

Carbide EndMills

High Precision & High Speed Cutting
Wide range of products

15,113

Your specials are our standards. 당신의 스페셜은 우리의 표준품입니다.



~ 70HRC, for Hardened Steel

~ 65HRC, for Pre-Hardened Steel

for SUS & TITANIUM



for Graphite

for Composite

for Copper & Aluminum

for Aluminum



for A.B.S

Taper

for General Purpose

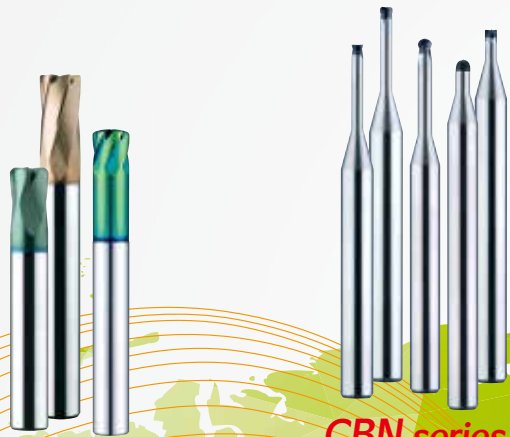


Insert

PCD End Mill

Drill

Thread Mill



CBN series
CBN 엔드밀 시리즈
CBN EndMill Series

HARD series
고이송용 엔드밀 시리즈
High Speed EndMill Series



JJ series
고경도용 엔드밀 시리즈
EndMills for Hardened Steels



HARD series
고속가공용 엔드밀 시리즈
High Speed EndMill Series



E series
강력절삭 엔드밀 시리즈
EndMills for Heavy Cuts



G series
범용 엔드밀 시리즈
EndMills for General purpose



FOR GRAPHITE
흑연가공용 엔드밀 시리즈
EndMills for Graphite



FOR SUS & TITANIUM
SUS, 티타늄 가공용 엔드밀 시리즈
EndMills for SUS & Inconel



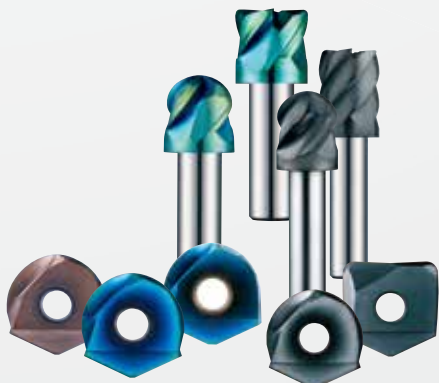
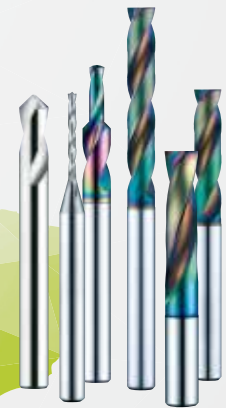
세계로 수출하는 명품 엔드밀

Globally exporting the outstanding quality

JJ TOOLS

지속적인 신제품 개발과 품질 향상으로 고객의 믿음을 이어가겠습니다.

We are doing our best for customers' productivity improvement via continual efforts for quality innovation and applying the newly qualified technology to the products.



HRC 52~70

고경도재 가공용 JJ 시리즈

JJ series for hardened steels

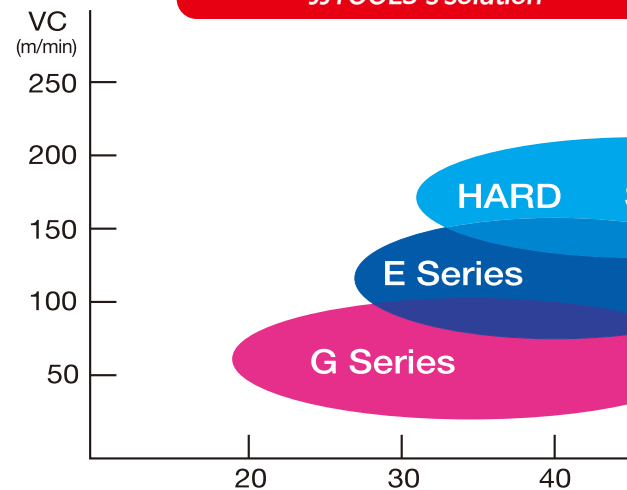
고경도강(HRC52~70), 프리하든강 계열의 고정밀가공 엔드밀

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

- 고품질 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금 (0.2 μ 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 μ m) WC grade.



다양한 피삭재를 위한
JJTOOLS's solution



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)

- 고품질실리콘계코팅 (Si) 처리하여내마모성이우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자초경합금 (0.2 μ m)을채택, 고속절삭시뛰어난성능을 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 μ m) WC grade.

HRC ~52

강력절삭용 E 시리즈

E series for heavy cuts

중저경도강(HRC52이하), 프리하든강계열, 탄소강, 금형강등

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

- 고품량실리콘계코팅(Si) 처리하여내마모성이우수합니다.
- 넓은영역의피삭재가공에적합한형상으로설계하였습니다.
- 경제적인가격으로가공생산비절감을극대화합니다.
- 항절력이높은미립자초경합금(0.5 μ 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 μ m) WC grade.

JJTOOLS(주)의솔루션
for various work materials

JJ Series

Series

50 60 65~ HRC



HRC ~52

다양한 피삭가공, 범용 G 시리즈

G series for general purpose

중저경도강(HRC52이하), 프리하든강계열, 탄소강, 금형강등

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

- JCRO 코팅 처리하여넓은영역의피삭재가공에적합합니다.
- 고정밀공차적용으로초정밀가공에적합합니다.
- 항절력이높은미립자초경합금(0.5 μ m)을채택, 엔드밀의파손을 최소화 하였습니다.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine (0.5 μ m) WC grade.



고경도재의 정밀 정삭가공에 적합한

Optimised for precise machining of high hardness work material

탁월한 내마모 품질!

High Abrasion Resistance !



CBN series

CBN 엔드밀 시리즈

CBN EndMill series

**HRC72 고경도강의
경면 사상 가공에 최적!**

Optimised mirror face machining for 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°

열처리금형가공에 최적
Optimum for hardened -
mold machining



Helix 0°

경면사상가공에 최적
Optimum for mirror face
machining

고경도재 고속가공의
High speed machining hardened steels

절대강자!

Super EndMill

초경코너R 인서트대비

2배 이상의 성능 실현!

경도 HRC65이하 소재의황삭, 중삭가공시

More 2 times performance than
corner Insert end mills!

코너R 마모시

6회 이상의 재연삭 가능!

Guarantee more 6 times Re-grinding!

고속·고이송 가공에 최적화된
The best of high speed cutting

코너 레디우스커터

Corner Radius Cutter

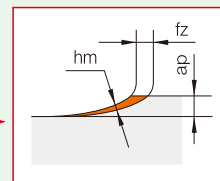
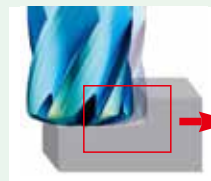
고이송 커터
High Speed Cutter

NEW

절삭 부하를 획기적으로 감소시킨
Dramatically decreased cutting stress

더블 코너 레디우스 커터

JJ Double Corner Radius Cutter



더 얇게 제거되는 칩
Thinner removal chip

- 바닥면의 인선을 더블R로 설계하여 기존 코너R 엔드밀에 비해 공작물 가공시 절삭칩이 얇게 배출되어 절삭 부하를 줄여줍니다.
- 최대 절삭깊이 ap 는 큰 반경R이 끝나는 인선부까지이며, 고이송 절삭시 큰 반경R은 떨림을 최소화하여 안정적 가공을 가능하게 합니다.
- Double radius design on the endface makes thinner chip removal and reduce cutting stress than conventional corner radius end mill.
- The maximum cutting depth is up to the end of the large R, and the large R minimizes vibration, enabling stable milling.

6JJDRC



가공시간 단축을 위한 획기적인 제안!

Innovative solution for shortening machining hour !

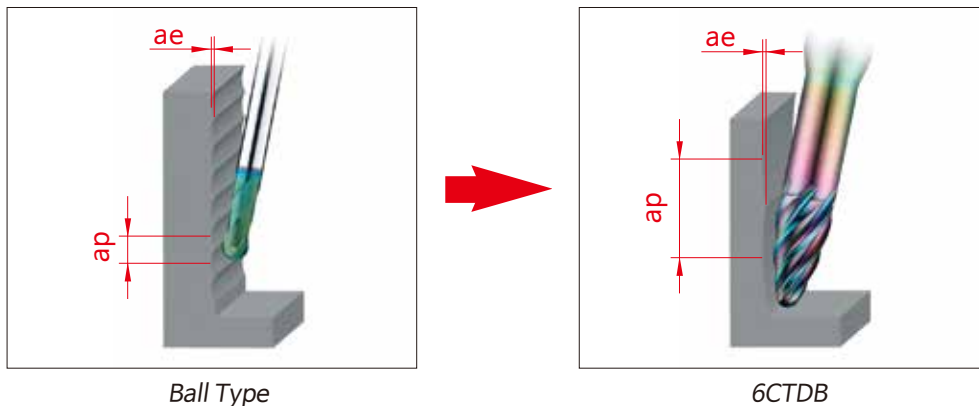
5축 테이퍼 더블 볼 엔드밀

5 Axes Taper Double Ball End Mill

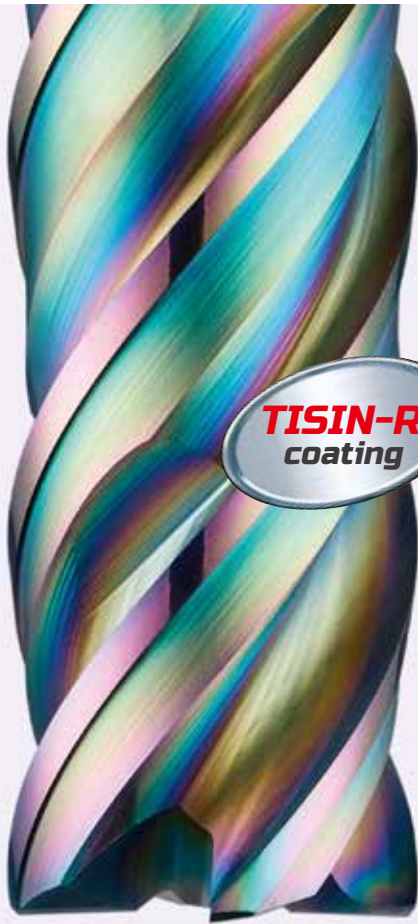
4&6CTDB

- 프리하든강, 일반강, 주물, 비철합금가공엔드밀
- TISIN-R 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 공구의 교체없이 밀면과 경사면의 정삭, 황삭 가공이 동시에 가능합니다.
- 임펠러, 브리스크, 타이어 프로파일, 터빈날 등 3축과 5축의 편축각이 있는 부품 가공에 적합합니다.
- Pre-hardened steel, Cast iron, Non-metallic materials
- TISIN-R 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.

ae의 치수 동일 The value of ae is same.



- 5축 가공시 일반 볼 엔드밀에 비해 절입깊이(ap)를 깊게 가공할 수 있어 가공시간이 빠르며, 같은 ae 절입시 요철 가공면이 적어 정삭가공에 유리합니다.
- 4&6날을 채택하여 고속가공에 적합합니다.
- The depth (ap) can be processed deeper than the standard ball end mill during 5-axis machining, so the processing time is faster and it has fewer machining bumps, which is the advantage for finishing.
- Applied 4&6 flutes for high speed milling.



황삭 다이내믹 가공을 위한

High speed slotting end mill for dynamic roughing milling !

고속 슬로팅 가공 엔드밀

High Speed Slotting End Mill

4SLE

- 합금강, SUS계열, 인코넬, 일반구조강 등 다양한 난삭재 정삭, 황삭 가공
- 슬로팅 가공시 2중의 옆날 홈으로 칩 배출이 우수하며, 두터운 2중의 코어는 흔들림 없는 가공을 구현합니다.
- TISIN-R 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- Endmills for finishing and roughing of alloy steel, sus, inconel, mild steels and various hard to cut materials.
- Chip emission is excellent for slotting, and thick double core designed enables continuous machining without chattering.
- TISIN-R coating provides wear resistance improvement as well as avoid edge stress in various applications.



홈가공
Slot

포켓 가공
Pocket

램핑 가공
Ramping

헬리컬 가공
Helical

측면 가공
Side



고속 황삭 가공을 위한

For high speed roughing milling

트로코이달 가공 엔드밀

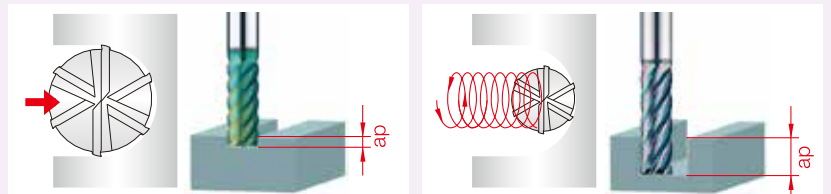
Trochoidal Milling End Mill

5&6TROE

트로코이달 밀링은 고효율 밀링의 한 방법으로서 낮은 반경 방향 절삭깊이와 높은 축방향 절삭깊이를 사용한 고속가공법입니다. 가공시 반경방향 접촉면적을 적절히 컨트롤하면서 칩 두께를 일정하게 유지하는 것이 특징으로 이를 위해 공구경로가 나선형을 가지게 됩니다.

Chip emission is excellent for slotting, and thick double core designed enables continuous machining without chattering. TISIN-R coating provides wear resistance improvement as well as avoid edge stress in various applications.

기존슬로팅가공 Conventional milling 트로코이달슬로팅가공 Trochoidal slotting



깊은가공에최적화된칩브레이커
Optimized chip breaker for deep milling



아크접촉면
Arc contact surface



아크접촉면
Arc contact surface

강력한 채터링 방지 설계로 **진동을 최소화!**

Strong design for protection against chattering !

칩배출이 뛰어난

Excellent Chip Control

FOR SUS

SUS 가공용 엔드밀

End Mills for SUS

SUS계열, Ti/Ni계합금, 인코넬, 합금강 등 난삭재 전용

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

- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화 하였습니다.
- 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.

NEW

다날 구조 채택으로 **인선부 파손 최소화!**

Applying multi flutes to minimize damage on edge !

FOR Titanium

TITANIUM 가공용 엔드밀

End Mills for TITANIUM

티타늄, Ti/Ni계합금, 인코넬, 합금강, SUS계열 등 난삭재 전용

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

- TISIN-R 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화 하였습니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- TISIN-R coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Strong design for protection against chattering..
- Minimize fracturing at high feed by high TRS fine WC grade.

탁월한 내마모성의

High abrasion resistance

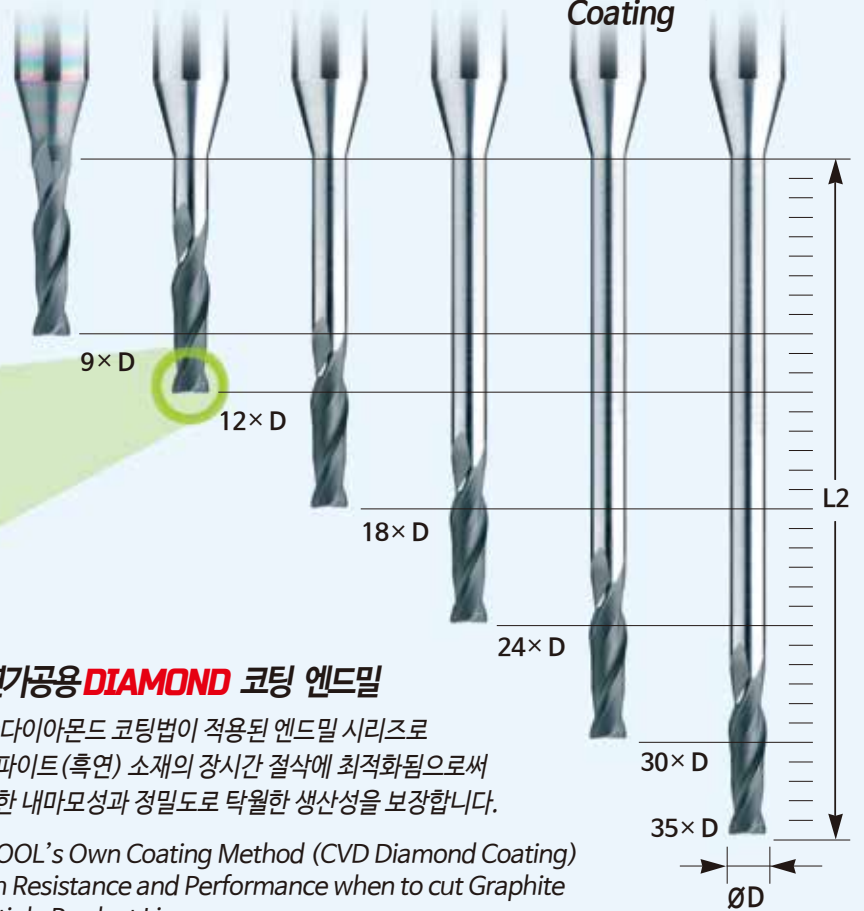
DIAMOND 코팅!

Coating



- CR** R0.02
R0.05
R0.1
R0.15
R0.2
R0.3
R0.5
- 2 D BE**
3 D BE
4 D BE
2&3 D EM
4&6 D EM
2 D CR
4 D CR

Ø0.2~6.0mm



흑연가공용 DIAMOND 코팅 엔드밀

CVD다이아몬드 코팅법이 적용된 엔드밀 시리즈로
그라파이트(흑연) 소재의 장시간 절삭에 최적화됨으로써
우수한 내마모성과 정밀도로 탁월한 생산성을 보장합니다.

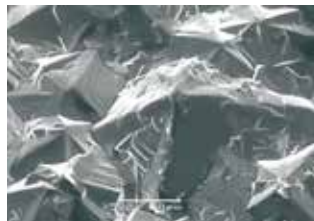
JJ TOOL's Own Coating Method (CVD Diamond Coating)
High Resistance and Performance when to cut Graphite
Multiple Product Line

FOR GRAPHITE

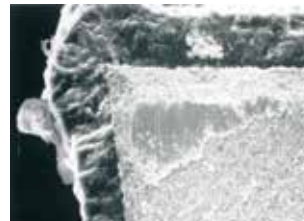
다이아몬드 코팅 시리즈

DIAMOND Coated End Mills for Graphite

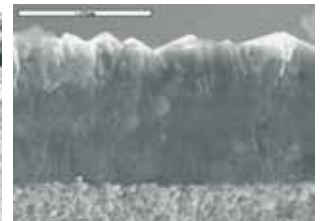
■ 다이아몬드 결정 SEM 사진 SEM Images of Diamond crystal



다이아몬드 표면 입자 확대
Diamond surface image



다이아몬드 단면 확대
Diamond cross section image



다이아몬드 단면 확대
Diamond cross section image

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
표면조밀도 (MPa·m ^{1/2}) Toughness	5 ~ 6	3.4	8 ~ 9	10.5
인장력 (Gpa) Tensile strength	400 ~ 800	1,000~3,000	1,260	-
압축강도 (Gpa) Compressive strength	16.0	9.0	7.6	6.1
항절력 (Gpa) TRS	1.3	2.9	1.2	2.4

CVD 다이아몬드는 바인더(활성계면제)가 없는 순수결정체로서 단결정 다이아몬드와 동일한 특성을 나타내며, 변형없는 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.

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, 강화플라스틱 (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.

- 코팅피막에 경도가 높고 마찰계수가 낮은 SUPER TAC코팅을 적용해 내마모성이 우수하며, 피삭재 표면조도가 월등히 우수함
- 고정밀 공차 적용으로 초정밀가공에 적합
- 항절력이 높은 미립자 초경합금(0.5 μ 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 μ m) WC grade.

우주항공 및 자동차 분야의 복합신소재 가공을 선도하는

Leading tools for machining of composite materials

FOR COMPOSITE

복합소재용 엔드밀

For Composite Materials

강화플라스틱(CFRP, GFRP), 동및동합금, 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), 프리하든강계열의 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 μ 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 μ m) WC grade.

R-TAC코팅을 통한 업그레이드로
인선부의 고풍면 구현!

Applied RTAC coating for excellent surface finish!

FOR ALUminum

AL가공용 엔드밀

End Mills for Aluminum

알루미늄 및 알루미늄합금 등 비철, 비금속 피삭재 전용

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

- 날부 인선을 고풍면 설계하여 절삭시 피삭재의 표면조도가 우수합니다.
- RTAC코팅 처리하여, 기존 비코팅 엔드밀 대비 2배 이상 공구수명이 증가하였습니다.
- 다양한 날장(S, L, Exl, Etc) 선택으로 맞춤 가공이 가능합니다.
- 2중 인선과 홈포켓의 깊게 설계로 흡착현상을 최소화 하였습니다.
- 미립자 초경합금 (0.5 μ 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 μ m) WC grade.

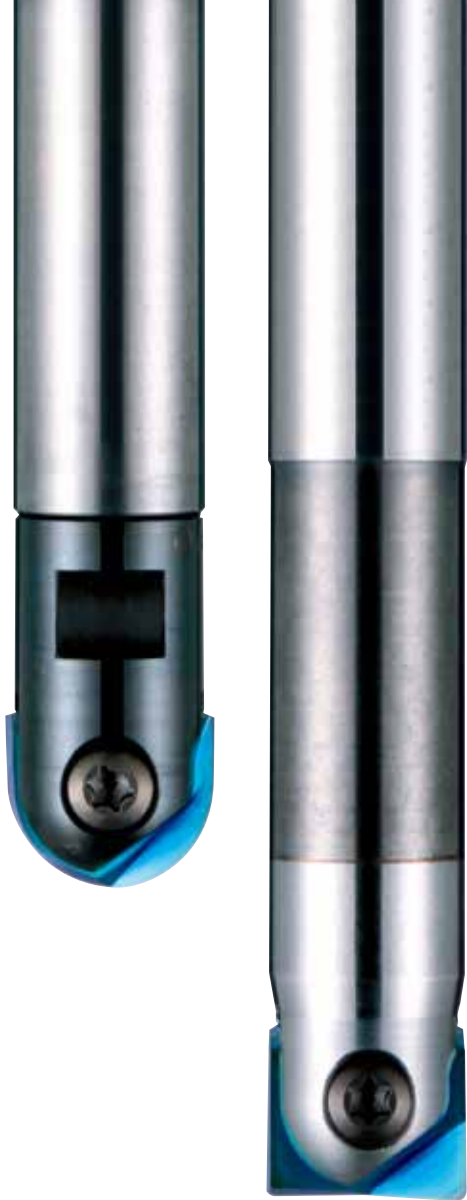


FINISHING 초경 정삭용 인서트

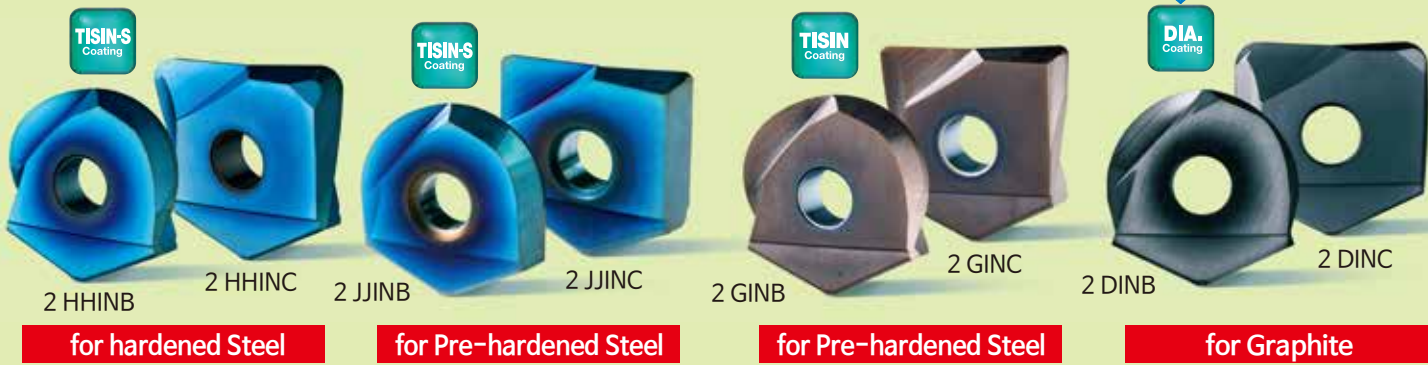
INSERT

높은 체결 정밀도 고품질의 절삭면 구현!

High quality surface roughness with great clamping precision!

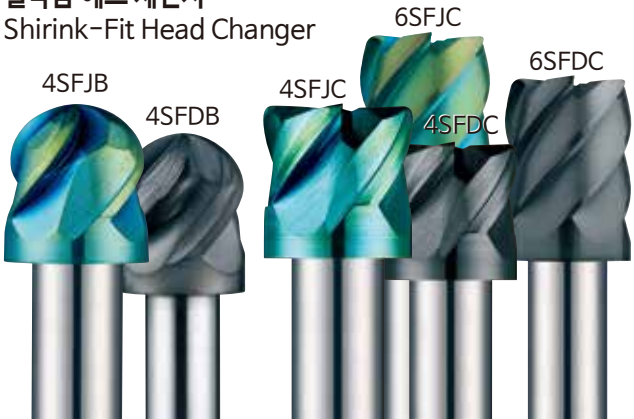


- 고경도강(HRc62이하), 프리하든강계열의 고정밀가공인서트, 흑연(DIA코팅)
- TISIN-S 코팅 처리하여 인선부 내마모성이 탁월합니다.
- 인서트 체결시 체결 정밀도가 뛰어납니다.
- 인서트 체결시 동심도가 탁월합니다.
- Ball Insert for hardened steel (~HRc62), pre-hardened and graphite(DIA Coating) materials.
- Optimum for wear resistance by TISIN-S coating.
- Excellent clamping precision when clamping insert.
- Excellent concentricity when clamping inserts.



New Products

열박음 헤드 체인저
Shirink-Fit Head Changer



- 고경도강(HRc52~62), 프리하든강, 흑연(DIA코팅) 계열의 고정밀가공 열박음 인서트
- 열박음 홀더 체결시 높은 파지력과 뛰어난 동심도 유지가 가능합니다.
- 헬릭스 형상의 인선부를 설계하여, 절삭력이 향상되었습니다.
- 항절력이 높은 미립자 초경합금(0.4 μ m)을 채택, 인서트의 파손을 최소화 하였습니다.
- Shrink fit insert for hardened steel (HRc52~62), pre-hardened steels, graphite(DIA Coating).
- Excellent holding power and concentricity keeping are available by shrink fitting holder.
- Maximize cutting force by applying the new helix edge design.
- Minimize fracturing by high TRS fine (0.4 μ m) WC grade.

LOW Price
HIGH
Performance

가격만족, 성능만족- 다기능 플랫드릴 시리즈

FLAT DRILL

Price Satisfaction, Performance Satisfaction -
Multi functional Flat Drill Series

NEW

**하나의 드릴로-
다양한 가공 가능!**

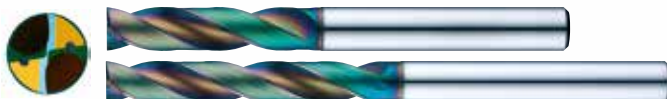
Multiple processing is available with one drill !

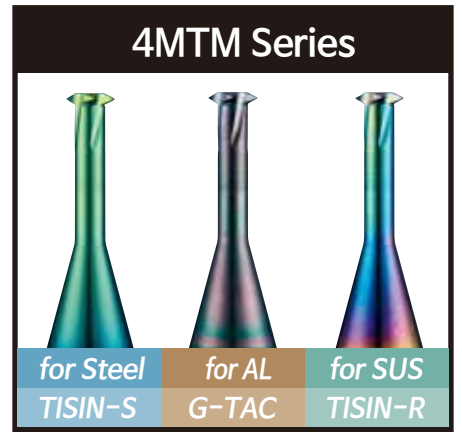
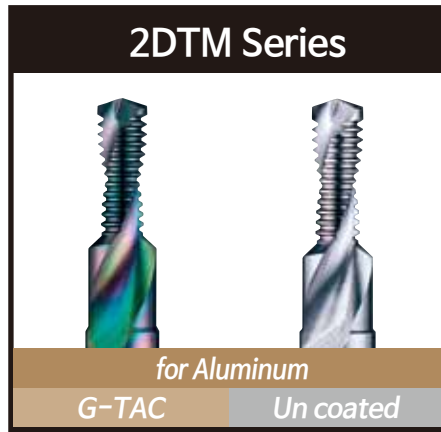


헬릭스 20°, 뛰어난 칩 배출력!
Helix 20°, Excellent chip emission !



헬릭스 25~30° 오일 홀 타입 적용!
Helix 25~30°, Coolant hole type !





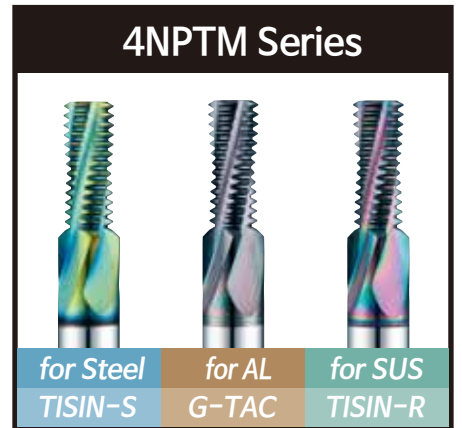
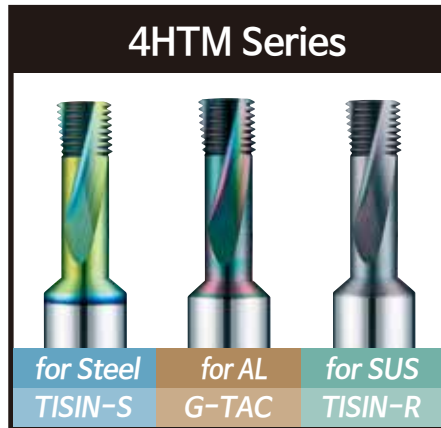
다양한 피삭재에 맞춘-
나사가공에 최적화된 라인업

Various Products
Lineup!











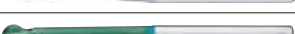













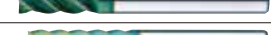













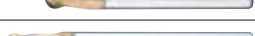

THREAD MILLS

Lineup optimized for threading suitable for various work materials.

- M6 이하의 쓰레드밀 작업시 열박음척, 유압척 이상의 고정밀 척킹 시스템을 권장합니다.
- High-precision chucking system, which has same or higher level of clamping power as shrink-fit chuck or hydraulic chuck, is recommended for thread milling operations below M6.







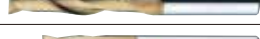
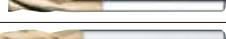



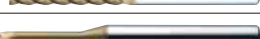
















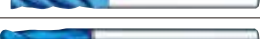





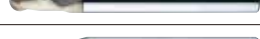




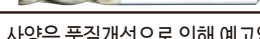


Carbide End Mills INDEX

시리즈 SERIES	제품 IMAGE	품명 MODEL NO.	크기 SIZE Ø (mm)	페이지 PAGE	분류 TYPE
CBN series Cubic Boron Nitride		2BCBN	0.2 ~ 6	32	CBN 리브 볼 CBN Rib Ball End Mills
		2SBCBN	0.2 ~ 6	34	CBN 직선날 리브 볼 CBN Straight Rib Ball End Mills
		2ECBN	0.2 ~ 6	35	CBN 리브 엔드밀 CBN Rib End Mills
		2CCBN	0.2 ~ 6	37	CBN 리브 코너 레디우스 CBN Rib Corner Radius
		2SCCBN	0.4 ~ 6	40	CBN 직선날 리브 코너 레디우스 CBN Straight Rib Corner Radius
		4SCCBN	0.8 ~ 6	41	CBN 직선날 리브 코너 레디우스 CBN Straight Rib Corner Radius
JJ series 고속도용		2JJRB	0.1 ~ 12	42	제이제이 리브 볼 JJ Rib Ball End Mills
		3JJRB	1 ~ 12	45	제이제이 리브 볼 JJ Rib Ball End Mills
		2JJTB	0.2 ~ 12	46	제이제이 테이퍼 넥 볼 Taper Neck Ball End Mills
		3JJTBS	1 ~ 12	49	소비자 맞춤 테이퍼 넥 볼 Taper Neck Ball End Mills
		2JJSP	1 ~ 12	50	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°
		4JJSP	1 ~ 12	51	3D 230° 가공용 구형 엔드밀 End Mills for 3D Cut 230°
		4JJSPM	1 ~ 12	52	3D 270° 가공용 구형 엔드밀 End Mills for 3D Cut 270°
		2JJSB	0.1 ~ 12	53	제이제이 짧은 길이 볼 JJ Short Length Ball End Mills
		2JJB	0.1 ~ 12	54	제이제이 볼 JJ Ball End Mills
		3JJB	1 ~ 12	55	제이제이 볼 JJ Ball End Mills
		4JJSB	1 ~ 12	55	제이제이 짧은 길이 볼 JJ Short Length Ball End Mills
		4JJB	1 ~ 20	56	제이제이 볼 JJ Ball End Mills
		2JJRE	0.1 ~ 12	57	제이제이 리브 엔드밀 JJ Rib End Mills
		4JJRE	0.5 ~ 12	59	제이제이 리브 엔드밀 JJ Rib End Mills
		2JJE	0.03 ~ 20	61	제이제이 엔드밀 JJ End Mills
		4JJE	0.3 ~ 20	62	제이제이 엔드밀 JJ End Mills
		4JJHE	1 ~ 20	63	제이제이45° 헬릭스엔드밀 JJ 45° Helix End Mills
		6&8JJHE	3 ~ 25	64	제이제이45° 헬릭스엔드밀 JJ 45° Helix End Mills
		2JJCR	0.2 ~ 16	65	제이제이 리브 코너 레디우스 JJ Rib Corner Radius
		2JJTC	1 ~ 4	69	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius
		4JJCR	0.5 ~ 12	71	제이제이 리브 코너 레디우스 JJ Rib Corner Radius
		6JJCR	3 ~ 12	75	제이제이 리브 코너 레디우스 JJ Rib Corner Radius
		4JJTC	1 ~ 4	77	테이퍼 넥 코너 레디우스 Taper Neck Corner Radius
		2JJC	0.2 ~ 12	78	제이제이 코너 레디우스 JJ Corner Radius
		4JJC	0.5 ~ 16	80	제이제이 코너 레디우스 JJ Corner Radius
		6JJCRL	3 ~ 16	82	제이제이45° 헬릭스 코너 레디우스 JJ 45° Helix Corner Radius
		4&6JJRC	1 ~ 16	83	고이송 코너 레디우스 커터 High Speed Radius Cutter
		4&6JJDRC	1 ~ 12	84	제이제이 더블 코너 레디우스 JJ Double Corner Radius
		5JJROU	6 ~ 20	85	가변형 헬릭스 라핑 Variable Helix Roughing
	HARD series 고속 가공용		2HRB	0.1 ~ 12	86
		2PHCB	0.2 ~ 12	89	초정밀 표준 길이 볼 Ultra Precision Ball End Mills
		2HSB	0.1 ~ 12	90	짧은 길이 볼 Short Length Ball End Mills
		2HCB	0.06 ~ 20	91	표준 길이 볼 Standard Length Ball End Mills
		3HCB	1 ~ 12	92	표준 길이 볼 Standard Length Ball End Mills

■ 상기 제품의 주문번호 및 사양은 품질개선을 위해 예고없이 변경될 수 있습니다.

Carbide End Mills INDEX

시리즈 SERIES	제품 IMAGE	품명 MODEL NO.	크기 SIZE Ø (mm)	페이지 PAGE	분류 TYPE
HARD series 고속 가공용		4HSB	1 ~ 12	92	짧은 길이 볼 Short Length Ball End Mills
		4HCB	1 ~ 20	93	표준 길이 볼 Standard Length Ball End Mills
		2HRE	0.1 ~ 12	94	리브 엔드 밀 Rib End Mills
		4HRE	0.5 ~ 12	96	리브 엔드 밀 Rib End Mills
		2HSE	0.1 ~ 12	98	짧은 길이 엔드밀 Short Length End Mills
		2HCE	0.05 ~ 20	99	표준 길이 엔드밀 Standard Length End Mills
		2LEM	1 ~ 25	101	긴 길이 엔드밀 Long Length End Mills
		4HSE	0.5 ~ 16	102	짧은 길이 엔드밀 Short Length End Mills
		4HCE	0.3 ~ 20	103	표준 길이 엔드밀 Standard Length End Mills
		4LEM	0.5 ~ 25	104	긴 길이 엔드밀 Long Length End Mills
		4HEM	1 ~ 25	105	45° 헬릭스엔드밀 45° Helix End Mills
		6&8HEM	3 ~ 25	106	45° 헬릭스엔드밀 45° Helix End Mills
		2CRE	0.2 ~ 16	107	리브 코너 레디우스 Rib Corner Radius
		4CRE	0.8 ~ 12	111	리브 코너 레디우스 Rib Corner Radius
		2NCR	0.2 ~ 16	115	코너 레디우스 Corner Radius End Mills
		4NCR	0.5 ~ 20	117	코너 레디우스 Corner Radius End Mills
		4CRL	1 ~ 20	119	45° 헬릭스 코너 레디우스 롱 45° Helix Radius Long
		6CRL	3 ~ 16	120	45° 헬릭스 코너 레디우스 롱 45° Helix Radius Long
		4RCU	1 ~ 16	121	고이송 코너 레디우스 커터 High Speed Radius Cutter
		6RCU	6 ~ 20	122	고이송 코너 레디우스 커터 High Speed Radius Cutter
	3&4ROU	4 ~ 20	123	라핑 엔드밀 Roughing End Mills	
	3&4HROU	4 ~ 20	124	45° 헬릭스 파인피치형 라핑 45° Helix Fine Pitch Roughing	
E series 강력절삭용		2HRBE	0.2 ~ 12	125	강력절삭용 리브 볼 Rib Ball End Mills for Heavy Cuts
		2HCBE	0.2 ~ 16	127	강력절삭용 볼 Ball End Mills for Heavy Cuts
		2HCEE	0.2 ~ 16	128	강력절삭용 엔드밀 End Mills for Heavy Cuts
		4HCEE	1 ~ 16	129	강력절삭용 엔드밀 End Mills for Heavy Cuts
		3NSE	1 ~ 12	130	강력절삭용 45° 헬릭스 45° Helix End Mills for Heavy Cuts
		4HEME	1 ~ 16	131	강력절삭용 엔드밀 End Mills for Heavy Cuts
		4NSE	1 ~ 20	132	강력절삭용 엔드밀 End Mills for Heavy Cuts
		2NCRE	1 ~ 12	133	강력절삭용 코너 레디우스 Corner Radius End Mills for Heavy Cuts
		4NCRE	1 ~ 12	134	강력절삭용 코너 레디우스 Corner Radius End Mills for Heavy Cuts
		4RCUE	1 ~ 12	135	강력절삭용 고이송 코너R 커터 High Speed Corner R Cutter
G series 범용		2HRBG	0.1 ~ 12	136	리브 볼 Rib Ball End Mills
		2HSBG	0.2 ~ 12	138	짧은 길이 볼 Short Length Ball End Mills
		2HCBG	0.1 ~ 20	139	표준 길이 볼 Standard Length Ball End Mills
		2HREG	0.1 ~ 12	140	리브 엔드밀 Rib End Mills
		2HCEG	0.1 ~ 20	142	표준 길이 엔드밀 Standard Length End Mills
		4HREG	0.8 ~ 12	143	리브 엔드밀 Rib End Mills
		2LEMG	1 ~ 25	144	긴 길이 엔드밀 Long Length End Mills
		4HCEG	0.8 ~ 20	145	표준 길이 엔드밀 Standard Length End Mills

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★ 최적 Most Suitable / ◎ 적합 Suitable / ○ 가능 Available

프리하드강 Prehardened Steel	하드강 Hardened Steel			합금강/공구강 Alloy Steel Tool Steel	내열 합금강 Heat Resistance Alloy	티타늄 Titanium	스테인레스강 Stainless Steel	알루미늄 Aluminum	구리 Copper	탄소강 Carbon Steel	흑연 Graphite	복합소재 CFRP GFRP
	~ HRC55	HRC55 ~ 65	HRC65 ~									
★	★	★	◎	◎		◎			○	○	○	
★	★	★	◎	◎		◎			○	○	○	
★	◎	○		○		○			○	○	○	
★	★	◎	○	◎		◎			○	○	○	
★	◎	○		○		◎			○	○	○	
★	◎	○		○		○			○	○	○	
★	◎	○		○					○	◎	○	
★	★	◎	○	◎		◎			○	◎	○	
★	★	◎	○	◎		◎			○	◎	○	
★	★	○		○	◎				○	◎	○	
★	★	◎	○	★	○	◎			○	◎	○	
★	★	★	◎	★	○	◎			○	◎	○	
★	◎	○		○		○			○	○	○	
★	★	◎		◎		◎			○	○	○	
★	◎	○		○		○			○	○	○	
★	★	◎		◎		◎			○	◎	○	
★	★	◎	○	○	◎	◎	○		○	◎	○	
★	★	★	◎	◎		◎			○	◎	○	
★	★	◎		◎					○	◎	○	
★	★	◎		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	
★	◎	○		◎					○	◎	○	

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

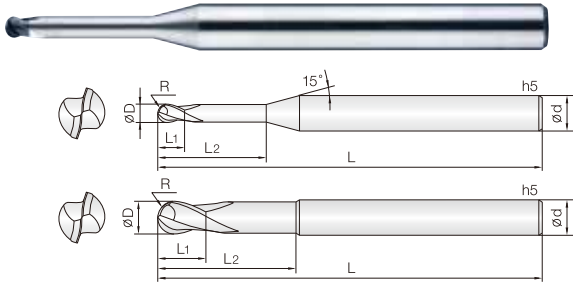


Carbide End Mills INDEX

시리즈 SERIES	제품 IMAGE	품명 MODEL NO.	크기 SIZE Ø (mm)	페이지 PAGE	분류 TYPE
G series 범용		4LEMG	1 ~ 25	146	긴 길이 엔드밀 Long Length End Mills
		4HEMG	1 ~ 20	147	45° 헬릭스 엔드밀 45° Helix End Mills
		2CREG	0.2 ~ 16	148	리브 코너 레디우스 Rib Corner Radius
		4CREG	1 ~ 12	151	리브 코너 레디우스 Rib Corner Radius
		2NCRG	0.4 ~ 12	154	코너 레디우스 Corner Radius End Mills
		4NCRG	1 ~ 16	156	코너 레디우스 Corner Radius End Mills
		3&4ROUG	4 ~ 20	158	라핑 엔드밀 Roughing End Mills
		3&4HROUG	4 ~ 20	159	45° 헬릭스 파인피치형 라핑 45° Helix Fine Pitch Roughing
for GRAPHITE 흑연 가공용		2GBE	0.5 ~ 25	160	롱 샹크 볼 Long Shank Ball End Mills
		2TGB	1 ~ 12	161	테이퍼 넥 볼 Taper Neck Ball End Mills
		2GEM	0.5 ~ 20	162	롱 샹크 엔드밀 Long Shank End Mills
		4GEM	3 ~ 20	163	롱 샹크 엔드밀 Long Shank End Mills
		6GEM	6 ~ 20	164	45° 헬릭스 롱 샹크 엔드밀 45° Helix Long Shank End Mills
		2DBE	0.2 ~ 12	165	다이아몬드 코팅 볼 Diamond Coated Ball End Mills
		3DBE	1 ~ 12	167	다이아몬드 코팅 볼 Diamond Coated Ball End Mills
		3TBD	1 ~ 4	168	다이아몬드 코팅 테이퍼 넥 볼 Diamond Coated Taper Neck Ball
		4DBE	1 ~ 12	169	다이아몬드 코팅 볼 Diamond Coated Ball End Mills
		2DEM	0.2 ~ 12	170	다이아몬드 코팅 엔드밀 Diamond Coated End Mills
		3DEM	1 ~ 12	171	다이아몬드 코팅 엔드밀 Diamond Coated End Mills
		4&6DEM	2 ~ 16	172	다이아몬드 코팅 엔드밀 Diamond Coated End Mills
		2DCR	0.2 ~ 6	173	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius
		4DCR	2 ~ 12	175	다이아몬드 코팅 코너 레디우스 Diamond Coated Radius

2BCBN CBN, 2 Flutes High Speed Rib Ball End Mills

2날 CBN 고속가공용 리브 볼 엔드밀



• 고경도강(HRc50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀

- 고품질의 PCBN 소재를 적용하여 장시간가공이 가능합니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.
- C.B.N (Cubic Boron Nitride)

• 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)



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	Order Number	날경 Diameter R × 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 010 050 S04	0.5R X 1	0.7	5	48	4	
2BCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4		2BCBN 010 060 S04	0.5R X 1	0.7	6	48	4	
2BCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4		2BCBN 010 080 S04	0.5R X 1	0.7	8	48	4	
2BCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4		2BCBN 010 100 S04	0.5R X 1	0.7	10	48	4	
New 2BCBN 004 003 S04	0.2R X 0.4	0.3	-	48	4		2BCBN 010 120 S04	0.5R X 1	0.7	12	48	4	
New 2BCBN 004 010 S04	0.2R X 0.4	0.3	1	48	4		2BCBN 010 160 S04	0.5R X 1	0.7	16	48	4	
2BCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4		New 2BCBN 012 008 S04	0.6R X 1.2	0.8	-	48	4	
2BCBN 004 020 S04	0.2R X 0.4	0.3	2	48	4		New 2BCBN 012 020 S04	0.6R X 1.2	0.8	2	48	4	
2BCBN 004 030 S04	0.2R X 0.4	0.3	3	48	4		2BCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4	
2BCBN 004 040 S04	0.2R X 0.4	0.3	4	48	4		2BCBN 012 060 S04	0.6R X 1.2	0.8	6	48	4	
2BCBN 004 050 S04	0.2R X 0.4	0.3	5	48	4		2BCBN 012 080 S04	0.6R X 1.2	0.8	8	48	4	
2BCBN 004 060 S04	0.2R X 0.4	0.3	6	48	4		2BCBN 012 100 S04	0.6R X 1.2	0.8	10	48	4	
New 2BCBN 005 004 S04	0.25R X 0.5	0.4	-	48	4		2BCBN 012 120 S04	0.6R X 1.2	0.8	12	48	4	
New 2BCBN 005 010 S04	0.25R X 0.5	0.4	1	48	4		2BCBN 012 160 S04	0.6R X 1.2	0.8	16	48	4	
2BCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4		2BCBN 015 010 S04	0.75R X 1.5	1	-	48	4	
2BCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4		2BCBN 015 020 S04	0.75R X 1.5	1	2	48	4	
2BCBN 005 030 S04	0.25R X 0.5	0.4	3	48	4		2BCBN 015 040 S04	0.75R X 1.5	1	4	48	4	
2BCBN 005 040 S04	0.25R X 0.5	0.4	4	48	4		2BCBN 015 060 S04	0.75R X 1.5	1	6	48	4	
2BCBN 005 050 S04	0.25R X 0.5	0.4	5	48	4		2BCBN 015 080 S04	0.75R X 1.5	1	8	48	4	
2BCBN 005 060 S04	0.25R X 0.5	0.4	6	48	4		2BCBN 015 100 S04	0.75R X 1.5	1	10	48	4	
2BCBN 005 080 S04	0.25R X 0.5	0.4	8	48	4		2BCBN 015 120 S04	0.75R X 1.5	1	12	48	4	
New 2BCBN 006 005 S04	0.3R X 0.6	0.5	-	48	4		2BCBN 015 140 S04	0.75R X 1.5	1	14	48	4	
New 2BCBN 006 010 S04	0.3R X 0.6	0.5	1	48	4		2BCBN 015 160 S04	0.75R X 1.5	1	16	48	4	
2BCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4		2BCBN 015 180 S04	0.75R X 1.5	1	18	48	4	
2BCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4		New 2BCBN 020 012 S04	1R X 2	1.2	-	50	4	
2BCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4		New 2BCBN 020 030 S04	1R X 2	1.2	3	50	4	
2BCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4		2BCBN 020 040 S04	1R X 2	1.2	4	50	4	
2BCBN 006 050 S04	0.3R X 0.6	0.5	5	48	4		2BCBN 020 060 S04	1R X 2	1.2	6	50	4	
2BCBN 006 060 S04	0.3R X 0.6	0.5	6	48	4		2BCBN 020 080 S04	1R X 2	1.2	8	50	4	
2BCBN 006 080 S04	0.3R X 0.6	0.5	8	48	4		2BCBN 020 100 S04	1R X 2	1.2	10	50	4	
2BCBN 006 100 S04	0.3R X 0.6	0.5	10	48	4		2BCBN 020 120 S04	1R X 2	1.2	12	50	4	
New 2BCBN 007 005 S04	0.35R X 0.7	0.5	-	48	4		2BCBN 020 140 S04	1R X 2	1.2	14	50	4	
New 2BCBN 007 010 S04	0.35R X 0.7	0.5	1	48	4		2BCBN 020 160 S04	1R X 2	1.2	16	50	4	
2BCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4		2BCBN 020 180 S04	1R X 2	1.2	18	50	4	
2BCBN 007 040 S04	0.35R X 0.7	0.5	4	48	4		New 2BCBN 025 016 S06	1.25R X 2.5	1.6	-	66	6	
New 2BCBN 008 006 S04	0.4R X 0.8	0.6	-	48	4		New 2BCBN 025 030 S06	1.25R X 2.5	1.6	3	66	6	
New 2BCBN 008 010 S04	0.4R X 0.8	0.6	1	48	4		2BCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6	
2BCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4		2BCBN 025 100 S06	1.25R X 2.5	1.6	10	66	6	
2BCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4		2BCBN 025 160 S06	1.25R X 2.5	1.6	16	66	6	
2BCBN 008 060 S04	0.4R X 0.8	0.6	6	48	4		2BCBN 025 200 S06	1.25R X 2.5	1.6	20	66	6	
2BCBN 008 080 S04	0.4R X 0.8	0.6	8	48	4		New 2BCBN 030 018 S06	1.5R X 3	1.8	-	66	6	
2BCBN 008 100 S04	0.4R X 0.8	0.6	10	48	4		New 2BCBN 030 030 S06	1.5R X 3	1.8	3	66	6	
New 2BCBN 009 006 S04	0.45R X 0.9	0.6	-	48	4		2BCBN 030 060 S06	1.5R X 3	1.8	6	66	6	
New 2BCBN 009 010 S04	0.45R X 0.9	0.6	1	48	4		2BCBN 030 080 S06	1.5R X 3	1.8	8	66	6	
2BCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4		2BCBN 030 100 S06	1.5R X 3	1.8	10	66	6	
2BCBN 009 040 S04	0.45R X 0.9	0.6	4	48	4		2BCBN 030 120 S06	1.5R X 3	1.8	12	66	6	
New 2BCBN 010 007 S04	0.5R X 1	0.7	-	48	4		2BCBN 030 160 S06	1.5R X 3	1.8	16	66	6	
New 2BCBN 010 015 S04	0.5R X 1	0.7	1.5	48	4		2BCBN 030 200 S06	1.5R X 3	1.8	20	66	6	
2BCBN 010 025 S04	0.5R X 1	0.7	2.5	48	4		New 2BCBN 040 024 S06	2R X 4	2.4	-	66	6	
2BCBN 010 040 S04	0.5R X 1	0.7	4	48	4		New 2BCBN 040 040 S06	2R X 4	2.4	4	66	6	

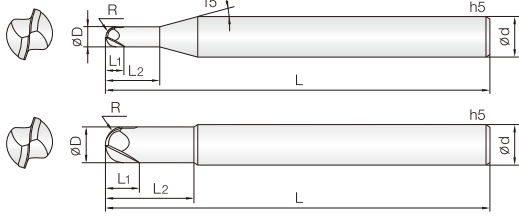
단위: mm

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

2SBCBN

CBN, 2 Flutes High Speed Rib Ball End Mills

2날 CBN 고속가공용 직선날 리브 볼 엔드밀



2

CBN

R
± 0.005

R
± 0.007

R
± 0.01

0°
Helix Angle

CUTTING
DATA

0.1 ~ 1.25R 1.5 ~ 2R 3R 310P

- 고정도강(HRC50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀
- 고품질의 PCBN 소재를 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.
- C.B.N (Cubic Boron Nitride)
- 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)

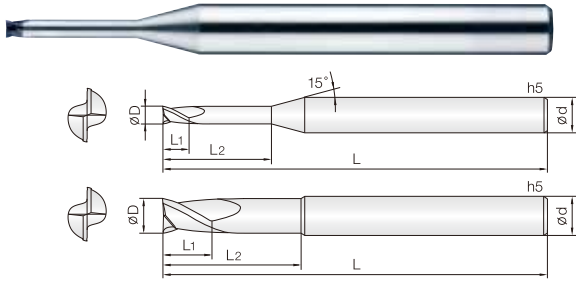
D Size	D Tolerance
Ø 0.2 ~ 6	+0 - -0.01mm

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	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Length L	샙크 Shank Dia d	비고
New 2SBCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4		New 2SBCBN 025 016 S06	1.25R X 2.5	1.6	-	66	6	
2SBCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4		New 2SBCBN 025 030 S06	1.25R X 2.5	1.6	3	66	6	
2SBCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4		2SBCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6	
2SBCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4		New 2SBCBN 030 018 S06	1.5R X 3	1.8	-	66	6	
New 2SBCBN 004 003 S04	0.2R X 0.4	0.3	-	48	4		New 2SBCBN 030 030 S06	1.5R X 3	1.8	3	66	6	
New 2SBCBN 004 010 S04	0.2R X 0.4	0.3	1	48	4		2SBCBN 030 060 S06	1.5R X 3	1.8	6	66	6	
2SBCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4		2SBCBN 030 080 S06	1.5R X 3	1.8	8	66	6	
New 2SBCBN 005 004 S04	0.25R X 0.5	0.4	-	48	4		2SBCBN 030 100 S06	1.5R X 3	1.8	10	66	6	
New 2SBCBN 005 010 S04	0.25R X 0.5	0.4	1	48	4		2SBCBN 030 120 S06	1.5R X 3	1.8	12	66	6	
2SBCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4		2SBCBN 030 160 S06	1.5R X 3	1.8	16	66	6	
2SBCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4		2SBCBN 030 200 S06	1.5R X 3	1.8	20	66	6	
New 2SBCBN 006 005 S04	0.3R X 0.6	0.5	-	48	4		New 2SBCBN 040 024 S06	2R X 4	2.4	-	66	6	
New 2SBCBN 006 010 S04	0.3R X 0.6	0.5	1	48	4		New 2SBCBN 040 040 S06	2R X 4	2.4	4	66	6	
2SBCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4		2SBCBN 040 060 S06	2R X 4	2.4	6	66	6	
2SBCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4		2SBCBN 040 080 S06	2R X 4	2.4	8	66	6	
2SBCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4		2SBCBN 040 100 S06	2R X 4	2.4	10	66	6	
2SBCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4		2SBCBN 040 120 S06	2R X 4	2.4	12	66	6	
New 2SBCBN 007 005 S04	0.35R X 0.7	0.5	-	48	4		2SBCBN 040 160 S06	2R X 4	2.4	16	66	6	
New 2SBCBN 007 010 S04	0.35R X 0.7	0.5	1	48	4		2SBCBN 040 200 S06	2R X 4	2.4	20	66	6	
2SBCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4		2SBCBN 060 035 S06	3R X 6	3.5	-	83	6	
New 2SBCBN 008 006 S04	0.4R X 0.8	0.6	-	48	4		2SBCBN 060 100 S06	3R X 6	3.5	10	83	6	
New 2SBCBN 008 010 S04	0.4R X 0.8	0.6	1	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								
New 2SBCBN 009 006 S04	0.45R X 0.9	0.6	-	48	4								
New 2SBCBN 009 010 S04	0.45R X 0.9	0.6	1	48	4								
2SBCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4								
New 2SBCBN 010 007 S04	0.5R X 1	0.7	-	48	4								
New 2SBCBN 010 015 S04	0.5R X 1	0.7	1.5	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								
New 2SBCBN 012 008 S04	0.6R X 1.2	0.8	-	48	4								
New 2SBCBN 012 020 S04	0.6R X 1.2	0.8	2	48	4								
2SBCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4								
New 2SBCBN 015 010 S04	0.75R X 1.5	1	-	48	4								
New 2SBCBN 015 020 S04	0.75R X 1.5	1	2	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								
New 2SBCBN 020 012 S04	1R X 2	1.2	-	50	4								
New 2SBCBN 020 030 S04	1R X 2	1.2	3	50	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								

2ECBN CBN, 2 Flutes High Speed Rib End Mills

2날 CBN 고속 가공용 리브 엔드밀



- 고경도강(HRC50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀
- 고품량의 PCBN 소재를 적용하여 장시간 가공이 가능합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.
- C.B.N (Cubic Boron Nitride)
- 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)



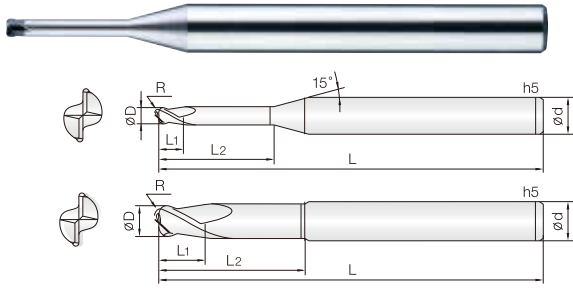
D Size	D Tolerance
ø0.2 ~ 6	+0 - -0.01mm

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



단위: mm

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



- 고경도강(HRc50~72)의 고정밀($\pm 5\mu\text{m}$) 정삭 가공용 엔드밀
- 고함량의 PCBN 소재를 적용하여 장시간 가공이 가능합니다.
- 날부인선의조도가뛰어나경면가공에적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.
- C.B.N (Cubic Boron Nitride)
- **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)



