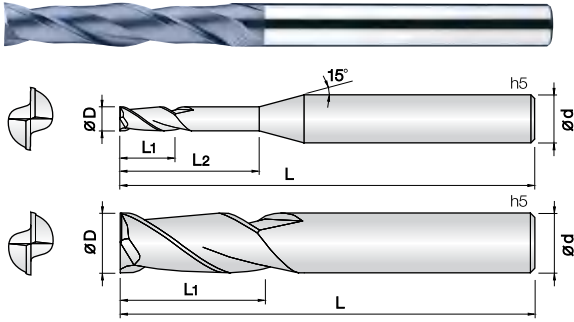
D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 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													
2TGB 080 010 1000	4R X 8	1°	20	100	150	12													
2TGB 100 010 830	5R X 10	1°	25	83	200	12													
2TGB 120 010 1100	6R X 12	1°	30	110	200	16													

FOR GRAPHITE

## 2날 롱 샹크 엔드밀 & 흑연가공용 롱 샹크 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.
- 미립자 초경합금을 채택, HRc48이하의 다양한 합금강의 피삭재 영역에 적용이 가능합니다.
- Endmill for various work materials, graphite, hardened steel(HRc~48), 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 fine WC grade optimized for various alloy steels applications, below HRc48.

2

WC  
미립자

ALTiN  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

30°  
Helix Angle

Shield Edge

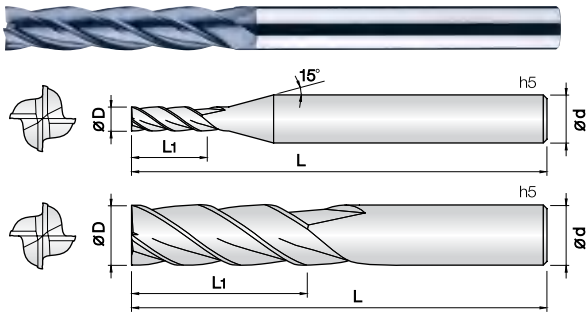
D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샹크 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										

FOR GRAPHITE

## 4날 롱샹크 엔드밀 & 흑연가공용 롱샹크 엔드밀



- 흑연, HRc48이하의 고경도강, 프리하튼강, 공구강, 주철 등 가공
- ALTiN 코팅을 적용하여 절삭저항이 적으며, 내마모성이 우수합니다.
- 긴날장으로 설계하여, 깊은 측벽가공이 많은 흑연 가공에 가장 적합합니다.
- 미립자 초경합금을 채택, HRc48이하의 다양한 합금강의 피삭재 영역에 적용이 가능합니다.
- Endmill for various work materials, graphite, hardened steel(HRc~48), 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 fine WC grade optimized for various alloy steels applications, below HRc48.



D Size	D Tolerance
ø3 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16 ~ 20	-0.015 ~ -0.03mm

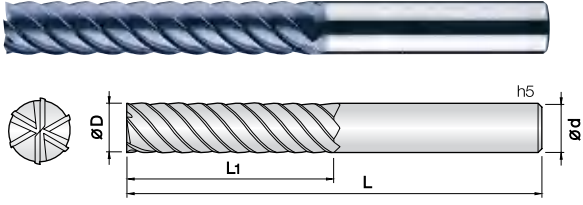
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샹크 Dia d	비고
4GEM 030 100 S06	3	10	100	6	
4GEM 030 150 S06	3	15	100	6	
4GEM 040 150 S06	4	15	100	6	
4GEM 040 200 100	4	20	100	4	
4GEM 040 200 S06	4	20	100	6	
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	

FOR GRAPHITE



### 6날 45° 헬릭스 엔드밀 & 흑연가공용 롱 샹크 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.
- 미립자 초경합금을 채택, HRc50이하의 다양한 합금강의 피삭제 영역에 적용이 가능합니다.
- **Endmill for various work materials, graphite, hardened steel(HRc~50), 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 fine WC grade optimized for various alloy steels applications, below HRc50.

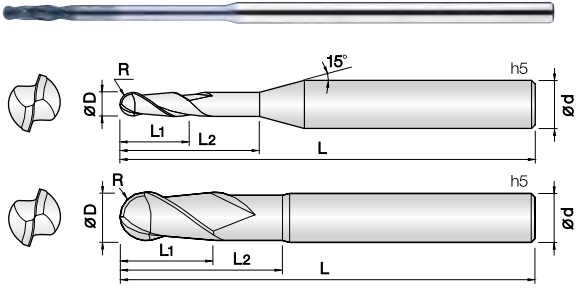


D Size	D Tolerance
∅6 ~ 12	-0.01 ~ -0.025mm
∅16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샹크 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						

FOR GRAPHITE



- 그래파이트(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.



0.1 ~ 6R

D Size	D Tolerance
Ø.2 ~ 12	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DBE 002 010 S04	0.1R X 0.2	1	-	45	4		2DBE 010 400 S04	0.5R X 1	3	40	80	4	
2DBE 003 012 S04	0.15R X 0.3	1.2	-	45	4		New 2DBE 010 450 S04	0.5R X 1	3	45	80	4	
2DBE 003 020 S04	0.15R X 0.3	1.2	2	45	4		New 2DBE 010 500 S04	0.5R X 1	3	50	80	4	
2DBE 004 015 S04	0.2R X 0.4	1.5	-	45	4		2DBE 015 050 S04	0.75R X 1.5	5	-	60	4	
2DBE 004 020 S04	0.2R X 0.4	1.5	2	45	4		2DBE 015 080 S04	0.75R X 1.5	5	8	80	4	
2DBE 004 030 S04	0.2R X 0.4	1.5	3	45	4		2DBE 015 100 S04	0.75R X 1.5	5	10	80	4	
2DBE 004 040 S04	0.2R X 0.4	1.5	4	45	4		2DBE 015 120 S04	0.75R X 1.5	5	12	80	4	
2DBE 004 050 S04	0.2R X 0.4	1.5	5	45	4		2DBE 015 150 S04	0.75R X 1.5	5	15	80	4	
New 2DBE 004 080 S04	0.2R X 0.4	1.5	8	45	4		2DBE 015 180 S04	0.75R X 1.5	5	18	80	4	
New 2DBE 004 100 S04	0.2R X 0.4	1.5	10	45	4		2DBE 015 200 S04	0.75R X 1.5	5	20	80	4	
2DBE 005 020 S04	0.25R X 0.5	2	-	45	4		2DBE 015 250 S04	0.75R X 1.5	5	25	80	4	
2DBE 005 030 S04	0.25R X 0.5	2	3	45	4		2DBE 015 300 S04	0.75R X 1.5	5	30	80	4	
2DBE 005 040 S04	0.25R X 0.5	2	4	45	4		2DBE 015 350 S04	0.75R X 1.5	5	35	80	4	
2DBE 005 050 S04	0.25R X 0.5	2	5	45	4		2DBE 015 400 S04	0.75R X 1.5	5	40	80	4	
2DBE 005 060 S04	0.25R X 0.5	2	6	45	4		2DBE 020 060 S04	1R X 2	6	-	60	4	
2DBE 005 080 S04	0.25R X 0.5	2	8	45	4		2DBE 020 100 S04	1R X 2	6	10	80	4	
New 2DBE 005 100 S04	0.25R X 0.5	2	10	45	4		2DBE 020 150 S04	1R X 2	6	15	80	4	
New 2DBE 005 120 S04	0.25R X 0.5	2	12	45	4		2DBE 020 200 S04	1R X 2	6	20	80	4	
2DBE 006 020 S04	0.3R X 0.6	2	-	45	4		2DBE 020 250 S04	1R X 2	6	25	80	4	
2DBE 006 030 S04	0.3R X 0.6	2	3	45	4		2DBE 020 300 S04	1R X 2	6	30	80	4	
2DBE 006 040 S04	0.3R X 0.6	2	4	45	4		2DBE 020 350 S04	1R X 2	6	35	80	4	
2DBE 006 050 S04	0.3R X 0.6	2	5	45	4		2DBE 020 400 S04	1R X 2	6	40	100	4	
2DBE 006 060 S04	0.3R X 0.6	2	6	45	4		2DBE 020 450 S04	1R X 2	6	45	100	4	
2DBE 006 080 S04	0.3R X 0.6	2	8	45	4		2DBE 020 500 S04	1R X 2	6	50	100	4	
2DBE 006 100 S04	0.3R X 0.6	2	10	45	4		2DBE 020 600 S04	1R X 2	6	60	100	4	
2DBE 006 120 S04	0.3R X 0.6	2	12	45	4		New 2DBE 020 700 S04	1R X 2	6	70	100	4	
New 2DBE 006 150 S04	0.3R X 0.6	2	15	45	4		2DBE 030 150 100	1.5R X 3	8	15	100	3	
New 2DBE 006 200 S04	0.3R X 0.6	2	20	45	4		2DBE 030 080 S04	1.5R X 3	8	-	60	4	
2DBE 008 030 S04	0.4R X 0.8	3	-	45	4		2DBE 030 150 S04	1.5R X 3	8	15	100	4	
2DBE 008 040 S04	0.4R X 0.8	3	4	45	4		2DBE 030 200 S04	1.5R X 3	8	20	100	4	
2DBE 008 050 S04	0.4R X 0.8	3	5	45	4		2DBE 030 250 S04	1.5R X 3	8	25	100	4	
2DBE 008 060 S04	0.4R X 0.8	3	6	45	4		2DBE 030 300 S04	1.5R X 3	8	30	100	4	
2DBE 008 080 S04	0.4R X 0.8	3	8	45	4		2DBE 030 350 S04	1.5R X 3	8	35	100	4	
2DBE 008 100 S04	0.4R X 0.8	3	10	45	4		2DBE 030 400 S04	1.5R X 3	8	40	100	4	
2DBE 008 150 S04	0.4R X 0.8	3	15	45	4		2DBE 030 500 S04	1.5R X 3	8	50	100	4	
2DBE 008 200 S04	0.4R X 0.8	3	20	45	4		2DBE 030 600 S04	1.5R X 3	8	60	100	4	
2DBE 010 030 S04	0.5R X 1	3	-	60	4		New 2DBE 030 700 S04	1.5R X 3	8	70	100	4	
2DBE 010 040 S04	0.5R X 1	3	4	60	4		New 2DBE 040 040 060	2R X 4	4	-	60	4	
2DBE 010 050 S04	0.5R X 1	3	5	60	4		2DBE 040 160 060	2R X 4	16	-	60	4	
2DBE 010 060 S04	0.5R X 1	3	6	60	4		2DBE 040 160 080	2R X 4	16	-	80	4	
2DBE 010 080 S04	0.5R X 1	3	8	60	4		2DBE 040 300 080	2R X 4	16	30	80	4	
2DBE 010 100 S04	0.5R X 1	3	10	60	4		2DBE 040 160 100	2R X 4	16	-	100	4	
2DBE 010 120 S04	0.5R X 1	3	12	60	4		2DBE 040 400 100	2R X 4	16	40	100	4	
2DBE 010 150 S04	0.5R X 1	3	15	60	4		2DBE 040 160 130	2R X 4	16	-	130	4	
2DBE 010 200 S04	0.5R X 1	3	20	60	4		2DBE 040 400 130	2R X 4	16	40	130	4	
2DBE 010 250 S04	0.5R X 1	3	25	80	4		2DBE 040 160 150	2R X 4	16	-	150	4	
2DBE 010 300 S04	0.5R X 1	3	30	80	4		2DBE 040 500 150	2R X 4	16	50	150	4	
New 2DBE 010 350 S04	0.5R X 1	3	35	80	4		New 2DBE 050 160 110	2.5R X 5	16	-	110	5	

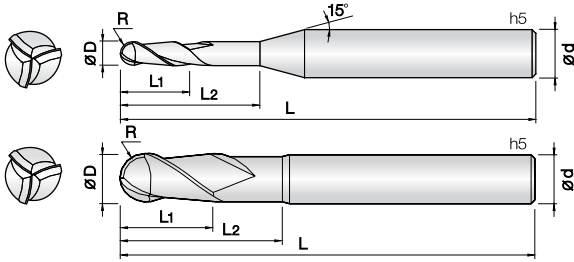
FOR GRAPHITE



단위 : mm

FOR GRAPHITE

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
New 2DBE 050 400 110	2.5R X 5	16	40	110	5								
2DBE 050 200 S06	2.5R X 5	16	20	110	6								
New 2DBE 050 400 S06	2.5R X 5	16	40	110	6								
New 2DBE 050 600 S06	2.5R X 5	16	60	110	6								
2DBE 060 250 080	3R X 6	16	25	80	6								
2DBE 060 250 110	3R X 6	16	25	110	6								
2DBE 060 400 110	3R X 6	16	40	110	6								
2DBE 060 300 150	3R X 6	16	30	150	6								
2DBE 060 500 150	3R X 6	16	50	150	6								
2DBE 080 300 080	4R X 8	20	30	80	8								
2DBE 080 300 110	4R X 8	20	30	110	8								
2DBE 080 400 110	4R X 8	20	40	110	8								
2DBE 080 500 150	4R X 8	20	50	150	8								
2DBE 080 400 200	4R X 8	20	40	200	8								
2DBE 100 400 080	5R X 10	22	40	80	10								
2DBE 100 400 110	5R X 10	22	40	110	10								
2DBE 100 500 110	5R X 10	22	50	110	10								
2DBE 100 600 160	5R X 10	22	60	160	10								
2DBE 100 500 200	5R X 10	22	50	200	10								
2DBE 120 500 110	6R X 12	25	50	110	12								
2DBE 120 500 160	6R X 12	25	50	160	12								
2DBE 120 600 200	6R X 12	25	60	200	12								



- 그래파이트(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.



0.5 ~ 6R

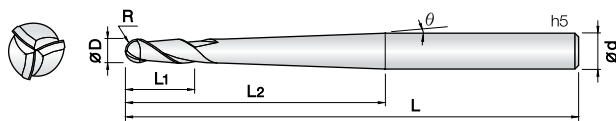
D Size	D Tolerance
Ø1 ~ 12	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
3DBE 010 030 S04	0.5R X 1	3	-	60	4		3DBE 060 400 110	3R X 6	16	40	110	6	
3DBE 010 050 S04	0.5R X 1	3	5	60	4		3DBE 060 300 150	3R X 6	16	30	150	6	
3DBE 010 100 S04	0.5R X 1	3	10	60	4		3DBE 060 500 150	3R X 6	16	50	150	6	
3DBE 010 150 S04	0.5R X 1	3	15	60	4		3DBE 060 500 180	3R X 6	16	50	180	6	
3DBE 010 200 S04	0.5R X 1	3	20	60	4		3DBE 080 400 110	4R X 8	20	40	110	8	
New 3DBE 010 250 S04	0.5R X 1	3	25	80	4		3DBE 080 500 150	4R X 8	20	50	150	8	
New 3DBE 010 300 S04	0.5R X 1	3	30	80	4		3DBE 100 400 110	5R X 10	22	40	110	10	
New 3DBE 010 350 S04	0.5R X 1	3	35	80	4		3DBE 100 600 160	5R X 10	22	60	160	10	
New 3DBE 010 400 S04	0.5R X 1	3	40	80	4		3DBE 120 500 110	6R X 12	25	50	110	12	
New 3DBE 010 450 S04	0.5R X 1	3	45	80	4		3DBE 120 500 160	6R X 12	25	50	160	12	
New 3DBE 010 500 S04	0.5R X 1	3	50	80	4		3DBE 120 600 200	6R X 12	25	60	200	12	
3DBE 015 050 S04	0.75R X 1.5	5	-	60	4								
3DBE 015 100 S04	0.75R X 1.5	5	10	80	4								
3DBE 015 150 S04	0.75R X 1.5	5	15	80	4								
3DBE 015 200 S04	0.75R X 1.5	5	20	80	4								
New 3DBE 015 250 S04	0.75R X 1.5	8	25	80	4								
New 3DBE 015 300 S04	0.75R X 1.5	8	30	80	4								
New 3DBE 015 350 S04	0.75R X 1.5	8	35	80	4								
New 3DBE 015 400 S04	0.75R X 1.5	8	40	80	4								
New 3DBE 015 450 S04	0.75R X 1.5	8	45	80	4								
New 3DBE 015 500 S04	0.75R X 1.5	8	50	80	4								
3DBE 020 060 S04	1R X 2	6	-	60	4								
3DBE 020 100 S04	1R X 2	6	10	80	4								
3DBE 020 150 S04	1R X 2	6	15	80	4								
3DBE 020 200 S04	1R X 2	6	20	80	4								
3DBE 020 250 S04	1R X 2	6	25	80	4								
3DBE 020 300 S04	1R X 2	6	30	80	4								
3DBE 020 350 S04	1R X 2	6	35	80	4								
3DBE 020 400 S04	1R X 2	6	40	80	4								
New 3DBE 020 500 S04	1R X 2	6	50	100	4								
New 3DBE 020 600 S04	1R X 2	6	60	100	4								
New 3DBE 020 700 S04	1R X 2	6	70	100	4								
3DBE 030 150 100	1.5R X 3	8	15	100	3								
3DBE 030 080 S04	1.5R X 3	8	-	60	4								
3DBE 030 150 S04	1.5R X 3	8	15	100	4								
3DBE 030 200 S04	1.5R X 3	8	20	100	4								
3DBE 030 300 S04	1.5R X 3	8	30	100	4								
3DBE 030 400 S04	1.5R X 3	8	40	100	4								
3DBE 030 500 S04	1.5R X 3	8	50	100	4								
3DBE 040 160 080	2R X 4	16	-	80	4								
3DBE 040 300 080	2R X 4	16	30	80	4								
3DBE 040 160 100	2R X 4	16	-	100	4								
3DBE 040 400 100	2R X 4	16	40	100	4								
3DBE 040 160 130	2R X 4	16	-	130	4								
3DBE 040 400 130	2R X 4	16	40	130	4								
New 3DBE 050 160 110	2.5R X 5	16	-	110	5								
New 3DBE 050 400 110	2.5R X 5	16	40	110	5								
3DBE 060 250 110	3R X 6	16	25	110	6								

FOR GRAPHITE

## 3날 흑연가공용 다이아몬드 테이퍼 넥 볼 엔드밀



- 그래파이트(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.

3

WC  
미립자

DIA.  
Coating

R  
±0.01

30°  
Helix Angle

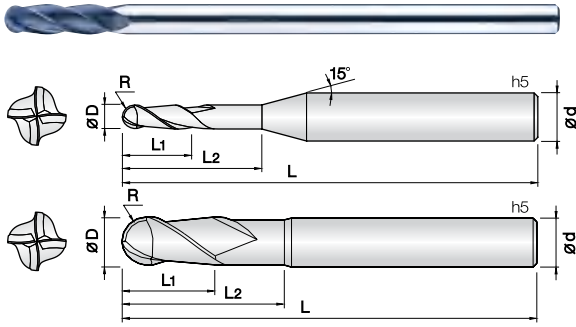
0.5 ~ 6R

D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프트 Shank Dia d	비고
3TBD 010 003 300	0.5R X 1	0°30'	3	30	100	4	
3TBD 010 003 400	0.5R X 1	0°30'	3	40	100	4	
3TBD 010 003 500	0.5R X 1	0°30'	3	50	100	4	
3TBD 010 010 300	0.5R X 1	1°	3	30	100	4	
3TBD 010 010 400	0.5R X 1	1°	3	40	100	4	
3TBD 010 010 500	0.5R X 1	1°	3	50	100	4	
3TBD 010 010 600	0.5R X 1	1°	3	60	100	4	
3TBD 015 003 300	0.75R X 1.5	0°30'	4	30	100	4	
3TBD 015 003 400	0.75R X 1.5	0°30'	4	40	100	4	
3TBD 015 003 500	0.75R X 1.5	0°30'	4	50	100	4	
3TBD 015 010 400	0.75R X 1.5	1°	4	40	100	4	
3TBD 015 010 500	0.75R X 1.5	1°	4	50	100	4	
3TBD 015 010 600	0.75R X 1.5	1°	4	60	100	4	
3TBD 020 003 400	1R X 2	0°30'	5	40	130	4	
3TBD 020 003 500	1R X 2	0°30'	5	50	130	4	
3TBD 020 003 600	1R X 2	0°30'	5	60	130	4	
3TBD 020 010 500	1R X 2	1°	5	50	130	4	
3TBD 020 010 600	1R X 2	1°	5	60	130	4	
3TBD 020 010 700	1R X 2	1°	5	70	130	4	
3TBD 030 003 600	1.5R X 3	0°30'	6	60	150	6	
3TBD 030 003 800	1.5R X 3	0°30'	6	80	150	6	
3TBD 030 010 700	1.5R X 3	1°	6	70	150	6	
3TBD 030 010 900	1.5R X 3	1°	6	90	150	6	
3TBD 040 003 800	2R X 4	0°30'	8	80	150	6	
3TBD 040 003 1000	2R X 4	0°30'	8	100	150	6	
3TBD 040 010 1000	2R X 4	1°	8	100	150	6	

FOR GRAPHITE



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
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- Wide range products prepared for various work shape and excellent performance.



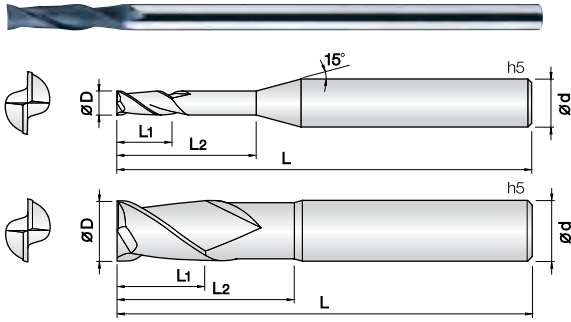
D Size	D Tolerance
Ø1 ~ 12	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4DBE 010 030 S04	0.5R X 1	3	-	60	4		4DBE 100 350 080	5R X 10	22	35	80	10	
4DBE 010 050 S04	0.5R X 1	3	5	60	4		4DBE 100 350 110	5R X 10	22	35	110	10	
4DBE 010 100 S04	0.5R X 1	3	10	60	4		4DBE 100 400 160	5R X 10	22	40	160	10	
4DBE 010 150 S04	0.5R X 1	3	15	60	4		4DBE 100 500 200	5R X 10	22	50	200	10	
4DBE 010 200 S04	0.5R X 1	3	20	60	4		4DBE 120 500 110	6R X 12	25	50	110	12	
4DBE 010 250 S04	0.5R X 1	3	25	60	4		4DBE 120 500 160	6R X 12	25	50	160	12	
New 4DBE 010 300 S04	0.5R X 1	4.5	30	80	4		4DBE 120 600 200	6R X 12	25	60	200	12	
New 4DBE 010 350 S04	0.5R X 1	4.5	35	80	4								
New 4DBE 010 400 S04	0.5R X 1	4.5	40	80	4								
New 4DBE 010 450 S04	0.5R X 1	4.5	45	80	4								
New 4DBE 010 500 S04	0.5R X 1	4.5	50	80	4								
4DBE 015 045 S04	0.75R X 1.5	4.5	-	60	4								
4DBE 015 100 S04	0.75R X 1.5	4.5	10	60	4								
4DBE 015 150 S04	0.75R X 1.5	4.5	15	60	4								
4DBE 015 200 S04	0.75R X 1.5	4.5	20	60	4								
4DBE 015 250 S04	0.75R X 1.5	4.5	25	60	4								
New 4DBE 015 300 S04	0.75R X 1.5	4.5	30	80	4								
New 4DBE 015 350 S04	0.75R X 1.5	4.5	35	80	4								
New 4DBE 015 400 S04	0.75R X 1.5	4.5	40	80	4								
New 4DBE 015 450 S04	0.75R X 1.5	4.5	45	80	4								
New 4DBE 015 500 S04	0.75R X 1.5	4.5	50	80	4								
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								
4DBE 020 300 S04	1R X 2	6	30	80	4								
4DBE 020 400 S04	1R X 2	6	40	80	4								
New 4DBE 020 500 S04	1R X 2	6	50	100	4								
New 4DBE 020 600 S04	1R X 2	6	60	100	4								
New 4DBE 020 700 S04	1R X 2	6	70	100	4								
4DBE 030 080 S04	1.5R X 3	8	-	60	4								
4DBE 030 150 S04	1.5R X 3	8	15	100	4								
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 030 600 S04	1.5R X 3	8	60	100	4								
New 4DBE 030 700 S04	1.5R X 3	8	70	100	4								
4DBE 040 160 060	2R X 4	16	-	60	4								
4DBE 040 160 080	2R X 4	16	-	80	4								
4DBE 040 160 100	2R X 4	16	-	100	4								
4DBE 040 160 130	2R X 4	16	-	130	4								
4DBE 060 250 080	3R X 6	16	25	80	6								
4DBE 060 250 110	3R X 6	16	25	110	6								
4DBE 060 300 150	3R X 6	16	30	150	6								
4DBE 080 300 080	4R X 8	20	30	80	8								
4DBE 080 300 110	4R X 8	20	30	110	8								
4DBE 080 350 150	4R X 8	20	35	150	8								
4DBE 080 400 200	4R X 8	20	40	200	8								

FOR GRAPHITE

## 2날 흑연가공용 다이아몬드 코팅 엔드밀



- 그래파이트(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.
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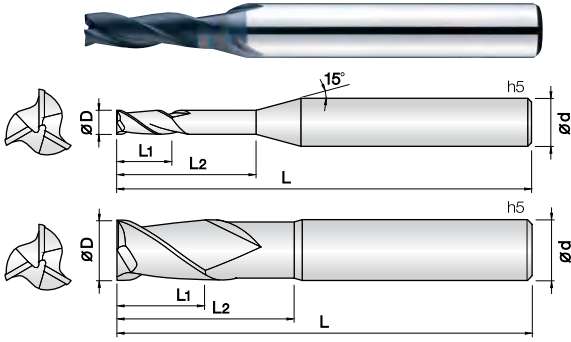
D Size	D Tolerance
∅0.2 ~ 12	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DEM 002 004 S04	0.2	0.4	-	45	4		2DEM 030 400 S04	3	12	40	80	4	
2DEM 003 006 S04	0.3	0.6	-	45	4		New 2DEM 030 500 S04	3	12	50	80	4	
New 2DEM 003 020 S04	0.3	0.6	2	45	4		2DEM 040 120 S06	4	12	-	50	6	
New 2DEM 003 040 S04	0.3	0.6	4	45	4		2DEM 040 160 080	4	16	-	80	4	
2DEM 004 008 S04	0.4	0.8	-	45	4		2DEM 050 150 S06	5	15	-	60	6	
New 2DEM 004 020 S04	0.4	0.8	2	45	4		2DEM 050 200 S06	5	20	-	110	6	
New 2DEM 004 040 S04	0.4	0.8	4	45	4		2DEM 060 180 S06	6	18	-	60	6	
2DEM 005 010 S04	0.5	1	-	45	4		2DEM 060 250 110	6	25	-	110	6	
New 2DEM 005 030 S04	0.5	1	3	45	4		2DEM 060 250 150	6	25	-	150	6	
New 2DEM 005 050 S04	0.5	1	5	45	4		2DEM 080 240 S08	8	24	-	70	8	
2DEM 006 012 S04	0.6	1.2	-	45	4		2DEM 080 400 150	8	25	40	150	8	
New 2DEM 006 030 S04	0.6	1.2	3	45	4		2DEM 100 250 S10	10	25	-	80	10	
New 2DEM 006 050 S04	0.6	1.2	5	45	4		2DEM 100 500 160	10	25	50	160	10	
2DEM 007 015 S04	0.7	1.5	-	45	4		2DEM 120 250 S12	12	25	-	80	12	
New 2DEM 007 040 S04	0.7	1.5	4	45	4		2DEM 120 600 160	12	25	60	160	12	
New 2DEM 007 060 S04	0.7	1.5	6	45	4								
New 2DEM 007 080 S04	0.7	1.5	8	45	4								
2DEM 008 020 S04	0.8	2	-	45	4								
2DEM 009 025 S04	0.9	2.5	-	45	4								
2DEM 010 030 S04	1	3	-	60	4								
2DEM 010 032 S04	1	3.2	-	45	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								
New 2DEM 010 300 S04	1	3	30	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								
New 2DEM 015 300 S04	1.5	6	30	60	4								
2DEM 020 060 S04	2	6	-	45	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								
New 2DEM 020 450 S04	2	8	45	80	4								
New 2DEM 020 500 S04	2	8	50	80	4								
2DEM 030 090 S06	3	9	-	50	6								
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								

FOR GRAPHITE

## 3날 흑연가공용 다이아몬드 코팅 엔드밀



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
- CVD 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
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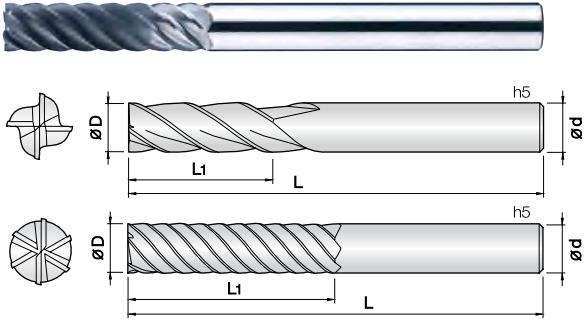
D Size	D Tolerance
Ø1 ~ 12	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
3DEM 010 030 S04	1	3	-	45	4								
New 3DEM 010 050 S04	1	3	5	45	4								
New 3DEM 010 100 S04	1	3	10	45	4								
New 3DEM 010 150 S04	1	3	15	45	4								
3DEM 015 060 S04	1.5	6	-	60	4								
New 3DEM 015 100 S04	1.5	6	10	60	4								
New 3DEM 015 150 S04	1.5	6	15	60	4								
New 3DEM 015 200 S04	1.5	6	20	60	4								
3DEM 020 060 S04	2	6	-	45	4								
3DEM 020 100 S04	2	10	10	60	4								
New 3DEM 020 150 S04	2	10	15	60	4								
New 3DEM 020 200 S04	2	10	20	60	4								
New 3DEM 020 250 S04	2	10	25	60	4								
3DEM 030 090 S06	3	9	9	50	6								
3DEM 030 150 S03	3	15	-	60	3								
3DEM 030 150 S04	3	15	-	60	4								
New 3DEM 030 200 S04	3	15	20	60	4								
New 3DEM 030 250 S04	3	15	25	60	4								
3DEM 040 120 S06	4	12	-	50	6								
3DEM 040 200 080	4	20	-	80	6								
3DEM 060 180 060	6	18	-	60	6								
3DEM 060 250 110	6	25	-	110	6								
3DEM 060 250 150	6	25	-	150	6								
3DEM 080 240 070	8	24	-	70	8								
3DEM 080 350 110	8	35	-	110	8								
3DEM 080 350 150	8	35	-	150	8								
3DEM 100 250 080	10	25	-	80	10								
3DEM 100 400 110	10	40	-	110	10								
3DEM 100 500 160	10	50	-	160	10								
3DEM 120 250 080	12	25	-	80	12								
3DEM 120 450 110	12	45	-	110	12								
3DEM 120 550 160	12	55	-	160	12								

FOR GRAPHITE





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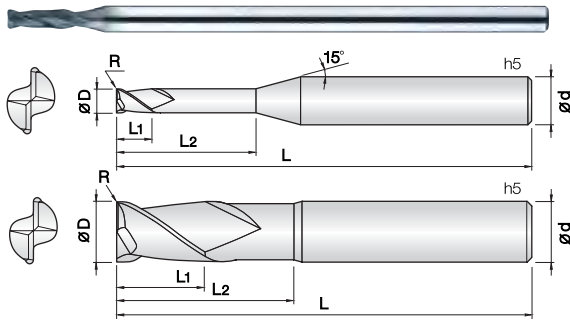
4 6 WC 미립자 DIA. Coating DI +0 -0.02 30° Helix Angle 45° Helix Angle Shield Edge

D Size	D Tolerance
ø2 ~ 16	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4DEM 020 060 S04	2	6	45	4		6DEM 100 400 110	10	40	110	10	
4DEM 020 100 S04	2	10	60	4		6DEM 100 400 160	10	40	160	10	
4DEM 030 090 S06	3	9	50	6		6DEM 120 450 110	12	45	110	12	
4DEM 030 150 S03	3	15	60	3		6DEM 120 450 160	12	45	160	12	
4DEM 030 150 S04	3	15	60	4		6DEM 160 500 110	16	50	110	16	
4DEM 040 120 S06	4	12	50	6		6DEM 160 500 160	16	50	160	16	
4DEM 040 200 080	4	20	80	4		6DEM 160 500 200	16	50	200	16	
New 4DEM 040 200 100	4	20	100	4							
4DEM 060 180 060	6	18	60	6							
4DEM 060 250 110	6	25	110	6							
4DEM 060 250 150	6	25	150	6							
4DEM 080 240 070	8	24	70	8							
4DEM 080 350 110	8	35	110	8							
4DEM 080 350 150	8	35	150	8							
4DEM 100 250 080	10	25	80	10							
4DEM 100 400 110	10	40	110	10							
4DEM 100 500 160	10	50	160	10							
4DEM 120 250 080	12	25	80	12							
4DEM 120 450 110	12	45	110	12							
4DEM 120 550 160	12	55	160	12							

FOR GRAPHITE



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
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R0.02 ~ 1

D Size	D Tolerance
Ø0.2 ~ 6	+0 ~ -0.02mm

단위 : mm

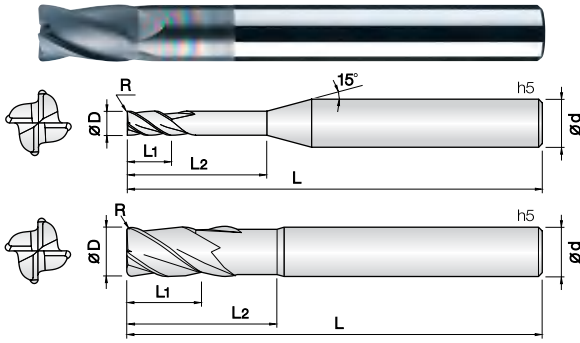
Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홅크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홅크 Shank Dia d	비고
2DCR 002 0002 015	0.2 X R0.02	0.5	1.5	60	4		2DCR 015 001 150	1.5 X R0.1	3	15	60	4	
2DCR 003 0002 015	0.3 X R0.02	0.6	1.5	60	4		2DCR 015 001 200	1.5 X R0.1	3	20	60	4	
2DCR 003 0002 030	0.3 X R0.02	0.6	3	60	4		2DCR 015 0015 030	1.5 X R0.15	3	-	60	4	
2DCR 003 0002 045	0.3 X R0.02	0.6	4.5	60	4		2DCR 015 0015 050	1.5 X R0.15	3	5	60	4	
2DCR 003 0002 060	0.3 X R0.02	0.6	6	60	4		2DCR 015 0015 100	1.5 X R0.15	3	10	60	4	
2DCR 004 0002 020	0.4 X R0.02	0.8	2	60	4		2DCR 015 0015 150	1.5 X R0.15	3	15	60	4	
2DCR 004 0002 040	0.4 X R0.02	0.8	4	60	4		2DCR 015 0015 200	1.5 X R0.15	3	20	60	4	
2DCR 004 0002 060	0.4 X R0.02	0.8	6	60	4		2DCR 015 002 030	1.5 X R0.2	3	-	60	4	
2DCR 004 0002 080	0.4 X R0.02	0.8	8	60	4		2DCR 015 002 050	1.5 X R0.2	3	5	60	4	
2DCR 005 0005 010	0.5 X R0.05	1	-	60	4		2DCR 015 002 100	1.5 X R0.2	3	10	60	4	
2DCR 005 0005 025	0.5 X R0.05	1	2.5	60	4		2DCR 015 002 150	1.5 X R0.2	3	15	60	4	
2DCR 005 0005 035	0.5 X R0.05	1	3.5	60	4		2DCR 015 002 200	1.5 X R0.2	3	20	60	4	
2DCR 005 0005 050	0.5 X R0.05	1	5	60	4		2DCR 015 003 030	1.5 X R0.3	3	-	60	4	
2DCR 005 0005 075	0.5 X R0.05	1	7.5	60	4		2DCR 015 003 050	1.5 X R0.3	3	5	60	4	
2DCR 005 0005 100	0.5 X R0.05	1	10	60	4		2DCR 015 003 100	1.5 X R0.3	3	10	60	4	
2DCR 006 0005 012	0.6 X R0.05	1.2	-	60	4		2DCR 015 003 150	1.5 X R0.3	3	15	60	4	
2DCR 006 0005 030	0.6 X R0.05	1.2	3	60	4		2DCR 015 003 200	1.5 X R0.3	3	20	60	4	
2DCR 006 0005 060	0.6 X R0.05	1.2	6	60	4		2DCR 020 0005 035	2 X R0.05	3.5	-	60	4	
2DCR 006 0005 090	0.6 X R0.05	1.2	9	60	4		2DCR 020 0005 060	2 X R0.05	3.5	6	60	4	
2DCR 006 0005 120	0.6 X R0.05	1.2	12	60	4		2DCR 020 0005 120	2 X R0.05	3.5	12	60	4	
2DCR 008 0005 016	0.8 X R0.05	1.6	-	60	4		2DCR 020 0005 180	2 X R0.05	3.5	18	60	4	
2DCR 008 0005 040	0.8 X R0.05	1.6	4	60	4		2DCR 020 0005 250	2 X R0.05	3.5	25	60	4	
2DCR 008 0005 080	0.8 X R0.05	1.6	8	60	4		2DCR 020 0005 300	2 X R0.05	3.5	30	60	4	
2DCR 008 0005 100	0.8 X R0.05	1.6	10	60	4		2DCR 020 002 035	2 X R0.2	3.5	-	60	4	
2DCR 008 0005 160	0.8 X R0.05	1.6	16	60	4		2DCR 020 002 060	2 X R0.2	3.5	6	60	4	
2DCR 010 0005 020	1 X R0.05	2	-	60	4		2DCR 020 002 120	2 X R0.2	3.5	12	60	4	
2DCR 010 0005 050	1 X R0.05	2	5	60	4		2DCR 020 002 180	2 X R0.2	3.5	18	60	4	
2DCR 010 0005 100	1 X R0.05	2	10	60	4		2DCR 020 002 250	2 X R0.2	3.5	25	60	4	
2DCR 010 0005 150	1 X R0.05	2	15	60	4		2DCR 020 002 300	2 X R0.2	3.5	30	60	4	
2DCR 010 0005 200	1 X R0.05	2	20	60	4		2DCR 020 003 035	2 X R0.3	3.5	-	60	4	
2DCR 010 001 020	1 X R0.1	2	-	60	4		2DCR 020 003 060	2 X R0.3	3.5	6	60	4	
2DCR 010 001 050	1 X R0.1	2	5	60	4		2DCR 020 003 120	2 X R0.3	3.5	12	60	4	
2DCR 010 001 100	1 X R0.1	2	10	60	4		2DCR 020 003 180	2 X R0.3	3.5	18	60	4	
2DCR 010 001 150	1 X R0.1	2	15	60	4		2DCR 020 003 250	2 X R0.3	3.5	25	60	4	
2DCR 010 001 200	1 X R0.1	2	20	60	4		2DCR 020 003 300	2 X R0.3	3.5	30	60	4	
2DCR 010 002 020	1 X R0.2	2	-	60	4		2DCR 020 005 035	2 X R0.5	3.5	-	60	4	
2DCR 010 002 050	1 X R0.2	2	5	60	4		2DCR 020 005 060	2 X R0.5	3.5	6	60	4	
2DCR 010 002 100	1 X R0.2	2	10	60	4		2DCR 020 005 120	2 X R0.5	3.5	12	60	4	
2DCR 010 002 150	1 X R0.2	2	15	60	4		2DCR 020 005 180	2 X R0.5	3.5	18	60	4	
2DCR 010 002 200	1 X R0.2	2	20	60	4		2DCR 020 005 250	2 X R0.5	3.5	25	60	4	
2DCR 015 0005 030	1.5 X R0.05	3	-	60	4		2DCR 020 005 300	2 X R0.5	3.5	30	60	4	
2DCR 015 0005 050	1.5 X R0.05	3	5	60	4		2DCR 030 0005 040	3 X R0.05	4	-	80	4	
2DCR 015 0005 100	1.5 X R0.05	3	10	60	4		2DCR 030 0005 100	3 X R0.05	4	10	80	4	
2DCR 015 0005 150	1.5 X R0.05	3	15	60	4		2DCR 030 0005 200	3 X R0.05	4	20	80	4	
2DCR 015 0005 200	1.5 X R0.05	3	20	60	4		2DCR 030 0005 300	3 X R0.05	4	30	80	4	
2DCR 015 001 030	1.5 X R0.1	3	-	60	4		2DCR 030 0005 400	3 X R0.05	4	40	80	4	
2DCR 015 001 050	1.5 X R0.1	3	5	60	4		2DCR 030 002 040	3 X R0.2	4	-	80	4	
2DCR 015 001 100	1.5 X R0.1	3	10	60	4		2DCR 030 002 100	3 X R0.2	4	10	80	4	

FOR GRAPHITE

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DCR 030 002 200	3 X R0.2	4	20	80	4		2DCR 060 0005 300	6 X R0.05	7	30	110	6	
2DCR 030 002 300	3 X R0.2	4	30	80	4		2DCR 060 0005 500	6 X R0.05	7	50	110	6	
2DCR 030 002 400	3 X R0.2	4	40	80	4		2DCR 060 002 070	6 X R0.2	7	-	110	6	
2DCR 030 003 040	3 X R0.3	4	-	80	4		2DCR 060 002 200	6 X R0.2	7	20	110	6	
2DCR 030 003 100	3 X R0.3	4	10	80	4		2DCR 060 002 300	6 X R0.2	7	30	110	6	
2DCR 030 003 200	3 X R0.3	4	20	80	4		2DCR 060 002 500	6 X R0.2	7	50	110	6	
2DCR 030 003 300	3 X R0.3	4	30	80	4		2DCR 060 005 070	6 X R0.5	7	-	110	6	
2DCR 030 003 400	3 X R0.3	4	40	80	4		2DCR 060 005 200	6 X R0.5	7	20	110	6	
2DCR 030 005 040	3 X R0.5	4	-	80	4		2DCR 060 005 300	6 X R0.5	7	30	110	6	
2DCR 030 005 100	3 X R0.5	4	10	80	4		2DCR 060 005 500	6 X R0.5	7	50	110	6	
2DCR 030 005 200	3 X R0.5	4	20	80	4		2DCR 060 010 070	6 X R1	7	-	110	6	
2DCR 030 005 300	3 X R0.5	4	30	80	4		2DCR 060 010 200	6 X R1	7	20	110	6	
2DCR 030 005 400	3 X R0.5	4	40	80	4		2DCR 060 010 300	6 X R1	7	30	110	6	
2DCR 030 010 040	3 X R1	4	-	80	4		2DCR 060 010 500	6 X R1	7	50	110	6	
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	-	110	6								
2DCR 050 0005 150	5 X R0.05	6	15	110	6								
2DCR 050 0005 300	5 X R0.05	6	30	110	6								
2DCR 050 0005 500	5 X R0.05	6	50	110	6								
2DCR 050 002 060	5 X R0.2	6	-	110	6								
2DCR 050 002 150	5 X R0.2	6	15	110	6								
2DCR 050 002 300	5 X R0.2	6	30	110	6								
2DCR 050 002 500	5 X R0.2	6	50	110	6								
2DCR 050 005 060	5 X R0.5	6	-	110	6								
2DCR 050 005 150	5 X R0.5	6	15	110	6								
2DCR 050 005 300	5 X R0.5	6	30	110	6								
2DCR 050 005 500	5 X R0.5	6	50	110	6								
2DCR 060 0005 070	6 X R0.05	7	-	110	6								
2DCR 060 0005 200	6 X R0.05	7	20	110	6								

FOR GRAPHITE



- 그래파이트(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.



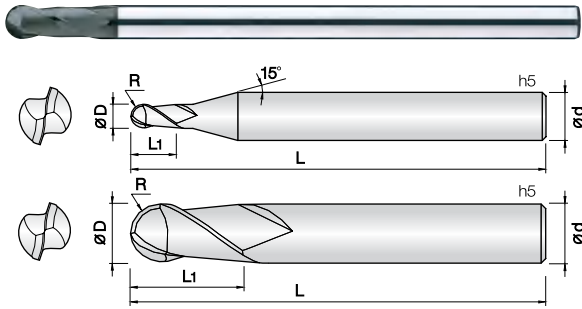
R0.05 ~ 1

D Size	D Tolerance
Ø0.2 ~ 6	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4DCR 020 0005 035	2 X R0.05	3.5	-	60	4		4DCR 030 010 400	3 X R1	4	40	80	4	
4DCR 020 0005 060	2 X R0.05	3.5	6	60	4		4DCR 040 003 100	4 X R0.3	6	20	100	4	
4DCR 020 0005 120	2 X R0.05	3.5	12	60	4		4DCR 040 005 100	4 X R0.5	6	20	100	4	
4DCR 020 0005 180	2 X R0.05	3.5	18	60	4		4DCR 040 010 100	4 X R1	6	20	100	4	
4DCR 020 0005 250	2 X R0.05	3.5	25	60	4		4DCR 060 003 110	6 X R0.3	9	25	110	6	
4DCR 020 0005 300	2 X R0.05	3.5	30	60	4		4DCR 060 005 110	6 X R0.5	9	25	110	6	
4DCR 020 002 035	2 X R0.2	3.5	-	60	4		4DCR 060 005 150	6 X R0.5	9	30	150	6	
4DCR 020 002 060	2 X R0.2	3.5	6	60	4		4DCR 060 010 110	6 X R1	9	25	110	6	
4DCR 020 002 120	2 X R0.2	3.5	12	60	4		4DCR 060 010 150	6 X R1	9	30	150	6	
4DCR 020 002 180	2 X R0.2	3.5	18	60	4		4DCR 080 003 110	8 X R0.3	12	30	110	8	
4DCR 020 002 250	2 X R0.2	3.5	25	60	4		4DCR 080 005 110	8 X R0.5	12	30	110	8	
4DCR 020 002 300	2 X R0.2	3.5	30	60	4		4DCR 080 005 150	8 X R0.5	12	40	150	8	
4DCR 020 003 035	2 X R0.3	3.5	-	60	4		4DCR 080 010 110	8 X R1	12	30	110	8	
4DCR 020 003 060	2 X R0.3	3.5	6	60	4		4DCR 080 010 150	8 X R1	12	40	150	8	
4DCR 020 003 120	2 X R0.3	3.5	12	60	4		4DCR 100 005 110	10 X R0.5	15	35	110	10	
4DCR 020 003 180	2 X R0.3	3.5	18	60	4		4DCR 100 005 160	10 X R0.5	15	45	160	10	
4DCR 020 003 250	2 X R0.3	3.5	25	60	4		4DCR 100 010 110	10 X R1	15	35	110	10	
4DCR 020 003 300	2 X R0.3	3.5	30	60	4		4DCR 100 010 160	10 X R1	15	45	160	10	
4DCR 020 005 035	2 X R0.5	3.5	-	60	4		4DCR 120 005 110	12 X R0.5	18	40	110	12	
4DCR 020 005 060	2 X R0.5	3.5	6	60	4		4DCR 120 005 160	12 X R0.5	18	45	160	12	
4DCR 020 005 120	2 X R0.5	3.5	12	60	4		4DCR 120 010 110	12 X R1	18	40	110	12	
4DCR 020 005 180	2 X R0.5	3.5	18	60	4		4DCR 120 010 160	12 X R1	18	45	160	12	
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								

FOR GRAPHITE



- 강화플라스틱(CFRP,GFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 복합소재 전용 라우터
- 다양한 복합소재 가공영역에 뛰어난 성능을 발휘합니다.
- 코팅피막에 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- **Endmills for CFRP, GFRP, glass/carbon fiber, 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 WC 미립자 NANO DIA. Coating R ±0.005 R ±0.01 30° Helix Angle

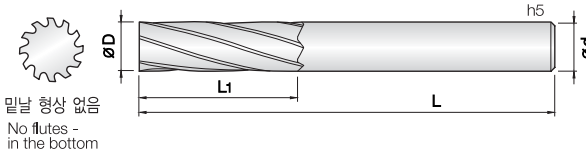
0.25 ~ 0.5R    0.75 ~ 6R

D Size	D Tolerance
Ø0.5 ~ 1	+0 ~ -0.01mm
Ø1.5 ~ 12	-0.005 ~ -0.02mm

단위 : mm

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

FOR COMPOSITE



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

8 ~ 12 WC 미립자 NANO DIA. Coating LDI -0.01 -0.025 15° Helix Angle

Ø6 - Ø12

D Size	D Tolerance
Ø6 ~ 12	-0.01 ~ -0.025mm

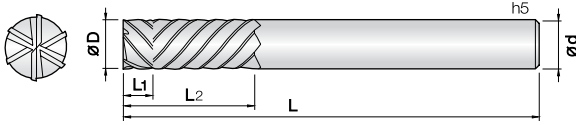
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
8CPE 060 180 080	6	18	80	6						
10CPE 080 240 080	8	24	80	8						
12CPE 100 300 100	10	30	100	10						
12CPE 120 360 100	12	36	100	12						

# 3&4&6CPR

3-6 Flutes Compression Router for Composite

## 3~6날 복합소재 가공용 라우터



- 강화플라스틱(CFRP, GFRP), 유리/탄소 섬유, 그래파이트(흑연) 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, GFRP, glass/carbon fiber, graphite, 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 **WC 미립자** **GTAC Coating** **NANO DIA. Coating** **ID** **30° Helix Angle** **Shield Edge**

D Size	D Tolerance
Ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	날장 Length of cut L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	날장 Length of cut L2	전장 Overall Length L	샙크 Shank Dia d	비고
<b>GTAC 코팅</b> GTAC Coating							<b>다이아코팅</b> DIA Coating						
3CPR 060 200 S06	6	5	20	70	6		4CPR 060 200 S06	6	5	20	70	6	
3CPR 080 250 S08	8	5	25	80	8		6CPR 080 250 S08	8	5	25	80	8	
3CPR 100 270 S10	10	6	27	80	10		6CPR 100 270 S10	10	6	27	80	10	
3CPR 120 300 S12	12	6	30	80	12		6CPR 120 300 S12	12	6	30	80	12	

# 6~16CPO

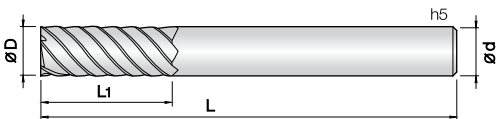
6~16 Flutes Router for Composite

## 6~16날 복합소재 가공용 라우터

A Type



B Type



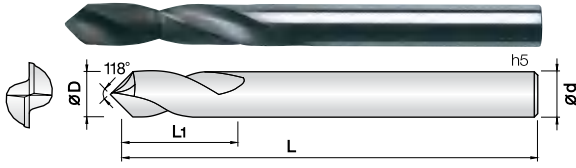
- 강화플라스틱(CFRP, GFRP), 유리/탄소 섬유, 그래파이트(흑연) 등 비철 비금속 계열의 다양한 복합소재 전용 라우터
- 다양한 복합소재의 황삭가공시 뛰어난 성능을 발휘합니다
- A type은 밑날의 수가 많아 슬로팅 작업에 최적입니다.
- B type은 밑날이 2날로서 수직 및 수평가공시 탁월한 성능을 발휘합니다.
- 코팅피막의 경도가 높아 내마모성이 우수합니다.
- 마찰계수가 낮은 다이아몬드 코팅을 적용하여 흡착현상을 최소화하였습니다.
- Router for CFRP, GFRP, glass/carbon fiber, graphite,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

6 ~ 16 **WC 미립자** **NANO DIA. Coating** **ID** **ID** **30° Helix Angle** **Shield Edge**

D Size	D Tolerance
Ø4 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	타입 Type	샙크 Shank Dia d	비고
<b>New</b> 6CPOA 020 070 S04	2	7	40	A	4		10CPOA 060 200 S06	6	20	70	A	6	
<b>New</b> 6CPOB 020 070 S04	2	7	40	B	4		10CPOB 060 200 S06	6	20	70	B	6	
<b>New</b> 6CPOA 030 120 S04	3	12	50	A	4		12CPOA 080 250 S08	8	25	80	A	8	
<b>New</b> 6CPOB 030 120 S04	3	12	50	B	4		12CPOB 080 250 S08	8	25	80	B	8	
8CPOA 040 160 S04	4	16	60	A	4		14CPOA 100 270 S10	10	27	80	A	10	
8CPOB 040 160 S04	4	16	60	B	4		14CPOB 100 270 S10	10	27	80	B	10	
10CPOA 050 200 S06	5	20	60	A	6		16CPOA 120 300 S12	12	30	80	A	12	
10CPOB 050 200 S06	5	20	60	B	6		16CPOB 120 300 S12	12	30	80	B	12	



- 강화플라스틱(CFRP,GFRP), 유리/탄소섬유, 동 및 동합금, 그래파이트 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,GFRP, glass/carbon fiber, copper, copper alloy, graphite 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

WC  
미립자

NANO  
DIA.  
Coating

|D|  
+0 -0.01

|D|  
-0.005 -0.015

20°  
Helix Angle

Ø2~Ø5.5
Ø6~Ø12

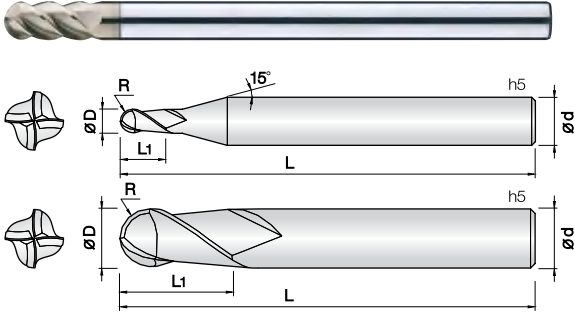
D Size	D Tolerance
Ø2 ~ 5.5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

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

FOR COMPOSITE

## 4날 45° 헬릭스 SUS가공용 볼 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 미립자 초경합금을 채택하여 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO 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 fine WC grade.

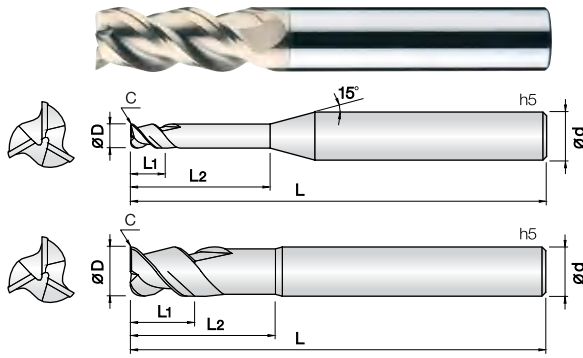
D Size	D Tolerance
∅3 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm
∅16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
New 4SUB 010 025 S06	0.5R X 1	2.5	50	6							
New 4SUB 015 040 S06	0.75R X 1.5	4	50	6							
New 4SUB 020 060 S06	1R X 2	6	50	6							
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							



## 3날 45°헬릭스 SUS가공용 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며 내마모성 또한 향상됩니다
- 3날 적용 및 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Excellent work surface finish by 3 flute and deep chip pocket.
- 45° degree helix design for high speed, feed condition.
- Minimize fracturing at high feed by high TRS fine WC grade.

3

WC  
미립자

JCRO  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

45°  
Helix Angle

Shield Edge

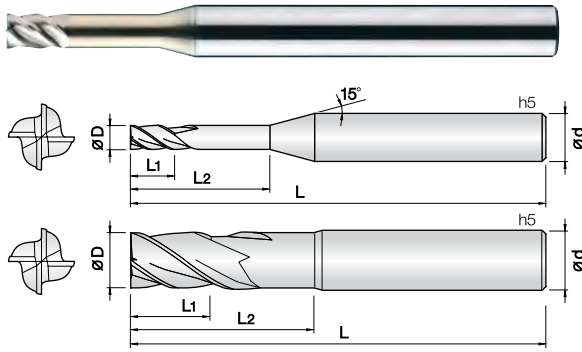
D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
New 3SUE 005 010 S04	0.5	1	-	45	4		3SUE 160 360 S16	16	36	-	100	16	
New 3SUE 005 020 S04	0.5	1	2	45	4		3SUE 160 450 S16	16	36	45	100	16	
New 3SUE 005 030 S04	0.5	1	3	45	4		3SUE 200 550 S20	20	38	55	110	20	
New 3SUE 005 040 S04	0.5	1	4	45	4								
New 3SUE 006 012 S04	0.6	1.2	-	45	4								
New 3SUE 006 030 S04	0.6	1.2	3	45	4								
New 3SUE 006 050 S04	0.6	1.2	5	45	4								
New 3SUE 007 014 S04	0.7	1.4	-	45	4								
New 3SUE 007 030 S04	0.7	1.4	3	45	4								
3SUE 008 020 S04	0.8	2	-	45	4								
3SUE 008 040 S06	0.8	2	4	45	6								
New 3SUE 008 060 S06	0.8	2	6	45	6								
3SUE 010 025 S04	1	2.5	-	45	4								
3SUE 010 025 S06	1	2.5	-	45	6								
3SUE 010 040 S06	1	2.5	4	45	6								
New 3SUE 010 060 S06	1	2.5	6	45	6								
New 3SUE 010 080 S06	1	2.5	8	45	6								
3SUE 012 030 S04	1.2	3	-	45	4								
3SUE 012 030 S06	1.2	3	-	45	6								
3SUE 012 060 S06	1.2	3	6	45	6								
New 3SUE 012 080 S06	1.2	3	8	45	6								
3SUE 015 040 S04	1.5	4	-	45	4								
3SUE 015 040 S06	1.5	4	-	45	6								
3SUE 015 060 S06	1.5	4	6	45	6								
New 3SUE 015 080 S06	1.5	4	8	45	6								
New 3SUE 015 100 S06	1.5	4	10	45	6								
3SUE 020 050 S04	2	5	-	45	4								
3SUE 020 050 S06	2	5	-	45	6								
3SUE 020 080 S06	2	5	8	45	6								
New 3SUE 020 100 S06	2	5	10	50	6								
New 3SUE 020 120 S06	2	5	12	50	6								
3SUE 030 080 S04	3	8	-	45	4								
3SUE 030 080 S06	3	8	-	45	6								
3SUE 030 150 S06	3	8	15	45	6								
New 3SUE 030 200 S06	3	8	20	60	6								
3SUE 040 100 S04	4	10	-	50	4								
3SUE 040 100 S06	4	10	-	50	6								
3SUE 040 150 S06	4	10	15	50	6								
New 3SUE 040 200 S06	4	10	20	60	6								
3SUE 050 120 S06	5	12	-	50	6								
3SUE 060 120 S06	6	12	-	60	6								
3SUE 060 200 S06	6	12	20	60	6								
3SUE 080 190 S08	8	19	-	60	8								
3SUE 080 260 S08	8	19	26	60	8								
3SUE 100 220 S10	10	22	-	70	10								
3SUE 100 320 S10	10	22	32	70	10								
3SUE 120 260 S12	12	26	-	80	12								
3SUE 120 380 S12	12	26	38	80	12								

FOR SUS

## 4날 SUS가공용 리브 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- J-CRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO 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 fine WC grade.



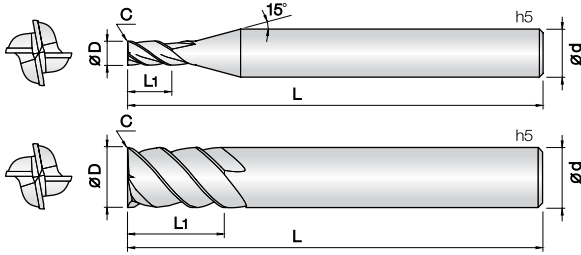
D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16 ~ 20	-0.015 ~ -0.03mm

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	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4SURE 010 030 S04	1	1.5	3	50	4								
4SURE 010 050 S04	1	1.5	5	50	4								
4SURE 015 045 S04	1.5	2.5	4.5	50	4								
4SURE 015 060 S04	1.5	2.5	6	50	4								
4SURE 015 080 S04	1.5	2.5	8	50	4								
4SURE 020 065 S04	2	3	6	50	4								
4SURE 020 080 S04	2	3	8	50	4								
4SURE 020 100 S04	2	3	10	50	4								
4SURE 020 120 S04	2	3	12	50	4								
4SURE 025 075 S04	2.5	4	7.5	50	4								
4SURE 025 100 S04	2.5	4	10	50	4								
4SURE 025 120 S04	2.5	4	12	50	4								
4SURE 030 090 S06	3	4.5	9	60	6								
4SURE 030 120 S06	3	4.5	12	60	6								
4SURE 030 160 S06	3	4.5	16	60	6								
4SURE 030 200 S06	3	4.5	20	60	6								
4SURE 040 120 S06	4	6	12	60	6								
4SURE 040 160 S06	4	6	16	60	6								
4SURE 040 200 S06	4	6	20	60	6								
4SURE 040 250 S06	4	6	25	65	6								
4SURE 050 150 S06	5	7.5	15	60	6								
4SURE 050 180 100	5	7.5	18	100	6								
4SURE 050 200 S06	5	7.5	20	60	6								
4SURE 050 250 S06	5	7.5	25	65	6								
4SURE 050 300 S06	5	7.5	30	70	6								
4SURE 060 200 S06	6	9	20	60	6								
4SURE 060 250 100	6	9	25	100	6								
4SURE 060 300 S06	6	9	30	70	6								
4SURE 080 250 S08	8	12	25	70	8								
4SURE 080 350 110	8	12	35	110	8								
4SURE 080 400 S08	8	12	40	80	8								
4SURE 100 300 S10	10	15	30	80	10								
4SURE 100 400 120	10	15	40	120	10								
4SURE 100 500 S10	10	15	50	100	10								
4SURE 120 360 S12	12	18	36	90	12								
4SURE 120 500 130	12	18	50	130	12								
4SURE 120 600 S12	12	18	60	110	12								
4SURE 160 480 S16	16	24	48	110	16								
4SURE 160 700 150	16	24	70	150	16								
4SURE 160 800 S16	16	24	80	130	16								
4SURE 200 600 130	20	30	60	130	20								
4SURE 200 1000 160	20	30	100	160	20								

FOR SUS

### 4날 SUS가공용 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO 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 fine WC grade.

4

WC  
미립자

JCRO  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

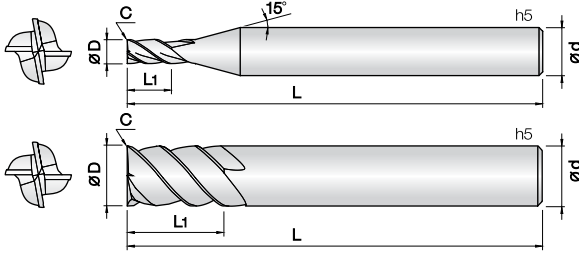
42°  
Helix Angle

C Cutting

D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	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 080 240 S08	8	24	70	8	
4SUE 010 025 S04	1	2.5	50	4		4SUE 080 300 S08	8	30	80	8	
4SUE 010 035 S04	1	3.5	50	4		New 4SUE 080 400 S08	8	40	90	8	
New 4SUE 010 050 S04	1	5	50	4		New 4SUE 080 500 S08	8	50	100	8	
4SUE 015 025 S04	1.5	2.5	50	4		4SUE 090 140 S10	9	14	80	10	
4SUE 015 040 S04	1.5	4	50	4		4SUE 090 220 S10	9	22	80	10	
4SUE 015 055 S04	1.5	5.5	50	4		4SUE 090 270 S10	9	27	80	10	
New 4SUE 015 070 S04	1.5	7	50	4		4SUE 100 150 S10	10	15	80	10	
4SUE 020 030 S04	2	3	50	4		4SUE 100 250 S10	10	25	80	10	
4SUE 020 060 S04	2	6	50	4		4SUE 100 300 S10	10	30	80	10	
4SUE 020 080 S04	2	8	50	4		4SUE 100 400 S10	10	40	90	10	
New 4SUE 020 100 S04	2	10	50	4		4SUE 100 500 S10	10	50	100	10	
New 4SUE 020 120 S04	2	12	50	4		New 4SUE 100 600 S10	10	60	110	10	
4SUE 025 035 S04	2.5	3.5	50	4		4SUE 110 170 S12	11	17	90	12	
4SUE 025 080 S04	2.5	8	50	4		4SUE 110 220 S12	11	22	90	12	
New 4SUE 025 100 S04	2.5	10	50	4		4SUE 110 330 S12	11	33	90	12	
New 4SUE 025 120 S04	2.5	12	50	4		4SUE 120 180 S12	12	18	90	12	
4SUE 030 045 S06	3	4.5	60	6		4SUE 120 300 S12	12	30	90	12	
4SUE 030 100 S06	3	10	60	6		4SUE 120 360 S12	12	36	90	12	
4SUE 030 120 S06	3	12	60	6		4SUE 120 500 S12	12	50	100	12	
New 4SUE 030 150 S06	3	15	60	6		4SUE 120 600 S12	12	60	110	12	
New 4SUE 030 200 S06	3	20	70	6		New 4SUE 120 700 S12	12	70	120	12	
New 4SUE 035 055 S06	3.5	5.5	60	6		4SUE 160 240 S16	16	24	100	16	
New 4SUE 035 100 S06	3.5	10	60	6		4SUE 160 350 S16	16	35	100	16	
New 4SUE 035 150 S06	3.5	15	60	6		4SUE 160 500 S16	16	50	110	16	
4SUE 040 060 S06	4	6	60	6		New 4SUE 160 700 S16	16	70	130	16	
4SUE 040 120 S06	4	12	60	6		New 4SUE 160 900 S16	16	90	150	16	
4SUE 040 160 S06	4	16	60	6		4SUE 200 300 S20	20	30	100	20	
New 4SUE 040 200 S06	4	20	70	6		4SUE 200 400 S20	20	40	100	20	
New 4SUE 040 250 S06	4	25	70	6		4SUE 200 600 S20	20	60	120	20	
New 4SUE 045 070 S06	4.5	7	60	6		New 4SUE 200 800 S20	20	80	150	20	
New 4SUE 045 130 S06	4.5	13	60	6		New 4SUE 200 1000 S20	20	100	160	20	
New 4SUE 045 180 S06	4.5	18	60	6							
4SUE 050 075 S06	5	7.5	60	6							
4SUE 050 150 S06	5	15	60	6							
4SUE 050 200 S06	5	20	70	6							
New 4SUE 050 250 S06	5	25	70	6							
4SUE 060 090 S06	6	9	60	6							
4SUE 060 150 S06	6	15	60	6							
4SUE 060 180 S06	6	18	65	6							
4SUE 060 250 S06	6	25	70	6							
New 4SUE 060 300 S06	6	30	70	6							
New 4SUE 060 400 S06	6	40	80	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							



- 합금강, SUS계열, Ti/N계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 부등분할 밑날방식과 가변 헬릭스 인선설계로 엔드밀의 진동을 최소화하였습니다.
- A타입은 엔드밀의 치핑을 최소화, B타입은 칩배출을 극대화 하였습니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize chattering during cutting application by unequal index of flute and helix angle to the endmill edge.
- Type A minimizes chipping, Type B maximizes chip emmissins.
- Minimize fracturing at high feed by high TRS fine WC grade.