R0.02 ~ 1

312P

D Size	D Tolerance
ø0.2 ~ 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	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
New 2CCBN 002 0002 002	0.2 X R0.02	0.2	-	48	4		2CCBN 008 002 060	0.8 X R0.2	0.6	6	48	4	
New 2CCBN 002 0002 004	0.2 X R0.02	0.4	-	48	4		New 2CCBN 010 0002 007	1 X R0.02	0.7	-	48	4	
New 2CCBN 002 0005 002	0.2 X R0.05	0.2	-	48	4		New 2CCBN 010 0002 015	1 X R0.02	0.7	1.5	48	4	
New 2CCBN 002 0005 004	0.2 X R0.05	0.4	-	48	4		2CCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4	
New 2CCBN 003 0002 003	0.3 X R0.02	0.3	-	48	4		2CCBN 010 0002 040	1 X R0.02	0.7	4	48	4	
New 2CCBN 003 0002 005	0.3 X R0.02	0.5	-	48	4		2CCBN 010 0002 060	1 X R0.02	0.7	6	48	4	
New 2CCBN 003 0005 003	0.3 X R0.05	0.3	-	48	4		2CCBN 010 0002 080	1 X R0.02	0.7	8	48	4	
New 2CCBN 003 0005 005	0.3 X R0.05	0.5	-	48	4		2CCBN 010 0002 100	1 X R0.02	0.7	10	48	4	
New 2CCBN 004 0002 003	0.4 X R0.02	0.3	-	48	4		New 2CCBN 010 0005 007	1 X R0.05	0.7	-	48	4	
2CCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4		New 2CCBN 010 0005 015	1 X R0.05	0.7	1.5	48	4	
2CCBN 004 0002 020	0.4 X R0.02	0.3	2	48	4		2CCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4	
New 2CCBN 004 0005 003	0.4 X R0.05	0.3	-	48	4		2CCBN 010 0005 040	1 X R0.05	0.7	4	48	4	
2CCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4		2CCBN 010 0005 060	1 X R0.05	0.7	6	48	4	
2CCBN 004 0005 020	0.4 X R0.05	0.3	2	48	4		2CCBN 010 0005 080	1 X R0.05	0.7	8	48	4	
New 2CCBN 004 001 003	0.4 X R0.1	0.3	-	48	4		2CCBN 010 0005 100	1 X R0.05	0.7	10	48	4	
2CCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4		New 2CCBN 010 001 007	1 X R0.1	0.7	-	48	4	
2CCBN 004 001 020	0.4 X R0.1	0.3	2	48	4		New 2CCBN 010 001 015	1 X R0.1	0.7	1.5	48	4	
New 2CCBN 005 0005 004	0.5 X R0.05	0.4	-	48	4		2CCBN 010 001 025	1 X R0.1	0.7	2.5	48	4	
2CCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4		2CCBN 010 001 040	1 X R0.1	0.7	4	48	4	
2CCBN 005 0005 020	0.5 X R0.05	0.4	2	48	4		2CCBN 010 001 060	1 X R0.1	0.7	6	48	4	
2CCBN 005 0005 030	0.5 X R0.05	0.4	3	48	4		2CCBN 010 001 080	1 X R0.1	0.7	8	48	4	
2CCBN 005 0005 040	0.5 X R0.05	0.4	4	48	4		2CCBN 010 001 100	1 X R0.1	0.7	10	48	4	
2CCBN 005 0005 050	0.5 X R0.05	0.4	5	48	4		New 2CCBN 010 002 007	1 X R0.2	0.7	-	48	4	
New 2CCBN 005 001 004	0.5 X R0.1	0.4	-	48	4		New 2CCBN 010 002 015	1 X R0.2	0.7	1.5	48	4	
2CCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4		2CCBN 010 002 025	1 X R0.2	0.7	2.5	48	4	
2CCBN 005 001 020	0.5 X R0.1	0.4	2	48	4		2CCBN 010 002 040	1 X R0.2	0.7	4	48	4	
2CCBN 005 001 030	0.5 X R0.1	0.4	3	48	4		2CCBN 010 002 060	1 X R0.2	0.7	6	48	4	
2CCBN 005 001 040	0.5 X R0.1	0.4	4	48	4		2CCBN 010 002 080	1 X R0.2	0.7	8	48	4	
2CCBN 005 001 050	0.5 X R0.1	0.4	5	48	4		2CCBN 010 002 100	1 X R0.2	0.7	10	48	4	
New 2CCBN 006 0005 005	0.6 X R0.05	0.5	-	48	4		New 2CCBN 010 003 007	1 X R0.3	0.7	-	48	4	
2CCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4		New 2CCBN 010 003 015	1 X R0.3	0.7	1.5	48	4	
2CCBN 006 0005 030	0.6 X R0.05	0.5	3	48	4		2CCBN 010 003 025	1 X R0.3	0.7	2.5	48	4	
2CCBN 006 0005 040	0.6 X R0.05	0.5	4	48	4		2CCBN 010 003 040	1 X R0.3	0.7	4	48	4	
2CCBN 006 0005 060	0.6 X R0.05	0.5	6	48	4		2CCBN 010 003 060	1 X R0.3	0.7	6	48	4	
New 2CCBN 006 001 005	0.6 X R0.1	0.5	-	48	4		2CCBN 010 003 080	1 X R0.3	0.7	8	48	4	
2CCBN 006 001 020	0.6 X R0.1	0.5	2	48	4		2CCBN 010 003 100	1 X R0.3	0.7	10	48	4	
2CCBN 006 001 030	0.6 X R0.1	0.5	3	48	4		New 2CCBN 012 001 007	1.2 X R0.1	0.7	-	48	4	
2CCBN 006 001 040	0.6 X R0.1	0.5	4	48	4		New 2CCBN 012 001 015	1.2 X R0.1	0.7	1.5	48	4	
2CCBN 006 001 060	0.6 X R0.1	0.5	6	48	4		2CCBN 012 001 030	1.2 X R0.1	0.7	3	48	4	
New 2CCBN 007 001 005	0.7 X R0.1	0.5	-	48	4		2CCBN 012 001 040	1.2 X R0.1	0.7	4	48	4	
2CCBN 007 001 025	0.7 X R0.1	0.5	2.5	48	4		2CCBN 012 001 060	1.2 X R0.1	0.7	6	48	4	
2CCBN 007 001 040	0.7 X R0.1	0.5	4	48	4		2CCBN 012 001 080	1.2 X R0.1	0.7	8	48	4	
2CCBN 007 001 060	0.7 X R0.1	0.5	6	48	4		2CCBN 012 001 100	1.2 X R0.1	0.7	10	48	4	
New 2CCBN 008 001 006	0.8 X R0.1	0.6	-	48	4		New 2CCBN 012 002 007	1.2 X R0.2	0.7	-	48	4	
2CCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4		New 2CCBN 012 002 015	1.2 X R0.2	0.7	1.5	48	4	
2CCBN 008 001 040	0.8 X R0.1	0.6	4	48	4		2CCBN 012 002 030	1.2 X R0.2	0.7	3	48	4	
2CCBN 008 001 060	0.8 X R0.1	0.6	6	48	4		2CCBN 012 002 040	1.2 X R0.2	0.7	4	48	4	
New 2CCBN 008 002 006	0.8 X R0.2	0.6	-	48	4		2CCBN 012 002 060	1.2 X R0.2	0.7	6	48	4	
2CCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4		2CCBN 012 002 080	1.2 X R0.2	0.7	8	48	4	
2CCBN 008 002 040	0.8 X R0.2	0.6	4	48	4		2CCBN 012 002 100	1.2 X R0.2	0.7	10	48	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
New 2CCBN 012 003 007	1.2 X R0.3	0.7	-	48	4		2CCBN 020 002 080	2 X R0.2	0.9	8	50	4	
New 2CCBN 012 003 015	1.2 X R0.3	0.7	1.5	48	4		2CCBN 020 002 100	2 X R0.2	0.9	10	50	4	
2CCBN 012 003 030	1.2 X R0.3	0.7	3	48	4		New 2CCBN 020 003 009	2 X R0.3	0.9	-	50	4	
2CCBN 012 003 040	1.2 X R0.3	0.7	4	48	4		New 2CCBN 020 003 020	2 X R0.3	0.9	2	50	4	
2CCBN 012 003 060	1.2 X R0.3	0.7	6	48	4		2CCBN 020 003 030	2 X R0.3	0.9	3	50	4	
2CCBN 012 003 080	1.2 X R0.3	0.7	8	48	4		2CCBN 020 003 060	2 X R0.3	0.9	6	50	4	
2CCBN 012 003 100	1.2 X R0.3	0.7	10	48	4		2CCBN 020 003 080	2 X R0.3	0.9	8	50	4	
New 2CCBN 015 0002 008	1.5 X R0.02	0.8	-	48	4		2CCBN 020 003 100	2 X R0.3	0.9	10	50	4	
New 2CCBN 015 0002 015	1.5 X R0.02	0.8	1.5	48	4		New 2CCBN 020 005 009	2 X R0.5	0.9	-	50	4	
2CCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4		New 2CCBN 020 005 020	2 X R0.5	0.9	2	50	4	
2CCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4		2CCBN 020 005 030	2 X R0.5	0.9	3	50	4	
2CCBN 015 0002 060	1.5 X R0.02	0.8	6	48	4		2CCBN 020 005 060	2 X R0.5	0.9	6	50	4	
2CCBN 015 0002 080	1.5 X R0.02	0.8	8	48	4		2CCBN 020 005 080	2 X R0.5	0.9	8	50	4	
2CCBN 015 0002 100	1.5 X R0.02	0.8	10	48	4		2CCBN 020 005 100	2 X R0.5	0.9	10	50	4	
New 2CCBN 015 0005 008	1.5 X R0.05	0.8	-	48	4		New 2CCBN 025 001 012	2.5 X R0.1	1.2	-	66	6	
New 2CCBN 015 0005 015	1.5 X R0.05	0.8	1.5	48	4		New 2CCBN 025 001 030	2.5 X R0.1	1.2	3	66	6	
2CCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4		2CCBN 025 001 060	2.5 X R0.1	1.2	6	66	6	
2CCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4		2CCBN 025 001 100	2.5 X R0.1	1.2	10	66	6	
2CCBN 015 0005 060	1.5 X R0.05	0.8	6	48	4		New 2CCBN 025 002 012	2.5 X R0.2	1.2	-	66	6	
2CCBN 015 0005 080	1.5 X R0.05	0.8	8	48	4		New 2CCBN 025 002 030	2.5 X R0.2	1.2	3	66	6	
2CCBN 015 0005 100	1.5 X R0.05	0.8	10	48	4		2CCBN 025 002 060	2.5 X R0.2	1.2	6	66	6	
New 2CCBN 015 001 008	1.5 X R0.1	0.8	-	48	4		2CCBN 025 002 100	2.5 X R0.2	1.2	10	66	6	
New 2CCBN 015 001 015	1.5 X R0.1	0.8	1.5	48	4		New 2CCBN 025 003 012	2.5 X R0.3	1.2	-	66	6	
2CCBN 015 001 030	1.5 X R0.1	0.8	3	48	4		New 2CCBN 025 003 030	2.5 X R0.3	1.2	3	66	6	
2CCBN 015 001 040	1.5 X R0.1	0.8	4	48	4		2CCBN 025 003 060	2.5 X R0.3	1.2	6	66	6	
2CCBN 015 001 060	1.5 X R0.1	0.8	6	48	4		2CCBN 025 003 100	2.5 X R0.3	1.2	10	66	6	
2CCBN 015 001 080	1.5 X R0.1	0.8	8	48	4		New 2CCBN 030 001 012	3 X R0.1	1.2	-	66	6	
2CCBN 015 001 100	1.5 X R0.1	0.8	10	48	4		New 2CCBN 030 001 030	3 X R0.1	1.2	3	66	6	
New 2CCBN 015 002 008	1.5 X R0.2	0.8	-	48	4		2CCBN 030 001 060	3 X R0.1	1.2	6	66	6	
New 2CCBN 015 002 015	1.5 X R0.2	0.8	1.5	48	4		2CCBN 030 001 100	3 X R0.1	1.2	10	66	6	
2CCBN 015 002 030	1.5 X R0.2	0.8	3	48	4		2CCBN 030 001 160	3 X R0.1	1.2	16	66	6	
2CCBN 015 002 040	1.5 X R0.2	0.8	4	48	4		2CCBN 030 001 200	3 X R0.1	1.2	20	66	6	
2CCBN 015 002 060	1.5 X R0.2	0.8	6	48	4		New 2CCBN 030 002 012	3 X R0.2	1.2	-	66	6	
2CCBN 015 002 080	1.5 X R0.2	0.8	8	48	4		New 2CCBN 030 002 030	3 X R0.2	1.2	3	66	6	
2CCBN 015 002 100	1.5 X R0.2	0.8	10	48	4		2CCBN 030 002 060	3 X R0.2	1.2	6	66	6	
New 2CCBN 015 003 008	1.5 X R0.3	0.8	-	48	4		2CCBN 030 002 100	3 X R0.2	1.2	10	66	6	
New 2CCBN 015 003 015	1.5 X R0.3	0.8	1.5	48	4		2CCBN 030 002 160	3 X R0.2	1.2	16	66	6	
2CCBN 015 003 030	1.5 X R0.3	0.8	3	48	4		2CCBN 030 002 200	3 X R0.2	1.2	20	66	6	
2CCBN 015 003 040	1.5 X R0.3	0.8	4	48	4		New 2CCBN 030 003 012	3 X R0.3	1.2	-	66	6	
2CCBN 015 003 060	1.5 X R0.3	0.8	6	48	4		New 2CCBN 030 003 030	3 X R0.3	1.2	3	66	6	
2CCBN 015 003 080	1.5 X R0.3	0.8	8	48	4		2CCBN 030 003 060	3 X R0.3	1.2	6	66	6	
2CCBN 015 003 100	1.5 X R0.3	0.8	10	48	4		2CCBN 030 003 100	3 X R0.3	1.2	10	66	6	
New 2CCBN 020 0002 009	2 X R0.02	0.9	-	50	4		2CCBN 030 003 160	3 X R0.3	1.2	16	66	6	
New 2CCBN 020 0002 020	2 X R0.02	0.9	2	50	4		2CCBN 030 003 200	3 X R0.3	1.2	20	66	6	
2CCBN 020 0002 030	2 X R0.02	0.9	3	50	4		New 2CCBN 030 005 012	3 X R0.5	1.2	-	66	6	
2CCBN 020 0002 060	2 X R0.02	0.9	6	50	4		New 2CCBN 030 005 030	3 X R0.5	1.2	3	66	6	
2CCBN 020 0002 080	2 X R0.02	0.9	8	50	4		2CCBN 030 005 060	3 X R0.5	1.2	6	66	6	
2CCBN 020 0002 100	2 X R0.02	0.9	10	50	4		2CCBN 030 005 100	3 X R0.5	1.2	10	66	6	
New 2CCBN 020 0005 009	2 X R0.05	0.9	-	50	4		2CCBN 030 005 160	3 X R0.5	1.2	16	66	6	
New 2CCBN 020 0005 020	2 X R0.05	0.9	2	50	4		2CCBN 030 005 200	3 X R0.5	1.2	20	66	6	
2CCBN 020 0005 030	2 X R0.05	0.9	3	50	4		New 2CCBN 030 010 012	3 X R1	1.2	-	66	6	
2CCBN 020 0005 060	2 X R0.05	0.9	6	50	4		New 2CCBN 030 010 030	3 X R1	1.2	3	66	6	
2CCBN 020 0005 080	2 X R0.05	0.9	8	50	4		2CCBN 030 010 060	3 X R1	1.2	6	66	6	
2CCBN 020 0005 100	2 X R0.05	0.9	10	50	4		2CCBN 030 010 100	3 X R1	1.2	10	66	6	
New 2CCBN 020 001 009	2 X R0.1	0.9	-	50	4		2CCBN 030 010 160	3 X R1	1.2	16	66	6	
New 2CCBN 020 001 020	2 X R0.1	0.9	2	50	4		2CCBN 030 010 200	3 X R1	1.2	20	66	6	
2CCBN 020 001 030	2 X R0.1	0.9	3	50	4		New 2CCBN 040 001 015	4 X R0.1	1.5	-	66	6	
2CCBN 020 001 060	2 X R0.1	0.9	6	50	4		New 2CCBN 040 001 030	4 X R0.1	1.5	3	66	6	
2CCBN 020 001 080	2 X R0.1	0.9	8	50	4		2CCBN 040 001 060	4 X R0.1	1.5	6	66	6	
2CCBN 020 001 100	2 X R0.1	0.9	10	50	4		2CCBN 040 001 100	4 X R0.1	1.5	10	66	6	
New 2CCBN 020 002 009	2 X R0.2	0.9	-	50	4		2CCBN 040 001 160	4 X R0.1	1.5	16	66	6	
New 2CCBN 020 002 020	2 X R0.2	0.9	2	50	4		New 2CCBN 040 002 015	4 X R0.2	1.5	-	66	6	
2CCBN 020 002 030	2 X R0.2	0.9	3	50	4		New 2CCBN 040 002 030	4 X R0.2	1.5	3	66	6	
2CCBN 020 002 060	2 X R0.2	0.9	6	50	4		2CCBN 040 002 060	4 X R0.2	1.5	6	66	6	

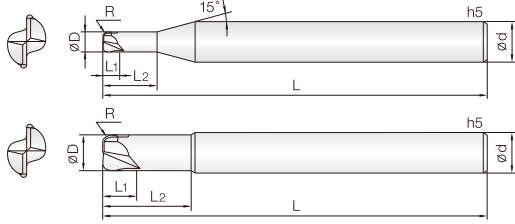
단위: mm

Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
2CCBN 040 002 100	4 X R0.2	1.5	10	66	6								
2CCBN 040 002 160	4 X R0.2	1.5	16	66	6								
New 2CCBN 040 003 015	4 X R0.3	1.5	-	66	6								
New 2CCBN 040 003 030	4 X R0.3	1.5	3	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								
New 2CCBN 040 005 015	4 X R0.5	1.5	-	66	6								
New 2CCBN 040 005 030	4 X R0.5	1.5	3	66	6								
2CCBN 040 005 060	4 X R0.5	1.5	6	66	6								
2CCBN 040 005 100	4 X R0.5	1.5	10	66	6								
2CCBN 040 005 160	4 X R0.5	1.5	16	66	6								
New 2CCBN 040 010 015	4 X R1	1.5	-	66	6								
New 2CCBN 040 010 030	4 X R1	1.5	3	66	6								
2CCBN 040 010 060	4 X R1	1.5	6	66	6								
2CCBN 040 010 100	4 X R1	1.5	10	66	6								
2CCBN 040 010 160	4 X R1	1.5	16	66	6								
2CCBN 060 003 030	6 X R0.3	3	-	83	6								
2CCBN 060 003 150	6 X R0.3	3	15	83	6								
2CCBN 060 005 030	6 X R0.5	3	-	83	6								
2CCBN 060 005 150	6 X R0.5	3	15	83	6								
2CCBN 060 010 030	6 X R1	3	-	83	6								
2CCBN 060 010 150	6 X R1	3	15	83	6								

2SCCBN

CBN, 2 Flutes High Speed Straight Rib Corner Radius End Mills

2날 CBN 고속가공용 직선날 리브 볼 엔드밀



2

CBN

R

0°

CUTTING DATA

R0.02 ~ 1 312P

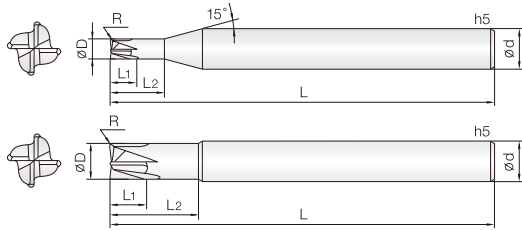
- 고정도강(HRc50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀
- 고품질의 PCBN 소재를 적용하여 장시간 가공이 가능합니다.
- 날부 스트레이트 타입 형상으로 치핑을 더욱 최소화 하였습니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 다양한 유효장을 적용함으로써 최상의 작업이 가능합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다.
- C.B.N (Cubic Boron Nitride)
- **PCBN ENDMILL for precise finishing (±5μm) of hardened 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)

D Size	D Tolerance
Ø0.2 ~ 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	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
2SCCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4		2SCCBN 030 005 060	3 X R0.5	1.2	6	66	6	
2SCCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4		2SCCBN 030 005 100	3 X R0.5	1.2	10	66	6	
2SCCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4		2SCCBN 030 005 160	3 X R0.5	1.2	16	66	6	
2SCCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4		2SCCBN 030 010 060	3 X R1	1.2	6	66	6	
2SCCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4		2SCCBN 030 010 100	3 X R1	1.2	10	66	6	
2SCCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4		2SCCBN 030 010 160	3 X R1	1.2	16	66	6	
2SCCBN 006 001 020	0.6 X R0.1	0.5	2	48	4		2SCCBN 040 001 060	4 X R0.1	1.5	6	66	6	
2SCCBN 008 001 020	0.8 X R0.1	0.6	2	48	4		2SCCBN 040 001 100	4 X R0.1	1.5	10	66	6	
2SCCBN 008 002 020	0.8 X R0.2	0.6	2	48	4		2SCCBN 040 001 160	4 X R0.1	1.5	16	66	6	
2SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4		2SCCBN 040 002 060	4 X R0.2	1.5	6	66	6	
2SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4		2SCCBN 040 002 100	4 X R0.2	1.5	10	66	6	
2SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4		2SCCBN 040 002 160	4 X R0.2	1.5	16	66	6	
2SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4		2SCCBN 040 003 060	4 X R0.3	1.5	6	66	6	
2SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4		2SCCBN 040 003 100	4 X R0.3	1.5	10	66	6	
2SCCBN 010 001 040	1 X R0.1	0.7	4	48	4		2SCCBN 040 003 160	4 X R0.3	1.5	16	66	6	
2SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4		2SCCBN 040 005 060	4 X R0.5	1.5	6	66	6	
2SCCBN 010 002 040	1 X R0.2	0.7	4	48	4		2SCCBN 040 005 100	4 X R0.5	1.5	10	66	6	
2SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4		2SCCBN 040 005 160	4 X R0.5	1.5	16	66	6	
2SCCBN 010 003 040	1 X R0.3	0.7	4	48	4		2SCCBN 040 010 060	4 X R1	1.5	6	66	6	
2SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4		2SCCBN 040 010 100	4 X R1	1.5	10	66	6	
2SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4		2SCCBN 040 010 160	4 X R1	1.5	16	66	6	
2SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4		2SCCBN 060 003 030	6 X R0.3	3	-	83	6	
2SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4		2SCCBN 060 003 150	6 X R0.3	3	15	83	6	
2SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4		2SCCBN 060 005 030	6 X R0.5	3	-	83	6	
2SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4		2SCCBN 060 005 150	6 X R0.5	3	15	83	6	
2SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4		2SCCBN 060 010 030	6 X R1	3	-	83	6	
2SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4		2SCCBN 060 010 150	6 X R1	3	15	83	6	
2SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4								
2SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4								
2SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4								
2SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4								
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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								
2SCCBN 030 002 060	3 X R0.2	1.2	6	66	6								
2SCCBN 030 002 100	3 X R0.2	1.2	10	66	6								
2SCCBN 030 003 060	3 X R0.3	1.2	6	66	6								
2SCCBN 030 003 100	3 X R0.3	1.2	10	66	6								

4날 CBN 고속 가공용 리브 엔드밀



4

CBN

R

±0.005

30°

Helix Angle

C

CUTTING DATA

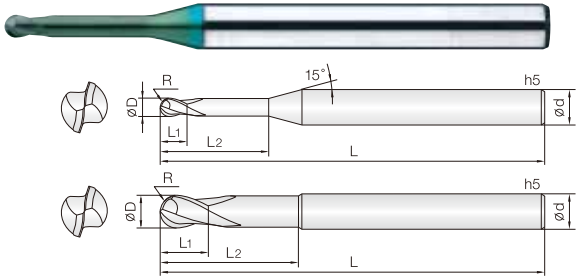
R0.1 ~ 1 312P

- 고경도강(HRC50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀
- 고함량의 PCBN 소재를 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.
- C.B.N (Cubic Boron Nitride)
- **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)

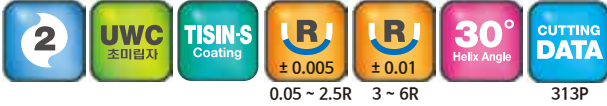
D Size	D Tolerance
Ø0.8 ~ 6	+0 - -0.01mm

단위: mm

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



- **고경도강(HRC52~70), 프리하든강 계열의 고정밀 가공 엔드밀**
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 μ 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 μ m) WC grade.



0.05 ~ 2.5R 3 ~ 6R 313P

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	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프크 Shank Dia d	비고
2JJRB 001 003 S04	0.05R X 0.1	0.15	0.3	40	4		2JJRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	
2JJRB 001 005 S04	0.05R X 0.1	0.15	0.5	40	4		2JJRB 005 060 S06	0.25R X 0.5	0.5	6	50	6	
New 2JJRB 0015 003 S04	0.075R X 0.15	0.15	0.3	40	4		2JJRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	
New 2JJRB 0015 005 S04	0.075R X 0.15	0.15	0.5	40	4		2JJRB 005 100 S04	0.25R X 0.5	0.5	10	45	4	
New 2JJRB 0015 010 S04	0.075R X 0.15	0.15	1	40	4		2JJRB 005 120 S04	0.25R X 0.5	0.5	12	45	4	
2JJRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2JJRB 006 010 S04	0.3R X 0.6	0.6	1	45	4	
2JJRB 002 010 S04	0.1R X 0.2	0.2	1	40	4		2JJRB 006 010 S06	0.3R X 0.6	0.6	1	50	6	
2JJRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2JJRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2JJRB 002 020 S04	0.1R X 0.2	0.2	2	40	4		2JJRB 006 020 S06	0.3R X 0.6	0.6	2	50	6	
2JJRB 002 025 S04	0.1R X 0.2	0.2	2.5	40	4		2JJRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
2JJRB 002 030 S04	0.1R X 0.2	0.2	3	40	4		2JJRB 006 030 S06	0.3R X 0.6	0.6	3	50	6	
New 2JJRB 0025 005 S04	0.125R X 0.25	0.25	0.5	40	4		2JJRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
New 2JJRB 0025 010 S04	0.125R X 0.25	0.25	1	40	4		2JJRB 006 040 S06	0.3R X 0.6	0.6	4	50	6	
New 2JJRB 0025 015 S04	0.125R X 0.25	0.25	1.5	40	4		2JJRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
New 2JJRB 0025 020 S04	0.125R X 0.25	0.25	2	40	4		2JJRB 006 050 S06	0.3R X 0.6	0.6	5	50	6	
New 2JJRB 0025 025 S04	0.125R X 0.25	0.25	2.5	40	4		2JJRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
New 2JJRB 0025 030 S04	0.125R X 0.25	0.25	3	40	4		2JJRB 006 060 S06	0.3R X 0.6	0.6	6	50	6	
2JJRB 003 010 S04	0.15R X 0.3	0.3	1	40	4		2JJRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2JJRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2JJRB 006 080 S06	0.3R X 0.6	0.6	8	50	6	
2JJRB 003 020 S04	0.15R X 0.3	0.3	2	40	4		2JJRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2JJRB 003 025 S04	0.15R X 0.3	0.3	2.5	40	4		2JJRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2JJRB 003 030 S04	0.15R X 0.3	0.3	3	40	4		2JJRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
2JJRB 003 035 S04	0.15R X 0.3	0.3	3.5	40	4		2JJRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2JJRB 003 040 S04	0.15R X 0.3	0.3	4	40	4		2JJRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2JJRB 003 050 S04	0.15R X 0.3	0.3	5	40	4		2JJRB 007 060 S04	0.35R X 0.7	0.7	6	45	4	
2JJRB 004 010 S04	0.2R X 0.4	0.4	1	40	4		2JJRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
2JJRB 004 015 S04	0.2R X 0.4	0.4	1.5	40	4		2JJRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2JJRB 004 020 S04	0.2R X 0.4	0.4	2	40	4		2JJRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2JJRB 004 025 S04	0.2R X 0.4	0.4	2.5	40	4		2JJRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2JJRB 004 030 S04	0.2R X 0.4	0.4	3	40	4		2JJRB 008 020 S06	0.4R X 0.8	0.8	2	50	6	
2JJRB 004 035 S04	0.2R X 0.4	0.4	3.5	40	4		2JJRB 008 030 S04	0.4R X 0.8	0.8	3	45	4	
2JJRB 004 040 S04	0.2R X 0.4	0.4	4	40	4		2JJRB 008 030 S06	0.4R X 0.8	0.8	3	50	6	
2JJRB 004 045 S04	0.2R X 0.4	0.4	4.5	40	4		2JJRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2JJRB 004 050 S04	0.2R X 0.4	0.4	5	40	4		2JJRB 008 040 S06	0.4R X 0.8	0.8	4	50	6	
2JJRB 004 060 S04	0.2R X 0.4	0.4	6	40	4		2JJRB 008 050 S04	0.4R X 0.8	0.8	5	45	4	
2JJRB 004 080 S04	0.2R X 0.4	0.4	8	40	4		2JJRB 008 050 S06	0.4R X 0.8	0.8	5	50	6	
2JJRB 005 010 S04	0.25R X 0.5	0.5	1	45	4		2JJRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2JJRB 005 010 S06	0.25R X 0.5	0.5	1	50	6		2JJRB 008 060 S06	0.4R X 0.8	0.8	6	50	6	
2JJRB 005 015 S04	0.25R X 0.5	0.5	1.5	45	4		2JJRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2JJRB 005 020 S04	0.25R X 0.5	0.5	2	45	4		2JJRB 008 080 S06	0.4R X 0.8	0.8	8	50	6	
2JJRB 005 020 S06	0.25R X 0.5	0.5	2	50	6		2JJRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2JJRB 005 025 S04	0.25R X 0.5	0.5	2.5	45	4		2JJRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2JJRB 005 030 S04	0.25R X 0.5	0.5	3	45	4		2JJRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2JJRB 005 030 S06	0.25R X 0.5	0.5	3	50	6		2JJRB 009 060 S04	0.45R X 0.9	0.9	6	45	4	
2JJRB 005 035 S04	0.25R X 0.5	0.5	3.5	45	4		2JJRB 009 080 S04	0.45R X 0.9	0.9	8	45	4	
2JJRB 005 040 S04	0.25R X 0.5	0.5	4	45	4		2JJRB 009 100 S04	0.45R X 0.9	0.9	10	50	4	
2JJRB 005 040 S06	0.25R X 0.5	0.5	4	50	6		2JJRB 009 120 S04	0.45R X 0.9	0.9	12	50	4	
2JJRB 005 045 S04	0.25R X 0.5	0.5	4.5	45	4		2JJRB 010 020 S04	0.5R X 1	1	2	45	4	
2JJRB 005 050 S04	0.25R X 0.5	0.5	5	45	4		2JJRB 010 020 S06	0.5R X 1	1	2	50	6	
2JJRB 005 050 S06	0.25R X 0.5	0.5	5	50	6		2JJRB 010 030 S04	0.5R X 1	1	3	45	4	

단위: mm

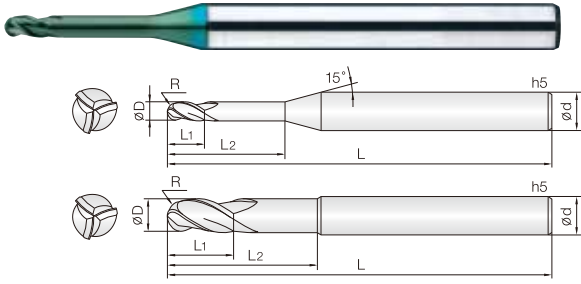
Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 010 030 S06	0.5R X 1	1	3	50	6		2JJRB 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2JJRB 010 040 S04	0.5R X 1	1	4	45	4		2JJRB 015 160 S06	0.75R X 1.5	1.5	16	60	6	
2JJRB 010 040 S06	0.5R X 1	1	4	50	6		2JJRB 015 180 S04	0.75R X 1.5	1.5	18	50	4	
2JJRB 010 050 S04	0.5R X 1	1	5	45	4		2JJRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2JJRB 010 050 S06	0.5R X 1	1	5	50	6		2JJRB 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2JJRB 010 060 S04	0.5R X 1	1	6	45	4		2JJRB 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2JJRB 010 060 S06	0.5R X 1	1	6	50	6		2JJRB 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2JJRB 010 080 S04	0.5R X 1	1	8	45	4		2JJRB 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2JJRB 010 080 S06	0.5R X 1	1	8	50	6		2JJRB 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2JJRB 010 100 S04	0.5R X 1	1	10	50	4		2JJRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2JJRB 010 100 S06	0.5R X 1	1	10	50	6		2JJRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2JJRB 010 120 S04	0.5R X 1	1	12	50	4		2JJRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2JJRB 010 120 S06	0.5R X 1	1	12	50	6		2JJRB 018 060 S04	0.9R X 1.8	1.8	6	45	4	
2JJRB 010 140 S04	0.5R X 1	1	14	50	4		2JJRB 018 080 S04	0.9R X 1.8	1.8	8	45	4	
2JJRB 010 160 S04	0.5R X 1	1	16	50	4		2JJRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	
2JJRB 010 180 S04	0.5R X 1	1	18	50	4		2JJRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2JJRB 010 200 S04	0.5R X 1	1	20	50	4		2JJRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
2JJRB 010 220 S04	0.5R X 1	1	22	60	4		2JJRB 020 040 S04	1R X 2	2	4	45	4	
2JJRB 010 250 S04	0.5R X 1	1	25	60	4		2JJRB 020 040 S06	1R X 2	2	4	50	6	
2JJRB 012 040 S04	0.6R X 1.2	1.2	4	45	4		2JJRB 020 060 S04	1R X 2	2	6	45	4	
2JJRB 012 040 S06	0.6R X 1.2	1.2	4	50	6		2JJRB 020 060 S06	1R X 2	2	6	50	6	
2JJRB 012 060 S04	0.6R X 1.2	1.2	6	45	4		2JJRB 020 080 S04	1R X 2	2	8	45	4	
2JJRB 012 060 S06	0.6R X 1.2	1.2	6	50	6		2JJRB 020 080 S06	1R X 2	2	8	50	6	
2JJRB 012 080 S04	0.6R X 1.2	1.2	8	45	4		2JJRB 020 100 S04	1R X 2	2	10	50	4	
2JJRB 012 080 S06	0.6R X 1.2	1.2	8	50	6		2JJRB 020 100 S06	1R X 2	2	10	50	6	
2JJRB 012 100 S04	0.6R X 1.2	1.2	10	50	4		2JJRB 020 120 S04	1R X 2	2	12	50	4	
2JJRB 012 100 S06	0.6R X 1.2	1.2	10	50	6		2JJRB 020 120 S06	1R X 2	2	12	50	6	
2JJRB 012 120 S04	0.6R X 1.2	1.2	12	50	4		2JJRB 020 140 S04	1R X 2	2	14	50	4	
2JJRB 012 120 S06	0.6R X 1.2	1.2	12	50	6		2JJRB 020 140 S06	1R X 2	2	14	50	6	
2JJRB 012 160 S04	0.6R X 1.2	1.2	16	50	4		2JJRB 020 160 S04	1R X 2	2	16	50	4	
2JJRB 012 200 S04	0.6R X 1.2	1.2	20	50	4		2JJRB 020 160 S06	1R X 2	2	16	60	6	
2JJRB 012 240 S04	0.6R X 1.2	1.2	24	60	4		2JJRB 020 180 S04	1R X 2	2	18	50	4	
2JJRB 014 060 S04	0.7R X 1.4	1.4	6	45	4		2JJRB 020 180 S06	1R X 2	2	18	60	6	
2JJRB 014 080 S04	0.7R X 1.4	1.4	8	45	4		2JJRB 020 200 S04	1R X 2	2	20	50	4	
2JJRB 014 120 S04	0.7R X 1.4	1.4	12	50	4		2JJRB 020 200 S06	1R X 2	2	20	60	6	
2JJRB 014 160 S04	0.7R X 1.4	1.4	16	50	4		2JJRB 020 220 S04	1R X 2	2	22	60	4	
2JJRB 015 030 S04	0.75R X 1.5	1.5	3	45	4		2JJRB 020 250 S04	1R X 2	2	25	60	4	
2JJRB 015 030 S06	0.75R X 1.5	1.5	3	50	6		2JJRB 020 300 S04	1R X 2	2	30	60	4	
2JJRB 015 040 S04	0.75R X 1.5	1.5	4	45	4		2JJRB 025 080 S04	1.25R X 2.5	2.5	8	45	4	
2JJRB 015 040 S06	0.75R X 1.5	1.5	4	50	6		2JJRB 025 080 S06	1.25R X 2.5	2.5	8	50	6	
2JJRB 015 060 S04	0.75R X 1.5	1.5	6	45	4		2JJRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2JJRB 015 060 S06	0.75R X 1.5	1.5	6	50	6		2JJRB 025 100 S06	1.25R X 2.5	2.5	10	50	6	
2JJRB 015 080 S04	0.75R X 1.5	1.5	8	45	4		2JJRB 025 120 S04	1.25R X 2.5	2.5	12	50	4	
2JJRB 015 080 S06	0.75R X 1.5	1.5	8	50	6		2JJRB 025 120 S06	1.25R X 2.5	2.5	12	50	6	
2JJRB 015 100 S04	0.75R X 1.5	1.5	10	50	4		2JJRB 025 160 S04	1.25R X 2.5	2.5	16	50	4	
2JJRB 015 100 S06	0.75R X 1.5	1.5	10	50	6		2JJRB 025 160 S06	1.25R X 2.5	2.5	16	60	6	
2JJRB 015 120 S04	0.75R X 1.5	1.5	12	50	4		2JJRB 025 200 S04	1.25R X 2.5	2.5	20	60	4	
2JJRB 015 120 S06	0.75R X 1.5	1.5	12	50	6		2JJRB 025 200 S06	1.25R X 2.5	2.5	20	60	6	
2JJRB 015 140 S04	0.75R X 1.5	1.5	14	50	4		2JJRB 025 250 S04	1.25R X 2.5	2.5	25	60	4	
2JJRB 015 140 S06	0.75R X 1.5	1.5	14	50	6		2JJRB 025 300 S04	1.25R X 2.5	2.5	30	70	4	

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
2JJRB 030 060 S06	1.5R X 3	3	6	50	6								
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								
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								
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								
2JJRB 050 500 S06	2.5R X 5	6	50	100	6								
2JJRB 060 150 S06	3R X 6	10	15	55	6								
2JJRB 060 300 100	3R X 6	10	30	100	6								
2JJRB 060 500 120	3R X 6	10	50	120	6								
2JJRB 080 250 060	4R X 8	12	25	60	8								
2JJRB 080 300 100	4R X 8	12	30	100	8								
2JJRB 080 600 120	4R X 8	12	60	120	8								
2JJRB 100 300 070	5R X 10	16	30	70	10								
2JJRB 100 450 100	5R X 10	16	45	100	10								
2JJRB 100 600 130	5R X 10	16	60	130	10								
2JJRB 120 300 075	6R X 12	18	30	75	12								
2JJRB 120 500 110	6R X 12	18	50	110	12								
2JJRB 120 600 130	6R X 12	18	60	130	12								



3날 고정도재 가공용 제이제이 리브 볼 엔드밀



- 고정도강(HRc52~70), 프리하든강 계열의 고정밀 가공 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.

3

UWC
초미립자

TISIN-S
Coating

R
± 0.005

R
± 0.007

R
± 0.01

30°
Helix Angle

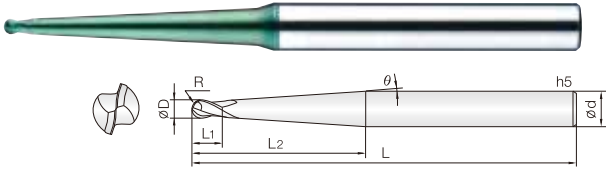
CUTTING
DATA

0.5 ~ 1.25R 1.5 ~ 3R 4 ~ 6R 315P

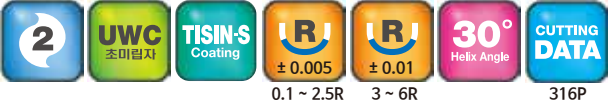
D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3JJRB 010 040 S04	0.5R X 1	1.2	4	50	4								
3JJRB 010 060 S04	0.5R X 1	1.2	6	50	4								
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								
3JJRB 120 350 075	6R X 12	18	35	75	12								
3JJRB 120 600 110	6R X 12	18	60	110	12								

JJ series



- 고정도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고풍량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장을 테이퍼 설계하여 깊은 홈 작업시 목부 파손 및 떨림을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금 (0.2 μ m)을채택, 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.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.



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

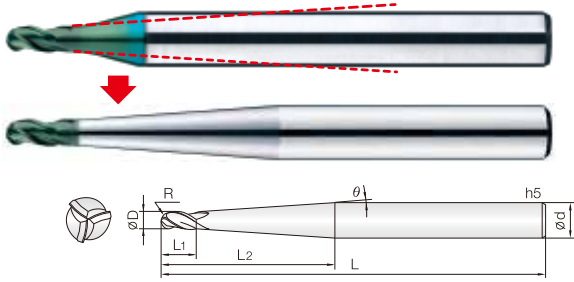
Order Number	날경		각도	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	셱크 Shank Dia d	비고	Order Number	날경		각도	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	셱크 Shank Dia d	비고
	R	D								R	D						
2JJTB 002 003 015	0.1R	X 0.2	0° 30'	0.2	1.5	40	4		2JJTB 004 013 030	0.2R	X 0.4	1° 30'	0.4	3	40	4	
2JJTB 002 003 020	0.1R	X 0.2	0° 30'	0.2	2	40	4		2JJTB 004 013 040	0.2R	X 0.4	1° 30'	0.4	4	40	4	
2JJTB 002 010 015	0.1R	X 0.2	1°	0.2	1.5	40	4		2JJTB 004 013 050	0.2R	X 0.4	1° 30'	0.4	5	40	4	
2JJTB 002 010 020	0.1R	X 0.2	1°	0.2	2	40	4		2JJTB 004 013 060	0.2R	X 0.4	1° 30'	0.4	6	40	4	
2JJTB 002 010 025	0.1R	X 0.2	1°	0.2	2.5	40	4		New 2JJTB 004 013 080	0.2R	X 0.4	1° 30'	0.4	8	45	4	
2JJTB 002 013 015	0.1R	X 0.2	1° 30'	0.2	1.5	40	4		2JJTB 004 020 020	0.2R	X 0.4	2°	0.4	2	40	4	
2JJTB 002 013 020	0.1R	X 0.2	1° 30'	0.2	2	40	4		2JJTB 004 020 030	0.2R	X 0.4	2°	0.4	3	40	4	
2JJTB 002 013 025	0.1R	X 0.2	1° 30'	0.2	2.5	40	4		2JJTB 004 020 040	0.2R	X 0.4	2°	0.4	4	40	4	
2JJTB 002 020 015	0.1R	X 0.2	2°	0.2	1.5	40	4		2JJTB 004 020 050	0.2R	X 0.4	2°	0.4	5	40	4	
2JJTB 002 020 020	0.1R	X 0.2	2°	0.2	2	40	4		2JJTB 004 020 060	0.2R	X 0.4	2°	0.4	6	40	4	
2JJTB 002 020 025	0.1R	X 0.2	2°	0.2	2.5	40	4		New 2JJTB 004 020 080	0.2R	X 0.4	2°	0.4	8	45	4	
2JJTB 002 030 015	0.1R	X 0.2	3°	0.2	1.5	40	4		New 2JJTB 004 020 100	0.2R	X 0.4	2°	0.4	10	45	4	
2JJTB 002 030 020	0.1R	X 0.2	3°	0.2	2	40	4		New 2JJTB 004 030 040	0.2R	X 0.4	3°	0.4	4	45	4	
2JJTB 002 030 025	0.1R	X 0.2	3°	0.2	2.5	40	4		New 2JJTB 004 030 060	0.2R	X 0.4	3°	0.4	6	45	4	
New 2JJTB 002 030 030	0.1R	X 0.2	3°	0.2	3	45	4		New 2JJTB 004 030 080	0.2R	X 0.4	3°	0.4	8	45	4	
2JJTB 002 050 020	0.1R	X 0.2	5°	0.2	2	40	4		New 2JJTB 004 030 100	0.2R	X 0.4	3°	0.4	10	45	4	
New 2JJTB 002 050 030	0.1R	X 0.2	5°	0.2	3	45	4		New 2JJTB 004 050 060	0.2R	X 0.4	5°	0.4	6	45	4	
2JJTB 003 003 030	0.15R	X 0.3	0° 30'	0.3	3	40	4		New 2JJTB 004 050 080	0.2R	X 0.4	5°	0.4	8	45	4	
2JJTB 003 010 020	0.15R	X 0.3	1°	0.3	2	40	4		New 2JJTB 004 050 100	0.2R	X 0.4	5°	0.4	10	45	4	
2JJTB 003 010 030	0.15R	X 0.3	1°	0.3	3	40	4		2JJTB 005 003 040	0.25R	X 0.5	0° 30'	0.5	4	45	4	
2JJTB 003 010 040	0.15R	X 0.3	1°	0.3	4	40	4		2JJTB 005 003 060	0.25R	X 0.5	0° 30'	0.5	6	45	4	
2JJTB 003 010 050	0.15R	X 0.3	1°	0.3	5	40	4		2JJTB 005 010 040	0.25R	X 0.5	1°	0.5	4	45	4	
2JJTB 003 013 020	0.15R	X 0.3	1° 30'	0.3	2	40	4		2JJTB 005 010 060	0.25R	X 0.5	1°	0.5	6	45	4	
2JJTB 003 013 030	0.15R	X 0.3	1° 30'	0.3	3	40	4		2JJTB 005 010 080	0.25R	X 0.5	1°	0.5	8	45	4	
2JJTB 003 013 040	0.15R	X 0.3	1° 30'	0.3	4	40	4		2JJTB 005 010 100	0.25R	X 0.5	1°	0.5	10	45	4	
2JJTB 003 013 050	0.15R	X 0.3	1° 30'	0.3	5	40	4		2JJTB 005 013 040	0.25R	X 0.5	1° 30'	0.5	4	45	4	
2JJTB 003 020 020	0.15R	X 0.3	2°	0.3	2	40	4		2JJTB 005 013 060	0.25R	X 0.5	1° 30'	0.5	6	45	4	
2JJTB 003 020 030	0.15R	X 0.3	2°	0.3	3	40	4		2JJTB 005 013 080	0.25R	X 0.5	1° 30'	0.5	8	45	4	
2JJTB 003 020 040	0.15R	X 0.3	2°	0.3	4	40	4		2JJTB 005 013 100	0.25R	X 0.5	1° 30'	0.5	10	45	4	
2JJTB 003 020 050	0.15R	X 0.3	2°	0.3	5	40	4		2JJTB 005 020 040	0.25R	X 0.5	2°	0.5	4	45	4	
New 2JJTB 003 020 060	0.15R	X 0.3	2°	0.3	6	45	4		2JJTB 005 020 060	0.25R	X 0.5	2°	0.5	6	45	4	
2JJTB 003 030 020	0.15R	X 0.3	3°	0.3	2	40	4		2JJTB 005 020 080	0.25R	X 0.5	2°	0.5	8	45	4	
2JJTB 003 030 030	0.15R	X 0.3	3°	0.3	3	40	4		2JJTB 005 020 100	0.25R	X 0.5	2°	0.5	10	45	4	
2JJTB 003 030 040	0.15R	X 0.3	3°	0.3	4	40	4		2JJTB 005 030 080	0.25R	X 0.5	3°	0.5	8	45	4	
2JJTB 003 030 050	0.15R	X 0.3	3°	0.3	5	40	4		2JJTB 005 030 120	0.25R	X 0.5	3°	0.5	12	50	4	
New 2JJTB 003 030 060	0.15R	X 0.3	3°	0.3	6	45	4		New 2JJTB 005 030 160	0.25R	X 0.5	3°	0.5	16	60	4	
2JJTB 003 050 050	0.15R	X 0.3	5°	0.3	5	40	4		2JJTB 005 030 200	0.25R	X 0.5	3°	0.5	20	60	4	
New 2JJTB 003 050 080	0.15R	X 0.3	5°	0.3	8	45	4		New 2JJTB 005 050 100	0.25R	X 0.5	5°	0.5	10	50	4	
2JJTB 004 003 020	0.2R	X 0.4	0° 30'	0.4	2	40	4		New 2JJTB 005 050 150	0.25R	X 0.5	5°	0.5	15	60	4	
2JJTB 004 003 030	0.2R	X 0.4	0° 30'	0.4	3	40	4		New 2JJTB 005 050 200	0.25R	X 0.5	5°	0.5	20	60	4	
2JJTB 004 003 040	0.2R	X 0.4	0° 30'	0.4	4	40	4		2JJTB 006 003 040	0.3R	X 0.6	0° 30'	0.6	4	45	4	
2JJTB 004 003 050	0.2R	X 0.4	0° 30'	0.4	5	40	4		2JJTB 006 003 060	0.3R	X 0.6	0° 30'	0.6	6	45	4	
2JJTB 004 003 060	0.2R	X 0.4	0° 30'	0.4	6	40	4		2JJTB 006 003 080	0.3R	X 0.6	0° 30'	0.6	8	45	4	
2JJTB 004 010 020	0.2R	X 0.4	1°	0.4	2	40	4		2JJTB 006 010 040	0.3R	X 0.6	1°	0.6	4	45	4	
2JJTB 004 010 030	0.2R	X 0.4	1°	0.4	3	40	4		2JJTB 006 010 060	0.3R	X 0.6	1°	0.6	6	45	4	
2JJTB 004 010 040	0.2R	X 0.4	1°	0.4	4	40	4		2JJTB 006 010 080	0.3R	X 0.6	1°	0.6	8	45	4	
2JJTB 004 010 050	0.2R	X 0.4	1°	0.4	5	40	4		2JJTB 006 010 100	0.3R	X 0.6	1°	0.6	10	45	4	
2JJTB 004 010 060	0.2R	X 0.4	1°	0.4	6	40	4		2JJTB 006 010 120	0.3R	X 0.6	1°	0.6	12	50	4	
New 2JJTB 004 010 080	0.2R	X 0.4	1°	0.4	8	45	4		2JJTB 006 010 150	0.3R	X 0.6	1°	0.6	15	50	4	
2JJTB 004 013 020	0.2R	X 0.4	1° 30'	0.4	2	40	4		2JJTB 006 010 200	0.3R	X 0.6	1°	0.6	20	60	4	

단위: mm



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 015 013 500	0.75R X 1.5	1°30	1.5	50	90	4		2JJTB 030 020 160	1.5R X 3	2°	3	16	60	6		
2JJTB 015 020 100	0.75R X 1.5	2°	1.5	10	50	4		2JJTB 030 020 200	1.5R X 3	2°	3	20	65	6		
2JJTB 015 020 150	0.75R X 1.5	2°	1.5	15	50	4		2JJTB 030 020 300	1.5R X 3	2°	3	30	70	6		
2JJTB 015 020 200	0.75R X 1.5	2°	1.5	20	60	4		2JJTB 030 020 480	1.5R X 3	2°	3	48	90	6		
2JJTB 015 020 300	0.75R X 1.5	2°	1.5	30	70	4		2JJTB 030 020 600	1.5R X 3	2°	3	60	110	8		
2JJTB 015 020 400	0.75R X 1.5	2°	1.5	40	80	6		2JJTB 030 020 700	1.5R X 3	2°	3	70	120	8		
2JJTB 015 020 500	0.75R X 1.5	2°	1.5	50	90	6		2JJTB 030 030 300	1.5R X 3	3°	3	30	70	6		
2JJTB 015 030 420	0.75R X 1.5	3°	1.5	42	80	6		2JJTB 030 030 500	1.5R X 3	3°	3	50	90	8		
2JJTB 015 050 250	0.75R X 1.5	5°	1.5	25	70	6		2JJTB 030 030 700	1.5R X 3	3°	3	70	120	10		
2JJTB 020 003 080	1R X 2	0°30	2	8	50	4		2JJTB 030 050 330	1.5R X 3	5°	3	33	90	8		
2JJTB 020 003 120	1R X 2	0°30	2	12	50	4		2JJTB 040 003 600	2R X 4	0°30	4	60	100	6		
2JJTB 020 003 160	1R X 2	0°30	2	16	50	4		2JJTB 040 003 700	2R X 4	0°30	4	70	110	6		
2JJTB 020 003 200	1R X 2	0°30	2	20	60	4		2JJTB 040 003 900	2R X 4	0°30	4	90	130	6		
2JJTB 020 003 300	1R X 2	0°30	2	30	70	4		2JJTB 040 010 500	2R X 4	1°	4	50	90	6		
2JJTB 020 003 400	1R X 2	0°30	2	40	80	4		2JJTB 040 010 600	2R X 4	1°	4	60	100	6		
2JJTB 020 003 500	1R X 2	0°30	2	50	90	4		2JJTB 040 010 700	2R X 4	1°	4	70	120	8		
2JJTB 020 010 080	1R X 2	1°	2	8	50	4		2JJTB 040 010 900	2R X 4	1°	4	90	150	8		
2JJTB 020 010 120	1R X 2	1°	2	12	50	4		2JJTB 040 013 450	2R X 4	1°30	4	45	90	6		
2JJTB 020 010 160	1R X 2	1°	2	16	50	4		2JJTB 040 013 600	2R X 4	1°30	4	60	110	8		
2JJTB 020 010 200	1R X 2	1°	2	20	60	4		2JJTB 040 013 700	2R X 4	1°30	4	70	120	8		
2JJTB 020 010 250	1R X 2	1°	2	25	60	4		2JJTB 040 030 250	2R X 4	3°	4	25	70	6		
2JJTB 020 010 300	1R X 2	1°	2	30	70	4		2JJTB 040 030 420	2R X 4	3°	4	42	100	8		
2JJTB 020 010 350	1R X 2	1°	2	35	75	4		2JJTB 040 050 290	2R X 4	5°	4	29	90	8		
2JJTB 020 010 400	1R X 2	1°	2	40	80	4		2JJTB 050 010 400	2.5R X 5	1°	5	40	90	8		
2JJTB 020 010 500	1R X 2	1°	2	50	90	4		2JJTB 050 010 600	2.5R X 5	1°	5	60	110	8		
2JJTB 020 010 600	1R X 2	1°	2	60	100	6		2JJTB 050 010 900	2.5R X 5	1°	5	90	150	8		
2JJTB 020 013 080	1R X 2	1°30	2	8	50	4		2JJTB 050 013 400	2.5R X 5	1°30	5	40	90	8		
2JJTB 020 013 120	1R X 2	1°30	2	12	50	4		2JJTB 050 013 600	2.5R X 5	1°30	5	60	110	8		
2JJTB 020 013 160	1R X 2	1°30	2	16	50	4		2JJTB 050 013 900	2.5R X 5	1°30	5	90	150	10		
2JJTB 020 013 200	1R X 2	1°30	2	20	60	4		2JJTB 050 030 400	2.5R X 5	3°	5	40	90	8		
2JJTB 020 013 250	1R X 2	1°30	2	25	60	4		2JJTB 060 010 400	3R X 6	1°	9	40	90	8		
2JJTB 020 013 300	1R X 2	1°30	2	30	70	4		2JJTB 060 010 500	3R X 6	1°	9	50	100	8		
2JJTB 020 013 350	1R X 2	1°30	2	35	75	6		2JJTB 060 010 600	3R X 6	1°	9	60	110	8		
2JJTB 020 013 400	1R X 2	1°30	2	40	80	6		2JJTB 060 010 700	3R X 6	1°	9	70	120	10		
2JJTB 020 013 500	1R X 2	1°30	2	50	90	6		2JJTB 060 010 800	3R X 6	1°	9	80	130	10		
2JJTB 020 013 600	1R X 2	1°30	2	60	100	6		2JJTB 060 010 1000	3R X 6	1°	9	100	150	10		
2JJTB 020 020 300	1R X 2	2°	2	30	70	6		2JJTB 060 013 490	3R X 6	1°30	9	49	110	8		
2JJTB 020 020 400	1R X 2	2°	2	40	80	6		2JJTB 060 013 850	3R X 6	1°30	9	85	150	10		
2JJTB 020 020 500	1R X 2	2°	2	50	90	6		2JJTB 060 020 600	3R X 6	2°	9	60	110	10		
2JJTB 020 030 300	1R X 2	3°	2	30	70	6		2JJTB 060 020 900	3R X 6	2°	9	90	150	12		
2JJTB 020 030 400	1R X 2	3°	2	40	80	6		2JJTB 060 030 290	3R X 6	3°	9	29	90	8		
2JJTB 020 030 500	1R X 2	3°	2	50	90	8		2JJTB 060 050 320	3R X 6	5°	9	32	110	10		
2JJTB 020 050 250	1R X 2	5°	2	25	60	6		2JJTB 080 010 500	4R X 8	1°	12	50	100	10		
2JJTB 020 050 380	1R X 2	5°	2	38	80	8		2JJTB 080 010 600	4R X 8	1°	12	60	110	10		
2JJTB 030 003 160	1.5R X 3	0°30	3	16	60	6		2JJTB 080 010 800	4R X 8	1°	12	80	130	12		
2JJTB 030 003 200	1.5R X 3	0°30	3	20	65	6		2JJTB 080 010 1000	4R X 8	1°	12	100	150	12		
2JJTB 030 003 300	1.5R X 3	0°30	3	30	70	6		2JJTB 080 013 520	4R X 8	1°30	12	52	110	10		
2JJTB 030 003 400	1.5R X 3	0°30	3	40	80	6		2JJTB 080 013 890	4R X 8	1°30	12	89	150	12		
2JJTB 030 003 500	1.5R X 3	0°30	3	50	90	6		2JJTB 080 030 330	4R X 8	3°	12	33	100	10		
2JJTB 030 003 600	1.5R X 3	0°30	3	60	100	6		2JJTB 100 010 600	5R X 10	1°	18	60	110	12		
2JJTB 030 010 160	1.5R X 3	1°	3	16	60	6		2JJTB 100 010 750	5R X 10	1°	18	75	130	12		
2JJTB 030 010 200	1.5R X 3	1°	3	20	65	6		2JJTB 100 013 540	5R X 10	1°30	18	54	130	12		
2JJTB 030 010 300	1.5R X 3	1°	3	30	70	6		2JJTB 100 030 370	5R X 10	3°	18	37	110	12		
2JJTB 030 010 400	1.5R X 3	1°	3	40	80	6		2JJTB 120 013 850	6R X 12	1°30	22	85	160	16		
2JJTB 030 010 500	1.5R X 3	1°	3	50	90	6		2JJTB 120 030 630	6R X 12	3°	22	63	130	16		
2JJTB 030 010 600	1.5R X 3	1°	3	60	100	6										
2JJTB 030 010 700	1.5R X 3	1°	3	70	110	6										
2JJTB 030 013 160	1.5R X 3	1°30	3	16	60	6										
2JJTB 030 013 200	1.5R X 3	1°30	3	20	65	6										
2JJTB 030 013 300	1.5R X 3	1°30	3	30	70	6										
2JJTB 030 013 400	1.5R X 3	1°30	3	40	80	6										
2JJTB 030 013 500	1.5R X 3	1°30	3	50	90	6										
2JJTB 030 013 600	1.5R X 3	1°30	3	60	100	6										
2JJTB 030 013 700	1.5R X 3	1°30	3	70	120	8										



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 깊은 홈 가공이 빈번해진 추세에 맞춰, 고객 요구에 발빠르게 대응하는 맞춤제작 방식입니다. (최고2일안에납품가능)
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 고객주문에 맞춰, 자사 재고품의 각도 및 유효길이를 재조정 가공합니다.
- 초미립자 초경합금(0.2 μ 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 μ m) WC grade.

3

UWC
초미립자

TISIN-S
Coating

R
 ± 0.005

R
 ± 0.01

30°
Helix Angle

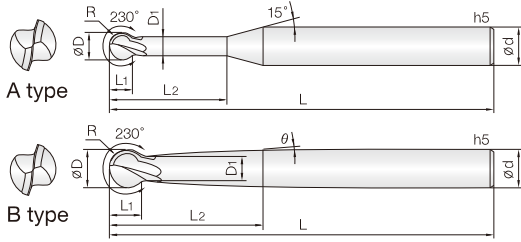
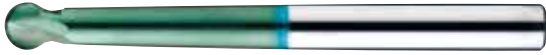
CUTTING
DATA

0.5 ~ 2.5R
3 ~ 6R
317P

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 × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샤프트 Shank Dia d	비고	
3JJTBS 010 060 S04	0.5R X 1	필요한 각도 직접 입력 Request the required angle directly	1	필요한 유효장 직접 입력 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		2		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		5		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		9		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				



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부 파손 및 떨림을 최소화 하였습니다.
- 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.
- 230° degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2μm) WC grade.

2

UWC
초미립자

TISIN-S
Coating

R

R

15°

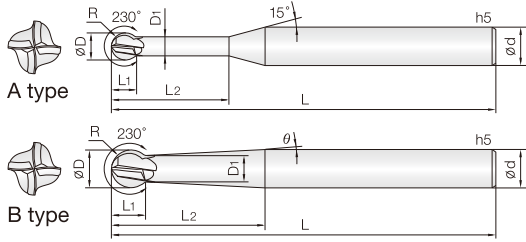
CUTTING
DATA

0.5 ~ 2.5R
3 ~ 6R
319P

D Size	D Tolerance
∅ 1 ~ 5	+0 ~ -0.01mm
∅ 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 θ	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	



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부 파손 및 떨림을 최소화 하였습니다.
- 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.
- 230° degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2µm) WC grade.

4

UWC
조미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

15°
Helix Angle

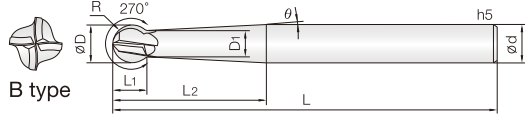
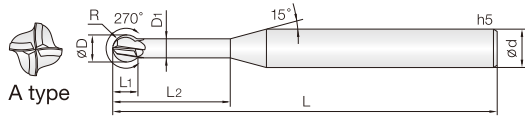
CUTTING
DATA

0.5 ~ 2.5R 3 ~ 6R 320P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 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 θ	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 040 120 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 고정밀 가공 엔드밀
- 고품질 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 230도 구형의 인선으로 광범위한 3D 가공이 가능합니다.
- 유효장을 직선 및 테이퍼 설계하여 다양한 상황에 맞춰 목부 파손 및 떨림을 최소화 하였습니다.
- 초미립자 초경합금(0.2 μ 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 designed flute.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

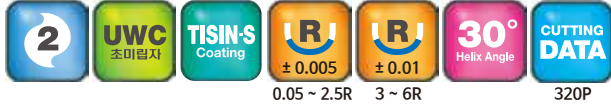
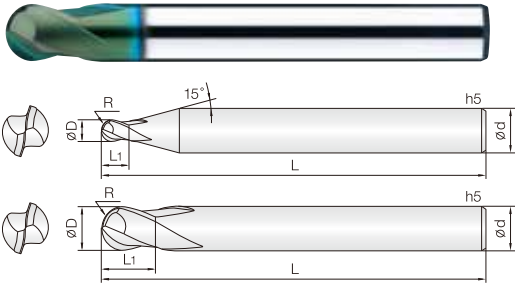


0.5 ~ 2.5R 3 ~ 6R 320P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm

단위: mm

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



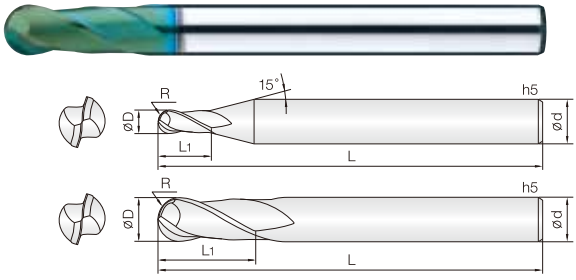
0.05 ~ 2.5R 3 ~ 6R 320P

- 고경도강 (HRC52~70), 프리하든강 계열의 고정밀 가공 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 μ 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 shirinking chuck.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2 μ 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 × D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R × 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 120 150 070	6R X 12	15	70	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							
New 2JJSB 012 012 S04	0.6R X 1.2	1.2	40	4							
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							
New 2JJSB 025 025 S06	1.25R X 2.5	2.5	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 100 130 070	5R X 10	13	70	10							



- **고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀**
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 μ 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 μ m) WC grade.