4

WC  
미립자

JCRO  
Coating

|D|  
+0 -0.01

|D|  
-0.01 -0.025

|D|  
-0.015 -0.03

35°  
Helix Angle

38°  
Helix Angle

A

B

Ø1 ~ 5    Ø6 ~ 12    Ø16 ~ 20    Shield Edge    Shield Edge

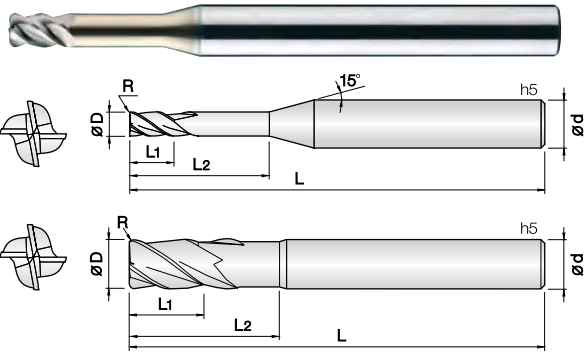
D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16 ~ 20	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	면취타입 Chamfer type Type	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	면취타입 Chamfer type Type	전장 Overall Length L	샙크 Shank Dia d	비고
4SUVA 010 025 S04	1	2.5	-	A	50	4									
4SUVB 010 025 S04	1	2.5	-	B	50	4									
4SUVA 010 060 S04	1	2.5	6	A	50	4									
4SUVA 015 040 S04	1.5	4	-	A	50	4									
4SUVB 015 040 S04	1.5	4	-	B	50	4									
4SUVA 015 100 S04	1.5	4	10	A	50	4									
4SUVA 020 050 S04	2	5	-	A	50	4									
4SUVB 020 050 S04	2	5	-	B	50	4									
4SUVA 020 120 S04	2	5	12	A	50	4									
4SUVA 030 080 S06	3	8	-	A	60	6									
4SUVB 030 080 S06	3	8	-	B	60	6									
4SUVA 030 180 S06	3	8	18	A	60	6									
4SUVA 040 110 S06	4	11	-	A	60	6									
4SUVB 040 110 S06	4	11	-	B	60	6									
4SUVA 040 210 S06	4	11	21	A	60	6									
4SUVA 050 130 S06	5	13	-	A	60	6									
4SUVB 050 130 S06	5	13	-	B	60	6									
4SUVA 050 210 S06	5	13	21	A	60	6									
4SUVA 060 130 S06	6	13	-	A	60	6									
4SUVB 060 130 S06	6	13	-	B	60	6									
4SUVA 060 210 S06	6	13	21	A	60	6									
4SUVA 080 190 S08	8	19	-	A	60	8									
4SUVB 080 190 S08	8	19	-	B	60	8									
4SUVA 080 270 S08	8	19	27	A	60	8									
4SUVA 100 220 S10	10	22	-	A	70	10									
4SUVB 100 220 S10	10	22	-	B	70	10									
4SUVA 100 320 S10	10	22	32	A	70	10									
4SUVA 120 260 S12	12	26	-	A	80	12									
4SUVB 120 260 S12	12	26	-	B	80	12									
4SUVA 120 380 S12	12	26	38	A	80	12									
4SUVA 160 320 S16	16	32	-	A	90	16									
4SUVB 160 320 S16	16	32	-	B	90	16									
4SUVA 160 450 S16	16	32	45	A	90	16									
4SUVA 200 380 S20	20	38	-	A	100	20									
4SUVB 200 380 S20	20	38	-	B	100	20									
4SUVA 200 550 S20	20	38	55	A	110	20									

FOR SUS

## 4날 SUS가공용 리브 코너 레디우스 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 4날 적용과 깊은 포켓으로 칩배출이 원활하며, 피삭재 면조도가 우수합니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO 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 fine WC grade.



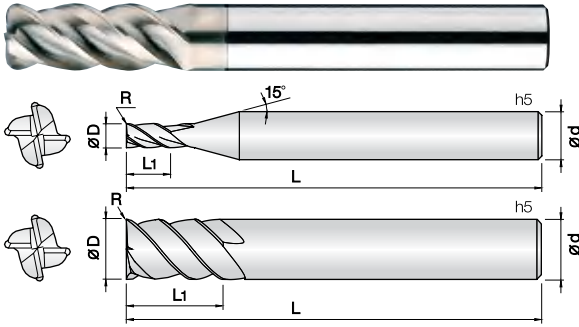
D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4SUCR 010 001 050	1 X R0.1	1.5	5	60	4		4SUCR 200 015 1000	20 X R1.5	30	100	150	20	
4SUCR 020 001 100	2 X R0.1	3	10	60	4		4SUCR 200 020 1000	20 X R2	30	100	150	20	
4SUCR 020 002 100	2 X R0.2	3	10	60	4		4SUCR 200 030 1000	20 X R3	30	100	150	20	
4SUCR 030 002 150	3 X R0.2	4.5	15	65	6		4SUCR 200 050 1000	20 X R5	30	100	150	20	
4SUCR 030 005 150	3 X R0.5	4.5	15	65	6								
4SUCR 040 002 200	4 X R0.2	6	20	70	6								
4SUCR 040 005 200	4 X R0.5	6	20	70	6								
4SUCR 040 010 200	4 X R1	6	20	70	6								
4SUCR 050 002 250	5 X R0.2	7.5	25	70	6								
4SUCR 050 005 250	5 X R0.5	7.5	25	70	6								
4SUCR 050 010 250	5 X R1	7.5	25	70	6								
4SUCR 060 003 300	6 X R0.3	9	30	70	6								
4SUCR 060 005 300	6 X R0.5	9	30	70	6								
4SUCR 060 010 300	6 X R1	9	30	70	6								
4SUCR 060 015 300	6 X R1.5	9	30	70	6								
4SUCR 070 003 350	7 X R0.3	10	35	80	8								
4SUCR 070 005 350	7 X R0.5	10	35	80	8								
4SUCR 070 010 350	7 X R1	10	35	80	8								
4SUCR 080 003 400	8 X R0.3	12	40	80	8								
4SUCR 080 005 400	8 X R0.5	12	40	80	8								
4SUCR 080 010 400	8 X R1	12	40	80	8								
4SUCR 080 015 400	8 X R1.5	12	40	80	8								
4SUCR 080 020 400	8 X R2	12	40	80	8								
4SUCR 090 003 450	9 X R0.3	13	45	90	10								
4SUCR 090 005 450	9 X R0.5	13	45	90	10								
4SUCR 090 010 450	9 X R1	13	45	90	10								
4SUCR 100 003 500	10 X R0.3	15	50	100	10								
4SUCR 100 005 500	10 X R0.5	15	50	100	10								
4SUCR 100 010 500	10 X R1	15	50	100	10								
4SUCR 100 015 500	10 X R1.5	15	50	100	10								
4SUCR 100 020 500	10 X R2	15	50	100	10								
4SUCR 110 003 550	11 X R0.3	16	55	100	12								
4SUCR 110 005 550	11 X R0.5	16	55	100	12								
4SUCR 110 010 550	11 X R1	16	55	100	12								
4SUCR 120 003 600	12 X R0.3	18	60	110	12								
4SUCR 120 005 600	12 X R0.5	18	60	110	12								
4SUCR 120 010 600	12 X R1	18	60	110	12								
4SUCR 120 015 600	12 X R1.5	18	60	110	12								
4SUCR 120 020 600	12 X R2	18	60	110	12								
4SUCR 120 025 600	12 X R2.5	18	60	110	12								
4SUCR 120 030 600	12 X R3	18	60	110	12								
4SUCR 160 005 800	16 X R0.5	24	80	130	16								
4SUCR 160 010 800	16 X R1	24	80	130	16								
4SUCR 160 015 800	16 X R1.5	24	80	130	16								
4SUCR 160 020 800	16 X R2	24	80	130	16								
4SUCR 160 030 800	16 X R3	24	80	130	16								
4SUCR 200 005 1000	20 X R0.5	30	100	150	20								
4SUCR 200 010 1000	20 X R1	30	100	150	20								

FOR SUS

## 4날 SUS가공용 코너 레디우스 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 코너R부 적용으로 밑날 치핑을 방지 하였습니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Strong design for protection against chattering..
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS fine WC grade.

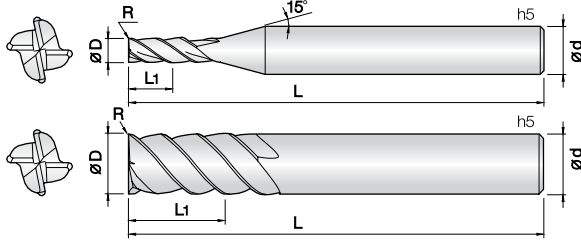


D Size	D Tolerance
ø1 ~ 5.5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4SUC 010 001 S04	1 X R0.1	2.5	50	4		4SUC 080 003 S08	8 X R0.3	20	80	8	
4SUC 010 002 S04	1 X R0.2	2.5	50	4		4SUC 080 005 070	8 X R0.5	16	70	8	
4SUC 012 001 S04	1.2 X R0.1	3	50	4		4SUC 080 005 S08	8 X R0.5	20	80	8	
4SUC 012 002 S04	1.2 X R0.2	3	50	4		4SUC 080 010 070	8 X R1	16	70	8	
4SUC 015 001 S04	1.5 X R0.1	4	50	4		4SUC 080 010 S08	8 X R1	20	80	8	
4SUC 015 002 S04	1.5 X R0.2	4	50	4		New 4SUC 080 015 S08	8 X R1.5	20	80	8	
4SUC 015 003 S04	1.5 X R0.3	4	50	4		New 4SUC 080 020 S08	8 X R2	20	80	8	
4SUC 020 001 S04	2 X R0.1	6	50	4		4SUC 085 003 S10	8.5 X R0.3	22	80	10	
4SUC 020 002 S04	2 X R0.2	6	50	4		4SUC 090 003 S10	9 X R0.3	25	80	10	
4SUC 020 003 S04	2 X R0.3	6	50	4		4SUC 100 003 070	10 X R0.3	20	70	10	
4SUC 020 005 S04	2 X R0.5	6	50	4		4SUC 100 003 S10	10 X R0.3	25	80	10	
4SUC 025 001 S04	2.5 X R0.1	7	50	4		4SUC 100 005 070	10 X R0.5	20	70	10	
4SUC 025 002 S04	2.5 X R0.2	7	50	4		4SUC 100 005 S10	10 X R0.5	25	80	10	
4SUC 025 003 S04	2.5 X R0.3	7	50	4		4SUC 100 010 070	10 X R1	20	70	10	
4SUC 030 001 S06	3 X R0.1	10	60	6		4SUC 100 010 S10	10 X R1	25	80	10	
4SUC 030 002 055	3 X R0.2	6	55	6		4SUC 100 015 070	10 X R1.5	20	70	10	
4SUC 030 002 S06	3 X R0.2	10	60	6		4SUC 100 015 S10	10 X R1.5	25	80	10	
4SUC 030 003 S06	3 X R0.3	10	60	6		4SUC 100 020 070	10 X R2	20	70	10	
4SUC 030 005 055	3 X R0.5	6	55	6		4SUC 100 020 S10	10 X R2	25	80	10	
4SUC 030 005 S06	3 X R0.5	10	60	6		4SUC 100 025 070	10 X R2.5	20	70	10	
4SUC 035 002 S06	3.5 X R0.2	10	60	6		4SUC 100 025 S10	10 X R2.5	25	80	10	
4SUC 040 001 S06	4 X R0.1	12	60	6		4SUC 100 030 070	10 X R3	20	70	10	
4SUC 040 002 055	4 X R0.2	8	55	6		4SUC 100 030 S10	10 X R3	25	80	10	
4SUC 040 002 S06	4 X R0.2	12	60	6		New 4SUC 110 005 S12	11 X R0.5	27	90	12	
4SUC 040 003 S06	4 X R0.3	12	60	6		New 4SUC 110 010 S12	11 X R1	27	90	12	
4SUC 040 005 055	4 X R0.5	8	55	6		4SUC 120 003 080	12 X R0.3	24	80	12	
4SUC 040 005 S06	4 X R0.5	12	60	6		4SUC 120 003 S12	12 X R0.3	30	100	12	
4SUC 040 010 S06	4 X R1	12	60	6		4SUC 120 005 080	12 X R0.5	24	80	12	
4SUC 045 002 S06	4.5 X R0.2	14	60	6		4SUC 120 005 S12	12 X R0.5	30	100	12	
4SUC 050 002 055	5 X R0.2	10	55	6		4SUC 120 010 080	12 X R1	24	80	12	
4SUC 050 002 S06	5 X R0.2	15	60	6		4SUC 120 010 S12	12 X R1	30	100	12	
4SUC 050 003 S06	5 X R0.3	15	60	6		4SUC 120 015 080	12 X R1.5	24	80	12	
4SUC 050 005 055	5 X R0.5	10	55	6		4SUC 120 015 S12	12 X R1.5	30	100	12	
4SUC 050 005 S06	5 X R0.5	15	60	6		4SUC 120 020 080	12 X R2	24	80	12	
4SUC 050 010 S06	5 X R1	15	60	6		4SUC 120 020 S12	12 X R2	30	100	12	
4SUC 055 002 S06	5.5 X R0.2	15	60	6		4SUC 120 025 S12	12 X R2.5	30	100	12	
4SUC 060 003 055	6 X R0.3	12	55	6		4SUC 120 030 080	12 X R3	24	80	12	
4SUC 060 003 S06	6 X R0.3	15	60	6		4SUC 120 030 S12	12 X R3	30	100	12	
4SUC 060 005 055	6 X R0.5	12	55	6		New 4SUC 140 005 S14	14 X R0.5	35	100	14	
4SUC 060 005 S06	6 X R0.5	15	60	6		New 4SUC 140 010 S14	14 X R1	35	100	14	
4SUC 060 010 055	6 X R1	12	55	6		4SUC 160 005 100	16 X R0.5	32	100	16	
4SUC 060 010 S06	6 X R1	15	60	6		4SUC 160 005 S16	16 X R0.5	42	110	16	
New 4SUC 060 015 S06	6 X R1.5	15	60	6		4SUC 160 010 100	16 X R1	32	100	16	
4SUC 065 003 S08	6.5 X R0.3	18	60	8		4SUC 160 010 S16	16 X R1	42	110	16	
4SUC 070 003 S08	7 X R0.3	20	80	8		New 4SUC180 005 S18	18 X R0.5	45	110	18	
New 4SUC 070 005 S08	7 X R0.5	20	80	8		New 4SUC180 010 S18	18 X R1	45	110	18	
New 4SUC 007 010 S08	7 X R1	20	80	8		4SUC 200 005 S20	20 X R0.5	48	110	20	
4SUC 080 003 070	8 X R0.3	16	70	8		4SUC 200 010 S20	20 X R1	48	110	20	

## 4날 SUS가공용 긴길이 코너 레디우스 엔드밀



- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 코너R부 적용으로 밑날 치핑을 방지 하였습니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화
- **Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Strong design for protection against chattering..
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS fine WC grade.

4

WC  
미립자

JCRO  
Coating

R  
±0.005

R  
±0.01

R  
±0.015

42°  
Helix Angle

R0.3 ~ 0.5    R1 ~ 1.5    R2 ~ 3

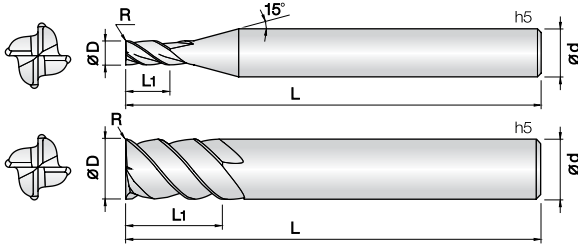
D Size	D Tolerance
ø6 ~ 12	-0.005 ~ -0.015mm
ø16 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
4LSUC 060 003 070	6 X R0.3	30	70	6							
4LSUC 060 005 070	6 X R0.5	30	70	6							
4LSUC 060 010 070	6 X R1	30	70	6							
4LSUC 060 015 070	6 X R1.5	30	70	6							
4LSUC 080 003 080	8 X R0.3	40	80	8							
4LSUC 080 005 080	8 X R0.5	40	80	8							
4LSUC 080 010 080	8 X R1	40	80	8							
4LSUC 080 015 080	8 X R1.5	40	80	8							
4LSUC 080 020 080	8 X R2	40	80	8							
4LSUC 100 003 100	10 X R0.3	50	100	10							
4LSUC 100 005 100	10 X R0.5	50	100	10							
4LSUC 100 010 100	10 X R1	50	100	10							
4LSUC 100 015 100	10 X R1.5	50	100	10							
4LSUC 100 020 100	10 X R2	50	100	10							
4LSUC 120 003 120	1 2 X R0.3	60	120	12							
4LSUC 120 005 120	1 2 X R0.5	60	120	12							
4LSUC 120 010 120	1 2 X R1	60	120	12							
4LSUC 120 015 120	1 2 X R1.5	60	120	12							
4LSUC 120 020 120	1 2 X R2	60	120	12							
4LSUC 120 025 120	1 2 X R2.5	60	120	12							
4LSUC 120 030 120	1 2 X R3	60	120	12							
4LSUC 160 005 130	1 6 X R0.5	80	130	16							
4LSUC 160 010 130	1 6 X R1	80	130	16							
4LSUC 160 015 130	1 6 X R1.5	80	130	16							
4LSUC 160 020 130	1 6 X R2	80	130	16							
4LSUC 160 030 130	1 6 X R3	80	130	16							
4LSUC 200 005 160	20 X R0.5	100	160	20							
4LSUC 200 010 160	20 X R1	100	160	20							
4LSUC 200 015 160	20 X R1.5	100	160	20							
4LSUC 200 020 160	20 X R2	100	160	20							
4LSUC 200 030 160	20 X R3	100	160	20							

FOR SUS

## 3&4&5날 45° 헬릭스 SUS리핑 코어엔드밀



- 합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재 황삭가공
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 45° 헬릭스 적용으로 절삭 저항이 감소 되어 장시간 가공에 적합합니다.
- 파인피치 형상 채택으로 고속, 황삭가공 작업에 적합합니다.
- Alloy steel, SUS, Inconel, Mild Steels and various hard-to-cut material for roughing
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- 45 helix Design for minimizing cutting resistance and long time process.
- High speed and roughing work applicable by fine pitch flute.

3

4

5

WC  
미립자

JCRO  
Coating

DI  
-0.02 -0.04

DI  
-0.02 -0.05

45°  
Helix Angle

Ø3~Ø9      Ø10~Ø20

D Size	D Tolerance
Ø3 ~ 9	-0.02 ~ -0.04mm
Ø10 ~ 20	-0.02 ~ -0.05mm

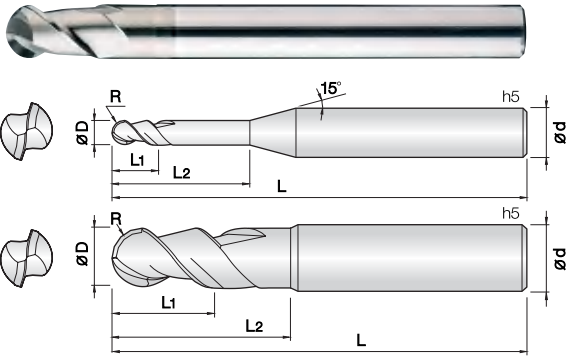
단위 : mm

Order Number	날경 D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고												
3SUR 030 002 S06	3 X R0.2	8	-	50	6													
3SUR 040 002 S06	4 X R0.2	10	-	50	6													
4SUR 050 002 S06	5 X R0.2	13	-	50	6													
4SUR 060 002 200	6 X R0.2	10	20	60	6													
4SUR 060 002 S06	6 X R0.2	13	-	60	6													
4SUR 060 005 S06	6 X R0.5	13	-	60	6													
4SUR 070 002 S08	7X R0.2	18	-	70	8													
4SUR 080 002 250	8X R0.2	12	25	70	8													
4SUR 080 002 S08	8X R0.2	19	-	70	8													
4SUR 080 010 S08	8 X R1	19	-	70	8													
4SUR 090 003 S10	9 X R0.3	20	-	70	10													
4SUR 100 003 300	10 X R0.3	15	30	75	10													
4SUR 100 003 S10	10 X R0.3	22	-	75	10													
4SUR 100 010 S10	10 X R1	22	-	75	10													
4SUR 110 003 S12	11 X R0.3	25	-	80	12													
4SUR 120 003 350	12 X R0.3	20	35	80	12													
4SUR 120 003 S12	12 X R0.3	26	-	80	12													
4SUR 120 010 S12	12 X R1	26	-	80	12													
5SUR 140 005 S16	14 X R0.5	28	-	90	16													
5SUR 160 005 100	16 X R0.5	32	-	100	16													
5SUR 160 005 110	16 X R0.5	42	-	110	16													
5SUR 160 015 100	16 X R1.5	32	-	100	16													
5SUR 160 015 110	16 X R1.5	42	-	110	16													
5SUR 200 005 100	20 X R0.5	38	-	100	20													
5SUR 200 005 110	20 X R0.5	45	-	110	20													
5SUR 200 020 100	20 X R2	38	-	100	20													
5SUR 200 020 110	20 X R2	45	-	110	20													

FOR SUS



## 2날 45° 헬릭스 동가공 전용 리브볼 엔드밀



- 동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 45° 헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 우수하며, 고속, 고이송 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화함.
- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- High speed, feed applicable by 45° degree helix and deep chip pocket design
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

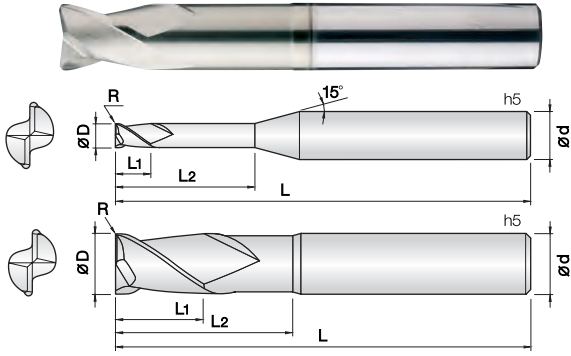


D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2COB 005 010 S04	0.25R X 0.5	0.7	1	45	4		2COB 025 120 S06	1.25R X 2.5	4	12	60	6	
2COB 005 020 S04	0.25R X 0.5	0.7	2	45	4		2COB 025 160 S06	1.25R X 2.5	4	16	60	6	
2COB 005 030 S04	0.25R X 0.5	0.7	3	45	4		2COB 025 200 S06	1.25R X 2.5	4	20	60	6	
2COB 005 040 S04	0.25R X 0.5	0.7	4	45	4		2COB 030 080 S06	1.5R X 3	4.5	8	60	6	
2COB 005 050 S04	0.25R X 0.5	0.7	5	45	4		2COB 030 120 S06	1.5R X 3	4.5	12	60	6	
2COB 005 060 S04	0.25R X 0.5	0.7	6	45	4		2COB 030 160 S06	1.5R X 3	4.5	16	60	6	
2COB 006 020 S04	0.3R X 0.6	0.9	2	45	4		2COB 030 200 S06	1.5R X 3	4.5	20	60	6	
2COB 006 030 S04	0.3R X 0.6	0.9	3	45	4		2COB 030 250 S06	1.5R X 3	4.5	25	70	6	
2COB 006 040 S04	0.3R X 0.6	0.9	4	45	4		2COB 030 300 S06	1.5R X 3	4.5	30	70	6	
2COB 006 050 S04	0.3R X 0.6	0.9	5	45	4		2COB 030 400 S06	1.5R X 3	4.5	40	80	6	
2COB 006 060 S04	0.3R X 0.6	0.9	6	45	4		2COB 040 100 S06	2R X 4	6	10	60	6	
2COB 006 080 S04	0.3R X 0.6	0.9	8	45	4		2COB 040 160 S06	2R X 4	6	16	60	6	
2COB 006 100 S04	0.3R X 0.6	0.9	10	45	4		2COB 040 200 S06	2R X 4	6	20	60	6	
2COB 008 020 S04	0.4R X 0.8	1.2	2	45	4		2COB 040 250 S06	2R X 4	6	25	70	6	
2COB 008 030 S04	0.4R X 0.8	1.2	3	45	4		2COB 040 300 S06	2R X 4	6	30	70	6	
2COB 008 040 S04	0.4R X 0.8	1.2	4	45	4		2COB 040 400 S06	2R X 4	6	40	80	6	
2COB 008 060 S04	0.4R X 0.8	1.2	6	45	4		2COB 050 160 S06	2.5R X 5	8	16	80	6	
2COB 008 080 S04	0.4R X 0.8	1.2	8	45	4		2COB 050 200 S06	2.5R X 5	8	20	80	6	
2COB 008 100 S04	0.4R X 0.8	1.2	10	45	4		2COB 050 250 S06	2.5R X 5	8	25	80	6	
2COB 008 120 S04	0.4R X 0.8	1.2	12	45	4		2COB 060 150 S06	3R X 6	9	15	90	6	
2COB 010 030 S04	0.5R X 1	1.5	3	50	4		2COB 060 300 S06	3R X 6	9	30	90	6	
2COB 010 050 S04	0.5R X 1	1.5	5	50	4		2COB 060 400 S06	3R X 6	9	40	90	6	
2COB 010 080 S04	0.5R X 1	1.5	8	50	4		2COB 080 200 S08	4R X 8	12	20	100	8	
2COB 010 100 S04	0.5R X 1	1.5	10	50	4		2COB 100 250 S10	5R X 10	15	25	100	10	
2COB 010 120 S04	0.5R X 1	1.5	12	50	4		2COB 120 300 S12	6R X 12	18	30	110	12	
2COB 010 160 S04	0.5R X 1	1.5	16	50	4		2COB 160 600 S16	8R X 16	30	60	160	16	
2COB 010 200 S04	0.5R X 1	1.5	20	50	4								
2COB 012 030 S04	0.6R X 1.2	1.8	3	50	4								
2COB 012 040 S04	0.6R X 1.2	1.8	4	50	4								
2COB 012 060 S04	0.6R X 1.2	1.8	6	50	4								
2COB 012 080 S04	0.6R X 1.2	1.8	8	50	4								
2COB 012 100 S04	0.6R X 1.2	1.8	10	50	4								
2COB 012 120 S04	0.6R X 1.2	1.8	12	50	4								
2COB 015 050 S04	0.75R X 1.5	2	5	50	4								
2COB 015 080 S04	0.75R X 1.5	2	8	50	4								
2COB 015 100 S04	0.75R X 1.5	2	10	50	4								
2COB 015 120 S04	0.75R X 1.5	2	12	50	4								
2COB 015 160 S04	0.75R X 1.5	2	16	50	4								
2COB 015 200 S04	0.75R X 1.5	2	20	50	4								
2COB 020 050 S06	1R X 2	3	5	50	6								
2COB 020 080 S06	1R X 2	3	8	50	6								
2COB 020 100 S06	1R X 2	3	10	50	6								
2COB 020 120 S06	1R X 2	3	12	60	6								
2COB 020 160 S06	1R X 2	3	16	60	6								
2COB 020 200 S06	1R X 2	3	20	60	6								
2COB 020 250 S06	1R X 2	3	25	65	6								
2COB 025 060 S06	1.25R X 2.5	4	6	50	6								
2COB 025 100 S06	1.25R X 2.5	4	10	50	6								

FOR COPPER



R0.1 ~ 0.5 R1 ~ 1.5

- 동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며 피삭재의 면조도가 향상됩니다.
- 깊은 포켓으로 설계하여 칩배출이 원활합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화
- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Smooth chip outflow by deep chip pocket.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2COR 010 001 040	1 X R0.1	1.5	4	50	4		2COR 020 001 160	2 X R0.1	3	16	50	64	
2COR 010 001 060	1 X R0.1	1.5	6	50	4		2COR 020 001 200	2 X R0.1	3	20	50	4	
2COR 010 001 080	1 X R0.1	1.5	8	50	4		2COR 020 001 250	2 X R0.1	3	25	60	4	
2COR 010 001 100	1 X R0.1	1.5	10	50	4		2COR 020 002 060	2 X R0.2	3	6	50	4	
2COR 010 001 120	1 X R0.1	1.5	12	50	4		2COR 020 002 100	2 X R0.2	3	10	50	4	
2COR 010 001 160	1 X R0.1	1.5	16	50	4		2COR 020 002 120	2 X R0.2	3	12	50	4	
2COR 010 001 200	1 X R0.1	1.5	20	50	4		2COR 020 002 160	2 X R0.2	3	16	50	4	
2COR 010 002 040	1 X R0.2	1.5	4	50	4		2COR 020 002 200	2 X R0.2	3	20	50	4	
2COR 010 002 060	1 X R0.2	1.5	6	50	4		2COR 020 002 250	2 X R0.2	3	25	60	4	
2COR 010 002 080	1 X R0.2	1.5	8	50	4		2COR 020 003 060	2 X R0.3	3	6	50	4	
2COR 010 002 100	1 X R0.2	1.5	10	50	4		2COR 020 003 100	2 X R0.3	3	10	50	4	
2COR 010 002 120	1 X R0.2	1.5	12	50	4		2COR 020 003 120	2 X R0.3	3	12	50	4	
2COR 010 002 160	1 X R0.2	1.5	16	50	4		2COR 020 003 160	2 X R0.3	3	16	50	4	
2COR 010 002 200	1 X R0.2	1.5	20	50	4		2COR 020 003 200	2 X R0.3	3	20	50	4	
2COR 010 003 040	1 X R0.3	1.5	4	50	4		2COR 020 003 250	2 X R0.3	3	25	60	4	
2COR 010 003 060	1 X R0.3	1.5	6	50	4		2COR 020 005 060	2 X R0.5	3	6	50	4	
2COR 010 003 080	1 X R0.3	1.5	8	50	4		2COR 020 005 100	2 X R0.5	3	10	50	4	
2COR 010 003 100	1 X R0.3	1.5	10	50	4		2COR 020 005 120	2 X R0.5	3	12	50	4	
2COR 010 003 120	1 X R0.3	1.5	12	50	4		2COR 020 005 140	2 X R0.5	3	14	50	4	
2COR 010 003 160	1 X R0.3	1.5	16	50	4		2COR 020 005 160	2 X R0.5	3	16	50	4	
2COR 010 003 200	1 X R0.3	1.5	20	50	4		2COR 020 005 200	2 X R0.5	3	20	50	4	
2COR 015 001 060	1.5 X R0.1	2	6	50	4		2COR 020 005 250	2 X R0.5	3	25	60	4	
2COR 015 001 100	1.5 X R0.1	2	10	50	4		2COR 025 001 060	2.5 X R0.1	3.5	6	50	4	
2COR 015 001 120	1.5 X R0.1	2	12	50	4		2COR 025 001 100	2.5 X R0.1	3.5	10	50	4	
2COR 015 001 160	1.5 X R0.1	2	16	50	4		2COR 025 001 120	2.5 X R0.1	3.5	12	50	4	
2COR 015 001 200	1.5 X R0.1	2	20	50	4		2COR 025 001 160	2.5 X R0.1	3.5	16	50	4	
2COR 015 001 250	1.5 X R0.1	2	25	60	4		2COR 025 001 200	2.5 X R0.1	3.5	20	50	4	
2COR 015 002 060	1.5 X R0.2	2	6	50	4		2COR 025 001 250	2.5 X R0.1	3.5	25	60	4	
2COR 015 002 100	1.5 X R0.2	2	10	50	4		2COR 025 002 060	2.5 X R0.2	3.5	6	50	4	
2COR 015 002 120	1.5 X R0.2	2	12	50	4		2COR 025 002 100	2.5 X R0.2	3.5	10	50	4	
2COR 015 002 160	1.5 X R0.2	2	16	50	4		2COR 025 002 120	2.5 X R0.2	3.5	12	50	4	
2COR 015 002 200	1.5 X R0.2	2	20	50	4		2COR 025 002 160	2.5 X R0.2	3.5	16	50	4	
2COR 015 002 250	1.5 X R0.2	2	25	60	4		2COR 025 002 200	2.5 X R0.2	3.5	20	50	4	
2COR 015 003 060	1.5 X R0.3	2	6	50	4		2COR 025 002 250	2.5 X R0.2	3.5	25	60	4	
2COR 015 003 100	1.5 X R0.3	2	10	50	4		2COR 025 003 060	2.5 X R0.3	3.5	6	50	4	
2COR 015 003 120	1.5 X R0.3	2	12	50	4		2COR 025 003 100	2.5 X R0.3	3.5	10	50	4	
2COR 015 003 160	1.5 X R0.3	2	16	50	4		2COR 025 003 120	2.5 X R0.3	3.5	12	50	4	
2COR 015 003 200	1.5 X R0.3	2	20	50	4		2COR 025 003 160	2.5 X R0.3	3.5	16	50	4	
2COR 015 003 250	1.5 X R0.3	2	25	60	4		2COR 025 003 200	2.5 X R0.3	3.5	20	50	4	
2COR 015 005 060	1.5 X R0.5	2	6	50	4		2COR 025 003 250	2.5 X R0.3	3.5	25	60	4	
2COR 015 005 100	1.5 X R0.5	2	10	50	4		2COR 025 005 060	2.5 X R0.5	3.5	6	50	4	
2COR 015 005 120	1.5 X R0.5	2	12	50	4		2COR 025 005 100	2.5 X R0.5	3.5	10	50	4	
2COR 015 005 160	1.5 X R0.5	2	16	50	4		2COR 025 005 120	2.5 X R0.5	3.5	12	50	4	
2COR 015 005 200	1.5 X R0.5	2	20	50	4		2COR 025 005 160	2.5 X R0.5	3.5	16	50	4	
2COR 015 005 250	1.5 X R0.5	2	25	60	4		2COR 025 005 200	2.5 X R0.5	3.5	20	50	4	
2COR 020 001 060	2 X R0.1	3	6	50	4		2COR 025 005 250	2.5 X R0.5	3.5	25	60	4	
2COR 020 001 100	2 X R0.1	3	10	50	4		2COR 030 001 100	3 X R0.1	4	10	55	6	
2COR 020 001 120	2 X R0.1	3	12	50	4		2COR 030 001 120	3 X R0.1	4	12	55	6	

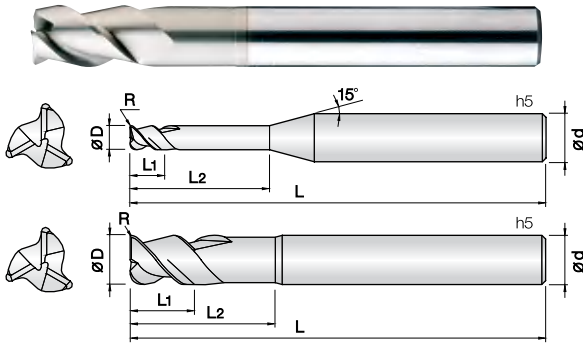
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단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2COR 030 001 160	3 X R0.1	4	16	55	6		2COR 040 003 120	4 X R0.3	5	12	55	6	
2COR 030 001 200	3 X R0.1	4	20	60	6		2COR 040 003 160	4 X R0.3	5	16	55	6	
2COR 030 001 250	3 X R0.1	4	25	65	6		2COR 040 003 200	4 X R0.3	5	20	60	6	
2COR 030 001 300	3 X R0.1	4	30	70	6		2COR 040 003 300	4 X R0.3	5	30	70	6	
2COR 030 001 350	3 X R0.1	4	35	75	6		2COR 040 003 400	4 X R0.3	5	40	80	6	
2COR 030 001 400	3 X R0.1	4	40	80	6		2COR 040 005 120	4 X R0.5	5	12	55	6	
2COR 030 002 100	3 X R0.2	4	10	55	6		2COR 040 005 160	4 X R0.5	5	16	55	6	
2COR 030 002 120	3 X R0.2	4	12	55	6		2COR 040 005 200	4 X R0.5	5	20	60	6	
2COR 030 002 160	3 X R0.2	4	16	55	6		2COR 040 005 300	4 X R0.5	5	30	70	6	
2COR 030 002 200	3 X R0.2	4	20	60	6		2COR 040 005 400	4 X R0.5	5	40	80	6	
2COR 030 002 250	3 X R0.2	4	25	65	6		2COR 040 010 120	4 X R1	5	12	55	6	
2COR 030 002 300	3 X R0.2	4	30	70	6		2COR 040 010 160	4 X R1	5	16	55	6	
2COR 030 002 350	3 X R0.2	4	35	75	6		2COR 040 010 200	4 X R1	5	20	60	6	
2COR 030 002 400	3 X R0.2	4	40	80	6		2COR 040 010 300	4 X R1	5	30	70	6	
2COR 030 003 100	3 X R0.3	4	10	55	6		2COR 040 010 400	4 X R1	5	40	80	6	
2COR 030 003 120	3 X R0.3	4	12	55	6		2COR 060 001 200	6 X R0.1	7	20	60	6	
2COR 030 003 160	3 X R0.3	4	16	55	6		2COR 060 002 200	6 X R0.2	7	20	60	6	
2COR 030 003 200	3 X R0.3	4	20	60	6		2COR 060 003 200	6 X R0.3	7	20	60	6	
2COR 030 003 250	3 X R0.3	4	25	65	6		2COR 060 005 200	6 X R0.5	7	20	60	6	
2COR 030 003 300	3 X R0.3	4	30	70	6		2COR 060 010 200	6 X R1	7	20	60	6	
2COR 030 003 350	3 X R0.3	4	35	75	6		2COR 060 015 200	6 X R1.5	7	20	60	6	
2COR 030 003 400	3 X R0.3	4	40	80	6		2COR 080 005 250	8 X R0.5	9	25	65	8	
2COR 030 005 100	3 X R0.5	4	10	55	6		2COR 080 010 250	8 X R1	9	25	65	8	
2COR 030 005 120	3 X R0.5	4	12	55	6		2COR 080 015 250	8 X R1.5	9	25	65	8	
2COR 030 005 160	3 X R0.5	4	16	55	6		2COR 100 005 320	10 X R0.5	11	32	70	10	
2COR 030 005 200	3 X R0.5	4	20	60	6		2COR 100 010 320	10 X R1	11	32	70	10	
2COR 030 005 250	3 X R0.5	4	25	65	6		2COR 100 015 320	10 X R1.5	11	32	70	10	
2COR 030 005 300	3 X R0.5	4	30	70	6		2COR 120 005 380	12 X R0.5	12	38	80	12	
2COR 030 005 350	3 X R0.5	4	35	75	6		2COR 120 010 380	12 X R1	12	38	80	12	
2COR 030 005 400	3 X R0.5	4	40	80	6		2COR 120 015 380	12 X R1.5	12	38	80	12	
2COR 030 010 100	3 X R1	4	10	55	6								
2COR 030 010 120	3 X R1	4	12	55	6								
2COR 030 010 160	3 X R1	4	16	55	6								
2COR 030 010 200	3 X R1	4	20	60	6								
2COR 030 010 250	3 X R1	4	25	65	6								
2COR 030 010 300	3 X R1	4	30	70	6								
2COR 030 010 350	3 X R1	4	35	75	6								
2COR 030 010 400	3 X R1	4	40	80	6								
2COR 040 001 120	4 X R0.1	5	12	55	6								
2COR 040 001 160	4 X R0.1	5	16	55	6								
2COR 040 001 200	4 X R0.1	5	20	60	6								
2COR 040 001 300	4 X R0.1	5	30	70	6								
2COR 040 001 400	4 X R0.1	5	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	60	6								
2COR 040 002 300	4 X R0.2	5	30	70	6								
2COR 040 002 400	4 X R0.2	5	40	80	6								

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## 3날 45° 헬릭스 동가공용 리브 코너 레디우스 엔드밀



- 동 및 동합금, 알루미늄 합금, 비철합금 가공용 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 피삭재의 면조도가 향상됩니다.
- 3날 45° 헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 원활하며, 고속, 고이송 작업에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화
- **Endmills for copper, copper alloy, nonferrous and non-metallic materials.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- High speed, feed applicable by 3 flute 45° degree helix and deep chip pocket design.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



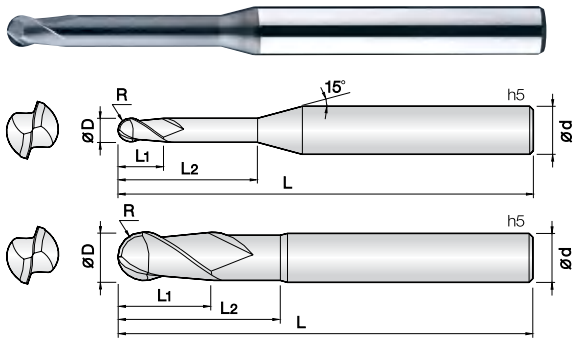
D Size	D Tolerance
$\varnothing 1 \sim 4$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D x 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		3COR 060 005 300	6 X R0.5	9	30	70	6	
3COR 010 001 060	1 X R0.1	1.5	6	45	4		3COR 060 010 200	6 X R1	9	20	55	6	
3COR 010 001 100	1 X R0.1	1.5	10	45	4		3COR 060 010 300	6 X R1	9	30	70	6	
3COR 010 002 030	1 X R0.2	1.5	3	45	4		3COR 080 003 S08	8 X R0.3	12	25	65	8	
3COR 010 002 060	1 X R0.2	1.5	6	45	4		3COR 080 005 S08	8 X R0.5	12	25	65	8	
3COR 010 002 100	1 X R0.2	1.5	10	45	4		3COR 080 010 S08	8 X R1	12	25	65	8	
3COR 015 001 050	1.5 X R0.1	2	5	45	4		3COR 100 005 S10	10 X R0.5	15	30	70	10	
3COR 015 001 080	1.5 X R0.1	2	8	45	4		3COR 100 010 S10	10 X R1	15	30	70	10	
3COR 015 001 120	1.5 X R0.1	2	12	45	4		3COR 120 005 S12	12 X R0.5	20	35	80	12	
3COR 015 002 050	1.5 X R0.2	2	5	45	4		3COR 120 010 S12	12 X R1	20	35	80	12	
3COR 015 002 080	1.5 X R0.2	2	8	45	4								
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								
3COR 020 001 100	2 X R0.1	3	10	45	4								
3COR 020 001 140	2 X R0.1	3	14	45	4								
3COR 020 002 060	2 X R0.2	3	6	45	4								
3COR 020 002 100	2 X R0.2	3	10	45	4								
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								
3COR 025 001 120	2.5 X R0.1	3.5	12	45	4								
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								
3COR 025 002 120	2.5 X R0.2	3.5	12	45	4								
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								
3COR 025 005 120	2.5 X R0.5	3.5	12	45	4								
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								
3COR 030 002 160	3 X R0.2	4	16	50	4								
3COR 030 002 200	3 X R0.2	4	20	50	4								
3COR 030 003 100	3 X R0.3	4	10	50	4								
3COR 030 003 160	3 X R0.3	4	16	50	4								
3COR 030 003 200	3 X R0.3	4	20	50	4								
3COR 030 005 100	3 X R0.5	4	10	50	4								
3COR 030 005 160	3 X R0.5	4	16	50	4								
3COR 030 005 200	3 X R0.5	4	20	50	4								
3COR 040 002 120	4 X R0.2	6	12	50	4								
3COR 040 002 160	4 X R0.2	6	16	50	4								
3COR 040 002 200	4 X R0.2	6	20	50	4								
3COR 040 003 120	4 X R0.3	6	12	50	4								
3COR 040 003 160	4 X R0.3	6	16	50	4								
3COR 040 003 200	4 X R0.3	6	20	50	4								
3COR 040 005 120	4 X R0.5	6	12	50	4								
3COR 040 005 160	4 X R0.5	6	16	50	4								
3COR 040 005 200	4 X R0.5	6	20	50	4								
3COR 060 003 200	6 X R0.3	9	20	55	6								
3COR 060 003 300	6 X R0.3	9	30	70	6								
3COR 060 005 200	6 X R0.5	9	20	55	6								

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## 2날 비철가공용 G-TAC코팅리브볼엔드밀



- 알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.
- High precise edge tolerance.



D Size	D Tolerance
Ø0.1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

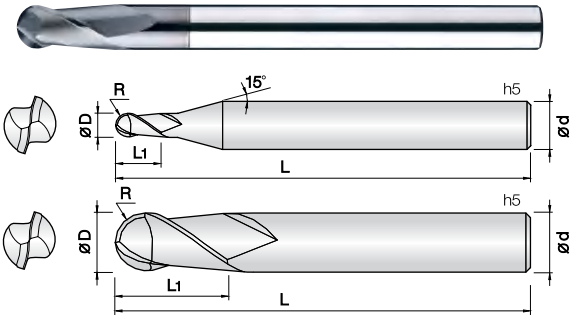
단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DRB 001 003 S04	0.05R X 0.1	0.3	-	45	4		2DRB 020 300 S04	1R X 2	3	30	70	4	
2DRB 002 005 S04	0.1R X 0.2	0.5	-	45	4		2DRB 030 120 S06	1.5R X 3	4	12	50	6	
2DRB 002 010 S04	0.1R X 0.2	0.2	1	45	4		2DRB 030 160 S06	1.5R X 3	4	16	60	6	
2DRB 002 015 S04	0.1R X 0.2	0.2	1.5	45	4		2DRB 030 200 S06	1.5R X 3	4	20	60	6	
2DRB 002 020 S04	0.1R X 0.2	0.2	2	45	4		2DRB 030 250 S06	1.5R X 3	4	25	65	6	
2DRB 003 010 S04	0.15R X 0.3	0.3	1	45	4		2DRB 030 300 S06	1.5R X 3	4	30	70	6	
2DRB 003 015 S04	0.15R X 0.3	0.3	1.5	45	4		2DRB 030 400 S06	1.5R X 3	4	40	80	6	
2DRB 003 020 S04	0.15R X 0.3	0.3	2	45	4		2DRB 040 120 S06	2R X 4	5	12	50	6	
2DRB 004 010 S04	0.2R X 0.4	0.4	1	45	4		2DRB 040 160 S06	2R X 4	5	16	60	6	
2DRB 004 020 S04	0.2R X 0.4	0.4	2	45	4		2DRB 040 200 S06	2R X 4	5	20	60	6	
2DRB 004 030 S04	0.2R X 0.4	0.4	3	45	4		2DRB 040 250 S06	2R X 4	5	25	65	6	
2DRB 004 040 S04	0.2R X 0.4	0.4	4	45	4		2DRB 040 300 S06	2R X 4	5	30	70	6	
2DRB 004 050 S04	0.2R X 0.4	0.4	5	45	4		2DRB 050 200 S06	2.5R X 5	6	20	60	6	
2DRB 005 020 S04	0.25R X 0.5	0.5	2	45	4		2DRB 050 400 S06	2.5R X 5	6	40	80	6	
2DRB 005 040 S04	0.25R X 0.5	0.5	4	45	4		2DRB 060 200 S06	3R X 6	8	20	60	6	
2DRB 005 060 S04	0.25R X 0.5	0.5	6	45	4		2DRB 060 300 S06	3R X 6	8	30	90	6	
2DRB 005 080 S04	0.25R X 0.5	0.5	8	45	4		2DRB 080 200 S08	4R X 8	10	20	70	8	
2DRB 005 100 S04	0.25R X 0.5	0.5	10	45	4		2DRB 100 250 S10	5R X 10	12	25	80	10	
2DRB 006 020 S04	0.3R X 0.6	0.6	2	45	4		2DRB 120 250 S12	6R X 12	14	25	80	12	
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								

G-TAC



# 2날 비철 가공용 G-TAC코팅볼 엔드밀



- 알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 $\mu\text{m}$ )을 채택, 엔드밀의 파손을 최소화
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize fracturing by high TRS fine(0.5 $\mu\text{m}$ ) WC grade.
- High precise edge tolerance.

2

WC  
미립자

GTAC  
Coating

R  
 $\pm 0.005$

R  
 $\pm 0.01$

30°  
Helix Angle

0.1 ~ 2.5R     3 ~ 6R

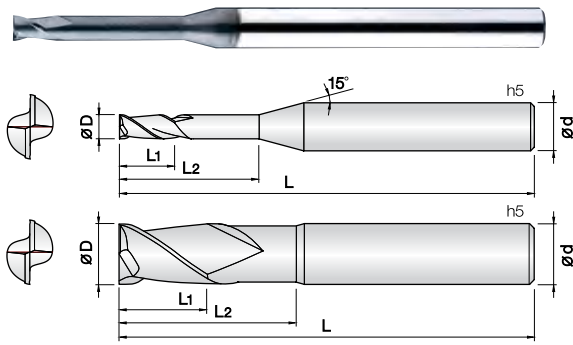
D Size	D Tolerance
$\varnothing 2 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x 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					



## 2날 비철가공용 G-TAC코팅 리브 엔드밀



- 알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

2

WC  
미립자

GTAC  
Coating

D  
+0 -0.005

D  
+0 -0.01

D  
-0.01 -0.025

30°  
Helix Angle

Sharp Edge

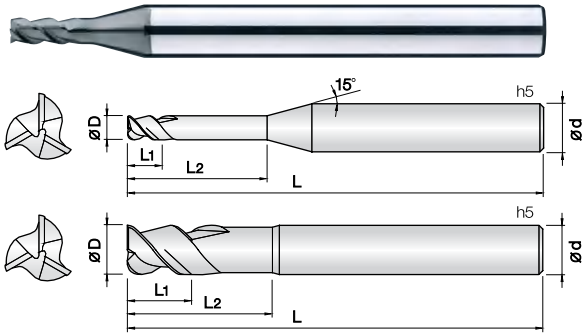
D Size	D Tolerance
ø0.1	+0 ~ -0.005mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DRE 001 003 S04	0.1	0.3	-	45	4		2DRE 030 120 S06	3	4.5	12	50	6	
2DRE 001 005 S04	0.1	0.5	-	45	4		2DRE 030 160 S06	3	4.5	16	60	6	
2DRE 002 005 S04	0.2	0.5	-	45	4		2DRE 030 200 S06	3	4.5	20	60	6	
2DRE 002 010 S04	0.2	0.3	1	45	4		2DRE 030 250 S06	3	4.5	25	65	6	
2DRE 002 015 S04	0.2	0.3	1.5	45	4		2DRE 030 300 S06	3	4.5	30	70	6	
2DRE 002 020 S04	0.2	0.3	2	45	4		2DRE 030 400 S06	3	4.5	40	80	6	
2DRE 003 010 S04	0.3	0.5	1	45	4		2DRE 040 120 S06	4	6	12	50	6	
2DRE 003 015 S04	0.3	0.5	1.5	45	4		2DRE 040 160 S06	4	6	16	60	6	
2DRE 003 020 S04	0.3	0.5	2	45	4		2DRE 040 200 S06	4	6	20	60	6	
2DRE 004 010 S04	0.4	0.6	1	45	4		2DRE 040 250 S06	4	6	25	65	6	
2DRE 004 020 S04	0.4	0.6	2	45	4		2DRE 040 300 S06	4	6	30	70	6	
2DRE 004 030 S04	0.4	0.6	3	45	4		2DRE 040 400 S06	4	6	40	80	6	
2DRE 004 040 S04	0.4	0.6	4	45	4		2DRE 050 200 S06	5	6	20	60	6	
2DRE 004 050 S04	0.4	0.6	5	45	4		2DRE 050 400 S06	5	6	40	80	6	
2DRE 005 020 S04	0.5	0.7	2	45	4		2DRE 060 200 S06	6	8	20	60	6	
2DRE 005 040 S04	0.5	0.7	4	45	4		2DRE 060 300 S06	6	8	30	90	6	
2DRE 005 060 S04	0.5	0.7	6	45	4		2DRE 080 200 S08	8	12	20	70	8	
2DRE 005 080 S04	0.5	0.7	8	45	4		2DRE 100 250 S10	10	15	25	80	10	
2DRE 005 100 S04	0.5	0.7	10	45	4		2DRE 120 300 S12	12	18	30	80	12	
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								

G-TAC

### 3날 45° 헬릭스 비철 가공용 G-TAC코팅 리브 엔드밀



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- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 3날 45°헬릭스 형상과 깊은 포켓으로 설계하여 칩배출이 원활하며, 고속,고이송 작업에 적합합니다.
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC 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.

**3**  
미립자

**WC**  
미립자

**GTAC**  
Coating

**D**  
+0 -0.01

**D**  
-0.01 -0.025

**45°**  
Helix Angle

Sharp Edge

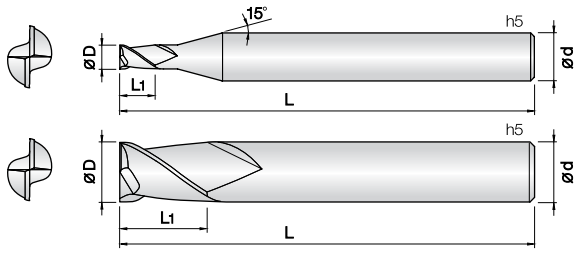
D Size	D Tolerance
∅0.1 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 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														



# 2날 비철 가공용 G-TAC코팅 엔드밀



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- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

2

WC  
미립자

GTAC  
Coating

|D|  
+0 -0.01  
Ø0.4~Ø5

|D|  
-0.01 -0.025  
Ø6~Ø12

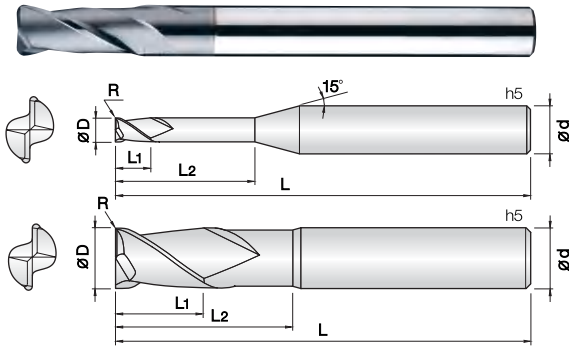
30°  
Helix Angle

Sharp Edge

D Size	D Tolerance
Ø0.4 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샤프트 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						



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- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 안정적인 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

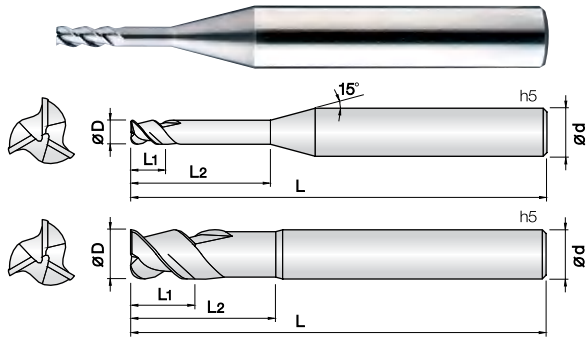
D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2DLC 010 001 040	1 X R0.1	1.5	4	45	4		2DLC 040 005 250	4 X R0.5	6	25	65	6	
2DLC 010 001 060	1 X R0.1	1.5	6	45	4		2DLC 040 005 300	4 X R0.5	6	30	70	6	
2DLC 010 001 080	1 X R0.1	1.5	8	45	4		2DLC 040 010 120	4 X R1	6	12	50	6	
2DLC 010 001 100	1 X R0.1	1.5	10	45	4		2DLC 040 010 160	4 X R1	6	16	60	6	
2DLC 010 002 040	1 X R0.2	1.5	4	45	4		2DLC 040 010 200	4 X R1	6	20	60	6	
2DLC 010 002 060	1 X R0.2	1.5	6	45	4		2DLC 040 010 250	4 X R1	6	25	65	6	
2DLC 010 002 080	1 X R0.2	1.5	8	45	4		2DLC 040 010 300	4 X R1	6	30	70	6	
2DLC 010 002 100	1 X R0.2	1.5	10	45	4		2DLC 060 003 200	6 X R0.3	9	20	60	6	
2DLC 015 001 060	1.5 X R0.1	2.3	6	45	4		2DLC 060 005 200	6 X R0.5	9	20	60	6	
2DLC 015 001 080	1.5 X R0.1	2.3	8	45	4		2DLC 060 010 200	6 X R1	9	20	60	6	
2DLC 015 001 100	1.5 X R0.1	2.3	10	45	4		2DLC 080 003 250	8 X R0.3	12	25	65	8	
2DLC 015 001 120	1.5 X R0.1	2.3	12	50	4		2DLC 080 005 250	8 X R0.5	12	25	65	8	
2DLC 015 002 060	1.5 X R0.2	2.3	6	45	4		2DLC 080 010 250	8 X R1	12	25	65	8	
2DLC 015 002 080	1.5 X R0.2	2.3	8	45	4		2DLC 100 005 300	10 X R0.5	15	30	70	10	
2DLC 015 002 100	1.5 X R0.2	2.3	10	45	4		2DLC 100 010 300	10 X R1	15	30	70	10	
2DLC 015 002 120	1.5 X R0.2	2.3	12	50	4		2DLC 120 005 320	12 X R0.5	18	32	80	12	
2DLC 020 002 080	2 X R0.2	3	8	45	4		2DLC 120 010 320	12 X R1	18	32	80	12	
2DLC 020 002 100	2 X R0.2	3	10	45	4								
2DLC 020 002 120	2 X R0.2	3	12	50	4								
2DLC 020 002 160	2 X R0.2	3	16	50	4								
2DLC 020 005 080	2 X R0.5	3	8	45	4								
2DLC 020 005 100	2 X R0.5	3	10	45	4								
2DLC 020 005 120	2 X R0.5	3	12	50	4								
2DLC 020 005 160	2 X R0.5	3	16	50	4								
2DLC 030 002 100	3 X R0.2	4.5	10	50	6								
2DLC 030 002 120	3 X R0.2	4.5	12	50	6								
2DLC 030 002 160	3 X R0.2	4.5	16	60	6								
2DLC 030 002 200	3 X R0.2	4.5	20	60	6								
2DLC 030 002 250	3 X R0.2	4.5	25	65	6								
2DLC 030 002 300	3 X R0.2	4.5	30	70	6								
2DLC 030 003 100	3 X R0.3	4.5	10	50	6								
2DLC 030 003 120	3 X R0.3	4.5	12	50	6								
2DLC 030 003 160	3 X R0.3	4.5	16	60	6								
2DLC 030 003 200	3 X R0.3	4.5	20	60	6								
2DLC 030 003 250	3 X R0.3	4.5	25	65	6								
2DLC 030 003 300	3 X R0.3	4.5	30	70	6								
2DLC 030 005 100	3 X R0.5	4.5	10	50	6								
2DLC 030 005 120	3 X R0.5	4.5	12	50	6								
2DLC 030 005 160	3 X R0.5	4.5	16	60	6								
2DLC 030 005 200	3 X R0.5	4.5	20	60	6								
2DLC 030 005 250	3 X R0.5	4.5	25	65	6								
2DLC 030 005 300	3 X R0.5	4.5	30	70	6								
2DLC 040 002 120	4 X R0.2	6	12	50	6								
2DLC 040 002 160	4 X R0.2	6	16	60	6								
2DLC 040 002 200	4 X R0.2	6	20	60	6								
2DLC 040 005 120	4 X R0.5	6	12	50	6								
2DLC 040 005 160	4 X R0.5	6	16	60	6								
2DLC 040 005 200	4 X R0.5	6	20	60	6								

G-TAC

### 3날 45° 헬릭스 알루미늄 전용 리브 엔드밀



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열 전용 엔드밀
- 날부인선을 고풍면 설계하여 절삭시 피삭재의 표면조도가 우수합니다
- 다양한 작업에 맞추어 짧은 날장에 유효장을 적용하였습니다.
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied fine WC grade for excellent surface finish.
- Applied short flute length for various applications.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.

D Size	D Tolerance
Ø0.8 ~ 12	+0 ~ -0.01mm

단위 : mm

Order Number		날경	날장	유효장	전장	샙크	비고	
비코팅 Non coated	RTAC 코팅 RTAC Coated	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	비코팅 Non coated	코팅 Coated
3ALR 008 016 S04	New 3ALRC 008 016 S04	0.8	1.6	-	50	4		
3ALR 008 030 S04	New 3ALRC 008 030 S04	0.8	1.6	3	50	4		
3ALR 008 040 S04	New 3ALRC 008 040 S04	0.8	1.6	4	50	4		
3ALR 008 050 S04	New 3ALRC 008 050 S04	0.8	1.6	5	50	4		
3ALR 008 060 S04	New 3ALRC 008 060 S04	0.8	1.6	6	50	4		
3ALR 008 080 S04	New 3ALRC 008 080 S04	0.8	1.6	8	50	4		
3ALR 008 100 S04	New 3ALRC 008 100 S04	0.8	1.6	10	50	4		
3ALR 008 120 S04	New 3ALRC 008 120 S04	0.8	1.6	12	50	4		
3ALR 010 020 S06	New 3ALRC 010 020 S06	1	2	-	60	6		
3ALR 010 040 S06	New 3ALRC 010 040 S06	1	2	4	60	6		
3ALR 010 060 S06	New 3ALRC 010 060 S06	1	2	6	60	6		
3ALR 010 080 S06	New 3ALRC 010 080 S06	1	2	8	60	6		
3ALR 010 100 S06	New 3ALRC 010 100 S06	1	2	10	60	6		
3ALR 010 120 S06	New 3ALRC 010 120 S06	1	2	12	60	6		
3ALR 010 140 S06	New 3ALRC 010 140 S06	1	2	14	60	6		
New 3ALR 010 160 S06	New 3ALRC 010 160 S06	1	2	16	60	6		
3ALR 015 030 S06	New 3ALRC 015 030 S06	1.5	3	-	60	6		
3ALR 015 060 S06	New 3ALRC 015 060 S06	1.5	3	6	60	6		
3ALR 015 080 S06	New 3ALRC 015 080 S06	1.5	3	8	60	6		
3ALR 015 100 S06	New 3ALRC 015 100 S06	1.5	3	10	60	6		
3ALR 015 120 S06	New 3ALRC 015 120 S06	1.5	3	12	60	6		
3ALR 015 140 S06	New 3ALRC 015 140 S06	1.5	3	14	60	6		
3ALR 015 160 S06	New 3ALRC 015 160 S06	1.5	3	16	60	6		
New 3ALR 015 180 S06	New 3ALRC 015 180 S06	1.5	3	18	60	6		
New 3ALR 015 200 S06	New 3ALRC 015 200 S06	1.5	3	20	60	6		
3ALR 020 040 S06	New 3ALRC 020 040 S06	2	4	-	60	6		
3ALR 020 080 S06	New 3ALRC 020 080 S06	2	4	8	60	6		
3ALR 020 100 S06	New 3ALRC 020 100 S06	2	4	10	60	6		
3ALR 020 120 S06	New 3ALRC 020 120 S06	2	4	12	60	6		
3ALR 020 140 S06	New 3ALRC 020 140 S06	2	4	14	60	6		
3ALR 020 160 S06	New 3ALRC 020 160 S06	2	4	16	60	6		
3ALR 020 200 S06	New 3ALRC 020 200 S06	2	4	20	60	6		
New 3ALR 020 220 S06	New 3ALRC 020 220 S06	2	4	22	60	6		
New 3ALR 020 250 S06	New 3ALRC 020 250 S06	2	4	25	65	6		
3ALR 025 050 S06	New 3ALRC 025 050 S06	2.5	5	-	60	6		
3ALR 025 100 S06	New 3ALRC 025 100 S06	2.5	5	10	60	6		
3ALR 025 150 S06	New 3ALRC 025 150 S06	2.5	5	15	60	6		
3ALR 025 200 S06	New 3ALRC 025 200 S06	2.5	5	20	60	6		
3ALR 025 250 S06	New 3ALRC 025 250 S06	2.5	5	25	60	6		
New 3ALR 025 300 S06	New 3ALRC 025 300 S06	2.5	5	30	70	6		
3ALR 030 060 S06	New 3ALRC 030 060 S06	3	6	-	60	6		
3ALR 030 100 S06	New 3ALRC 030 100 S06	3	6	10	60	6		
3ALR 030 150 S06	New 3ALRC 030 150 S06	3	6	15	60	6		
3ALR 030 200 S06	New 3ALRC 030 200 S06	3	6	20	70	6		
3ALR 030 250 S06	New 3ALRC 030 250 S06	3	6	25	70	6		
3ALR 030 300 S06	New 3ALRC 030 300 S06	3	6	30	80	6		
New 3ALR 030 350 S06	New 3ALRC 030 350 S06	3	6	35	80	6		
New 3ALR 030 400 S06	New 3ALRC 030 400 S06	3	6	40	90	6		

FOR ALUMINUM

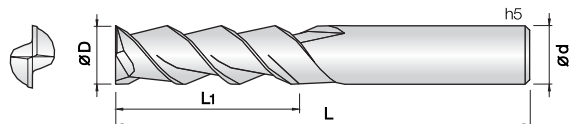


단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated						비코팅 Non coated	코팅 Coated
3ALR 040 080 S06	New 3ALRC 040 080 S06	4	8	-	70	6		
3ALR 040 100 S06	New 3ALRC 040 100 S06	4	8	10	70	6		
3ALR 040 150 S06	New 3ALRC 040 150 S06	4	8	15	70	6		
3ALR 040 200 S06	New 3ALRC 040 200 S06	4	8	20	70	6		
3ALR 040 250 S06	New 3ALRC 040 250 S06	4	8	25	70	6		
3ALR 040 300 S06	New 3ALRC 040 300 S06	4	8	30	80	6		
New 3ALR 040 350 S06	New 3ALRC 040 350 S06	4	8	35	80	6		
New 3ALR 040 400 S06	New 3ALRC 040 400 S06	4	8	40	90	6		
3ALR 050 100 S06	New 3ALRC 050 100 S06	5	10	-	80	6		
3ALR 050 200 S06	New 3ALRC 050 200 S06	5	10	20	80	6		
3ALR 050 300 S06	New 3ALRC 050 300 S06	5	10	30	80	6		
New 3ALR 050 400 S06	New 3ALRC 050 400 S06	5	10	40	90	6		
New 3ALR 050 500 S06	New 3ALRC 050 500 S06	5	10	50	100	6		
3ALR 060 200 S06	New 3ALRC 060 200 S06	6	12	20	80	6		
3ALR 060 400 S06	New 3ALRC 060 400 S06	6	12	40	80	6		
New 3ALR 060 600 110	New 3ALRC 060 600 110	6	12	60	110	6		
3ALR 080 400 S08	New 3ALRC 080 400 S08	8	16	40	100	8		
New 3ALR 080 600 110	New 3ALRC 080 600 110	8	16	60	110	8		
3ALR 100 500 S10	New 3ALRC 100 500 S10	10	20	50	110	10		
New 3ALR 100 700 120	New 3ALRC 100 700 120	10	20	70	120	10		
3ALR 120 500 S12	New 3ALRC 120 500 S12	12	24	50	110	12		
New 3ALR 120 700 130	New 3ALRC 120 700 130	12	24	70	130	12		

FOR ALUMINUM

### 2날 45°헬릭스 알루미늄 전용 엔드밀



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열 전용 엔드밀
- 날부 인선을 고품면 설계하여 절삭시 피삭재의 표면조도가 우수합니다.
- 다양한 날장(S, L, Exl, Etc) 선택으로 맞춤 가공이 가능합니다.
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 2중 인선과 홈포켓을 깊게 설계하여 흠착현상을 최소화 하였습니다.
- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- Applied fine WC grade for excellent surface finish.
- Various flute length design for covering wide range application.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.