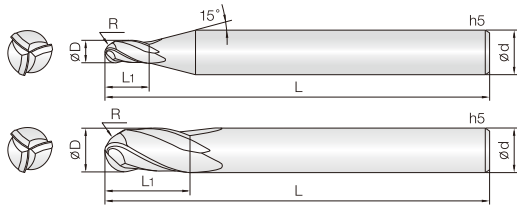


D Size	D Tolerance
Ø 0.1 ~ 0.15	+0 ~ -0.005mm
Ø 0.2 ~ 5	+0 ~ -0.01mm
Ø 5.5 ~ 14	-0.005 ~ -0.015mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고
2JJB 001 002 S04	0.05R X 0.1	0.2	40	4		New 2JJB 140 240 110	7R X 14	24	110	14	
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							
New 2JJB 010 025 S03	0.5R X 1	2.5	50	3							
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							
New 2JJB 012 030 S03	0.6R X 1.2	3	50	3							
2JJB 012 030 S04	0.6R X 1.2	3	50	4							
New 2JJB 015 040 S03	0.75R X 1.5	4	50	3							
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							
New 2JJB 020 050 S03	1R X 2	5	50	3							
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							
New 2JJB 025 060 S03	1.25R X 2.5	6	50	3							
2JJB 025 060 S04	1.25R X 2.5	6	50	4							
2JJB 025 060 S06	1.25R X 2.5	6	75	6							
New 2JJB 030 080 S03	1.5R X 3	8	50	3							
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							
2JJB 045 080 S06	2.25R X 4.5	8	70	6							
2JJB 050 100 S06	2.5R X 5	10	75	6							
2JJB 055 100 S06	2.75R X 5.5	10	75	6							
2JJB 060 100 060	3R X 6	10	60	6							
2JJB 060 120 080	3R X 6	12	80	6							
2JJB 060 120 090	3R X 6	12	90	6							
2JJB 070 140 S08	3.5R X 7	14	80	8							
2JJB 080 120 060	4R X 8	12	60	8							
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							

3날 고경도재 가공용 제이제이 볼 엔드밀



- 고경도강 (HRC52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 3날 볼타입 적용으로 고속, 고이송 작업이 가능합니다.
- 초미립자 초경합금 (0.2 μ 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.
- Three flutes ball edge design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

3

UVC
초미립자

TISIN-S
Coating

R
 ± 0.005

R
 ± 0.01

30°
Helix Angle

CUTTING
DATA

0.5 ~ 2.5R 3 ~ 6R 320P

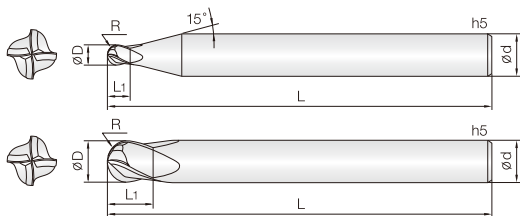
D Size	D Tolerance
$\varnothing 1 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위: mm

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
3JJB 010 025 S04	0.5R X 1	2.5	50	4	
3JJB 012 030 S04	0.6R X 1.2	3	50	4	
3JJB 015 040 S04	0.75R X 1.5	4	50	4	
3JJB 020 050 S06	1R X 2	5	50	6	
3JJB 030 080 S06	1.5R X 3	8	65	6	
3JJB 040 080 S04	2R X 4	8	60	4	
3JJB 040 080 S06	2R X 4	8	70	6	
3JJB 050 100 S06	2.5R X 5	10	75	6	

Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
3JJB 060 120 S06	3R X 6	12	80	6	
3JJB 060 120 120	3R X 6	12	120	6	
3JJB 080 140 S08	4R X 8	14	90	8	
3JJB 080 140 150	4R X 8	14	150	8	
3JJB 100 180 S10	5R X 10	18	100	10	
3JJB 100 180 150	5R X 10	18	150	10	
3JJB 120 220 S12	6R X 12	22	110	12	
3JJB 120 220 150	6R X 12	22	150	12	

4날 고경도재 가공용 제이제이 짧은 길이 볼 엔드밀



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

- 고품량 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여 열박음척 사용이 용이합니다.
- 4날 볼타입 적용으로 고속, 고이송 작업이 가능합니다.
- 초미립자 초경합금 (0.2 μ 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 shirinking chuck.
- Four flutes ball edge design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

4

UVC
초미립자

TISIN-S
Coating

R
 ± 0.005

R
 ± 0.01

30°
Helix Angle

CUTTING
DATA

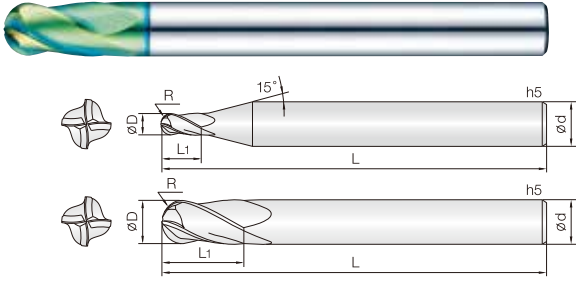
0.5 ~ 2.5R 3 ~ 6R 320P

D Size	D Tolerance
$\varnothing 1 \sim 5$	+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	샙크 Shank Dia d	비고
4JJSB 010 012 S04	0.5R X 1	1.2	40	4	
4JJSB 012 015 S04	0.6R X 1.2	1.5	40	4	
4JJSB 015 018 S04	0.75R X 1.5	1.8	40	4	
4JJSB 020 024 S04	1R X 2	2.4	40	4	
4JJSB 025 030 S04	1.25R X 2.5	3	45	4	
4JJSB 030 036 S06	1.5R X 3	3.6	45	6	
4JJSB 040 050 S04	2R X 4	5	45	4	
4JJSB 040 050 S06	2R X 4	5	45	6	
4JJSB 050 060 S06	2.5R X 5	6	50	6	
4JJSB 060 070 S06	3R X 6	7	50	6	
4JJSB 060 070 060	3R X 6	7	60	6	
4JJSB 080 080 S08	4R X 8	8	60	8	
4JJSB 100 100 S10	5R X 10	10	60	10	
4JJSB 120 120 S12	6R X 12	12	75	12	

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



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 4날 볼타입 적용으로 고속, 고이송 작업이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Four flutes ball edge design for high speed, feed condition.
- Minimizing fracturing by high TRS fine (0.5µm) WC grade.

4

WC
미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

R
± 0.015

30°
Helix Angle

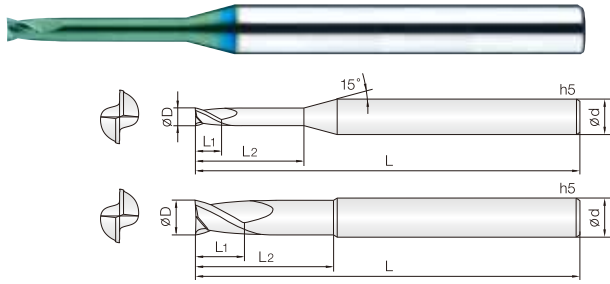
CUTTING
DATA

0.5 ~ 2.5R 3 ~ 6R 7 ~ 10R 320P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.005mm
Ø 6 ~ 12	+0 ~ -0.01mm
Ø 14 ~ 20	-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	Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4JJB 010 025 S06	0.5R X 1	2.5	50	6							
4JJB 010 025 080	0.5R X 1	2.5	80	6							
4JJB 012 030 S06	0.6R X 1.2	3	50	6							
4JJB 015 040 S06	0.75R X 1.5	4	50	6							
4JJB 015 040 080	0.75R X 1.5	4	80	6							
4JJB 020 050 S06	1R X 2	5	50	6							
4JJB 020 050 080	1R X 2	5	80	6							
4JJB 025 070 S06	1.25R X 2.5	7	50	6							
4JJB 025 070 080	1.25R X 2.5	7	80	6							
4JJB 030 080 S06	1.5R X 3	8	60	6							
4JJB 030 080 090	1.5R X 3	8	90	6							
4JJB 040 080 S04	2R X 4	8	60	4							
4JJB 040 080 090	2R X 4	8	90	4							
4JJB 040 080 S06	2R X 4	8	70	6							
4JJB 040 080 100	2R X 4	8	100	6							
4JJB 050 100 S06	2.5R X 5	10	80	6							
4JJB 050 100 110	2.5R X 5	10	110	6							
4JJB 060 120 S06	3R X 6	12	90	6							
4JJB 060 120 110	3R X 6	12	110	6							
4JJB 080 140 S08	4R X 8	14	100	8							
4JJB 080 140 150	4R X 8	14	150	8							
4JJB 100 180 S10	5R X 10	18	100	10							
4JJB 100 180 150	5R X 10	18	150	10							
4JJB 120 220 S12	6R X 12	22	110	12							
4JJB 120 220 150	6R X 12	22	150	12							
4JJB 140 240 110	7R X 14	24	110	14							
4JJB 160 300 S16	8R X 16	30	130	16							
4JJB 160 300 160	8R X 16	30	160	16							
4JJB 200 400 S20	10R X 20	40	160	20							
4JJB 200 400 200	10R X 20	40	200	20							



- 고경도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 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.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2µm) WC grade.

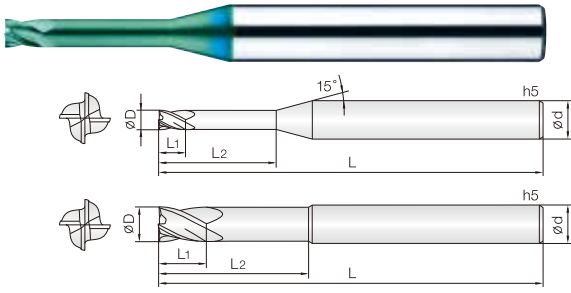


D Size	D Tolerance
ø 0.1 ~ 0.15	+0 ~ -0.005mm
ø 0.2 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.005 ~ -0.025mm

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
2JJRE 001 003 S04	0.1	0.15	0.3	40	4		New 2JJRE 005 140 S04	0.5	0.5	14	45	4	
2JJRE 001 005 S04	0.1	0.15	0.5	40	4		New 2JJRE 005 160 S04	0.5	0.5	16	45	4	
New 2JJRE 0015 003 S04	0.15	0.15	0.3	40	4		2JJRE 006 010 S04	0.6	0.6	1	40	4	
New 2JJRE 0015 005 S04	0.15	0.15	0.5	40	4		2JJRE 006 020 S04	0.6	0.6	2	40	4	
New 2JJRE 0015 0075 S04	0.15	0.15	0.75	40	4		2JJRE 006 030 S04	0.6	0.6	3	40	4	
New 2JJRE 0015 010 S04	0.15	0.15	1	40	4		2JJRE 006 040 S04	0.6	0.6	4	40	4	
2JJRE 002 005 S04	0.2	0.2	0.5	40	4		2JJRE 006 050 S04	0.6	0.6	5	40	4	
2JJRE 002 010 S04	0.2	0.2	1	40	4		2JJRE 006 060 S04	0.6	0.6	6	40	4	
2JJRE 002 015 S04	0.2	0.2	1.5	40	4		2JJRE 006 080 S04	0.6	0.6	8	45	4	
2JJRE 002 020 S04	0.2	0.2	2	40	4		2JJRE 006 100 S04	0.6	0.6	10	45	4	
2JJRE 002 025 S04	0.2	0.2	2.5	40	4		New 2JJRE 006 120 S04	0.6	0.6	12	45	4	
2JJRE 002 030 S04	0.2	0.2	3	40	4		New 2JJRE 006 140 S04	0.6	0.6	14	45	4	
New 2JJRE 0025 005 S04	0.25	0.25	0.5	40	4		New 2JJRE 006 160 S04	0.6	0.6	16	45	4	
New 2JJRE 0025 010 S04	0.25	0.25	1	40	4		New 2JJRE 006 180 S04	0.6	0.6	18	50	4	
New 2JJRE 0025 015 S04	0.25	0.25	1.5	40	4		2JJRE 007 020 S04	0.7	0.7	2	40	4	
New 2JJRE 0025 020 S04	0.25	0.25	2	40	4		2JJRE 007 040 S04	0.7	0.7	4	40	4	
New 2JJRE 0025 025 S04	0.25	0.25	2.5	40	4		2JJRE 007 060 S04	0.7	0.7	6	40	4	
New 2JJRE 0025 030 S04	0.25	0.25	3	40	4		2JJRE 007 080 S04	0.7	0.7	8	45	4	
2JJRE 003 010 S04	0.3	0.3	1	40	4		2JJRE 007 100 S04	0.7	0.7	10	45	4	
2JJRE 003 015 S04	0.3	0.3	1.5	40	4		New 2JJRE 007 120 S04	0.7	0.7	12	45	4	
2JJRE 003 020 S04	0.3	0.3	2	40	4		New 2JJRE 007 140 S04	0.7	0.7	14	45	4	
2JJRE 003 025 S04	0.3	0.3	2.5	40	4		New 2JJRE 007 160 S04	0.7	0.7	16	45	4	
2JJRE 003 030 S04	0.3	0.3	3	40	4		2JJRE 008 010 S04	0.8	0.8	1	40	4	
2JJRE 003 035 S04	0.3	0.3	3.5	40	4		2JJRE 008 020 S04	0.8	0.8	2	40	4	
2JJRE 003 040 S04	0.3	0.3	4	40	4		2JJRE 008 030 S04	0.8	0.8	3	40	4	
2JJRE 003 050 S04	0.3	0.3	5	40	4		2JJRE 008 040 S04	0.8	0.8	4	40	4	
New 2JJRE 003 060 S04	0.3	0.3	6	40	4		2JJRE 008 050 S04	0.8	0.8	5	40	4	
New 2JJRE 003 070 S04	0.3	0.3	7	40	4		2JJRE 008 060 S04	0.8	0.8	6	40	4	
New 2JJRE 003 080 S04	0.3	0.3	8	40	4		2JJRE 008 080 S04	0.8	0.8	8	45	4	
2JJRE 004 010 S04	0.4	0.4	1	40	4		2JJRE 008 100 S04	0.8	0.8	10	45	4	
2JJRE 004 015 S04	0.4	0.4	1.5	40	4		2JJRE 008 120 S04	0.8	0.8	12	45	4	
2JJRE 004 020 S04	0.4	0.4	2	40	4		New 2JJRE 008 140 S04	0.8	0.8	14	45	4	
2JJRE 004 025 S04	0.4	0.4	2.5	40	4		New 2JJRE 008 160 S04	0.8	0.8	16	45	4	
2JJRE 004 030 S04	0.4	0.4	3	40	4		New 2JJRE 008 180 S04	0.8	0.8	18	50	4	
2JJRE 004 035 S04	0.4	0.4	3.5	40	4		New 2JJRE 008 200 S04	0.8	0.8	20	50	4	
2JJRE 004 040 S04	0.4	0.4	4	40	4		2JJRE 009 040 S04	0.9	0.9	4	40	4	
2JJRE 004 050 S04	0.4	0.4	5	40	4		2JJRE 009 060 S04	0.9	0.9	6	40	4	
2JJRE 004 060 S04	0.4	0.4	6	40	4		2JJRE 009 080 S04	0.9	0.9	8	45	4	
2JJRE 004 080 S04	0.4	0.4	8	40	4		2JJRE 009 100 S04	0.9	0.9	10	45	4	
New 2JJRE 004 100 S04	0.4	0.4	10	45	4		2JJRE 010 020 S04	1	1	2	45	4	
New 2JJRE 004 120 S04	0.4	0.4	12	45	4		2JJRE 010 030 S04	1	1	3	45	4	
2JJRE 005 010 S04	0.5	0.5	1	40	4		2JJRE 010 040 S04	1	1	4	45	4	
2JJRE 005 020 S04	0.5	0.5	2	40	4		2JJRE 010 050 S04	1	1	5	45	4	
2JJRE 005 030 S04	0.5	0.5	3	40	4		2JJRE 010 060 S04	1	1	6	45	4	
2JJRE 005 040 S04	0.5	0.5	4	40	4		2JJRE 010 080 S04	1	1	8	45	4	
2JJRE 005 050 S04	0.5	0.5	5	40	4		2JJRE 010 100 S04	1	1	10	45	4	
2JJRE 005 060 S04	0.5	0.5	6	40	4		2JJRE 010 120 S04	1	1	12	50	4	
2JJRE 005 080 S04	0.5	0.5	8	45	4		2JJRE 010 140 S04	1	1	14	50	4	
2JJRE 005 100 S04	0.5	0.5	10	45	4		2JJRE 010 160 S04	1	1	16	50	4	
New 2JJRE 005 120 S04	0.5	0.5	12	45	4		2JJRE 010 180 S04	1	1	18	50	4	

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
2JJRE 010 200 S04	1	1	20	50	4		2JJRE 025 350 S04	2.5	2.5	35	70	4	
2JJRE 010 220 S04	1	1	22	60	4		2JJRE 025 400 S04	2.5	2.5	40	80	4	
2JJRE 010 250 S04	1	1	25	60	4		New 2JJRE 025 450 S04	2.5	2.5	45	90	4	
New 2JJRE 010 300 S04	1	1	30	70	4		New 2JJRE 025 500 S04	2.5	2.5	50	90	4	
2JJRE 012 040 S04	1.2	1.2	4	45	4		2JJRE 030 060 S06	3	3	6	45	6	
2JJRE 012 060 S04	1.2	1.2	6	45	4		2JJRE 030 080 S06	3	3	8	45	6	
2JJRE 012 080 S04	1.2	1.2	8	45	4		2JJRE 030 100 S06	3	3	10	50	6	
2JJRE 012 100 S04	1.2	1.2	10	45	4		2JJRE 030 120 S06	3	3	12	50	6	
2JJRE 012 120 S04	1.2	1.2	12	50	4		2JJRE 030 160 S06	3	3	16	55	6	
2JJRE 012 160 S04	1.2	1.2	16	50	4		2JJRE 030 200 S06	3	3	20	60	6	
2JJRE 012 200 S04	1.2	1.2	20	50	4		2JJRE 030 250 S06	3	3	25	65	6	
2JJRE 012 250 S04	1.2	1.2	25	60	4		2JJRE 030 300 S06	3	3	30	70	6	
2JJRE 014 080 S04	1.4	1.4	8	45	4		2JJRE 030 350 S06	3	3	35	75	6	
2JJRE 014 100 S04	1.4	1.4	10	45	4		2JJRE 030 400 S06	3	3	40	80	6	
2JJRE 014 140 S04	1.4	1.4	14	50	4		2JJRE 030 450 S06	3	3	45	90	6	
2JJRE 014 160 S04	1.4	1.4	16	50	4		2JJRE 030 500 S06	3	3	50	100	6	
2JJRE 014 200 S04	1.4	1.4	20	50	4		New 2JJRE 030 600 S06	3	3	60	100	6	
New 2JJRE 014 220 S04	1.4	1.4	22	60	4		New 2JJRE 035 120 S06	3.5	3.5	12	50	6	
2JJRE 015 040 S04	1.5	1.5	4	45	4		New 2JJRE 035 160 S06	3.5	3.5	16	55	6	
2JJRE 015 060 S04	1.5	1.5	6	45	4		New 2JJRE 035 200 S06	3.5	3.5	20	60	6	
2JJRE 015 080 S04	1.5	1.5	8	45	4		New 2JJRE 035 250 S06	3.5	3.5	25	65	6	
2JJRE 015 100 S04	1.5	1.5	10	50	4		New 2JJRE 035 300 S06	3.5	3.5	30	70	6	
2JJRE 015 120 S04	1.5	1.5	12	50	4		New 2JJRE 035 350 S06	3.5	3.5	35	75	6	
2JJRE 015 140 S04	1.5	1.5	14	50	4		New 2JJRE 035 400 S06	3.5	3.5	40	80	6	
2JJRE 015 160 S04	1.5	1.5	16	50	4		2JJRE 040 080 S06	4	4	8	50	6	
2JJRE 015 180 S04	1.5	1.5	18	50	4		2JJRE 040 100 S06	4	4	10	50	6	
2JJRE 015 200 S04	1.5	1.5	20	50	4		2JJRE 040 120 S06	4	4	12	50	6	
2JJRE 015 220 S04	1.5	1.5	22	60	4		2JJRE 040 160 S06	4	4	16	55	6	
2JJRE 015 250 S04	1.5	1.5	25	60	4		2JJRE 040 200 S06	4	4	20	60	6	
New 2JJRE 015 350 S04	1.5	1.5	35	70	4		2JJRE 040 250 S06	4	4	25	65	6	
New 2JJRE 015 400 S04	1.5	1.5	40	80	4		2JJRE 040 300 S06	4	4	30	70	6	
2JJRE 016 060 S04	1.6	1.6	6	45	4		2JJRE 040 350 S06	4	4	35	75	6	
2JJRE 016 100 S04	1.6	1.6	10	50	4		New 2JJRE 040 400 S06	4	4	40	80	6	
2JJRE 016 140 S04	1.6	1.6	14	50	4		New 2JJRE 040 450 S06	4	4	45	90	6	
2JJRE 016 180 S04	1.6	1.6	18	50	4		New 2JJRE 040 500 S06	4	4	50	100	6	
New 2JJRE 016 200 S04	1.6	1.6	20	50	4		New 2JJRE 040 600 S06	4	4	60	100	6	
2JJRE 018 100 S04	1.8	1.8	10	50	4		New 2JJRE 045 120 S06	4.5	4.5	12	50	6	
New 2JJRE 018 120 S04	1.8	1.8	12	50	4		New 2JJRE 045 160 S06	4.5	4.5	16	55	6	
2JJRE 018 140 S04	1.8	1.8	14	50	4		New 2JJRE 045 200 S06	4.5	4.5	20	60	6	
New 2JJRE 018 160 S04	1.8	1.8	16	50	4		New 2JJRE 045 250 S06	4.5	4.5	25	65	6	
2JJRE 018 180 S04	1.8	1.8	18	50	4		New 2JJRE 045 300 S06	4.5	4.5	30	70	6	
New 2JJRE 018 200 S04	1.8	1.8	20	50	4		New 2JJRE 045 400 S06	4.5	4.5	40	80	6	
New 2JJRE 018 250 S04	1.8	1.8	25	60	4		2JJRE 050 160 S06	5	6	16	60	6	
2JJRE 020 060 S04	2	2	6	45	4		2JJRE 050 200 S06	5	6	20	60	6	
2JJRE 020 080 S04	2	2	8	45	4		2JJRE 050 250 S06	5	6	25	65	6	
2JJRE 020 100 S04	2	2	10	50	4		2JJRE 050 300 S06	5	6	30	70	6	
2JJRE 020 120 S04	2	2	12	50	4		2JJRE 050 350 S06	5	6	35	75	6	
2JJRE 020 140 S04	2	2	14	50	4		2JJRE 050 400 S06	5	6	40	80	6	
2JJRE 020 160 S04	2	2	16	50	4		2JJRE 050 500 S06	5	6	50	100	6	
2JJRE 020 180 S04	2	2	18	50	4		New 2JJRE 050 600 S06	5	6	60	100	6	
2JJRE 020 200 S04	2	2	20	50	4		2JJRE 060 200 S06	6	10	20	60	6	
2JJRE 020 220 S04	2	2	22	60	4		2JJRE 060 300 S06	6	10	30	75	6	
2JJRE 020 250 S04	2	2	25	60	4		2JJRE 060 400 S06	6	10	40	80	6	
2JJRE 020 300 S04	2	2	30	60	4		2JJRE 060 500 S06	6	10	50	90	6	
2JJRE 020 350 S04	2	2	35	70	4		2JJRE 060 600 S06	6	10	60	110	6	
2JJRE 020 400 S04	2	2	40	80	4		New 2JJRE 080 300 S08	8	12	30	80	8	
New 2JJRE 020 450 S04	2	2	45	90	4		New 2JJRE 080 500 S08	8	12	50	100	8	
New 2JJRE 020 500 S04	2	2	50	90	4		New 2JJRE 100 400 S10	10	15	40	90	10	
2JJRE 025 100 S04	2.5	2.5	10	50	4		New 2JJRE 100 600 S10	10	15	60	110	10	
2JJRE 025 120 S04	2.5	2.5	12	50	4		New 2JJRE 120 500 S12	12	18	50	100	12	
2JJRE 025 160 S04	2.5	2.5	16	50	4		New 2JJRE 120 700 S12	12	18	70	120	12	
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								



- 고경도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금(0.2 μ 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.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.



D Size	D Tolerance
$\varnothing 0.5 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -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
New 4JJRE 005 010 S04	0.5	0.5	1	40	4		New 4JJRE 012 200 S04	1.2	1.2	20	60	4	
New 4JJRE 005 020 S04	0.5	0.5	2	40	4		New 4JJRE 014 060 S04	1.4	1.4	6	45	4	
New 4JJRE 005 030 S04	0.5	0.5	3	45	4		New 4JJRE 014 080 S04	1.4	1.4	8	45	4	
New 4JJRE 005 040 S04	0.5	0.5	4	45	4		New 4JJRE 014 100 S04	1.4	1.4	10	50	4	
New 4JJRE 005 050 S04	0.5	0.5	5	45	4		New 4JJRE 014 120 S04	1.4	1.4	12	50	4	
New 4JJRE 005 060 S04	0.5	0.5	6	45	4		New 4JJRE 014 140 S04	1.4	1.4	14	50	4	
New 4JJRE 005 080 S04	0.5	0.5	8	45	4		New 4JJRE 014 160 S04	1.4	1.4	16	50	4	
New 4JJRE 005 100 S04	0.5	0.5	10	50	4		4JJRE 015 040 S04	1.5	1.5	4	45	4	
New 4JJRE 006 010 S04	0.6	0.6	1	45	4		4JJRE 015 060 S04	1.5	1.5	6	45	4	
New 4JJRE 006 020 S04	0.6	0.6	2	45	4		4JJRE 015 080 S04	1.5	1.5	8	45	4	
New 4JJRE 006 030 S04	0.6	0.6	3	45	4		4JJRE 015 100 S04	1.5	1.5	10	50	4	
New 4JJRE 006 040 S04	0.6	0.6	4	45	4		4JJRE 015 120 S04	1.5	1.5	12	50	4	
New 4JJRE 006 050 S04	0.6	0.6	5	45	4		4JJRE 015 160 S04	1.5	1.5	16	50	4	
New 4JJRE 006 060 S04	0.6	0.6	6	45	4		New 4JJRE 015 180 S04	1.5	1.5	18	60	4	
New 4JJRE 006 080 S04	0.6	0.6	8	45	4		New 4JJRE 015 200 S04	1.5	1.5	20	60	4	
New 4JJRE 006 100 S04	0.6	0.6	10	50	4		New 4JJRE 015 250 S04	1.5	1.5	25	60	4	
New 4JJRE 006 120 S04	0.6	0.6	12	50	4		New 4JJRE 015 300 S04	1.5	1.5	30	70	4	
New 4JJRE 007 020 S04	0.7	0.7	2	45	4		New 4JJRE 016 060 S04	1.6	1.6	6	45	4	
New 4JJRE 007 040 S04	0.7	0.7	4	45	4		New 4JJRE 016 080 S04	1.6	1.6	8	45	4	
New 4JJRE 007 060 S04	0.7	0.7	6	45	4		New 4JJRE 016 100 S04	1.6	1.6	10	50	4	
New 4JJRE 007 080 S04	0.7	0.7	8	45	4		New 4JJRE 016 120 S04	1.6	1.6	12	50	4	
New 4JJRE 007 100 S04	0.7	0.7	10	50	4		New 4JJRE 016 140 S04	1.6	1.6	14	50	4	
4JJRE 008 010 S04	0.8	0.8	1	40	4		New 4JJRE 016 160 S04	1.6	1.6	16	50	4	
4JJRE 008 020 S04	0.8	0.8	2	40	4		New 4JJRE 016 180 S04	1.6	1.6	18	60	4	
4JJRE 008 030 S04	0.8	0.8	3	40	4		New 4JJRE 016 200 S04	1.6	1.6	20	60	4	
4JJRE 008 040 S04	0.8	0.8	4	40	4		New 4JJRE 016 250 S04	1.6	1.6	25	70	4	
4JJRE 008 050 S04	0.8	0.8	5	40	4		New 4JJRE 018 060 S04	1.8	1.8	6	45	4	
4JJRE 008 060 S04	0.8	0.8	6	40	4		New 4JJRE 018 080 S04	1.8	1.8	8	45	4	
4JJRE 008 080 S04	0.8	0.8	8	40	4		New 4JJRE 018 100 S04	1.8	1.8	10	50	4	
New 4JJRE 008 100 S04	0.8	0.8	10	50	4		New 4JJRE 018 120 S04	1.8	1.8	12	50	4	
New 4JJRE 008 120 S04	0.8	0.8	12	50	4		New 4JJRE 018 160 S04	1.8	1.8	16	50	4	
New 4JJRE 008 160 S04	0.8	0.8	16	50	4		New 4JJRE 018 200 S04	1.8	1.8	20	60	4	
4JJRE 010 020 S04	1	1	2	45	4		New 4JJRE 018 250 S04	1.8	1.8	25	70	4	
4JJRE 010 030 S04	1	1	3	45	4		4JJRE 020 040 S04	2	2	4	45	4	
4JJRE 010 040 S04	1	1	4	45	4		4JJRE 020 060 S04	2	2	6	45	4	
4JJRE 010 060 S04	1	1	6	45	4		4JJRE 020 080 S04	2	2	8	45	4	
4JJRE 010 080 S04	1	1	8	45	4		4JJRE 020 100 S04	2	2	10	50	4	
4JJRE 010 100 S04	1	1	10	50	4		4JJRE 020 120 S04	2	2	12	50	4	
4JJRE 010 120 S04	1	1	12	50	4		4JJRE 020 140 S04	2	2	14	50	4	
4JJRE 010 140 S04	1	1	14	50	4		4JJRE 020 160 S04	2	2	16	50	4	
4JJRE 010 160 S04	1	1	16	50	4		4JJRE 020 180 S04	2	2	18	50	4	
New 4JJRE 010 180 S04	1	1	18	60	4		4JJRE 020 200 S04	2	2	20	50	4	
New 4JJRE 010 200 S04	1	1	20	60	4		New 4JJRE 020 220 S04	2	2	22	60	4	
4JJRE 012 040 S04	1.2	1.2	4	45	4		New 4JJRE 020 250 S04	2	2	25	60	4	
4JJRE 012 060 S04	1.2	1.2	6	45	4		New 4JJRE 020 300 S04	2	2	30	70	4	
4JJRE 012 080 S04	1.2	1.2	8	45	4		4JJRE 025 100 S04	2.5	2.5	10	50	4	
4JJRE 012 100 S04	1.2	1.2	10	50	4		4JJRE 025 120 S04	2.5	2.5	12	50	4	
4JJRE 012 120 S04	1.2	1.2	12	50	4		4JJRE 025 160 S04	2.5	2.5	16	50	4	
4JJRE 012 160 S04	1.2	1.2	16	50	4		4JJRE 025 200 S04	2.5	2.5	20	50	4	
New 4JJRE 012 180 S04	1.2	1.2	18	60	4		4JJRE 025 250 S04	2.5	2.5	25	60	4	

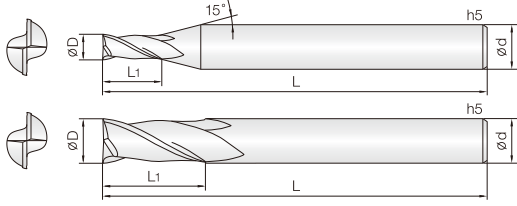
단위: mm

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
New 4JJRE 025 300 S04	2.5	2.5	30	70	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 030160 S06	3	3	16	55	6								
4JJRE 030 200 S06	3	3	20	60	6								
4JJRE 030 250 S06	3	3	25	65	6								
4JJRE 030 300 S06	3	3	30	70	6								
New 4JJRE 030 350 S06	3	3	35	75	6								
New 4JJRE 030 400 S06	3	3	40	80	6								
New 4JJRE 030 450 S06	3	3	45	90	6								
New 4JJRE 030 500 S06	3	3	50	100	6								
New 4JJRE 030 600 S06	3	3	60	110	6								
New 4JJRE 035 120 S06	3.5	3.5	12	50	6								
New 4JJRE 035 160 S06	3.5	3.5	16	55	6								
New 4JJRE 035 200 S06	3.5	3.5	20	60	6								
New 4JJRE 035 250 S06	3.5	3.5	25	65	6								
New 4JJRE 035 300 S06	3.5	3.5	30	70	6								
New 4JJRE 035 350 S06	3.5	3.5	35	75	6								
New 4JJRE 035 400 S06	3.5	3.5	40	80	6								
4JJRE 040 060 S06	4	4	6	50	6								
4JJRE 040 080 S06	4	4	8	50	6								
4JJRE 040 100 S06	4	4	10	50	6								
4JJRE 040 120 S06	4	4	12	50	6								
4JJRE 040 160 S06	4	4	16	55	6								
4JJRE 040 200 S06	4	4	20	60	6								
4JJRE 040 250 S06	4	4	25	65	6								
4JJRE 040 300 S06	4	4	30	70	6								
4JJRE 040 400 S06	4	4	40	80	6								
New 4JJRE 040 450 S06	4	4	45	90	6								
New 4JJRE 040 500 S06	4	4	50	100	6								
New 4JJRE 040 600 S06	4	4	60	110	6								
New 4JJRE 045 120 S06	4.5	4.5	12	50	6								
New 4JJRE 045 160 S06	4.5	4.5	16	55	6								
New 4JJRE 045 200 S06	4.5	4.5	20	60	6								
New 4JJRE 045 250 S06	4.5	4.5	25	65	6								
New 4JJRE 045 300 S06	4.5	4.5	30	70	6								
New 4JJRE 045 400 S06	4.5	4.5	40	80	6								
4JJRE 050 160 S06	5	5	16	60	6								
4JJRE 050 200 S06	5	5	20	60	6								
4JJRE 050 250 S06	5	5	25	65	6								
4JJRE 050 300 S06	5	5	30	70	6								
4JJRE 050 400 S06	5	5	40	80	6								
New 4JJRE 050 500 S06	5	5	50	100	6								
New 4JJRE 050 600 S06	5	5	60	110	6								
4JJRE 060 200 S06	6	6	20	60	6								
4JJRE 060 300 S06	6	6	30	75	6								
4JJRE 060 400 S06	6	6	40	80	6								
4JJRE 060 500 S06	6	6	50	90	6								
New 4JJRE 060 600 S06	6	6	60	100	6								
4JJRE 080 250 S08	8	12	25	65	8								
4JJRE 080 400 S08	8	12	40	100	8								
4JJRE 080 500 S08	8	12	50	110	8								
4JJRE 100 300 S10	10	15	30	70	10								
4JJRE 100 500 S10	10	15	50	100	10								
4JJRE 100 600 S10	10	15	60	120	10								
4JJRE 120 400 S12	12	18	40	80	12								
4JJRE 120 600 S12	12	18	60	110	12								
4JJRE 120 700 S12	12	18	70	130	12								

2JJE 2 Flutes JJ End Mills for Hardened Steels

2날 고정도재 가공용 제이제이 엔드밀

JJ series



- 고정도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 국내최초 날경 0.03mm 제품부터 생산합니다.
- 초미립자 초경합금(0.2 μ 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.
- Reinforced edge design for preventing edge chipping.
- Produce down to 0.03mm in diameter endmills at the first time in Korea.
- Outstanding performance at high speed machining by ultra fine (0.2 μ 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

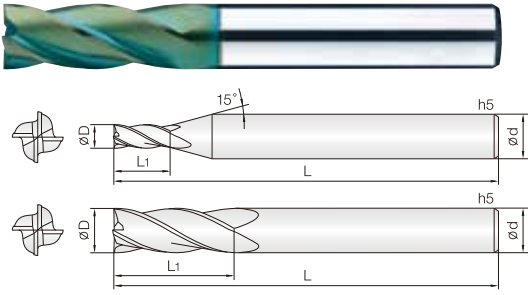
30°
Helix Angle

Shield Edge

CUTTING
DATA

D Size	D Tolerance
ø 0.03 ~ 0.15	+0 ~ -0.005mm
ø 0.2 ~ 5.5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 20	-0.015 ~ -0.03mm

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
2JJE 0003 00045 S04	0.03	0.045	40	4		2JJE 026 080 S04	2.6	8	45	4	
2JJE 0004 0006 S04	0.04	0.06	40	4		2JJE 027 080 S04	2.7	8	45	4	
2JJE 0005 0008 S04	0.05	0.08	40	4		2JJE 028 080 S04	2.8	8	45	4	
2JJE 0006 001 S04	0.06	0.1	40	4		2JJE 029 080 S04	2.9	8	45	4	
2JJE 0007 0012 S04	0.07	0.12	40	4		New 2JJE 030 080 S03	3	8	50	3	
2JJE 0008 0015 S04	0.08	0.15	40	4		2JJE 030 080 S04	3	8	45	4	
2JJE 0009 0017 S04	0.09	0.17	40	4		2JJE 030 080 S06	3	8	45	6	
2JJE 001 002 S04	0.1	0.2	40	4		2JJE 035 100 S06	3.5	10	45	6	
2JJE 0015 003 S04	0.15	0.3	40	4		2JJE 040 100 S04	4	10	45	4	
2JJE 002 004 S04	0.2	0.4	40	4		2JJE 040 110 S06	4	11	45	6	
2JJE 0025 005 S04	0.25	0.5	40	4		2JJE 045 110 S06	4.5	11	45	6	
2JJE 003 006 S04	0.3	0.6	40	4		2JJE 050 130 S06	5	13	50	6	
2JJE 0035 007 S04	0.35	0.7	40	4		2JJE 055 130 S06	5.5	13	50	6	
2JJE 004 008 S04	0.4	0.8	40	4		2JJE 060 130 S06	6	13	50	6	
2JJE 0045 009 S04	0.45	0.9	40	4		2JJE 065 160 S08	6.5	16	60	8	
2JJE 005 010 S04	0.5	1	40	4		2JJE 070 160 S08	7	16	60	8	
2JJE 0055 011 S04	0.55	1.1	40	4		2JJE 075 160 S08	7.5	16	60	8	
2JJE 006 012 S04	0.6	1.2	40	4		2JJE 080 190 S08	8	19	60	8	
2JJE 0065 013 S04	0.65	1.3	40	4		2JJE 085 190 S10	8.5	19	70	10	
2JJE 007 014 S04	0.7	1.4	40	4		2JJE 090 190 S10	9	19	70	10	
2JJE 0075 015 S04	0.75	1.5	40	4		2JJE 095 190 S10	9.5	19	70	10	
2JJE 008 016 S04	0.8	1.6	40	4		2JJE 100 220 S10	10	22	70	10	
2JJE 0085 017 S04	0.85	1.7	40	4		2JJE 105 220 S12	10.5	22	75	12	
2JJE 009 020 S04	0.9	2	40	4		2JJE 110 220 S12	11	22	75	12	
2JJE 0095 020 S04	0.95	2	40	4		2JJE 115 220 S12	11.5	22	75	12	
New 2JJE 010 025 S03	1	2.5	40	3		2JJE 120 260 S12	12	26	75	12	
2JJE 010 025 S04	1	2.5	40	4		2JJE 140 260 S14	14	26	80	14	
2JJE 010 025 S06	1	2.5	40	6		2JJE 140 260 S16	14	26	90	16	
2JJE 011 027 S04	1.1	2.7	40	4		2JJE 160 350 S16	16	35	100	16	
New 2JJE 012 030 S03	1.2	3	40	3		2JJE 180 350 S18	18	35	100	18	
2JJE 012 030 S04	1.2	3	40	4		2JJE 200 400 S20	20	40	100	20	
2JJE 013 032 S04	1.3	3.2	40	4							
2JJE 014 035 S04	1.4	3.5	40	4							
New 2JJE 015 040 S03	1.5	4	40	3							
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							
New 2JJE 020 060 S03	2	6	40	3							
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							
New 2JJE 025 080 S03	2.5	8	45	3							
2JJE 025 080 S04	2.5	8	45	4							
2JJE 025 080 S06	2.5	8	45	6							



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품질 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 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.
- Reinforced edge design for preventing edge chipping.
- Outstanding performance at high speed machining by ultra fine (0.2µm) WC grade.

4

UWC
초미립자

TISIN-S
Coating

|D|
+0 -0.01

|D|
-0.01 -0.025

|D|
-0.015 -0.03

30°
Helix Angle

Shield Edge

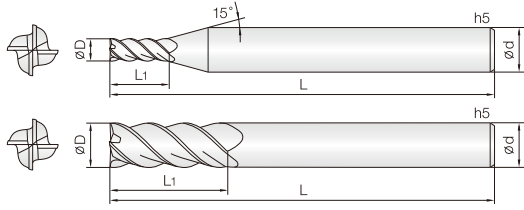
CUTTING
DATA

ø0.3 ~ 5.5 ø6 ~ 12 ø14 ~ 20 322P

D Size	D Tolerance
ø0.3 ~ 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 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
New 4JJE 003 006 S04	0.3	0.6	40	4							
New 4JJE 004 008 S04	0.4	0.8	40	4							
4JJE 005 010 S04	0.5	1	40	4							
4JJE 006 012 S04	0.6	1.2	40	4							
4JJE 007 014 S04	0.7	1.4	40	4							
4JJE 008 016 S04	0.8	1.6	40	4							
4JJE 009 018 S04	0.9	1.8	40	4							
New 4JJE 010 025 S03	1	2.5	40	3							
4JJE 010 025 S04	1	2.5	40	4							
4JJE 010 025 S06	1	2.5	40	6							
New 4JJE 012 030 S03	1.2	3	40	3							
4JJE 012 030 S04	1.2	3	40	4							
New 4JJE 015 040 S03	1.5	4	40	3							
4JJE 015 040 S04	1.5	4	40	4							
4JJE 015 040 S06	1.5	4	40	6							
New 4JJE 020 060 S03	2	6	40	3							
4JJE 020 060 S04	2	6	40	4							
4JJE 020 060 S06	2	6	40	6							
New 4JJE 025 080 S03	2.5	8	45	3							
4JJE 025 080 S04	2.5	8	45	4							
4JJE 025 080 S06	2.5	8	45	6							
New 4JJE 030 080 S03	3	8	50	3							
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							
4JJE 140 300 S14	14	30	90	14							
4JJE 160 350 S16	16	35	100	16							
4JJE 200 400 S20	20	40	100	20							



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품질 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 국내최초 날경 0.03mm 제품부터 생산합니다.
- 초미립자 초경합금(0.2 μ 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.
- Reinforced edge design for preventing edge chipping.
- Produce down to 0.03mm in diameter endmills at the first time in Korea.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.



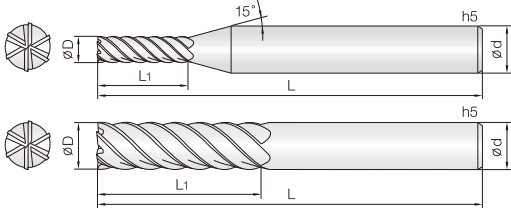
D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 14 ~ 20	-0.015 ~ -0.03mm

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
4JJHE 010 015 S06	1	1.5	40	6		4JJHE 160 350 S16	16	35	90	16	
4JJHE 010 025 S06	1	2.5	40	6		4JJHE 160 500 S16	16	50	110	16	
4JJHE 010 035 S06	1	3.5	40	6		4JJHE 160 700 S16	16	70	130	16	
4JJHE 010 050 S06	1	5	45	6		4JJHE 180 380 S18	18	38	100	18	
4JJHE 015 040 S06	1.5	4	40	6		4JJHE 200 400 S20	20	40	100	20	
4JJHE 015 060 S06	1.5	6	40	6		4JJHE 200 550 S20	20	55	120	20	
4JJHE 015 080 S06	1.5	8	40	6		4JJHE 200 750 S20	20	75	150	20	
4JJHE 020 030 S06	2	3	40	6							
4JJHE 020 050 S06	2	5	40	6							
4JJHE 020 080 S06	2	8	40	6							
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							
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							
4JJHE 030 150 S06	3	15	50	6							
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							
4JJHE 040 200 S06	4	20	60	6							
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							
4JJHE 050 250 S06	5	25	70	6							
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							
4JJHE 060 250 S06	6	25	70	6							
4JJHE 060 300 S06	6	30	75	6							
4JJHE 070 160 S08	7	16	60	8							
4JJHE 080 200 S08	8	20	60	8							
4JJHE 080 250 S08	8	25	70	8							
4JJHE 080 300 S08	8	30	80	8							
4JJHE 080 400 S08	8	40	90	8							
4JJHE 090 220 S10	9	22	70	10							
4JJHE 100 220 S10	10	22	70	10							
4JJHE 100 300 S10	10	30	80	10							
4JJHE 100 400 S10	10	40	90	10							
4JJHE 100 500 S10	10	50	100	10							
4JJHE 120 260 S12	12	26	75	12							
4JJHE 120 350 S12	12	35	90	12							
4JJHE 120 500 S12	12	50	100	12							
4JJHE 120 600 S12	12	60	110	12							
4JJHE 140 350 S14	14	35	90	14							
4JJHE 140 550 S14	14	55	110	14							

6&8날 고경도재 가공용 제이제이 45° 헬릭스 엔드밀

JJ series



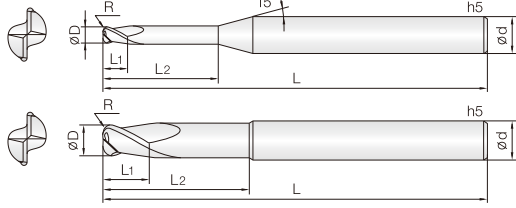
- 고경도강(HRC52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 국내최초 날경 0.03mm 제품부터 생산합니다.
- 초미립자 초경합금 (0.2 μ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRC52~70)
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- Produce down to 0.03mm in diameter endmills at the first time in Korea.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.



D Size	D Tolerance
Ø 3 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 14 ~ 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
6JJHE 030 100 S06	3	10	50	6		8JJHE 250 1000 S25	25	100	160	25	
6JJHE 030 150 S06	3	15	50	6		8JJHE 250 1300 S25	25	130	200	25	
6JJHE 030 200 S06	3	20	60	6							
6JJHE 040 120 S06	4	12	50	6							
6JJHE 040 160 S06	4	16	50	6							
6JJHE 040 200 S06	4	20	60	6							
6JJHE 050 150 S06	5	15	50	6							
6JJHE 050 200 S06	5	20	60	6							
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							
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							
6JJHE 140 350 S14	14	35	90	14							
6JJHE 140 550 S14	14	55	110	14							
New 6JJHE 140 750 S14	14	75	150	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							
6JJHE 180 400 S18	18	40	100	18							
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							
6JJHE 200 1200 S20	20	120	180	20							



2

UWC
조미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

R
± 0.015

30°
Helix Angle

CUTTING
DATA

R0.2 ~ 0.5 R1 ~ 1.5 R2 ~ 3 324P

- 고정도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너 R 형상을 날부치평이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초정합금(0.2 μ 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 μ m) WC grade.

D Size	D Tolerance
Ø 0.2 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 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	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
2JJCR 002 0002 005	0.2 X R0.02	0.2	0.5	40	4		2JJCR 005 001 040	0.5 X R0.1	0.5	4	45	4	
2JJCR 002 0002 010	0.2 X R0.02	0.2	1	40	4		2JJCR 005 001 050	0.5 X R0.1	0.5	5	45	4	
2JJCR 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2JJCR 005 001 060	0.5 X R0.1	0.5	6	45	4	
2JJCR 002 0005 005	0.2 X R0.05	0.2	0.5	40	4		New 2JJCR 005 001 080	0.5 X R0.1	0.5	8	45	4	
2JJCR 002 0005 010	0.2 X R0.05	0.2	1	40	4		New 2JJCR 005 001 100	0.5 X R0.1	0.5	10	45	4	
2JJCR 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2JJCR 006 0002 020	0.6 X R0.02	0.6	2	45	4	
2JJCR 003 0002 010	0.3 X R0.02	0.3	1	40	4		2JJCR 006 0002 030	0.6 X R0.02	0.6	3	45	4	
2JJCR 003 0002 020	0.3 X R0.02	0.3	2	40	4		2JJCR 006 0002 040	0.6 X R0.02	0.6	4	45	4	
2JJCR 003 0002 030	0.3 X R0.02	0.3	3	40	4		2JJCR 006 0002 060	0.6 X R0.02	0.6	6	45	4	
2JJCR 003 0005 010	0.3 X R0.05	0.3	1	40	4		2JJCR 006 0002 080	0.6 X R0.02	0.6	8	45	4	
2JJCR 003 0005 020	0.3 X R0.05	0.3	2	40	4		2JJCR 0060002 100	0.6 X R0.02	0.6	10	45	4	
2JJCR 003 0005 030	0.3 X R0.05	0.3	3	40	4		New 2JJCR 0060002 120	0.6 X R0.02	0.6	12	50	4	
2JJCR 004 0002 010	0.4 X R0.02	0.4	1	40	4		2JJCR 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2JJCR 004 0002 020	0.4 X R0.02	0.4	2	40	4		2JJCR 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2JJCR 004 0002 030	0.4 X R0.02	0.4	3	40	4		2JJCR 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2JJCR 004 0002 040	0.4 X R0.02	0.4	4	40	4		2JJCR 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2JJCR 004 0005 010	0.4 X R0.05	0.4	1	40	4		2JJCR 006 0005 080	0.6 X R0.05	0.6	8	45	4	
2JJCR 004 0005 020	0.4 X R0.05	0.4	2	40	4		2JJCR 0060005 100	0.6 X R0.05	0.6	10	45	4	
2JJCR 004 0005 030	0.4 X R0.05	0.4	3	40	4		New 2JJCR 0060005 120	0.6 X R0.05	0.6	12	50	4	
2JJCR 004 0005 040	0.4 X R0.05	0.4	4	40	4		2JJCR 006 001 020	0.6 X R0.1	0.6	2	45	4	
2JJCR 004 001 010	0.4 X R0.1	0.4	1	40	4		2JJCR 006 001 030	0.6 X R0.1	0.6	3	45	4	
2JJCR 004 001 015	0.4 X R0.1	0.4	1.5	40	4		2JJCR 006 001 040	0.6 X R0.1	0.6	4	45	4	
2JJCR 004 001 020	0.4 X R0.1	0.4	2	40	4		2JJCR 006 001 060	0.6 X R0.1	0.6	6	45	4	
2JJCR 004 001 030	0.4 X R0.1	0.4	3	40	4		2JJCR 006 001 080	0.6 X R0.1	0.6	8	45	4	
2JJCR 004 001 040	0.4 X R0.1	0.4	4	40	4		2JJCR 006001 100	0.6 X R0.1	0.6	10	45	4	
2JJCR 005 0002 010	0.5 X R0.02	0.5	1	45	4		New 2JJCR 006001 120	0.6 X R0.1	0.6	12	50	4	
2JJCR 005 0002 015	0.5 X R0.02	0.5	1.5	45	4		2JJCR 007 001 020	0.7 X R0.1	0.7	2	45	4	
2JJCR 005 0002 020	0.5 X R0.02	0.5	2	45	4		2JJCR 007 001 040	0.7 X R0.1	0.7	4	45	4	
2JJCR 005 0002 025	0.5 X R0.02	0.5	2.5	45	4		2JJCR 007 001 060	0.7 X R0.1	0.7	6	45	4	
2JJCR 005 0002 030	0.5 X R0.02	0.5	3	45	4		New 2JJCR 007 001 080	0.7 X R0.1	0.7	8	45	4	
2JJCR 005 0002 040	0.5 X R0.02	0.5	4	45	4		New 2JJCR 007 001 100	0.7 X R0.1	0.7	10	45	4	
2JJCR 005 0002 050	0.5 X R0.02	0.5	5	45	4		2JJCR 008 0002 020	0.8 X R0.02	0.8	2	45	4	
2JJCR 005 0002 060	0.5 X R0.02	0.5	6	45	4		2JJCR 008 0002 040	0.8 X R0.02	0.8	4	45	4	
New 2JJCR 005 0002 080	0.5 X R0.02	0.5	8	45	4		2JJCR 008 0002 060	0.8 X R0.02	0.8	6	45	4	
New 2JJCR 005 0002 100	0.5 X R0.02	0.5	10	45	4		2JJCR 008 0002 080	0.8 X R0.02	0.8	8	45	4	
2JJCR 005 0005 010	0.5 X R0.05	0.5	1	45	4		2JJCR 008 0002 100	0.8 X R0.02	0.8	10	45	4	
2JJCR 005 0005 015	0.5 X R0.05	0.5	1.5	45	4		New 2JJCR 008 0002 120	0.8 X R0.02	0.8	12	50	4	
2JJCR 005 0005 020	0.5 X R0.05	0.5	2	45	4		2JJCR 008 0005 020	0.8 X R0.05	0.8	2	45	4	
2JJCR 005 0005 025	0.5 X R0.05	0.5	2.5	45	4		2JJCR 008 0005 040	0.8 X R0.05	0.8	4	45	4	
2JJCR 005 0005 030	0.5 X R0.05	0.5	3	45	4		2JJCR 008 0005 060	0.8 X R0.05	0.8	6	45	4	
2JJCR 005 0005 040	0.5 X R0.05	0.5	4	45	4		2JJCR 008 0005 080	0.8 X R0.05	0.8	8	45	4	
2JJCR 005 0005 050	0.5 X R0.05	0.5	5	45	4		2JJCR 008 0005 100	0.8 X R0.05	0.8	10	45	4	
2JJCR 005 0005 060	0.5 X R0.05	0.5	6	45	4		New 2JJCR 008 0005 120	0.8 X R0.05	0.8	12	50	4	
New 2JJCR 005 0005 080	0.5 X R0.05	0.5	8	45	4		2JJCR 008 001 020	0.8 X R0.1	0.8	2	45	4	
New 2JJCR 005 0005 100	0.5 X R0.05	0.5	10	45	4		2JJCR 008 001 040	0.8 X R0.1	0.8	4	45	4	
2JJCR 005 001 010	0.5 X R0.1	0.5	1	45	4		2JJCR 008 001 060	0.8 X R0.1	0.8	6	45	4	
2JJCR 005 001 015	0.5 X R0.1	0.5	1.5	45	4		2JJCR 008 001 080	0.8 X R0.1	0.8	8	45	4	
2JJCR 005 001 020	0.5 X R0.1	0.5	2	45	4		2JJCR 008 001 100	0.8 X R0.1	0.8	10	45	4	
2JJCR 005 001 025	0.5 X R0.1	0.5	2.5	45	4		New 2JJCR 008 001 120	0.8 X R0.1	0.8	12	50	4	
2JJCR 005 001 030	0.5 X R0.1	0.5	3	45	4		2JJCR 008 002 020	0.8 X R0.2	0.8	2	45	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
2JJCR 008 002 040	0.8 X R0.2	0.8	4	45	4		2JJCR 012 001 100	1.2 X R0.1	1.2	10	50	4	
2JJCR 008 002 060	0.8 X R0.2	0.8	6	45	4		2JJCR 012 001 120	1.2 X R0.1	1.2	12	50	4	
2JJCR 008 002 080	0.8 X R0.2	0.8	8	45	4		New 2JJCR 012 001 140	1.2 X R0.1	1.2	14	50	4	
2JJCR 008 002 100	0.8 X R0.2	0.8	10	45	4		2JJCR 012 001 160	1.2 X R0.1	1.2	16	50	4	
New 2JJCR 008 002 120	0.8 X R0.2	0.8	12	50	4		2JJCR 012 001 200	1.2 X R0.1	1.2	20	50	4	
2JJCR 010 0002 040	1 X R0.02	1	4	45	4		2JJCR 012 002 040	1.2 X R0.2	1.2	4	45	4	
2JJCR 010 0002 060	1 X R0.02	1	6	45	4		2JJCR 012 002 060	1.2 X R0.2	1.2	6	45	4	
2JJCR 010 0002 080	1 X R0.02	1	8	45	4		2JJCR 012 002 080	1.2 X R0.2	1.2	8	45	4	
2JJCR 010 0002 100	1 X R0.02	1	10	50	4		2JJCR 012 002 100	1.2 X R0.2	1.2	10	50	4	
2JJCR 010 0002 120	1 X R0.02	1	12	50	4		2JJCR 012 002 120	1.2 X R0.2	1.2	12	50	4	
New 2JJCR 010 0002 140	1 X R0.02	1	14	50	4		New 2JJCR 012 002 140	1.2 X R0.2	1.2	14	50	4	
2JJCR 010 0002 160	1 X R0.02	1	16	50	4		2JJCR 012 002 160	1.2 X R0.2	1.2	16	50	4	
2JJCR 010 0002 200	1 X R0.02	1	20	50	4		2JJCR 012 002 200	1.2 X R0.2	1.2	20	50	4	
2JJCR 010 0005 040	1 X R0.05	1	4	45	4		2JJCR 012 003 040	1.2 X R0.3	1.2	4	45	4	
2JJCR 010 0005 060	1 X R0.05	1	6	45	4		2JJCR 012 003 060	1.2 X R0.3	1.2	6	45	4	
2JJCR 010 0005 080	1 X R0.05	1	8	45	4		2JJCR 012 003 080	1.2 X R0.3	1.2	8	45	4	
2JJCR 010 0005 100	1 X R0.05	1	10	50	4		2JJCR 012 003 100	1.2 X R0.3	1.2	10	50	4	
2JJCR 010 0005 120	1 X R0.05	1	12	50	4		2JJCR 012 003 120	1.2 X R0.3	1.2	12	50	4	
New 2JJCR 010 0005 140	1 X R0.05	1	14	50	4		New 2JJCR 012 003 140	1.2 X R0.3	1.2	14	50	4	
2JJCR 010 0005 160	1 X R0.05	1	16	50	4		2JJCR 012 003 160	1.2 X R0.3	1.2	16	50	4	
2JJCR 010 0005 200	1 X R0.05	1	20	50	4		2JJCR 012 003 200	1.2 X R0.3	1.2	20	50	4	
2JJCR 010 001 040	1 X R0.1	1	4	45	4		2JJCR 015 0002 040	1.5 X R0.02	1.5	4	45	4	
2JJCR 010 001 060	1 X R0.1	1	6	45	4		2JJCR 015 0002 060	1.5 X R0.02	1.5	6	45	4	
2JJCR 010 001 080	1 X R0.1	1	8	45	4		2JJCR 015 0002 080	1.5 X R0.02	1.5	8	45	4	
2JJCR 010 001 100	1 X R0.1	1	10	50	4		2JJCR 015 0002 100	1.5 X R0.02	1.5	10	50	4	
2JJCR 010 001 120	1 X R0.1	1	12	50	4		2JJCR 015 0002 120	1.5 X R0.02	1.5	12	50	4	
New 2JJCR 010 001 140	1 X R0.1	1	14	50	4		New 2JJCR 015 0002 140	1.5 X R0.02	1.5	14	50	4	
2JJCR 010 001 160	1 X R0.1	1	16	50	4		2JJCR 015 0002 160	1.5 X R0.02	1.5	16	50	4	
2JJCR 010 001 200	1 X R0.1	1	20	50	4		2JJCR 015 0002 200	1.5 X R0.02	1.5	20	50	4	
2JJCR 010 002 040	1 X R0.2	1	4	45	4		2JJCR 015 0005 040	1.5 X R0.05	1.5	4	45	4	
2JJCR 010 002 060	1 X R0.2	1	6	45	4		2JJCR 015 0005 060	1.5 X R0.05	1.5	6	45	4	
2JJCR 010 002 080	1 X R0.2	1	8	45	4		2JJCR 015 0005 080	1.5 X R0.05	1.5	8	45	4	
2JJCR 010 002 100	1 X R0.2	1	10	50	4		2JJCR 015 0005 100	1.5 X R0.05	1.5	10	50	4	
2JJCR 010 002 120	1 X R0.2	1	12	50	4		2JJCR 015 0005 120	1.5 X R0.05	1.5	12	50	4	
New 2JJCR 010 002 140	1 X R0.2	1	14	50	4		New 2JJCR 015 0005 140	1.5 X R0.05	1.5	14	50	4	
2JJCR 010 002 160	1 X R0.2	1	16	50	4		2JJCR 015 0005 160	1.5 X R0.05	1.5	16	50	4	
2JJCR 010 002 200	1 X R0.2	1	20	50	4		2JJCR 015 0005 200	1.5 X R0.05	1.5	20	50	4	
2JJCR 010 003 040	1 X R0.3	1	4	45	4		2JJCR 015 001 040	1.5 X R0.1	1.5	4	45	4	
2JJCR 010 003 060	1 X R0.3	1	6	45	4		2JJCR 015 001 060	1.5 X R0.1	1.5	6	45	4	
2JJCR 010 003 080	1 X R0.3	1	8	45	4		2JJCR 015 001 080	1.5 X R0.1	1.5	8	45	4	
2JJCR 010 003 100	1 X R0.3	1	10	50	4		2JJCR 015 001 100	1.5 X R0.1	1.5	10	50	4	
2JJCR 010 003 120	1 X R0.3	1	12	50	4		2JJCR 015 001 120	1.5 X R0.1	1.5	12	50	4	
New 2JJCR 010 003 140	1 X R0.3	1	14	50	4		New 2JJCR 015 001 140	1.5 X R0.1	1.5	14	50	4	
2JJCR 010 003 160	1 X R0.3	1	16	50	4		2JJCR 015 001 160	1.5 X R0.1	1.5	16	50	4	
2JJCR 010 003 200	1 X R0.3	1	20	50	4		2JJCR 015 001 200	1.5 X R0.1	1.5	20	50	4	
2JJCR 012 0002 040	1.2 X R0.02	1.2	4	45	4		2JJCR 015 002 040	1.5 X R0.2	1.5	4	45	4	
2JJCR 012 0002 060	1.2 X R0.02	1.2	6	45	4		2JJCR 015 002 060	1.5 X R0.2	1.5	6	45	4	
2JJCR 012 0002 080	1.2 X R0.02	1.2	8	45	4		2JJCR 015 002 080	1.5 X R0.2	1.5	8	45	4	
2JJCR 012 0002 100	1.2 X R0.02	1.2	10	50	4		2JJCR 015 002 100	1.5 X R0.2	1.5	10	50	4	
2JJCR 012 0002 120	1.2 X R0.02	1.2	12	50	4		2JJCR 015 002 120	1.5 X R0.2	1.5	12	50	4	
New 2JJCR 012 0002 140	1.2 X R0.02	1.2	14	50	4		New 2JJCR 015 002 140	1.5 X R0.2	1.5	14	50	4	
2JJCR 012 0002 160	1.2 X R0.02	1.2	16	50	4		2JJCR 015 002 160	1.5 X R0.2	1.5	16	50	4	
2JJCR 012 0002 200	1.2 X R0.02	1.2	20	50	4		2JJCR 015 002 200	1.5 X R0.2	1.5	20	50	4	
2JJCR 012 0005 040	1.2 X R0.05	1.2	4	45	4		2JJCR 015 003 040	1.5 X R0.3	1.5	4	45	4	
2JJCR 012 0005 060	1.2 X R0.05	1.2	6	45	4		2JJCR 015 003 060	1.5 X R0.3	1.5	6	45	4	
2JJCR 012 0005 080	1.2 X R0.05	1.2	8	45	4		2JJCR 015 003 080	1.5 X R0.3	1.5	8	45	4	
2JJCR 012 0005 100	1.2 X R0.05	1.2	10	50	4		2JJCR 015 003 100	1.5 X R0.3	1.5	10	50	4	
2JJCR 012 0005 120	1.2 X R0.05	1.2	12	50	4		2JJCR 015 003 120	1.5 X R0.3	1.5	12	50	4	
New 2JJCR 012 0005 140	1.2 X R0.05	1.2	14	50	4		New 2JJCR 015 003 140	1.5 X R0.3	1.5	14	50	4	
2JJCR 012 0005 160	1.2 X R0.05	1.2	16	50	4		2JJCR 015 003 160	1.5 X R0.3	1.5	16	50	4	
2JJCR 012 0005 200	1.2 X R0.05	1.2	20	50	4		2JJCR 015 003 200	1.5 X R0.3	1.5	20	50	4	
2JJCR 012 001 040	1.2 X R0.1	1.2	4	45	4		2JJCR 015 005 040	1.5 X R0.5	1.5	4	45	4	
2JJCR 012 001 060	1.2 X R0.1	1.2	6	45	4		2JJCR 015 005 060	1.5 X R0.5	1.5	6	45	4	
2JJCR 012 001 080	1.2 X R0.1	1.2	8	45	4		2JJCR 015 005 080	1.5 X R0.5	1.5	8	45	4	

단위: mm

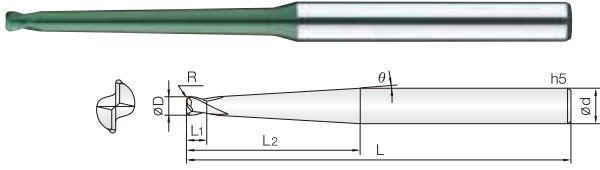
Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJCR 015 005 100	1.5 X R0.5	1.5	10	50	4		2JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4	
2JJCR 015 005 120	1.5 X R0.5	1.5	12	50	4		2JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4	
New 2JJCR 015 005 140	1.5 X R0.5	1.5	14	50	4		2JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4	
2JJCR 015 005 160	1.5 X R0.5	1.5	16	50	4		2JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4	
2JJCR 015 005 200	1.5 X R0.5	1.5	20	50	4		2JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4	
2JJCR 020 0002 060	2 X R0.02	2	6	45	4		2JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4	
2JJCR 020 0002 080	2 X R0.02	2	8	45	4		2JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4	
2JJCR 020 0002 100	2 X R0.02	2	10	50	4		2JJCR 030 001 100	3 X R0.1	3	10	50	6	
2JJCR 020 0002 120	2 X R0.02	2	12	50	4		2JJCR 030 001 120	3 X R0.1	3	12	50	6	
New 2JJCR 020 0002 140	2 X R0.02	2	14	50	4		2JJCR 030 001 160	3 X R0.1	3	16	55	6	
2JJCR 020 0002 160	2 X R0.02	2	16	50	4		2JJCR 030 001 200	3 X R0.1	3	20	60	6	
2JJCR 020 0002 200	2 X R0.02	2	20	50	4		2JJCR 030 001 250	3 X R0.1	3	25	65	6	
2JJCR 020 0002 250	2 X R0.02	2	25	60	4		2JJCR 030 001 300	3 X R0.1	3	30	70	6	
2JJCR 020 0005 060	2 X R0.05	2	6	45	4		2JJCR 030 001 350	3 X R0.1	3	35	75	6	
2JJCR 020 0005 080	2 X R0.05	2	8	45	4		2JJCR 030 001 400	3 X R0.1	3	40	80	6	
2JJCR 020 0005 100	2 X R0.05	2	10	50	4		2JJCR 030 002 100	3 X R0.2	3	10	50	6	
2JJCR 020 0005 120	2 X R0.05	2	12	50	4		2JJCR 030 002 120	3 X R0.2	3	12	50	6	
New 2JJCR 020 0005 140	2 X R0.05	2	14	50	4		2JJCR 030 002 160	3 X R0.2	3	16	55	6	
2JJCR 020 0005 160	2 X R0.05	2	16	50	4		2JJCR 030 002 200	3 X R0.2	3	20	60	6	
2JJCR 020 0005 200	2 X R0.05	2	20	50	4		2JJCR 030 002 250	3 X R0.2	3	25	65	6	
2JJCR 020 0005 250	2 X R0.05	2	25	60	4		2JJCR 030 002 300	3 X R0.2	3	30	70	6	
2JJCR 020 001 060	2 X R0.1	2	6	45	4		2JJCR 030 002 350	3 X R0.2	3	35	75	6	
2JJCR 020 001 080	2 X R0.1	2	8	45	4		2JJCR 030 002 400	3 X R0.2	3	40	80	6	
2JJCR 020 001 100	2 X R0.1	2	10	50	4		2JJCR 030 003 100	3 X R0.3	3	10	50	6	
2JJCR 020 001 120	2 X R0.1	2	12	50	4		2JJCR 030 003 120	3 X R0.3	3	12	50	6	
New 2JJCR 020 001 140	2 X R0.1	2	14	50	4		2JJCR 030 003 160	3 X R0.3	3	16	55	6	
2JJCR 020 001 160	2 X R0.1	2	16	50	4		2JJCR 030 003 200	3 X R0.3	3	20	60	6	
2JJCR 020 001 200	2 X R0.1	2	20	50	4		2JJCR 030 003 250	3 X R0.3	3	25	65	6	
2JJCR 020 001 250	2 X R0.1	2	25	60	4		2JJCR 030 003 300	3 X R0.3	3	30	70	6	
2JJCR 020 001 300	2 X R0.1	2	30	70	4		2JJCR 030 003 350	3 X R0.3	3	35	75	6	
2JJCR 020 002 060	2 X R0.2	2	6	45	4		2JJCR 030 003 400	3 X R0.3	3	40	80	6	
2JJCR 020 002 080	2 X R0.2	2	8	45	4		2JJCR 030 005 100	3 X R0.5	3	10	50	6	
2JJCR 020 002 100	2 X R0.2	2	10	50	4		2JJCR 030 005 120	3 X R0.5	3	12	50	6	
2JJCR 020 002 120	2 X R0.2	2	12	50	4		2JJCR 030 005 160	3 X R0.5	3	16	55	6	
New 2JJCR 020 002 140	2 X R0.2	2	14	50	4		2JJCR 030 005 200	3 X R0.5	3	20	60	6	
2JJCR 020 002 160	2 X R0.2	2	16	50	4		2JJCR 030 005 250	3 X R0.5	3	25	65	6	
2JJCR 020 002 200	2 X R0.2	2	20	50	4		2JJCR 030 005 300	3 X R0.5	3	30	70	6	
2JJCR 020 002 250	2 X R0.2	2	25	60	4		2JJCR 030 005 350	3 X R0.5	3	35	75	6	
2JJCR 020 002 300	2 X R0.2	2	30	70	4		2JJCR 030 005 400	3 X R0.5	3	40	80	6	
2JJCR 020 003 060	2 X R0.3	2	6	45	4		2JJCR 030 010 100	3 X R1	3	10	50	6	
2JJCR 020 003 080	2 X R0.3	2	8	45	4		2JJCR 030 010 120	3 X R1	3	12	50	6	
2JJCR 020 003 100	2 X R0.3	2	10	50	4		2JJCR 030 010 160	3 X R1	3	16	55	6	
2JJCR 020 003 120	2 X R0.3	2	12	50	4		2JJCR 030 010 200	3 X R1	3	20	60	6	
New 2JJCR 020 003 140	2 X R0.3	2	14	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	
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	
New 2JJCR 020 005 140	2 X R0.5	2	14	50	4		2JJCR 040 001 350	4 X R0.1	4	35	75	6	
2JJCR 020 005 160	2 X R0.5	2	16	50	4		2JJCR 040 001 400	4 X R0.1	4	40	80	6	
2JJCR 020 005 200	2 X R0.5	2	20	50	4		2JJCR 040 002 120	4 X R0.2	4	12	50	6	
2JJCR 020 005 250	2 X R0.5	2	25	60	4		2JJCR 040 002 160	4 X R0.2	4	16	55	6	
2JJCR 020 005 300	2 X R0.5	2	30	70	4		2JJCR 040 002 200	4 X R0.2	4	20	60	6	
2JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4		2JJCR 040 002 250	4 X R0.2	4	25	65	6	
2JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4		2JJCR 040 002 300	4 X R0.2	4	30	70	6	
2JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4		2JJCR 040 002 350	4 X R0.2	4	35	75	6	
2JJCR 025 001 250	2.5 X R0.1	2.5	25	60	4		2JJCR 040 002 400	4 X R0.2	4	40	80	6	
2JJCR 025 001 300	2.5 X R0.1	2.5	30	70	4		2JJCR 040 003 120	4 X R0.3	4	12	50	6	
2JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4		2JJCR 040 003 160	4 X R0.3	4	16	55	6	
2JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4		2JJCR 040 003 200	4 X R0.3	4	20	60	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	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 040 003 250	4 X R0.3	4	25	65	6								
2JJCR 040 003 300	4 X R0.3	4	30	70	6								
2JJCR 040 003 350	4 X R0.3	4	35	75	6								
2JJCR 040 003 400	4 X R0.3	4	40	80	6								
2JJCR 040 005 120	4 X R0.5	4	12	50	6								
2JJCR 040 005 160	4 X R0.5	4	16	55	6								
2JJCR 040 005 200	4 X R0.5	4	20	60	6								
2JJCR 040 005 250	4 X R0.5	4	25	65	6								
2JJCR 040 005 300	4 X R0.5	4	30	70	6								
2JJCR 040 005 350	4 X R0.5	4	35	75	6								
2JJCR 040 005 400	4 X R0.5	4	40	80	6								
2JJCR 040 010 120	4 X R1	4	12	50	6								
2JJCR 040 010 160	4 X R1	4	16	55	6								
2JJCR 040 010 200	4 X R1	4	20	60	6								
2JJCR 040 010 250	4 X R1	4	25	65	6								
2JJCR 040 010 300	4 X R1	4	30	70	6								
2JJCR 040 010 350	4 X R1	4	35	75	6								
2JJCR 040 010 400	4 X R1	4	40	80	6								
2JJCR 050 002 150	5 X R0.2	6	15	60	6								
2JJCR 050 002 250	5 X R0.2	6	25	70	6								
2JJCR 050 002 300	5 X R0.2	6	30	70	6								
2JJCR 050 002 400	5 X R0.2	6	40	80	6								
2JJCR 050 005 150	5 X R0.5	6	15	60	6								
2JJCR 050 005 250	5 X R0.5	6	25	70	6								
2JJCR 050 005 300	5 X R0.5	6	30	70	6								
2JJCR 050 005 400	5 X R0.5	6	40	80	6								
2JJCR 050 010 150	5 X R1	6	15	60	6								
2JJCR 050 010 250	5 X R1	6	25	70	6								
2JJCR 050 010 300	5 X R1	6	30	70	6								
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 고정도재 가공용 제이제이 테이퍼 넥 코너 레디우스 엔드밀



- 고정도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고힘량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장율테이퍼설계하여깊은홈작업시목부파손및떨림을최소화 하였습니다.
- 코너R 형상을 날부치평이 적도록 설계하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금(0.2 μ m)을채택, 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 by 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 μ m) WC grade.

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

단위: mm

Order Number	날경 Diameter D×R	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 D×R	각도 Angle θ	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 2501	2 X R0.3	1°	2	25	60	4	
2JJTC 010 001 1001	1 X R0.1	1°	1	10	50	4		2JJTC 020 003 3001	2 X R0.3	1°	2	30	70	4	
2JJTC 010 001 1501	1 X R0.1	1°	1	15	50	4		2JJTC 020 003 3501	2 X R0.3	1°	2	35	75	4	
2JJTC 010 001 2001	1 X R0.1	1°	1	20	60	4		2JJTC 020 003 4001	2 X R0.3	1°	2	40	80	4	
2JJTC 010 001 2501	1 X R0.1	1°	1	25	60	4		2JJTC 020 003 5001	2 X R0.3	1°	2	50	90	4	
2JJTC 010 001 3001	1 X R0.1	1°	1	30	70	4		2JJTC 020 005 1201	2 X R0.5	1°	2	12	50	4	
2JJTC 010 001 3501	1 X R0.1	1°	1	35	75	4		2JJTC 020 005 1601	2 X R0.5	1°	2	16	50	4	
2JJTC 010 002 0601	1 X R0.2	1°	1	6	50	4		2JJTC 020 005 2001	2 X R0.5	1°	2	20	60	4	
2JJTC 010 002 1001	1 X R0.2	1°	1	10	50	4		2JJTC 020 005 2501	2 X R0.5	1°	2	25	60	4	
2JJTC 010 002 1501	1 X R0.2	1°	1	15	50	4		2JJTC 020 005 3001	2 X R0.5	1°	2	30	70	4	
2JJTC 010 002 2001	1 X R0.2	1°	1	20	60	4		2JJTC 020 005 3501	2 X R0.5	1°	2	35	75	4	
2JJTC 010 002 2501	1 X R0.2	1°	1	25	60	4		2JJTC 020 005 4001	2 X R0.5	1°	2	40	80	4	
2JJTC 010 002 3001	1 X R0.2	1°	1	30	70	4		2JJTC 020 005 5001	2 X R0.5	1°	2	50	90	4	
2JJTC 010 002 3501	1 X R0.2	1°	1	35	75	4		2JJTC 030 002 2001	3 X R0.2	1°	3	20	60	6	
2JJTC 010 003 0601	1 X R0.3	1°	1	6	50	4		2JJTC 030 002 3001	3 X R0.2	1°	3	30	70	6	
2JJTC 010 003 1001	1 X R0.3	1°	1	10	50	4		2JJTC 030 002 4001	3 X R0.2	1°	3	40	80	6	
2JJTC 010 003 1501	1 X R0.3	1°	1	15	50	4		2JJTC 030 002 5001	3 X R0.2	1°	3	50	90	6	
2JJTC 010 003 2001	1 X R0.3	1°	1	20	60	4		2JJTC 030 002 6001	3 X R0.2	1°	3	60	100	6	
2JJTC 010 003 2501	1 X R0.3	1°	1	25	60	4		2JJTC 030 003 2001	3 X R0.3	1°	3	20	60	6	
2JJTC 010 003 3001	1 X R0.3	1°	1	30	70	4		2JJTC 030 003 3001	3 X R0.3	1°	3	30	70	6	
2JJTC 010 003 3501	1 X R0.3	1°	1	35	75	4		2JJTC 030 003 4001	3 X R0.3	1°	3	40	80	6	
2JJTC 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4		2JJTC 030 003 5001	3 X R0.3	1°	3	50	90	6	
2JJTC 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4		2JJTC 030 003 6001	3 X R0.3	1°	3	60	100	6	
2JJTC 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4		2JJTC 030 005 2001	3 X R0.5	1°	3	20	60	6	
2JJTC 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4		2JJTC 030 005 3001	3 X R0.5	1°	3	30	70	6	
2JJTC 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4		2JJTC 030 005 4001	3 X R0.5	1°	3	40	80	6	
2JJTC 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4		2JJTC 030 005 5001	3 X R0.5	1°	3	50	90	6	
2JJTC 015 003 1001	1.5 X R0.3	1°	1.5	10	50	4		2JJTC 030 005 6001	3 X R0.5	1°	3	60	100	6	
2JJTC 015 003 1501	1.5 X R0.3	1°	1.5	15	50	4		2JJTC 030 010 2001	3 X R1	1°	3	20	60	6	
2JJTC 015 003 2001	1.5 X R0.3	1°	1.5	20	60	4		2JJTC 030 010 3001	3 X R1	1°	3	30	70	6	
2JJTC 015 003 2501	1.5 X R0.3	1°	1.5	25	60	4		2JJTC 030 010 4001	3 X R1	1°	3	40	80	6	
2JJTC 015 003 3001	1.5 X R0.3	1°	1.5	30	70	4		2JJTC 030 010 5001	3 X R1	1°	3	50	90	6	
2JJTC 015 003 3501	1.5 X R0.3	1°	1.5	35	75	4		2JJTC 030 010 6001	3 X R1	1°	3	60	100	6	
2JJTC 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4		2JJTC 040 002 2001	4 X R0.2	1°	4	20	60	6	
2JJTC 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4		2JJTC 040 002 3001	4 X R0.2	1°	4	30	70	6	
2JJTC 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4		2JJTC 040 002 4001	4 X R0.2	1°	4	40	80	6	
2JJTC 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4		2JJTC 040 002 5001	4 X R0.2	1°	4	50	90	6	
2JJTC 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4		2JJTC 040 002 6001	4 X R0.2	1°	4	60	100	6	
2JJTC 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4		2JJTC 040 003 2001	4 X R0.3	1°	4	20	60	6	
2JJTC 020 002 1201	2 X R0.2	1°	2	12	50	4		2JJTC 040 003 3001	4 X R0.3	1°	4	30	70	6	
2JJTC 020 002 1601	2 X R0.2	1°	2	16	50	4		2JJTC 040 003 4001	4 X R0.3	1°	4	40	80	6	
2JJTC 020 002 2001	2 X R0.2	1°	2	20	60	4		2JJTC 040 003 5001	4 X R0.3	1°	4	50	90	6	
2JJTC 020 002 2501	2 X R0.2	1°	2	25	60	4		2JJTC 040 003 6001	4 X R0.3	1°	4	60	100	6	
2JJTC 020 002 3001	2 X R0.2	1°	2	30	70	4		2JJTC 040 005 2001	4 X R0.5	1°	4	20	60	6	
2JJTC 020 002 3501	2 X R0.2	1°	2	35	75	4		2JJTC 040 005 3001	4 X R0.5	1°	4	30	70	6	
2JJTC 020 002 4001	2 X R0.2	1°	2	40	80	4		2JJTC 040 005 4001	4 X R0.5	1°	4	40	80	6	
2JJTC 020 002 5001	2 X R0.2	1°	2	50	90	4		2JJTC 040 005 5001	4 X R0.5	1°	4	50	90	6	
2JJTC 020 003 1201	2 X R0.3	1°	2	12	50	4		2JJTC 040 005 6001	4 X R0.5	1°	4	60	100	6	
2JJTC 020 003 1601	2 X R0.3	1°	2	16	50	4		2JJTC 040 010 2001	4 X R1	1°	4	20	60	6	
2JJTC 020 003 2001	2 X R0.3	1°	2	20	60	4		2JJTC 040 010 3001	4 X R1	1°	4	30	70	6	

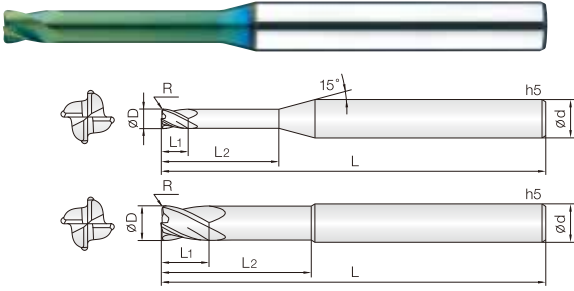


2 Flutes JJ Taper Neck Corner Radius End Mills for Hardened Steels

2날 고경도재 가공용 제이제이 테이퍼 넥 코너 레디우스 엔드밀

단위: mm

Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Dia d	비고	Order Number	날경 Diameter D×R	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Dia d	비고
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									



- 고정도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
 - 고품질 실리콘 계코팅(Si) 처리하여 내마모성이 우수합니다.
 - 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
 - 코너R 형상을 날부치핑이 적도록 설계하였습니다.
 - 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
 - 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.
 - 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 (0.2µm) WC grade.

4

UWC
초미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

R
± 0.015

30°
Helix Angle

CUTTING
DATA

R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 3 325P

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	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
4JJCR 005 0005 020	0.5 X R0.05	0.5	2	45	4		4JJCR 010 0005 040	1 X R0.05	1	4	45	4	
4JJCR 005 0005 040	0.5 X R0.05	0.5	4	45	4		4JJCR 010 0005 060	1 X R0.05	1	6	45	4	
4JJCR 005 0005 060	0.5 X R0.05	0.5	6	45	4		4JJCR 010 0005 080	1 X R0.05	1	8	45	4	
4JJCR 005 0005 080	0.5 X R0.05	0.5	8	45	4		4JJCR 010 0005 100	1 X R0.05	1	10	50	4	
4JJCR 005 001 020	0.5 X R0.1	0.5	2	45	4		4JJCR 010 0005 120	1 X R0.05	1	12	50	4	
4JJCR 005 001 040	0.5 X R0.1	0.5	4	45	4		New 4JJCR 010 0005 140	1 X R0.05	1	14	50	4	
4JJCR 005 001 060	0.5 X R0.1	0.5	6	45	4		New 4JJCR 010 0005 160	1 X R0.05	1	16	50	4	
4JJCR 005 001 080	0.5 X R0.1	0.5	8	45	4		New 4JJCR 010 0005 200	1 X R0.05	1	20	50	4	
4JJCR 006 0005 020	0.6 X R0.05	0.6	2	45	4		4JJCR 010 001 040	1 X R0.1	1	4	45	4	
4JJCR 006 0005 040	0.6 X R0.05	0.6	4	45	4		4JJCR 010 001 060	1 X R0.1	1	6	45	4	
4JJCR 006 0005 060	0.6 X R0.05	0.6	6	45	4		4JJCR 010 001 080	1 X R0.1	1	8	45	4	
4JJCR 006 0005 080	0.6 X R0.05	0.6	8	45	4		4JJCR 010 001 100	1 X R0.1	1	10	50	4	
4JJCR 006 001 020	0.6 X R0.1	0.6	2	45	4		4JJCR 010 001 120	1 X R0.1	1	12	50	4	
4JJCR 006 001 040	0.6 X R0.1	0.6	4	45	4		New 4JJCR 010 001 140	1 X R0.1	1	14	50	4	
4JJCR 006 001 060	0.6 X R0.1	0.6	6	45	4		New 4JJCR 010 001 160	1 X R0.1	1	16	50	4	
4JJCR 006 001 080	0.6 X R0.1	0.6	8	45	4		New 4JJCR 010 001 200	1 X R0.1	1	20	50	4	
4JJCR 007 0005 020	0.7 X R0.05	0.7	2	45	4		4JJCR 010 002 040	1 X R0.2	1	4	45	4	
4JJCR 007 0005 040	0.7 X R0.05	0.7	4	45	4		4JJCR 010 002 060	1 X R0.2	1	6	45	4	
4JJCR 007 0005 060	0.7 X R0.05	0.7	6	45	4		4JJCR 010 002 080	1 X R0.2	1	8	45	4	
4JJCR 007 0005 080	0.7 X R0.05	0.7	8	45	4		4JJCR 010 002 100	1 X R0.2	1	10	50	4	
4JJCR 007 001 020	0.7 X R0.1	0.7	2	45	4		4JJCR 010 002 120	1 X R0.2	1	12	50	4	
4JJCR 007 001 040	0.7 X R0.1	0.7	4	45	4		New 4JJCR 010 002 140	1 X R0.2	1	14	50	4	
4JJCR 007 001 060	0.7 X R0.1	0.7	6	45	4		New 4JJCR 010 002 160	1 X R0.2	1	16	50	4	
4JJCR 007 001 080	0.7 X R0.1	0.7	8	45	4		New 4JJCR 010 002 200	1 X R0.2	1	20	50	4	
4JJCR 008 0002 020	0.8 X R0.02	0.8	2	45	4		4JJCR 010 003 040	1 X R0.3	1	4	45	4	
4JJCR 008 0002 040	0.8 X R0.02	0.8	4	45	4		4JJCR 010 003 060	1 X R0.3	1	6	45	4	
4JJCR 008 0002 060	0.8 X R0.02	0.8	6	45	4		4JJCR 010 003 080	1 X R0.3	1	8	45	4	
4JJCR 008 0002 080	0.8 X R0.02	0.8	8	45	4		4JJCR 010 003 100	1 X R0.3	1	10	50	4	
4JJCR 008 0002 100	0.8 X R0.02	0.8	10	45	4		4JJCR 010 003 120	1 X R0.3	1	12	50	4	
New 4JJCR 008 0002 120	0.8 X R0.02	0.8	12	50	4		New 4JJCR 010 003 140	1 X R0.3	1	14	50	4	
4JJCR 008 0005 020	0.8 X R0.05	0.8	2	45	4		New 4JJCR 010 003 160	1 X R0.3	1	16	50	4	
4JJCR 008 0005 040	0.8 X R0.05	0.8	4	45	4		New 4JJCR 010 003 200	1 X R0.3	1	20	50	4	
4JJCR 008 0005 060	0.8 X R0.05	0.8	6	45	4		4JJCR 012 0002 040	1.2 X R0.02	1.2	4	45	4	
4JJCR 008 0005 080	0.8 X R0.05	0.8	8	45	4		4JJCR 012 0002 060	1.2 X R0.02	1.2	6	45	4	
4JJCR 008 0005 100	0.8 X R0.05	0.8	10	45	4		4JJCR 012 0002 080	1.2 X R0.02	1.2	8	45	4	
New 4JJCR 008 0005 120	0.8 X R0.05	0.8	12	50	4		4JJCR 012 0002 100	1.2 X R0.02	1.2	10	50	4	
4JJCR 008 001 020	0.8 X R0.1	0.8	2	45	4		4JJCR 012 0002 120	1.2 X R0.02	1.2	12	50	4	
4JJCR 008 001 040	0.8 X R0.1	0.8	4	45	4		New 4JJCR 012 0002 140	1.2 X R0.02	1.2	14	50	4	
4JJCR 008 001 060	0.8 X R0.1	0.8	6	45	4		New 4JJCR 012 0002 160	1.2 X R0.02	1.2	16	50	4	
4JJCR 008 001 080	0.8 X R0.1	0.8	8	45	4		New 4JJCR 012 0002 200	1.2 X R0.02	1.2	20	50	4	
4JJCR 008 001 100	0.8 X R0.1	0.8	10	45	4		4JJCR 012 0005 040	1.2 X R0.05	1.2	4	45	4	
4JJCR 008 001 120	0.8 X R0.1	0.8	12	50	4		4JJCR 012 0005 060	1.2 X R0.05	1.2	6	45	4	
4JJCR 010 0002 040	1 X R0.02	1	4	45	4		4JJCR 012 0005 080	1.2 X R0.05	1.2	8	45	4	
4JJCR 010 0002 060	1 X R0.02	1	6	45	4		4JJCR 012 0005 100	1.2 X R0.05	1.2	10	50	4	
4JJCR 010 0002 080	1 X R0.02	1	8	45	4		4JJCR 012 0005 120	1.2 X R0.05	1.2	12	50	4	
4JJCR 010 0002 100	1 X R0.02	1	10	50	4		New 4JJCR 012 0005 140	1.2 X R0.05	1.2	14	50	4	
4JJCR 010 0002 120	1 X R0.02	1	12	50	4		New 4JJCR 012 0005 160	1.2 X R0.05	1.2	16	50	4	
New 4JJCR 010 0002 140	1 X R0.02	1	14	50	4		New 4JJCR 012 0005 200	1.2 X R0.05	1.2	20	50	4	
New 4JJCR 010 0002 160	1 X R0.02	1	16	50	4		4JJCR 012 001 040	1.2 X R0.1	1.2	4	45	4	
New 4JJCR 010 0002 200	1 X R0.02	1	20	50	4		4JJCR 012 001 060	1.2 X R0.1	1.2	6	45	4	

JJ series

단위: mm

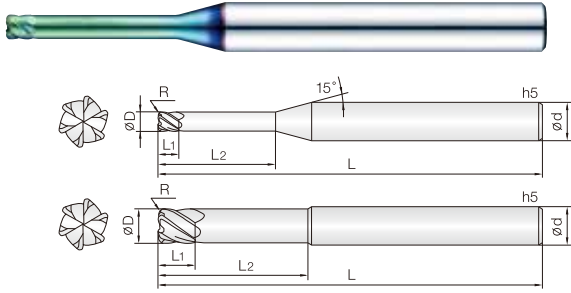
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4JJCR 012 001 080	1.2 X R0.1	1.2	8	45	4		4JJCR 015 005 120	1.5 X R0.5	1.5	12	50	4	
4JJCR 012 001 100	1.2 X R0.1	1.2	10	50	4		New 4JJCR 015 005 140	1.5 X R0.5	1.5	14	50	4	
4JJCR 012 001 120	1.2 X R0.1	1.2	12	50	4		4JJCR 015 005 160	1.5 X R0.5	1.5	16	50	4	
New 4JJCR 012 001 140	1.2 X R0.1	1.2	14	50	4		New 4JJCR 015 005 200	1.5 X R0.5	1.5	20	50	4	
New 4JJCR 012 001 160	1.2 X R0.1	1.2	16	50	4		New 4JJCR 015 005 220	1.5 X R0.5	1.5	22	60	4	
New 4JJCR 012 001 200	1.2 X R0.1	1.2	20	50	4		New 4JJCR 015 005 250	1.5 X R0.5	1.5	25	60	4	
4JJCR 012 002 040	1.2 X R0.2	1.2	4	45	4		4JJCR 020 0002 060	2 X R0.02	2	6	45	4	
4JJCR 012 002 060	1.2 X R0.2	1.2	6	45	4		4JJCR 020 0002 080	2 X R0.02	2	8	45	4	
4JJCR 012 002 080	1.2 X R0.2	1.2	8	45	4		4JJCR 020 0002 100	2 X R0.02	2	10	50	4	
4JJCR 012 002 100	1.2 X R0.2	1.2	10	50	4		4JJCR 020 0002 120	2 X R0.02	2	12	50	4	
4JJCR 012 002 120	1.2 X R0.2	1.2	12	50	4		New 4JJCR 020 0002 140	2 X R0.02	2	14	50	4	
New 4JJCR 012 002 140	1.2 X R0.2	1.2	14	50	4		4JJCR 020 0002 160	2 X R0.02	2	16	50	4	
New 4JJCR 012 002 160	1.2 X R0.2	1.2	16	50	4		4JJCR 020 0002 200	2 X R0.02	2	20	50	4	
New 4JJCR 012 002 200	1.2 X R0.2	1.2	20	50	4		4JJCR 020 0002 250	2 X R0.02	2	25	60	4	
4JJCR 012 003 040	1.2 X R0.3	1.2	4	45	4		New 4JJCR 020 0002 300	2 X R0.02	2	30	70	4	
4JJCR 012 003 060	1.2 X R0.3	1.2	6	45	4		4JJCR 020 0005 060	2 X R0.05	2	6	45	4	
4JJCR 012 003 080	1.2 X R0.3	1.2	8	45	4		4JJCR 020 0005 080	2 X R0.05	2	8	45	4	
4JJCR 012 003 100	1.2 X R0.3	1.2	10	50	4		4JJCR 020 0005 100	2 X R0.05	2	10	50	4	
4JJCR 012 003 120	1.2 X R0.3	1.2	12	50	4		4JJCR 020 0005 120	2 X R0.05	2	12	50	4	
4JJCR 015 0002 060	1.5 X R0.02	1.5	6	45	4		New 4JJCR 020 0005 140	2 X R0.05	2	14	50	4	
4JJCR 015 0002 080	1.5 X R0.02	1.5	8	45	4		4JJCR 020 0005 160	2 X R0.05	2	16	50	4	
4JJCR 015 0002 100	1.5 X R0.02	1.5	10	50	4		4JJCR 020 0005 200	2 X R0.05	2	20	50	4	
4JJCR 015 0002 120	1.5 X R0.02	1.5	12	50	4		4JJCR 020 0005 250	2 X R0.05	2	25	60	4	
New 4JJCR 015 0002 140	1.5 X R0.02	1.5	14	50	4		New 4JJCR 020 0005 300	2 X R0.05	2	30	70	4	
4JJCR 015 0002 160	1.5 X R0.02	1.5	16	50	4		4JJCR 020 001 060	2 X R0.1	2	6	45	4	
New 4JJCR 015 0002 200	1.5 X R0.02	1.5	20	50	4		4JJCR 020 001 080	2 X R0.1	2	8	45	4	
New 4JJCR 015 0002 220	1.5 X R0.02	1.5	22	60	4		4JJCR 020 001 100	2 X R0.1	2	10	50	4	
4JJCR 015 0005 060	1.5 X R0.05	1.5	6	45	4		4JJCR 020 001 120	2 X R0.1	2	12	50	4	
4JJCR 015 0005 080	1.5 X R0.05	1.5	8	45	4		New 4JJCR 020 001 140	2 X R0.1	2	14	50	4	
4JJCR 015 0005 100	1.5 X R0.05	1.5	10	50	4		4JJCR 020 001 160	2 X R0.1	2	16	50	4	
4JJCR 015 0005 120	1.5 X R0.05	1.5	12	50	4		4JJCR 020 001 200	2 X R0.1	2	20	50	4	
New 4JJCR 015 0005 140	1.5 X R0.05	1.5	14	50	4		4JJCR 020 001 250	2 X R0.1	2	25	60	4	
4JJCR 015 0005 160	1.5 X R0.05	1.5	16	50	4		New 4JJCR 020 001 300	2 X R0.1	2	30	70	4	
New 4JJCR 015 0005 200	1.5 X R0.05	1.5	20	50	4		4JJCR 020 002 060	2 X R0.2	2	6	45	4	
New 4JJCR 015 0005 220	1.5 X R0.05	1.5	22	60	4		4JJCR 020 002 080	2 X R0.2	2	8	45	4	
4JJCR 015 001 060	1.5 X R0.1	1.5	6	45	4		4JJCR 020 002 100	2 X R0.2	2	10	50	4	
4JJCR 015 001 080	1.5 X R0.1	1.5	8	45	4		4JJCR 020 002 120	2 X R0.2	2	12	50	4	
4JJCR 015 001 100	1.5 X R0.1	1.5	10	50	4		New 4JJCR 020 002 140	2 X R0.2	2	14	50	4	
4JJCR 015 001 120	1.5 X R0.1	1.5	12	50	4		4JJCR 020 002 160	2 X R0.2	2	16	50	4	
New 4JJCR 015 001 140	1.5 X R0.1	1.5	14	50	4		4JJCR 020 002 200	2 X R0.2	2	20	50	4	
4JJCR 015 001 160	1.5 X R0.1	1.5	16	50	4		4JJCR 020 002 250	2 X R0.2	2	25	60	4	
New 4JJCR 015 001 200	1.5 X R0.1	1.5	20	50	4		New 4JJCR 020 002 300	2 X R0.2	2	30	70	4	
New 4JJCR 015 001 220	1.5 X R0.1	1.5	22	60	4		4JJCR 020 003 060	2 X R0.3	2	6	45	4	
4JJCR 015 002 060	1.5 X R0.2	1.5	6	45	4		4JJCR 020 003 080	2 X R0.3	2	8	45	4	
4JJCR 015 002 080	1.5 X R0.2	1.5	8	45	4		4JJCR 020 003 100	2 X R0.3	2	10	50	4	
4JJCR 015 002 100	1.5 X R0.2	1.5	10	50	4		4JJCR 020 003 120	2 X R0.3	2	12	50	4	
4JJCR 015 002 120	1.5 X R0.2	1.5	12	50	4		New 4JJCR 020 003 140	2 X R0.3	2	14	50	4	
New 4JJCR 015 002 140	1.5 X R0.2	1.5	14	50	4		4JJCR 020 003 160	2 X R0.3	2	16	50	4	
4JJCR 015 002 160	1.5 X R0.2	1.5	16	50	4		4JJCR 020 003 200	2 X R0.3	2	20	50	4	
New 4JJCR 015 002 200	1.5 X R0.2	1.5	20	50	4		4JJCR 020 003 250	2 X R0.3	2	25	60	4	
New 4JJCR 015 002 220	1.5 X R0.2	1.5	22	60	4		New 4JJCR 020 003 300	2 X R0.3	2	30	70	4	
New 4JJCR 015 002 250	1.5 X R0.2	1.5	25	60	4		4JJCR 020 005 060	2 X R0.5	2	6	45	4	
4JJCR 015 003 060	1.5 X R0.3	1.5	6	45	4		4JJCR 020 005 080	2 X R0.5	2	8	45	4	
4JJCR 015 003 080	1.5 X R0.3	1.5	8	45	4		4JJCR 020 005 100	2 X R0.5	2	10	50	4	
4JJCR 015 003 100	1.5 X R0.3	1.5	10	50	4		4JJCR 020 005 120	2 X R0.5	2	12	50	4	
4JJCR 015 003 120	1.5 X R0.3	1.5	12	50	4		New 4JJCR 020 005 140	2 X R0.5	2	14	50	4	
New 4JJCR 015 003 140	1.5 X R0.3	1.5	14	50	4		4JJCR 020 005 160	2 X R0.5	2	16	50	4	
4JJCR 015 003 160	1.5 X R0.3	1.5	16	50	4		4JJCR 020 005 200	2 X R0.5	2	20	50	4	
New 4JJCR 015 003 200	1.5 X R0.3	1.5	20	50	4		4JJCR 020 005 250	2 X R0.5	2	25	60	4	
New 4JJCR 015 003 220	1.5 X R0.3	1.5	22	60	4		New 4JJCR 020 005 300	2 X R0.5	2	30	70	4	
New 4JJCR 015 003 250	1.5 X R0.3	1.5	25	60	4		4JJCR 025 001 100	2.5 X R0.1	2.5	10	50	4	
4JJCR 015 005 060	1.5 X R0.5	1.5	6	45	4		4JJCR 025 001 160	2.5 X R0.1	2.5	16	50	4	
4JJCR 015 005 080	1.5 X R0.5	1.5	8	45	4		4JJCR 025 001 200	2.5 X R0.1	2.5	20	50	4	
4JJCR 015 005 100	1.5 X R0.5	1.5	10	50	4		4JJCR 025 001 250	2.5 X R0.1	2.5	25	60	4	

단위: mm

Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
New 4JJCR 025 001 300	2.5 X R0.1	2.5	30	70	4		4JJCR 040 001 160	4 X R0.1	4	16	55	6	
4JJCR 025 002 100	2.5 X R0.2	2.5	10	50	4		4JJCR 040 001 200	4 X R0.1	4	20	60	6	
4JJCR 025 002 160	2.5 X R0.2	2.5	16	50	4		4JJCR 040 001 250	4 X R0.1	4	25	65	6	
4JJCR 025 002 200	2.5 X R0.2	2.5	20	50	4		4JJCR 040 001 300	4 X R0.1	4	30	70	6	
4JJCR 025 002 250	2.5 X R0.2	2.5	25	60	4		4JJCR 040 001 350	4 X R0.1	4	35	75	6	
New 4JJCR 025 002 300	2.5 X R0.2	2.5	30	70	4		4JJCR 040 001 400	4 X R0.1	4	40	80	6	
4JJCR 025 003 100	2.5 X R0.3	2.5	10	50	4		4JJCR 040 002 130	4 X R0.2	4	13	55	6	
4JJCR 025 003 160	2.5 X R0.3	2.5	16	50	4		4JJCR 040 002 160	4 X R0.2	4	16	55	6	
4JJCR 025 003 200	2.5 X R0.3	2.5	20	50	4		4JJCR 040 002 200	4 X R0.2	4	20	60	6	
4JJCR 025 003 250	2.5 X R0.3	2.5	25	60	4		4JJCR 040 002 250	4 X R0.2	4	25	65	6	
New 4JJCR 025 003 300	2.5 X R0.3	2.5	30	70	4		4JJCR 040 002 300	4 X R0.2	4	30	70	6	
4JJCR 025 005 100	2.5 X R0.5	2.5	10	50	4		4JJCR 040 002 350	4 X R0.2	4	35	75	6	
4JJCR 025 005 160	2.5 X R0.5	2.5	16	50	4		4JJCR 040 002 400	4 X R0.2	4	40	80	6	
4JJCR 025 005 200	2.5 X R0.5	2.5	20	50	4		4JJCR 040 002 450	4 X R0.2	4	45	90	6	
4JJCR 025 005 250	2.5 X R0.5	2.5	25	60	4		4JJCR 040 002 500	4 X R0.2	4	50	100	6	
New 4JJCR 025 005 300	2.5 X R0.5	2.5	30	70	4		4JJCR 040 003 130	4 X R0.3	4	13	55	6	
4JJCR 030 001 100	3 X R0.1	3	10	50	6		4JJCR 040 003 160	4 X R0.3	4	16	55	6	
4JJCR 030 001 120	3 X R0.1	3	12	50	6		4JJCR 040 003 200	4 X R0.3	4	20	60	6	
4JJCR 030 001 160	3 X R0.1	3	16	55	6		4JJCR 040 003 250	4 X R0.3	4	25	65	6	
4JJCR 030 001 200	3 X R0.1	3	20	60	6		4JJCR 040 003 300	4 X R0.3	4	30	70	6	
4JJCR 030 001 250	3 X R0.1	3	25	65	6		4JJCR 040 003 350	4 X R0.3	4	35	75	6	
4JJCR 030 001 300	3 X R0.1	3	30	70	6		4JJCR 040 003 400	4 X R0.3	4	40	80	6	
4JJCR 030 001 350	3 X R0.1	3	35	75	6		4JJCR 040 003 450	4 X R0.3	4	45	90	6	
New 4JJCR 030 001 400	3 X R0.1	3	40	80	6		4JJCR 040 003 500	4 X R0.3	4	50	100	6	
New 4JJCR 030 001 450	3 X R0.1	3	45	90	6		4JJCR 040 005 130	4 X R0.5	4	13	55	6	
4JJCR 030 002 100	3 X R0.2	3	10	50	6		4JJCR 040 005 160	4 X R0.5	4	16	55	6	
4JJCR 030 002 120	3 X R0.2	3	12	50	6		4JJCR 040 005 200	4 X R0.5	4	20	60	6	
4JJCR 030 002 160	3 X R0.2	3	16	55	6		4JJCR 040 005 250	4 X R0.5	4	25	65	6	
4JJCR 030 002 200	3 X R0.2	3	20	60	6		4JJCR 040 005 300	4 X R0.5	4	30	70	6	
4JJCR 030 002 250	3 X R0.2	3	25	65	6		4JJCR 040 005 350	4 X R0.5	4	35	75	6	
4JJCR 030 002 300	3 X R0.2	3	30	70	6		4JJCR 040 005 400	4 X R0.5	4	40	80	6	
4JJCR 030 002 350	3 X R0.2	3	35	75	6		4JJCR 040 005 450	4 X R0.5	4	45	90	6	
4JJCR 030 002 400	3 X R0.2	3	40	80	6		4JJCR 040 005 500	4 X R0.5	4	50	100	6	
New 4JJCR 030 002 450	3 X R0.2	3	45	90	6		New 4JJCR 040 005 550	4 X R0.5	4	55	100	6	
4JJCR 030 003 100	3 X R0.3	3	10	50	6		4JJCR 040 010 130	4 X R1	4	13	55	6	
4JJCR 030 003 120	3 X R0.3	3	12	50	6		4JJCR 040 010 160	4 X R1	4	16	55	6	
4JJCR 030 003 160	3 X R0.3	3	16	55	6		4JJCR 040 010 200	4 X R1	4	20	60	6	
4JJCR 030 003 200	3 X R0.3	3	20	60	6		4JJCR 040 010 250	4 X R1	4	25	65	6	
4JJCR 030 003 250	3 X R0.3	3	25	65	6		4JJCR 040 010 300	4 X R1	4	30	70	6	
4JJCR 030 003 300	3 X R0.3	3	30	70	6		4JJCR 040 010 350	4 X R1	4	35	75	6	
4JJCR 030 003 350	3 X R0.3	3	35	75	6		4JJCR 040 010 400	4 X R1	4	40	80	6	
4JJCR 030 003 400	3 X R0.3	3	40	80	6		4JJCR 040 010 450	4 X R1	4	45	90	6	
New 4JJCR 030 003 450	3 X R0.3	3	45	90	6		4JJCR 040 010 500	4 X R1	4	50	100	6	
4JJCR 030 005 100	3 X R0.5	3	10	50	6		New 4JJCR 040 010 550	4 X R1	4	55	100	6	
4JJCR 030 005 120	3 X R0.5	3	12	50	6		4JJCR 050 001 160	5 X R0.1	5	16	60	6	
4JJCR 030 005 160	3 X R0.5	3	16	55	6		4JJCR 050 001 300	5 X R0.1	5	30	70	6	
4JJCR 030 005 200	3 X R0.5	3	20	60	6		New 4JJCR 050 001 400	5 X R0.1	5	40	80	6	
4JJCR 030 005 250	3 X R0.5	3	25	65	6		4JJCR 050 002 160	5 X R0.2	5	16	60	6	
4JJCR 030 005 300	3 X R0.5	3	30	70	6		4JJCR 050 002 300	5 X R0.2	5	30	70	6	
4JJCR 030 005 350	3 X R0.5	3	35	75	6		New 4JJCR 050 002 400	5 X R0.2	5	40	80	6	
4JJCR 030 005 400	3 X R0.5	3	40	80	6		4JJCR 050 003 160	5 X R0.3	5	16	60	6	
New 4JJCR 030 005 450	3 X R0.5	3	45	90	6		4JJCR 050 003 300	5 X R0.3	5	30	70	6	
New 4JJCR 030 005 500	3 X R0.5	3	50	100	6		New 4JJCR 050 003 400	5 X R0.3	5	40	80	6	
4JJCR 030 010 100	3 X R1	3	10	50	6		4JJCR 050 005 160	5 X R0.5	5	16	60	6	
4JJCR 030 010 120	3 X R1	3	12	50	6		4JJCR 050 005 300	5 X R0.5	5	30	70	6	
4JJCR 030 010 160	3 X R1	3	16	55	6		4JJCR 050 005 400	5 X R0.5	5	40	80	6	
4JJCR 030 010 200	3 X R1	3	20	60	6		4JJCR 050 005 500	5 X R0.5	5	50	100	6	
4JJCR 030 010 250	3 X R1	3	25	65	6		New 4JJCR 050 005 600	5 X R0.5	5	60	110	6	
4JJCR 030 010 300	3 X R1	3	30	70	6		4JJCR 050 010 160	5 X R1	5	16	60	6	
4JJCR 030 010 350	3 X R1	3	35	75	6		4JJCR 050 010 300	5 X R1	5	30	70	6	
4JJCR 030 010 400	3 X R1	3	40	80	6		4JJCR 050 010 400	5 X R1	5	40	80	6	
New 4JJCR 030 010 450	3 X R1	3	45	90	6		4JJCR 050 010 500	5 X R1	5	50	100	6	
New 4JJCR 030 010 500	3 X R1	3	50	100	6		New 4JJCR 050 010 600	5 X R1	5	60	110	6	
4JJCR 040 001 130	4 X R0.1	4	13	55	6		4JJCR 060 001 200	6 X R0.1	7	20	60	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	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4JJCR 060 001 400	6 X R0.1	7	40	80	6		4JJCR 120 015 260	12 X R1.5	13	26	80	12	
New 4JJCR 060 001 500	6 X R0.1	7	50	100	6		4JJCR 120 020 260	12 X R2	13	26	80	12	
4JJCR 060 002 200	6 X R0.2	7	20	60	6		4JJCR 120 020 400	12 X R2	13	40	110	12	
4JJCR 060 002 400	6 X R0.2	7	40	80	6		4JJCR 120 030 260	12 X R3	13	26	80	12	
New 4JJCR 060 002 500	6 X R0.2	7	50	100	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								
New 4JJCR 060 003 500	6 X R0.3	7	50	100	6								
4JJCR 060 005 200	6 X R0.5	7	20	60	6								
4JJCR 060 005 400	6 X R0.5	7	40	80	6								
4JJCR 060 005 500	6 X R0.5	7	50	100	6								
New 4JJCR 060 005 600	6 X R0.5	7	60	110	6								
4JJCR 060 010 200	6 X R1	7	20	60	6								
4JJCR 060 010 400	6 X R1	7	40	80	6								
4JJCR 060 010 500	6 X R1	7	50	100	6								
New 4JJCR 060 010 600	6 X R1	7	60	110	6								
4JJCR 060 015 200	6 X R1.5	7	20	60	6								
4JJCR 060 015 400	6 X R1.5	7	40	80	6								
New 4JJCR 060 015 500	6 X R1.5	7	50	100	6								
New 4JJCR 060 020 300	6 X R2	7	30	70	6								
New 4JJCR 060 020 400	6 X R2	7	40	80	6								
New 4JJCR 060 020 500	6 X R2	7	50	100	6								
4JJCR 080 002 220	8 X R0.2	9	22	65	8								
4JJCR 080 002 400	8 X R0.2	9	40	100	8								
4JJCR 080 003 220	8 X R0.3	9	22	65	8								
4JJCR 080 003 400	8 X R0.3	9	40	100	8								
4JJCR 080 005 220	8 X R0.5	9	22	65	8								
4JJCR 080 005 400	8 X R0.5	9	40	100	8								
4JJCR 080 005 500	8 X R0.5	9	50	120	8								
New 4JJCR 080 005 600	8 X R0.5	9	60	120	8								
4JJCR 080 010 220	8 X R1	9	22	65	8								
4JJCR 080 010 400	8 X R1	9	40	100	8								
4JJCR 080 010 500	8 X R1	9	50	120	8								
New 4JJCR 080 010 600	8 X R1	9	60	120	8								
4JJCR 080 015 220	8 X R1.5	9	22	65	8								
4JJCR 080 015 400	8 X R1.5	9	40	100	8								
4JJCR 080 020 220	8 X R2	9	22	65	8								
4JJCR 080 020 400	8 X R2	9	40	100	8								
4JJCR 080 020 500	8 X R2	9	50	120	8								
4JJCR 100 002 240	10 X R0.2	11	24	70	10								
4JJCR 100 002 400	10 X R0.2	11	40	100	10								
4JJCR 100 003 240	10 X R0.3	11	24	70	10								
4JJCR 100 003 400	10 X R0.3	11	40	100	10								
4JJCR 100 005 240	10 X R0.5	11	24	70	10								
4JJCR 100 005 400	10 X R0.5	11	40	100	10								
4JJCR 100 005 500	10 X R0.5	11	50	120	10								
New 4JJCR 100 005 600	10 X R0.5	11	60	120	10								
4JJCR 100 010 240	10 X R1	11	24	70	10								
4JJCR 100 010 400	10 X R1	11	40	100	10								
4JJCR 100 010 500	10 X R1	11	50	120	10								
New 4JJCR 100 010 600	10 X R1	11	60	120	10								
4JJCR 100 015 240	10 X R1.5	11	24	70	10								
4JJCR 100 015 400	10 X R1.5	11	40	100	10								
4JJCR 100 020 240	10 X R2	11	24	70	10								
4JJCR 100 020 400	10 X R2	11	40	100	10								
4JJCR 100 020 500	10 X R2	11	50	120	10								
4JJCR 100 025 240	10 X R2.5	11	24	70	10								
4JJCR 120 003 260	12 X R0.3	13	26	80	12								
4JJCR 120 005 260	12 X R0.5	13	26	80	12								
4JJCR 120 005 400	12 X R0.5	13	40	110	12								
4JJCR 120 005 600	12 X R0.5	13	60	130	12								
4JJCR 120 010 260	12 X R1	13	26	80	12								
4JJCR 120 010 400	12 X R1	13	40	110	12								
4JJCR 120 010 600	12 X R1	13	60	130	12								



- 고경도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고품질실리콘계코팅(Si) 처리하여내마모성이우수합니다.
- 고정밀공차적용으로초정밀가공에적합합니다.
- 코너R 형상을날부치핑이적도록설계하였습니다.
- 다양한코너R과유효장으로맞춤가공이가능합니다.
- 초미립자 초경합금(0.2µm)을채택, 고속절삭시 뛰어난 성능을 발휘합니다.

Endmills for pre-hardened and hardened steel

- 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 (0.2µm) WC grade.

R0.1 ~ 0.5R1

325P

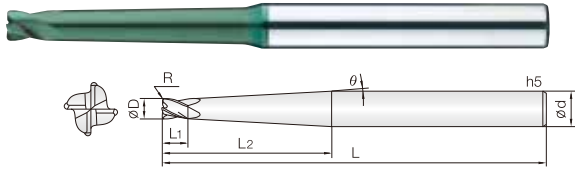
D Size	D Tolerance
∅3 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.005 ~ -0.015mm

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
6JJCR 030 001 120	3 X R0.1	3	12	55	6		6JJCR 050 001 160	5 X R0.1	5	16	60	6	
6JJCR 030 001 160	3 X R0.1	3	16	60	6		6JJCR 050 001 200	5 X R0.1	5	20	65	6	
6JJCR 030 001 200	3 X R0.1	3	20	65	6		6JJCR 050 001 300	5 X R0.1	5	30	75	6	
6JJCR 030 001 250	3 X R0.1	3	25	70	6		6JJCR 050 002 160	5 X R0.2	5	16	60	6	
6JJCR 030 001 300	3 X R0.1	3	30	75	6		6JJCR 050 002 200	5 X R0.2	5	20	65	6	
6JJCR 030 002 120	3 X R0.2	3	12	55	6		6JJCR 050 002 300	5 X R0.2	5	30	75	6	
6JJCR 030 002 160	3 X R0.2	3	16	60	6		6JJCR 050 003 160	5 X R0.3	5	16	60	6	
6JJCR 030 002 200	3 X R0.2	3	20	65	6		6JJCR 050 003 200	5 X R0.3	5	20	65	6	
6JJCR 030 002 250	3 X R0.2	3	25	70	6		6JJCR 050 003 300	5 X R0.3	5	30	75	6	
6JJCR 030 002 300	3 X R0.2	3	30	75	6		6JJCR 050 005 160	5 X R0.5	5	16	60	6	
6JJCR 030 003 120	3 X R0.3	3	12	55	6		6JJCR 050 005 200	5 X R0.5	5	20	65	6	
6JJCR 030 003 160	3 X R0.3	3	16	60	6		6JJCR 050 005 300	5 X R0.5	5	30	75	6	
6JJCR 030 003 200	3 X R0.3	3	20	65	6		6JJCR 050 010 160	5 X R1	5	16	60	6	
6JJCR 030 003 250	3 X R0.3	3	25	70	6		6JJCR 050 010 200	5 X R1	5	20	65	6	
6JJCR 030 003 300	3 X R0.3	3	30	75	6		6JJCR 050 010 300	5 X R1	5	30	75	6	
6JJCR 030 005 120	3 X R0.5	3	12	55	6		6JJCR 060 001 210	6 X R0.1	6	21	60	6	
6JJCR 030 005 160	3 X R0.5	3	16	60	6		6JJCR 060 001 310	6 X R0.1	6	31	70	6	
6JJCR 030 005 200	3 X R0.5	3	20	65	6		6JJCR 060 001 410	6 X R0.1	6	41	80	6	
6JJCR 030 005 250	3 X R0.5	3	25	70	6		6JJCR 060 002 210	6 X R0.2	6	21	60	6	
6JJCR 030 005 300	3 X R0.5	3	30	75	6		6JJCR 060 002 310	6 X R0.2	6	31	70	6	
6JJCR 030 010 120	3 X R1	3	12	55	6		6JJCR 060 002 410	6 X R0.2	6	41	80	6	
6JJCR 030 010 160	3 X R1	3	16	60	6		6JJCR 060 003 210	6 X R0.3	6	21	60	6	
6JJCR 030 010 200	3 X R1	3	20	65	6		6JJCR 060 003 310	6 X R0.3	6	31	70	6	
6JJCR 030 010 250	3 X R1	3	25	70	6		6JJCR 060 003 410	6 X R0.3	6	41	80	6	
6JJCR 030 010 300	3 X R1	3	30	75	6		6JJCR 060 005 210	6 X R0.5	6	21	60	6	
6JJCR 040 001 120	4 X R0.1	4	12	55	6		6JJCR 060 005 310	6 X R0.5	6	31	70	6	
6JJCR 040 001 160	4 X R0.1	4	16	60	6		6JJCR 060 005 410	6 X R0.5	6	41	80	6	
6JJCR 040 001 200	4 X R0.1	4	20	65	6		6JJCR 060 010 210	6 X R1	6	21	60	6	
6JJCR 040 001 250	4 X R0.1	4	25	70	6		6JJCR 060 010 310	6 X R1	6	31	70	6	
6JJCR 040 001 300	4 X R0.1	4	30	75	6		6JJCR 060 010 410	6 X R1	6	41	80	6	
6JJCR 040 002 120	4 X R0.2	4	12	55	6		6JJCR 080 003 260	8 X R0.3	8	26	70	8	
6JJCR 040 002 160	4 X R0.2	4	16	60	6		6JJCR 080 003 360	8 X R0.3	8	36	80	8	
6JJCR 040 002 200	4 X R0.2	4	20	65	6		6JJCR 080 003 460	8 X R0.3	8	46	90	8	
6JJCR 040 002 250	4 X R0.2	4	25	70	6		6JJCR 080 005 260	8 X R0.5	8	26	70	8	
6JJCR 040 002 300	4 X R0.2	4	30	75	6		6JJCR 080 005 360	8 X R0.5	8	36	80	8	
6JJCR 040 003 120	4 X R0.3	4	12	55	6		6JJCR 080 005 460	8 X R0.5	8	46	90	8	
6JJCR 040 003 160	4 X R0.3	4	16	60	6		6JJCR 080 010 260	8 X R1	8	26	70	8	
6JJCR 040 003 200	4 X R0.3	4	20	65	6		6JJCR 080 010 360	8 X R1	8	36	80	8	
6JJCR 040 003 250	4 X R0.3	4	25	70	6		6JJCR 080 010 460	8 X R1	8	46	90	8	
6JJCR 040 003 300	4 X R0.3	4	30	75	6		6JJCR 100 003 310	10 X R0.3	10	31	80	10	
6JJCR 040 005 120	4 X R0.5	4	12	55	6		6JJCR 100 003 410	10 X R0.3	10	41	90	10	
6JJCR 040 005 160	4 X R0.5	4	16	60	6		6JJCR 100 005 510	10 X R0.5	10	51	100	10	
6JJCR 040 005 200	4 X R0.5	4	20	65	6		6JJCR 100 005 310	10 X R0.5	10	31	80	10	
6JJCR 040 005 250	4 X R0.5	4	25	70	6		6JJCR 100 005 410	10 X R0.5	10	41	90	10	
6JJCR 040 005 300	4 X R0.5	4	30	75	6		6JJCR 100 005 510	10 X R0.5	10	51	100	10	
6JJCR 040 010 120	4 X R1	4	12	55	6		6JJCR 100 010 310	10 X R1	10	31	80	10	
6JJCR 040 010 160	4 X R1	4	16	60	6		6JJCR 100 010 410	10 X R1	10	41	90	10	
6JJCR 040 010 200	4 X R1	4	20	65	6		6JJCR 100 010 510	10 X R1	10	51	100	10	
6JJCR 040 010 250	4 X R1	4	25	70	6		6JJCR 120 003 360	12 X R0.3	12	36	90	12	
6JJCR 040 010 300	4 X R1	4	30	75	6		6JJCR 120 003 460	12 X R0.3	12	46	100	12	

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
6JJCR 120 003 560	12 X R0.3	12	56	110	12								
6JJCR 120 005 360	12 X R0.5	12	36	90	12								
6JJCR 120 005 460	12 X R0.5	12	46	100	12								
6JJCR 120 005 560	12 X R0.5	12	56	110	12								
6JJCR 120 010 360	12 X R1	12	36	90	12								
6JJCR 120 010 460	12 X R1	12	46	100	12								
6JJCR 120 010 560	12 X R1	12	56	110	12								



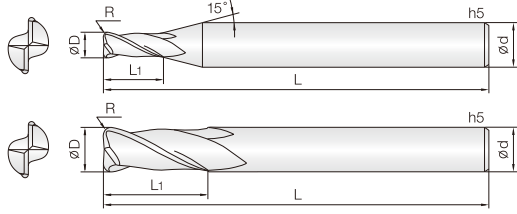
- 고정도강(HRc52~70), 프리하드강 계열의 고정밀 가공 엔드밀
- 고품질 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 유효장을 테이퍼설계하여 깊은 홈작업시 목부파손 및 떨림을 최소화 하였습니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 초미립자 초경합금(0.2 μ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc52~70)
- Good wear resistance 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 μ m) WC grade.



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

단위: mm

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



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품질 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(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

Endmills for pre-hardened and hardened steel

- 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 (0.2µm) WC grade.