D Size	D Tolerance
ø0.5 ~ 20	+0 ~ -0.01mm

단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated					비코팅 Non coated	코팅 Coated
2ALE 005 005 S04	New 2ALEC 005 005 S04	0.5	0.5	38	4		
2ALE 005 010 S04	New 2ALEC 005 010 S04	0.5	1	38	4		
2ALE 005 015 S04	New 2ALEC 005 015 S04	0.5	1.5	38	4		
2ALE 005 020 S04	New 2ALEC 005 020 S04	0.5	2	38	4		
2ALE 006 006 S04	New 2ALEC 006 006 S04	0.6	0.6	38	4		
2ALE 006 012 S04	New 2ALEC 006 012 S04	0.6	1.2	38	4		
2ALE 006 020 S04	New 2ALEC 006 020 S04	0.6	2	38	4		
2ALE 007 007 S04	New 2ALEC 007 007 S04	0.7	0.7	38	4		
2ALE 007 014 S04	New 2ALEC 007 014 S04	0.7	1.4	38	4		
2ALE 007 020 S04	New 2ALEC 007 020 S04	0.7	2	38	4		
2ALE 008 008 S04	New 2ALEC 008 008 S04	0.8	0.8	38	4		
2ALE 008 016 S04	New 2ALEC 008 016 S04	0.8	1.6	38	4		
2ALE 008 020 S04	New 2ALEC 008 020 S04	0.8	2	38	4		
2ALE 009 009 S04	New 2ALEC 009 009 S04	0.9	0.9	38	4		
2ALE 009 018 S04	New 2ALEC 009 018 S04	0.9	1.8	38	4		
2ALE 009 025 S04	New 2ALEC 009 025 S04	0.9	2.5	38	4		
2ALE 010 015 S04	New 2ALEC 010 015 S04	1	1.5	40	4		
2ALE 010 015 S06	New 2ALEC 010 015 S06	1	1.5	40	6		
2ALE 010 025 S04	New 2ALEC 010 025 S04	1	2.5	40	4		
2ALE 010 025 S06	New 2ALEC 010 025 S06	1	2.5	40	6		
2ALE 010 035 S04	New 2ALEC 010 035 S04	1	3.5	40	4		
2ALE 010 035 S06	New 2ALEC 010 035 S06	1	3.5	40	6		
2ALE 010 050 S06	New 2ALEC 010 050 S06	1	5	45	6		
2ALE 010 060 S06	New 2ALEC 010 060 S06	1	6	45	6		
New 2ALE 010 080 S06	New 2ALEC 010 080 S06	1	8	45	6		
New 2ALE 010 100 S06	New 2ALEC 010 100 S06	1	10	45	6		
2ALE 012 030 S06	New 2ALEC 012 030 S06	1.2	3	40	6		
2ALE 012 040 S06	New 2ALEC 012 040 S06	1.2	4	40	6		
2ALE 012 060 S06	New 2ALEC 012 060 S06	1.2	6	40	6		
2ALE 015 040 S06	New 2ALEC 015 040 S06	1.5	4	40	6		
2ALE 015 060 S06	New 2ALEC 015 060 S06	1.5	6	40	6		
2ALE 015 080 S06	New 2ALEC 015 080 S06	1.5	8	45	6		
2ALE 015 100 S06	New 2ALEC 015 100 S06	1.5	10	50	6		
2ALE 015 120 S06	New 2ALEC 015 120 S06	1.5	12	50	6		
New 2ALE 015 150 S06	New 2ALEC 015 150 S06	1.5	15	55	6		
2ALE 020 050 S06	New 2ALEC 020 050 S06	2	5	45	6		
2ALE 020 070 S06	New 2ALEC 020 070 S06	2	7	45	6		
2ALE 020 100 S06	New 2ALEC 020 100 S06	2	10	50	6		
2ALE 020 120 S06	New 2ALEC 020 120 S06	2	12	50	6		
2ALE 020 140 S06	New 2ALEC 020 140 S06	2	14	50	6		
2ALE 020 160 S06	New 2ALEC 020 160 S06	2	16	60	6		
2ALE 025 080 S06	New 2ALEC 025 080 S06	2.5	8	45	6		
2ALE 025 120 S06	New 2ALEC 025 120 S06	2.5	12	50	6		
2ALE 025 150 S06	New 2ALEC 025 150 S06	2.5	15	60	6		
2ALE 030 080 S06	New 2ALEC 030 080 S06	3	8	45	6		
2ALE 030 100 S06	New 2ALEC 030 100 S06	3	10	45	6		
2ALE 030 120 S06	New 2ALEC 030 120 S06	3	12	50	6		
2ALE 030 150 S06	New 2ALEC 030 150 S06	3	15	50	6		



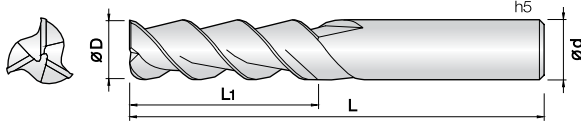
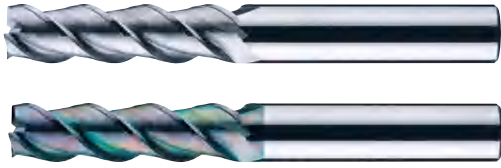
2날 45°헬릭스 알루미늄 전용 엔드밀

단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated					비코팅 Non coated	코팅 Coated
2ALE 030 200 S06	New 2ALEC 030 200 S06	3	20	60	6		
2ALE 030 250 S06	New 2ALEC 030 250 S06	3	25	65	6		
2ALE 035 100 S06	New 2ALEC 035 100 S06	3.5	10	45	6		
2ALE 035 150 S06	New 2ALEC 035 150 S06	3.5	15	50	6		
2ALE 040 120 S06	New 2ALEC 040 120 S06	4	12	50	6		
2ALE 040 150 S06	New 2ALEC 040 150 S06	4	15	55	6		
2ALE 040 180 S06	New 2ALEC 040 180 S06	4	18	55	6		
2ALE 040 250 S06	New 2ALEC 040 250 S06	4	25	65	6		
2ALE 040 300 S06	New 2ALEC 040 300 S06	4	30	70	6		
2ALE 045 120 S06	New 2ALEC 045 120 S06	4.5	12	50	6		
2ALE 045 180 S06	New 2ALEC 045 180 S06	4.5	18	55	6		
2ALE 050 150 S06	New 2ALEC 050 150 S06	5	15	50	6		
2ALE 050 200 S06	New 2ALEC 050 200 S06	5	20	60	6		
2ALE 050 250 S06	New 2ALEC 050 250 S06	5	25	65	6		
2ALE 050 300 S06	New 2ALEC 050 300 S06	5	30	70	6		
2ALE 055 150 S06	New 2ALEC 055 150 S06	5.5	15	50	6		
2ALE 060 150 S06	New 2ALEC 060 150 S06	6	15	50	6		
2ALE 060 200 S06	New 2ALEC 060 200 S06	6	20	60	6		
2ALE 060 250 S06	New 2ALEC 060 250 S06	6	25	65	6		
2ALE 060 300 S06	New 2ALEC 060 300 S06	6	30	70	6		
2ALE 060 350 S06	New 2ALEC 060 350 S06	6	35	75	6		
2ALE 060 400 S06	New 2ALEC 060 400 S06	6	40	80	6		
2ALE 070 200 S08	New 2ALEC 070 200 S08	7	20	60	8		
2ALE 070 300 S08	New 2ALEC 070 300 S08	7	30	70	8		
2ALE 080 200 S08	New 2ALEC 080 200 S08	8	20	60	8		
2ALE 080 250 S08	New 2ALEC 080 250 S08	8	25	65	8		
2ALE 080 300 S08	New 2ALEC 080 300 S08	8	30	70	8		
2ALE 080 400 S08	New 2ALEC 080 400 S08	8	40	80	8		
2ALE 080 450 S08	New 2ALEC 080 450 S08	8	45	90	8		
2ALE 100 250 S10	New 2ALEC 100 250 S10	10	25	70	10		
2ALE 100 300 S10	New 2ALEC 100 300 S10	10	30	75	10		
2ALE 100 350 S10	New 2ALEC 100 350 S10	10	35	80	10		
2ALE 100 450 S10	New 2ALEC 100 450 S10	10	45	90	10		
2ALE 100 500 S10	New 2ALEC 100 500 S10	10	50	100	10		
2ALE 120 300 S12	New 2ALEC 120 300 S12	12	30	75	12		
2ALE 120 350 S12	New 2ALEC 120 350 S12	12	35	80	12		
2ALE 120 400 S12	New 2ALEC 120 400 S12	12	40	90	12		
2ALE 120 450 S12	New 2ALEC 120 450 S12	12	45	100	12		
2ALE 120 500 S12	New 2ALEC 120 500 S12	12	50	100	12		
2ALE 120 600 S12	New 2ALEC 120 600 S12	12	60	110	12		
2ALE 140 300 S14	New 2ALEC 140 300 S14	14	30	80	14		
2ALE 160 400 S16	New 2ALEC 160 400 S16	16	40	90	16		
2ALE 160 550 S16	New 2ALEC 160 550 S16	16	55	110	16		
2ALE 160 700 S16	New 2ALEC 160 700 S16	16	70	120	16		
2ALE 200 450 S20	New 2ALEC 200 450 S20	20	45	100	20		
2ALE 200 650 S20	New 2ALEC 200 650 S20	20	65	120	20		
2ALE 200 800 S20	New 2ALEC 200 800 S20	20	80	135	20		

FOR ALUMINUM

## 3날 45° 헬릭스 알루미늄 전용 엔드밀



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열 전용 엔드밀
- 날부 인선을 고광면 설계하여 절삭시 피삭재의 표면조도가 우수합니다.
- 다양한 날장(S, L, Exl, Etc) 선택으로 맞춤 가공이 가능합니다.
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 2중 인선과 흡포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- Applied fine WC grade for excellent surface finish.
- Various flute length design for covering wide range application.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.

D Size	D Tolerance
ø1 ~ 20	+0 ~ -0.01mm

단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated					비코팅 Non coated	코팅 Coated
3ALE 010 015 S06	New 3ALEC 010 015 S06	1	1.5	40	6		
3ALE 010 030 S06	New 3ALEC 010 030 S06	1	3	40	6		
3ALE 010 050 S06	New 3ALEC 010 050 S06	1	5	45	6		
New 3ALE 010 060 S06	New 3ALEC 010 060 S06	1	6	45	6		
New 3ALE 010 080 S06	New 3ALEC 010 080 S06	1	8	45	6		
New 3ALE 010 100 S06	New 3ALEC 010 100 S06	1	10	45	6		
3ALE 012 030 S06	New 3ALEC 012 030 S06	1.2	3	40	6		
3ALE 012 040 S06	New 3ALEC 012 040 S06	1.2	4	40	6		
3ALE 012 060 S06	New 3ALEC 012 060 S06	1.2	6	40	6		
3ALE 015 025 S06	New 3ALEC 015 025 S06	1.5	2.5	40	6		
3ALE 015 040 S06	New 3ALEC 015 040 S06	1.5	4	40	6		
3ALE 015 060 S06	New 3ALEC 015 060 S06	1.5	6	45	6		
3ALE 015 080 S06	New 3ALEC 015 080 S06	1.5	8	45	6		
3ALE 015 100 S06	New 3ALEC 015 100 S06	1.5	10	50	6		
3ALE 015 120 S06	New 3ALEC 015 120 S06	1.5	12	50	6		
New 3ALE 015 150 S06	New 3ALEC 015 150 S06	1.5	15	50	6		
3ALE 020 030 S06	New 3ALEC 020 030 S06	2	3	45	6		
3ALE 020 050 S06	New 3ALEC 020 050 S06	2	5	45	6		
3ALE 020 070 S06	New 3ALEC 020 070 S06	2	7	45	6		
3ALE 020 100 S06	New 3ALEC 020 100 S06	2	10	50	6		
3ALE 020 120 S06	New 3ALEC 020 120 S06	2	12	50	6		
3ALE 020 140 S06	New 3ALEC 020 140 S06	2	14	60	6		
3ALE 020 160 S06	New 3ALEC 020 160 S06	2	16	60	6		
New 3ALE 020 180 S06	New 3ALEC 020 180 S06	2	18	60	6		
New 3ALE 020 200 S06	New 3ALEC 020 200 S06	2	20	60	6		
3ALE 025 040 S06	New 3ALEC 025 040 S06	2.5	4	45	6		
3ALE 025 080 S06	New 3ALEC 025 080 S06	2.5	8	45	6		
3ALE 025 120 S06	New 3ALEC 025 120 S06	2.5	12	50	6		
3ALE 025 150 S06	New 3ALEC 025 150 S06	2.5	15	60	6		
3ALE 030 045 S06	New 3ALEC 030 045 S06	3	4.5	45	6		
3ALE 030 080 S06	New 3ALEC 030 080 S06	3	8	45	6		
3ALE 030 120 S06	New 3ALEC 030 120 S06	3	12	50	6		
3ALE 030 150 S06	New 3ALEC 030 150 S06	3	15	50	6		
3ALE 030 200 S06	New 3ALEC 030 200 S06	3	20	55	6		
3ALE 030 250 S06	New 3ALEC 030 250 S06	3	25	60	6		
3ALE 030 300 S06	New 3ALEC 030 300 S06	3	30	65	6		
3ALE 035 055 S06	New 3ALEC 035 055 S06	3.5	5.5	45	6		
3ALE 035 100 S06	New 3ALEC 035 100 S06	3.5	10	45	6		
3ALE 035 150 S06	New 3ALEC 035 150 S06	3.5	15	50	6		
New 3ALE 035 200 S06	New 3ALEC 035 200 S06	3.5	20	55	6		
New 3ALE 035 250 S06	New 3ALEC 035 250 S06	3.5	25	60	6		
New 3ALE 035 300 S06	New 3ALEC 035 300 S06	3.5	30	65	6		
3ALE 040 060 S06	New 3ALEC 040 060 S06	4	6	45	6		
3ALE 040 110 S06	New 3ALEC 040 110 S06	4	11	45	6		
3ALE 040 160 S06	New 3ALEC 040 160 S06	4	16	50	6		
3ALE 040 200 S06	New 3ALEC 040 200 S06	4	20	55	6		
3ALE 040 250 S06	New 3ALEC 040 250 S06	4	25	60	6		
3ALE 040 300 S06	New 3ALEC 040 300 S06	4	30	65	6		



단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고			
비코팅 Non coated	코팅 Coated					비코팅 Non coated	코팅 Coated		
	3ALE 045 120 S06	New	3ALEC 045 120 S06	4.5	12	50	6		
	3ALE 045 180 S06	New	3ALEC 045 180 S06	4.5	18	55	6		
New	3ALE 045 250 S06	New	3ALEC 045 250 S06	4.5	25	60	6		
New	3ALE 045 300 S06	New	3ALEC 045 300 S06	4.5	30	65	6		
	3ALE 050 075 S06	New	3ALEC 050 075 S06	5	7.5	50	6		
	3ALE 050 130 S06	New	3ALEC 050 130 S06	5	13	50	6		
	3ALE 050 200 S06	New	3ALEC 050 200 S06	5	20	55	6		
	3ALE 050 250 S06	New	3ALEC 050 250 S06	5	25	60	6		
	3ALE 050 300 S06	New	3ALEC 050 300 S06	5	30	65	6		
New	3ALE 050 350 S06	New	3ALEC 050 350 S06	5	35	70	6		
New	3ALE 050 400 S06	New	3ALEC 050 400 S06	5	40	75	6		
	3ALE 055 150 S06	New	3ALEC 055 150 S06	5.5	15	50	6		
New	3ALE 055 200 S06	New	3ALEC 055 200 S06	5.5	20	55	6		
New	3ALE 055 250 S06	New	3ALEC 055 250 S06	5.5	25	60	6		
	3ALE 060 090 050	New	3ALEC 060 090 050	6	9	50	6		
	3ALE 060 150 050	New	3ALEC 060 150 050	6	15	50	6		
	3ALE 060 200 055	New	3ALEC 060 200 055	6	20	55	6		
	3ALE 060 250 060	New	3ALEC 060 250 060	6	25	60	6		
	3ALE 060 300 070	New	3ALEC 060 300 070	6	30	70	6		
	3ALE 060 350 070	New	3ALEC 060 350 070	6	35	70	6		
	3ALE 060 400 075	New	3ALEC 060 400 075	6	40	75	6		
New	3ALE 060 450 080	New	3ALEC 060 450 080	6	45	80	6		
New	3ALE 060 500 090	New	3ALEC 060 500 090	6	50	90	6		
New	3ALE 070 200 060	New	3ALEC 070 200 060	7	20	60	8		
New	3ALE 070 300 075	New	3ALEC 070 300 075	7	30	75	8		
New	3ALE 070 400 090	New	3ALEC 070 400 090	7	40	90	8		
	3ALE 080 120 060	New	3ALEC 080 120 060	8	12	60	8		
	3ALE 080 200 060	New	3ALEC 080 200 060	8	20	60	8		
	3ALE 080 250 065	New	3ALEC 080 250 065	8	25	65	8		
	3ALE 080 300 070	New	3ALEC 080 300 070	8	30	70	8		
	3ALE 080 350 075	New	3ALEC 080 350 075	8	35	75	8		
	3ALE 080 400 080	New	3ALEC 080 400 080	8	40	80	8		
	3ALE 080 450 090	New	3ALEC 080 450 090	8	45	90	8		
	3ALE 080 500 090	New	3ALEC 080 500 090	8	50	90	8		
	3ALE 080 550 100	New	3ALEC 080 550 100	8	55	100	8		
	3ALE 080 600 110	New	3ALEC 080 600 110	8	60	110	8		
New	3ALE 080 700 120	New	3ALEC 080 700 120	8	70	120	8		
	3ALE 100 150 070	New	3ALEC 100 150 070	10	15	70	10		
	3ALE 100 250 070	New	3ALEC 100 250 070	10	25	70	10		
	3ALE 100 300 075	New	3ALEC 100 300 075	10	30	75	10		
	3ALE 100 350 080	New	3ALEC 100 350 080	10	35	80	10		
	3ALE 100 400 090	New	3ALEC 100 400 090	10	40	90	10		
	3ALE 100 450 090	New	3ALEC 100 450 090	10	45	90	10		
	3ALE 100 500 100	New	3ALEC 100 500 100	10	50	100	10		
	3ALE 100 550 100	New	3ALEC 100 550 100	10	55	100	10		
	3ALE 100 600 110	New	3ALEC 100 600 110	10	60	110	10		
	3ALE 100 650 110	New	3ALEC 100 650 110	10	65	110	10		
	3ALE 100 700 120	New	3ALEC 100 700 120	10	70	120	10		

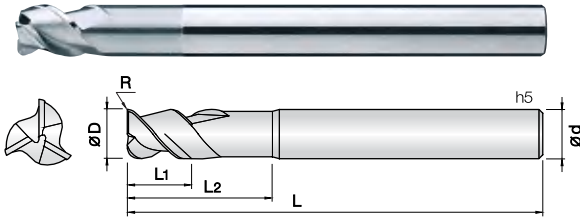
FOR ALUMINUM



단위 : mm

Order Number		날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated					비코팅 Non coated	코팅 Coated
New 3ALE 100 800 130	New 3ALEC 100 800 130	10	80	130	10		
3ALE 120 180 075	New 3ALEC 120 180 075	12	18	75	12		
3ALE 120 260 075	New 3ALEC 120 260 075	12	26	75	12		
3ALE 120 350 080	New 3ALEC 120 350 080	12	35	80	12		
3ALE 120 400 090	New 3ALEC 120 400 090	12	40	90	12		
3ALE 120 450 090	New 3ALEC 120 450 090	12	45	90	12		
3ALE 120 500 100	New 3ALEC 120 500 100	12	50	100	12		
3ALE 120 550 100	New 3ALEC 120 550 100	12	55	100	12		
3ALE 120 650 110	New 3ALEC 120 650 110	12	65	110	12		
3ALE 120 700 120	New 3ALEC 120 700 120	12	70	120	12		
New 3ALE 120 800 130	New 3ALEC 120 800 130	12	80	130	12		
3ALE 140 300 080	New 3ALEC 140 300 080	14	30	80	14		
3ALE 140 450 110	New 3ALEC 140 450 110	14	45	110	14		
3ALE 160 300 090	New 3ALEC 160 300 090	16	30	90	16		
3ALE 160 500 110	New 3ALEC 160 500 110	16	50	110	16		
3ALE 160 650 120	New 3ALEC 160 650 120	16	65	120	16		
3ALE 160 800 130	New 3ALEC 160 800 130	16	80	130	16		
New 3ALE 160 1000 160	New 3ALEC 160 1000 160	16	100	160	16		
3ALE 200 500 100	New 3ALEC 200 500 100	20	50	100	20		
3ALE 200 750 130	New 3ALEC 200 750 130	20	75	130	20		
3ALE 200 1000 160	New 3ALEC 200 1000 160	20	100	160	20		
3ALE 200 1300 200	New 3ALEC 200 1300 200	20	130	200	20		
New 3ALE 200 1500 220	New 3ALEC 200 1500 220	20	150	220	20		

## 3날 45° 헬릭스 알루미늄 전용 코너 레디우스 엔드밀



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열 가공 엔드밀
- 날부 인선을 고광면 설계하여 절삭시 피삭재의 표면조도가 우수합니다.
- 2중 인선과 홀포켓을 깊게 설계하여 흡착현상을 최소화 하였습니다.
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 3날 45° 헬릭스 형상과 짧은 날장으로 설계, 고속 고이송 작업에 적합합니다.
- **Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- Applied fine WC grade for excellent surface finish.
- Minimize built up edge by double edge and deep pocket design.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- High speed, feed applicable by 3 flute 45° degree helix and short flute design.



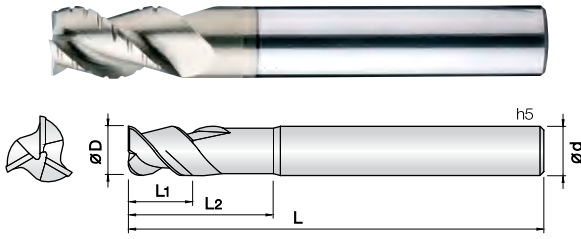
D Size	D Tolerance
Ø6 ~ 20	+0 ~ -0.015mm

단위 : mm

Order Number		날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프트 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated						비코팅 Non coated	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		
New 3ALC 100 005 070	New 3ALCC 100 005 070	10 X R0.5	25	-	70	10		
New 3ALC 100 005 100	New 3ALCC 100 005 100	10 X R0.5	11	30	100	10		
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		
New 3ALC 120 005 075	New 3ALCC 120 005 075	12 X R0.5	30	-	75	12		
New 3ALC 120 005 110	New 3ALCC 120 005 110	12 X R0.5	13	36	110	12		
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		
New 3ALC 160 005 130	New 3ALCC 160 005 130	16 X R0.5	17	50	130	16		
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		
New 3ALC 200 010 150	New 3ALCC 200 010 150	20 X R1	21	60	150	20		
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		

FOR ALUMINUM

### 3날 알루미늄 세미 피니싱 & 라핑 엔드밀



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭
- JCRO 코팅 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.
- **High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- JCRO 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.

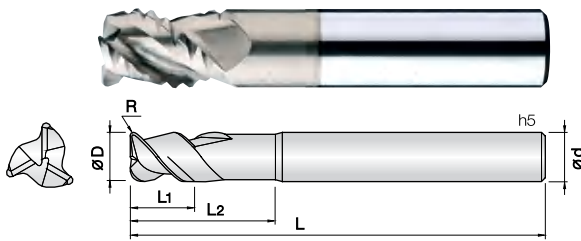


D Size	D Tolerance
ø6 ~ 8	-0.02 ~ -0.04mm
ø10 ~ 20	-0.02 ~ -0.05mm

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	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 160 500 S16	16	35	50	120	16	
3ARE 060 200 S06	6	15	20	70	6		3ARE 200 500 S20	20	35	50	110	20	
3ARE 080 200 S08	8	15	20	60	8		3ARE 200 600 S20	20	45	60	120	20	
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								

### 3날 알루미늄 세미 피니싱 & 라핑 코너 레디우스 엔드밀



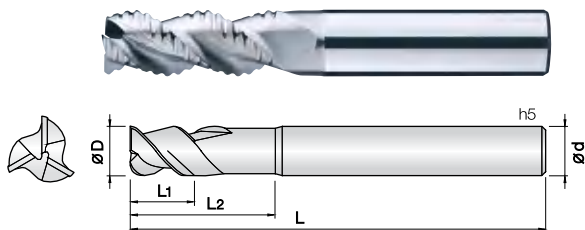
- 알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 칩 브레이커와 홈포켓을 깊게 설계하여 흡착현상을 최소화하며, 중삭 및 황삭의 고속 작업시 우수한 성능을 보입니다.
- 일반 알루미늄 라핑과 다르게 피삭재의 가공면이 깨끗합니다.
- **High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**
- JCRO 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.



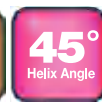
Size	D Tolerance
ø6 ~ 20	+0 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D x 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 160 010 S16	16 X R1	25	35	110	16	
3ARC 060 010 S06	6 X R1	9	15	65	6		3ARC 160 020 S16	16 X R2	25	35	110	16	
3ARC 080 005 S08	8 X R0.5	12	20	70	8		3ARC 160 030 S16	16 X R3	25	35	110	16	
3ARC 080 010 S08	8 X R1	12	20	70	8		3ARC 200 020 S20	20 X R2	30	50	110	20	
3ARC 100 010 S10	10 X R1	15	25	75	10		3ARC 200 030 S20	20 X R3	30	50	110	20	
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								



- 알루미늄, 알루미늄 합금 등 비철 비금속 계열의 고속 중삭 및 황삭
- 칩 브레이커와 홀포켓을 깊게 설계하여 흠착현상을 최소화하며, 중삭 및 황삭의 고속 작업시 우수한 성능을 보입니다.
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 항절력이 높은 미립자 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.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize fracturing at high feed by high TRS fine WC grade.



Ø4~Ø8    Ø10~Ø20

Shield Edge

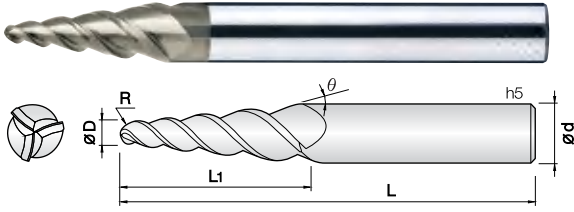
D Size	D Tolerance
Ø4 ~ 8	-0.02 ~ -0.04mm
Ø10 ~ 20	-0.02 ~ -0.05mm

단위 : mm

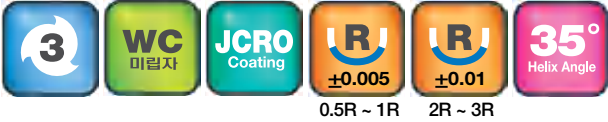
Order Number		날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샅크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated						비코팅 Non coated	코팅 Coated
3ARO 040 080 S06	3AROC 040 080 S06	4	8	-	50	6		
3ARO 040 150 S06	3AROC 040 150 S06	4	10	15	60	6		
3ARO 050 100 S06	3AROC 050 100 S06	5	10	-	60	6		
3ARO 050 200 S06	3AROC 050 200 S06	5	15	20	60	6		
3ARO 060 120 S06	3AROC 060 120 S06	6	12	-	60	6		
3ARO 060 210 S06	3AROC 060 210 S06	6	16	21	65	6		
3ARO 080 160 S08	3AROC 080 160 S08	8	16	-	70	8		
3ARO 080 270 S08	3AROC 080 270 S08	8	21	27	70	8		
3ARO 100 200 S10	3AROC 100 200 S10	10	20	-	70	10		
3ARO 100 310 S10	3AROC 100 310 S10	10	26	31	75	10		
3ARO 120 240 S12	3AROC 120 240 S12	12	24	-	75	12		
3ARO 120 380 S12	3AROC 120 380 S12	12	30	38	80	12		
3ARO 160 320 S16	3AROC 160 320 S16	16	32	-	100	16		
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		

FOR ALUMINUM

### 3날 임펠라 가공용 테이퍼 볼 엔드밀



- 프리하든강, 일반강, 주물, 비철합금 가공 엔드밀
- JCRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 공구의 교체없이 밀면과 경사면의 정삭,항삭 가공이 동시에 가능합니다.
- 임펠라, 브리스크, 타이어 프로파일, 터빈날 등 3축과 5축의 편측각이 있는 부품 가공에 적합합니다.
- **Pre-hardened steel, Cast iron, Non-metallic materials**
- JCRO 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.



Size	D Tolerance
Ø4 ~ 6	+0.01 ~ -0.01mm

단위 : mm

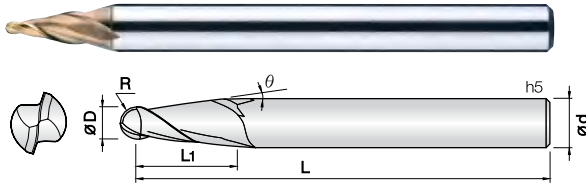
Order Number	날경 Diameter R x D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
3TBIC 010 010 120	R0.5 X 1	1°	12	50	6	
3TBIC 010 010 200	R0.5 X 1	1°	20	60	6	
3TBIC 010 020 150	R0.5 X 1	2°	15	55	6	
3TBIC 010 020 200	R0.5 X 1	2°	20	60	6	
3TBIC 010 030 150	R0.5 X 1	3°	15	55	6	
3TBIC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



단위: mm

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

TAPER



• 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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.

• 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.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

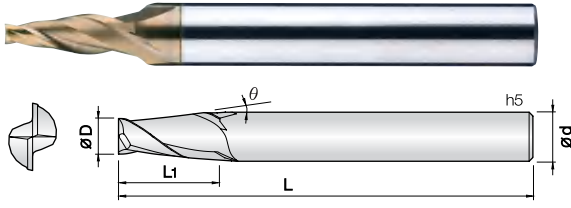


0.2 ~ 1.5R 1.5 ~ 3R

D Size	D Tolerance
ø0.4 ~ 3	-0.01 ~ -0.025mm
ø3 ~ 6	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter R x D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2CTB 004 020 030	0.2R X 0.4	2°	3	40	4		2CTB 020 070 080	1R X 2	7°	8	45	4	
2CTB 004 030 030	0.2R X 0.4	3°	3	40	4		2CTB 030 003 120	1.5RX3	0°30'	12	60	6	
2CTB 004 040 030	0.2R X 0.4	4°	3	40	4		2CTB 030 010 120	1.5RX3	1°	12	60	6	
2CTB 004 050 030	0.2R X 0.4	5°	3	40	4		2CTB 030 013 120	1.5RX3	1°30'	12	60	6	
2CTB 004 070 030	0.2R X 0.4	7°	3	40	4		2CTB 030 020 120	1.5RX3	2°	12	60	6	
2CTB 004 100 030	0.2R X 0.4	10°	3	40	4		2CTB 030 030 120	1.5RX3	3°	12	60	6	
2CTB 005 020 030	0.25R X 0.5	2°	3	40	4		2CTB 030 040 120	1.5RX3	4°	12	60	6	
2CTB 005 030 030	0.25R X 0.5	3°	3	40	4		2CTB 030 050 120	1.5RX3	5°	12	60	6	
2CTB 005 040 035	0.25R X 0.5	4°	3.5	40	4		2CTB 030 070 120	1.5RX3	7°	12	60	6	
2CTB 005 050 035	0.25R X 0.5	5°	3.5	40	4		2CTB 040 003 160	2RX4	0°30'	16	70	8	
2CTB 005 070 035	0.25R X 0.5	7°	3.5	40	4		2CTB 040 010 160	2RX4	1°	16	70	8	
2CTB 005 100 035	0.25R X 0.5	10°	3.5	40	4		2CTB 040 013 160	2RX4	1°30'	16	70	8	
2CTB 006 020 030	0.3R X 0.6	2°	3	40	4		2CTB 040 020 160	2RX4	2°	16	70	8	
2CTB 006 030 030	0.3R X 0.6	3°	3	40	4		2CTB 040 030 160	2RX4	3°	16	70	8	
2CTB 006 040 035	0.3R X 0.6	4°	3.5	40	4		2CTB 040 040 160	2RX4	4°	16	70	8	
2CTB 006 050 035	0.3R X 0.6	5°	3.5	40	4		2CTB 040 050 160	2RX4	5°	16	70	8	
2CTB 006 070 035	0.3R X 0.6	7°	3.5	40	4		2CTB 040 070 160	2RX4	7°	16	70	8	
2CTB 006 100 035	0.3R X 0.6	10°	3.5	40	4		2CTB 050 003 200	2.5RX5	0°30'	20	75	8	
2CTB 008 020 030	0.4R X 0.8	2°	3	40	4		2CTB 050 010 200	2.5RX5	1°	20	75	8	
2CTB 008 030 030	0.4R X 0.8	3°	3	40	4		2CTB 050 013 200	2.5RX5	1°30'	20	75	8	
2CTB 008 040 040	0.4R X 0.8	4°	4	40	4		2CTB 050 020 200	2.5RX5	2°	20	75	8	
2CTB 008 050 040	0.4R X 0.8	5°	4	40	4		2CTB 050 030 200	2.5RX5	3°	20	75	8	
2CTB 008 070 040	0.4R X 0.8	7°	4	40	4		2CTB 050 040 200	2.5RX5	4°	20	75	8	
2CTB 008 100 040	0.4R X 0.8	10°	4	40	4		2CTB 050 050 200	2.5RX5	5°	20	80	10	
2CTB 010 003 030	0.5R X 1	0°30'	3	40	4		2CTB 050 070 200	2.5RX5	7°	20	80	10	
2CTB 010 010 030	0.5R X 1	1°	3	40	4		2CTB 060 003 240	3RX6	0°30'	24	80	10	
2CTB 010 013 040	0.5R X 1	1°30'	4	40	4		2CTB 060 010 240	3RX6	1°	24	80	10	
2CTB 010 020 040	0.5R X 1	2°	4	40	4		2CTB 060 013 240	3RX6	1°30'	24	80	10	
2CTB 010 030 040	0.5R X 1	3°	4	40	4		2CTB 060 020 240	3RX6	2°	24	80	10	
2CTB 010 040 060	0.5R X 1	4°	6	45	4		2CTB 060 030 240	3RX6	3°	24	80	10	
2CTB 010 050 060	0.5R X 1	5°	6	45	4		2CTB 060 040 240	3RX6	4°	24	80	10	
2CTB 010 070 060	0.5R X 1	7°	6	45	4		2CTB 060 050 240	3RX6	5°	24	90	12	
2CTB 010 100 060	0.5R X 1	10°	6	45	4		2CTB 060 070 240	3RX6	7°	24	90	12	
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								



- 고경도강(HRc50이상), 프리하든강 계열의 고정밀 가공 엔드밀
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- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.