2

UWC
초미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

R
± 0.015

30°
Helix Angle

CUTTING
DATA

R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 5 326P

D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø14	-0.01 ~ -0.02mm

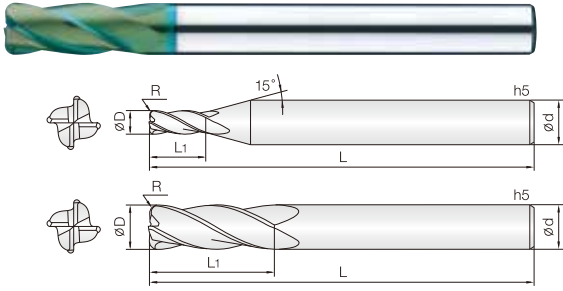
단위: mm

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
2JJC 002 0002 S04	0.2 X R0.02	0.4	45	4		2JJC 030 001 S06	3 X R0.1	8	60	6	
2JJC 002 0005 S04	0.2 X R0.05	0.4	45	4		2JJC 030 002 S06	3 X R0.2	8	60	6	
2JJC 003 0002 S04	0.3 X R0.02	0.6	45	4		2JJC 030 003 S06	3 X R0.3	8	60	6	
2JJC 003 0005 S04	0.3 X R0.05	0.6	45	4		2JJC 030 005 S06	3 X R0.5	8	60	6	
2JJC 003 001 S04	0.3 X R0.1	0.6	45	4		2JJC 030 010 S06	3 X R1	8	60	6	
2JJC 004 0002 S04	0.4 X R0.02	0.8	45	4		2JJC 040 001 S04	4 X R0.1	9	60	4	
2JJC 004 0005 S04	0.4 X R0.05	0.8	45	4		2JJC 040 001 S06	4 X R0.1	10	70	6	
2JJC 004 001 S04	0.4 X R0.1	0.8	45	4		2JJC 040 002 S04	4 X R0.2	9	60	4	
2JJC 005 0002 S04	0.5 X R0.02	1	45	4		2JJC 040 002 S06	4 X R0.2	10	70	6	
2JJC 005 0005 S04	0.5 X R0.05	1	45	4		2JJC 040 003 S04	4 X R0.3	9	60	4	
2JJC 005 001 S04	0.5 X R0.1	1	45	4		2JJC 040 003 S06	4 X R0.3	10	70	6	
2JJC 006 0002 S04	0.6 X R0.02	1.2	45	4		2JJC 040 005 S04	4 X R0.5	9	60	4	
2JJC 006 0005 S04	0.6 X R0.05	1.2	45	4		2JJC 040 005 S06	4 X R0.5	10	70	6	
2JJC 006 001 S04	0.6 X R0.1	1.2	45	4		2JJC 040 010 S04	4 X R1	9	60	4	
2JJC 006 002 S04	0.6 X R0.2	1.2	45	4		2JJC 040 010 S06	4 X R1	10	70	6	
2JJC 007 0005 S04	0.7 X R0.05	1.4	45	4		2JJC 050 001 S06	5 X R0.1	13	75	6	
2JJC 007 001 S04	0.7 X R0.1	1.4	45	4		2JJC 050 002 S06	5 X R0.2	13	75	6	
2JJC 007 002 S04	0.7 X R0.2	1.4	45	4		2JJC 050 003 S06	5 X R0.3	13	75	6	
2JJC 008 0002 S04	0.8 X R0.02	1.6	45	4		2JJC 050 005 S06	5 X R0.5	13	75	6	
2JJC 008 0005 S04	0.8 X R0.05	1.6	45	4		2JJC 050 010 S06	5 X R1	13	75	6	
2JJC 008 001 S04	0.8 X R0.1	1.6	45	4		2JJC 060 001 060	6 X R0.1	11	60	6	
2JJC 008 002 S04	0.8 X R0.2	1.6	45	4		2JJC 060 001 090	6 X R0.1	13	90	6	
2JJC 009 0005 S04	0.9 X R0.05	1.8	45	4		2JJC 060 002 060	6 X R0.2	11	60	6	
2JJC 009 001 S04	0.9 X R0.1	1.8	45	4		2JJC 060 002 090	6 X R0.2	13	90	6	
2JJC 010 0002 S04	1 X R0.02	2.5	45	4		2JJC 060 003 060	6 X R0.3	11	60	6	
2JJC 010 0005 S04	1 X R0.05	2.5	45	4		2JJC 060 003 090	6 X R0.3	13	90	6	
2JJC 010 001 S04	1 X R0.1	2.5	45	4		2JJC 060 005 060	6 X R0.5	11	60	6	
2JJC 010 002 S04	1 X R0.2	2.5	45	4		2JJC 060 005 090	6 X R0.5	13	90	6	
2JJC 010 003 S04	1 X R0.3	2.5	45	4		2JJC 060 005 110	6 X R0.5	13	110	6	
2JJC 012 0002 S04	1.2 X R0.02	3.2	45	4		2JJC 060 010 060	6 X R1	11	60	6	
2JJC 012 0005 S04	1.2 X R0.05	3.2	45	4		2JJC 060 010 090	6 X R1	13	90	6	
2JJC 012 001 S04	1.2 X R0.1	3.2	45	4		2JJC 060 010 110	6 X R1	13	110	6	
2JJC 012 002 S04	1.2 X R0.2	3.2	45	4		2JJC 060 015 060	6 X R1.5	11	60	6	
2JJC 012 003 S04	1.2 X R0.3	3.2	45	4		2JJC 060 015 090	6 X R1.5	13	90	6	
2JJC 015 0002 S04	1.5 X R0.02	4	45	4		2JJC 060 020 060	6 X R2	11	60	6	
2JJC 015 0005 S04	1.5 X R0.05	4	45	4		2JJC 060 020 090	6 X R2	13	90	6	
2JJC 015 001 S04	1.5 X R0.1	4	45	4		2JJC 060 025 090	6 X R2.5	13	90	6	
2JJC 015 002 S04	1.5 X R0.2	4	45	4		2JJC 080 001 070	8 X R0.1	16	70	8	
2JJC 015 003 S04	1.5 X R0.3	4	45	4		2JJC 080 001 100	8 X R0.1	19	100	8	
2JJC 015 005 S04	1.5 X R0.5	4	45	4		2JJC 080 002 070	8 X R0.2	16	70	8	
2JJC 020 0002 S04	2 X R0.02	6	45	4		2JJC 080 002 100	8 X R0.2	19	100	8	
2JJC 020 0005 S04	2 X R0.05	6	45	4		2JJC 080 003 070	8 X R0.3	16	70	8	
2JJC 020 001 S04	2 X R0.1	6	45	4		2JJC 080 003 100	8 X R0.3	19	100	8	
2JJC 020 002 S04	2 X R0.2	6	45	4		2JJC 080 005 070	8 X R0.5	16	70	8	
2JJC 020 003 S04	2 X R0.3	6	45	4		2JJC 080 005 100	8 X R0.5	19	100	8	
2JJC 020 005 S04	2 X R0.5	6	45	4		2JJC 080 005 120	8 X R0.5	19	120	8	
2JJC 025 001 S04	2.5 X R0.1	6	50	4		2JJC 080 010 070	8 X R1	16	70	8	
2JJC 025 002 S04	2.5 X R0.2	6	50	4		2JJC 080 010 100	8 X R1	19	100	8	
2JJC 025 003 S04	2.5 X R0.3	6	50	4		2JJC 080 010 120	8 X R1	19	120	8	
2JJC 025 005 S04	2.5 X R0.5	6	50	4		2JJC 080 015 070	8 X R1.5	16	70	8	



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
2JJC 080 015 100	8 X R1.5	19	100	8							
2JJC 080 020 070	8 X R2	16	70	8							
2JJC 080 020 100	8 X R2	19	100	8							
2JJC 080 025 100	8 X R2.5	19	100	8							
2JJC 080 030 100	8 X R3	19	100	8							
2JJC 080 035 100	8 X R3.5	19	100	8							
2JJC 100 001 075	10 X R0.1	19	75	10							
2JJC 100 001 100	10 X R0.1	22	100	10							
2JJC 100 002 075	10 X R0.2	19	75	10							
2JJC 100 002 100	10 X R0.2	22	100	10							
2JJC 100 003 075	10 X R0.3	19	75	10							
2JJC 100 003 100	10 X R0.3	22	100	10							
2JJC 100 005 075	10 X R0.5	19	75	10							
2JJC 100 005 100	10 X R0.5	22	100	10							
2JJC 100 005 120	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							
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							
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							
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							
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							
2JJC 120 040 110	12 X R4	26	110	12							
2JJC 120 050 110	12 X R5	26	110	12							
New 2JJC 140 005 110	14 X R0.5	30	110	14							
New 2JJC 140 010 110	14 X R1	30	110	14							
New 2JJC 140 020 110	14 X R2	30	110	14							

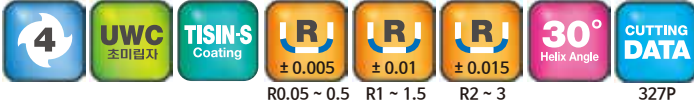


• 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀

- 고품질 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(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

• Endmills for pre-hardened and hardened steel

- 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 (0.2µm) WC grade.



D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø14 ~ 16	-0.01 ~ -0.02mm

단위: mm

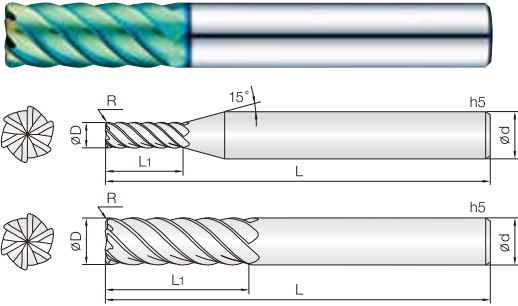
Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4JJC 005 0005 S04	0.5 X R0.05	1	45	4	
4JJC 005 001 S04	0.5 X R0.1	1	45	4	
4JJC 006 0005 S04	0.6 X R0.05	1.2	45	4	
4JJC 006 001 S04	0.6 X R0.1	1.2	45	4	
4JJC 007 0005 S04	0.7 X R0.05	1.4	45	4	
4JJC 007 001 S04	0.7 X R0.1	1.4	45	4	
4JJC 008 0005 S04	0.8 X R0.05	1.6	45	4	
4JJC 008 001 S04	0.8 X R0.1	1.6	45	4	
4JJC 009 0005 S04	0.9 X R0.05	1.8	45	4	
4JJC 009 001 S04	0.9 X R0.1	1.8	45	4	
4JJC 010 0005 S04	1 X R0.05	2.5	45	4	
4JJC 010 001 S04	1 X R0.1	2.5	45	4	
4JJC 010 002 S04	1 X R0.2	2.5	45	4	
4JJC 010 003 S04	1 X R0.3	2.5	45	4	
4JJC 015 0005 S04	1.5 X R0.05	4	45	4	
4JJC 015 001 S04	1.5 X R0.1	4	45	4	
4JJC 015 002 S04	1.5 X R0.2	4	45	4	
4JJC 015 003 S04	1.5 X R0.3	4	45	4	
4JJC 015 005 S04	1.5 X R0.5	4	45	4	
4JJC 020 0005 S04	2 X R0.05	6	45	4	
4JJC 020 001 S04	2 X R0.1	6	45	4	
4JJC 020 002 S04	2 X R0.2	6	45	4	
4JJC 020 003 S04	2 X R0.3	6	45	4	
4JJC 020 005 S04	2 X R0.5	6	45	4	
4JJC 025 001 S04	2.5 X R0.1	6	50	4	
4JJC 025 002 S04	2.5 X R0.2	6	50	4	
4JJC 025 003 S04	2.5 X R0.3	6	50	4	
4JJC 025 005 S04	2.5 X R0.5	6	50	4	
New 4JJC 030 001 S03	3 X R0.1	8	60	3	
New 4JJC 030 002 S03	3 X R0.2	8	60	3	
New 4JJC 030 003 S03	3 X R0.3	8	60	3	
New 4JJC 030 005 S03	3 X R0.5	8	60	3	
New 4JJC 030 010 S03	3 X R1	8	60	3	
4JJC 030 001 S06	3 X R0.1	8	60	6	
4JJC 030 002 S06	3 X R0.2	8	60	6	
4JJC 030 003 S06	3 X R0.3	8	60	6	
4JJC 030 005 S06	3 X R0.5	8	60	6	
4JJC 030 010 S06	3 X R1	8	60	6	
4JJC 035 001 S06	3.5 X R0.1	9	70	6	
4JJC 035 002 S06	3.5 X R0.2	9	70	6	
4JJC 035 003 S06	3.5 X R0.3	9	70	6	
4JJC 035 005 S06	3.5 X R0.5	9	70	6	
New 4JJC 035 010 S06	3.5 X R1	9	70	6	
4JJC 040 001 S04	4 X R0.1	9	60	4	
4JJC 040 001 S06	4 X R0.1	10	70	6	
4JJC 040 002 S04	4 X R0.2	9	60	4	
4JJC 040 002 S06	4 X R0.2	10	70	6	
4JJC 040 003 S04	4 X R0.3	9	60	4	
4JJC 040 003 S06	4 X R0.3	10	70	6	
4JJC 040 005 S04	4 X R0.5	9	60	4	

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4JJC 040 005 S06	4 X R0.5	10	70	6	
4JJC 040 010 S04	4 X R1	9	60	4	
4JJC 040 010 S06	4 X R1	10	70	6	
4JJC 045 002 S06	4.5 X R0.2	11	75	6	
New 4JJC 045 003 S06	4.5 X R0.3	11	75	6	
4JJC 045 005 S06	4.5 X R0.5	11	75	6	
New 4JJC 045 010 S06	4.5 X R1	11	75	6	
4JJC 050 001 S06	5 X R0.1	13	75	6	
4JJC 050 002 S06	5 X R0.2	13	75	6	
4JJC 050 003 S06	5 X R0.3	13	75	6	
4JJC 050 005 S06	5 X R0.5	13	75	6	
4JJC 050 010 S06	5 X R1	13	75	6	
4JJC 060 0005 055	6 X R0.05	11	55	6	
4JJC 060 0005 080	6 X R0.05	13	80	6	
4JJC 060 001 055	6 X R0.1	11	55	6	
4JJC 060 001 080	6 X R0.1	13	80	6	
4JJC 060 002 055	6 X R0.2	11	55	6	
4JJC 060 002 080	6 X R0.2	13	80	6	
4JJC 060 002 100	6 X R0.2	13	100	6	
4JJC 060 002 120	6 X R0.2	13	120	6	
4JJC 060 003 055	6 X R0.3	11	55	6	
4JJC 060 003 080	6 X R0.3	13	80	6	
4JJC 060 003 100	6 X R0.3	13	100	6	
4JJC 060 003 120	6 X R0.3	13	120	6	
4JJC 060 005 055	6 X R0.5	11	55	6	
4JJC 060 005 080	6 X R0.5	13	80	6	
4JJC 060 005 100	6 X R0.5	13	100	6	
4JJC 060 005 120	6 X R0.5	13	120	6	
4JJC 060 010 055	6 X R1	11	55	6	
4JJC 060 010 080	6 X R1	13	80	6	
4JJC 060 010 100	6 X R1	13	100	6	
4JJC 060 010 120	6 X R1	13	120	6	
4JJC 060 015 055	6 X R1.5	11	55	6	
4JJC 060 015 080	6 X R1.5	13	80	6	
4JJC 060 020 055	6 X R2	11	55	6	
4JJC 060 020 080	6 X R2	13	80	6	
New 4JJC 070 002 S08	7 X R0.2	16	80	8	
New 4JJC 070 003 S08	7 X R0.3	16	80	8	
New 4JJC 070 005 S08	7 X R0.5	16	80	8	
New 4JJC 070 010 S08	7 X R1	16	80	8	
New 4JJC 080 001 060	8 X R0.1	16	60	8	
New 4JJC 080 001 090	8 X R0.1	19	90	8	
4JJC 080 002 060	8 X R0.2	16	60	8	
4JJC 080 002 090	8 X R0.2	19	90	8	
4JJC 080 003 060	8 X R0.3	16	60	8	
4JJC 080 003 090	8 X R0.3	19	90	8	
4JJC 080 005 060	8 X R0.5	16	60	8	
4JJC 080 005 090	8 X R0.5	19	90	8	
4JJC 080 005 110	8 X R0.5	19	110	8	
4JJC 080 005 150	8 X R0.5	19	150	8	



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
4JJC 080 010 060	8 X R1	16	60	8		4JJC 120 010 160	12 X R1	26	160	12	
4JJC 080 010 090	8 X R1	19	90	8		4JJC 120 015 075	12 X R1.5	22	75	12	
4JJC 080 010 110	8 X R1	19	110	8		4JJC 120 015 110	12 X R1.5	26	110	12	
4JJC 080 010 150	8 X R1	19	150	8		4JJC 120 020 075	12 X R2	22	75	12	
4JJC 080 015 060	8 X R1.5	16	60	8		4JJC 120 020 110	12 X R2	26	110	12	
4JJC 080 015 090	8 X R1.5	19	90	8		4JJC 120 020 130	12 X R2	26	130	12	
4JJC 080 020 060	8 X R2	16	60	8		4JJC 120 020 160	12 X R2	26	160	12	
4JJC 080 020 090	8 X R2	19	90	8		4JJC 120 025 075	12 X R2.5	22	75	12	
New 4JJC 090 002 S10	9 X R0.2	20	90	10		4JJC 120 025 110	12 X R2.5	26	110	12	
New 4JJC 090 003 S10	9 X R0.3	20	90	10		4JJC 120 030 075	12 X R3	22	75	12	
New 4JJC 090 005 S10	9 X R0.5	20	90	10		4JJC 120 030 110	12 X R3	26	110	12	
New 4JJC 090 010 S10	9 X R1	20	90	10		New 4JJC 140 005 110	14 X R0.5	30	110	14	
New 4JJC 100 001 070	10 X R0.1	19	70	10		New 4JJC 140 010 110	14 X R1	30	110	14	
New 4JJC 100 001 100	10 X R0.1	22	100	10		New 4JJC 140 020 110	14 X R2	30	110	14	
4JJC 100 002 070	10 X R0.2	19	70	10		4JJC 160 005 110	16 X R0.5	32	110	16	
4JJC 100 002 100	10 X R0.2	22	100	10		New 4JJC 160 005 160	16 X R0.5	32	160	16	
4JJC 100 003 070	10 X R0.3	19	70	10		4JJC 160 010 110	16 X R1	32	110	16	
4JJC 100 003 100	10 X R0.3	22	100	10		New 4JJC 160 010 160	16 X R1	32	160	16	
4JJC 100 005 070	10 X R0.5	19	70	10							
4JJC 100 005 100	10 X R0.5	22	100	10							
4JJC 100 005 120	10 X R0.5	22	120	10							
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							
4JJC 100 010 120	10 X R1	22	120	10							
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							
4JJC 100 020 120	10 X R2	22	120	10							
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 110 003 S12	11 X R0.3	24	100	12							
New 4JJC 110 005 S12	11 X R0.5	24	100	12							
New 4JJC 110 010 S12	11 X R1	24	100	12							
New 4JJC 120 001 075	12 X R0.1	22	75	12							
New 4JJC 120 001 110	12 X R0.1	26	110	12							
4JJC 120 002 075	12 X R0.2	22	75	12							
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							
4JJC 120 005 130	12 X R0.5	26	130	12							
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							
4JJC 120 010 130	12 X R1	26	130	12							



- 고정도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품량 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 측벽 가공, 코너부, 무구배면 가공시 가공물의 표면조도가 뛰어나며, 인선날 길이 증가로 내마모성이 더욱 좋아집니다.
- 초미립자 초경합금(0.2 μ 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.
- 45° degree helix design for high speed, feed condition.
- Excellent surface roughness for side, corner, shoulder milling and improved wear resistance due to increased edge length.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

6

UWC
초미립자

TISIN-S
Coating

R

R

R

45°
Helix Angle

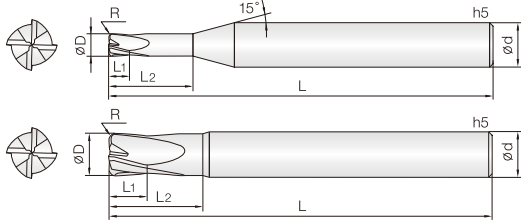
CUTTING
DATA

R0.1 ~ 0.5 R1 ~ 1.5 R2 328P

D Size	D Tolerance
Ø 3 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 16	-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
6JJCR 030 001 060	3 X R0.1	7.5	60	6							
6JJCR 030 002 060	3 X R0.2	7.5	60	6							
6JJCR 030 003 060	3 X R0.3	7.5	60	6							
6JJCR 030 005 060	3 X R0.5	7.5	60	6							
6JJCR 030 010 060	3 X R1	7.5	60	6							
6JJCR 040 001 060	4 X R0.1	10	60	6							
6JJCR 040 002 060	4 X R0.2	10	60	6							
6JJCR 040 003 060	4 X R0.3	10	60	6							
6JJCR 040 005 060	4 X R0.5	10	60	6							
6JJCR 040 010 060	4 X R1	10	60	6							
6JJCR 050 002 060	5 X R0.2	13	60	6							
6JJCR 050 003 060	5 X R0.3	13	60	6							
6JJCR 050 005 060	5 X R0.5	13	60	6							
6JJCR 050 010 060	5 X R1	13	60	6							
6JJCR 060 001 060	6 X R0.1	15	60	6							
6JJCR 060 002 060	6 X R0.2	15	60	6							
6JJCR 060 002 080	6 X R0.2	15	80	6							
6JJCR 060 003 060	6 X R0.3	15	60	6							
6JJCR 060 003 080	6 X R0.3	15	80	6							
6JJCR 060 005 060	6 X R0.5	15	60	6							
6JJCR 060 005 080	6 X R0.5	15	80	6							
6JJCR 060 010 060	6 X R1	15	60	6							
6JJCR 060 010 080	6 X R1	15	80	6							
6JJCR 080 002 070	8 X R0.2	20	70	8							
6JJCR 080 003 070	8 X R0.3	20	70	8							
6JJCR 080 003 090	8 X R0.3	20	90	8							
6JJCR 080 005 070	8 X R0.5	20	70	8							
6JJCR 080 005 090	8 X R0.5	20	90	8							
6JJCR 080 010 070	8 X R1	20	70	8							
6JJCR 080 010 090	8 X R1	20	90	8							
6JJCR 080 015 070	8 X R1.5	20	70	8							
6JJCR 100 002 075	10 X R0.2	25	75	10							
6JJCR 100 003 075	10 X R0.3	25	75	10							
6JJCR 100 003 100	10 X R0.3	25	100	10							
6JJCR 100 005 075	10 X R0.5	25	75	10							
6JJCR 100 005 100	10 X R0.5	25	100	10							
6JJCR 100 010 075	10 X R1	25	75	10							
6JJCR 100 010 100	10 X R1	25	100	10							
6JJCR 100 020 075	10 X R2	25	75	10							
6JJCR 120 002 080	12 X R0.2	30	80	12							
6JJCR 120 003 080	12 X R0.3	30	80	12							
6JJCR 120 003 110	12 X R0.3	30	110	12							
6JJCR 120 005 080	12 X R0.5	30	80	12							
6JJCR 120 005 110	12 X R0.5	30	110	12							
6JJCR 120 010 080	12 X R1	30	80	12							
6JJCR 120 010 110	12 X R1	30	110	12							
6JJCR 120 020 080	12 X R2	30	80	12							
6JJCR 160 005 110	16 X R0.5	50	110	16							
6JJCR 160 010 110	16 X R1	50	110	16							
6JJCR 160 020 110	16 X R2	50	110	16							



- 고경도강(HRc52~70), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품질실리코계코팅(Si) 처리하여내마모성이우수합니다.
- 저속 RPM에서 고이송 작업이 가능하도록 설계하였습니다..
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항질력이 높은 초미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened 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

6

UWC
초미립자

TISIN-S
Coating

R
± 0.005

R
± 0.01

R
± 0.015

15°
Helix Angle

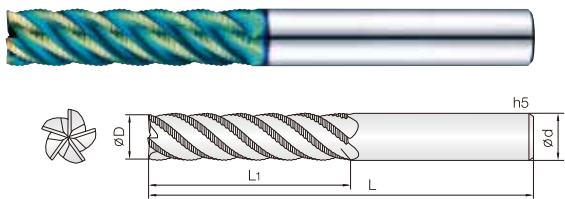
CUTTING
DATA

R0.2 ~ 0.5R1 ~ 1.5 R2 ~ 3 329P

D Size	D Tolerance
ø 1 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.005 ~ -0.015mm
ø 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	전장 Overall Length L	샙크 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		New 6JJRC 160 005 160	16 X R0.5	30	160	16	
4JJRC 060 015 150	6 X R1.5	6	15	60	6		6JJRC 160 010 100	16 X R1	30	100	16	
4JJRC 080 003 160	8 X R0.3	8	16	60	8		New 6JJRC 160 010 160	16 X R1	30	160	16	
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							



- 합금강·SUS계열·인코넬·일반구조강 등 다양한 난삭재 향삭가공
- TISIN/S 코팅 처리하여 내마모성이 향상됩니다.
- 가변 헬릭스 적용으로 절삭저항이 감소되어 장시간 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금 (0.5µm) 을 채택, 엔드밀의 파손을 최소화 하였습니다.

• **Roughing Endmills for hard to cut materials, alloy steel, SUS, Inconel and structural steel.**

- TISIN-S coating provides wear resistance improvement.
- Long machining time is available with variable helix application.
- Minimize fracturing by high TRS fine (0.5µm) WC grade.

5

WC
미립자

TISIN-S
Coating

D
-0.02 ~ 0.04
Ø 6 ~ 8

D
-0.02 ~ 0.05
Ø 10 ~ 20

가변
Variable
Helix Angle

Shield Edge

CUTTING
DATA

WELDON
Shank

D Size	D Tolerance
Ø 6 ~ 8	-0.02 ~ -0.04mm
Ø 10 ~ 20	-0.02 ~ -0.05mm

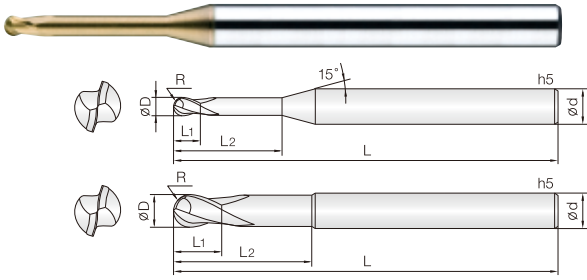
단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
5JJROU 060 140 060	6	14	60	6	
5JJROU 060 200 065	6	20	65	6	
5JJROU 060 260 070	6	26	70	6	
5JJROU 080 180 065	8	18	65	8	
5JJROU 080 260 070	8	26	70	8	
5JJROU 080 340 080	8	34	80	8	
5JJROU 100 220 075	10	22	75	10	
5JJROU 100 330 080	10	33	80	10	
5JJROU 100 430 090	10	43	90	10	
5JJROU 120 270 080	12	27	80	12	
5JJROU 120 390 095	12	39	95	12	
5JJROU 120 510 110	12	51	110	12	
5JJROU 160 360 100	16	36	100	16	
5JJROU 160 520 120	16	52	120	16	
5JJROU 160 680 130	16	68	130	16	
5JJROU 200 450 110	20	45	110	20	
5JJROU 200 650 130	20	65	130	20	
5JJROU 200 850 150	20	85	150	20	

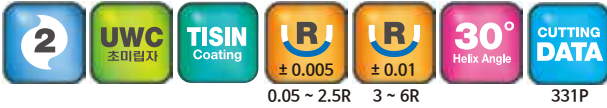
2HRB 2 Flutes High Speed Rib Ball End Mills

2날 고속가공용 리브 볼 엔드밀

HARD series



- 고경도강(HRc52~62), 프리하드강 계열의 고정밀 가공엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 μ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.
- Endmills for pre-hardened and hardened steel(HRc52~62)
- 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 μ m) WC grade.



0.05 ~ 2.5R 3 ~ 6R 331P

D Size	D Tolerance
Ø 0.1 ~ 0.15	+0 ~ -0.005mm
Ø 0.2 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm

단위: mm

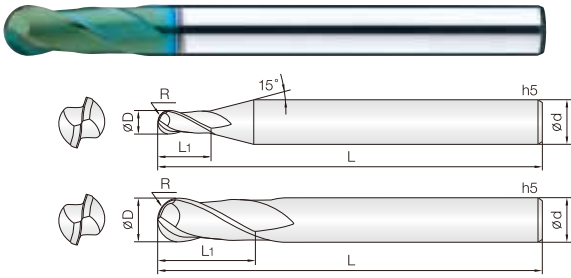
Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
2HRB 001 003 S04	0.05R X 0.1	0.15	0.3	40	4		2HRB 005 140 S04	0.25R X 0.5	0.5	14	45	4	
2HRB 001 005 S04	0.05R X 0.1	0.15	0.5	40	4		2HRB 006 010 S04	0.3R X 0.6	0.6	1	45	4	
New 2HRB 0015 003 S04	0.075R X 0.15	0.15	0.3	40	4		2HRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
New 2HRB 0015 005 S04	0.075R X 0.15	0.15	0.5	40	4		2HRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
New 2HRB 0015 010 S04	0.075R X 0.15	0.15	1	40	4		2HRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2HRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2HRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
2HRB 002 010 S04	0.1R X 0.2	0.2	1	40	4		2HRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2HRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2HRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2HRB 002 020 S04	0.1R X 0.2	0.2	2	40	4		2HRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2HRB 002 025 S04	0.1R X 0.2	0.2	2.5	40	4		2HRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2HRB 002 030 S04	0.1R X 0.2	0.2	3	40	4		2HRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
New 2HRB 0025 005 S04	0.125R X 0.25	0.25	0.5	40	4		2HRB 006 160 S04	0.3R X 0.6	0.6	16	45	4	
New 2HRB 0025 010 S04	0.125R X 0.25	0.25	1	40	4		2HRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
New 2HRB 0025 015 S04	0.125R X 0.25	0.25	1.5	40	4		2HRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
New 2HRB 0025 020 S04	0.125R X 0.25	0.25	2	40	4		2HRB 007 060 S04	0.35R X 0.7	0.7	6	45	4	
New 2HRB 0025 025 S04	0.125R X 0.25	0.25	2.5	40	4		2HRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
New 2HRB 0025 030 S04	0.125R X 0.25	0.25	3	40	4		2HRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2HRB 003 010 S04	0.15R X 0.3	0.3	1	40	4		2HRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2HRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2HRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2HRB 003 020 S04	0.15R X 0.3	0.3	2	40	4		2HRB 008 030 S04	0.4R X 0.8	0.8	3	45	4	
2HRB 003 025 S04	0.15R X 0.3	0.3	2.5	40	4		2HRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2HRB 003 030 S04	0.15R X 0.3	0.3	3	40	4		2HRB 008 050 S04	0.4R X 0.8	0.8	5	45	4	
2HRB 003 035 S04	0.15R X 0.3	0.3	3.5	40	4		2HRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2HRB 003 040 S04	0.15R X 0.3	0.3	4	40	4		2HRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2HRB 003 050 S04	0.15R X 0.3	0.3	5	40	4		2HRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2HRB 004 010 S04	0.2R X 0.4	0.4	1	40	4		2HRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2HRB 004 015 S04	0.2R X 0.4	0.4	1.5	40	4		2HRB 008 140 S04	0.4R X 0.8	0.8	14	45	4	
2HRB 004 020 S04	0.2R X 0.4	0.4	2	40	4		2HRB 008 160 S04	0.4R X 0.8	0.8	16	45	4	
2HRB 004 025 S04	0.2R X 0.4	0.4	2.5	40	4		2HRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2HRB 004 030 S04	0.2R X 0.4	0.4	3	40	4		2HRB 010 020 S04	0.5R X 1	1	2	45	4	
2HRB 004 035 S04	0.2R X 0.4	0.4	3.5	40	4		2HRB 010 020 S06	0.5R X 1	1	2	50	6	
2HRB 004 040 S04	0.2R X 0.4	0.4	4	40	4		2HRB 010 030 S04	0.5R X 1	1	3	45	4	
2HRB 004 045 S04	0.2R X 0.4	0.4	4.5	40	4		2HRB 010 030 S06	0.5R X 1	1	3	50	6	
2HRB 004 050 S04	0.2R X 0.4	0.4	5	40	4		2HRB 010 040 S04	0.5R X 1	1	4	45	4	
2HRB 004 060 S04	0.2R X 0.4	0.4	6	40	4		2HRB 010 040 S06	0.5R X 1	1	4	50	6	
2HRB 004 080 S04	0.2R X 0.4	0.4	8	40	4		2HRB 010 050 S04	0.5R X 1	1	5	45	4	
2HRB 004 100 S04	0.2R X 0.4	0.4	10	40	4		2HRB 010 050 S06	0.5R X 1	1	5	50	6	
2HRB 005 010 S04	0.25R X 0.5	0.5	1	45	4		2HRB 010 060 S04	0.5R X 1	1	6	45	4	
2HRB 005 015 S04	0.25R X 0.5	0.5	1.5	45	4		2HRB 010 060 S06	0.5R X 1	1	6	50	6	
2HRB 005 020 S04	0.25R X 0.5	0.5	2	45	4		2HRB 010 080 S04	0.5R X 1	1	8	45	4	
2HRB 005 025 S04	0.25R X 0.5	0.5	2.5	45	4		2HRB 010 080 S06	0.5R X 1	1	8	50	6	
2HRB 005 030 S04	0.25R X 0.5	0.5	3	45	4		2HRB 010 100 S04	0.5R X 1	1	10	50	4	
2HRB 005 035 S04	0.25R X 0.5	0.5	3.5	45	4		2HRB 010 100 S06	0.5R X 1	1	10	50	6	
2HRB 005 040 S04	0.25R X 0.5	0.5	4	45	4		2HRB 010 120 S04	0.5R X 1	1	12	50	4	
2HRB 005 045 S04	0.25R X 0.5	0.5	4.5	45	4		2HRB 010 120 S06	0.5R X 1	1	12	50	6	
2HRB 005 050 S04	0.25R X 0.5	0.5	5	45	4		2HRB 010 140 S04	0.5R X 1	1	14	50	4	
2HRB 005 060 S04	0.25R X 0.5	0.5	6	45	4		2HRB 010 140 S06	0.5R X 1	1	14	50	6	
2HRB 005 080 S04	0.25R X 0.5	0.5	8	45	4		2HRB 010 160 S04	0.5R X 1	1	16	50	4	
2HRB 005 100 S04	0.25R X 0.5	0.5	10	45	4		2HRB 010 160 S06	0.5R X 1	1	16	60	6	
2HRB 005 120 S04	0.25R X 0.5	0.5	12	45	4		2HRB 010 180 S04	0.5R X 1	1	18	50	4	

단위: mm

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

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 025 120 S06	1.25R X 2.5	2.5	12	50	6		2HRB 080 250 060	4R X 8	12	25	60	8	
2HRB 025 160 S04	1.25R X 2.5	2.5	16	50	4		2HRB 080 300 100	4R X 8	12	30	100	8	
2HRB 025 160 S06	1.25R X 2.5	2.5	16	60	6		2HRB 100 300 070	5R X 10	16	30	70	10	
2HRB 025 200 S04	1.25R X 2.5	2.5	20	60	4		2HRB 100 350 100	5R X 10	16	35	100	10	
2HRB 025 250 S04	1.25R X 2.5	2.5	25	60	4		2HRB 120 300 075	6R X 12	18	30	75	12	
2HRB 025 300 S04	1.25R X 2.5	2.5	30	70	4		2HRB 120 400 110	6R X 12	18	40	110	12	
2HRB 025 350 S04	1.25R X 2.5	2.5	35	70	4								
2HRB 025 400 S04	1.25R X 2.5	2.5	40	80	4								
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								
2HRB 060 300 S06	3R X 6	10	30	110	6								



• 고경도강(HRC52~62), 프리하든강 계열의 고정밀(±2μm)가공용

- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 초정밀 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(HRC52~62)

- Good wear resistance by Si-based PVD coating.
- Ultra high precise edge tolerance.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2μm) WC grade.

2

UWC
초미립자

TISIN-S
Coating

R
±0.002

R
±0.003

R
±0.005

30°
Helix Angle

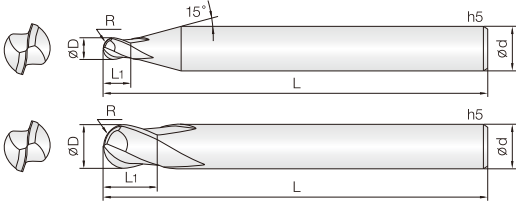
CUTTING
DATA

0.1 ~ 1R 1.25 ~ 2R 2.5 ~ 6R 332P

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

단위: mm

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



- 고경도강(HRc50~62), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여, 열박음척 사용이 용이합니다.
- 날부인선의 조도가 뛰어난피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2 μ 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 μ m) WC grade.

2

UWC
초미립자

TISIN
Coating

R
 ± 0.005

R
 ± 0.01

30°
Helix Angle

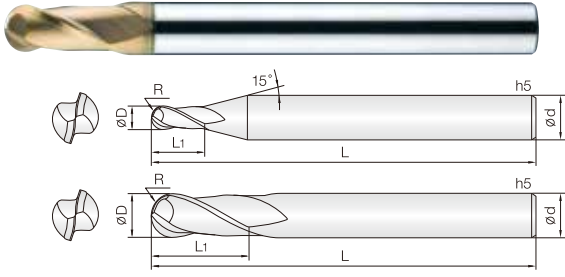
CUTTING
DATA

0.05 ~ 2.5R 3R ~ 6R 332P

D Size	D Tolerance
Ø 0.1 ~ 0.15	+0 ~ -0.005mm
Ø 0.2 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 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	Order Number	날경 Diameter R × 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 100 100 060	5R X 10	10	60	10	
2HSB 001 0015 S04	0.05R X 0.1	0.15	40	4		2HSB 100 100 070	5R X 10	10	70	10	
2HSB 0015 0015 S04	0.075R X 0.15	0.15	40	4		2HSB 120 120 060	6R X 12	12	60	12	
2HSB 0015 002 S04	0.075R X 0.15	0.2	40	4		2HSB 120 120 070	6R X 12	12	70	12	
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							
New 2HSB 0025 004 S04	0.125R X 0.25	0.4	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							
New 2HSB 012 012 S04	0.6R X 1.2	1.2	40	4							
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							
New 2HSB 025 025 S04	1.25R X 2.5	2.5	45	4							
New 2HSB 025 025 S06	1.25R X 2.5	2.5	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							



• **고경도강(HRc50~62), 프리하든강 계열의 고속 가공 엔드밀**

- 실리코계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금 (0.2 μ 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 μ m) WC grade.



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

단위: mm

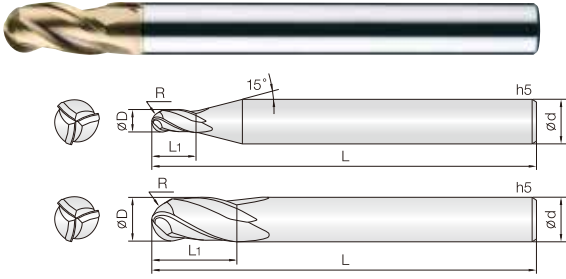
Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R x D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2HCB 0006 001 S04	0.03R X 0.06	0.1	40	4		2HCB 030 080 100	1.5R X 3	8	100	6	
2HCB 0007 0012 S04	0.035R X 0.07	0.12	40	4		2HCB 032 080 S04	1.6R X 3.2	8	60	4	
2HCB 0008 0015 S04	0.04R X 0.08	0.15	40	4		2HCB 034 080 S04	1.7R X 3.4	8	60	4	
2HCB 0009 0017 S04	0.045R X 0.09	0.17	40	4		2HCB 035 080 S06	1.75R X 3.5	8	60	6	
2HCB 001 002 S04	0.05R X 0.1	0.2	40	4		2HCB 036 090 S04	1.8R X 3.6	9	60	4	
2HCB 0015 003 S04	0.075R X 0.15	0.3	40	4		2HCB 038 090 S04	1.9R X 3.8	9	60	4	
2HCB 002 004 S04	0.1R X 0.2	0.4	40	4		2HCB 040 080 060	2R X 4	8	60	4	
2HCB 003 006 S04	0.15R X 0.3	0.6	40	4		2HCB 040 080 080	2R X 4	8	80	4	
2HCB 004 008 S04	0.2R X 0.4	0.8	40	4		2HCB 040 080 S06	2R X 4	8	70	6	
2HCB 005 010 S04	0.25R X 0.5	1	45	4		2HCB 040 080 090	2R X 4	8	90	6	
2HCB 006 012 S04	0.3R X 0.6	1.2	45	4		2HCB 040 080 120	2R X 4	8	120	6	
2HCB 007 015 S04	0.35R X 0.7	1.5	45	4		2HCB 042 100 S06	2.1R X 4.2	10	70	6	
2HCB 008 020 S04	0.4R X 0.8	2	45	4		2HCB 044 100 S06	2.2R X 4.4	10	70	6	
2HCB 009 020 S04	0.45R X 0.9	2	45	4		2HCB 045 080 S06	2.25R X 4.5	8	70	6	
2HCB 010 025 S03	0.5R X 1	2.5	50	3		2HCB 046 100 S06	2.3R X 4.6	10	70	6	
2HCB 010 025 S04	0.5R X 1	2.5	50	4		2HCB 048 110 S06	2.4R X 4.8	11	70	6	
2HCB 010 025 S06	0.5R X 1	2.5	50	6		2HCB 050 080 S05	2.5R X 5	8	80	5	
2HCB 010 025 070	0.5R X 1	2.5	70	6		2HCB 050 100 S06	2.5R X 5	10	75	6	
2HCB 010 025 100	0.5R X 1	2.5	100	6		2HCB 052 120 S06	2.6R X 5.2	12	75	6	
2HCB 011 027 S04	0.55R X 1.1	2.7	50	4		2HCB 054 120 S06	2.7R X 5.4	12	75	6	
2HCB 012 030 S03	0.6R X 1.2	3	50	3		2HCB 055 100 S06	2.75R X 5.5	10	75	6	
2HCB 012 030 S04	0.6R X 1.2	3	50	4		2HCB 056 120 S06	2.8R X 5.6	12	75	6	
2HCB 013 032 S04	0.65R X 1.3	3.2	50	4		2HCB 058 120 S06	2.9R X 5.8	12	75	6	
2HCB 014 035 S04	0.7R X 1.4	3.5	50	4		2HCB 060 100 060	3R X 6	10	60	6	
2HCB 015 040 S03	0.75R X 1.5	4	50	3		2HCB 060 120 080	3R X 6	12	80	6	
2HCB 015 040 S04	0.75R X 1.5	4	50	4		2HCB 060 120 100	3R X 6	12	100	6	
2HCB 015 040 S06	0.75R X 1.5	4	50	6		2HCB 060 120 120	3R X 6	12	120	6	
2HCB 015 040 070	0.75R X 1.5	4	70	6		2HCB 060 120 150	3R X 6	12	150	6	
2HCB 015 040 100	0.75R X 1.5	4	100	6		2HCB 070 140 S08	3.5R X 7	14	80	8	
2HCB 016 040 S04	0.8R X 1.6	4	50	4		2HCB 080 140 090	4R X 8	14	90	8	
2HCB 017 042 S04	0.85R X 1.7	4.2	50	4		2HCB 080 140 110	4R X 8	14	110	8	
2HCB 018 045 S04	0.9R X 1.8	4.5	50	4		2HCB 080 140 150	4R X 8	14	150	8	
2HCB 019 047 S04	0.95R X 1.9	4.7	50	4		2HCB 090 160 S10	4.5R X 9	16	100	10	
2HCB 020 050 S03	1R X 2	5	50	3		2HCB 100 180 100	5R X 10	18	100	10	
2HCB 020 050 S04	1R X 2	5	50	4		2HCB 100 180 120	5R X 10	18	120	10	
2HCB 020 050 S06	1R X 2	5	50	6		2HCB 100 180 150	5R X 10	18	150	10	
2HCB 020 050 075	1R X 2	5	75	6		2HCB 100 180 180	5R X 10	18	180	10	
2HCB 020 050 100	1R X 2	5	100	6		2HCB 110 200 S12	5.5R X 11	20	110	12	
2HCB 022 055 S04	1.1R X 2.2	5.5	50	4		2HCB 120 220 110	6R X 12	22	110	12	
2HCB 024 060 S04	1.2R X 2.4	6	50	4		2HCB 120 220 130	6R X 12	22	130	12	
2HCB 025 060 S03	1.25R X 2.5	6	50	3		2HCB 120 220 150	6R X 12	22	150	12	
2HCB 025 060 S04	1.25R X 2.5	6	50	4		2HCB 120 220 200	6R X 12	22	200	12	
2HCB 025 060 S06	1.25R X 2.5	6	75	6		2HCB 130 240 S14	6.5R X 13	24	110	14	
2HCB 025 060 100	1.25R X 2.5	6	100	6		2HCB 140 240 S14	7R X 14	24	110	14	
2HCB 026 060 S04	1.3R X 2.6	6	50	4		2HCB 160 300 130	8R X 16	30	130	16	
2HCB 028 070 S04	1.4R X 2.8	7	50	4		2HCB 160 300 160	8R X 16	30	160	16	
2HCB 030 080 S03	1.5R X 3	8	60	3		2HCB 160 300 200	8R X 16	30	200	16	
2HCB 030 080 S04	1.5R X 3	8	50	4		2HCB 200 380 160	10R X 20	38	160	20	
2HCB 030 080 S06	1.5R X 3	8	60	6		2HCB 200 380 200	10R X 20	38	200	20	
2HCB 030 080 080	1.5R X 3	8	80	6							

3HCB

3 Flutes High Speed Standard Length Ball End Mills

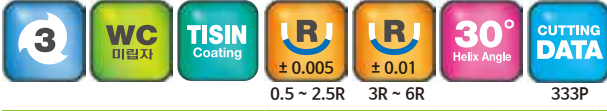
3날 고속가공용 표준 길이 볼 엔드밀

HARD series



- 고경도강(HRC50~65), 프리하든강 계열의 고속 가공 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 μ 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 μ m) WC grade.



D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 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
3HCB 010 250 S04	0.5R X 1	2.5	50	4	
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	

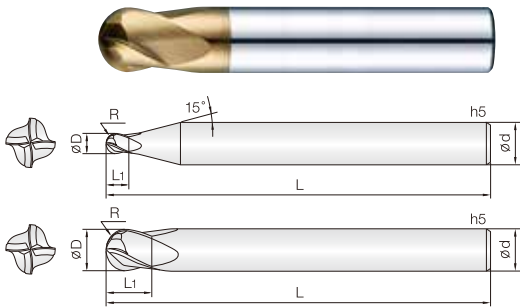
Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
New 3HCB 060 120 120	3R X 6	12	120	6	
3HCB 080 140 S08	4R X 8	14	90	8	
New 3HCB 080 140 150	4R X 8	14	150	8	
3HCB 100 180 S10	5R X 10	18	100	10	
New 3HCB 100 180 150	5R X 10	18	150	10	
3HCB 120 220 S12	6R X 12	22	110	12	
New 3HCB 120 220 150	6R X 12	22	150	12	

4HSB

4 Flutes High Speed Short Length Ball End Mills

4날 고속가공용 짧은 길이 볼 엔드밀

New



- 고경도강(HRC50~62), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 짧은 전장을 채택하여, 열박음척 사용이 용이합니다.
- 4날 볼타입 적용으로 고속 · 고이송 작업이 가능합니다.
- 초미립자 초경합금(0.2 μ 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.
- High speed, feed applicable by 3 flute ball edge.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

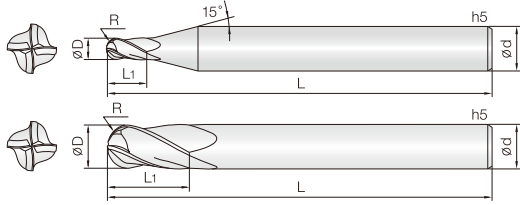


D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4HSB 010 012 S04	0.5R X 1	1.2	40	4	
4HSB 012 015 S04	0.6R X 1.2	1.5	40	4	
4HSB 015 018 S04	0.75R X 1.5	1.8	40	4	
4HSB 020 024 S04	1R X 2	2.4	40	4	
4HSB 025 030 S04	1.25R X 2.5	3	45	4	
4HSB 030 036 S06	1.5R X 3	3.6	45	6	
4HSB 040 050 S04	2R X 4	5	45	4	
4HSB 040 050 S06	2R X 4	5	45	6	
4HSB 050 060 S06	2.5R X 5	6	50	6	
4HSB 060 070 S06	3R X 6	7	50	6	
4HSB 060 070 060	3R X 6	7	60	6	
4HSB 080 080 S08	4R X 8	8	60	8	
4HSB 100 100 S10	5R X 10	10	60	10	
4HSB 120 120 S12	6R X 12	12	75	12	

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



- 고경도강(HRc50~65), 프리하든강 계열의 고속 가공 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 μ 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 μ m) WC grade.

4

WC
미립자

TISIN
Coating

R
 ± 0.005

R
 ± 0.01

R
 ± 0.015

30°
Helix Angle

CUTTING
DATA

0.5 ~ 2.5R 3 ~ 6R 7 ~ 10R 333P

D Size	D Tolerance
$\varnothing 1 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm
$\varnothing 14 \sim 20$	-0.01 ~ -0.02mm

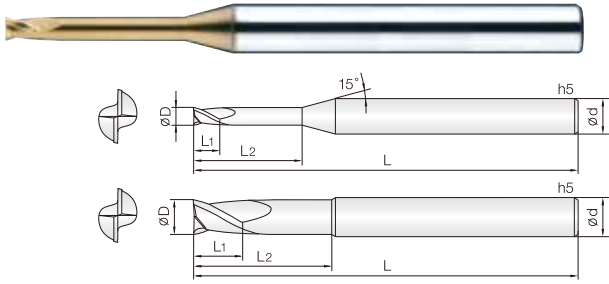
단위: mm

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
New 4HCB 010 025 S06	0.5R X 1	2.5	50	6							
New 4HCB 010 025 080	0.5R X 1	2.5	80	6							
4HCB 015 040 S06	0.75R X 1.5	4	50	6							
New 4HCB 015 040 080	0.75R X 1.5	4	80	6							
4HCB 020 050 S06	1R X 2	5	50	6							
New 4HCB 020 050 080	1R X 2	5	80	6							
New 4HCB 025 070 S06	1.25R X 2.5	7	50	6							
New 4HCB 025 070 080	1.25R X 2.5	7	80	6							
4HCB 030 080 S06	1.5R X 3	8	60	6							
New 4HCB 030 080 090	1.5R X 3	8	90	6							
4HCB 040 080 S04	2R X 4	8	60	4							
New 4HCB 040 080 090	2R X 4	8	90	4							
4HCB 040 080 S06	2R X 4	8	70	6							
New 4HCB 040 080 100	2R X 4	8	100	6							
4HCB 050 100 S06	2.5R X 5	10	80	6							
New 4HCB 050 100 110	2.5R X 5	10	110	6							
4HCB 060 120 S06	3R X 6	12	90	6							
New 4HCB 060 120 110	3R X 6	12	110	6							
4HCB 080 140 S08	4R X 8	14	100	8							
New 4HCB 080 140 150	4R X 8	14	150	8							
4HCB 100 180 S10	5R X 10	18	100	10							
New 4HCB 100 180 150	5R X 10	18	150	10							
4HCB 120 220 S12	6R X 12	22	110	12							
New 4HCB 120 220 150	6R X 12	22	150	12							
New 4HCB 140 240 110	7R X 14	24	110	14							
4HCB 160 300 S16	8R X 16	30	130	16							
New 4HCB 160 300 160	8R X 16	30	160	16							
4HCB 200 400 S20	10R X 20	40	160	20							
New 4HCB 200 400 200	10R X 20	40	200	20							

2HRE 2 Flutes High Speed Rib End Mills

2날 고속가공용 리브 엔드밀

HARD series



- 고경도강 (HRc50~60), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금 (0.2 μ 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 μ m) WC grade.



D Size	D Tolerance
ø0.1 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

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	0.15	0.3	40	4		2HRE 006 050 S04	0.6	0.6	5	40	4	
2HRE 001 005 S04	0.1	0.15	0.5	40	4		2HRE 006 060 S04	0.6	0.6	6	40	4	
New 2HRE 0015 003 S04	0.15	0.15	0.3	40	4		2HRE 006 080 S04	0.6	0.6	8	40	4	
New 2HRE 0015 005 S04	0.15	0.15	0.5	40	4		2HRE 006 100 S04	0.6	0.6	10	40	4	
New 2HRE 0015 0075 S04	0.15	0.15	0.75	40	4		2HRE 006 120 S04	0.6	0.6	12	45	4	
New 2HRE 0015 010 S04	0.15	0.15	1	40	4		2HRE 006 140 S04	0.6	0.6	14	45	4	
2HRE 002 005 S04	0.2	0.2	0.5	40	4		2HRE 006 160 S04	0.6	0.6	16	45	4	
2HRE 002 010 S04	0.2	0.2	1	40	4		2HRE 007 020 S04	0.7	0.7	2	40	4	
2HRE 002 015 S04	0.2	0.2	1.5	40	4		2HRE 007 040 S04	0.7	0.7	4	40	4	
2HRE 002 020 S04	0.2	0.2	2	40	4		2HRE 007 060 S04	0.7	0.7	6	40	4	
2HRE 002 025 S04	0.2	0.2	2.5	40	4		2HRE 007 080 S04	0.7	0.7	8	40	4	
2HRE 002 030 S04	0.2	0.2	3	40	4		2HRE 007 100 S04	0.7	0.7	10	40	4	
New 2HRE 0025 005 S04	0.25	0.25	0.5	40	4		2HRE 007 120 S04	0.7	0.7	12	45	4	
New 2HRE 0025 010 S04	0.25	0.25	1	40	4		2HRE 008 020 S04	0.8	0.8	2	40	4	
New 2HRE 0025 015 S04	0.25	0.25	1.5	40	4		2HRE 008 030 S04	0.8	0.8	3	40	4	
New 2HRE 0025 020 S04	0.25	0.25	2	40	4		2HRE 008 040 S04	0.8	0.8	4	40	4	
New 2HRE 0025 030 S04	0.25	0.25	3	40	4		2HRE 008 050 S04	0.8	0.8	5	40	4	
2HRE 003 010 S04	0.3	0.3	1	40	4		2HRE 008 060 S04	0.8	0.8	6	40	4	
2HRE 003 015 S04	0.3	0.3	1.5	40	4		2HRE 008 080 S04	0.8	0.8	8	40	4	
2HRE 003 020 S04	0.3	0.3	2	40	4		2HRE 008100 S04	0.8	0.8	10	40	4	
2HRE 003 025 S04	0.3	0.3	2.5	40	4		2HRE 008120 S04	0.8	0.8	12	45	4	
2HRE 003 030 S04	0.3	0.3	3	40	4		2HRE 008140 S04	0.8	0.8	14	45	4	
2HRE 003 035 S04	0.3	0.3	3.5	40	4		2HRE 009 060 S04	0.9	0.9	6	40	4	
2HRE 003 040 S04	0.3	0.3	4	40	4		2HRE 009 080 S04	0.9	0.9	8	40	4	
2HRE 003 050 S04	0.3	0.3	5	40	4		2HRE 009 100 S04	0.9	0.9	10	40	4	
2HRE 004 010 S04	0.4	0.4	1	40	4		2HRE 010 020 S04	1	1	2	45	4	
2HRE 004 015 S04	0.4	0.4	1.5	40	4		2HRE 010 030 S04	1	1	3	45	4	
2HRE 004 020 S04	0.4	0.4	2	40	4		2HRE 010 040 S04	1	1	4	45	4	
2HRE 004 025 S04	0.4	0.4	2.5	40	4		2HRE 010 050 S04	1	1	5	45	4	
2HRE 004 030 S04	0.4	0.4	3	40	4		2HRE 010 060 S04	1	1	6	45	4	
2HRE 004 035 S04	0.4	0.4	3.5	40	4		2HRE 010 080 S04	1	1	8	45	4	
2HRE 004 040 S04	0.4	0.4	4	40	4		2HRE 010 100 S04	1	1	10	45	4	
2HRE 004 050 S04	0.4	0.4	5	40	4		2HRE 010 120 S04	1	1	12	45	4	
2HRE 004 060 S04	0.4	0.4	6	40	4		2HRE 010 140 S04	1	1	14	45	4	
2HRE 004 080 S04	0.4	0.4	8	40	4		2HRE 010 160 S04	1	1	16	50	4	
2HRE 004 100 S04	0.4	0.4	10	40	4		2HRE 010 180 S04	1	1	18	50	4	
2HRE 005 010 S04	0.5	0.5	1	40	4		2HRE 010 200 S04	1	1	20	50	4	
2HRE 005 020 S04	0.5	0.5	2	40	4		2HRE 010 250 S04	1	1	25	60	4	
2HRE 005 030 S04	0.5	0.5	3	40	4		2HRE 010 300 S04	1	1	30	70	4	
2HRE 005 040 S04	0.5	0.5	4	40	4		2HRE 012 040 S04	1.2	1.2	4	45	4	
2HRE 005 050 S04	0.5	0.5	5	40	4		2HRE 012 060 S04	1.2	1.2	6	45	4	
2HRE 005 060 S04	0.5	0.5	6	40	4		2HRE 012 080 S04	1.2	1.2	8	45	4	
2HRE 005 080 S04	0.5	0.5	8	40	4		2HRE 012 100 S04	1.2	1.2	10	45	4	
2HRE 005 100 S04	0.5	0.5	10	40	4		2HRE 012 120 S04	1.2	1.2	12	45	4	
2HRE 005 120 S04	0.5	0.5	12	45	4		2HRE 012 160 S04	1.2	1.2	16	50	4	
2HRE 005 140 S04	0.5	0.5	14	45	4		2HRE 012 200 S04	1.2	1.2	20	50	4	
2HRE 006 010 S04	0.6	0.6	1	40	4		2HRE 012 250 S04	1.2	1.2	25	60	4	
2HRE 006 020 S04	0.6	0.6	2	40	4		2HRE 012 300 S04	1.2	1.2	30	70	4	
2HRE 006 030 S04	0.6	0.6	3	40	4		2HRE 014 060 S04	1.4	1.4	6	45	4	
2HRE 006 040 S04	0.6	0.6	4	40	4		2HRE 014 080 S04	1.4	1.4	8	45	4	

단위: mm

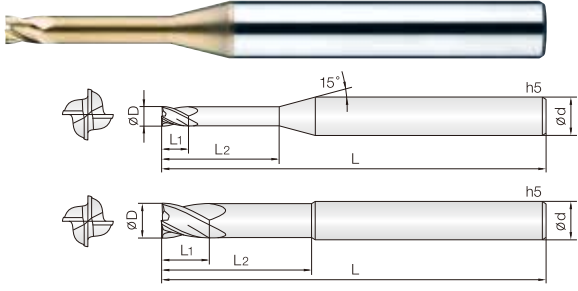
단위: mm

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 014 100 S04	1.4	1.4	10	45	4		2HRE 030 120 S06	3	3	12	50	6	
2HRE 014 140 S04	1.4	1.4	14	45	4		2HRE 030 160 S06	3	3	16	55	6	
2HRE 014 160 S04	1.4	1.4	16	50	4		2HRE 030 200 S06	3	3	20	60	6	
2HRE 014 200 S04	1.4	1.4	20	50	4		2HRE 030 250 S06	3	3	25	65	6	
2HRE 015 040 S04	1.5	1.5	4	45	4		2HRE 030 300 S06	3	3	30	70	6	
2HRE 015 060 S04	1.5	1.5	6	45	4		2HRE 030 350 S06	3	3	35	75	6	
2HRE 015 080 S04	1.5	1.5	8	45	4		2HRE 030 400 S06	3	3	40	80	6	
2HRE 015 100 S04	1.5	1.5	10	45	4		2HRE 030 450 S06	3	3	45	90	6	
2HRE 015 120 S04	1.5	1.5	12	45	4		2HRE 030 500 S06	3	3	50	100	6	
2HRE 015 140 S04	1.5	1.5	14	50	4		2HRE 030 600 S06	3	3	60	100	6	
2HRE 015 160 S04	1.5	1.5	16	50	4		2HRE 040 080 S06	4	4	8	50	6	
2HRE 015 180 S04	1.5	1.5	18	50	4		2HRE 040 100 S06	4	4	10	50	6	
2HRE 015 200 S04	1.5	1.5	20	50	4		2HRE 040 120 S06	4	4	12	50	6	
2HRE 015 250 S04	1.5	1.5	25	60	4		2HRE 040 160 S06	4	4	16	55	6	
2HRE 015 300 S04	1.5	1.5	30	70	4		2HRE 040 200 S06	4	4	20	60	6	
2HRE 016 100 S04	1.6	1.6	10	45	4		2HRE 040 250 S06	4	4	25	65	6	
2HRE 016 140 S04	1.6	1.6	14	45	4		2HRE 040 300 S06	4	4	30	70	6	
2HRE 016 180 S04	1.6	1.6	18	50	4		2HRE 040 350 S06	4	4	35	75	6	
2HRE 018 100 S04	1.8	1.8	10	45	4		2HRE 040 400 S06	4	4	40	80	6	
2HRE 018 140 S04	1.8	1.8	14	45	4		2HRE 040 450 S06	4	4	45	90	6	
2HRE 018 180 S04	1.8	1.8	18	50	4		2HRE 040 500 S06	4	4	50	100	6	
2HRE 020 040 S04	2	2	4	45	4		2HRE 040 550 S06	4	4	55	100	6	
2HRE 020 060 S04	2	2	6	45	4		2HRE 040 600 S06	4	4	60	100	6	
2HRE 020 080 S04	2	2	8	45	4		2HRE 050 160 S06	5	6	16	55	6	
2HRE 020 100 S04	2	2	10	45	4		2HRE 050 200 S06	5	6	20	60	6	
2HRE 020 120 S04	2	2	12	45	4		2HRE 050 250 S06	5	6	25	65	6	
2HRE 020 140 S04	2	2	14	45	4		2HRE 050 300 S06	5	6	30	70	6	
2HRE 020 160 S04	2	2	16	50	4		2HRE 050 350 S06	5	6	35	75	6	
2HRE 020 180 S04	2	2	18	50	4		2HRE 050 400 S06	5	6	40	80	6	
2HRE 020 200 S04	2	2	20	50	4		2HRE 050 500 S06	5	6	50	100	6	
2HRE 020 220 S04	2	2	22	60	4		2HRE 050 600 S06	5	6	60	100	6	
2HRE 020 250 S04	2	2	25	60	4		2HRE 060 200 S06	6	10	20	60	6	
2HRE 020 300 S04	2	2	30	60	4		2HRE 060 300 S06	6	10	30	75	6	
2HRE 020 350 S04	2	2	35	70	4		2HRE 060 400 S06	6	10	40	80	6	
2HRE 020 400 S04	2	2	40	80	4		2HRE 060 500 S06	6	10	50	90	6	
2HRE 020 450 S04	2	2	45	80	4		2HRE 060 600 S06	6	10	60	110	6	
2HRE 020 500 S04	2	2	50	90	4		2HRE 080 200 S08	8	12	20	65	8	
2HRE 025 080 S04	2.5	2.5	8	45	4		2HRE 080 300 S08	8	12	30	80	8	
2HRE 025 100 S04	2.5	2.5	10	45	4		2HRE 080 400 S08	8	12	40	100	8	
2HRE 025 120 S04	2.5	2.5	12	45	4		2HRE 100 250 S10	10	15	25	70	10	
2HRE 025 160 S04	2.5	2.5	16	50	4		2HRE 100 350 S10	10	15	35	80	10	
2HRE 025 200 S04	2.5	2.5	20	50	4		2HRE 100 450 S10	10	15	45	100	10	
2HRE 025 250 S04	2.5	2.5	25	60	4		2HRE 120 300 S12	12	18	30	80	12	
2HRE 025 300 S04	2.5	2.5	30	70	4		2HRE 120 400 S12	12	18	40	100	12	
2HRE 025 350 S04	2.5	2.5	35	70	4		2HRE 120 500 S12	12	18	50	120	12	
2HRE 025 400 S04	2.5	2.5	40	80	4								
2HRE 025 500 S04	2.5	2.5	50	90	4								
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								