D Size	D Tolerance
$\phi 0.3 \sim 4$	+0 ~ -0.01mm
$\phi 6 \sim 8$	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2CTE 003 003 012	0.3	0°30'	1.2	40	4		2CTE 010 010 040	1	1°	4	45	4	
2CTE 003 010 012	0.3	1°	1.2	40	4		2CTE 010 013 040	1	1°30'	4	45	4	
2CTE 003 013 012	0.3	1°30'	1.2	40	4		2CTE 010 020 040	1	2°	4	45	4	
2CTE 003 020 012	0.3	2°	1.2	40	4		2CTE 010 030 040	1	3°	4	45	4	
2CTE 003 030 012	0.3	3°	1.2	40	4		2CTE 010 050 040	1	5°	4	45	4	
2CTE 003 050 012	0.3	5°	1.2	40	4		2CTE 010 070 040	1	7°	4	45	4	
2CTE 003 070 015	0.3	7°	1.5	40	4		2CTE 010 100 040	1	10°	4	45	4	
2CTE 003 100 015	0.3	10°	1.5	40	4		2CTE 015 003 050	1.5	0°30'	5	45	4	
2CTE 004 003 016	0.4	0°30'	1.6	40	4		2CTE 015 010 050	1.5	1°	5	45	4	
2CTE 004 010 016	0.4	1°	1.6	40	4		2CTE 015 013 060	1.5	1°30'	6	45	4	
2CTE 004 013 016	0.4	1°30'	1.6	40	4		2CTE 015 020 070	1.5	2°	7	45	4	
2CTE 004 020 016	0.4	2°	1.6	40	4		2CTE 015 030 080	1.5	3°	8	45	4	
2CTE 004 030 016	0.4	3°	1.6	40	4		2CTE 015 050 100	1.5	5°	10	50	4	
2CTE 004 050 016	0.4	5°	1.6	40	4		2CTE 015 070 100	1.5	7°	10	50	4	
2CTE 004 070 020	0.4	7°	2	40	4		2CTE 015 100 100	1.5	10°	10	50	6	
2CTE 004 100 020	0.4	10°	2	40	4		2CTE 020 003 060	2	0°30'	6	45	4	
2CTE 005 003 020	0.5	0°30'	2	40	4		2CTE 020 010 060	2	1°	6	45	4	
2CTE 005 010 020	0.5	1°	2	40	4		2CTE 020 013 060	2	1°30'	6	45	4	
2CTE 005 013 020	0.5	1°30'	2	40	4		2CTE 020 020 080	2	2°	8	45	4	
2CTE 005 020 020	0.5	2°	2	40	4		2CTE 020 030 100	2	3°	10	50	4	
2CTE 005 030 020	0.5	3°	2	40	4		2CTE 020 050 100	2	5°	10	50	4	
2CTE 005 050 020	0.5	5°	2	40	4		2CTE 020 070 100	2	7°	10	50	6	
2CTE 005 070 025	0.5	7°	2.5	40	4		2CTE 020 100 110	2	10°	11	50	6	
2CTE 005 100 025	0.5	10°	2.5	40	4		2CTE 025 003 080	2.5	0°30'	8	45	6	
2CTE 006 003 020	0.6	0°30'	2	40	4		2CTE 025 010 100	2.5	1°	10	50	6	
2CTE 006 010 020	0.6	1°	2	40	4		2CTE 025 013 100	2.5	1°30'	10	50	6	
2CTE 006 013 020	0.6	1°30'	2	40	4		2CTE 025 020 120	2.5	2°	12	50	6	
2CTE 006 020 020	0.6	2°	2	40	4		2CTE 025 030 120	2.5	3°	12	50	6	
2CTE 006 030 020	0.6	3°	2	40	4		2CTE 025 050 120	2.5	5°	12	50	6	
2CTE 006 050 020	0.6	5°	2	40	4		2CTE 025 070 120	2.5	7°	12	50	6	
2CTE 006 070 025	0.6	7°	2.5	40	4		2CTE 025 100 100	2.5	10°	10	50	6	
2CTE 006 100 025	0.6	10°	2.5	40	4		2CTE 030 003 120	3	0°30'	12	50	6	
2CTE 007 010 025	0.7	1°	2.5	40	4		2CTE 030 010 120	3	1°	12	50	6	
2CTE 007 013 025	0.7	1°30'	2.5	40	4		2CTE 030 013 120	3	1°30'	12	50	6	
2CTE 007 020 025	0.7	2°	2.5	40	4		2CTE 030 020 120	3	2°	12	50	6	
2CTE 007 030 025	0.7	3°	2.5	40	4		2CTE 030 030 120	3	3°	12	50	6	
2CTE 007 050 025	0.7	5°	2.5	40	4		2CTE 030 050 120	3	5°	12	50	6	
2CTE 007 070 030	0.7	7°	3	40	4		2CTE 030 070 120	3	7°	12	50	6	
2CTE 007 100 030	0.7	10°	3	40	4		2CTE 030 100 080	3	10°	8	50	6	
2CTE 008 003 030	0.8	0°30'	3	40	4		2CTE 040 003 150	4	0°30'	15	60	6	
2CTE 008 010 030	0.8	1°	3	40	4		2CTE 040 010 150	4	1°	15	60	6	
2CTE 008 013 030	0.8	1°30'	3	40	4		2CTE 040 013 150	4	1°30'	15	60	6	
2CTE 008 020 030	0.8	2°	3	40	4		2CTE 040 020 150	4	2°	15	60	6	
2CTE 008 030 030	0.8	3°	3	40	4		2CTE 040 030 180	4	3°	18	60	6	
2CTE 008 050 030	0.8	5°	3	40	4		2CTE 040 050 230	4	5°	23	65	8	
2CTE 008 070 030	0.8	7°	3	40	4		2CTE 060 003 200	6	0°30'	20	65	8	
2CTE 008 100 030	0.8	10°	3	40	4		2CTE 060 010 200	6	1°	20	65	8	
2CTE 010 003 040	1	0°30'	4	45	4		2CTE 060 013 200	6	1°30'	20	65	8	

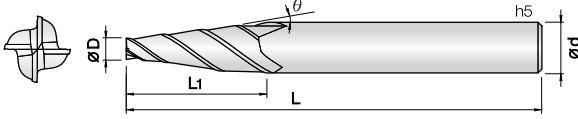
TAPER



단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	셱크 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							

TAPER



- 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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- 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.
- Minimize fracturing by high TRS fine(0.5  $\mu$ m) WC grade.

4

WC  
미립자

TISIN  
Coating

D  
+0 -0.01

D  
-0.01 -0.025

30°  
Helix Angle

Shield Edge

$\varnothing 0.3 \sim \varnothing 5$ 
 $\varnothing 6 \sim \varnothing 10$

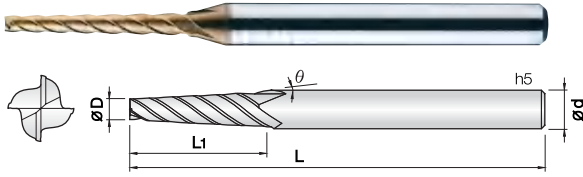
D Size	D Tolerance
$\varnothing 0.3 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 8$	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 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									

TAPER

## 4날 고속가공용 리브테이퍼 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.
- 항절력이 높은 미립자 초경합금(0.5 $\mu$ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.

- 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.
- Minimize fracturing by high TRS fine(0.5 $\mu$ m) WC grade.

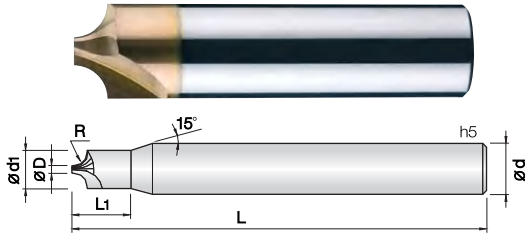


D Size	D Tolerance
ø0.5 ~ 2.5	+0 ~ -0.01mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	각도 Angle $\theta$	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 012 030 160	1.2	0° 30'	16	50	4	
4RTE 005 030 060	0.5	0° 30'	6	45	4		4RTE 012 045 080	1.2	0° 45'	8	45	4	
4RTE 005 045 040	0.5	0° 45'	4	45	4		4RTE 012 045 100	1.2	0° 45'	10	45	4	
4RTE 005 045 060	0.5	0° 45'	6	45	4		4RTE 012 045 120	1.2	0° 45'	12	45	4	
4RTE 005 100 040	0.5	1°	4	45	4		4RTE 012 045 160	1.2	0° 45'	16	50	4	
4RTE 005 100 060	0.5	1°	6	45	4		4RTE 012 100 080	1.2	1°	8	45	4	
4RTE 006 030 040	0.6	0° 30'	4	45	4		4RTE 012 100 100	1.2	1°	10	45	4	
4RTE 006 030 060	0.6	0° 30'	6	45	4		4RTE 012 100 120	1.2	1°	12	45	4	
4RTE 006 045 040	0.6	0° 45'	4	45	4		4RTE 012 100 160	1.2	1°	16	50	4	
4RTE 006 045 060	0.6	0° 45'	6	45	4		4RTE 015 030 060	1.5	0° 30'	6	45	4	
4RTE 006 100 040	0.6	1°	4	45	4		4RTE 015 030 100	1.5	0° 30'	10	45	4	
4RTE 006 100 060	0.6	1°	6	45	4		4RTE 015 030 160	1.5	0° 30'	16	50	4	
4RTE 007 030 060	0.7	0° 30'	6	45	4		4RTE 015 030 200	1.5	0° 30'	20	60	4	
4RTE 007 030 080	0.7	0° 30'	8	45	4		4RTE 015 100 060	1.5	1°	6	45	4	
4RTE 007 045 060	0.7	0° 45'	6	45	4		4RTE 015 100 100	1.5	1°	10	45	4	
4RTE 007 045 080	0.7	0° 45'	8	45	4		4RTE 015 100 160	1.5	1°	16	50	4	
4RTE 007 100 060	0.7	1°	6	45	4		4RTE 015 100 200	1.5	1°	20	60	4	
4RTE 007 100 080	0.7	1°	8	45	4		4RTE 015 100 250	1.5	1°	25	60	4	
4RTE 008 030 060	0.8	0° 30'	6	45	4		4RTE 015 130 060	1.5	1° 30'	6	45	4	
4RTE 008 030 080	0.8	0° 30'	8	45	4		4RTE 015 130 100	1.5	1° 30'	10	45	4	
4RTE 008 030 100	0.8	0° 30'	10	45	4		4RTE 015 130 160	1.5	1° 30'	16	50	4	
4RTE 008 045 060	0.8	0° 45'	6	45	4		4RTE 015 130 200	1.5	1° 30'	20	60	4	
4RTE 008 045 080	0.8	0° 45'	8	45	4		4RTE 015 130 250	1.5	1° 30'	25	60	4	
4RTE 008 045 100	0.8	0° 45'	10	45	4		4RTE 020 030 100	2	0° 30'	10	45	4	
4RTE 008 100 060	0.8	1°	6	45	4		4RTE 020 030 160	2	0° 30'	16	50	4	
4RTE 008 100 080	0.8	1°	8	45	4		4RTE 020 030 200	2	0° 30'	20	60	4	
4RTE 008 100 100	0.8	1°	10	45	4		4RTE 020 030 250	2	0° 30'	25	60	4	
4RTE 009 030 060	0.9	0° 30'	6	45	4		4RTE 020 100 100	2	1°	10	45	4	
4RTE 009 030 080	0.9	0° 30'	8	45	4		4RTE 020 100 160	2	1°	16	50	4	
4RTE 009 030 100	0.9	0° 30'	10	45	4		4RTE 020 100 200	2	1°	20	60	4	
4RTE 009 045 060	0.9	0° 45'	6	45	4		4RTE 020 100 250	2	1°	25	60	4	
4RTE 009 045 080	0.9	0° 45'	8	45	4		4RTE 020 130 100	2	1° 30'	10	45	4	
4RTE 009 045 100	0.9	0° 45'	10	45	4		4RTE 020 130 160	2	1° 30'	16	50	4	
4RTE 009 100 060	0.9	1°	6	45	4		4RTE 020 130 200	2	1° 30'	20	60	4	
4RTE 009 100 080	0.9	1°	8	45	4		4RTE 020 130 250	2	1° 30'	25	60	4	
4RTE 009 100 100	0.9	1°	10	45	4		4RTE 025 030 100	2.5	0° 30'	10	45	4	
4RTE 010 030 080	1	0° 30'	8	45	4		4RTE 025 030 160	2.5	0° 30'	16	50	4	
4RTE 010 030 100	1	0° 30'	10	45	4		4RTE 025 030 200	2.5	0° 30'	20	60	4	
4RTE 010 030 120	1	0° 30'	12	45	4		4RTE 025 030 250	2.5	0° 30'	25	60	4	
4RTE 010 045 080	1	0° 45'	8	45	4		4RTE 025 100 100	2.5	1°	10	45	4	
4RTE 010 045 100	1	0° 45'	10	45	4		4RTE 025 100 160	2.5	1°	16	50	4	
4RTE 010 045 120	1	0° 45'	12	45	4		4RTE 025 100 200	2.5	1°	20	60	4	
4RTE 010 100 080	1	1°	8	45	4		4RTE 025 100 250	2.5	1°	25	60	4	
4RTE 010 100 100	1	1°	10	45	4		4RTE 025 130 100	2.5	1° 30'	10	45	4	
4RTE 010 100 120	1	1°	12	45	4		4RTE 025 130 160	2.5	1° 30'	16	50	4	
4RTE 012 030 080	1.2	0° 30'	8	45	4		4RTE 025 130 200	2.5	1° 30'	20	60	4	
4RTE 012 030 100	1.2	0° 30'	10	45	4		4RTE 025 130 250	2.5	1° 30'	25	60	4	
4RTE 012 030 120	1.2	0° 30'	12	45	4								

TAPER



- 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 미립자 초경합금(0.5 $\mu$ m)을 채택, 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 by high TRS fine(0.5 $\mu$ m) WC grade.

2

WC  
미립자

TISIN  
Coating

R  
 $\pm 0.01$

R  
 $\pm 0.02$

0°  
Helix Angle

0.1 ~ 2.5R    3 ~ 8R

D Size	D Tolerance
Ø0.5 ~ 0.9	+0 ~ -0.01mm
Ø1.4 ~ 5.9	+0 ~ -0.02mm

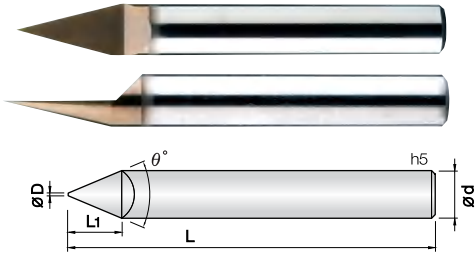
단위 : mm

Order Number	선단경 Diameter D × R	외경 Length of cut d1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고									
2CRC 005 001 S04	0.5 X R0.1	0.8	2.5	45	4										
2CRC 005 0015 S04	0.5 X R0.15	0.9	2.5	45	4										
2CRC 005 002 S04	0.5 X R0.2	1	2.5	45	4										
2CRC 005 0025 S04	0.5 X R0.25	1.1	2.5	45	4										
2CRC 005 003 S04	0.5 X R0.3	1.2	2.5	45	4										
2CRC 005 0035 S04	0.5 X R0.35	1.3	2.5	45	4										
2CRC 005 004 S04	0.5 X R0.4	1.4	2.5	45	4										
2CRC 005 0045 S04	0.5 X R0.45	1.5	2.5	45	4										
2CRC 005 005 S04	0.5 X R0.5	1.6	2.5	45	4										
2CRC 009 005 S04	0.9 X R0.5	2	3	45	4										
2CRC 049 005 S06	4.9 X R0.5	6	-	50	6										
2CRC 005 0055 S04	0.5 X R0.55	1.7	3	45	4										
2CRC 005 006 S04	0.5 X R0.6	1.8	3	45	4										
2CRC 005 0065 S04	0.5 X R0.65	1.9	3	45	4										
2CRC 005 007 S04	0.5 X R0.7	2	3	45	4										
2CRC 009 0075 S04	0.9 X R0.75	2.5	4	45	4										
2CRC 009 008 S04	0.9 X R0.8	2.6	4	45	4										
2CRC 009 0085 S04	0.9 X R0.85	2.7	4	45	4										
2CRC 009 009 S04	0.9 X R0.9	2.8	4	45	4										
2CRC 009 0095 S04	0.9 X R0.95	2.9	4	45	4										
2CRC 009 010 S06	0.9 X R1	3	5	50	6										
2CRC 039 010 S06	3.9 X R1	6	-	50	6										
2CRC 059 010 S08	5.9 X R1	8	-	60	8										
2CRC 009 0125 S06	0.9 X R1.25	3.5	5	50	6										
2CRC 034 0125 S06	3.4 X R1.25	6	-	50	6										
2CRC 014 015 S06	1.4 X R1.5	4.5	8	50	6										
2CRC 049 015 S08	4.9 X R1.5	8	-	60	8										
2CRC 014 020 S06	1.4 X R2	5.5	10	50	6										
2CRC 039 020 S08	3.9 X R2	8	-	60	8										
2CRC 019 025 S08	1.9 X R2.5	7	13	60	8										
2CRC 019 030 S08	1.9 X R3	8	-	60	8										
2CRC 019 035 S10	1.9 X R3.5	9	13	70	10										
2CRC 019 040 S10	1.9 X R4	10	-	70	10										
2CRC 019 045 S12	1.9 X R4.5	11	13	80	12										
2CRC 019 050 S12	1.9 X R5	12	-	80	12										
2CRC 039 060 S16	3.9 X R6	16	-	90	16										
2CRC 059 070 S20	5.9 X R7	20	-	90	20										
2CRC 039 080 S20	3.9 X R8	20	-	90	20										

GENERAL PURPOSE



### 1날 직선날 테이퍼 엔드밀



- HRc50이하의 고경도강, 프리하드강, 공구강, 주철 등 피삭재 가공
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 직선날 타입 1날을 적용하여 조각 NC 작업에 적합합니다.
- 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.

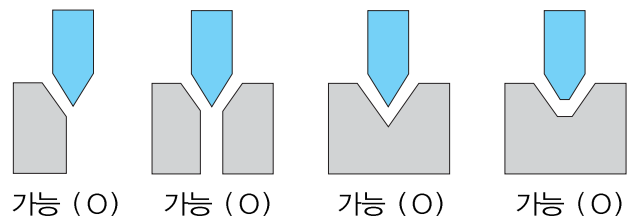


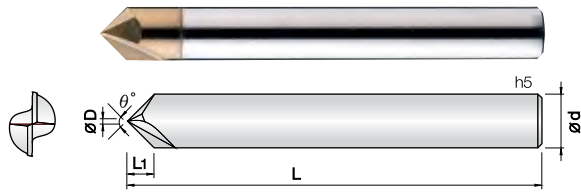
D Size	D Tolerance
Ø0	+0.05~ -0mm
Ø0.1 ~ 0.2	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
1STE 000 200 S04	0	20°	5	40	4		1STE 002 300 S06	0.2	30°	5	50	6	
1STE 000 300 S04	0	30°	5	40	4		New 1STE 002 900 S06	0.2	90°	2.9	50	6	
New 1STE 000 900 S04	0	90°	2	40	4		New 1STE 002 1200 S06	0.2	120°	1.67	50	6	
1STE 000 200 S06	0	20°	5	50	6								
1STE 000 300 S06	0	30°	5	50	6								
New 1STE 000 900 S06	0	90°	3	50	6								
New 1STE 000 1200 S06	0	120°	1.73	50	6								
New 1STE 0005 200 S04	0.05	20°	5	40	4								
New 1STE 0005 300 S04	0.05	30°	5	40	4								
New 1STE 0005 900 S04	0.05	90°	1.97	40	4								
New 1STE 0005 200 S06	0.05	20°	5	50	6								
New 1STE 0005 300 S06	0.05	30°	5	50	6								
New 1STE 0005 900 S06	0.05	90°	2.97	50	6								
New 1STE 0005 1200 S06	0.05	120°	1.71	50	6								
1STE 001 200 S04	0.1	20°	5	40	4								
1STE 001 300 S04	0.1	30°	5	40	4								
New 1STE 001 900 S04	0.1	90°	1.95	40	4								
1STE 001 200 S06	0.1	20°	5	50	6								
1STE 001 300 S06	0.1	30°	5	50	6								
New 1STE 001 900 S06	0.1	90°	2.95	50	6								
New 1STE 001 1200 S06	0.1	120°	1.7	50	6								
1STE 0015 200 S04	0.15	20°	5	40	4								
1STE 0015 300 S04	0.15	30°	5	40	4								
New 1STE 0015 900 S04	0.15	90°	1.92	40	4								
1STE 0015 200 S06	0.15	20°	5	50	6								
1STE 0015 300 S06	0.15	30°	5	50	6								
New 1STE 0015 900 S06	0.15	90°	2.92	50	6								
New 1STE 0015 1200 S06	0.15	120°	1.68	50	6								
1STE 002 200 S04	0.2	20°	5	40	4								
1STE 002 300 S04	0.2	30°	5	40	4								
New 1STE 002 900 S04	0.2	90°	1.9	40	4								
1STE 002 200 S06	0.2	20°	5	50	6								

#### 가공 형상에 따른 절삭가능 여부 Available Cutting Shape





- 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 with coated or non coated endmill.



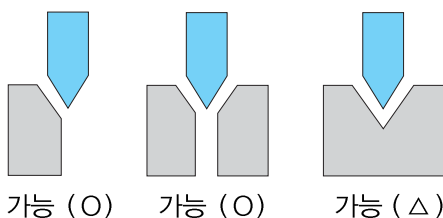
D Size	D Tolerance
Ø	+0.05~ -0mm

단위 : mm

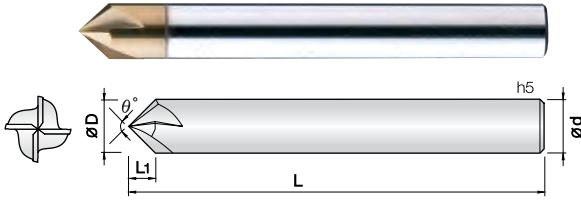
Order Number		날경	각도	날장	전장	샤프트	비고	
비코팅 Non coated	코팅 Coated	Diameter	Angle	Length of cut	Overall Length	Shank Dia	비코팅 Non coated	코팅 Coated
		D	θ	L1	L	d		
2STE 000 300 S03	2STEC 000 300 S03	0	30°	5.5	60	3		
2STE 000 600 S03	2STEC 000 600 S03	0	60°	2.5	60	3		
2STE 000 900 S03	2STEC 000 900 S03	0	90°	1.5	60	3		
	New 2STEC 000 900 080	0	90°	1.5	80	3		
New 2STE 000 1200 S03	New 2STEC 000 1200 S03	0	120°	0.86	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		
	New 2STEC 000 900 100	0	90°	2	100	4		
New 2STE 000 1200 S04	New 2STEC 000 1200 S04	0	120°	1.15	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		
	New 2STEC 000 900 110	0	90°	3	110	6		
New 2STE 000 1200 S06	New 2STEC 000 1200 S06	0	120°	1.73	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		
	New 2STEC 000 900 120	0	90°	4	120	8		
New 2STE 000 1200 S08	New 2STEC 000 1200 S08	0	120°	2.3	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		
	New 2STEC 000 900 150	0	90°	5	150	10		
New 2STE 000 1200 S10	New 2STEC 000 1200 S10	0	120°	2.88	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		
	New 2STEC 000 900 160	0	90°	6	160	12		
New 2STE 000 1200 S12	New 2STEC 000 1200 S12	0	120°	3.46	75	12		

### 가공 형상에 따른 절삭가능 여부

Available Cutting Shape



## 4날 직선날 테이퍼 엔드밀



- 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 미립자 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 fine WC grade.

4

WC  
미립자

TISIN  
Coating

D  
+0.05 -0

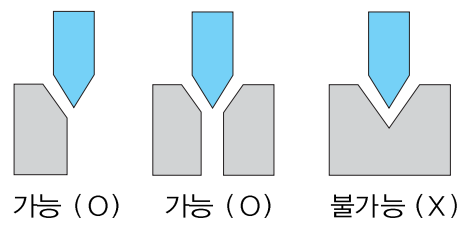
0°  
Helix Angle

D Size	D Tolerance
∅0	+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

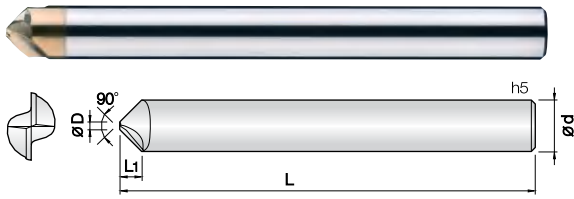


GENERAL PURPOSE



# 2CHA 2 Flutes 90° Chamfering Cutter

## 2날 90°면취커터



- HRC50이하의 고경도강, 프리하트강, 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 미립자 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 fine WC grade.



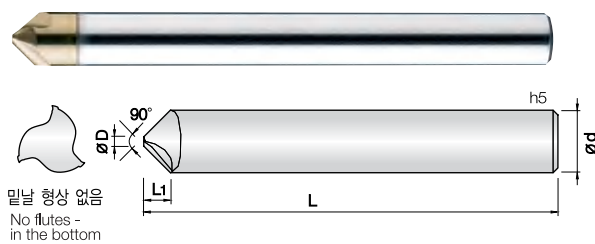
D Size	D Tolerance
Ø0.8 ~ 1	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2CHA 008 900 011	0.8	90°	1.1	50	3	
2CHA 008 900 016	0.8	90°	1.6	50	4	
2CHA 010 900 025	1	90°	2.5	60	6	
2CHA 010 900 035	1	90°	3.5	70	8	
2CHA 010 900 045	1	90°	4.5	80	10	
2CHA 010 900 055	1	90°	5.5	90	12	

# 3CHA 3 Flutes 90° Chamfering Cutter

## 3날 90°면취커터



- HRC50이하의 고경도강, 프리하트강, 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 미립자 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 fine WC grade.



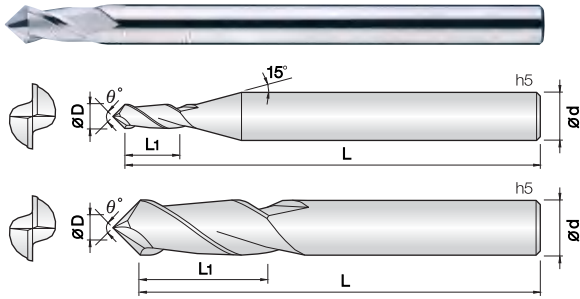
D Size	D Tolerance
Ø0.8 ~ 2	+0 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D	각도 Angle $\theta$	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
3CHA 008 900 011	0.8	90°	1.1	50	3	
3CHA 008 900 016	0.8	90°	1.6	50	4	
3CHA 010 900 025	1	90°	2.5	60	6	
3CHA 010 900 035	1	90°	3.5	65	8	
3CHA 020 900 045	2	90°	4.5	75	10	
3CHA 020 900 055	2	90°	5.5	80	12	

# 2GEN 2 Flutes Centering End Mills

## 2날 센터링 엔드밀



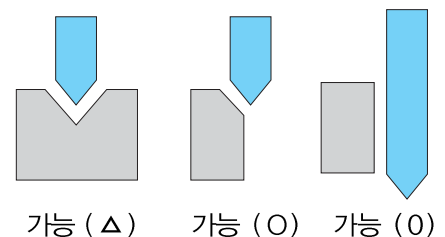
- 비코팅 : 아크릴, ABS, 알류미늄 등 비철, 비금속 피삭재 가공
- 코팅 : 프리하든강, 일반강, 주철 비철합금 가공엔드밀
- 센터링 작업이 가능하며, 모서리 면취와 측면절삭을 동시에 가공할 수 있는 다기능 엔드밀입니다.
- 미립자 초경합금을 채택하여 다양한 비철합금 및 목업의 피삭재 영역에 적용 가능합니다.
- JCRO 코팅과 비코팅을 구분하여 HRc500이하의 고경도강, 프리하든강, 주철 등 다양한 피삭재 가공이 가능합니다.
- Non coating : Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Coating : Pre-hardened steel, Cast iron, Non-metallic materials
- Multi function endmill for corner chamfering, side wall and centering.
- Applied 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.

단위 : mm

Order Number		날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	샤프트 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated						비코팅 Non coated	코팅 Coated
2CEN 003 600 S03	2CENC 003 600 S03	0.3	60°	0.6	45	3		
2CEN 003 900 S03	2CENC 003 900 S03	0.3	90°	0.6	45	3		
2CEN 005 600 S03	2CENC 005 600 S03	0.5	60°	1	50	3		
2CEN 005 900 S03	2CENC 005 900 S03	0.5	90°	1	50	3		
2CEN 008 600 S03	2CENC 008 600 S03	0.8	60°	1.6	50	3		
2CEN 008 900 S03	2CENC 008 900 S03	0.8	90°	1.6	50	3		
2CEN 010 600 S03	2CENC 010 600 S03	1	60°	2	50	3		
2CEN 010 900 S03	2CENC 010 900 S03	1	90°	2	50	3		
2CEN 020 600 S03	2CENC 020 600 S03	2	60°	4	50	3		
2CEN 020 900 S03	2CENC 020 900 S03	2	90°	4	50	3		
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		
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		
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		
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		
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		
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		
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		
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		
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		
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		

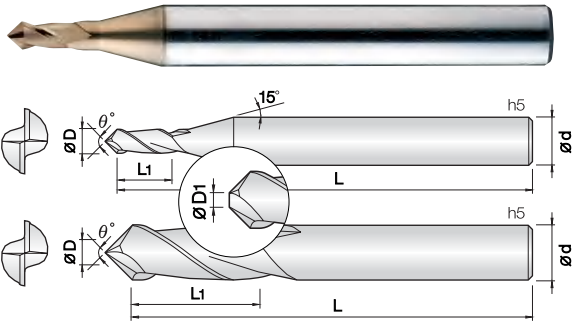
### 가공 형상에 따른 절삭가능 여부

Available Cutting Shape



GENERAL PURPOSE

## 2날 소경면취 엔드밀



- 코팅 : 프리하드강, 일반강, 주물 비철합금 가공 엔드밀
- 센터링 작업이 가능하며, 모서리 면취와 측면절삭을 동시에 가공할 수 있는 다기능 엔드밀입니다.
- 미립자 초경합금을 채택, 다양한 비철합금 및 목업의 피삭재 영역에 적용가능
- JCRO코팅을 적용하여 HRC500이하의 고경도강, 프리하드강, 주철 등 다양한 피삭재 가공이 가능합니다.
- **Coating : Pre-hardened steel, Cast iron, Non-metallic materials**
- Multi function endmill for corner chamfering, side wall and centering.
- Applied 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. (HRC ~50)

2

WC  
미립자

JCRO  
Coating

DI  
+0 -0.01

30°  
Helix Angle

Ø0.5~Ø3

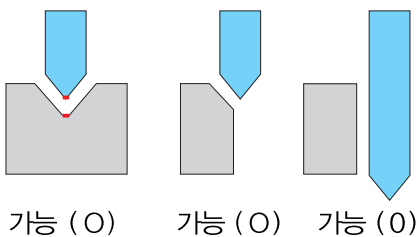
D Size	D Tolerance
Ø0.5 ~ 3	+0 ~ -0.01mm

단위 : mm

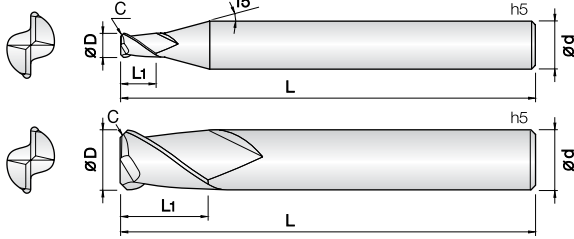
Order Number	날경 Diameter D	선단경 Front Diameter D1	각도 Angle θ	유효장 Effective Length L1	전장 Overall Length L	샙크 Shank Dia d	비고
2CENE 005 0005 090	0.5	0.05	90°	1	40	3	
2CENE 006 0005 090	0.6	0.05	90°	1.2	40	3	
2CENE 007 0005 090	0.7	0.05	90°	1.4	40	3	
2CENE 008 0005 090	0.8	0.05	90°	1.6	40	3	
2CENE 010 0005 090	1	0.05	90°	2	40	3	
2CENE 010 001 090	1	0.1	90°	2	40	3	
2CENE 010 001 120	1	0.1	120°	2	40	3	
2CENE 012 001 090	1.2	0.1	90°	2.4	40	3	
2CENE 015 001 090	1.5	0.1	90°	3	40	3	
2CENE 015 001 120	1.5	0.1	120°	3	40	3	
2CENE 020 001 090	2	0.1	90°	4	40	3	
2CENE 020 002 090	2	0.2	90°	4	40	3	
2CENE 020 002 120	2	0.2	120°	4	40	3	
2CENE 025 002 090	2.5	0.2	90°	5	40	3	
2CENE 030 002 090	3	0.2	90°	6	40	3	
2CENE 030 002 120	3	0.2	120°	6	40	3	

### 가공 형상에 따른 절삭가능 여부

Available Cutting Shape



## 2날 코너45도 면취 엔드밀



- 프리하트강, 일반강, 주물 비철합금 가공엔드밀
- 모서리 면취와 측면절삭을 동시에 가공할 수 있는 다기능 엔드밀 입니다.
- 엔드밀의 인선을 면취설계하여 엔드밀의 치핑을 최소화 하였습니다.
- JCRO코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 다양한 피삭재 가공이 가능합니다.
- **Pre-hardened steel, Cast iron, Non-metallic materials**
- Multi function endmill for corner chamfering, side wall.
- Applied fine WC grade optimized for various non-ferrous and non-metallic work materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Endmills for various work materials.