4HRE 4 Flutes High Speed Rib End Mills

4날 고속가공용 리브 엔드밀

HARD series



- 고경도강 (HRc50~60), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금 (0.2µm)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 (0.2µm) 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	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 4HRE 005 010 S04	0.5	0.5	1	45	4		4HRE 015 060 S04	1.5	1.5	6	45	4	
New 4HRE 005 020 S04	0.5	0.5	2	45	4		4HRE 015 080 S04	1.5	1.5	8	45	4	
New 4HRE 005 030 S04	0.5	0.5	3	45	4		4HRE 015 100 S04	1.5	1.5	10	45	4	
New 4HRE 005 040 S04	0.5	0.5	4	45	4		4HRE 015 120 S04	1.5	1.5	12	45	4	
New 4HRE 005 050 S04	0.5	0.5	5	45	4		4HRE 015 160 S04	1.5	1.5	16	50	4	
New 4HRE 005 060 S04	0.5	0.5	6	45	4		4HRE 015 200 S04	1.5	1.5	20	50	4	
New 4HRE 005 080 S04	0.5	0.5	8	45	4		4HRE 015 250 S04	1.5	1.5	25	60	4	
New 4HRE 005 100 S04	0.5	0.5	10	50	4		4HRE 020 040 S04	2	2	4	45	4	
New 4HRE 006 010 S04	0.6	0.6	1	45	4		4HRE 020 060 S04	2	2	6	45	4	
New 4HRE 006 020 S04	0.6	0.6	2	45	4		4HRE 020 080 S04	2	2	8	45	4	
New 4HRE 006 030 S04	0.6	0.6	3	45	4		4HRE 020 100 S04	2	2	10	45	4	
New 4HRE 006 040 S04	0.6	0.6	4	45	4		4HRE 020 120 S04	2	2	12	45	4	
New 4HRE 006 060 S04	0.6	0.6	6	45	4		4HRE 020 140 S04	2	2	14	50	4	
New 4HRE 006 080 S04	0.6	0.6	8	45	4		4HRE 020 160 S04	2	2	16	50	4	
New 4HRE 006 100 S04	0.6	0.6	10	50	4		4HRE 020 180 S04	2	2	18	50	4	
New 4HRE 006 120 S04	0.6	0.6	12	50	4		4HRE 020 200 S04	2	2	20	50	4	
New 4HRE 007 020 S04	0.7	0.7	2	45	4		4HRE 020 250 S04	2	2	25	60	4	
New 4HRE 007 040 S04	0.7	0.7	4	45	4		4HRE 020 300 S04	2	2	30	70	4	
New 4HRE 007 060 S04	0.7	0.7	6	45	4		4HRE 025 100 S04	2.5	2.5	10	45	4	
New 4HRE 007 080 S04	0.7	0.7	8	45	4		4HRE 025 120 S04	2.5	2.5	12	45	4	
New 4HRE 007 100 S04	0.7	0.7	10	50	4		4HRE 025 160 S04	2.5	2.5	16	50	4	
4HRE 008 020 S04	0.8	0.8	2	45	4		4HRE 025 200 S04	2.5	2.5	20	50	4	
4HRE 008 040 S04	0.8	0.8	4	45	4		4HRE 025 250 S04	2.5	2.5	25	60	4	
4HRE 008 060 S04	0.8	0.8	6	45	4		4HRE 025 300 S04	2.5	2.5	30	70	4	
4HRE 008 080 S04	0.8	0.8	8	45	4		4HRE 030 060 S06	3	3	6	45	6	
4HRE 008 100 S04	0.8	0.8	10	45	4		4HRE 030 080 S06	3	3	8	45	6	
4HRE 008 120 S04	0.8	0.8	12	45	4		4HRE 030 100 S06	3	3	10	45	6	
4HRE 008 160 S04	0.8	0.8	16	50	4		4HRE 030 120 S06	3	3	12	50	6	
4HRE 009 020 S04	0.9	0.9	2	45	4		4HRE 030 160 S06	3	3	16	55	6	
4HRE 009 060 S04	0.9	0.9	6	45	4		4HRE 030 200 S06	3	3	20	60	6	
4HRE 009 080 S04	0.9	0.9	8	45	4		4HRE 030 250 S06	3	3	25	65	6	
4HRE 009 100 S04	0.9	0.9	10	45	4		4HRE 030 300 S06	3	3	30	70	6	
4HRE 010 020 S04	1	1	2	45	4		4HRE 030 350 S06	3	3	35	75	6	
4HRE 010 030 S04	1	1	3	45	4		4HRE 030 400 S06	3	3	40	80	6	
4HRE 010 040 S04	1	1	4	45	4		New 4HRE 030 450 S06	3	3	45	90	6	
4HRE 010 060 S04	1	1	6	45	4		New 4HRE 030 500 S06	3	3	50	100	6	
4HRE 010 080 S04	1	1	8	45	4		New 4HRE 035 120 S06	3.5	3.5	12	50	6	
4HRE 010 100 S04	1	1	10	45	4		New 4HRE 035 160 S06	3.5	3.5	16	55	6	
4HRE 010 120 S04	1	1	12	45	4		New 4HRE 035 200 S06	3.5	3.5	20	60	6	
4HRE 010 140 S04	1	1	14	50	4		New 4HRE 035 250 S06	3.5	3.5	25	65	6	
4HRE 010 160 S04	1	1	16	50	4		New 4HRE 035 300 S06	3.5	3.5	30	70	6	
4HRE 010 200 S04	1	1	20	50	4		4HRE 040 060 S06	4	4	6	50	6	
4HRE 010 250 S04	1	1	25	60	4		4HRE 040 080 S06	4	4	8	50	6	
4HRE 012 040 S04	1.2	1.2	4	45	4		4HRE 040 100 S06	4	4	10	50	6	
4HRE 012 060 S04	1.2	1.2	6	45	4		4HRE 040 120 S06	4	4	12	50	6	
4HRE 012 080 S04	1.2	1.2	8	45	4		4HRE 040 160 S06	4	4	16	55	6	
4HRE 012 100 S04	1.2	1.2	10	45	4		4HRE 040 200 S06	4	4	20	60	6	
4HRE 012 120 S04	1.2	1.2	12	45	4		4HRE 040 250 S06	4	4	25	65	6	
4HRE 012 160 S04	1.2	1.2	16	50	4		4HRE 040 300 S06	4	4	30	70	6	
4HRE 015 040 S04	1.5	1.5	4	45	4		4HRE 040 400 S06	4	4	40	80	6	

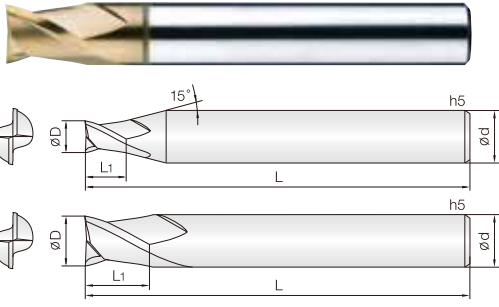
단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
4HRE 040 450 S06	4	4	45	90	6								
4HRE 040 500 S06	4	4	50	100	6								
New 4HRE 040 600 S06	4	4	60	110	6								
New 4HRE 045 120 S06	4.5	4.5	12	50	6								
New 4HRE 045 160 S06	4.5	4.5	16	55	6								
New 4HRE 045 200 S06	4.5	4.5	20	60	6								
New 4HRE 045 250 S06	4.5	4.5	25	65	6								
New 4HRE 045 300 S06	4.5	4.5	30	70	6								
4HRE 050 160 S06	5	5	16	55	6								
4HRE 050 200 S06	5	5	20	60	6								
4HRE 050 250 S06	5	5	25	65	6								
4HRE 050 300 S06	5	5	30	70	6								
4HRE 050 400 S06	5	5	40	80	6								
4HRE 050 500 S06	5	5	50	100	6								
New 4HRE 050 600 S06	5	5	60	110	6								
4HRE 060 200 S06	6	6	20	60	6								
4HRE 060 300 S06	6	6	30	75	6								
4HRE 060 400 S06	6	6	40	80	6								
4HRE 060 500 S06	6	6	50	90	6								
New 4HRE 060 600 S06	6	6	60	110	6								
4HRE 080 200 S08	8	10	20	65	8								
4HRE 080 300 S08	8	10	30	80	8								
4HRE 080 400 S08	8	10	40	100	8								
4HRE 100 250 S10	10	15	25	70	10								
4HRE 100 350 S10	10	15	35	90	10								
4HRE 100 450 S10	10	15	45	110	10								
4HRE 120 300 S12	12	18	30	80	12								
4HRE 120 400 S12	12	18	40	100	12								
4HRE 120 500 S12	12	18	50	120	12								

2HSE 2 Flutes High Speed Short Length End Mills

2날 고속가공용 짧은 길이 엔드밀

HARD series



- **고경도강 (HRC50~65), 프리하든강 계열의 고속 가공 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.
- 3날 볼타입 적용으로 고속 · 고이송 작업이 가능합니다.
- 항절력이 높은 미립자 초경합금(0.5μm)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.
- 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.

2

WC
미립자

TISIN
Coating

|DI|
+0-0.005

|DI|
+0-0.01

|DI|
-0.01-0.025

30°
Helix Angle

Shield Edge

CUTTING
DATA

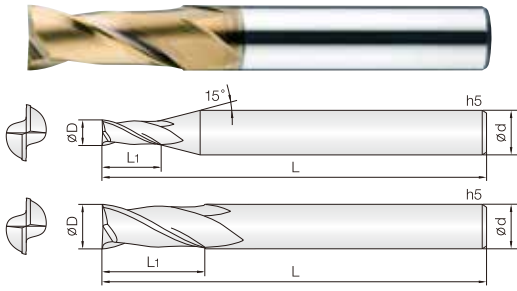
D Size	D Tolerance
ø0.1 ~ 0.15	+0 ~ -0.005mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	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
New 2HSE 001 001 S04	0.1	0.1	40	4							
2HSE 0015 0015 S04	0.15	0.15	40	4							
2HSE 002 002 S04	0.2	0.2	40	4							
New 2HSE 0025 0025 S04	0.25	0.25	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							

2HCE 2 Flutes High Speed Standard Length End Mills

2날 고속가공용 표준 길이 엔드밀



• 고경도강(HRC50~65), 프리하든강 계열의 고속 가공 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(0.5µm)을 채택, 엔드밀의 파손을 최소화

• Endmills for pre-hardened and hardened steel(HRC50~65)

- 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(0.5µm) WC grade.



D Size	D Tolerance
ø 0.05 ~ 0.15	+0 ~ -0.005mm
ø 0.2 ~ 5.9	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 13 ~ 20	-0.015 ~ -0.03mm

단위: mm

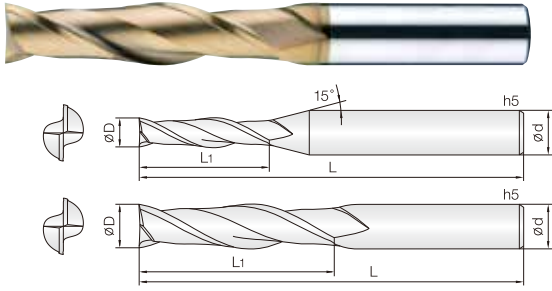
Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2HCE 0005 0008 S04	0.05	0.08	40	4		2HCE 018 045 S04	1.8	4.5	40	4	
New 2HCE 0006 001 S04	0.06	0.1	40	4		2HCE 0185 045 S04	1.85	4.5	40	4	
2HCE 0007 0012 S04	0.07	0.12	40	4		2HCE 019 050 S04	1.9	5	40	4	
New 2HCE 0008 0015 S04	0.08	0.15	40	4		2HCE 0195 050 S04	1.95	5	40	4	
2HCE 0009 0017 S04	0.09	0.17	40	4		2HCE 020 060 S03	2	6	40	3	
2HCE 001 002 S04	0.1	0.2	40	4		2HCE 020 060 S04	2	6	40	4	
2HCE 0015 003 S04	0.15	0.3	40	4		2HCE 020 060 S06	2	6	40	6	
2HCE 002 004 S04	0.2	0.4	40	4		2HCE 020 060 060	2	6	60	6	
2HCE 0025 005 S04	0.25	0.5	40	4		2HCE 021 060 S04	2.1	6	40	4	
2HCE 003 006 S04	0.3	0.6	40	4		2HCE 022 060 S04	2.2	6	40	4	
2HCE 0035 007 S04	0.35	0.7	40	4		2HCE 023 060 S04	2.3	6	40	4	
2HCE 004 008 S04	0.4	0.8	40	4		2HCE 024 080 S04	2.4	8	45	4	
2HCE 0045 009 S04	0.45	0.9	40	4		2HCE 025 080 S03	2.5	8	45	3	
2HCE 005 010 S03	0.5	1	40	3		2HCE 025 080 S04	2.5	8	45	4	
2HCE 005 010 S04	0.5	1	40	4		2HCE 025 080 S06	2.5	8	45	6	
2HCE 0055 011 S04	0.55	1.1	40	4		2HCE 025 080 070	2.5	8	70	6	
2HCE 006 012 S03	0.6	1.2	40	3		2HCE 026 080 S04	2.6	8	45	4	
2HCE 006 012 S04	0.6	1.2	40	4		2HCE 027 080 S04	2.7	8	45	4	
2HCE 0065 013 S04	0.65	1.3	40	4		2HCE 028 080 S04	2.8	8	45	4	
2HCE 007 014 S04	0.7	1.4	40	4		2HCE 029 080 S04	2.9	8	45	4	
2HCE 0075 015 S04	0.75	1.5	40	4		2HCE 030 080 S03	3	8	45	3	
2HCE 008 016 S03	0.8	1.6	40	3		2HCE 030 080 S04	3	8	45	4	
2HCE 008 016 S04	0.8	1.6	40	4		2HCE 030 080 S06	3	8	45	6	
2HCE 0085 017 S04	0.85	1.7	40	4		2HCE 030 080 070	3	8	70	6	
2HCE 009 020 S04	0.9	2	40	4		2HCE 031 080 S06	3.1	8	45	6	
2HCE 0095 020 S04	0.95	2	40	4		2HCE 032 080 S06	3.2	8	45	6	
2HCE 010 025 S03	1	2.5	40	3		2HCE 033 080 S06	3.3	8	45	6	
2HCE 010 025 S04	1	2.5	40	4		2HCE 034 080 S06	3.4	8	45	6	
2HCE 010 025 S06	1	2.5	40	6		2HCE 035 100 S06	3.5	10	45	6	
2HCE 010 025 060	1	2.5	60	6		2HCE 036 100 S06	3.6	10	45	6	
2HCE 0105 025 S04	1.05	2.5	40	4		2HCE 037 100 S06	3.7	10	45	6	
2HCE 011 027 S04	1.1	2.7	40	4		2HCE 038 100 S06	3.8	10	45	6	
2HCE 0115 025 S04	1.15	2.5	40	4		2HCE 039 100 S06	3.9	10	45	6	
2HCE 012 030 S03	1.2	3	40	3		2HCE 040 100 S04	4	10	45	4	
2HCE 012 030 S04	1.2	3	40	4		2HCE 040 110 S06	4	11	45	6	
2HCE 012 030 060	1.2	3	60	6		2HCE 040 110 070	4	11	70	6	
2HCE 0125 030 S04	1.25	3	40	4		2HCE 041 110 S06	4.1	11	45	6	
2HCE 013 032 S04	1.3	3.2	40	4		2HCE 042 110 S06	4.2	11	45	6	
2HCE 0135 032 S04	1.35	3.2	40	4		2HCE 043 110 S06	4.3	11	45	6	
2HCE 014 035 S04	1.4	3.5	40	4		2HCE 044 110 S06	4.4	11	45	6	
2HCE 0145 035 S04	1.45	3.5	40	4		2HCE 045 110 S06	4.5	11	45	6	
2HCE 015 040 S03	1.5	4	40	3		2HCE 046 110 S06	4.6	11	45	6	
2HCE 015 040 S04	1.5	4	40	4		2HCE 047 110 S06	4.7	11	45	6	
2HCE 015 040 S06	1.5	4	40	6		2HCE 048 110 S06	4.8	11	45	6	
2HCE 015 040 060	1.5	4	60	6		2HCE 049 110 S06	4.9	11	45	6	
2HCE 0155 040 S04	1.55	4	40	4		2HCE 050 130 S06	5	13	50	6	
2HCE 016 040 S04	1.6	4	40	4		2HCE 050 130 080	5	13	80	6	
2HCE 0165 040 S04	1.65	4	40	4		2HCE 051 130 S06	5.1	13	50	6	
2HCE 017 042 S04	1.7	4.2	40	4		2HCE 052 130 S06	5.2	13	50	6	
2HCE 0175 042 S04	1.75	4.2	40	4		2HCE 053 130 S06	5.3	13	50	6	

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Dia d	비고
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 S080	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							

2LEM 2 Flutes Long Length End Mills

2날 긴 길이 엔드밀



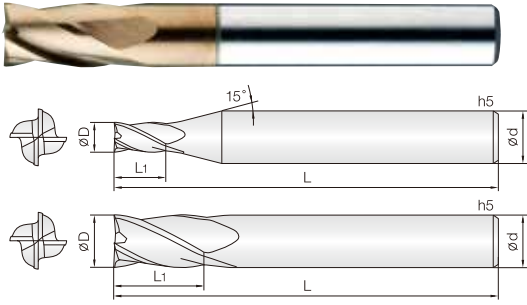
- HRC55 이하의 고경도강, 프리하드강, 공구강, 주철등 피삭재 가공
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- Endmill for various work materials, hardened steel (HRC~55), pre-hardened steel, tool steel and cast iron
- Good wear 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.

HARD series



D Size	D Tolerance
ø 1 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 25	-0.015 ~ -0.03mm

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
2LEM 010 030 S06	1	3	60	6		2LEM 080 250 S08	8	25	75	8	
2LEM 010 050 S06	1	5	60	6		2LEM 080 250 100	8	25	100	8	
2LEM 010 070 S06	1	7	60	6		2LEM 080 300 S08	8	30	80	8	
2LEM 010 100 S06	1	10	60	6		2LEM 080 350 S08	8	35	80	8	
2LEM 010 120 S06	1	12	60	6		2LEM 080 400 S08	8	40	90	8	
2LEM 010 150 S06	1	15	60	6		2LEM 080 450 S08	8	45	100	8	
New 2LEM 012 060 S06	1.2	6	60	6		2LEM 080 500 S08	8	50	100	8	
New 2LEM 012 080 S06	1.2	8	60	6		2LEM 080 550 S08	8	55	100	8	
New 2LEM 012 100 S06	1.2	10	60	6		2LEM 080 600 S08	8	60	110	8	
New 2LEM 012 120 S06	1.2	12	60	6		2LEM 100 300 S10	10	30	80	10	
2LEM 015 060 S06	1.5	6	60	6		2LEM 100 300 110	10	30	110	10	
2LEM 015 075 S06	1.5	7.5	60	6		2LEM 100 350 S10	10	35	90	10	
2LEM 015 100 S06	1.5	10	60	6		2LEM 100 400 S10	10	40	90	10	
2LEM 015 150 S06	1.5	15	60	6		2LEM 100 450 S10	10	45	100	10	
2LEM 015 200 S06	1.5	20	60	6		2LEM 100 500 S10	10	50	100	10	
2LEM 020 060 S06	2	6	60	6		2LEM 100 550 S10	10	55	110	10	
2LEM 020 100 S06	2	10	60	6		2LEM 100 600 S10	10	60	110	10	
2LEM 020 150 S06	2	15	60	6		2LEM 100 650 S10	10	65	120	10	
2LEM 020 200 S06	2	20	60	6		2LEM 100 700 S10	10	70	120	10	
New 2LEM 025 100 S06	2.5	10	60	6		2LEM 120 300 S12	12	30	90	12	
New 2LEM 025 150 S06	2.5	15	60	6		2LEM 120 350 110	12	35	110	12	
New 2LEM 025 200 S06	2.5	20	60	6		2LEM 120 400 S12	12	40	100	12	
2LEM 030 120 S06	3	12	70	6		2LEM 120 450 S12	12	45	100	12	
2LEM 030 150 S06	3	15	70	6		2LEM 120 500 S12	12	50	100	12	
2LEM 030 200 S06	3	20	70	6		2LEM 120 550 S12	12	55	110	12	
2LEM 030 250 S06	3	25	70	6		2LEM 120 600 S12	12	60	110	12	
2LEM 030 300 S06	3	30	70	6		2LEM 120 700 S12	12	70	130	12	
New 2LEM 035 120 S06	3.5	12	70	6		2LEM 120 800 S12	12	80	130	12	
New 2LEM 035 150 S06	3.5	15	70	6		2LEM 140 500 S14	14	50	110	14	
New 2LEM 035 200 S06	3.5	20	70	6		2LEM 160 400 160	16	40	160	16	
2LEM 040 150 S06	4	15	70	6		2LEM 160 550 S16	16	55	120	16	
2LEM 040 200 S06	4	20	70	6		2LEM 160 700 S16	16	70	130	16	
2LEM 040 300 S06	4	30	75	6		2LEM 160 800 S16	16	80	160	16	
2LEM 040 350 S06	4	35	75	6		2LEM 160 1000 S16	16	100	160	16	
2LEM 040 400 S06	4	40	80	6		2LEM 200 500 160	20	50	160	20	
New 2LEM 045 120 S06	4.5	12	70	6		2LEM 200 600 S20	20	60	130	20	
New 2LEM 045 150 S06	4.5	15	70	6		2LEM 200 1000 S20	20	100	200	20	
New 2LEM 045 200 S06	4.5	20	70	6		2LEM 250 750 S25	25	75	160	25	
2LEM 050 200 S06	5	20	80	6							
2LEM 050 250 S06	5	25	70	6							
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							
2LEM 060 450 S06	6	45	90	6							
2LEM 060 500 S06	6	50	100	6							



- 고경도강(HRc50~65), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계코팅(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(0.5 μ m)을 채택, 엔드밀의 파손을 최소화
- **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(0.5 μ m) WC grade.

4

WC
미립자

TISIN
Coating

|DI|
+0 -0.01

|DI|
-0.01 -0.025

|DI|
-0.015 -0.03

30°
Helix Angle

Shield Edge

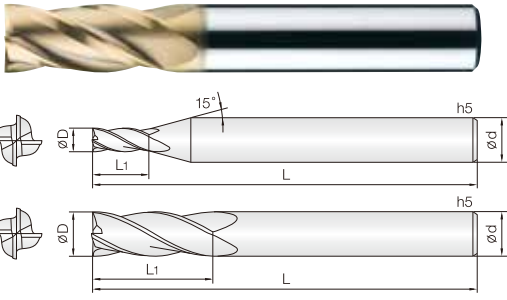
CUTTING
DATA

339P

단위: mm

D Size	D Tolerance
$\emptyset 0.5 \sim 5$	+0 ~ -0.01mm
$\emptyset 6 \sim 12$	-0.01 ~ -0.025mm
$\emptyset 16$	-0.015 ~ -0.03mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 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							
New 4HSE 025 038 S04	2.5	3.8	40	4							
4HSE 030 045 S04	3	4.5	40	4							
4HSE 030 045 S06	3	4.5	40	6							
New 4HSE 035 052 S06	3.5	5.2	40	6							
4HSE 040 060 S04	4	6	40	4							
4HSE 040 060 S06	4	6	40	6							
New 4HSE 045 068 S06	4.5	6.8	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							



- 고경도강(HRc50~60), 프리하든강계열의고정밀가공엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 항절력이 높은 미립자 초경합금(0.5 μ 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 μ m) WC grade.

4

WC
마립자

TISIN
Coating

D
+0-0.01

D
-0.01-0.025

D
-0.015-0.03

30°
Helix Angle

Shield Edge

CUTTING
DATA
339P

D Size	D Tolerance
ø 0.3 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 13 ~ 20	-0.015 ~ -0.03mm

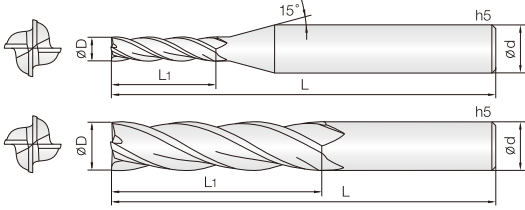
단위: mm

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 4HCE 003 006 S04	0.3	0.6	40	4		4HCE 070 160 S08	7	16	60	8	
New 4HCE 004 008 S04	0.4	0.8	40	4		4HCE 075 160 S08	7.5	16	60	8	
4HCE 005 010 S04	0.5	1	40	4		4HCE 080 190 S08	8	19	60	8	
4HCE 006 012 S04	0.6	1.2	40	4		4HCE 085 190 S10	8.5	19	70	10	
4HCE 007 014 S04	0.7	1.4	40	4		4HCE 090 190 S10	9	19	70	10	
4HCE 008 020 S04	0.8	2	40	4		4HCE 095 190 S10	9.5	19	70	10	
4HCE 009 018 S04	0.9	1.8	40	4		4HCE 100 220 S10	10	22	70	10	
4HCE 010 025 S03	1	2.5	40	3		4HCE 105 220 S12	10.5	22	75	12	
4HCE 010 025 S04	1	2.5	40	4		4HCE 110 220 S12	11	22	75	12	
4HCE 010 025 S06	1	2.5	40	6		4HCE 115 220 S12	11.5	22	75	12	
4HCE 010 025 060	1	2.5	60	6		4HCE 120 260 S12	12	26	75	12	
4HCE 010 025 080	1	2.5	80	6		4HCE 130 260 S14	13	26	80	14	
4HCE 012 030 S03	1.2	3	40	3		4HCE 140 260 S14	14	26	80	14	
4HCE 012 030 S04	1.2	3	40	4		4HCE 140 260 S16	14	26	90	16	
4HCE 012 030 S06	1.2	3	40	6		4HCE 150 350 S16	15	35	100	16	
4HCE 012 030 060	1.2	3	60	6		4HCE 160 350 S16	16	35	100	16	
4HCE 015 040 S03	1.5	4	40	3		4HCE 170 350 S18	17	35	100	18	
4HCE 015 040 S04	1.5	4	40	4		4HCE 180 350 S18	18	35	100	18	
4HCE 015 040 S06	1.5	4	40	6		4HCE 200 400 S20	20	40	100	20	
4HCE 015 040 060	1.5	4	60	6							
4HCE 015 040 080	1.5	4	80	6							
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 4 Flutes Long Length End Mills

4날 긴 길이 엔드밀

HARD series

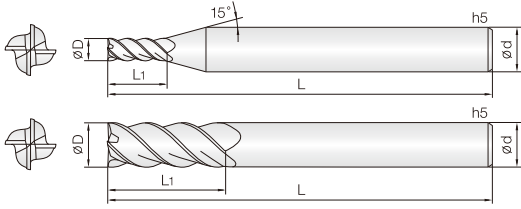


- HRC55 이하의 고경도강, 프리하드강, 공구강, 주철등 피삭재 가공
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- Endmill for various work materials, hardened steel (HRC~55), pre-hardened steel, tool steel and cast iron
- Good wear 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
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	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4LEM 005 015 S04	0.5	1.5	40	4		4LEM 050 300 S06	5	30	80	6	
New 4LEM 005 020 S04	0.5	2	40	4		4LEM 050 400 S06	5	40	80	6	
4LEM 006 018 S04	0.6	1.8	40	4		New 4LEM 050 500 S06	5	50	100	6	
New 4LEM 006 024 S04	0.6	2.4	40	4		4LEM 060 200 S06	6	20	75	6	
4LEM 008 024 S04	0.8	2.4	40	4		4LEM 060 200 100	6	20	100	6	
New 4LEM 008 032 S04	0.8	3.2	40	4		4LEM 060 250 S06	6	25	75	6	
4LEM 010 030 S06	1	3	60	6		4LEM 060 300 S06	6	30	80	6	
4LEM 010 050 S06	1	5	60	6		4LEM 060 350 S06	6	35	80	6	
4LEM 010 070 S06	1	7	60	6		4LEM 060 400 S06	6	40	90	6	
4LEM 010 100 S06	1	10	60	6		4LEM 060 450 S06	6	45	90	6	
4LEM 010 120 S06	1	12	60	6		4LEM 060 500 S06	6	50	100	6	
New 4LEM 012 040 S06	1.2	4	60	6		4LEM 080 250 S08	8	25	75	8	
New 4LEM 012 060 S06	1.2	6	60	6		4LEM 080 250 100	8	25	100	8	
New 4LEM 012 080 S06	1.2	8	60	6		4LEM 080 300 S08	8	30	80	8	
New 4LEM 012 100 S06	1.2	10	60	6		4LEM 080 350 S08	8	35	90	8	
4LEM 015 060 S06	1.5	6	60	6		4LEM 080 400 S08	8	40	90	8	
4LEM 015 080 S06	1.5	8	60	6		4LEM 080 450 S08	8	45	100	8	
4LEM 015 100 S06	1.5	10	60	6		4LEM 080 500 S08	8	50	100	8	
4LEM 015 120 S06	1.5	12	60	6		4LEM 080 550 S08	8	55	100	8	
4LEM 015 150 S06	1.5	15	60	6		4LEM 080 600 S08	8	60	110	8	
4LEM 020 080 S06	2	8	60	6		4LEM 100 300 S10	10	30	80	10	
4LEM 020 100 S06	2	10	60	6		4LEM 100 300 110	10	30	110	10	
4LEM 020 120 S06	2	12	60	6		4LEM 100 350 S10	10	35	90	10	
4LEM 020 150 S06	2	15	60	6		4LEM 100 400 S10	10	40	90	10	
New 4LEM 020 200 S06	2	20	70	6		4LEM 100 450 S10	10	45	100	10	
4LEM 030 100 S06	3	10	70	6		4LEM 100 500 S10	10	50	100	10	
4LEM 030 150 S06	3	15	70	6		4LEM 100 550 S10	10	55	100	10	
4LEM 030 200 S06	3	20	70	6		4LEM 100 600 S10	10	60	110	10	
4LEM 030 250 S06	3	25	70	6		4LEM 100 650 S10	10	65	120	10	
4LEM 030 300 S06	3	30	70	6		4LEM 100 700 S10	10	70	120	10	
New 4LEM 030 350 S06	3	35	75	6		4LEM 120 300 S12	12	30	90	12	
New 4LEM 030 400 S06	3	40	80	6		4LEM 120 350 110	12	35	110	12	
New 4LEM 035 120 S06	3.5	12	70	6		4LEM 120 400 S12	12	40	100	12	
New 4LEM 035 150 S06	3.5	15	70	6		4LEM 120 450 S12	12	45	100	12	
New 4LEM 035 200 S06	3.5	20	70	6		4LEM 120 500 S12	12	50	100	12	
4LEM 040 120 S06	4	12	70	6		4LEM 120 550 S12	12	55	110	12	
4LEM 040 150 S04	4	15	70	4		4LEM 120 600 S12	12	60	110	12	
4LEM 040 150 S06	4	15	70	6		4LEM 120 700 S12	12	70	130	12	
4LEM 040 200 S04	4	20	70	4		4LEM 120 800 S12	12	80	130	12	
4LEM 040 200 S06	4	20	70	6		4LEM 140 500 S14	14	50	110	14	
4LEM 040 250 S06	4	25	70	6		4LEM 160 400 160	16	40	160	16	
4LEM 040 300 S06	4	30	75	6		4LEM 160 550 S16	16	55	120	16	
4LEM 040 350 S06	4	35	75	6		4LEM 160 700 S16	16	70	130	16	
4LEM 040 400 S06	4	40	80	6		4LEM 160 900 S16	16	90	150	16	
New 4LEM 040 450 S06	4	45	90	6		4LEM 160 1000 S16	16	100	160	16	
New 4LEM 040 500 S06	4	50	100	6		4LEM 200 500 160	20	50	160	20	
New 4LEM 045 150 S06	4.5	15	70	6		4LEM 200 600 S20	20	60	130	20	
New 4LEM 045 200 S06	4.5	20	70	6		4LEM 200 800 S20	20	80	160	20	
4LEM 050 200 S06	5	20	70	6		4LEM 200 1000 S20	20	100	200	20	
4LEM 050 250 S06	5	25	75	6		4LEM 250 750 S25	25	75	160	25	



- 고경도강(HRc50~62), 프리하든강계열의 고정밀가공엔드밀
- 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 μ 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 μ m) WC grade.

4

UWC
조미립자

TISIN
Coating

D
+0 -0.01

D
-0.01 -0.025

D
-0.015 -0.03

45°
Helix Angle

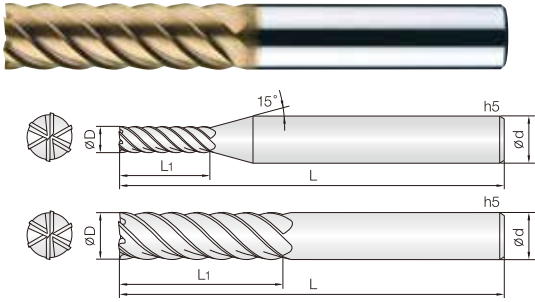
Shield Edge

CUTTING
DATA

D Size	D Tolerance
ø 1 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 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
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							



- 고경도강(HRC50~60), 프리하든강계열의 고정밀가공엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 균일한 런아웃과 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송가공에 적합합니다.
- 초미립자 초경합금(0.2 μ m)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 μ m) WC grade.



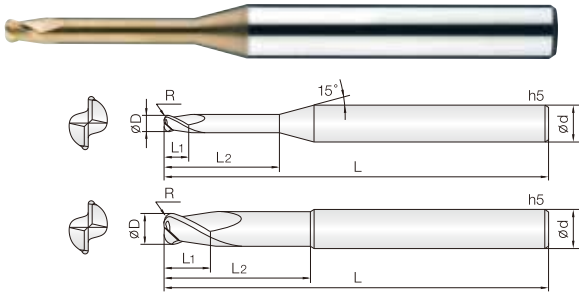
D Size	D Tolerance
Ø 3 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 16 ~ 25	-0.015 ~ -0.03mm

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
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							

2CRE 2 Flutes Rib Corner Radius End Mills

2날 리브 코너 레디우스 엔드밀



• 고경도강(HRC52~62), 프리하드강 계열의 고속 가공 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 μ m)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

• Endmills for pre-hardened and hardened steel(HRC52~62)

- 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 μ m) WC grade.



R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 3 342P

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 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
2CRE 002 0002 010	0.2 X R0.02	0.2	1	40	4		2CRE 005 001 060	0.5 X R0.1	0.5	6	45	4	
2CRE 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2CRE 005 001 080	0.5 X R0.1	0.5	8	45	4	
New 2CRE 002 0002 020	0.2 X R0.02	0.2	2	40	4		2CRE 005 001 100	0.5 X R0.1	0.5	10	50	4	
2CRE 002 0005 010	0.2 X R0.05	0.2	1	40	4		New 2CRE 005 001 120	0.5 X R0.1	0.5	12	50	4	
2CRE 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2CRE 006 0002 020	0.6 X R0.02	0.6	2	45	4	
New 2CRE 002 0005 020	0.2 X R0.05	0.2	2	40	4		2CRE 006 0002 030	0.6 X R0.02	0.6	3	45	4	
2CRE 003 0005 010	0.3 X R0.05	0.3	1	40	4		2CRE 006 0002 040	0.6 X R0.02	0.6	4	45	4	
2CRE 003 0005 020	0.3 X R0.05	0.3	2	40	4		2CRE 006 0002 060	0.6 X R0.02	0.6	6	45	4	
2CRE 003 0005 030	0.3 X R0.05	0.3	3	40	4		2CRE 006 0002 080	0.6 X R0.02	0.6	8	45	4	
New 2CRE 003 0005 040	0.3 X R0.05	0.3	4	40	4		2CRE 006 0002 100	0.6 X R0.02	0.6	10	50	4	
New 2CRE 003 0005 050	0.3 X R0.05	0.3	5	40	4		2CRE 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2CRE 004 0005 010	0.4 X R0.05	0.4	1	40	4		2CRE 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2CRE 004 0005 020	0.4 X R0.05	0.4	2	40	4		2CRE 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2CRE 004 0005 030	0.4 X R0.05	0.4	3	40	4		2CRE 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2CRE 004 0005 040	0.4 X R0.05	0.4	4	40	4		2CRE 006 0005 080	0.6 X R0.05	0.6	8	45	4	
New 2CRE 004 0005 050	0.4 X R0.05	0.4	5	40	4		2CRE 006 0005 100	0.6 X R0.05	0.6	10	50	4	
New 2CRE 004 0005 060	0.4 X R0.05	0.4	6	40	4		New 2CRE 006 0005 120	0.6 X R0.05	0.6	12	50	4	
2CRE 004 001 010	0.4 X R0.1	0.4	1	40	4		2CRE 006 001 020	0.6 X R0.1	0.6	2	45	4	
2CRE 004 001 015	0.4 X R0.1	0.4	1.5	40	4		2CRE 006 001 030	0.6 X R0.1	0.6	3	45	4	
2CRE 004 001 020	0.4 X R0.1	0.4	2	40	4		2CRE 006 001 040	0.6 X R0.1	0.6	4	45	4	
2CRE 004 001 030	0.4 X R0.1	0.4	3	40	4		2CRE 006 001 060	0.6 X R0.1	0.6	6	45	4	
2CRE 004 001 040	0.4 X R0.1	0.4	4	40	4		2CRE 006 001 080	0.6 X R0.1	0.6	8	45	4	
2CRE 005 0002 010	0.5 X R0.02	0.5	1	45	4		2CRE 006 001 100	0.6 X R0.1	0.6	10	50	4	
2CRE 005 0002 015	0.5 X R0.02	0.5	1.5	45	4		New 2CRE 006 001 120	0.6 X R0.1	0.6	12	50	4	
2CRE 005 0002 020	0.5 X R0.02	0.5	2	45	4		2CRE 007 001 020	0.7 X R0.1	0.7	2	45	4	
2CRE 005 0002 025	0.5 X R0.02	0.5	2.5	45	4		2CRE 007 001 040	0.7 X R0.1	0.7	4	45	4	
2CRE 005 0002 030	0.5 X R0.02	0.5	3	45	4		2CRE 007 001 060	0.7 X R0.1	0.7	6	45	4	
2CRE 005 0002 040	0.5 X R0.02	0.5	4	45	4		New 2CRE 007 001 080	0.7 X R0.1	0.7	8	45	4	
2CRE 005 0002 050	0.5 X R0.02	0.5	5	45	4		New 2CRE 007 001 100	0.7 X R0.1	0.7	10	45	4	
2CRE 005 0002 060	0.5 X R0.02	0.5	6	45	4		2CRE 008 0002 020	0.8 X R0.02	0.8	2	45	4	
2CRE 005 0002 080	0.5 X R0.02	0.5	8	45	4		2CRE 008 0002 040	0.8 X R0.02	0.8	4	45	4	
2CRE 005 0002 100	0.5 X R0.02	0.5	10	50	4		2CRE 008 0002 060	0.8 X R0.02	0.8	6	45	4	
2CRE 005 0005 010	0.5 X R0.05	0.5	1	45	4		2CRE 008 0002 080	0.8 X R0.02	0.8	8	45	4	
2CRE 005 0005 015	0.5 X R0.05	0.5	1.5	45	4		2CRE 008 0002 100	0.8 X R0.02	0.8	10	50	4	
2CRE 005 0005 020	0.5 X R0.05	0.5	2	45	4		2CRE 008 0005 020	0.8 X R0.05	0.8	2	45	4	
2CRE 005 0005 025	0.5 X R0.05	0.5	2.5	45	4		2CRE 008 0005 040	0.8 X R0.05	0.8	4	45	4	
2CRE 005 0005 030	0.5 X R0.05	0.5	3	45	4		2CRE 008 0005 060	0.8 X R0.05	0.8	6	45	4	
2CRE 005 0005 040	0.5 X R0.05	0.5	4	45	4		2CRE 008 0005 080	0.8 X R0.05	0.8	8	45	4	
2CRE 005 0005 050	0.5 X R0.05	0.5	5	45	4		2CRE 008 0005 100	0.8 X R0.05	0.8	10	50	4	
2CRE 005 0005 060	0.5 X R0.05	0.5	6	45	4		New 2CRE 008 0005 120	0.8 X R0.05	0.8	12	50	4	
2CRE 005 0005 080	0.5 X R0.05	0.5	8	45	4		2CRE 008 001 020	0.8 X R0.1	0.8	2	45	4	
2CRE 005 0005 100	0.5 X R0.05	0.5	10	50	4		2CRE 008 001 040	0.8 X R0.1	0.8	4	45	4	
New 2CRE 005 0005 120	0.5 X R0.05	0.5	12	50	4		2CRE 008 001 060	0.8 X R0.1	0.8	6	45	4	
2CRE 005 001 010	0.5 X R0.1	0.5	1	45	4		2CRE 008 001 080	0.8 X R0.1	0.8	8	45	4	
2CRE 005 001 015	0.5 X R0.1	0.5	1.5	45	4		2CRE 008 001 100	0.8 X R0.1	0.8	10	50	4	
2CRE 005 001 020	0.5 X R0.1	0.5	2	45	4		New 2CRE 008 001 120	0.8 X R0.1	0.8	12	50	4	
2CRE 005 001 025	0.5 X R0.1	0.5	2.5	45	4		New 2CRE 008 001 140	0.8 X R0.1	0.8	14	50	4	
2CRE 005 001 030	0.5 X R0.1	0.5	3	45	4		2CRE 008 002 020	0.8 X R0.2	0.8	2	45	4	
2CRE 005 001 040	0.5 X R0.1	0.5	4	45	4		2CRE 008 002 040	0.8 X R0.2	0.8	4	45	4	
2CRE 005 001 050	0.5 X R0.1	0.5	5	45	4		2CRE 008 002 060	0.8 X R0.2	0.8	6	45	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 008 002 080	0.8 X R0.2	0.8	8	45	4		2CRE 012 003 120	1.2 X R0.3	1.2	12	50	4	
2CRE 008 002 100	0.8 X R0.2	0.8	10	50	4		New 2CRE 012 003 140	1.2 X R0.3	1.2	14	50	4	
New 2CRE 008 002 120	0.8 X R0.2	0.8	12	50	4		2CRE 012 003 160	1.2 X R0.3	1.2	16	50	4	
New 2CRE 008 002 140	0.8 X R0.2	0.8	14	50	4		2CRE 012 003 200	1.2 X R0.3	1.2	20	50	4	
2CRE 010 0005 040	1 X R0.05	1	4	45	4		2CRE 015 001 040	1.5 X R0.1	1.5	4	45	4	
2CRE 010 0005 060	1 X R0.05	1	6	45	4		2CRE 015 001 060	1.5 X R0.1	1.5	6	45	4	
2CRE 010 0005 080	1 X R0.05	1	8	45	4		2CRE 015 001 080	1.5 X R0.1	1.5	8	45	4	
2CRE 010 0005 100	1 X R0.05	1	10	50	4		2CRE 015 001 100	1.5 X R0.1	1.5	10	50	4	
2CRE 010 0005 120	1 X R0.05	1	12	50	4		2CRE 015 001 120	1.5 X R0.1	1.5	12	50	4	
New 2CRE 010 0005 140	1 X R0.05	1	14	50	4		New 2CRE 015 001 140	1.5 X R0.1	1.5	14	50	4	
2CRE 010 0005 160	1 X R0.05	1	16	50	4		2CRE 015 001 160	1.5 X R0.1	1.5	16	50	4	
2CRE 010 0005 200	1 X R0.05	1	20	50	4		2CRE 015 001 200	1.5 X R0.1	1.5	20	50	4	
2CRE 010 0005 220	1 X R0.05	1	22	60	4		2CRE 015 001 220	1.5 X R0.1	1.5	22	60	4	
2CRE 010 0005 250	1 X R0.05	1	25	60	4		2CRE 015 001 250	1.5 X R0.1	1.5	25	60	4	
2CRE 010 001 040	1 X R0.1	1	4	45	4		2CRE 015 002 040	1.5 X R0.2	1.5	4	45	4	
2CRE 010 001 060	1 X R0.1	1	6	45	4		2CRE 015 002 060	1.5 X R0.2	1.5	6	45	4	
2CRE 010 001 080	1 X R0.1	1	8	45	4		2CRE 015 002 080	1.5 X R0.2	1.5	8	45	4	
2CRE 010 001 100	1 X R0.1	1	10	50	4		2CRE 015 002 100	1.5 X R0.2	1.5	10	50	4	
2CRE 010 001 120	1 X R0.1	1	12	50	4		2CRE 015 002 120	1.5 X R0.2	1.5	12	50	4	
New 2CRE 010 001 140	1 X R0.1	1	14	50	4		New 2CRE 015 002 140	1.5 X R0.2	1.5	14	50	4	
2CRE 010 001 160	1 X R0.1	1	16	50	4		2CRE 015 002 160	1.5 X R0.2	1.5	16	50	4	
2CRE 010 001 200	1 X R0.1	1	20	50	4		2CRE 015 002 200	1.5 X R0.2	1.5	20	50	4	
2CRE 010 001 220	1 X R0.1	1	22	60	4		2CRE 015 002 220	1.5 X R0.2	1.5	22	60	4	
2CRE 010 001 250	1 X R0.1	1	25	60	4		2CRE 015 002 250	1.5 X R0.2	1.5	25	60	4	
2CRE 010 002 040	1 X R0.2	1	4	45	4		2CRE 015 003 040	1.5 X R0.3	1.5	4	45	4	
2CRE 010 002 060	1 X R0.2	1	6	45	4		2CRE 015 003 060	1.5 X R0.3	1.5	6	45	4	
2CRE 010 002 080	1 X R0.2	1	8	45	4		2CRE 015 003 080	1.5 X R0.3	1.5	8	45	4	
2CRE 010 002 100	1 X R0.2	1	10	50	4		2CRE 015 003 100	1.5 X R0.3	1.5	10	50	4	
2CRE 010 002 120	1 X R0.2	1	12	50	4		2CRE 015 003 120	1.5 X R0.3	1.5	12	50	4	
New 2CRE 010 002 140	1 X R0.2	1	14	50	4		New 2CRE 015 003 140	1.5 X R0.3	1.5	14	50	4	
2CRE 010 002 160	1 X R0.2	1	16	50	4		2CRE 015 003 160	1.5 X R0.3	1.5	16	50	4	
2CRE 010 002 200	1 X R0.2	1	20	50	4		2CRE 015 003 200	1.5 X R0.3	1.5	20	50	4	
2CRE 010 002 220	1 X R0.2	1	22	60	4		2CRE 015 003 220	1.5 X R0.3	1.5	22	60	4	
2CRE 010 002 250	1 X R0.2	1	25	60	4		2CRE 015 003 250	1.5 X R0.3	1.5	25	60	4	
2CRE 010 003 040	1 X R0.3	1	4	45	4		2CRE 015 005 040	1.5 X R0.5	1.5	4	45	4	
2CRE 010 003 060	1 X R0.3	1	6	45	4		2CRE 015 005 060	1.5 X R0.5	1.5	6	45	4	
2CRE 010 003 080	1 X R0.3	1	8	45	4		2CRE 015 005 080	1.5 X R0.5	1.5	8	45	4	
2CRE 010 003 100	1 X R0.3	1	10	50	4		2CRE 015 005 100	1.5 X R0.5	1.5	10	50	4	
2CRE 010 003 120	1 X R0.3	1	12	50	4		2CRE 015 005 120	1.5 X R0.5	1.5	12	50	4	
New 2CRE 010 003 140	1 X R0.3	1	14	50	4		New 2CRE 015 005 140	1.5 X R0.5	1.5	14	50	4	
2CRE 010 003 160	1 X R0.3	1	16	50	4		2CRE 015 005 160	1.5 X R0.5	1.5	16	50	4	
2CRE 010 003 200	1 X R0.3	1	20	50	4		2CRE 015 005 200	1.5 X R0.5	1.5	20	50	4	
2CRE 010 003 220	1 X R0.3	1	22	60	4		2CRE 015 005 220	1.5 X R0.5	1.5	22	60	4	
2CRE 010 003 250	1 X R0.3	1	25	60	4		2CRE 015 005 250	1.5 X R0.5	1.5	25	60	4	
2CRE 012 001 040	1.2 X R0.1	1.2	4	45	4		2CRE 020 001 060	2 X R0.1	2	6	45	4	
2CRE 012 001 060	1.2 X R0.1	1.2	6	45	4		2CRE 020 001 080	2 X R0.1	2	8	45	4	
2CRE 012 001 080	1.2 X R0.1	1.2	8	45	4		2CRE 020 001 100	2 X R0.1	2	10	50	4	
2CRE 012 001 100	1.2 X R0.1	1.2	10	50	4		2CRE 020 001 120	2 X R0.1	2	12	50	4	
2CRE 012 001 120	1.2 X R0.1	1.2	12	50	4		New 2CRE 020 001 140	2 X R0.1	2	14	50	4	
New 2CRE 012 001 140	1.2 X R0.1	1.2	14	50	4		2CRE 020 001 160	2 X R0.1	2	16	50	4	
2CRE 012 001 160	1.2 X R0.1	1.2	16	50	4		2CRE 020 001 200	2 X R0.1	2	20	50	4	
2CRE 012 001 200	1.2 X R0.1	1.2	20	50	4		2CRE 020 001 250	2 X R0.1	2	25	60	4	
2CRE 012 002 040	1.2 X R0.2	1.2	4	45	4		2CRE 020 001 300	2 X R0.1	2	30	70	4	
2CRE 012 002 060	1.2 X R0.2	1.2	6	45	4		New 2CRE 020 001 350	2 X R0.1	2	35	80	4	
2CRE 012 002 080	1.2 X R0.2	1.2	8	45	4		New 2CRE 020 001 400	2 X R0.1	2	40	80	4	
2CRE 012 002 100	1.2 X R0.2	1.2	10	50	4		2CRE 020 002 060	2 X R0.2	2	6	45	4	
2CRE 012 002 120	1.2 X R0.2	1.2	12	50	4		2CRE 020 002 080	2 X R0.2	2	8	45	4	
New 2CRE 012 002 140	1.2 X R0.2	1.2	14	50	4		2CRE 020 002 100	2 X R0.2	2	10	50	4	
2CRE 012 002 160	1.2 X R0.2	1.2	16	50	4		2CRE 020 002 120	2 X R0.2	2	12	50	4	
2CRE 012 002 200	1.2 X R0.2	1.2	20	50	4		New 2CRE 020 002 140	2 X R0.2	2	14	50	4	
2CRE 012 003 040	1.2 X R0.3	1.2	4	45	4		2CRE 020 002 160	2 X R0.2	2	16	50	4	
2CRE 012 003 060	1.2 X R0.3	1.2	6	45	4		2CRE 020 002 200	2 X R0.2	2	20	50	4	
2CRE 012 003 080	1.2 X R0.3	1.2	8	45	4		2CRE 020 002 250	2 X R0.2	2	25	60	4	
2CRE 012 003 100	1.2 X R0.3	1.2	10	50	4		2CRE 020 002 300	2 X R0.2	2	30	70	4	

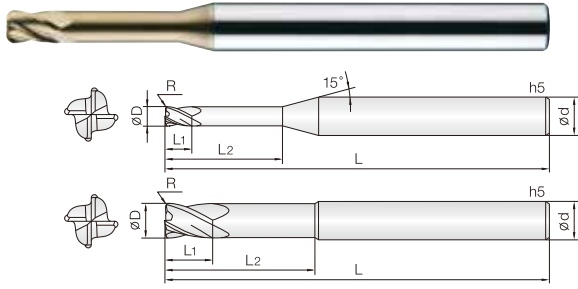
단위: mm

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 020 003 060	2 X R0.3	2	6	45	4		2CRE 030 003 350	3 X R0.3	3	35	75	6	
2CRE 020 003 080	2 X R0.3	2	8	45	4		2CRE 030 003 400	3 X R0.3	3	40	80	6	
2CRE 020 003 100	2 X R0.3	2	10	50	4		2CRE 030 005 100	3 X R0.5	3	10	50	6	
2CRE 020 003 120	2 X R0.3	2	12	50	4		2CRE 030 005 120	3 X R0.5	3	12	55	6	
New 2CRE 020 003 140	2 X R0.3	2	14	50	4		2CRE 030 005 160	3 X R0.5	3	16	55	6	
2CRE 020 003 160	2 X R0.3	2	16	50	4		2CRE 030 005 200	3 X R0.5	3	20	60	6	
2CRE 020 003 200	2 X R0.3	2	20	50	4		2CRE 030 005 250	3 X R0.5	3	25	65	6	
2CRE 020 003 250	2 X R0.3	2	25	60	4		2CRE 030 005 300	3 X R0.5	3	30	70	6	
2CRE 020 003 300	2 X R0.3	2	30	70	4		2CRE 030 005 350	3 X R0.5	3	35	75	6	
2CRE 020 005 060	2 X R0.5	2	6	45	4		2CRE 030 005 400	3 X R0.5	3	40	80	6	
2CRE 020 005 080	2 X R0.5	2	8	45	4		New 2CRE 030 005 450	3 X R0.5	3	45	90	6	
2CRE 020 005 100	2 X R0.5	2	10	50	4		New 2CRE 030 005 500	3 X R0.5	3	50	100	6	
2CRE 020 005 120	2 X R0.5	2	12	50	4		2CRE 030 010 100	3 X R1	3	10	50	6	
New 2CRE 020 005 140	2 X R0.5	2	14	50	4		2CRE 030 010 120	3 X R1	3	12	55	6	
2CRE 020 005 160	2 X R0.5	2	16	50	4		2CRE 030 010 160	3 X R1	3	16	55	6	
2CRE 020 005 200	2 X R0.5	2	20	50	4		2CRE 030 010 200	3 X R1	3	20	60	6	
2CRE 020 005 250	2 X R0.5	2	25	60	4		2CRE 030 010 250	3 X R1	3	25	65	6	
2CRE 020 005 300	2 X R0.5	2	30	70	4		2CRE 030 010 300	3 X R1	3	30	70	6	
New 2CRE 020 005 350	2 X R0.5	2	35	80	4		2CRE 030 010 350	3 X R1	3	35	75	6	
New 2CRE 020 005 400	2 X R0.5	2	40	80	4		2CRE 030 010 400	3 X R1	3	40	80	6	
2CRE 025 001 100	2.5 X R0.1	2.5	10	50	4		2CRE 040 001 050	4 X R0.1	4	12	50	4	
2CRE 025 001 160	2.5 X R0.1	2.5	16	50	4		2CRE 040 001 070	4 X R0.1	4	20	70	4	
2CRE 025 001 200	2.5 X R0.1	2.5	20	50	4		2CRE 040 001 120	4 X R0.1	4	12	55	6	
2CRE 025 001 250	2.5 X R0.1	2.5	25	60	4		2CRE 040 001 160	4 X R0.1	4	16	55	6	
2CRE 025 001 300	2.5 X R0.1	2.5	30	70	4		2CRE 040 001 200	4 X R0.1	4	20	60	6	
2CRE 025 002 100	2.5 X R0.2	2.5	10	50	4		2CRE 040 001 250	4 X R0.1	4	25	65	6	
2CRE 025 002 160	2.5 X R0.2	2.5	16	50	4		2CRE 040 001 300	4 X R0.1	4	30	70	6	
2CRE 025 002 200	2.5 X R0.2	2.5	20	50	4		2CRE 040 001 350	4 X R0.1	4	35	75	6	
2CRE 025 002 250	2.5 X R0.2	2.5	25	60	4		2CRE 040 001 400	4 X R0.1	4	40	80	6	
2CRE 025 002 300	2.5 X R0.2	2.5	30	70	4		2CRE 040 001 450	4 X R0.1	4	45	90	6	
2CRE 025 003 100	2.5 X R0.3	2.5	10	50	4		2CRE 040 001 500	4 X R0.1	4	50	100	6	
2CRE 025 003 160	2.5 X R0.3	2.5	16	50	4		2CRE 040 002 050	4 X R0.2	4	12	50	4	
2CRE 025 003 200	2.5 X R0.3	2.5	20	50	4		2CRE 040 002 070	4 X R0.2	4	20	70	4	
2CRE 025 003 250	2.5 X R0.3	2.5	25	60	4		2CRE 040 002 120	4 X R0.2	4	12	55	6	
2CRE 025 003 300	2.5 X R0.3	2.5	30	70	4		2CRE 040 002 160	4 X R0.2	4	16	55	6	
2CRE 025 005 100	2.5 X R0.5	2.5	10	50	4		2CRE 040 002 200	4 X R0.2	4	20	60	6	
2CRE 025 005 160	2.5 X R0.5	2.5	16	50	4		2CRE 040 002 250	4 X R0.2	4	25	65	6	
2CRE 025 005 200	2.5 X R0.5	2.5	20	50	4		2CRE 040 002 300	4 X R0.2	4	30	70	6	
2CRE 025 005 250	2.5 X R0.5	2.5	25	60	4		2CRE 040 002 350	4 X R0.2	4	35	75	6	
2CRE 025 005 300	2.5 X R0.5	2.5	30	70	4		2CRE 040 002 400	4 X R0.2	4	40	80	6	
2CRE 030 001 100	3 X R0.1	3	10	50	6		2CRE 040 002 450	4 X R0.2	4	45	90	6	
2CRE 030 001 120	3 X R0.1	3	12	55	6		2CRE 040 002 500	4 X R0.2	4	50	100	6	
2CRE 030 001 160	3 X R0.1	3	16	55	6		2CRE 040 003 050	4 X R0.3	4	12	50	4	
2CRE 030 001 200	3 X R0.1	3	20	60	6		2CRE 040 003 070	4 X R0.3	4	20	70	4	
2CRE 030 001 250	3 X R0.1	3	25	65	6		2CRE 040 003 120	4 X R0.3	4	12	55	6	
2CRE 030 001 300	3 X R0.1	3	30	70	6		2CRE 040 003 160	4 X R0.3	4	16	55	6	
2CRE 030 001 350	3 X R0.1	3	35	75	6		2CRE 040 003 200	4 X R0.3	4	20	60	6	
2CRE 030 001 400	3 X R0.1	3	40	80	6		2CRE 040 003 250	4 X R0.3	4	25	65	6	
2CRE 030 002 100	3 X R0.2	3	10	50	6		2CRE 040 003 300	4 X R0.3	4	30	70	6	
2CRE 030 002 120	3 X R0.2	3	12	55	6		2CRE 040 003 350	4 X R0.3	4	35	75	6	
2CRE 030 002 160	3 X R0.2	3	16	55	6		2CRE 040 003 400	4 X R0.3	4	40	80	6	
2CRE 030 002 200	3 X R0.2	3	20	60	6		2CRE 040 003 450	4 X R0.3	4	45	90	6	
2CRE 030 002 250	3 X R0.2	3	25	65	6		2CRE 040 003 500	4 X R0.3	4	50	100	6	
2CRE 030 002 300	3 X R0.2	3	30	70	6		2CRE 040 005 050	4 X R0.5	4	12	50	4	
2CRE 030 002 350	3 X R0.2	3	35	75	6		2CRE 040 005 070	4 X R0.5	4	20	70	4	
2CRE 030 002 400	3 X R0.2	3	40	80	6		2CRE 040 005 120	4 X R0.5	4	12	55	6	
New 2CRE 030 002 450	3 X R0.2	3	45	90	6		2CRE 040 005 160	4 X R0.5	4	16	55	6	
New 2CRE 030 002 500	3 X R0.2	3	50	100	6		2CRE 040 005 200	4 X R0.5	4	20	60	6	
2CRE 030 003 100	3 X R0.3	3	10	50	6		2CRE 040 005 250	4 X R0.5	4	25	65	6	
2CRE 030 003 120	3 X R0.3	3	12	55	6		2CRE 040 005 300	4 X R0.5	4	30	70	6	
2CRE 030 003 160	3 X R0.3	3	16	55	6		2CRE 040 005 350	4 X R0.5	4	35	75	6	
2CRE 030 003 200	3 X R0.3	3	20	60	6		2CRE 040 005 400	4 X R0.5	4	40	80	6	
2CRE 030 003 250	3 X R0.3	3	25	65	6		2CRE 040 005 450	4 X R0.5	4	45	90	6	
2CRE 030 003 300	3 X R0.3	3	30	70	6		2CRE 040 005 500	4 X R0.5	4	50	100	6	

HARD series

단위: mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
2CRE 040 010 050	4 X R1	4	12	50	4		2CRE 100 015 240	10 X R1.5	11	24	70	10	
2CRE 040 010 070	4 X R1	4	20	70	4		2CRE 100 015 450	10 X R1.5	11	45	100	10	
2CRE 040 010 120	4 X R1	4	12	55	6		2CRE 100 020 240	10 X R2	11	24	70	10	
2CRE 040 010 160	4 X R1	4	16	55	6		2CRE 100 020 450	10 X R2	11	45	100	10	
2CRE 040 010 200	4 X R1	4	20	60	6		2CRE 120 002 260	12 X R0.2	13	26	80	12	
2CRE 040 010 250	4 X R1	4	25	65	6		2CRE 120 002 500	12 X R0.2	13	50	110	12	
2CRE 040 010 300	4 X R1	4	30	70	6		2CRE 120 003 260	12 X R0.3	13	26	80	12	
2CRE 040 010 350	4 X R1	4	35	75	6		2CRE 120 003 500	12 X R0.3	13	50	110	12	
2CRE 040 010 400	4 X R1	4	40	80	6		2CRE 120 005 260	12 X R0.5	13	26	80	12	
2CRE 040 010 450	4 X R1	4	45	90	6		2CRE 120 005 500	12 X R0.5	13	50	110	12	
2CRE 040 010 500	4 X R1	4	50	100	6		New 2CRE 120 005 700	12 X R0.5	13	70	130	12	
2CRE 050 002 150	5 X R0.2	6	15	60	6		2CRE 120 010 260	12 X R1	13	26	80	12	
2CRE 050 002 250	5 X R0.2	6	25	70	6		2CRE 120 010 500	12 X R1	13	50	110	12	
2CRE 050 002 300	5 X R0.2	6	30	70	6		New 2CRE 120 010 700	12 X R1	13	70	130	12	
2CRE 050 002 400	5 X R0.2	6	40	80	6		2CRE 120 015 260	12 X R1.5	13	26	80	12	
2CRE 050 002 500	5 X R0.2	6	50	100	6		2CRE 120 015 500	12 X R1.5	13	50	110	12	
2CRE 050 005 150	5 X R0.5	6	15	60	6		2CRE 120 020 260	12 X R2	13	26	80	12	
2CRE 050 005 250	5 X R0.5	6	25	70	6		2CRE 120 020 500	12 X R2	13	50	110	12	
2CRE 050 005 300	5 X R0.5	6	30	70	6		2CRE 120 030 260	12 X R3	13	26	80	12	
2CRE 050 005 400	5 X R0.5	6	40	80	6		2CRE 120 030 500	12 X R3	13	50	110	12	
2CRE 050 005 500	5 X R0.5	6	50	100	6		2CRE 160 005 110	16 X R0.5	20	40	110	16	
2CRE 050 010 150	5 X R1	6	15	60	6		2CRE 160 005 160	16 X R0.5	20	60	160	16	
2CRE 050 010 250	5 X R1	6	25	70	6		2CRE 160 010 110	16 X R1	20	40	110	16	
2CRE 050 010 300	5 X R1	6	30	70	6		2CRE 160 010 160	16 X R1	20	60	160	16	
2CRE 050 010 400	5 X R1	6	40	80	6								
2CRE 050 010 500	5 X R1	6	50	100	6								
2CRE 060 001 200	6 X R0.1	7	20	60	6								
2CRE 060 001 400	6 X R0.1	7	40	90	6								
2CRE 060 002 200	6 X R0.2	7	20	60	6								
2CRE 060 002 400	6 X R0.2	7	40	90	6								
New 2CRE 060 002 600	6 X R0.2	7	60	110	6								
2CRE 060 003 200	6 X R0.3	7	20	60	6								
2CRE 060 003 400	6 X R0.3	7	40	90	6								
2CRE 060 005 200	6 X R0.5	7	20	60	6								
2CRE 060 005 400	6 X R0.5	7	40	90	6								
New 2CRE 060 005 600	6 X R0.5	7	60	110	6								
2CRE 060 010 200	6 X R1	7	20	60	6								
2CRE 060 010 400	6 X R1	7	40	90	6								
New 2CRE 060 010 600	6 X R1	7	60	110	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								
New 2CRE 080 005 600	8 X R0.5	9	60	120	8								
2CRE 080 010 220	8 X R1	9	22	65	8								
2CRE 080 010 400	8 X R1	9	40	100	8								
New 2CRE 080 010 600	8 X R1	9	60	120	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								
New 2CRE 100 002 600	10 X R0.2	11	60	120	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								
New 2CRE 100 005 600	10 X R0.5	11	60	120	10								
2CRE 100 010 240	10 X R1	11	24	70	10								
2CRE 100 010 450	10 X R1	11	45	100	10								
New 2CRE 100 010 600	10 X R1	11	60	120	10								

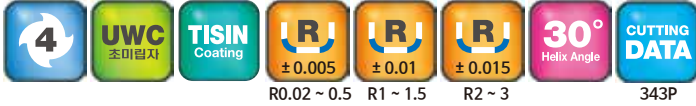


• 고경도강(HRc50~62), 프리하드강 계열의 고속 가공 엔드밀

- 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 μ 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 μ m) WC grade.



D Size	D Tolerance
ø0.8 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

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	Order Number	날경 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 010 002 080	1 X R0.2	1	8	45	4	
4CRE 008 0002 040	0.8 X R0.02	0.8	4	45	4		4CRE 010 002 100	1 X R0.2	1	10	50	4	
4CRE 008 0002 060	0.8 X R0.02	0.8	6	45	4		4CRE 010 002 120	1 X R0.2	1	12	50	4	
4CRE 008 0002 080	0.8 X R0.02	0.8	8	45	4		New 4CRE 010 002 140	1 X R0.2	1	14	50	4	
4CRE 008 0002 100	0.8 X R0.02	0.8	10	45	4		4CRE 010 002 160	1 X R0.2	1	16	50	4	
New 4CRE 008 0002 120	0.8 X R0.02	0.8	12	50	4		4CRE 010 002 200	1 X R0.2	1	20	50	4	
4CRE 008 0005 020	0.8 X R0.05	0.8	2	45	4		New 4CRE 010 002 250	1 X R0.2	1	25	60	4	
4CRE 008 0005 040	0.8 X R0.05	0.8	4	45	4		New 4CRE 010 002 300	1 X R0.2	1	30	70	4	
4CRE 008 0005 060	0.8 X R0.05	0.8	6	45	4		4CRE 010 003 040	1 X R0.3	1	4	45	4	
4CRE 008 0005 080	0.8 X R0.05	0.8	8	45	4		4CRE 010 003 060	1 X R0.3	1	6	45	4	
4CRE 008 0005 100	0.8 X R0.05	0.8	10	45	4		4CRE 010 003 080	1 X R0.3	1	8	45	4	
New 4CRE 008 0005 120	0.8 X R0.05	0.8	12	50	4		4CRE 010 003 100	1 X R0.3	1	10	50	4	
4CRE 008 001 020	0.8 X R0.1	0.8	2	45	4		4CRE 010 003 120	1 X R0.3	1	12	50	4	
4CRE 008 001 040	0.8 X R0.1	0.8	4	45	4		New 4CRE 010 003 140	1 X R0.3	1	14	50	4	
4CRE 008 001 060	0.8 X R0.1	0.8	6	45	4		4CRE 010 003 160	1 X R0.3	1	16	50	4	
4CRE 008 001 080	0.8 X R0.1	0.8	8	45	4		4CRE 010 003 200	1 X R0.3	1	20	50	4	
4CRE 008 001 100	0.8 X R0.1	0.8	10	45	4		New 4CRE 010 003 250	1 X R0.3	1	25	60	4	
New 4CRE 008 001 120	0.8 X R0.1	0.8	12	50	4		New 4CRE 010 003 300	1 X R0.3	1	30	70	4	
4CRE 010 0002 040	1 X R0.02	1	4	45	4		4CRE 012 0002 040	1.2 X R0.02	1.2	4	45	4	
4CRE 010 0002 060	1 X R0.02	1	6	45	4		4CRE 012 0002 060	1.2 X R0.02	1.2	6	45	4	
4CRE 010 0002 080	1 X R0.02	1	8	45	4		4CRE 012 0002 080	1.2 X R0.02	1.2	8	45	4	
4CRE 010 0002 100	1 X R0.02	1	10	50	4		4CRE 012 0002 100	1.2 X R0.02	1.2	10	50	4	
4CRE 010 0002 120	1 X R0.02	1	12	50	4		4CRE 012 0002 120	1.2 X R0.02	1.2	12	50	4	
New 4CRE 010 0002 140	1 X R0.02	1	14	50	4		New 4CRE 012 0002 140	1.2 X R0.02	1.2	14	50	4	
4CRE 010 0002 160	1 X R0.02	1	16	50	4		4CRE 012 0002 160	1.2 X R0.02	1.2	16	50	4	
4CRE 010 0002 200	1 X R0.02	1	20	50	4		4CRE 012 0002 200	1.2 X R0.02	1.2	20	50	4	
New 4CRE 010 0002 250	1 X R0.02	1	25	60	4		4CRE 012 0005 040	1.2 X R0.05	1.2	4	45	4	
New 4CRE 010 0002 300	1 X R0.02	1	30	70	4		4CRE 012 0005 060	1.2 X R0.05	1.2	6	45	4	
4CRE 010 0005 040	1 X R0.05	1	4	45	4		4CRE 012 0005 080	1.2 X R0.05	1.2	8	45	4	
4CRE 010 0005 060	1 X R0.05	1	6	45	4		4CRE 012 0005 100	1.2 X R0.05	1.2	10	50	4	
4CRE 010 0005 080	1 X R0.05	1	8	45	4		4CRE 012 0005 120	1.2 X R0.05	1.2	12	50	4	
4CRE 010 0005 100	1 X R0.05	1	10	50	4		New 4CRE 012 0005 140	1.2 X R0.05	1.2	14	50	4	
4CRE 010 0005 120	1 X R0.05	1	12	50	4		4CRE 012 0005 160	1.2 X R0.05	1.2	16	50	4	
New 4CRE 010 0005 140	1 X R0.05	1	14	50	4		4CRE 012 0005 200	1.2 X R0.05	1.2	20	50	4	
4CRE 010 0005 160	1 X R0.05	1	16	50	4		4CRE 012 001 040	1.2 X R0.1	1.2	4	45	4	
4CRE 010 0005 200	1 X R0.05	1	20	50	4		4CRE 012 001 060	1.2 X R0.1	1.2	6	45	4	
New 4CRE 010 0005 250	1 X R0.05	1	25	60	4		4CRE 012 001 080	1.2 X R0.1	1.2	8	45	4	
New 4CRE 010 0005 300	1 X R0.05	1	30	70	4		4CRE 012 001 100	1.2 X R0.1	1.2	10	50	4	
4CRE 010 001 040	1 X R0.1	1	4	45	4		4CRE 012 001 120	1.2 X R0.1	1.2	12	50	4	
4CRE 010 001 060	1 X R0.1	1	6	45	4		New 4CRE 012 001 140	1.2 X R0.1	1.2	14	50	4	
4CRE 010 001 080	1 X R0.1	1	8	45	4		4CRE 012 001 160	1.2 X R0.1	1.2	16	50	4	
4CRE 010 001 100	1 X R0.1	1	10	50	4		4CRE 012 001 200	1.2 X R0.1	1.2	20	50	4	
4CRE 010 001 120	1 X R0.1	1	12	50	4		4CRE 012 002 040	1.2 X R0.2	1.2	4	45	4	
New 4CRE 010 001 140	1 X R0.1	1	14	50	4		4CRE 012 002 060	1.2 X R0.2	1.2	6	45	4	
4CRE 010 001 160	1 X R0.1	1	16	50	4		4CRE 012 002 080	1.2 X R0.2	1.2	8	45	4	
4CRE 010 001 200	1 X R0.1	1	20	50	4		4CRE 012 002 100	1.2 X R0.2	1.2	10	50	4	
New 4CRE 010 001 250	1 X R0.1	1	25	60	4		4CRE 012 002 120	1.2 X R0.2	1.2	12	50	4	
New 4CRE 010 001 300	1 X R0.1	1	30	70	4		New 4CRE 012 002 140	1.2 X R0.2	1.2	14	50	4	
4CRE 010 002 040	1 X R0.2	1	4	45	4		4CRE 012 002 160	1.2 X R0.2	1.2	16	50	4	
4CRE 010 002 060	1 X R0.2	1	6	45	4		4CRE 012 002 200	1.2 X R0.2	1.2	20	50	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
4CRE 012 003 040	1.2 X R0.3	1.2	4	45	4		4CRE 020 0002 100	2 X R0.02	2	10	50	4	
4CRE 012 003 060	1.2 X R0.3	1.2	6	45	4		4CRE 020 0002 120	2 X R0.02	2	12	50	4	
4CRE 012 003 080	1.2 X R0.3	1.2	8	45	4		4CRE 020 0002 140	2 X R0.02	2	14	50	4	
4CRE 012 003 100	1.2 X R0.3	1.2	10	50	4		4CRE 020 0002 160	2 X R0.02	2	16	50	4	
4CRE 012 003 120	1.2 X R0.3	1.2	12	50	4		4CRE 020 0002 180	2 X R0.02	2	18	50	4	
New 4CRE 012 003 140	1.2 X R0.3	1.2	14	50	4		4CRE 020 0002 200	2 X R0.02	2	20	50	4	
4CRE 012 003 160	1.2 X R0.3	1.2	16	50	4		4CRE 020 0002 220	2 X R0.02	2	22	60	4	
4CRE 012 003 200	1.2 X R0.3	1.2	20	50	4		4CRE 020 0002 250	2 X R0.02	2	25	60	4	
4CRE 015 0002 060	1.5 X R0.02	1.5	6	45	4		4CRE 020 0002 300	2 X R0.02	2	30	70	4	
4CRE 015 0002 080	1.5 X R0.02	1.5	8	45	4		4CRE 020 0002 350	2 X R0.02	2	35	70	4	
4CRE 015 0002 100	1.5 X R0.02	1.5	10	50	4		4CRE 020 0005 060	2 X R0.05	2	6	45	4	
4CRE 015 0002 120	1.5 X R0.02	1.5	12	50	4		4CRE 020 0005 080	2 X R0.05	2	8	45	4	
New 4CRE 015 0002 140	1.5 X R0.02	1.5	14	50	4		4CRE 020 0005 100	2 X R0.05	2	10	50	4	
4CRE 015 0002 160	1.5 X R0.02	1.5	16	50	4		4CRE 020 0005 120	2 X R0.05	2	12	50	4	
4CRE 015 0002 200	1.5 X R0.02	1.5	20	50	4		4CRE 020 0005 140	2 X R0.05	2	14	50	4	
4CRE 015 0002 220	1.5 X R0.02	1.5	22	60	4		4CRE 020 0005 160	2 X R0.05	2	16	50	4	
4CRE 015 0002 250	1.5 X R0.02	1.5	25	60	4		4CRE 020 0005 180	2 X R0.05	2	18	50	4	
4CRE 015 0005 060	1.5 X R0.05	1.5	6	45	4		4CRE 020 0005 200	2 X R0.05	2	20	50	4	
4CRE 015 0005 080	1.5 X R0.05	1.5	8	45	4		4CRE 020 0005 220	2 X R0.05	2	22	60	4	
4CRE 015 0005 100	1.5 X R0.05	1.5	10	50	4		4CRE 020 0005 250	2 X R0.05	2	25	60	4	
4CRE 015 0005 120	1.5 X R0.05	1.5	12	50	4		4CRE 020 0005 300	2 X R0.05	2	30	70	4	
New 4CRE 015 0005 140	1.5 X R0.05	1.5	14	50	4		4CRE 020 0005 350	2 X R0.05	2	35	70	4	
4CRE 015 0005 160	1.5 X R0.05	1.5	16	50	4		4CRE 020 001 060	2 X R0.1	2	6	45	4	
4CRE 015 0005 200	1.5 X R0.05	1.5	20	50	4		4CRE 020 001 080	2 X R0.1	2	8	45	4	
4CRE 015 0005 220	1.5 X R0.05	1.5	22	60	4		4CRE 020 001 100	2 X R0.1	2	10	50	4	
4CRE 015 0005 250	1.5 X R0.05	1.5	25	60	4		4CRE 020 001 120	2 X R0.1	2	12	50	4	
4CRE 015 001 060	1.5 X R0.1	1.5	6	45	4		4CRE 020 001 140	2 X R0.1	2	14	50	4	
4CRE 015 001 080	1.5 X R0.1	1.5	8	45	4		4CRE 020 001 160	2 X R0.1	2	16	50	4	
4CRE 015 001 100	1.5 X R0.1	1.5	10	50	4		4CRE 020 001 180	2 X R0.1	2	18	50	4	
4CRE 015 001 120	1.5 X R0.1	1.5	12	50	4		4CRE 020 001 200	2 X R0.1	2	20	50	4	
New 4CRE 015 001 140	1.5 X R0.1	1.5	14	50	4		4CRE 020 001 220	2 X R0.1	2	22	60	4	
4CRE 015 001 160	1.5 X R0.1	1.5	16	50	4		4CRE 020 001 250	2 X R0.1	2	25	60	4	
4CRE 015 001 200	1.5 X R0.1	1.5	20	50	4		4CRE 020 001 300	2 X R0.1	2	30	70	4	
4CRE 015 001 220	1.5 X R0.1	1.5	22	60	4		4CRE 020 001 350	2 X R0.1	2	35	70	4	
4CRE 015 001 250	1.5 X R0.1	1.5	25	60	4		4CRE 020 002 060	2 X R0.2	2	6	45	4	
4CRE 015 002 060	1.5 X R0.2	1.5	6	45	4		4CRE 020 002 080	2 X R0.2	2	8	45	4	
4CRE 015 002 080	1.5 X R0.2	1.5	8	45	4		4CRE 020 002 100	2 X R0.2	2	10	50	4	
4CRE 015 002 100	1.5 X R0.2	1.5	10	50	4		4CRE 020 002 120	2 X R0.2	2	12	50	4	
4CRE 015 002 120	1.5 X R0.2	1.5	12	50	4		4CRE 020 002 140	2 X R0.2	2	14	50	4	
New 4CRE 015 002 140	1.5 X R0.2	1.5	14	50	4		4CRE 020 002 160	2 X R0.2	2	16	50	4	
4CRE 015 002 160	1.5 X R0.2	1.5	16	50	4		4CRE 020 002 180	2 X R0.2	2	18	50	4	
4CRE 015 002 200	1.5 X R0.2	1.5	20	50	4		4CRE 020 002 200	2 X R0.2	2	20	50	4	
4CRE 015 002 220	1.5 X R0.2	1.5	22	60	4		4CRE 020 002 220	2 X R0.2	2	22	60	4	
4CRE 015 002 250	1.5 X R0.2	1.5	25	60	4		4CRE 020 002 250	2 X R0.2	2	25	60	4	
4CRE 015 003 060	1.5 X R0.3	1.5	6	45	4		4CRE 020 002 300	2 X R0.2	2	30	70	4	
4CRE 015 003 080	1.5 X R0.3	1.5	8	45	4		4CRE 020 002 350	2 X R0.2	2	35	70	4	
4CRE 015 003 100	1.5 X R0.3	1.5	10	50	4		4CRE 020 003 060	2 X R0.3	2	6	45	4	
4CRE 015 003 120	1.5 X R0.3	1.5	12	50	4		4CRE 020 003 080	2 X R0.3	2	8	45	4	
New 4CRE 015 003 140	1.5 X R0.3	1.5	14	50	4		4CRE 020 003 100	2 X R0.3	2	10	50	4	
4CRE 015 003 160	1.5 X R0.3	1.5	16	50	4		4CRE 020 003 120	2 X R0.3	2	12	50	4	
4CRE 015 003 200	1.5 X R0.3	1.5	20	50	4		4CRE 020 003 140	2 X R0.3	2	14	50	4	
4CRE 015 003 220	1.5 X R0.3	1.5	22	60	4		4CRE 020 003 160	2 X R0.3	2	16	50	4	
4CRE 015 003 250	1.5 X R0.3	1.5	25	60	4		4CRE 020 003 180	2 X R0.3	2	18	50	4	
4CRE 015 005 060	1.5 X R0.5	1.5	6	45	4		4CRE 020 003 200	2 X R0.3	2	20	50	4	
4CRE 015 005 080	1.5 X R0.5	1.5	8	45	4		4CRE 020 003 220	2 X R0.3	2	22	60	4	
4CRE 015 005 100	1.5 X R0.5	1.5	10	50	4		4CRE 020 003 250	2 X R0.3	2	25	60	4	
4CRE 015 005 120	1.5 X R0.5	1.5	12	50	4		4CRE 020 003 300	2 X R0.3	2	30	70	4	
New 4CRE 015 005 140	1.5 X R0.5	1.5	14	50	4		4CRE 020 003 350	2 X R0.3	2	35	70	4	
4CRE 015 005 160	1.5 X R0.5	1.5	16	50	4		4CRE 020 005 060	2 X R0.5	2	6	45	4	
4CRE 015 005 200	1.5 X R0.5	1.5	20	50	4		4CRE 020 005 080	2 X R0.5	2	8	45	4	
4CRE 015 005 220	1.5 X R0.5	1.5	22	60	4		4CRE 020 005 100	2 X R0.5	2	10	50	4	
4CRE 015 005 250	1.5 X R0.5	1.5	25	60	4		4CRE 020 005 120	2 X R0.5	2	12	50	4	
4CRE 020 0002 060	2 X R0.02	2	6	45	4		4CRE 020 005 140	2 X R0.5	2	14	50	4	
4CRE 020 0002 080	2 X R0.02	2	8	45	4		4CRE 020 005 160	2 X R0.5	2	16	50	4	

단위: mm

Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
4CRE 020 005 180	2 X R0.5	2	18	50	4		4CRE 030 005 400	3 X R0.5	3	40	80	6	
4CRE 020 005 200	2 X R0.5	2	20	50	4		4CRE 030 005 500	3 X R0.5	3	50	100	6	
4CRE 020 005 220	2 X R0.5	2	22	60	4		New 4CRE 030 005 600	3 X R0.5	3	60	110	6	
4CRE 020 005 250	2 X R0.5	2	25	60	4		4CRE 030 010 100	3 X R1	3	10	50	6	
4CRE 020 005 300	2 X R0.5	2	30	70	4		4CRE 030 010 120	3 X R1	3	12	50	6	
4CRE 020 005 350	2 X R0.5	2	35	70	4		4CRE 030 010 160	3 X R1	3	16	55	6	
4CRE 025 001 100	2.5 X R0.1	2.5	10	50	4		4CRE 030 010 200	3 X R1	3	20	60	6	
4CRE 025 001 120	2.5 X R0.1	2.5	12	50	4		4CRE 030 010 250	3 X R1	3	25	65	6	
4CRE 025 001 160	2.5 X R0.1	2.5	16	50	4		4CRE 030 010 300	3 X R1	3	30	70	6	
4CRE 025 001 200	2.5 X R0.1	2.5	20	50	4		4CRE 030 010 350	3 X R1	3	35	75	6	
4CRE 025 001 250	2.5 X R0.1	2.5	25	60	4		4CRE 030 010 400	3 X R1	3	40	80	6	
4CRE 025 001 300	2.5 X R0.1	2.5	30	70	4		4CRE 030 010 500	3 X R1	3	50	100	6	
4CRE 025 002 100	2.5 X R0.2	2.5	10	50	4		New 4CRE 030 010 600	3 X R1	3	60	110	6	
4CRE 025 002 120	2.5 X R0.2	2.5	12	50	4		4CRE 040 001 050	4 X R0.1	4	12	50	6	
4CRE 025 002 160	2.5 X R0.2	2.5	16	50	4		4CRE 040 001 070	4 X R0.1	4	20	70	6	
4CRE 025 002 200	2.5 X R0.2	2.5	20	50	4		4CRE 040 001 130	4 X R0.1	4	13	55	6	
4CRE 025 002 250	2.5 X R0.2	2.5	25	60	4		4CRE 040 001 160	4 X R0.1	4	16	55	6	
4CRE 025 002 300	2.5 X R0.2	2.5	30	70	4		4CRE 040 001 200	4 X R0.1	4	20	60	6	
4CRE 025 003 100	2.5 X R0.3	2.5	10	50	4		4CRE 040 001 250	4 X R0.1	4	25	65	6	
4CRE 025 003 120	2.5 X R0.3	2.5	12	50	4		4CRE 040 001 300	4 X R0.1	4	30	70	6	
4CRE 025 003 160	2.5 X R0.3	2.5	16	50	4		4CRE 040 001 350	4 X R0.1	4	35	75	6	
4CRE 025 003 200	2.5 X R0.3	2.5	20	50	4		4CRE 040 001 400	4 X R0.1	4	40	80	6	
4CRE 025 003 250	2.5 X R0.3	2.5	25	60	4		4CRE 040 001 450	4 X R0.1	4	45	90	6	
4CRE 025 003 300	2.5 X R0.3	2.5	30	70	4		4CRE 040 001 500	4 X R0.1	4	50	100	6	
4CRE 025 005 100	2.5 X R0.5	2.5	10	50	4		New 4CRE 040 001 600	4 X R0.1	4	60	110	6	
4CRE 025 005 120	2.5 X R0.5	2.5	12	50	4		4CRE 040 002 050	4 X R0.2	4	12	50	4	
4CRE 025 005 160	2.5 X R0.5	2.5	16	50	4		4CRE 040 002 070	4 X R0.2	4	20	70	4	
4CRE 025 005 200	2.5 X R0.5	2.5	20	50	4		4CRE 040 002 130	4 X R0.2	4	13	55	6	
4CRE 025 005 250	2.5 X R0.5	2.5	25	60	4		4CRE 040 002 160	4 X R0.2	4	16	55	6	
4CRE 025 005 300	2.5 X R0.5	2.5	30	70	4		4CRE 040 002 200	4 X R0.2	4	20	60	6	
4CRE 030 001 100	3 X R0.1	3	10	50	6		4CRE 040 002 250	4 X R0.2	4	25	65	6	
4CRE 030 001 120	3 X R0.1	3	12	50	6		4CRE 040 002 300	4 X R0.2	4	30	70	6	
4CRE 030 001 160	3 X R0.1	3	16	55	6		4CRE 040 002 350	4 X R0.2	4	35	75	6	
4CRE 030 001 200	3 X R0.1	3	20	60	6		4CRE 040 002 400	4 X R0.2	4	40	80	6	
4CRE 030 001 250	3 X R0.1	3	25	65	6		4CRE 040 002 450	4 X R0.2	4	45	90	6	
4CRE 030 001 300	3 X R0.1	3	30	70	6		4CRE 040 002 500	4 X R0.2	4	50	100	6	
4CRE 030 001 350	3 X R0.1	3	35	75	6		New 4CRE 040 002 600	4 X R0.2	4	60	110	6	
4CRE 030 001 400	3 X R0.1	3	40	80	6		4CRE 040 003 050	4 X R0.3	4	12	50	4	
4CRE 030 001 500	3 X R0.1	3	50	100	6		4CRE 040 003 070	4 X R0.3	4	20	70	4	
4CRE 030 002 100	3 X R0.2	3	10	50	6		4CRE 040 003 130	4 X R0.3	4	13	55	6	
4CRE 030 002 120	3 X R0.2	3	12	50	6		4CRE 040 003 160	4 X R0.3	4	16	55	6	
4CRE 030 002 160	3 X R0.2	3	16	55	6		4CRE 040 003 200	4 X R0.3	4	20	60	6	
4CRE 030 002 200	3 X R0.2	3	20	60	6		4CRE 040 003 250	4 X R0.3	4	25	65	6	
4CRE 030 002 250	3 X R0.2	3	25	65	6		4CRE 040 003 300	4 X R0.3	4	30	70	6	
4CRE 030 002 300	3 X R0.2	3	30	70	6		4CRE 040 003 350	4 X R0.3	4	35	75	6	
4CRE 030 002 350	3 X R0.2	3	35	75	6		4CRE 040 003 400	4 X R0.3	4	40	80	6	
4CRE 030 002 400	3 X R0.2	3	40	80	6		4CRE 040 003 450	4 X R0.3	4	45	90	6	
4CRE 030 002 500	3 X R0.2	3	50	100	6		4CRE 040 003 500	4 X R0.3	4	50	100	6	
4CRE 030 003 100	3 X R0.3	3	10	50	6		New 4CRE 040 003 600	4 X R0.3	4	60	110	6	
4CRE 030 003 120	3 X R0.3	3	12	50	6		4CRE 040 005 050	4 X R0.5	4	12	50	4	
4CRE 030 003 160	3 X R0.3	3	16	55	6		4CRE 040 005 070	4 X R0.5	4	20	70	4	
4CRE 030 003 200	3 X R0.3	3	20	60	6		4CRE 040 005 130	4 X R0.5	4	13	55	6	
4CRE 030 003 250	3 X R0.3	3	25	65	6		4CRE 040 005 160	4 X R0.5	4	16	55	6	
4CRE 030 003 300	3 X R0.3	3	30	70	6		4CRE 040 005 200	4 X R0.5	4	20	60	6	
4CRE 030 003 350	3 X R0.3	3	35	75	6		4CRE 040 005 250	4 X R0.5	4	25	65	6	
4CRE 030 003 400	3 X R0.3	3	40	80	6		4CRE 040 005 300	4 X R0.5	4	30	70	6	
4CRE 030 003 500	3 X R0.3	3	50	100	6		4CRE 040 005 350	4 X R0.5	4	35	75	6	
4CRE 030 005 100	3 X R0.5	3	10	50	6		4CRE 040 005 400	4 X R0.5	4	40	80	6	
4CRE 030 005 120	3 X R0.5	3	12	50	6		4CRE 040 005 450	4 X R0.5	4	45	90	6	
4CRE 030 005 160	3 X R0.5	3	16	55	6		4CRE 040 005 500	4 X R0.5	4	50	100	6	
4CRE 030 005 200	3 X R0.5	3	20	60	6		New 4CRE 040 005 600	4 X R0.5	4	60	110	6	
4CRE 030 005 250	3 X R0.5	3	25	65	6		4CRE 040 010 050	4 X R1	4	12	50	4	
4CRE 030 005 300	3 X R0.5	3	30	70	6		4CRE 040 010 070	4 X R1	4	20	70	4	
4CRE 030 005 350	3 X R0.5	3	35	75	6		4CRE 040 010 130	4 X R1	4	13	55	6	

HARD series

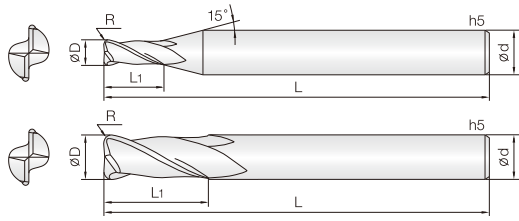
단위: mm

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	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 040 010 160	4 X R1	4	16	55	6		4CRE 080 020 220	8 X R2	9	22	65	8	
4CRE 040 010 200	4 X R1	4	20	60	6		New 4CRE 080 020 400	8 X R2	9	40	100	8	
4CRE 040 010 250	4 X R1	4	25	65	6		4CRE 100 002 240	10 X R0.2	11	24	70	10	
4CRE 040 010 300	4 X R1	4	30	70	6		New 4CRE 100 002 400	10 X R0.2	11	40	100	10	
4CRE 040 010 350	4 X R1	4	35	75	6		4CRE 100 003 240	10 X R0.3	11	24	70	10	
4CRE 040 010 400	4 X R1	4	40	80	6		New 4CRE 100 003 400	10 X R0.3	11	40	100	10	
4CRE 040 010 450	4 X R1	4	45	90	6		4CRE 100 005 240	10 X R0.5	11	24	70	10	
4CRE 040 010 500	4 X R1	4	50	100	6		4CRE 100 005 400	10 X R0.5	11	40	100	10	
New 4CRE 040 010 600	4 X R1	4	60	110	6		New 4CRE 100 005 600	10 X R0.5	11	60	120	10	
4CRE 050 001 160	5 X R0.1	5	16	60	6		4CRE 100 010 240	10 X R1	11	24	70	10	
4CRE 050 001 300	5 X R0.1	5	30	70	6		4CRE 100 010 400	10 X R1	11	40	100	10	
4CRE 050 001 400	5 X R0.1	5	40	80	6		New 4CRE 100 010 600	10 X R1	11	60	120	10	
4CRE 050 001 500	5 X R0.1	5	50	100	6		4CRE 100 015 240	10 X R1.5	11	24	70	10	
4CRE 050 002 160	5 X R0.2	5	16	60	6		4CRE 100 015 400	10 X R1.5	11	40	100	10	
4CRE 050 002 300	5 X R0.2	5	30	70	6		4CRE 100 020 240	10 X R2	11	24	70	10	
4CRE 050 002 400	5 X R0.2	5	40	80	6		New 4CRE 100 020 400	10 X R2	11	40	100	10	
4CRE 050 002 500	5 X R0.2	5	50	100	6		4CRE 100 025 240	10 X R2.5	11	24	70	10	
4CRE 050 003 160	5 X R0.3	5	16	60	6		4CRE 120 003 260	12 X R0.3	13	26	80	12	
4CRE 050 003 300	5 X R0.3	5	30	70	6		4CRE 120 005 260	12 X R0.5	13	26	80	12	
4CRE 050 003 400	5 X R0.3	5	40	80	6		4CRE 120 005 400	12 X R0.5	13	40	110	12	
4CRE 050 003 500	5 X R0.3	5	50	100	6		New 4CRE 120 005 600	12 X R0.5	13	60	130	12	
4CRE 050 005 160	5 X R0.5	5	16	60	6		4CRE 120 010 260	12 X R1	13	26	80	12	
4CRE 050 005 300	5 X R0.5	5	30	70	6		4CRE 120 010 400	12 X R1	13	40	110	12	
4CRE 050 005 400	5 X R0.5	5	40	80	6		New 4CRE 120 010 600	12 X R1	13	60	130	12	
4CRE 050 005 500	5 X R0.5	5	50	100	6		4CRE 120 015 260	12 X R1.5	13	26	80	12	
New 4CRE 050 005 600	5 X R0.5	5	60	110	6		4CRE 120 015 400	12 X R1.5	13	40	110	12	
4CRE 050 010 160	5 X R1	5	16	60	6		4CRE 120 020 260	12 X R2	13	26	80	12	
4CRE 050 010 300	5 X R1	5	30	70	6		New 4CRE 120 020 400	12 X R2	13	40	110	12	
4CRE 050 010 400	5 X R1	5	40	80	6		4CRE 120 030 260	12 X R3	13	26	80	12	
4CRE 050 010 500	5 X R1	5	50	100	6								
New 4CRE 050 010 600	5 X R1	5	60	110	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								
New 4CRE 060 002 600	6 X R0.2	7	60	110	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								
New 4CRE 060 005 600	6 X R0.5	7	60	110	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								
New 4CRE 060 010 600	6 X R1	7	60	110	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								
New 4CRE 080 002 400	8 X R0.2	9	40	100	8								
4CRE 080 003 220	8 X R0.3	9	22	65	8								
New 4CRE 080 003 400	8 X R0.3	9	40	100	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								
New 4CRE 080 005 600	8 X R0.5	9	60	120	8								
4CRE 080 010 220	8 X R1	9	22	65	8								
4CRE 080 010 400	8 X R1	9	40	100	8								
New 4CRE 080 010 600	8 X R1	9	60	120	8								
4CRE 080 015 220	8 X R1.5	9	22	65	8								
4CRE 080 015 400	8 X R1.5	9	40	100	8								

2NCR 2 Flutes Corner Radius End Mills

2날 코너 레디우스 엔드밀



• 고경도강(HRc50~62), 프리하드강 계열의 고속 가공 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 μ 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 μ m) WC grade.



R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 5 343P

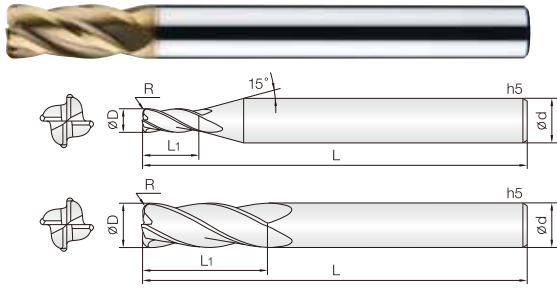
D Size	D Tolerance
Ø0.2 ~ 5.5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø14 ~ 16	-0.01 ~ -0.02mm

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
2NCR 002 0002 S04	0.2 X R0.02	0.6	45	4		2NCR 025 002 S04	2.5 X R0.2	6	50	4	
2NCR 002 0005 S04	0.2 X R0.05	0.6	45	4		2NCR 025 003 S04	2.5 X R0.3	6	50	4	
2NCR 003 0002 S04	0.3 X R0.02	0.6	45	4		2NCR 025 004 S04	2.5 X R0.4	6	50	4	
2NCR 003 0005 S04	0.3 X R0.05	0.6	45	4		2NCR 025 005 S04	2.5 X R0.5	6	50	4	
2NCR 003 001 S04	0.3 X R0.1	0.6	45	4		2NCR 030 0005 S06	3 X R0.05	8	60	6	
2NCR 004 0002 S04	0.4 X R0.02	0.8	45	4		2NCR 030 001 S06	3 X R0.1	8	60	6	
2NCR 004 0005 S04	0.4 X R0.05	0.8	45	4		2NCR 030 002 S06	3 X R0.2	8	60	6	
2NCR 004 001 S04	0.4 X R0.1	0.8	45	4		2NCR 030 003 S06	3 X R0.3	8	60	6	
2NCR 005 0002 S04	0.5 X R0.02	1	45	4		2NCR 030 004 S06	3 X R0.4	8	60	6	
2NCR 005 0005 S04	0.5 X R0.05	1	45	4		2NCR 030 005 S06	3 X R0.5	8	60	6	
2NCR 005 001 S04	0.5 X R0.1	1	45	4		2NCR 030 010 S06	3 X R1	8	60	6	
2NCR 006 0002 S04	0.6 X R0.02	1.2	45	4		2NCR 035 001 S06	3.5 X R0.1	9	70	6	
2NCR 006 0005 S04	0.6 X R0.05	1.2	45	4		2NCR 035 002 S06	3.5 X R0.2	9	70	6	
2NCR 006 001 S04	0.6 X R0.1	1.2	45	4		2NCR 035 003 S06	3.5 X R0.3	9	70	6	
2NCR 006 002 S04	0.6 X R0.2	1.2	45	4		2NCR 035 005 S06	3.5 X R0.5	9	70	6	
2NCR 007 0005 S04	0.7 X R0.05	1.4	45	4		New 2NCR 035 010 S06	3.5 X R1	9	70	6	
2NCR 007 001 S04	0.7 X R0.1	1.4	45	4		2NCR 040 0005 060	4 X R0.05	9	60	4	
2NCR 007 002 S04	0.7 X R0.2	1.4	45	4		2NCR 040 0005 080	4 X R0.05	9	80	4	
2NCR 008 0002 S04	0.8 X R0.02	1.6	45	4		2NCR 040 0005 S06	4 X R0.05	9	70	6	
2NCR 008 0005 S04	0.8 X R0.05	1.6	45	4		2NCR 040 001 060	4 X R0.1	9	60	4	
2NCR 008 001 S04	0.8 X R0.1	1.6	45	4		2NCR 040 001 080	4 X R0.1	9	80	4	
2NCR 008 002 S04	0.8 X R0.2	1.6	45	4		2NCR 040 001 S06	4 X R0.1	10	70	6	
2NCR 009 0005 S04	0.9 X R0.05	1.8	45	4		2NCR 040 002 060	4 X R0.2	9	60	4	
2NCR 009 001 S04	0.9 X R0.1	1.8	45	4		2NCR 040 002 080	4 X R0.2	9	80	4	
2NCR 010 0002 S04	1 X R0.02	2.5	45	4		2NCR 040 002 S06	4 X R0.2	10	70	6	
2NCR 010 0005 S04	1 X R0.05	2.5	45	4		2NCR 040 003 060	4 X R0.3	9	60	4	
2NCR 010 001 S04	1 X R0.1	2.5	45	4		2NCR 040 003 080	4 X R0.3	9	80	4	
2NCR 010 002 S04	1 X R0.2	2.5	45	4		2NCR 040 003 S06	4 X R0.3	10	70	6	
2NCR 010 003 S04	1 X R0.3	2.5	45	4		2NCR 040 004 060	4 X R0.4	9	60	4	
2NCR 010 004 S04	1 X R0.4	2.5	45	4		2NCR 040 004 080	4 X R0.4	9	80	4	
2NCR 012 0005 S04	1.2 X R0.05	3.2	45	4		2NCR 040 004 S06	4 X R0.4	10	70	6	
2NCR 012 001 S04	1.2 X R0.1	3.2	45	4		2NCR 040 005 060	4 X R0.5	9	60	4	
2NCR 012 002 S04	1.2 X R0.2	3.2	45	4		2NCR 040 005 080	4 X R0.5	9	80	4	
2NCR 012 003 S04	1.2 X R0.3	3.2	45	4		2NCR 040 005 S06	4 X R0.5	10	70	6	
2NCR 015 0002 S04	1.5 X R0.02	4	45	4		2NCR 040 010 060	4 X R1	9	60	4	
2NCR 015 0005 S04	1.5 X R0.05	4	45	4		2NCR 040 010 080	4 X R1	9	80	4	
2NCR 015 001 S04	1.5 X R0.1	4	45	4		2NCR 040 010 S06	4 X R1	10	70	6	
2NCR 015 002 S04	1.5 X R0.2	4	45	4		2NCR 045 001 S06	4.5 X R0.1	11	75	6	
2NCR 015 003 S04	1.5 X R0.3	4	45	4		2NCR 045 002 S06	4.5 X R0.2	11	75	6	
2NCR 015 004 S04	1.5 X R0.4	4	45	4		2NCR 045 003 S06	4.5 X R0.3	11	75	6	
2NCR 015 005 S04	1.5 X R0.5	4	45	4		2NCR 045 005 S06	4.5 X R0.5	11	75	6	
2NCR 020 0002 S04	2 X R0.02	6	45	4		2NCR 045 010 S06	4.5 X R1	11	75	6	
2NCR 020 0005 S04	2 X R0.05	6	45	4		2NCR 050001 S06	5 X R0.1	13	75	6	
2NCR 020 001 S04	2 X R0.1	6	45	4		2NCR 050 002 S06	5 X R0.2	13	75	6	
2NCR 020 002 S04	2 X R0.2	6	45	4		2NCR 050 003 S06	5 X R0.3	13	75	6	
2NCR 020 003 S04	2 X R0.3	6	45	4		2NCR 050 004 S06	5 X R0.4	13	75	6	
2NCR 020 004 S04	2 X R0.4	6	45	4		2NCR 050 005 S06	5 X R0.5	13	75	6	
2NCR 020 005 S04	2 X R0.5	6	45	4		2NCR 050 010 S06	5 X R1	13	75	6	
2NCR 025 0005 S04	2.5 X R0.05	6	50	4		New 2NCR 055 002 S06	5.5 X R0.2	13	75	6	
2NCR 025 001 S04	2.5 X R0.1	6	50	4		New 2NCR 055 003 S06	5.5 X R0.3	13	75	6	

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
New 2NCR 055 005 S06	5.5 X R0.5	13	75	6		2NCR 100 010 100	10 X R1	22	100	10	
New 2NCR 055 010 S06	5.5 X R1	13	75	6		2NCR 100 010 130	10 X R1	22	130	10	
2NCR 060 0005 060	6 X R0.05	11	60	6		2NCR 100 015 075	10 X R1.5	19	75	10	
2NCR 060 0005 090	6 X R0.05	13	90	6		2NCR 100 015 100	10 X R1.5	22	100	10	
2NCR 060 001 060	6 X R0.1	11	60	6		2NCR 100 015 130	10 X R1.5	22	130	10	
2NCR 060 001 090	6 X R0.1	13	90	6		2NCR 100 020 075	10 X R2	19	75	10	
2NCR 060 002 060	6 X R0.2	11	60	6		2NCR 100 020 100	10 X R2	22	100	10	
2NCR 060 002 090	6 X R0.2	13	90	6		2NCR 100 025 100	10 X R2.5	22	100	10	
2NCR 060 003 060	6 X R0.3	11	60	6		2NCR 100 030 100	10 X R3	22	100	10	
2NCR 060 003 090	6 X R0.3	13	90	6		2NCR 100 040 100	10 X R4	22	100	10	
2NCR 060 004 060	6 X R0.4	11	60	6		2NCR 120 001 080	12 X R0.1	22	80	12	
2NCR 060 004 090	6 X R0.4	13	90	6		2NCR 120 001 110	12 X R0.1	26	110	12	
2NCR 060 005 060	6 X R0.5	11	60	6		2NCR 120 002 080	12 X R0.2	22	80	12	
2NCR 060 005 090	6 X R0.5	13	90	6		2NCR 120 002 110	12 X R0.2	26	110	12	
2NCR 060 010 060	6 X R1	11	60	6		2NCR 120 003 080	12 X R0.3	22	80	12	
2NCR 060 010 090	6 X R1	13	90	6		2NCR 120 003 110	12 X R0.3	26	110	12	
2NCR 060 015 060	6 X R1.5	11	60	6		2NCR 120 005 080	12 X R0.5	22	80	12	
2NCR 060 015 090	6 X R1.5	13	90	6		2NCR 120 005 110	12 X R0.5	26	110	12	
2NCR 060 020 060	6 X R2	11	60	6		2NCR 120 005 130	12 X R0.5	26	130	12	
2NCR 060 020 090	6 X R2	13	90	6		2NCR 120 010 080	12 X R1	22	80	12	
2NCR 060 025 090	6 X R2.5	13	90	6		2NCR 120 010 110	12 X R1	26	110	12	
2NCR 080 001 070	8 X R0.1	16	70	8		2NCR 120 010 130	12 X R1	26	130	12	
2NCR 080 001 100	8 X R0.1	19	100	8		2NCR 120 015 080	12 X R1.5	22	80	12	
2NCR 080 002 070	8 X R0.2	16	70	8		2NCR 120 015 110	12 X R1.5	26	110	12	
2NCR 080 002 100	8 X R0.2	19	100	8		2NCR 120 015 130	12 X R1.5	26	130	12	
2NCR 080 003 070	8 X R0.3	16	70	8		2NCR 120 020 080	12 X R2	22	80	12	
2NCR 080 003 100	8 X R0.3	19	100	8		2NCR 120 020 110	12 X R2	26	110	12	
2NCR 080 005 070	8 X R0.5	16	70	8		2NCR 120 020 130	12 X R2	26	130	12	
2NCR 080 005 100	8 X R0.5	19	100	8		2NCR 120 025 110	12 X R2.5	26	110	12	
2NCR 080 005 120	8 X R0.5	19	120	8		2NCR 120 030 110	12 X R3	26	110	12	
2NCR 080 010 070	8 X R1	16	70	8		2NCR 120 040 110	12 X R4	26	110	12	
2NCR 080 010 100	8 X R1	19	100	8		2NCR 120 050 110	12 X R5	26	110	12	
2NCR 080 010 120	8 X R1	19	120	8		New 2NCR 140 005 110	14 X R0.5	30	110	14	
2NCR 080 015 070	8 X R1.5	16	70	8		New 2NCR 140 010 110	14 X R1	30	110	14	
2NCR 080 015 100	8 X R1.5	19	100	8		New 2NCR 140 020 110	14 X R2	30	110	14	
2NCR 080 020 070	8 X R2	16	70	8		New 2NCR 160 005 160	16 X R0.5	32	160	16	
2NCR 080 020 100	8 X R2	19	100	8		New 2NCR 160 010 160	16 X R1	32	160	16	
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							
2NCR 100 010 075	10 X R1	19	75	10							



R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 4 344P

• 고경도강(HRc50~62), 프리하드강 계열의 고속 가공 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 μ 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 μ m) WC grade.

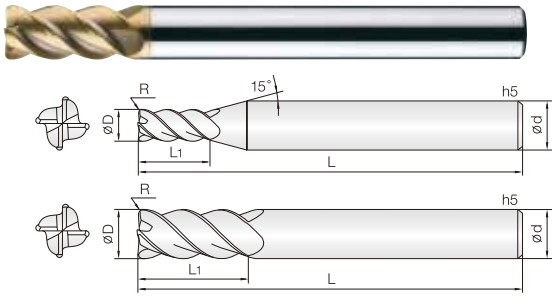
D Size	D Tolerance
Ø0.5 ~ 5.5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø14 ~ 20	-0.01 ~ -0.02mm

단위: mm

Order Number	날경 D × R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 D × R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
New 4NCR 005 0005 S04	0.5 X R0.05	1	45	4		4NCR 040 002 S06	4 X R0.2	10	70	6	
New 4NCR 005 001 S04	0.5 X R0.1	1	45	4		4NCR 040 003 060	4 X R0.3	9	60	4	
New 4NCR 006 001 S04	0.6 X R0.1	1.2	45	4		4NCR 040 003 080	4 X R0.3	9	80	4	
New 4NCR 006 002 S04	0.6 X R0.2	1.2	45	4		4NCR 040 003 S06	4 X R0.3	10	70	6	
New 4NCR 008 001 S04	0.8 X R0.1	1.6	45	4		4NCR 040 004 060	4 X R0.4	9	60	4	
New 4NCR 008 002 S04	0.8 X R0.2	1.6	45	4		4NCR 040 004 080	4 X R0.4	9	80	4	
4NCR 010 0002 S04	1 X R0.02	2.5	45	4		4NCR 040 004 S06	4 X R0.4	10	70	6	
4NCR 010 0005 S04	1 X R0.05	2.5	45	4		4NCR 040 005 060	4 X R0.5	9	60	4	
4NCR 010 001 S04	1 X R0.1	2.5	45	4		4NCR 040 005 080	4 X R0.5	9	80	4	
4NCR 010 002 S04	1 X R0.2	2.5	45	4		4NCR 040 005 S06	4 X R0.5	10	70	6	
4NCR 010 003 S04	1 X R0.3	2.5	45	4		4NCR 040 010 060	4 X R1	9	60	4	
4NCR 012 0002 S04	1.2 X R0.02	4	45	4		4NCR 040 010 080	4 X R1	9	80	4	
4NCR 012 0005 S04	1.2 X R0.05	4	45	4		4NCR 040 010 S06	4 X R1	10	70	6	
4NCR 012 001 S04	1.2 X R0.1	4	45	4		4NCR 050 0005 S06	5 X R0.05	13	75	6	
4NCR 012 002 S04	1.2 X R0.2	4	45	4		4NCR 050 001 S06	5 X R0.1	13	75	6	
4NCR 012 003 S04	1.2 X R0.3	4	45	4		4NCR 050 002 S06	5 X R0.2	13	75	6	
4NCR 015 0002 S04	1.5 X R0.02	4	45	4		4NCR 050 003 S06	5 X R0.3	13	75	6	
4NCR 015 0005 S04	1.5 X R0.05	4	45	4		4NCR 050 004 S06	5 X R0.4	13	75	6	
4NCR 015 001 S04	1.5 X R0.1	4	45	4		4NCR 050 005 S06	5 X R0.5	13	75	6	
4NCR 015 002 S04	1.5 X R0.2	4	45	4		4NCR 050 010 S06	5 X R1	13	75	6	
4NCR 015 003 S04	1.5 X R0.3	4	45	4		New 4NCR 055 002 S06	5.5 X R0.2	13	75	6	
4NCR 015 004 S04	1.5 X R0.4	4	45	4		New 4NCR 055 003 S06	5.5 X R0.3	13	75	6	
4NCR 015 005 S04	1.5 X R0.5	4	45	4		New 4NCR 055 005 S06	5.5 X R0.5	13	75	6	
4NCR 020 0002 S04	2 X R0.02	6	45	4		New 4NCR 055 010 S06	5.5 X R1	13	75	6	
4NCR 020 0005 S04	2 X R0.05	6	45	4		4NCR 060 0005 080	6 X R0.05	13	80	6	
4NCR 020 001 S04	2 X R0.1	6	45	4		4NCR 060 001 060	6 X R0.1	11	60	6	
4NCR 020 002 S04	2 X R0.2	6	45	4		4NCR 060 001 080	6 X R0.1	13	80	6	
4NCR 020 003 S04	2 X R0.3	6	45	4		4NCR 060 002 060	6 X R0.2	11	60	6	
4NCR 020 004 S04	2 X R0.4	6	45	4		4NCR 060 002 080	6 X R0.2	13	80	6	
4NCR 020 005 S04	2 X R0.5	6	45	4		4NCR 060 003 060	6 X R0.3	11	60	6	
4NCR 025 0005 S04	2.5 X R0.05	6	50	4		4NCR 060 003 080	6 X R0.3	13	80	6	
4NCR 025 001 S04	2.5 X R0.1	6	50	4		4NCR 060 004 080	6 X R0.4	13	80	6	
4NCR 025 002 S04	2.5 X R0.2	6	50	4		4NCR 060 005 060	6 X R0.5	11	60	6	
4NCR 025 003 S04	2.5 X R0.3	6	50	4		4NCR 060 005 080	6 X R0.5	13	80	6	
4NCR 025 005 S04	2.5 X R0.5	6	50	4		4NCR 060 010 060	6 X R1	11	60	6	
4NCR 030 0005 S06	3 X R0.05	8	60	6		4NCR 060 010 080	6 X R1	13	80	6	
4NCR 030 001 S06	3 X R0.1	8	60	6		4NCR 060 015 060	6 X R1.5	11	60	6	
4NCR 030 002 S06	3 X R0.2	8	60	6		4NCR 060 015 080	6 X R1.5	13	80	6	
4NCR 030 003 S06	3 X R0.3	8	60	6		4NCR 060 020 060	6 X R2	11	60	6	
4NCR 030 004 S06	3 X R0.4	8	60	6		4NCR 060 020 080	6 X R2	13	80	6	
4NCR 030 005 S06	3 X R0.5	8	60	6		4NCR 080 001 070	8 X R0.1	16	70	8	
4NCR 030 010 S06	3 X R1	8	60	6		4NCR 080 001 090	8 X R0.1	19	90	8	
4NCR 040 0005 060	4 X R0.05	9	60	4		4NCR 080 002 070	8 X R0.2	16	70	8	
4NCR 040 0005 080	4 X R0.05	9	80	4		4NCR 080 002 090	8 X R0.2	19	90	8	
4NCR 040 0005 S06	4 X R0.05	10	70	6		4NCR 080 003 070	8 X R0.3	16	70	8	
4NCR 040 001 060	4 X R0.1	9	60	4		4NCR 080 003 090	8 X R0.3	19	90	8	
4NCR 040 001 080	4 X R0.1	9	80	4		4NCR 080 005 070	8 X R0.5	16	70	8	
4NCR 040 001 S06	4 X R0.1	10	70	6		4NCR 080 005 090	8 X R0.5	19	90	8	
4NCR 040 002 060	4 X R0.2	9	60	4		4NCR 080 005 110	8 X R0.5	19	110	8	
4NCR 040 002 080	4 X R0.2	9	80	4		4NCR 080 010 070	8 X R1	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 080 010 090	8 X R1	19	90	8		4NCR 120 025 110	12 X R2.5	26	110	12	
4NCR 080 010 110	8 X R1	19	110	8		4NCR 120 025 130	12 X R2.5	26	130	12	
4NCR 080 015 070	8 X R1.5	16	70	8		4NCR 120 030 080	12 X R3	22	80	12	
4NCR 080 015 090	8 X R1.5	19	90	8		4NCR 120 030 110	12 X R3	26	110	12	
4NCR 080 015 110	8 X R1.5	19	110	8		4NCR 120 030 130	12 X R3	26	130	12	
4NCR 080 020 070	8 X R2	16	70	8		4NCR 120 035 110	12 X R3.5	26	110	12	
4NCR 080 020 090	8 X R2	19	90	8		4NCR 120 040 110	12 X R4	26	110	12	
4NCR 080 020 110	8 X R2	19	110	8		New 4NCR 140 005 110	14 X R0.5	30	110	14	
4NCR 080 025 090	8 X R2.5	19	90	8		New 4NCR 140 010 110	14 X R1	30	110	14	
4NCR 100 001 075	10 X R0.1	19	75	10		New 4NCR 140 020 110	14 X R2	30	110	14	
4NCR 100 001 100	10 X R0.1	22	100	10		4NCR 160 005 110	16 X R0.5	32	110	16	
4NCR 100 002 075	10 X R0.2	19	75	10		4NCR 160 005 160	16 X R0.5	32	160	16	
4NCR 100 002 100	10 X R0.2	22	100	10		4NCR 160 010 110	16 X R1	32	110	16	
4NCR 100 002 120	10 X R0.2	22	120	10		4NCR 160 010 160	16 X R1	32	160	16	
4NCR 100 003 075	10 X R0.3	19	75	10		4NCR 160 015 110	16 X R1.5	32	110	16	
4NCR 100 003 100	10 X R0.3	22	100	10		4NCR 160 020 110	16 X R2	32	110	16	
4NCR 100 005 075	10 X R0.5	19	75	10		4NCR 160 030 110	16 X R3	32	110	16	
4NCR 100 005 100	10 X R0.5	22	100	10		4NCR 200 005 160	20 X R0.5	38	160	20	
4NCR 100 005 120	10 X R0.5	22	120	10		4NCR 200 010 160	20 X R1	38	160	20	
4NCR 100 010 075	10 X R1	19	75	10		4NCR 200 015 160	20 X R1.5	38	160	20	
4NCR 100 010 100	10 X R1	22	100	10		4NCR 200 020 160	20 X R2	38	160	20	
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							
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							



- **고경도강(HRC50~62), 프리하든강계열의 고정밀가공엔드밀**
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다. .
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 초미립자 초경합금(0.2 μ 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.
- 45° degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine (0.2 μ m) WC grade.

4

UWC
초미립자

TISIN
Coating

R0.05 ~ 0.5

R1 ~ 1.5

R2 ~ 5

45°
Helix Angle

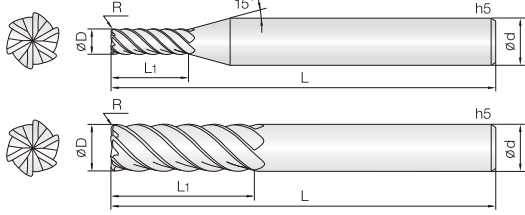
CUTTING
DATA

345P

D Size	D Tolerance
∅ 1 ~ 5	+0 ~ -0.01mm
∅ 6 ~ 12	-0.005 ~ -0.015mm
∅ 16 ~ 20	-0.01 ~ -0.02mm

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
4CRL 010 0005 S06	1 X R0.05	2	50	6		4CRL 100 003 S10	10 X R0.3	20	100	10	
4CRL 010 001 S06	1 X R0.1	2	50	6		4CRL 100 005 S10	10 X R0.5	20	100	10	
4CRL 010 002 S06	1 X R0.2	2	50	6		4CRL 100 010 S10	10 X R1	20	100	10	
4CRL 010 003 S06	1 X R0.3	2	50	6		4CRL 100 015 S10	10 X R1.5	20	100	10	
4CRL 012 0005 S06	1.2 X R0.05	2.5	50	6		4CRL 100 020 S10	10 X R2	20	100	10	
4CRL 012 001 S06	1.2 X R0.1	2.5	50	6		4CRL 120 003 S12	12 X R0.3	24	110	12	
4CRL 012 002 S06	1.2 X R0.2	2.5	50	6		4CRL 120 005 S12	12 X R0.5	24	110	12	
4CRL 012 003 S06	1.2 X R0.3	2.5	50	6		4CRL 120 010 S12	12 X R1	24	110	12	
4CRL 015 0005 S06	1.5 X R0.05	3	50	6		4CRL 120 015 S12	12 X R1.5	24	110	12	
4CRL 015 001 S06	1.5 X R0.1	3	50	6		4CRL 120 020 S12	12 X R2	24	110	12	
4CRL 015 002 S06	1.5 X R0.2	3	50	6		4CRL 120 030 S12	12 X R3	24	110	12	
4CRL 015 003 S06	1.5 X R0.3	3	50	6		4CRL 160 005 S16	16 X R0.5	32	120	16	
4CRL 015 005 S06	1.5 X R0.5	3	50	6		4CRL 160 010 S16	16 X R1	32	120	16	
4CRL 020 001 S06	2 X R0.1	5	50	6		4CRL 160 020 S16	16 X R2	32	120	16	
4CRL 020 002 S06	2 X R0.2	5	50	6		4CRL 160 030 S16	16 X R3	32	120	16	
4CRL 020 003 S06	2 X R0.3	5	50	6		4CRL 200 005 S20	20 X R0.5	38	130	20	
4CRL 020 005 S06	2 X R0.5	5	50	6		4CRL 200 010 S20	20 X R1	38	130	20	
4CRL 025 001 S06	2.5 X R0.1	6	60	6		4CRL 200 020 S20	20 X R2	38	130	20	
4CRL 025 002 S06	2.5 X R0.2	6	60	6		4CRL 200 030 S20	20 X R3	38	130	20	
4CRL 025 003 S06	2.5 X R0.3	6	60	6		4CRL 200 040 S20	20 X R4	38	130	20	
4CRL 025 005 S06	2.5 X R0.5	6	60	6		4CRL 200 050 S20	20 X R5	38	130	20	
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							
New 4CRL 050 001 S06	5 X R0.1	10	80	6							
New 4CRL 050 002 S06	5 X R0.2	10	80	6							
New 4CRL 050 003 S06	5 X R0.3	10	80	6							
New 4CRL 050 005 S06	5 X R0.5	10	80	6							
New 4CRL 050 010 S06	5 X R1	10	80	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							



- 고경도강 (HRC50~62), 프리하드강계열의 고정밀가공엔드밀
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 45° 헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 측벽가공, 코너부, 무구배면 가공시 가공물의 표면조도가 뛰어나며, 인선날 길이 증가로 내마모성이 더욱 좋아집니다.
- 초미립자 초경합금 (0.2 μ m) 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 μ m) WC grade.