2

WC  
미립자

JCRO  
Coating

|D|  
+0 -0.01

|D|  
-0.01 -0.025

30°  
Helix Angle

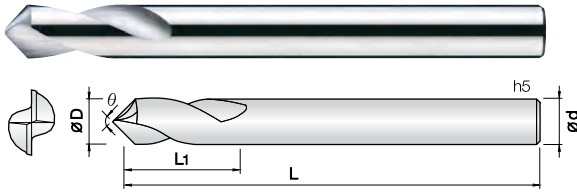
ø1~ø5      ø6~ø12

D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	면취량 Chamfer C	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2CCMC 010 0002 S04	1	0.02	2.5	45	4	
2CCMC 010 0005 S04	1	0.05	2.5	45	4	
2CCMC 010 001 S04	1	0.1	2.5	45	4	
2CCMC 010 002 S04	1	0.2	2.5	45	4	
2CCMC 010 003 S04	1	0.3	2.5	45	4	
2CCMC 015 0005 S04	1.5	0.05	4	45	4	
2CCMC 015 001 S04	1.5	0.1	4	45	4	
2CCMC 015 002 S04	1.5	0.2	4	45	4	
2CCMC 015 003 S04	1.5	0.3	4	45	4	
2CCMC 015 005 S04	1.5	0.5	4	45	4	
2CCMC 020 0005 S04	2	0.05	6	45	4	
2CCMC 020 001 S04	2	0.1	6	45	4	
2CCMC 020 002 S04	2	0.2	6	45	4	
2CCMC 020 003 S04	2	0.3	6	45	4	
2CCMC 020 004 S04	2	0.4	6	45	4	
2CCMC 020 005 S04	2	0.5	6	45	4	
2CCMC 030 0005 S06	3	0.05	8	50	6	
2CCMC 030 001 S06	3	0.1	8	50	6	
2CCMC 030 002 S06	3	0.2	8	50	6	
2CCMC 030 003 S06	3	0.3	8	50	6	
2CCMC 030 005 S06	3	0.5	8	50	6	
2CCMC 030 010 S06	3	1	8	50	6	
2CCMC 040 0005 S06	4	0.05	11	50	6	
2CCMC 040 001 S06	4	0.1	11	50	6	
2CCMC 040 002 S06	4	0.2	11	50	6	
2CCMC 040 003 S06	4	0.3	11	50	6	
2CCMC 040 005 S06	4	0.5	11	50	6	
2CCMC 040 010 S06	4	1	11	50	6	
2CCMC 040 015 S06	4	1.5	11	50	6	
2CCMC 050 001 S06	5	0.1	13	60	6	
2CCMC 050 002 S06	5	0.2	13	60	6	
2CCMC 050 005 S06	5	0.5	13	60	6	
2CCMC 050 010 S06	5	1	13	60	6	
2CCMC 050 015 S06	5	1.5	13	60	6	
2CCMC 050 020 S06	5	2	13	60	6	
2CCMC 060 0005 S06	6	0.05	13	60	6	
2CCMC 060 001 S06	6	0.1	13	60	6	
2CCMC 060 002 S06	6	0.2	13	60	6	
2CCMC 060 003 S06	6	0.3	13	60	6	
2CCMC 060 005 S06	6	0.5	13	60	6	
2CCMC 060 010 S06	6	1	13	60	6	
2CCMC 060 015 S06	6	1.5	13	60	6	
2CCMC 060 020 S06	6	2	13	60	6	
2CCMC 060 025 S06	6	2.5	13	60	6	
2CCMC 080 001 S08	8	0.1	19	70	8	
2CCMC 080 002 S08	8	0.2	19	70	8	
2CCMC 080 005 S08	8	0.5	19	70	8	
2CCMC 080 010 S08	8	1	19	70	8	





- HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 헬릭스 타입 2날을 적용하여 센터링 작업에 적합합니다.
- 코팅과 비코팅으로 구분하여 수지, 아크릴 등의 가공도 가능합니다.
- 미립자 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 centering with helix 2flutes.
- Resin, plastic machining applicable with coated or non coated endmill.
- Applied fine WC grade optimized for various non-ferrous and non-metallic work materials.

2

WC  
미립자

TISIN  
Coating

D  
+0 -0.01  
ø0.3~ø4

D  
-0.01 -0.025  
ø6~ø12

D  
-0.015 -0.03  
ø16

30°  
Helix Angle

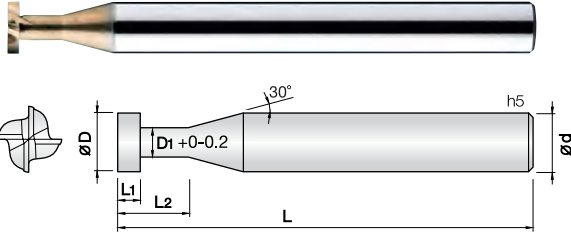
D Size	D Tolerance
ø2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16	-0.015 ~ -0.03mm

단위 : mm

Order Number		날경 Diameter D	각도 Angle θ	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	
비코팅 Non coated	코팅 Coated						비코팅 Non coated	코팅 Coated
New 2SPO 003 090 040	New 2SPOC 003 090 040	0.3	90°	0.9	40	3		
New 2SPO 005 090 040	New 2SPOC 005 090 040	0.5	90°	1.5	40	3		
New 2SPO 008 090 040	New 2SPOC 008 090 040	0.8	90°	2.4	40	3		
2SPO 010 090 050	2SPOC 010 090 050	1	90°	3	50	3		
	New 2SPOC 010 090 080	1	90°	3	80	3		
2SPO 010 120 050	2SPOC 010 120 050	1	120°	3	50	3		
New 2SPO 015 090 050	New 2SPOC 015 090 050	1.5	90°	4.5	50	3		
2SPO 020 090 050	2SPOC 020 090 050	2	90°	6	50	3		
	New 2SPOC 020 090 080	2	90°	6	80	3		
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		
2SPO 030 090 100	2SPOC 030 090 100	3	90°	10	100	3		
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		
2SPO 040 090 100	2SPOC 040 090 100	4	90°	12	100	4		
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		
2SPO 060 090 110	2SPOC 060 090 110	6	90°	15	110	6		
	New 2SPOC 060 090 150	6	90°	15	150	6		
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		
	New 2SPOC 080 090 150	8	90°	25	150	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		
2SPO 100 090 150	2SPOC 100 090 150	10	90°	25	150	10		
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		
2SPO 120 090 150	2SPOC 120 090 150	12	90°	30	150	12		
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		

# 4TES 4 Flutes T-Slot Cutter

## 4날 T 커터



- HRc50이하의 고경도강, 프리하트강, 공구강, 주철 등 피삭재 가공
- JCRO 코팅 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.
- JCRO 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 with coated or non coated endmill.



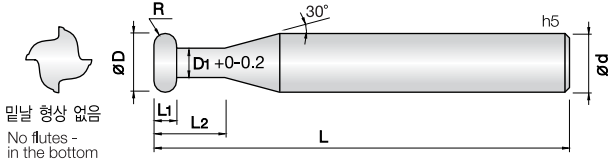
Size	D Tolerance
ø2 ~ 5	+0 ~ -0.02mm
ø6 ~ 10	-0.01 ~ -0.03mm

단위 : mm

Order Number		날경	날장	유효장	목부경	전장	샙크	비고	
비코팅 Non coated	코팅 Coated	D	L1	L2	D1	L	Shank Dia d	비코팅 Non coated	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



밑날 형상 없음  
No flutes -  
in the bottom

- HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- JCRO 코팅 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.**
- JCRO 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

WC  
미립자

JCRO  
Coating

R  
±0.02  
0.5R~3R

L1  
±0.03  
Ø5

L1  
±0.05  
Ø6 ~ 12

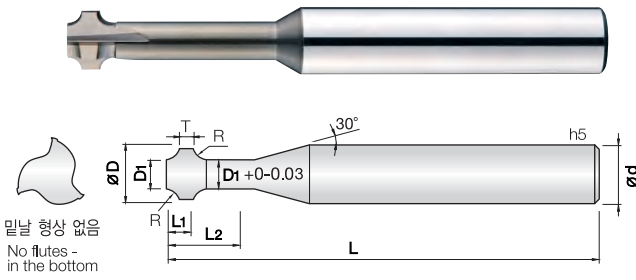
0°  
Helix Angle

D Size	D Tolerance
Ø5 ~ 12	-0.01 ~ -0.025mm

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	샙크 Shank Dia d	비고
4TRS 050 010 045	5 X 0.5R	1	4.5	2.5	50	6	
<span style="color: red;">New</span> 4TRS 050 010 070	5 X 0.5R	1	7	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	
<span style="color: red;">New</span> 4TRS 060 010 080	6 X 0.5R	1	8	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	
<span style="color: red;">New</span> 4TRS 060 020 100	6 X 1R	2	10	3	50	6	
4TRS 080 020 070	8 X 1R	2	7	4	60	8	
<span style="color: red;">New</span> 4TRS 080 020 130	8 X 1R	2	13	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	
<span style="color: red;">New</span> 4TRS 100 040 160	10 X 2R	4	16	4.5	70	10	
4TRS 120 060 150	12 X 3R	6	15	5	75	12	
<span style="color: red;">New</span> 4TRS 120 060 210	12 X 3R	6	21	5	75	12	





밑날 형상 없음  
No flutes -  
in the bottom

- HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- JCRO코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 직선날 타입 3날을 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.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 3flutes design.
- Various shapes and length provides optimum efficiency.

3 미립자   WC   JCRO Coating   R ±0.02   D +0 -0.03   0° Helix Angle

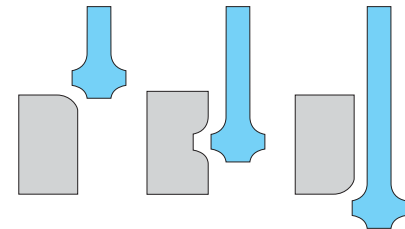
0.2R~3R   Ø1.9~Ø12

D Size	D Tolerance
Ø1.9 ~ 12	0 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D × R	선단경 Front Diameter D1	두께 Thickness T	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샹크 Shank Dia d	비고
3TRC 019 002 080	1.9 X R0.2	1.45	0.9	1.45	8	60	4	
3TRC 024 003 090	2.4 X R0.3	1.75	1.2	1.95	9	60	4	
3TRC 026 004 100	2.6 X R0.4	1.75	1.5	2.5	10	60	4	
3TRC 029 005 120	2.9 X R0.5	1.85	1.8	3	12	60	4	
3TRC 049 005 150	4.9 X R0.5	3.8	2	3.3	15	80	6	
3TRC 068 010 200	6.8 X R1	4.7	2.2	4.3	20	80	8	
3TRC 079 015 250	7.9 X R1.5	4.7	2.5	5.8	25	80	8	
3TRC 099 020 300	9.9 X R2	5.8	2.8	6.8	30	80	10	
3TRC 119 030 350	11.9 X R3	5.8	3	8.8	35	80	12	

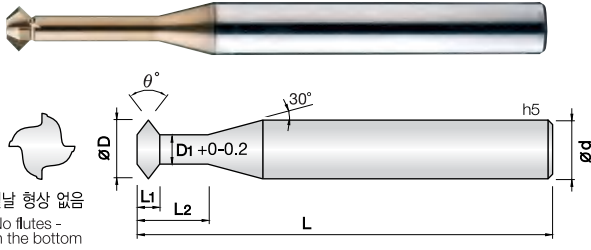
가공 형상에 따른 절삭가능 여부  
Available Cutting Shape



가능 (O)    가능 (O)    가능 (O)

GENERAL PURPOSE

## 4&6날 T-더블앵글 커터



- HRC50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- JCRO코팅 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.**
- JCRO 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

WC  
미립자

JCRO  
Coating

D  
+0 -0.02

D  
-0.01 -0.03

L1  
±0.03

L1  
±0.05

0°  
Helix Angle

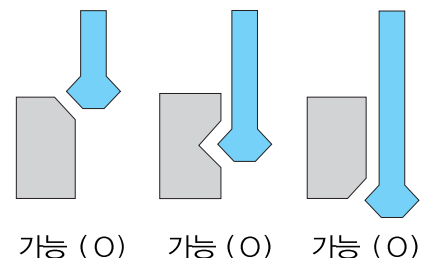
Ø1.5~Ø5    Ø6~Ø12    Ø1.5~Ø5    Ø6~12

D Size	D Tolerance
Ø1.5 ~ 5	+0 ~ -0.02mm
Ø6 ~ 12	-0.01 ~ -0.03mm

단위 : mm

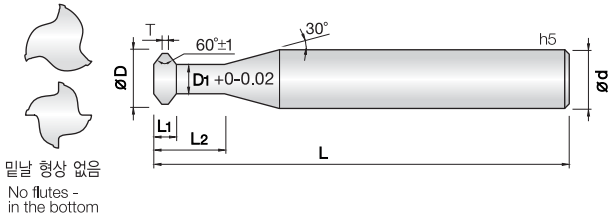
Order Number	날경 Diameter D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	샙크 Shank Dia d	비고
4TDA 015 600 030	1.5	60°	0.43	3	0.75	45	4	
4TDA 015 900 030	1.5	90°	0.75	3	0.75	45	4	
4TDA 020 600 050	2	60°	0.57	5	1	50	4	
4TDA 020 900 050	2	90°	1	5	1	50	4	
4TDA 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	
New 4TDA 030 600 120	3	60°	0.86	12	1.5	50	4	
4TDA 030 900 075	3	90°	1.5	7.5	1.5	50	4	
New 4TDA 030 900 120	3	90°	1.5	12	1.5	50	4	
4TDA 040 600 100	4	60°	1.15	10	2	50	4	
New 4TDA 040 600 160	4	60°	1.15	16	2	50	4	
4TDA 040 900 100	4	90°	2	10	2	50	4	
New 4TDA 040 900 160	4	90°	2	16	2	50	4	
4TDA 050 600 125	5	60°	1.44	12.5	2.5	60	6	
New 4TDA 050 600 200	5	60°	1.44	20	2.5	60	6	
4TDA 050 900 125	5	90°	2.4	12.5	2.5	60	6	
New 4TDA 050 900 200	5	90°	2.4	20	2.5	60	6	
4TDA 060 600 150	6	60°	1.73	15	3	60	6	
New 4TDA 060 600 250	6	60°	1.73	25	3	60	6	
4TDA 060 900 150	6	90°	2.8	15	3	60	6	
New 4TDA 060 900 250	6	90°	2.8	25	3	60	6	
6TDA 080 600 200	8	60°	2.3	20	4	70	8	
New 6TDA 080 600 280	8	60°	2.3	28	4	70	8	
6TDA 080 900 200	8	90°	3.8	20	4	70	8	
New 6TDA 080 900 280	8	90°	3.8	28	4	70	8	
6TDA 100 600 250	10	60°	2.8	25	5	75	10	
New 6TDA 100 600 350	10	60°	2.8	35	5	75	10	
6TDA 100 900 250	10	90°	4.8	25	6	80	10	
New 6TDA 100 900 350	10	90°	4.8	35	6	80	10	
6TDA 120 600 300	12	60°	3.4	30	6	80	12	
New 6TDA 120 600 420	12	60°	3.4	42	6	80	12	
6TDA 120 900 300	12	90°	5.8	30	6	80	12	
New 6TDA 120 900 420	12	90°	5.8	42	6	80	12	

■ 가공 형상에 따른 절삭가능 여부  
Available Cutting Shape



GENERAL PURPOSE

### 3&4날 나사 홈 가공용 커터



- HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- JCRO코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 나사홈 가공에 적합한 직선날 형상을 설계하여, 나사홈 가공시의 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.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping and fracturing by applying straight flutes design which is appropriate to screw groove cutting.
- Various shapes and length provides optimum efficiency.

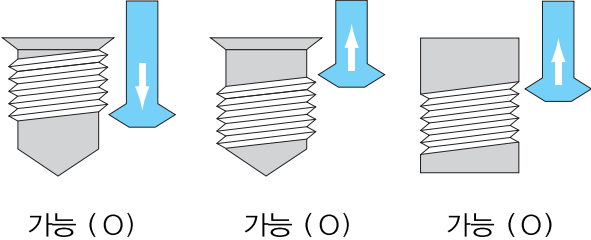
3 4 **WC** 미립자 **JCRO Coating** **D** **T** **0°** Helix Angle  
 $+0-0.02$   $\pm 0.01$   
 $\phi 0.57 \sim \phi 8$   $\phi 0.01 \sim \phi 0.09$

D Size	D Tolerance
$\phi 5 \sim 12$	$-0.01 \sim -0.025\text{mm}$

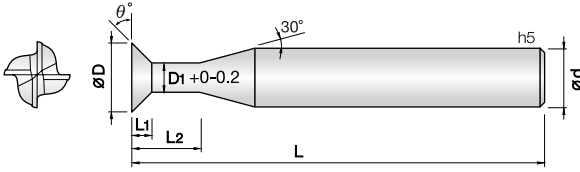
단위 : mm

Order Number	날경 Diameter D	두께 Thickness T	날장 Length of cut L1	유효장 Effective Length L2	목부경 Neck Diameter D1	전장 Overall Length L	샹크 Shank Dia d	비고
3THC 0057 025 M008	0.57	0.01	0.16	2.5	0.3	40	4	
3THC 0065 028 M009	0.65	0.01	0.18	2.8	0.35	40	4	
3THC 007 030 M01	0.7	0.015	0.19	3	0.4	40	4	
3THC 009 036 M012	0.9	0.015	0.2	3.6	0.57	40	4	
3THC 0105 045 M014	1.05	0.02	0.24	4.5	0.66	40	4	
3THC 012 050 M016	1.2	0.02	0.28	5	0.75	40	4	
4THC 015 060 M02	1.5	0.025	0.31	6	1	45	4	
4THC 019 070 M025	1.9	0.025	0.34	7	1.35	45	4	
4THC 023 090 M03	2.3	0.03	0.43	9	1.6	65	6	
4THC 031 120 M04	3.1	0.04	0.56	12	2.2	65	6	
4THC 040 150 M05	4	0.05	0.62	15	3	65	6	
4THC 048 180 M06	4.8	0.07	0.79	18	3.55	75	6	
4THC 065 230 M08	6.5	0.08	0.94	23	5	80	8	
4THC 079 260 M10	7.9	0.09	1.13	26	6.1	80	8	

### 가공 형상에 따른 절삭가능 여부 Available Cutting Shape



GENERAL PURPOSE



- HRc50이하의 고경도강, 프리하든강, 공구강, 주철 등 피삭재 가공
- JCRO코팅 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.**
- JCRO 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

WC  
마립자

JCRO  
Coating

D  
+0 -0.02

D  
-0.01 -0.03

L1  
±0.03

L1  
±0.05

0°  
Helix Angle

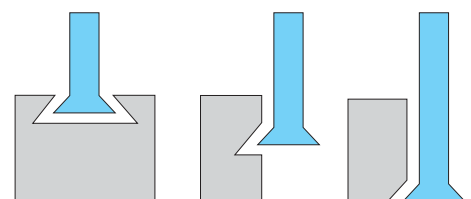
∅1.5~∅5   ∅6~∅12   ∅1.5~∅5   ∅6 ~ 12

D Size	D Tolerance
∅1.5 ~ 5	+0 ~ -0.02mm
∅6 ~ 12	-0.01 ~ -0.03mm

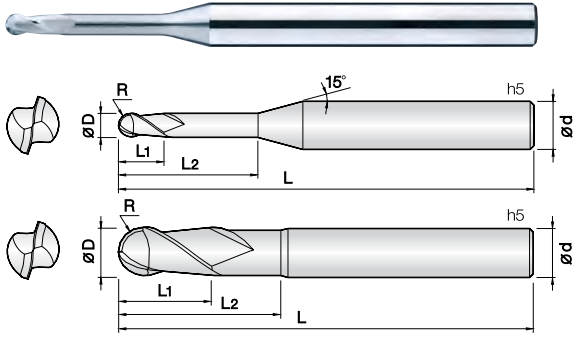
단위 : mm

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	샤프크 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	
New 4TAC 030 300 120	3	30°	0.43	12	1.5	50	4	
4TAC 030 450 075	3	45°	0.75	7.5	1.5	50	4	
New 4TAC 030 450 120	3	45°	0.75	12	1.5	50	4	
4TAC 040 300 100	4	30°	0.57	10	2	50	4	
New 4TAC 040 300 160	4	30°	0.57	16	2	50	4	
4TAC 040 450 100	4	45°	1	10	2	50	4	
New 4TAC 040 450 160	4	45°	1	16	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	
New 4TAC 060 300 240	6	30°	0.86	24	3	60	6	
4TAC 060 450 150	6	45°	1.5	15	3	60	6	
New 4TAC 060 450 240	6	45°	1.5	24	3	60	6	
6TAC 080 300 200	8	30°	1.15	20	4	70	8	
New 6TAC 080 300 280	8	30°	1.15	28	4	70	8	
6TAC 080 450 200	8	45°	2	20	4	70	8	
New 6TAC 080 450 280	8	45°	2	28	4	70	8	
6TAC 100 300 250	10	30°	1.44	25	5	75	10	
New 6TAC 100 300 350	10	30°	1.44	35	5	75	10	
6TAC 100 450 250	10	45°	2.5	25	5	75	10	
New 6TAC 100 450 350	10	45°	2.5	35	5	75	10	
6TAC 120 300 300	12	30°	1.73	30	6	80	12	
New 6TAC 120 300 420	12	30°	1.73	42	6	80	12	
6TAC 120 450 300	12	45°	3	30	6	80	12	
New 6TAC 120 450 420	12	45°	3	42	6	80	12	

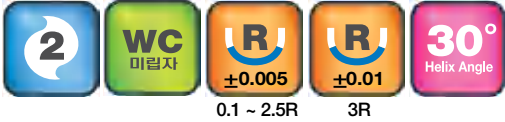
■ 가공 형상에 따른 절삭가능 여부  
Available Cutting Shape



가능 (O)      가능 (O)      가능 (O)



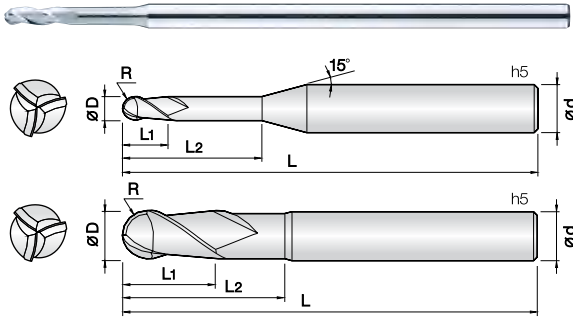
- 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속, 고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by short flute design.
- Excellent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



D Size	D Tolerance
Ø6 ~ 5	+0 ~ -0.01mm
Ø6	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고
2MRB 002 005 S04	0.1R X 0.2	0.3	0.5	40	4		2MRB 014 100 S04	0.7R X 1.4	2.8	10	50	4	
2MRB 002 010 S04	0.1R X 0.2	0.3	1	40	4		2MRB 014 160 S04	0.7R X 1.4	2.8	16	50	4	
2MRB 002 015 S04	0.1R X 0.2	0.3	1.5	40	4		2MRB 015 060 S04	0.75R X 1.5	3	6	50	4	
2MRB 002 020 S04	0.1R X 0.2	0.3	2	40	4		2MRB 015 100 S04	0.75R X 1.5	3	10	50	4	
2MRB 003 010 S04	0.15R X 0.3	0.45	1	40	4		2MRB 015 140 S04	0.75R X 1.5	3	14	50	4	
2MRB 003 020 S04	0.15R X 0.3	0.45	2	40	4		2MRB 015 160 S04	0.75R X 1.5	3	16	50	4	
2MRB 003 030 S04	0.15R X 0.3	0.45	3	40	4		2MRB 015 200 S04	0.75R X 1.5	3	20	60	4	
2MRB 003 050 S04	0.15R X 0.3	0.45	5	40	4		2MRB 015 250 S04	0.75R X 1.5	3	25	60	4	
2MRB 004 020 S04	0.2R X 0.4	0.6	2	40	4		2MRB 015 300 S04	0.75R X 1.5	3	30	70	4	
2MRB 004 030 S04	0.2R X 0.4	0.6	3	40	4		2MRB 016 060 S04	0.8R X 1.6	3.2	6	50	4	
2MRB 004 040 S04	0.2R X 0.4	0.6	4	40	4		2MRB 020 080 S04	1R X 2	4	8	50	4	
2MRB 004 050 S04	0.2R X 0.4	0.6	5	40	4		2MRB 020 100 S04	1R X 2	4	10	50	4	
2MRB 004 060 S04	0.2R X 0.4	0.6	6	40	4		2MRB 020 120 S04	1R X 2	4	12	50	4	
2MRB 005 020 S04	0.25R X 0.5	1	2	45	4		2MRB 020 140 S04	1R X 2	4	14	50	4	
2MRB 005 040 S04	0.25R X 0.5	1	4	45	4		2MRB 020 160 S04	1R X 2	4	16	50	4	
2MRB 005 060 S04	0.25R X 0.5	1	6	45	4		2MRB 020 180 S04	1R X 2	4	18	50	4	
2MRB 005 080 S04	0.25R X 0.5	1	8	45	4		2MRB 020 200 S04	1R X 2	4	20	60	4	
2MRB 005 100 S04	0.25R X 0.5	1	10	45	4		2MRB 020 250 S04	1R X 2	4	25	60	4	
2MRB 006 020 S04	0.3R X 0.6	1.2	2	45	4		2MRB 020 300 S04	1R X 2	4	30	70	4	
2MRB 006 040 S04	0.3R X 0.6	1.2	4	45	4		2MRB 020 350 S04	1R X 2	4	35	80	4	
2MRB 006 060 S04	0.3R X 0.6	1.2	6	45	4		2MRB 020 400 S04	1R X 2	4	40	80	4	
2MRB 006 080 S04	0.3R X 0.6	1.2	8	45	4		2MRB 025 120 S04	1.25R X 2.5	5	12	60	4	
2MRB 006 100 S04	0.3R X 0.6	1.2	10	45	4		2MRB 025 200 S04	1.25R X 2.5	5	20	60	4	
2MRB 007 040 S04	0.35R X 0.7	1.4	4	45	4		2MRB 030 080 S06	1.5R X 3	6	8	70	6	
2MRB 007 060 S04	0.35R X 0.7	1.4	6	45	4		2MRB 030 120 S06	1.5R X 3	6	12	70	6	
2MRB 007 080 S04	0.35R X 0.7	1.4	8	45	4		2MRB 030 160 S06	1.5R X 3	6	16	70	6	
2MRB 007 100 S04	0.35R X 0.7	1.4	10	45	4		2MRB 030 200 S06	1.5R X 3	6	20	70	6	
2MRB 008 040 S04	0.4R X 0.8	1.6	4	45	4		2MRB 030 250 S06	1.5R X 3	6	25	70	6	
2MRB 008 060 S04	0.4R X 0.8	1.6	6	45	4		2MRB 030 300 S06	1.5R X 3	6	30	80	6	
2MRB 008 080 S04	0.4R X 0.8	1.6	8	45	4		2MRB 030 400 S06	1.5R X 3	6	40	90	6	
2MRB 008 100 S04	0.4R X 0.8	1.6	10	45	4		2MRB 030 450 S06	1.5R X 3	6	45	90	6	
2MRB 008 120 S04	0.4R X 0.8	1.6	12	45	4		2MRB 040 120 S06	2R X 4	8	12	70	6	
2MRB 009 060 S04	0.45R X 0.9	1.8	6	45	4		2MRB 040 160 S06	2R X 4	8	16	70	6	
2MRB 009 100 S04	0.45R X 0.9	1.8	10	45	4		2MRB 040 200 S06	2R X 4	8	20	70	6	
2MRB 009 120 S04	0.45R X 0.9	1.8	12	45	4		2MRB 040 250 S06	2R X 4	8	25	70	6	
2MRB 010 060 S04	0.5R X 1	2	6	50	4		2MRB 040 300 S06	2R X 4	8	30	70	6	
2MRB 010 080 S04	0.5R X 1	2	8	50	4		2MRB 040 350 S06	2R X 4	8	35	80	6	
2MRB 010 100 S04	0.5R X 1	2	10	50	4		2MRB 040 400 S06	2R X 4	8	40	80	6	
2MRB 010 120 S04	0.5R X 1	2	12	50	4		2MRB 040 500 S06	2R X 4	8	50	100	6	
2MRB 010 160 S04	0.5R X 1	2	16	50	4		2MRB 050 160 S06	2.5R X 5	10	16	80	6	
2MRB 010 200 S04	0.5R X 1	2	20	60	4		2MRB 050 250 S06	2.5R X 5	10	25	80	6	
2MRB 010 250 S04	0.5R X 1	2	25	60	4		2MRB 050 350 S06	2.5R X 5	10	35	80	6	
2MRB 012 060 S04	0.6R X 1.2	2.4	6	50	4		2MRB 060 250 S06	3R X 6	12	25	80	6	
2MRB 012 080 S04	0.6R X 1.2	2.4	8	50	4		2MRB 060 350 S06	3R X 6	12	35	80	6	
2MRB 012 100 S04	0.6R X 1.2	2.4	10	50	4		2MRB 060 500 S06	3R X 6	12	50	120	6	
2MRB 012 120 S04	0.6R X 1.2	2.4	12	50	4		2MRB 060 600 S06	3R X 6	12	60	120	6	
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								



- 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 파삭재 가공
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속, 고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 미립자 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 fine WC grade.

3

WC  
미립자

R  
±0.005

R  
±0.01

R  
±0.015

30°  
Helix Angle

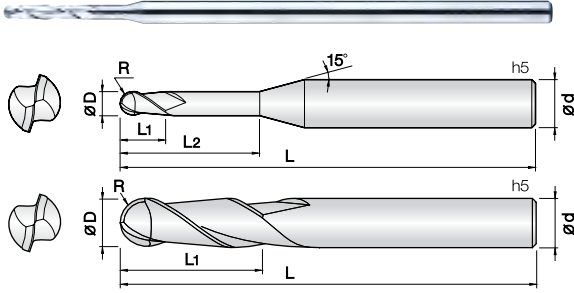
0.5 ~ 2R
3 ~ 6R
8R

D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 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													

## 2날 ABS수지 가공용 마이크로 롱볼 엔드밀



- 아크릴, ABS, 목업, 알루미늄 등 비철,비고속 피삭재 전용 엔드밀
- 균일한 런아웃 공차관리로 떨림을 최소화 하였습니다.
- 깊은 피삭재 가공시 긴 날장을 채택하여 가공이 용이하며, 칩배출이 좋습니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.
- Excellent wear resistance by applying fine WC grade.



0.1 ~ 2.5R      3 ~ 6R      8R

D Size	D Tolerance
ø2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2MLB 002 010 S03	0.1R X 0.2	0.4	-	40	3		2MLB 010 250 S04	0.5R X 1	5	25	80	4	
2MLB 002 015 S03	0.1R X 0.2	0.4	1.5	40	3		2MLB 010 300 S03	0.5R X 1	5	30	80	3	
2MLB 002 020 S03	0.1R X 0.2	0.4	2	40	3		2MLB 010 300 S04	0.5R X 1	5	30	80	4	
2MLB 003 010 S03	0.15R X 0.3	1	-	45	3		2MLB 010 350 S04	0.5R X 1	5	35	100	4	
2MLB 003 015 S03	0.15R X 0.3	1	1.5	45	3		2MLB 010 400 S04	0.5R X 1	5	40	100	4	
2MLB 003 018 S03	0.15R X 0.3	1.8	-	45	3		2MLB 015 100 S03	0.75R X 1.5	10	-	80	3	
2MLB 003 020 S03	0.15R X 0.3	1	2	45	3		2MLB 015 100 S04	0.75R X 1.5	10	-	80	4	
2MLB 003 025 S03	0.15R X 0.3	1	2.5	45	3		2MLB 015 150 S03	0.75R X 1.5	10	15	80	3	
2MLB 003 030 S03	0.15R X 0.3	1	3	45	3		2MLB 015 150 S04	0.75R X 1.5	10	15	80	4	
2MLB 003 040 S03	0.15R X 0.3	1	4	45	3		2MLB 015 200 S03	0.75R X 1.5	10	20	80	3	
2MLB 004 012 S03	0.2R X 0.4	1.2	-	45	3		2MLB 015 200 S04	0.75R X 1.5	10	20	80	4	
2MLB 004 020 S03	0.2R X 0.4	2	-	45	3		2MLB 015 250 S03	0.75R X 1.5	10	25	80	3	
2MLB 004 030 S03	0.2R X 0.4	1.2	3	45	3		2MLB 015 250 S04	0.75R X 1.5	10	25	80	4	
2MLB 004 040 S03	0.2R X 0.4	1.2	4	45	3		2MLB 015 300 S03	0.75R X 1.5	10	30	80	3	
2MLB 004 050 S03	0.2R X 0.4	1.2	5	45	3		2MLB 015 300 S04	0.75R X 1.5	10	30	80	4	
2MLB 005 015 S03	0.25R X 0.5	1.5	-	50	3		2MLB 015 350 S04	0.75R X 1.5	10	35	100	4	
2MLB 005 020 S03	0.25R X 0.5	2	-	50	3		2MLB 015 400 S04	0.75R X 1.5	10	40	100	4	
2MLB 005 030 S03	0.25R X 0.5	1.5	3	50	3		2MLB 020 100 S03	1R X 2	10	-	80	3	
2MLB 005 040 S03	0.25R X 0.5	1.5	4	50	3		2MLB 020 100 S04	1R X 2	10	-	80	4	
2MLB 005 050 S03	0.25R X 0.5	1.5	5	50	3		2MLB 020 150 S03	1R X 2	10	15	80	3	
2MLB 005 060 S03	0.25R X 0.5	1.5	6	50	3		2MLB 020 150 S04	1R X 2	10	15	80	4	
2MLB 005 080 S03	0.25R X 0.5	1.5	8	50	3		2MLB 020 200 S03	1R X 2	10	20	80	3	
2MLB 005 100 S03	0.25R X 0.5	1.5	10	50	3		2MLB 020 200 S04	1R X 2	10	20	80	4	
2MLB 006 030 S03	0.3R X 0.6	3	-	50	3		2MLB 020 250 S03	1R X 2	10	25	80	3	
2MLB 006 060 S03	0.3R X 0.6	3	6	50	3		2MLB 020 250 S04	1R X 2	10	25	80	4	
2MLB 006 080 S03	0.3R X 0.6	3	8	50	3		2MLB 020 300 S03	1R X 2	10	30	80	3	
2MLB 006 100 S03	0.3R X 0.6	3	10	50	3		2MLB 020 300 S04	1R X 2	10	30	80	4	
2MLB 007 030 S03	0.35R X 0.7	3	-	50	3		2MLB 020 350 S03	1R X 2	10	35	80	3	
2MLB 007 070 S03	0.35R X 0.7	3	7	50	3		2MLB 020 350 S04	1R X 2	10	35	100	4	
2MLB 007 100 S03	0.35R X 0.7	3	10	50	3		2MLB 020 400 S03	1R X 2	10	40	80	3	
2MLB 007 120 S03	0.35R X 0.7	3	12	50	3		2MLB 020 400 S04	1R X 2	10	40	100	4	
2MLB 008 040 S03	0.4R X 0.8	4	-	50	3		2MLB 025 100 S03	1.25R X 2.5	10	-	80	3	
2MLB 008 080 S03	0.4R X 0.8	4	8	50	3		2MLB 025 150 S03	1.25R X 2.5	15	-	80	3	
2MLB 008 100 S03	0.4R X 0.8	4	10	50	3		2MLB 025 200 S03	1.25R X 2.5	15	20	80	3	
2MLB 008 120 S03	0.4R X 0.8	4	12	50	3		2MLB 030 100 060	1.5R X 3	10	-	60	3	
2MLB 009 040 S03	0.45R X 0.9	4	-	50	3		2MLB 030 200 080	1.5R X 3	20	-	80	3	
2MLB 009 060 S03	0.45R X 0.9	4	6	50	3		2MLB 030 200 100	1.5R X 3	20	-	100	3	
2MLB 009 080 S03	0.45R X 0.9	4	8	50	3		2MLB 030 200 120	1.5R X 3	20	-	120	3	
2MLB 009 100 S03	0.45R X 0.9	4	10	50	3		2MLB 030 150 S06	1.5R X 3	15	-	100	6	
2MLB 010 050 S03	0.5R X 1	5	-	80	3		2MLB 030 200 S06	1.5R X 3	15	20	100	6	
2MLB 010 050 S04	0.5R X 1	5	-	80	4		2MLB 030 250 S06	1.5R X 3	15	25	100	6	
2MLB 010 100 S03	0.5R X 1	5	10	80	3		2MLB 030 300 S06	1.5R X 3	15	30	100	6	
2MLB 010 100 S04	0.5R X 1	5	10	80	4		2MLB 030 400 S06	1.5R X 3	15	40	100	6	
2MLB 010 150 S03	0.5R X 1	5	15	80	3		2MLB 040 200 080	2R X 4	20	-	80	4	
2MLB 010 150 S04	0.5R X 1	5	15	80	4		2MLB 040 200 100	2R X 4	20	-	100	4	
2MLB 010 200 S03	0.5R X 1	5	20	80	3		2MLB 040 200 130	2R X 4	20	-	130	4	
2MLB 010 200 S04	0.5R X 1	5	20	80	4		2MLB 040 200 S06	2R X 4	20	-	100	6	
2MLB 010 250 S03	0.5R X 1	5	25	80	3		2MLB 040 250 S06	2R X 4	20	25	100	6	

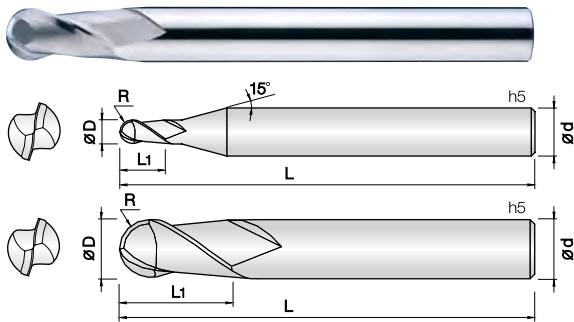
단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홁크 Shank Dia d	비고									
2MLB 040 300 S06	2R X 4	20	30	100	6										
2MLB 040 400 S06	2R X 4	20	40	120	6										
2MLB 040 500 S06	2R X 4	20	50	120	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										



# 2MBE 2 Flutes Ball End Mills

## 2날 범용 볼 엔드밀



- 일반강, 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공
- 균일한 런아웃 공차관리로 떨림을 최소화하였습니다.
- 날부 인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Very nice work surface finish.
- Excellent wear resistance by applying fine WC grade.

2

WC  
미립자

R  
±0.005

R  
±0.01

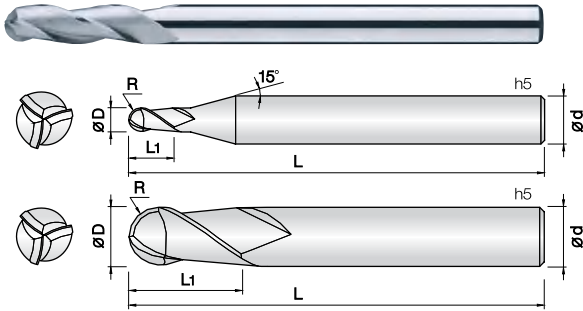
30°  
Helix Angle

0.05 ~ 2.5R     3 ~ 6R

D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 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								
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								
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								
2MBE 020 050 100	1R X 2	5	100	6								
2MBE 025 060 S03	1.25R X 2.5	6	50	3								
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								
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								
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								



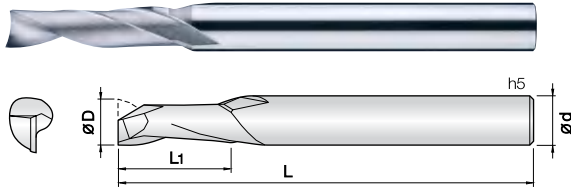
- 일반강, 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공
- 균일한 런아웃 공차관리로 떨림을 최소화하였습니다.
- 날부 인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Very nice work surface finish.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
ø0.3 ~ 4	+0 ~ -0.01mm
ø6	-0.005 ~ -0.015mm

단위 : mm

Order Number	날경 Diameter R x 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	



- 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공용 엔드밀
- 헬릭스 1날 타입으로 칩 배출이 우수하여 비철, 비금속 피삭재의 절단작업 및 측벽 작업에 적합합니다.
- 미립자 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 fine WC grade.

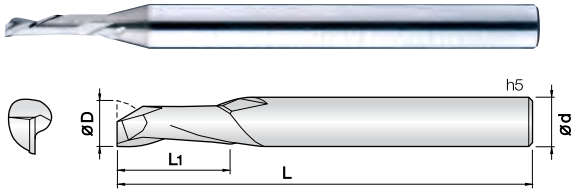


D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샹크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샹크 Shank Dia d	비고
1MEM 002 004 S04	0.2	0.4	40	4		1MEM 050 250 S06	5	25	60	6	
1MEM 002 005 S04	0.2	0.5	40	4		New 1MEM 050 300 S06	5	30	75	6	
1MEM 003 006 S04	0.3	0.6	40	4		1MEM 060 150 S06	6	15	60	6	
1MEM 003 009 S04	0.3	0.9	40	4		1MEM 060 200 S06	6	20	60	6	
1MEM 004 008 S04	0.4	0.8	40	4		1MEM 060 250 S06	6	25	60	6	
1MEM 004 012 S04	0.4	1.2	40	4		1MEM 060 300 S06	6	30	70	6	
1MEM 005 010 S04	0.5	1	40	4		New 1MEM 060 410 S06	6	41	90	6	
1MEM 005 015 S04	0.5	1.5	40	4		1MEM 080 190 S08	8	19	70	8	
1MEM 006 012 S04	0.6	1.2	40	4		1MEM 080 250 S08	8	25	75	8	
1MEM 006 018 S04	0.6	1.8	40	4		1MEM 080 300 S08	8	30	80	8	
1MEM 007 014 S04	0.7	1.4	40	4		New 1MEM 080 410 S08	8	41	90	8	
1MEM 007 021 S04	0.7	2.1	40	4		1MEM 100 220 S10	10	22	75	10	
1MEM 008 016 S04	0.8	1.6	40	4		1MEM 100 300 S10	10	30	80	10	
1MEM 008 024 S04	0.8	2.4	40	4		New 1MEM 100 410 S10	10	41	100	10	
1MEM 009 018 S04	0.9	1.8	40	4		1MEM 120 260 S12	12	26	75	12	
1MEM 009 027 S04	0.9	2.7	40	4		1MEM 120 350 S12	12	35	90	12	
1MEM 010 025 S06	1	2.5	45	6		New 1MEM 120 510 S12	12	51	110	12	
1MEM 010 030 S06	1	3	45	6							
1MEM 010 035 S06	1	3.5	45	6							
1MEM 010 045 S06	1	4.5	45	6							
1MEM 010 060 S06	1	6	50	6							
1MEM 010 070 S06	1	7	50	6							
1MEM 012 030 S06	1.2	3	45	6							
1MEM 012 050 S06	1.2	5	45	6							
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							
1MEM 015 080 S06	1.5	8	50	6							
1MEM 015 100 S06	1.5	10	50	6							
New 1MEM 015 120 S06	1.5	12	50	6							
1MEM 020 060 S06	2	6	50	6							
1MEM 020 080 S06	2	8	50	6							
1MEM 020 100 S06	2	10	50	6							
1MEM 020 120 S06	2	12	50	6							
1MEM 020 140 S06	2	14	55	6							
New 1MEM 020 160 S06	2	16	60	6							
1MEM 030 080 S06	3	8	50	6							
1MEM 030 120 S06	3	12	50	6							
1MEM 030 150 S06	3	15	50	6							
1MEM 030 200 S06	3	20	60	6							
New 1MEM 030 250 S06	3	25	70	6							
1MEM 040 100 S06	4	10	50	6							
1MEM 040 150 S06	4	15	50	6							
1MEM 040 200 S06	4	20	60	6							
1MEM 040 250 S06	4	25	70	6							
New 1MEM 040 300 S06	4	30	75	6							
1MEM 050 130 S06	5	13	60	6							
1MEM 050 200 S06	5	20	60	6							

## 1날 역날엔드밀



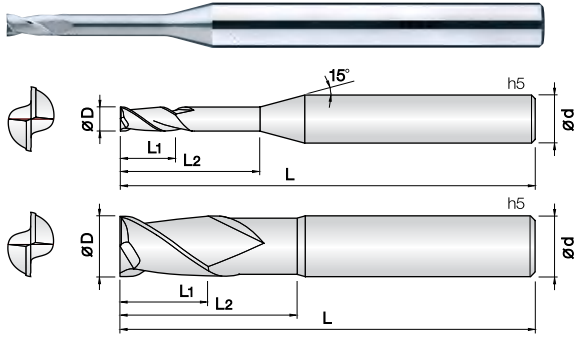
- 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공용 엔드밀
- 역 헬릭스 타입으로 칩 배출이 아래 방향으로 배출되어, 작업시 피삭재가 떠오르는 현상이 없습니다.
- 피삭재에 상면 버가 발생하지 않습니다.
- 피삭재의 정착이 불안정한 경우 적합합니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Downward chip direction by reverse helix design helps chip control.
- No burr in work materials.
- Optimum for unstable work clamping.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
ø0.5 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고					
1REM 005 010 S04	0.5	1	45	4						
1REM 005 015 S04	0.5	1.5	45	4						
1REM 005 020 S04	0.5	2	45	4						
1REM 006 012 S04	0.6	1.2	45	4						
1REM 006 018 S04	0.6	1.8	45	4						
1REM 006 025 S04	0.6	2.5	45	4						
1REM 007 014 S04	0.7	1.4	45	4						
1REM 007 021 S04	0.7	2.1	45	4						
1REM 008 016 S04	0.8	1.6	45	4						
1REM 008 024 S04	0.8	2.4	45	4						
1REM 008 030 S04	0.8	3	45	4						
1REM 009 018 S04	0.9	1.8	45	4						
1REM 010 030 S06	1	3	50	6						
1REM 010 040 S06	1	4	50	6						
1REM 010 050 S06	1	5	50	6						
1REM 010 060 S06	1	6	60	6						
1REM 012 040 S06	1.2	4	50	6						
1REM 012 060 S06	1.2	6	50	6						
1REM 015 040 S06	1.5	4	50	6						
1REM 015 060 S06	1.5	6	50	6						
1REM 015 080 S06	1.5	8	50	6						
1REM 020 060 S06	2	6	60	6						
1REM 020 080 S06	2	8	60	6						
1REM 020 100 S06	2	10	60	6						
1REM 020 120 S06	2	12	60	6						
1REM 025 060 S06	2.5	6	60	6						
1REM 025 080 S06	2.5	8	60	6						
1REM 025 100 S06	2.5	10	60	6						
1REM 030 080 S06	3	8	60	6						
1REM 030 120 S06	3	12	65	6						
1REM 030 160 S06	3	16	70	6						
1REM 040 120 S06	4	12	65	6						
1REM 040 160 S06	4	16	70	6						
1REM 040 200 S06	4	20	70	6						
1REM 050 150 S06	5	15	70	6						
1REM 050 220 S06	5	22	75	6						
1REM 060 270 S06	6	27	75	6						
1REM 080 260 S08	8	26	80	8						
1REM 080 320 S08	8	32	90	8						
1REM 100 300 S10	10	30	90	10						
1REM 120 350 S12	12	35	100	12						



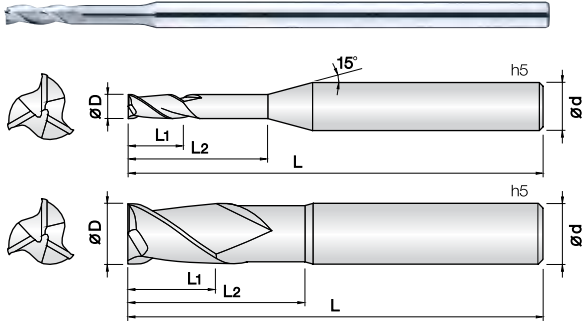
- 아크릴, ABS, 목업, 알루미늄 등 비철,비금속 피삭재 가공
- 짧은 날장 채택으로 떨림을 최소화 하였습니다
- 고속,고이송 작업시 짧은 날장을 채택하여 공구의 강성이 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by short flute design.
- Excellent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

D Size	D Tolerance
∅0.2 ~ 5	+0 ~ -0.01mm
∅6	-0.01 ~ -0.025mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고
2MRE 002 005 S04	0.2	0.3	0.5	40	4		2MRE 014 100 S04	1.4	2.8	10	50	4	
2MRE 002 010 S04	0.2	0.3	1	40	4		2MRE 014 160 S04	1.4	2.8	16	50	4	
2MRE 002 015 S04	0.2	0.3	1.5	40	4		2MRE 015 060 S04	1.5	3	6	50	4	
2MRE 002 020 S04	0.2	0.3	2	40	4		2MRE 015 100 S04	1.5	3	10	50	4	
2MRE 003 010 S04	0.3	0.45	1	40	4		2MRE 015 140 S04	1.5	3	14	50	4	
2MRE 003 020 S04	0.3	0.45	2	40	4		2MRE 015 160 S04	1.5	3	16	50	4	
2MRE 003 030 S04	0.3	0.45	3	40	4		2MRE 015 200 S04	1.5	3	20	60	4	
2MRE 003 050 S04	0.3	0.45	5	40	4		2MRE 015 250 S04	1.5	3	25	60	4	
2MRE 004 020 S04	0.4	0.6	2	40	4		2MRE 015 300 S04	1.5	3	30	70	4	
2MRE 004 030 S04	0.4	0.6	3	40	4		2MRE 016 060 S04	1.6	3.2	6	50	4	
2MRE 004 040 S04	0.4	0.6	4	40	4		2MRE 020 080 S04	2	4	8	50	4	
2MRE 004 050 S04	0.4	0.6	5	40	4		2MRE 020 100 S04	2	4	10	50	4	
2MRE 004 060 S04	0.4	0.6	6	40	4		2MRE 020 120 S04	2	4	12	50	4	
2MRE 005 020 S04	0.5	1	2	45	4		2MRE 020 140 S04	2	4	14	50	4	
2MRE 005 040 S04	0.5	1	4	45	4		2MRE 020 160 S04	2	4	16	50	4	
2MRE 005 060 S04	0.5	1	6	45	4		2MRE 020 180 S04	2	4	18	50	4	
2MRE 005 080 S04	0.5	1	8	45	4		2MRE 020 200 S04	2	4	20	60	4	
2MRE 005 100 S04	0.5	1	10	45	4		2MRE 020 250 S04	2	4	25	60	4	
2MRE 006 020 S04	0.6	1.2	2	45	4		2MRE 020 300 S04	2	4	30	70	4	
2MRE 006 040 S04	0.6	1.2	4	45	4		2MRE 020 350 S04	2	4	35	80	4	
2MRE 006 060 S04	0.6	1.2	6	45	4		2MRE 020 400 S04	2	4	40	80	4	
2MRE 006 080 S04	0.6	1.2	8	45	4		2MRE 025 120 S04	2.5	5	12	60	4	
2MRE 006 100 S04	0.6	1.2	10	45	4		2MRE 025 200 S04	2.5	5	20	60	4	
2MRE 007 040 S04	0.7	1.4	4	45	4		2MRE 030 080 S06	3	6	8	70	6	
2MRE 007 060 S04	0.7	1.4	6	45	4		2MRE 030 120 S06	3	6	12	70	6	
2MRE 007 080 S04	0.7	1.4	8	45	4		2MRE 030 160 S06	3	6	16	70	6	
2MRE 007 100 S04	0.7	1.4	10	45	4		2MRE 030 200 S06	3	6	20	70	6	
2MRE 008 040 S04	0.8	1.6	4	45	4		2MRE 030 250 S06	3	6	25	70	6	
2MRE 008 060 S04	0.8	1.6	6	45	4		2MRE 030 300 S06	3	6	30	80	6	
2MRE 008 080 S04	0.8	1.6	8	45	4		2MRE 030 400 S06	3	6	40	90	6	
2MRE 008 100 S04	0.8	1.6	10	45	4		2MRE 030 450 S06	3	6	45	90	6	
2MRE 008 120 S04	0.8	1.6	12	45	4		2MRE 040 120 S06	4	8	12	70	6	
2MRE 009 060 S04	0.9	1.8	6	45	4		2MRE 040 160 S06	4	8	16	70	6	
2MRE 009 100 S04	0.9	1.8	10	45	4		2MRE 040 200 S06	4	8	20	70	6	
2MRE 009 120 S04	0.9	1.8	12	45	4		2MRE 040 250 S06	4	8	25	70	6	
2MRE 010 060 S04	1	2	6	50	4		2MRE 040 300 S06	4	8	30	70	6	
2MRE 010 080 S04	1	2	8	50	4		2MRE 040 350 S06	4	8	35	80	6	
2MRE 010 100 S04	1	2	10	50	4		2MRE 040 400 S06	4	8	40	80	6	
2MRE 010 120 S04	1	2	12	50	4		2MRE 040 500 S06	4	8	50	100	6	
2MRE 010 160 S04	1	2	16	50	4		2MRE 050 160 S06	5	10	16	80	6	
2MRE 010 200 S04	1	2	20	60	4		2MRE 050 250 S06	5	10	25	80	6	
2MRE 010 250 S04	1	2	25	60	4		2MRE 050 350 S06	5	10	35	80	6	
2MRE 012 060 S04	1.2	2.4	6	50	4		2MRE 060 250 S06	6	12	25	80	6	
2MRE 012 080 S04	1.2	2.4	8	50	4		2MRE 060 350 S06	6	12	35	80	6	
2MRE 012 100 S04	1.2	2.4	10	50	4		2MRE 060 500 S06	6	12	50	120	6	
2MRE 012 120 S04	1.2	2.4	12	50	4		2MRE 060 600 S06	6	12	60	120	6	
2MRE 012 160 S04	1.2	2.4	16	50	4								
2MRE 014 060 S04	1.4	2.8	6	50	4								

## 3날 범용 마이크로 리브 엔드밀



- 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.
- 미립자 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 fine WC grade.

3

WC  
미립자

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

30°  
Helix Angle

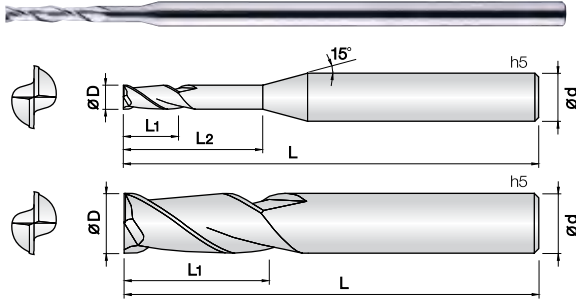
Sharp Edge

Ø1 ~ 4
Ø6 ~ 12
Ø16

D Size	D Tolerance
Ø1 ~ 4	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 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													



- 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 전용 엔드밀
- 균일한 런아웃 공차관리로 떨림을 최소화 하였습니다.
- 깊은 피삭재 가공시 긴 날장을 채택하여 가공이 용이하며, 칩배출이 좋습니다.
- 인선부 강성을 보강하여 날부 치핑을 최소화 하였습니다.
- 미립자 초경합금을 채택하여 내마모성이 좋습니다.
- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering 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 fine WC grade.



D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm
Ø16	-0.015 ~ -0.03mm

단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2MLE 002 010 S03	0.2	0.4	1	40	3		2MLE 010 250 S04	1	5	25	80	4	
2MLE 002 015 S03	0.2	0.4	1.5	40	3		2MLE 010 300 S03	1	5	30	80	3	
2MLE 002 020 S03	0.2	0.4	2	40	3		2MLE 010 300 S04	1	5	30	80	4	
2MLE 003 010 S03	0.3	1	-	45	3		2MLE 010 350 S04	1	5	35	100	4	
2MLE 003 015 S03	0.3	1	1.5	45	3		2MLE 010 400 S04	1	5	40	100	4	
2MLE 003 018 S03	0.3	1.8	-	45	3		2MLE 015 100 S03	1.5	10	-	80	3	
2MLE 003 020 S03	0.3	1	2	45	3		2MLE 015 100 S04	1.5	10	-	80	4	
2MLE 003 025 S03	0.3	1	2.5	45	3		2MLE 015 150 S03	1.5	10	15	80	3	
2MLE 003 030 S03	0.3	1	3	45	3		2MLE 015 150 S04	1.5	10	15	80	4	
2MLE 003 040 S03	0.3	1	4	45	3		2MLE 015 200 S03	1.5	10	20	80	3	
2MLE 004 012 S03	0.4	1.2	-	45	3		2MLE 015 200 S04	1.5	10	20	80	4	
2MLE 004 020 S03	0.4	2	-	45	3		2MLE 015 250 S03	1.5	10	25	80	3	
2MLE 004 030 S03	0.4	1.2	3	45	3		2MLE 015 250 S04	1.5	10	25	80	4	
2MLE 004 040 S03	0.4	1.2	4	45	3		2MLE 015 300 S03	1.5	10	30	80	3	
2MLE 004 050 S03	0.4	1.2	5	45	3		2MLE 015 300 S04	1.5	10	30	80	4	
2MLE 005 015 S03	0.5	1.5	-	50	3		2MLE 015 350 S04	1.5	10	35	100	4	
2MLE 005 020 S03	0.5	2	-	50	3		2MLE 015 400 S04	1.5	10	40	100	4	
2MLE 005 030 S03	0.5	1.5	3	50	3		2MLE 020 100 S03	2	10	-	80	3	
2MLE 005 040 S03	0.5	1.5	4	50	3		2MLE 020 100 S04	2	10	-	80	4	
2MLE 005 050 S03	0.5	1.5	5	50	3		2MLE 020 150 S03	2	10	15	80	3	
2MLE 005 060 S03	0.5	1.5	6	50	3		2MLE 020 150 S04	2	10	15	80	4	
2MLE 005 080 S03	0.5	1.5	8	50	3		2MLE 020 200 S03	2	10	20	80	3	
2MLE 005 100 S03	0.5	1.5	10	50	3		2MLE 020 200 S04	2	10	20	80	4	
2MLE 006 030 S03	0.6	3	-	50	3		2MLE 020 250 S03	2	10	25	80	3	
2MLE 006 060 S03	0.6	3	6	50	3		2MLE 020 250 S04	2	10	25	80	4	
2MLE 006 080 S03	0.6	3	8	50	3		2MLE 020 300 S03	2	10	30	80	3	
2MLE 006 100 S03	0.6	3	10	50	3		2MLE 020 300 S04	2	10	30	80	4	
2MLE 007 030 S03	0.7	3	-	50	3		2MLE 020 350 S03	2	10	35	80	3	
2MLE 007 070 S03	0.7	3	7	50	3		2MLE 020 350 S04	2	10	35	100	4	
2MLE 007 100 S03	0.7	3	10	50	3		2MLE 020 400 S03	2	10	40	80	3	
2MLE 007 120 S03	0.7	3	12	50	3		2MLE 020 400 S04	2	10	40	100	4	
2MLE 008 040 S03	0.8	4	-	50	3		2MLE 025 100 S03	2.5	10	-	80	3	
2MLE 008 080 S03	0.8	4	8	50	3		2MLE 025 150 S03	2.5	15	-	80	3	
2MLE 008 100 S03	0.8	4	10	50	3		2MLE 025 200 S03	2.5	15	20	80	3	
2MLE 008 120 S03	0.8	4	12	50	3		2MLE 030 100 060	3	10	-	60	3	
2MLE 009 040 S03	0.9	4	-	50	3		2MLE 030 200 080	3	20	-	80	3	
2MLE 009 060 S03	0.9	4	6	50	3		2MLE 030 200 100	3	20	-	100	3	
2MLE 009 080 S03	0.9	4	8	50	3		2MLE 030 200 120	3	20	-	120	3	
2MLE 009 100 S03	0.9	4	10	50	3		2MLE 030 150 S06	3	15	-	100	6	
2MLE 010 050 S03	1	5	-	80	3		2MLE 030 200 S06	3	15	20	100	6	
2MLE 010 050 S04	1	5	-	80	4		2MLE 030 250 S06	3	15	25	100	6	
2MLE 010 100 S03	1	5	10	80	3		2MLE 030 300 S06	3	15	30	100	6	
2MLE 010 100 S04	1	5	10	80	4		2MLE 040 200 080	4	20	-	80	4	
2MLE 010 150 S03	1	5	15	80	3		2MLE 040 200 100	4	20	-	100	4	
2MLE 010 150 S04	1	5	15	80	4		2MLE 040 200 130	4	20	-	130	4	
2MLE 010 200 S03	1	5	20	80	3		2MLE 040 200 S06	4	20	-	100	6	
2MLE 010 200 S04	1	5	20	80	4		2MLE 040 250 S06	4	20	25	100	6	
2MLE 010 250 S03	1	5	25	80	3		2MLE 040 300 S06	4	20	30	100	6	



# 2날 ABS수지 가공용 마이크로 롱 엔드밀

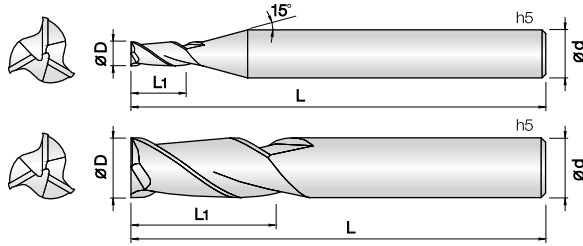
단위 : mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤홅크 Shank Dia d	비고							
2MLE 040 400 S06	4	20	40	120	6								
2MLE 050 200 S06	5	20	-	100	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								

FOR A.B.S







- 일반강, 아크릴, ABS, 목업, 알루미늄 등 비철, 비금속 피삭재 가공
- 인선부 강성을 보강하여 날부 치핑을 최소화 하였습니다.
- 짧은 날장 채택으로 떨림을 최소화 하였습니다.
- 미립자 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 fine WC grade.

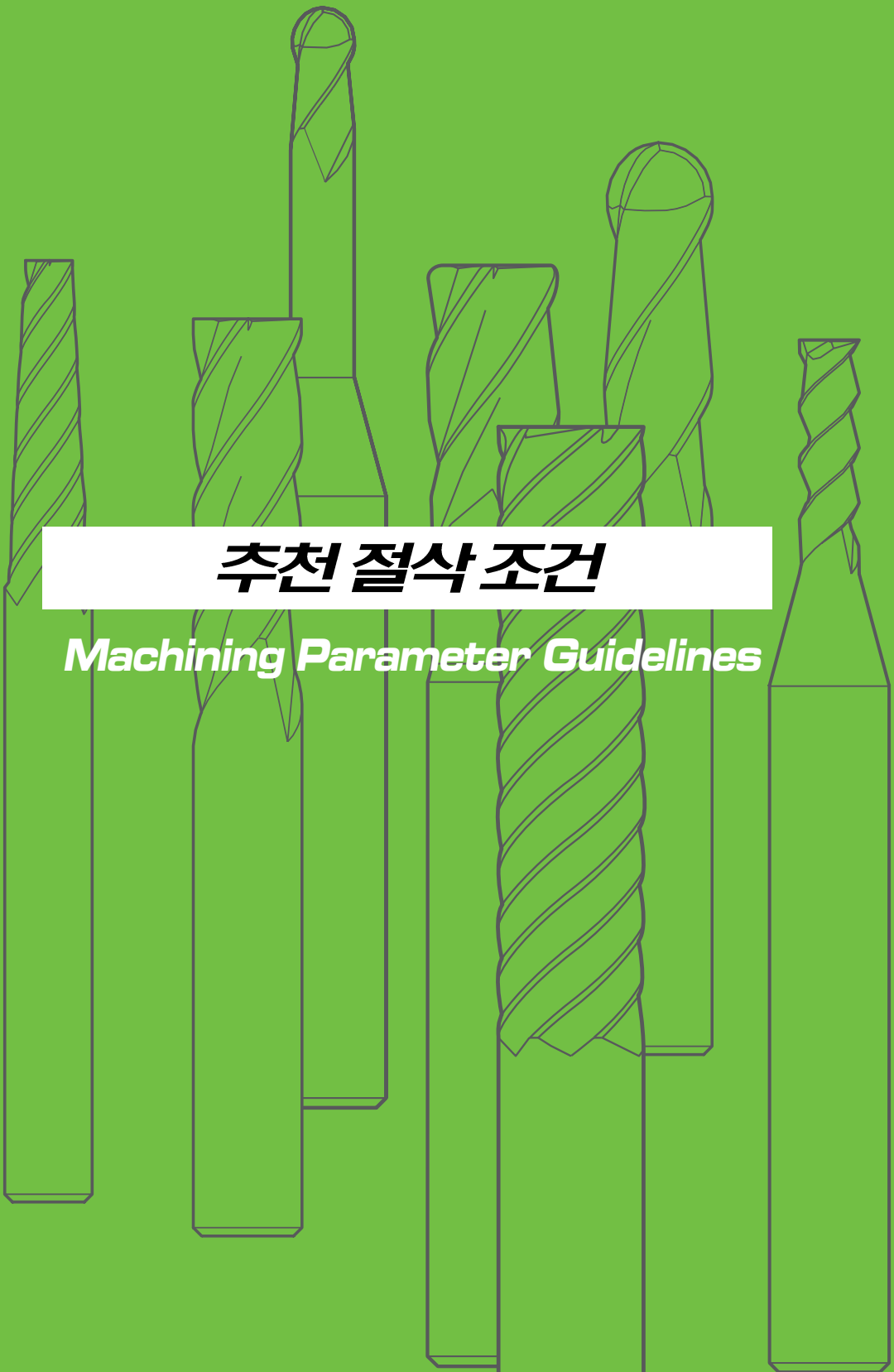


D Size	D Tolerance
ø0.3 ~ 4	+0 ~ -0.01mm
ø6	-0.01 ~ -0.025mm

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										





## **추천 절삭조건**

*Machining Parameter Guidelines*

# 엔드밀 재연삭 가격 안내

## 초경 Ball & Radius 엔드밀

• 부등분할: X1.5 • C작업시: X0.9

날 경		6 이하	10 이하	12 이하	16 이하	20 이하	25 이하
무코팅	2 날	6,100	6,600	7,700	9,900	13,200	16,500
	3, 4, 6 날	8,300	9,400	11,000	12,100	16,500	22,000
TISIN 코팅	2 날	8,300	9,500	10,900	13,400	19,100	20,900
	3, 4, 6 날	10,300	12,500	13,400	15,200	23,800	26,400

## 초경 엔드밀 절단 & 밀날

• 부등분할: X1.1 • 라핑시: X1.1

날 경		6 이하	10 이하	12 이하	16 이하	20 이하	25 이하
무코팅	2 날	4,200	4,800	6,400	8,500	10,700	13,900
	3, 4, 6 날	5,300	5,900	7,500	10,700	12,300	17,100
TISIN 코팅	2 날	4,800	5,200	7,100	10,100	12,400	15,200
	3, 4, 6 날	5,800	6,300	8,500	12,400	13,800	18,200

## 초경 다이아 절단 & 밀날

날 경		6 이하	10 이하	12 이하	16 이하	20 이하	25 이하
2 날		9,500	10,750	14,500	19,250	24,250	31,500
3, 4, 6 날		12,000	13,250	17,000	24,250	27,750	38,750

## 초경 Taper 엔드밀 외경연삭

• 30도 미만 제작수리: X2  
• 30도 이상 제작수리: X1.5

생크경 (∅)	6이하	8이하	10이하	12이하	16이하	20이하	25이하	32이하
2° 미만	10,900	12,100	13,400	14,600	18,200	24,200	30,300	36,300
2° 이상	10,900	12,100	14,600	17,000	21,800	29,100	33,900	38,800
30° 이상	7,300	8,500	9,700	10,900	13,400	18,200	23,000	30,300

## HSS Taper 엔드밀

• Long : X1.5 • 제작수리: X2 • 역: X2

생크경 (∅)	16이하	20이하	25이하	32이하	35이하
2° 미만	8,500	9,700	10,900	14,600	18,200
2° 이상	9,700	12,100	14,600	18,200	21,800
30° 이상	7,300	8,500	9,700	12,100	14,600

## 초경 엔드밀 외경연삭

• Long : X1.2 • EX. Long : X1.5

날 경	6이하	12이하	16이하	20이하	25이하	30이하
2 날	4,900	6,100	8,500	12,100	18,200	25,500
4 날	6,100	7,300	9,700	14,600	21,800	30,300

• 풀수리 (홈연삭) : X1.5

## HSS 엔드밀 외경연삭

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하
2 날	3,700	4,900	8,500	14,600
4 날	4,900	6,100	9,700	18,200

• 풀수리 (홈연삭) : X1.5

## 초경 High Helix 엔드밀 외경연삭

• Long : X1.2 • EX. Long : X1.5

날 경	6이하	12이하	16이하	20이하	25이하	32이하
4 날	11,000	13,200	16,500	19,800	30,800	36,300
6 날	12,100	14,600	18,200	21,800	33,900	40,000

• 풀수리 (홈연삭) : X1.5

## HSS Roughing 엔드밀

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하
-	4,900	6,100	8,500	10,900

## 날붙이(BG) 초경 엔드밀 외경연삭

• Long : X1.5 • EX. Long : X2

날 경	20이하	30이하	40이하	50이하
2 날	6,100	9,700	12,100	18,200
4 날	7,300	10,900	14,600	24,200

• 풀수리 (홈연삭) : X1.5

## HITACHI Ball & Radius 인서트

R × D	R6×12,13	R8×16,17	R10×20,21	R12.5×25,26	R15×30
무코팅	6,600	7,700	8,800	9,900	13,200
TIALN 코팅	11,000	13,200	14,300	15,400	18,700

## 초경 엔드밀 TISIN 코팅 가격

• Long : X1.5 (전장 150L 이상)

날 경	6 이하	8 이하	10 이하	12 이하	16 이하	20 이하	25 이하	32 이하
-	2,100	2,600	3,500	4,700	8,800	10,500	15,200	21,100

## 초경 엔드밀 JJ 코팅 가격

• Long : X1.5 (전장 150L 이상)

날 경	6 이하	8 이하	10 이하	12 이하	16 이하	20 이하	25 이하	32 이하
-	2,500	3,100	4,200	5,600	10,500	12,700	18,300	25,400