6

UWC
조미립자

TISIN
Coating

R
± 0.005

R
± 0.01

R
± 0.015

45°
Helix Angle

CUTTING
DATA

R0.1 ~ 0.5 R1 ~ 1.5 R2 345P

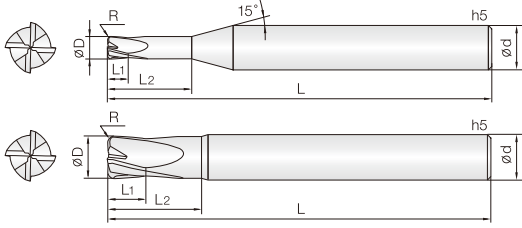
D Size	D Tolerance
Ø3 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm
Ø16	-0.01 ~ -0.02mm

단위: mm

Order Number	날경 Diameter D × R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
New 6CRL 030 001 060	3 X R0.1	7.5	60	6							
New 6CRL 030 002 060	3 X R0.2	7.5	60	6							
New 6CRL 030 003 060	3 X R0.3	7.5	60	6							
New 6CRL 030 005 060	3 X R0.5	7.5	60	6							
New 6CRL 030 010 060	3 X R1	7.5	60	6							
New 6CRL 040 001 060	4 X R0.1	10	60	6							
New 6CRL 040 002 060	4 X R0.2	10	60	6							
New 6CRL 040 003 060	4 X R0.3	10	60	6							
New 6CRL 040 005 060	4 X R0.5	10	60	6							
New 6CRL 040 010 060	4 X R1	10	60	6							
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							
New 6CRL 060 001 060	6 X R0.1	15	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							
New 6CRL 080 002 070	8 X R0.2	20	70	8							
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							
New 6CRL 100 002 075	10 X R0.2	20	75	10							
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							
New 6CRL 120 002 080	12 X R0.2	25	80	12							
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							

4RCU 4 Flutes High Speed Corner Radius Cutter

4날 고이송 코너 레디우스 커터



- 고경도강(HRc50~62), 프리하든강계열의 고정밀가공엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel(HRc50~60)
- 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.

HARD series

4

WC
마립자

TISIN
Coating

R
± 0.005

R
± 0.01

R
± 0.015

15°
Helix Angle

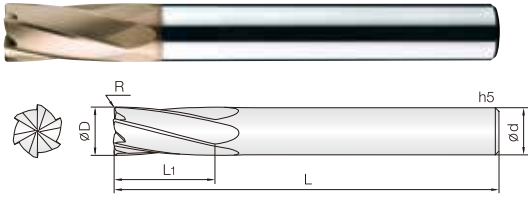
CUTTING
DATA

R0.2 ~ 0.5 R1 ~ 1.5 R2 ~ 3 346P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 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
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								



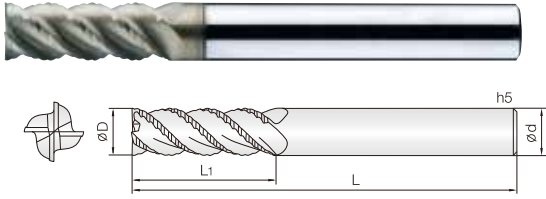
- 고경도강(HRc50~62), 프리하든강계열의 고정밀가공엔드밀
- 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 저속 RPM에서 고이송 작업이 가능하도록 설계하였습니다.
- 중삭 및 황삭 가공시 작업 효율이 극대화 됩니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화 하였습니다.
- Endmills for pre-hardened and hardened steel(HRc50~60)
- Good wear resistance by Si-based PVD coating.
- Designed 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 × R	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
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							



- 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.

3

4

WC
마립자

JCRO
Coating

DI
-0.02~0.04

DI
-0.02~0.05

45°
Helix Angle

Shield Edge

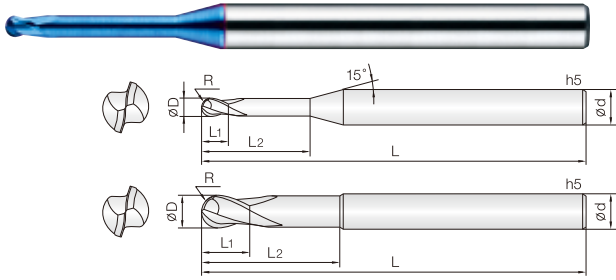
CUTTING
DATA

Ø4 ~ 9 Ø10 ~ 20 348P

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 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 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							
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							
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							
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), 프리하든강 계열, 탄소강, 금형강등 다양한 피삭재 가공 엔드밀
- 고품량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 항절삭력이 높은 미립자 초경합금(0.5 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.

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



0.1 ~ 2.5R 3 ~ 6R

349P

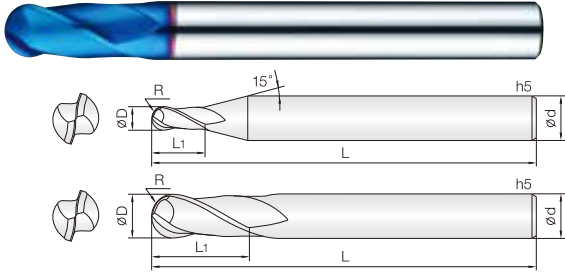
D Size	D Tolerance
$\varnothing 0.2 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-0.005 ~ -0.015mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	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
2HRBE 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2HRBE 009 060 S04	0.45R X 0.9	0.9	6	45	4	
2HRBE 002 010 S04	0.1R X 0.2	0.2	1	40	4		2HRBE 009 080 S04	0.45R X 0.9	0.9	8	45	4	
2HRBE 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2HRBE 009 100 S04	0.45R X 0.9	0.9	10	50	4	
2HRBE 002 020 S04	0.1R X 0.2	0.2	2	40	4		2HRBE 010 020 S04	0.5R X 1	1	2	45	4	
2HRBE 003 010 S04	0.15R X 0.3	0.3	1	40	4		2HRBE 010 030 S04	0.5R X 1	1	3	45	4	
2HRBE 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2HRBE 010 040 S04	0.5R X 1	1	4	45	4	
2HRBE 003 020 S04	0.15R X 0.3	0.3	2	40	4		2HRBE 010 050 S04	0.5R X 1	1	5	45	4	
2HRBE 003 030 S04	0.15R X 0.3	0.3	3	40	4		2HRBE 010 060 S04	0.5R X 1	1	6	45	4	
2HRBE 003 040 S04	0.15R X 0.3	0.3	4	40	4		2HRBE 010 080 S04	0.5R X 1	1	8	45	4	
2HRBE 004 010 S04	0.2R X 0.4	0.4	1	40	4		2HRBE 010 100 S04	0.5R X 1	1	10	50	4	
2HRBE 004 020 S04	0.2R X 0.4	0.4	2	40	4		2HRBE 010 120 S04	0.5R X 1	1	12	50	4	
2HRBE 004 030 S04	0.2R X 0.4	0.4	3	40	4		2HRBE 010 140 S04	0.5R X 1	1	14	50	4	
2HRBE 004 040 S04	0.2R X 0.4	0.4	4	40	4		2HRBE 010 160 S04	0.5R X 1	1	16	50	4	
2HRBE 004 050 S04	0.2R X 0.4	0.4	5	40	4		2HRBE 010 180 S04	0.5R X 1	1	18	50	4	
2HRBE 004 060 S04	0.2R X 0.4	0.4	6	40	4		2HRBE 010 200 S04	0.5R X 1	1	20	50	4	
2HRBE 004 080 S04	0.2R X 0.4	0.4	8	40	4		2HRBE 010 220 S04	0.5R X 1	1	22	60	4	
2HRBE 005 010 S04	0.25R X 0.5	0.5	1	45	4		2HRBE 010 250 S04	0.5R X 1	1	25	60	4	
2HRBE 005 020 S04	0.25R X 0.5	0.5	2	45	4		2HRBE 012 040 S04	0.6R X 1.2	1.2	4	45	4	
2HRBE 005 030 S04	0.25R X 0.5	0.5	3	45	4		2HRBE 012 060 S04	0.6R X 1.2	1.2	6	45	4	
2HRBE 005 040 S04	0.25R X 0.5	0.5	4	45	4		2HRBE 012 080 S04	0.6R X 1.2	1.2	8	45	4	
2HRBE 005 050 S04	0.25R X 0.5	0.5	5	45	4		2HRBE 012 100 S04	0.6R X 1.2	1.2	10	50	4	
2HRBE 005 060 S04	0.25R X 0.5	0.5	6	45	4		2HRBE 012 120 S04	0.6R X 1.2	1.2	12	50	4	
2HRBE 005 080 S04	0.25R X 0.5	0.5	8	45	4		2HRBE 012 160 S04	0.6R X 1.2	1.2	16	50	4	
2HRBE 005 100 S04	0.25R X 0.5	0.5	10	45	4		2HRBE 012 200 S04	0.6R X 1.2	1.2	20	50	4	
2HRBE 005 120 S04	0.25R X 0.5	0.5	12	45	4		2HRBE 012 240 S04	0.6R X 1.2	1.2	24	60	4	
2HRBE 006 010 S04	0.3R X 0.6	0.6	1	45	4		2HRBE 014 060 S04	0.7R X 1.4	1.4	6	45	4	
2HRBE 006 020 S04	0.3R X 0.6	0.6	2	45	4		2HRBE 014 080 S04	0.7R X 1.4	1.4	8	45	4	
2HRBE 006 030 S04	0.3R X 0.6	0.6	3	45	4		2HRBE 014 120 S04	0.7R X 1.4	1.4	12	50	4	
2HRBE 006 040 S04	0.3R X 0.6	0.6	4	45	4		2HRBE 014 160 S04	0.7R X 1.4	1.4	16	50	4	
2HRBE 006 050 S04	0.3R X 0.6	0.6	5	45	4		2HRBE 015 030 S04	0.75R X 1.5	1.5	3	45	4	
2HRBE 006 060 S04	0.3R X 0.6	0.6	6	45	4		2HRBE 015 040 S04	0.75R X 1.5	1.5	4	45	4	
2HRBE 006 080 S04	0.3R X 0.6	0.6	8	45	4		2HRBE 015 060 S04	0.75R X 1.5	1.5	6	45	4	
2HRBE 006 100 S04	0.3R X 0.6	0.6	10	45	4		2HRBE 015 080 S04	0.75R X 1.5	1.5	8	45	4	
2HRBE 006 120 S04	0.3R X 0.6	0.6	12	45	4		2HRBE 015 100 S04	0.75R X 1.5	1.5	10	50	4	
2HRBE 006 140 S04	0.3R X 0.6	0.6	14	45	4		2HRBE 015 120 S04	0.75R X 1.5	1.5	12	50	4	
2HRBE 007 020 S04	0.35R X 0.7	0.7	2	45	4		2HRBE 015 140 S04	0.75R X 1.5	1.5	14	50	4	
2HRBE 007 040 S04	0.35R X 0.7	0.7	4	45	4		2HRBE 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2HRBE 007 060 S04	0.35R X 0.7	0.7	6	45	4		2HRBE 015 180 S04	0.75R X 1.5	1.5	18	50	4	
2HRBE 007 080 S04	0.35R X 0.7	0.7	8	45	4		2HRBE 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2HRBE 007 100 S04	0.35R X 0.7	0.7	10	45	4		2HRBE 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2HRBE 007 120 S04	0.35R X 0.7	0.7	12	45	4		2HRBE 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2HRBE 008 020 S04	0.4R X 0.8	0.8	2	45	4		2HRBE 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2HRBE 008 030 S04	0.4R X 0.8	0.8	3	45	4		2HRBE 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2HRBE 008 040 S04	0.4R X 0.8	0.8	4	45	4		2HRBE 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2HRBE 008 050 S04	0.4R X 0.8	0.8	5	45	4		2HRBE 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2HRBE 008 060 S04	0.4R X 0.8	0.8	6	45	4		2HRBE 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2HRBE 008 080 S04	0.4R X 0.8	0.8	8	45	4		2HRBE 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2HRBE 008 100 S04	0.4R X 0.8	0.8	10	45	4		2HRBE 018 060 S04	0.9R X 1.8	1.8	6	45	4	
2HRBE 008 120 S04	0.4R X 0.8	0.8	12	45	4		2HRBE 018 080 S04	0.9R X 1.8	1.8	8	45	4	
2HRBE 009 040 S04	0.45R X 0.9	0.9	4	45	4		2HRBE 018 120 S04	0.9R X 1.8	1.8	12	50	4	

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
2HRBE 018 160 S04	0.9R X 1.8	1.8	16	50	4		2HRBE 100 300 070	5R X 10	16	30	70	10	
2HRBE 018 200 S04	0.9R X 1.8	1.8	20	50	4		2HRBE 120 300 075	6R X 12	18	30	75	12	
2HRBE 020 040 S04	1R X 2	2	4	45	4								
2HRBE 020 060 S04	1R X 2	2	6	45	4								
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								
2HRBE 050 250 S06	2.5R X 5	6	25	70	6								
2HRBE 050 300 S06	2.5R X 5	6	30	75	6								
2HRBE 050 400 S06	2.5R X 5	6	40	80	6								
2HRBE 050 500 S06	2.5R X 5	6	50	90	6								
2HRBE 060 150 S06	3R X 6	10	15	55	6								
2HRBE 080 250 060	4R X 8	12	25	60	8								



- 중저경도강 (HRC52이하), 프리하든강 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.
- 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.
- 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 (0.5µm) WC grade.

2

WC
미립자

BLUE
Coating

R
± 0.005

R
± 0.01

R
± 0.015

30°
Helix Angle

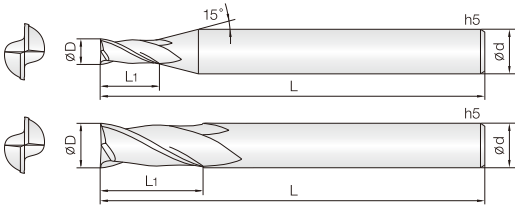
CUTTING
DATA

0.1 ~ 2.5R
3 ~ 6R
8R
352P

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 × D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R × 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), 프리하든강 계열, 탄소강, 금형강등 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), 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.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine (0.5μm) WC grade.

E series

2

WC
미립자

BLUE
Coating

|D|
+0-0.01

|D|
-0.01-0.025

|D|
-0.015-0.03

30°
Helix Angle

Shield Edge

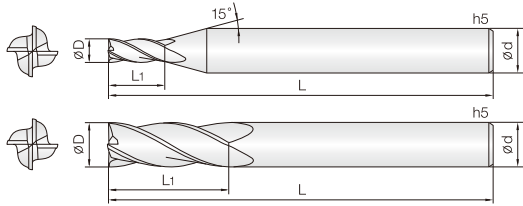
CUTTING
DATA

D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-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
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	

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



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- 경제적인 가격으로 가공 생산비 절감을 극대화합니다.
- 항절력이 높은 미립자 초경합금 (0.5 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.
- 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 μ m) WC grade.

4 미립자	WC Coating	BLUE Coating	DI +0-0.01 Ø1 ~ Ø5	DI -0.01-0.025 Ø6 ~ Ø12	DI -0.015-0.03 Ø16	30° Helix Angle	Shield Edge	CUTTING DATA 353P
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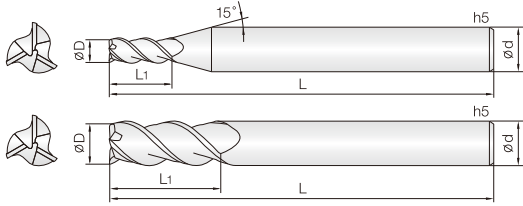
D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.025mm
Ø 16	-0.015 ~ -0.03mm

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
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							
New 4HCEE 025 080 S06	2.5	8	45	6							
New 4HCEE 025 120 S06	2.5	12	50	6							
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							

3NSE 3 Flutes End Mills for Heavy Cuts

3날 강력 절삭용 엔드밀



- 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(0.5μm)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.
- Excellent work surface finish by 3 flute and deep chip pocket.
- Minimize fracturing by high TRS fine(0.5μm) WC grade.

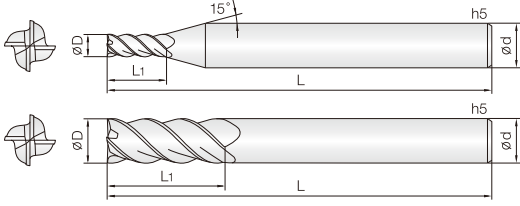
E series



D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 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							
New 3NSE 025 080 S06	2.5	8	45	6							
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							



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강등 다양한 피삭재 가공 엔드밀
- 고품량 실리콘계 코팅(Si)처리하여 내마모성이 우수합니다.
- 넓은 영역의 피삭재 가공에 적합한 형상으로 설계 하였습니다.
- 45°헬릭스 형상으로 설계하여 고속, 고이송 가공에 적합합니다.
- 항절삭력이 높은 미립자 초경합금(0.5 μ m)을 채택, 엔드밀의 파손을 최소화.

• 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.
- 45° degree helix design for high speed, feed condition.
- Minimize fracturing by high TRS fine(0.5 μ m) WC grade.

4

WC
미립자

BLUE
Coating

D
+0 -0.01

D
-0.01 -0.025

D
-0.015 -0.03

45°
Helix Angle

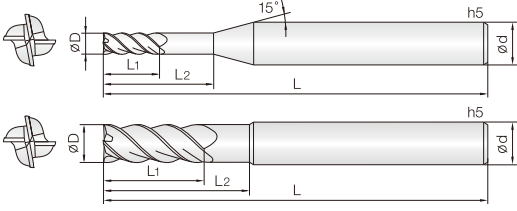
Shield Edge

355P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 14 ~ 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	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							
New 4HEME 010 025 S06	1	2.5	40	6							
4HEME 010 035 S04	1	3.5	40	4							
New 4HEME 010 035 S06	1	3.5	40	6							
4HEME 012 030 S04	1.2	3	40	4							
New 4HEME 012 030 S06	1.2	3	40	6							
4HEME 015 040 S04	1.5	4	40	4							
4HEME 015 060 S04	1.5	6	40	4							
New 4HEME 015 060 S06	1.5	6	40	6							
4HEME 020 050 S04	2	5	40	4							
4HEME 020 080 S04	2	8	40	4							
New 4HEME 020 080 S06	2	8	45	6							
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), 프리하든강계열, 탄소강, 금형강, SUS계열, Ti/Ni계합금, 인코넬등 다양한 피삭재 가공 엔드밀
- 고품량 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 강력한 체터링 방지 설계로 엔드밀의 진동을 최소화하였습니다
- 항절력이 높은 미립자 초경합금 (0.5 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.
- Good wear resistance by high quality Si-based PVD coating.
- Minimize chattering by unequal flute spacing design.
- Minimize fracturing by high TRS fine (0.5 μ m) WC grade.

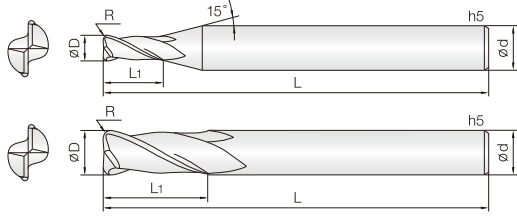
E series



D Size	D Tolerance
$\phi 1 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.01 ~ -0.025mm
$\phi 16 \sim 20$	-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
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								
New 4NSE 140 320 090	14	32	-	90	14								
4NSE 160 450 S16	16	35	45	90	16								
4NSE 200 520 S20	20	40	52	100	20								



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강, SUS계열, Ti/Ni계 합금, 인코넬 등 다양한 피삭재 가공 엔드밀
- 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 μ 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 μ m) WC grade.

2

WC
미립자

BLUE
Coating

R
 ± 0.005

R
 ± 0.01

R
 ± 0.015

30°
Helix Angle

CUTTING
DATA

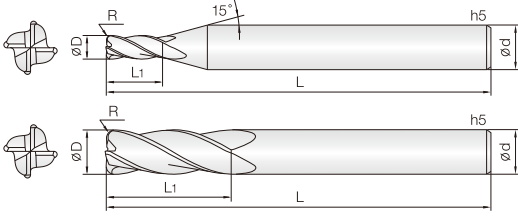
0.1 ~ 0.5R 1 ~ 1.5R 2R 356P

D Size	D Tolerance
$\varnothing 1 \sim 5$	+0 ~ -0.01mm
$\varnothing 6 \sim 12$	-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
2NCRE 010 001 S04	1 X R0.1	3	50	4		2NCRE 120 010 110	12 X R1	26	110	12	
2NCRE 010 002 S04	1 X R0.2	3	50	4		2NCRE 120 020 110	12 X R2	26	110	12	
2NCRE 010 003 S04	1 X R0.3	3	50	4							
New 2NCRE 012 001 S04	1.2 X R0.1	4	50	4							
New 2NCRE 012 002 S04	1.2 X R0.2	4	50	4							
New 2NCRE 012 003 S04	1.2 X R0.3	4	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							

4날 강력 절삭용 코너 레디우스 엔드밀



- 중저경도강(HRC52이하), 프리하든강 계열, 탄소강, 금형강, SUS계열, Ti/Ni계 합금, 인코넬 등 다양한 피삭재 가공 엔드밀
- 고풍량 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 μ 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 μ m) WC grade.

E series

4

WC
미립자

BLUE
Coating

R
 ± 0.005

R
 ± 0.01

R
 ± 0.015

30°
Helix Angle

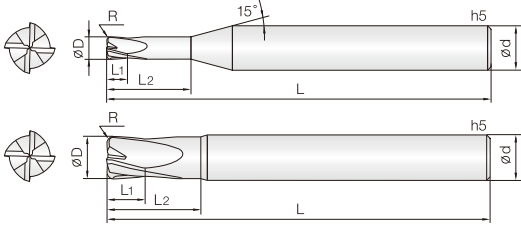
CUTTING
DATA

0.1 ~ 0.5R 1 ~ 1.5R 2R 356P

D Size	D Tolerance
$\varnothing 1 \sim 5$	+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	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
4NCRE 010 001 S04	1 X R0.1	3	50	4		4NCRE 050 002 S06	5 X R0.2	10	50	6	
4NCRE 010 002 S04	1 X R0.2	3	50	4		4NCRE 050 002 075	5 X R0.2	13	75	6	
4NCRE 010 003 S04	1 X R0.3	3	50	4		4NCRE 050 003 S06	5 X R0.3	10	50	6	
New 4NCRE 012 001 S04	1.2 X R0.1	4	50	4		4NCRE 050 003 075	5 X R0.3	13	75	6	
New 4NCRE 012 002 S04	1.2 X R0.2	4	50	4		4NCRE 050 005 S06	5 X R0.5	10	50	6	
New 4NCRE 012 003 S04	1.2 X R0.3	4	50	4		4NCRE 050 005 075	5 X R0.5	13	75	6	
4NCRE 015 001 S04	1.5 X R0.1	4	50	4		4NCRE 050 010 S06	5 X R1	10	50	6	
4NCRE 015 002 S04	1.5 X R0.2	4	50	4		4NCRE 050 010 075	5 X R1	13	75	6	
4NCRE 015 003 S04	1.5 X R0.3	4	50	4		4NCRE 060 001 050	6 X R0.1	10	50	6	
4NCRE 015 005 S04	1.5 X R0.5	4	50	4		4NCRE 060 001 080	6 X R0.1	13	80	6	
4NCRE 020 001 S04	2 X R0.1	6	50	4		4NCRE 060 002 050	6 X R0.2	10	50	6	
4NCRE 020 002 S04	2 X R0.2	6	50	4		4NCRE 060 002 080	6 X R0.2	13	80	6	
4NCRE 020 003 S04	2 X R0.3	6	50	4		4NCRE 060 003 050	6 X R0.3	10	50	6	
4NCRE 020 005 S04	2 X R0.5	6	50	4		4NCRE 060 003 080	6 X R0.3	13	80	6	
4NCRE 025 001 S04	2.5 X R0.1	6	50	4		4NCRE 060 005 050	6 X R0.5	10	50	6	
4NCRE 025 002 S04	2.5 X R0.2	6	50	4		4NCRE 060 005 080	6 X R0.5	13	80	6	
4NCRE 025 003 S04	2.5 X R0.3	6	50	4		4NCRE 060 010 050	6 X R1	10	50	6	
4NCRE 025 005 S04	2.5 X R0.5	6	50	4		4NCRE 060 010 080	6 X R1	13	80	6	
4NCRE 030 001 S04	3 X R0.1	8	50	4		4NCRE 080 002 060	8 X R0.2	16	60	8	
4NCRE 030 001 S06	3 X R0.1	8	50	6		4NCRE 080 002 090	8 X R0.2	19	90	8	
4NCRE 030 001 060	3 X R0.1	8	60	6		4NCRE 080 003 060	8 X R0.3	16	60	8	
4NCRE 030 002 S04	3 X R0.2	8	50	4		4NCRE 080 003 090	8 X R0.3	19	90	8	
4NCRE 030 002 S06	3 X R0.2	8	50	6		4NCRE 080 005 060	8 X R0.5	16	60	8	
4NCRE 030 002 060	3 X R0.2	8	60	6		4NCRE 080 005 090	8 X R0.5	19	90	8	
4NCRE 030 003 S04	3 X R0.3	8	50	4		4NCRE 080 010 060	8 X R1	16	60	8	
4NCRE 030 003 S06	3 X R0.3	8	50	6		4NCRE 080 010 090	8 X R1	19	90	8	
4NCRE 030 003 060	3 X R0.3	8	60	6		4NCRE 080 020 060	8 X R2	16	60	8	
4NCRE 030 005 S04	3 X R0.5	8	50	4		4NCRE 080 020 090	8 X R2	19	90	8	
4NCRE 030 005 S06	3 X R0.5	8	50	6		4NCRE 100 002 075	10 X R0.2	18	75	10	
4NCRE 030 005 060	3 X R0.5	8	60	6		4NCRE 100 002 100	10 X R0.2	22	100	10	
4NCRE 030 010 S04	3 X R1	8	50	4		4NCRE 100 003 075	10 X R0.3	18	75	10	
4NCRE 030 010 S06	3 X R1	8	50	6		4NCRE 100 003 100	10 X R0.3	22	100	10	
4NCRE 030 010 060	3 X R1	8	60	6		4NCRE 100 005 075	10 X R0.5	18	75	10	
4NCRE 040 001 S04	4 X R0.1	10	50	4		4NCRE 100 005 100	10 X R0.5	22	100	10	
4NCRE 040 001 S06	4 X R0.1	10	50	6		4NCRE 100 010 075	10 X R1	18	75	10	
4NCRE 040 001 070	4 X R0.1	10	70	6		4NCRE 100 010 100	10 X R1	22	100	10	
4NCRE 040 002 S04	4 X R0.2	10	50	4		4NCRE 100 020 075	10 X R2	18	75	10	
4NCRE 040 002 S06	4 X R0.2	10	50	6		4NCRE 100 020 100	10 X R2	22	100	10	
4NCRE 040 002 070	4 X R0.2	10	70	6		4NCRE 120 002 075	12 X R0.2	22	75	12	
4NCRE 040 003 S04	4 X R0.3	10	50	4		4NCRE 120 002 110	12 X R0.2	26	110	12	
4NCRE 040 003 S06	4 X R0.3	10	50	6		4NCRE 120 003 075	12 X R0.3	22	75	12	
4NCRE 040 003 070	4 X R0.3	10	70	6		4NCRE 120 003 110	12 X R0.3	26	110	12	
4NCRE 040 005 S04	4 X R0.5	10	50	4		4NCRE 120 005 075	12 X R0.5	22	75	12	
4NCRE 040 005 S06	4 X R0.5	10	50	6		4NCRE 120 005 110	12 X R0.5	26	110	12	
4NCRE 040 005 070	4 X R0.5	10	70	6		4NCRE 120 010 075	12 X R1	22	75	12	
4NCRE 040 010 S04	4 X R1	10	50	4		4NCRE 120 010 110	12 X R1	26	110	12	
4NCRE 040 010 S06	4 X R1	10	50	6		4NCRE 120 020 075	12 X R2	22	75	12	
4NCRE 040 010 070	4 X R1	10	70	6		4NCRE 120 020 110	12 X R2	26	110	12	
4NCRE 050 001 S06	5 X R0.1	10	50	6							
4NCRE 050 001 075	5 X R0.1	13	75	6							



- 중저경도강(HRC52이하), 프리하드강계열, 탄소강, 금형강등가공
- 고품량 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

15°
Helix Angle

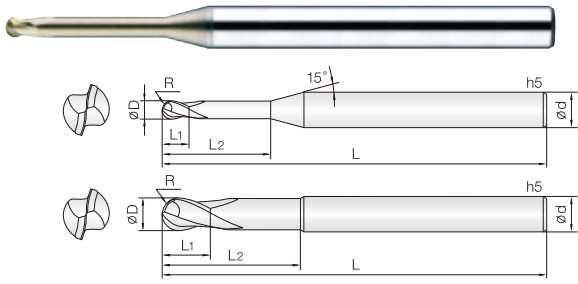
CUTTING
DATA

0.2 ~ 0.5R 1 ~ 1.5R 2 ~ 3R 357P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 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
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), 프리하든강계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)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.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

G series



0.05 ~ 2.5R 3 ~ 6R 358P

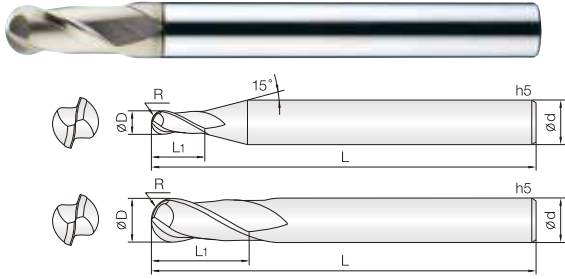
D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.01mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	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
2HRBG 001 003 S04	0.05R X 0.1	0.15	0.3	40	4		2HRBG 008 100 S04	0.4R X 0.8	0.9	10	45	4	
2HRBG 001 005 S04	0.05R X 0.1	0.15	0.5	40	4		2HRBG 008 120 S04	0.4R X 0.8	0.9	12	45	4	
2HRBG 002 005 S04	0.1R X 0.2	0.2	0.5	40	4		2HRBG 008 140 S04	0.4R X 0.8	0.9	14	45	4	
2HRBG 002 010 S04	0.1R X 0.2	0.2	1	40	4		2HRBG 008 160 S04	0.4R X 0.8	0.9	16	45	4	
2HRBG 002 015 S04	0.1R X 0.2	0.2	1.5	40	4		2HRBG 009 040 S04	0.45R X 0.9	1	4	45	4	
2HRBG 002 020 S04	0.1R X 0.2	0.2	2	40	4		2HRBG 010 020 S04	0.5R X 1	1.2	2	45	4	
2HRBG 003 010 S04	0.15R X 0.3	0.3	1	40	4		2HRBG 010 020 S06	0.5R X 1	1.2	2	45	6	
2HRBG 003 015 S04	0.15R X 0.3	0.3	1.5	40	4		2HRBG 010 030 S04	0.5R X 1	1.2	3	45	4	
2HRBG 003 020 S04	0.15R X 0.3	0.3	2	40	4		2HRBG 010 030 S06	0.5R X 1	1.2	3	45	6	
2HRBG 003 030 S04	0.15R X 0.3	0.3	3	40	4		2HRBG 010 040 S04	0.5R X 1	1.2	4	45	4	
2HRBG 003 040 S04	0.15R X 0.3	0.3	4	40	4		2HRBG 010 040 S06	0.5R X 1	1.2	4	45	6	
2HRBG 003 050 S04	0.15R X 0.3	0.3	5	40	4		2HRBG 010 050 S04	0.5R X 1	1.2	5	45	4	
2HRBG 004 010 S04	0.2R X 0.4	0.5	1	40	4		2HRBG 010 050 S06	0.5R X 1	1.2	5	45	6	
2HRBG 004 020 S04	0.2R X 0.4	0.5	2	40	4		2HRBG 010 060 S04	0.5R X 1	1.2	6	45	4	
2HRBG 004 030 S04	0.2R X 0.4	0.5	3	40	4		2HRBG 010 060 S06	0.5R X 1	1.2	6	45	6	
2HRBG 004040 S04	0.2R X 0.4	0.5	4	40	4		2HRBG 010 080 S04	0.5R X 1	1.2	8	45	4	
2HRBG 004 050 S04	0.2R X 0.4	0.5	5	40	4		2HRBG 010 080 S06	0.5R X 1	1.2	8	45	6	
2HRBG 004 060 S04	0.2R X 0.4	0.5	6	40	4		2HRBG 010 100 S04	0.5R X 1	1.2	10	50	4	
2HRBG 004 080 S04	0.2R X 0.4	0.5	8	40	4		2HRBG 010 100 S06	0.5R X 1	1.2	10	50	6	
2HRBG 004 100 S04	0.2R X 0.4	0.5	10	40	4		2HRBG 010 120 S04	0.5R X 1	1.2	12	50	4	
2HRBG 005 010 S04	0.25R X 0.5	0.6	1	45	4		2HRBG 010 120 S06	0.5R X 1	1.2	12	50	6	
2HRBG 005 020 S04	0.25R X 0.5	0.6	2	45	4		2HRBG 010 140 S04	0.5R X 1	1.2	14	50	4	
2HRBG 005 030 S04	0.25R X 0.5	0.6	3	45	4		2HRBG 010 140 S06	0.5R X 1	1.2	14	50	6	
2HRBG 005 040 S04	0.25R X 0.5	0.6	4	45	4		2HRBG 010 160 S04	0.5R X 1	1.2	16	50	4	
2HRBG 005 050 S04	0.25R X 0.5	0.6	5	45	4		2HRBG 010 160 S06	0.5R X 1	1.2	16	55	6	
2HRBG 005 060 S04	0.25R X 0.5	0.6	6	45	4		2HRBG 010 180 S04	0.5R X 1	1.2	18	50	4	
2HRBG 005 080 S04	0.25R X 0.5	0.6	8	45	4		2HRBG 010 180 S06	0.5R X 1	1.2	18	60	6	
2HRBG 005 100 S04	0.25R X 0.5	0.6	10	45	4		2HRBG 010 200 S04	0.5R X 1	1.2	20	50	4	
2HRBG 005 120 S04	0.25R X 0.5	0.6	12	45	4		2HRBG 010 200 S06	0.5R X 1	1.2	20	60	6	
2HRBG 005 140 S04	0.25R X 0.5	0.6	14	45	4		2HRBG 010 220 S04	0.5R X 1	1.2	22	60	4	
2HRBG 006 010 S04	0.3R X 0.6	0.7	1	45	4		2HRBG 010 220 S06	0.5R X 1	1.2	22	65	6	
2HRBG 006 020 S04	0.3R X 0.6	0.7	2	45	4		2HRBG 010 250 S04	0.5R X 1	1.2	25	60	4	
2HRBG 006 030 S04	0.3R X 0.6	0.7	3	45	4		2HRBG 012 040 S04	0.6R X 1.2	1.4	4	45	4	
2HRBG 006 040 S04	0.3R X 0.6	0.7	4	45	4		2HRBG 012 040 S06	0.6R X 1.2	1.4	4	45	6	
2HRBG 006 050 S04	0.3R X 0.6	0.7	5	45	4		2HRBG 012 060 S04	0.6R X 1.2	1.4	6	45	4	
2HRBG 006 060 S04	0.3R X 0.6	0.7	6	45	4		2HRBG 012 060 S06	0.6R X 1.2	1.4	6	45	6	
2HRBG 006 080 S04	0.3R X 0.6	0.7	8	45	4		2HRBG 012 080 S04	0.6R X 1.2	1.4	8	45	4	
2HRBG 006 100 S04	0.3R X 0.6	0.7	10	45	4		2HRBG 012 080 S06	0.6R X 1.2	1.4	8	45	6	
2HRBG 006 120 S04	0.3R X 0.6	0.7	12	45	4		2HRBG 012 100 S04	0.6R X 1.2	1.4	10	50	4	
2HRBG 006 140 S04	0.3R X 0.6	0.7	14	45	4		2HRBG 012 100 S06	0.6R X 1.2	1.4	10	50	6	
2HRBG 006 160 S04	0.3R X 0.6	0.7	16	45	4		2HRBG 012 120 S04	0.6R X 1.2	1.4	12	50	4	
2HRBG 007 020 S04	0.35R X 0.7	0.8	2	45	4		2HRBG 012 120 S06	0.6R X 1.2	1.4	12	50	6	
2HRBG 007 040 S04	0.35R X 0.7	0.8	4	45	4		2HRBG 012 160 S04	0.6R X 1.2	1.4	16	50	4	
2HRBG 007 080 S04	0.35R X 0.7	0.8	8	45	4		2HRBG 012 160 S06	0.6R X 1.2	1.4	16	55	6	
2HRBG 007 100 S04	0.35R X 0.7	0.8	10	45	4		2HRBG 012 200 S04	0.6R X 1.2	1.4	20	50	4	
2HRBG 007 120 S04	0.35R X 0.7	0.8	12	45	4		2HRBG 012 200 S06	0.6R X 1.2	1.4	20	60	6	
2HRBG 008 020 S04	0.4R X 0.8	0.9	2	45	4		2HRBG 012 240 S04	0.6R X 1.2	1.4	24	60	4	
2HRBG 008 040 S04	0.4R X 0.8	0.9	4	45	4		2HRBG 012 240 S06	0.6R X 1.2	1.4	24	65	6	
2HRBG 008 060 S04	0.4R X 0.8	0.9	6	45	4		2HRBG 014 060 S04	0.7R X 1.4	1.6	6	45	4	
2HRBG 008 080 S04	0.4R X 0.8	0.9	8	45	4		2HRBG 014 080 S04	0.7R X 1.4	1.6	8	45	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
2HRBG 014 120 S04	0.7R X 1.4	1.6	12	50	4		2HRBG 020 350 S06	1R X 2	2.4	35	75	6	
2HRBG 014 160 S04	0.7R X 1.4	1.6	16	50	4		2HRBG 020 400 S04	1R X 2	2.4	40	80	4	
2HRBG 015 030 S04	0.75R X 1.5	1.8	3	45	4		2HRBG 020 400 S06	1R X 2	2.4	40	80	6	
2HRBG 015 030 S06	0.75R X 1.5	1.8	3	45	6		2HRBG 020 450 S04	1R X 2	2.4	45	80	4	
2HRBG 015 040 S04	0.75R X 1.5	1.8	4	45	4		2HRBG 025 080 S04	1.25R X 2.5	3	8	45	4	
2HRBG 015 040 S06	0.75R X 1.5	1.8	4	45	6		2HRBG 025 100 S04	1.25R X 2.5	3	10	50	4	
2HRBG 015 060 S04	0.75R X 1.5	1.8	6	45	4		2HRBG 025 160 S04	1.25R X 2.5	3	16	50	4	
2HRBG 015 060 S06	0.75R X 1.5	1.8	6	45	6		2HRBG 025 200 S04	1.25R X 2.5	3	20	50	4	
2HRBG 015 080 S04	0.75R X 1.5	1.8	8	45	4		2HRBG 025 250 S04	1.25R X 2.5	3	25	60	4	
2HRBG 015 080 S06	0.75R X 1.5	1.8	8	45	6		2HRBG 025 300 S04	1.25R X 2.5	3	30	70	4	
2HRBG 015 100 S04	0.75R X 1.5	1.8	10	50	4		2HRBG 025 350 S04	1.25R X 2.5	3	35	70	4	
2HRBG 015 100 S06	0.75R X 1.5	1.8	10	50	6		2HRBG 030 060 S06	1.5R X 3	3.6	6	45	6	
2HRBG 015 120 S04	0.75R X 1.5	1.8	12	50	4		2HRBG 030 080 S06	1.5R X 3	3.6	8	45	6	
2HRBG 015 120 S06	0.75R X 1.5	1.8	12	50	6		2HRBG 030 100 S06	1.5R X 3	3.6	10	50	6	
2HRBG 015 140 S04	0.75R X 1.5	1.8	14	50	4		2HRBG 030 120 S06	1.5R X 3	3.6	12	50	6	
2HRBG 015 140 S06	0.75R X 1.5	1.8	14	50	6		2HRBG 030 160 S06	1.5R X 3	3.6	16	55	6	
2HRBG 015 160 S04	0.75R X 1.5	1.8	16	50	4		2HRBG 030 200 S06	1.5R X 3	3.6	20	60	6	
2HRBG 015 160 S06	0.75R X 1.5	1.8	16	55	6		2HRBG 030 250 S06	1.5R X 3	3.6	25	65	6	
2HRBG 015 180 S04	0.75R X 1.5	1.8	18	50	4		2HRBG 030 300 S06	1.5R X 3	3.6	30	70	6	
2HRBG 015 180 S06	0.75R X 1.5	1.8	18	60	6		2HRBG 030 350 S06	1.5R X 3	3.6	35	75	6	
2HRBG 015 200 S04	0.75R X 1.5	1.8	20	50	4		2HRBG 030 400 S06	1.5R X 3	3.6	40	80	6	
2HRBG 015 200 S06	0.75R X 1.5	1.8	20	60	6		2HRBG 030 450 S06	1.5R X 3	3.6	45	90	6	
2HRBG 015 220 S04	0.75R X 1.5	1.8	22	60	4		2HRBG 030 500 S06	1.5R X 3	3.6	50	100	6	
2HRBG 015 220 S06	0.75R X 1.5	1.8	22	65	6		2HRBG 030 600 S06	1.5R X 3	3.6	60	100	6	
2HRBG 015 250 S04	0.75R X 1.5	1.8	25	60	4		2HRBG 040 080 S06	2R X 4	4.8	8	45	6	
2HRBG 015 250 S06	0.75R X 1.5	1.8	25	65	6		2HRBG 040 100 S06	2R X 4	4.8	10	50	6	
2HRBG 015 300 S04	0.75R X 1.5	1.8	30	70	4		2HRBG 040 120 S06	2R X 4	4.8	12	50	6	
2HRBG 015 300 S06	0.75R X 1.5	1.8	30	70	6		2HRBG 040 160 S06	2R X 4	4.8	16	55	6	
2HRBG 015 350 S04	0.75R X 1.5	1.8	35	70	4		2HRBG 040 200 S06	2R X 4	4.8	20	60	6	
2HRBG 016 060 S04	0.8R X 1.6	1.9	6	45	4		2HRBG 040 250 S06	2R X 4	4.8	25	65	6	
2HRBG 016 080 S04	0.8R X 1.6	1.9	8	45	4		2HRBG 040 300 S06	2R X 4	4.8	30	70	6	
2HRBG 016 120 S04	0.8R X 1.6	1.9	12	50	4		2HRBG 040 350 S06	2R X 4	4.8	35	75	6	
2HRBG 016 160 S04	0.8R X 1.6	1.9	16	50	4		2HRBG 040 400 S06	2R X 4	4.8	40	80	6	
2HRBG 016 200 S04	0.8R X 1.6	1.9	20	50	4		2HRBG 040 450 S06	2R X 4	4.8	45	90	6	
2HRBG 018 060 S04	0.9R X 1.8	2.1	6	45	4		2HRBG 040 500 S06	2R X 4	4.8	50	100	6	
2HRBG 018 080 S04	0.9R X 1.8	2.1	8	45	4		2HRBG 040 550 S06	2R X 4	4.8	55	100	6	
2HRBG 018 120 S04	0.9R X 1.8	2.1	12	50	4		2HRBG 040 600 S06	2R X 4	4.8	60	100	6	
2HRBG 018 160 S04	0.9R X 1.8	2.1	16	50	4		2HRBG 050 150 S06	2.5R X 5	6	15	55	6	
2HRBG 018 200 S04	0.9R X 1.8	2.1	20	50	4		2HRBG 050 200 S06	2.5R X 5	6	20	60	6	
2HRBG 020 040 S04	1R X 2	2.4	4	45	4		2HRBG 050 250 S06	2.5R X 5	6	25	70	6	
2HRBG 020 040 S06	1R X 2	2.4	4	45	6		2HRBG 050 300 S06	2.5R X 5	6	30	75	6	
2HRBG 020 060 S04	1R X 2	2.4	6	45	4		2HRBG 050 400 S06	2.5R X 5	6	40	80	6	
2HRBG 020 060 S06	1R X 2	2.4	6	45	6		2HRBG 050 450 S06	2.5R X 5	6	45	90	6	
2HRBG 020 080 S04	1R X 2	2.4	8	45	4		2HRBG 050 500 S06	2.5R X 5	6	50	100	6	
2HRBG 020 080 S06	1R X 2	2.4	8	45	6		2HRBG 050 600 S06	2.5R X 5	6	60	100	6	
2HRBG 020 100 S04	1R X 2	2.4	10	50	4		2HRBG 060 150 S06	3R X 6	10	15	55	6	
2HRBG 020 100 S06	1R X 2	2.4	10	50	6		2HRBG 060 300 S06	3R X 6	10	30	110	6	
2HRBG 020 120 S04	1R X 2	2.4	12	50	4		2HRBG 080 250 060	4R X 8	12	25	60	8	
2HRBG 020 120 S06	1R X 2	2.4	12	50	6		2HRBG 080 300 100	4R X 8	12	30	100	8	
2HRBG 020 140 S04	1R X 2	2.4	14	50	4		2HRBG 100 300 070	5R X 10	16	30	70	10	
2HRBG 020 140 S06	1R X 2	2.4	14	50	6		2HRBG 100 350 100	5R X 10	16	35	100	10	
2HRBG 020 160 S04	1R X 2	2.4	16	50	4		2HRBG 120 300 075	6R X 12	18	30	75	12	
2HRBG 020 160 S06	1R X 2	2.4	16	60	6		2HRBG 120 400 110	6R X 12	18	40	110	12	
2HRBG 020 180 S04	1R X 2	2.4	18	50	4								
2HRBG 020 180 S06	1R X 2	2.4	18	60	6								
2HRBG 020 200 S04	1R X 2	2.4	20	50	4								
2HRBG 020 200 S06	1R X 2	2.4	20	60	6								
2HRBG 020 220 S04	1R X 2	2.4	22	60	4								
2HRBG 020 220 S06	1R X 2	2.4	22	65	6								
2HRBG 020 250 S04	1R X 2	2.4	25	60	4								
2HRBG 020 250 S06	1R X 2	2.4	25	65	6								
2HRBG 020 300 S04	1R X 2	2.4	30	70	4								
2HRBG 020 300 S06	1R X 2	2.4	30	70	6								
2HRBG 020 350 S04	1R X 2	2.4	35	70	4								



- 중저경도강(HRc52이하), 프리하든강계열, 탄소강, 금형강등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)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.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

2

WC
미립자

JCRO
Coating

R
± 0.005

R
± 0.01

R
± 0.015

35°
Helix Angle

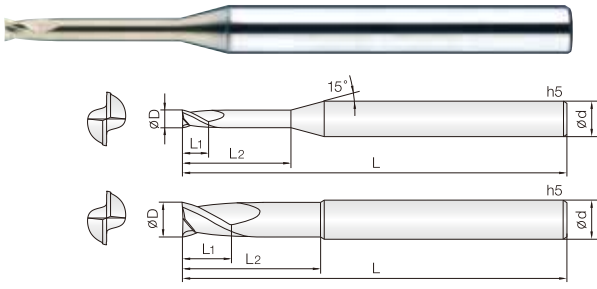
CUTTING
DATA

0.05~2.75R 3 ~ 6R 6.5 ~ 10R 361P

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

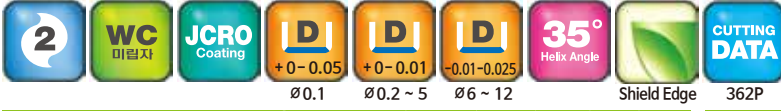
단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	전장 Overall Length L	샤프크 Shank Dia d	비고
2HCBG 001 002 S04	0.05R X 0.1	0.2	40	4		2HCBG 080 140 150	4R X 8	14	150	8	
2HCBG 0015 003 S04	0.075R X 0.15	0.3	40	4		2HCBG 090 160 S10	4.5R X 9	16	100	10	
2HCBG 002 004 S04	0.1R X 0.2	0.4	40	4		2HCBG 100 150 070	5R X 10	15	70	10	
2HCBG 003 006 S04	0.15R X 0.3	0.6	40	4		2HCBG 100 180 100	5R X 10	18	100	10	
2HCBG 004 008 S04	0.2R X 0.4	0.8	40	4		2HCBG 100 180 120	5R X 10	18	120	10	
2HCBG 005 010 S04	0.25R X 0.5	1	45	4		2HCBG 100 180 150	5R X 10	18	150	10	
2HCBG 006 012 S04	0.3R X 0.6	1.2	45	4		2HCBG 100 180 180	5R X 10	18	180	10	
2HCBG 007 015 S04	0.35R X 0.7	1.5	45	4		2HCBG 110 200 S12	5.5R X 11	20	110	12	
2HCBG 008 020 S04	0.4R X 0.8	2	45	4		2HCBG 120 180 070	6R X 12	18	70	12	
2HCBG 009 020 S04	0.45R X 0.9	2	45	4		2HCBG 120 220 110	6R X 12	22	110	12	
2HCBG 010 025 S04	0.5R X 1	2.5	50	4		2HCBG 120 220 130	6R X 12	22	130	12	
2HCBG 010 025 S06	0.5R X 1	2.5	50	6		2HCBG 120 220 150	6R X 12	22	150	12	
2HCBG 010 025 070	0.5R X 1	2.5	70	6		2HCBG 120 220 200	6R X 12	22	200	12	
2HCBG 010 025 100	0.5R X 1	2.5	100	6		2HCBG 130 240 S14	6.5R X 13	24	110	14	
2HCBG 012 030 S04	0.6R X 1.2	3	50	4		2HCBG 140 240 S14	7R X 14	24	110	14	
2HCBG 015 040 S04	0.75R X 1.5	4	50	4		2HCBG 160 300 130	8R X 16	30	130	16	
2HCBG 015 040 S06	0.75R X 1.5	4	50	6		2HCBG 160 300 160	8R X 16	30	160	16	
2HCBG 015 040 070	0.75R X 1.5	4	70	6		2HCBG 160 300 200	8R X 16	30	200	16	
2HCBG 015 040 100	0.75R X 1.5	4	100	6		2HCBG 200 380 160	10R X 20	38	160	20	
2HCBG 020 050 S04	1R X 2	5	50	4		2HCBG 200 380 200	10R X 20	38	200	20	
2HCBG 020 050 S06	1R X 2	5	50	6							
2HCBG 020 050 075	1R X 2	5	75	6							
2HCBG 020 050 100	1R X 2	5	100	6							
2HCBG 025 060 S04	1.25R X 2.5	6	50	4							
2HCBG 025 060 S06	1.25R X 2.5	6	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							
2HCBG 080 140 090	4R X 8	14	90	8							
2HCBG 080 140 110	4R X 8	14	110	8							



- 중저경도강(HRC52이하), 프리하든강계열, 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 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 μ m) WC grade.

G series



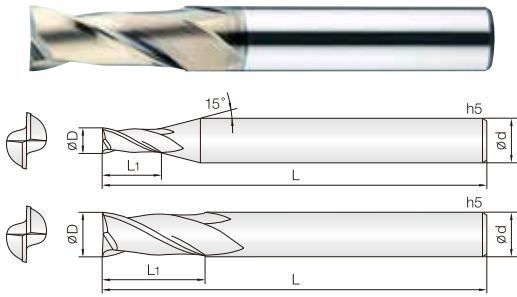
D Size	D Tolerance
∅0.1	+0 ~ -0.005mm
∅0.2 ~ 5	+0 ~ -0.01mm
∅6 ~ 12	-0.01 ~ -0.025mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	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 001 003 S04	0.1	0.15	0.3	40	4		2HREG 008 120 S04	0.8	0.9	12	45	4	
2HREG 001 005 S04	0.1	0.15	0.5	40	4		2HREG 008 140 S04	0.8	0.9	14	45	4	
2HREG 002 005 S04	0.2	0.3	0.5	40	4		2HREG 009 060 S04	0.9	1	6	45	4	
2HREG 002 010 S04	0.2	0.2	1	40	4		2HREG 009 080 S04	0.9	1	8	45	4	
2HREG 002 015 S04	0.2	0.2	1.5	40	4		2HREG 009 100 S04	0.9	1	10	45	4	
2HREG 002 020 S04	0.2	0.2	2	40	4		2HREG 010 020 S04	1	1.2	2	45	4	
2HREG 003 010 S04	0.3	0.3	1	40	4		2HREG 010 030 S04	1	1.2	3	45	4	
2HREG 003 015 S04	0.3	0.3	1.5	40	4		2HREG 010 040 S04	1	1.2	4	45	4	
2HREG 003 020 S04	0.3	0.3	2	40	4		2HREG 010 050 S04	1	1.2	5	45	4	
2HREG 003 030 S04	0.3	0.3	3	40	4		2HREG 010 060 S04	1	1.2	6	45	4	
2HREG 003 040 S04	0.3	0.3	4	40	4		2HREG 010 080 S04	1	1.2	8	45	4	
2HREG 003 050 S04	0.3	0.3	5	40	4		2HREG 010 100 S04	1	1.2	10	50	4	
2HREG 004 010 S04	0.4	0.5	1	40	4		2HREG 010 120 S04	1	1.2	12	50	4	
2HREG 004 020 S04	0.4	0.5	2	40	4		2HREG 010 140 S04	1	1.2	14	50	4	
2HREG 004 030 S04	0.4	0.5	3	40	4		2HREG 010 160 S04	1	1.2	16	50	4	
2HREG 004 040 S04	0.4	0.5	4	40	4		2HREG 010 180 S04	1	1.2	18	50	4	
2HREG 004 050 S04	0.4	0.5	5	40	4		2HREG 010 200 S04	1	1.2	20	50	4	
2HREG 004 060 S04	0.4	0.5	6	40	4		2HREG 010 250 S04	1	1.2	25	60	4	
2HREG 004 080 S04	0.4	0.5	8	40	4		2HREG 010 300 S04	1	1.2	30	70	4	
2HREG 004 100 S04	0.4	0.5	10	40	4		2HREG 012 040 S04	1.2	1.4	4	45	4	
2HREG 005 020 S04	0.5	0.6	2	45	4		2HREG 012 060 S04	1.2	1.4	6	45	4	
2HREG 005 030 S04	0.5	0.6	3	45	4		2HREG 012 080 S04	1.2	1.4	8	45	4	
2HREG 005 040 S04	0.5	0.6	4	45	4		2HREG 012 100 S04	1.2	1.4	10	50	4	
2HREG 005 050 S04	0.5	0.6	5	45	4		2HREG 012 120 S04	1.2	1.4	12	50	4	
2HREG 005 060 S04	0.5	0.6	6	45	4		2HREG 012 160 S04	1.2	1.4	16	50	4	
2HREG 005 080 S04	0.5	0.6	8	45	4		2HREG 012 200 S04	1.2	1.4	20	50	4	
2HREG 005 100 S04	0.5	0.6	10	45	4		2HREG 012 250 S04	1.2	1.4	25	60	4	
2HREG 005 120 S04	0.5	0.6	12	45	4		2HREG 012 300 S04	1.2	1.4	30	70	4	
2HREG 005 140 S04	0.5	0.6	14	45	4		2HREG 014 060 S04	1.4	1.6	6	45	4	
2HREG 006 020 S04	0.6	0.7	2	45	4		2HREG 014 080 S04	1.4	1.6	8	45	4	
2HREG 006 030 S04	0.6	0.7	3	45	4		2HREG 014 100 S04	1.4	1.6	10	50	4	
2HREG 006 040 S04	0.6	0.7	4	45	4		2HREG 014 140 S04	1.4	1.6	14	50	4	
2HREG 006 050 S04	0.6	0.7	5	45	4		2HREG 014 160 S04	1.4	1.6	16	50	4	
2HREG 006 060 S04	0.6	0.7	6	45	4		2HREG 014 200 S04	1.4	1.6	20	50	4	
2HREG 006 080 S04	0.6	0.7	8	45	4		2HREG 015 040 S04	1.5	1.8	4	45	4	
2HREG 006 100 S04	0.6	0.7	10	45	4		2HREG 015 060 S04	1.5	1.8	6	45	4	
2HREG 006 120 S04	0.6	0.7	12	45	4		2HREG 015 080 S04	1.5	1.8	8	45	4	
2HREG 006 140 S04	0.6	0.7	14	45	4		2HREG 015 100 S04	1.5	1.8	10	50	4	
2HREG 006 160 S04	0.6	0.7	16	45	4		2HREG 015 120 S04	1.5	1.8	12	50	4	
2HREG 007 020 S04	0.7	0.8	2	45	4		2HREG 015 140 S04	1.5	1.8	14	50	4	
2HREG 007 040 S04	0.7	0.8	4	45	4		2HREG 015 160 S04	1.5	1.8	16	50	4	
2HREG 007 060 S04	0.7	0.8	6	45	4		2HREG 015 180 S04	1.5	1.8	18	50	4	
2HREG 007 080 S04	0.7	0.8	8	45	4		2HREG 015 200 S04	1.5	1.8	20	50	4	
2HREG 007 100 S04	0.7	0.8	10	45	4		2HREG 015 250 S04	1.5	1.8	25	60	4	
2HREG 007 120 S04	0.7	0.8	12	45	4		2HREG 015 300 S04	1.5	1.8	30	70	4	
2HREG 008 020 S04	0.8	0.9	2	45	4		2HREG 016 100 S04	1.6	1.9	10	50	4	
2HREG 008 040 S04	0.8	0.9	4	45	4		2HREG 016 140 S04	1.6	1.9	14	50	4	
2HREG 008 060 S04	0.8	0.9	6	45	4		2HREG 016 180 S04	1.6	1.9	18	50	4	
2HREG 008 080 S04	0.8	0.9	8	45	4		2HREG 018 100 S04	1.8	2.1	10	50	4	
2HREG 008 100 S04	0.8	0.9	10	45	4		2HREG 018 140 S04	1.8	2.1	14	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 018 180 S04	1.8	2.1	18	50	4		2HREG 040 500 S06	4	4.8	50	100	6	
2HREG 020 040 S04	2	2.4	4	45	4		2HREG 040 550 S06	4	4.8	55	100	6	
2HREG 020 060 S04	2	2.4	6	45	4		2HREG 040 600 S06	4	4.8	60	100	6	
2HREG 020 080 S04	2	2.4	8	45	4		2HREG 050 150 S06	5	6	15	55	6	
2HREG 020 100 S04	2	2.4	10	50	4		2HREG 050 200 S06	5	6	20	60	6	
2HREG 020 120 S04	2	2.4	12	50	4		2HREG 050 250 S06	5	6	25	70	6	
2HREG 020 140 S04	2	2.4	14	50	4		2HREG 050 300 S06	5	6	30	75	6	
2HREG 020 160 S04	2	2.4	16	50	4		2HREG 050 350 S06	5	6	35	75	6	
2HREG 020 180 S04	2	2.4	18	50	4		2HREG 050 400 S06	5	6	40	80	6	
2HREG 020 200 S04	2	2.4	20	50	4		2HREG 050 500 S06	5	6	50	100	6	
2HREG 020 220 S04	2	2.4	22	60	4		2HREG 050 600 S06	5	6	60	100	6	
2HREG 020 250 S04	2	2.4	25	60	4		2HREG 060 200 S06	6	10	20	60	6	
2HREG 020 300 S04	2	2.4	30	70	4		2HREG 060 300 S06	6	10	30	75	6	
2HREG 020 350 S04	2	2.4	35	70	4		2HREG 060 400 S06	6	10	40	80	6	
2HREG 020 400 S04	2	2.4	40	80	4		2HREG 060 500 S06	6	10	50	90	6	
2HREG 020 450 S04	2	2.4	45	80	4		2HREG 060 600 S06	6	10	60	110	6	
2HREG 020 500 S04	2	2.4	50	90	4		2HREG 080 200 S08	8	12	20	65	8	
2HREG 025 080 S04	2.5	3	8	45	4		2HREG 080 300 S08	8	12	30	80	8	
2HREG 025 100 S04	2.5	3	10	50	4		2HREG 080 400 S08	8	12	40	100	8	
2HREG 025 120 S04	2.5	3	12	50	4		2HREG 100 250 S10	10	15	25	70	10	
2HREG 025 160 S04	2.5	3	16	50	4		2HREG 100 350 S10	10	15	35	80	10	
2HREG 025 200 S04	2.5	3	20	50	4		2HREG 100 450 S10	10	15	45	100	10	
2HREG 025 250 S04	2.5	3	25	60	4		2HREG 120 300 S12	12	18	30	80	12	
2HREG 025 300 S04	2.5	3	30	70	4		2HREG 120 400 S12	12	18	40	100	12	
2HREG 025 350 S04	2.5	3	35	70	4		2HREG 120 500 S12	12	18	50	120	12	
2HREG 025 400 S04	2.5	3	40	80	4								
2HREG 025 500 S04	2.5	3	50	90	4								
2HREG 030 060 S06	3	3.6	6	45	6								
2HREG 030 080 S06	3	3.6	8	45	6								
2HREG 030 100 S06	3	3.6	10	50	6								
2HREG 030 120 S06	3	3.6	12	50	6								
2HREG 030 160 S06	3	3.6	16	55	6								
2HREG 030 200 S06	3	3.6	20	60	6								
2HREG 030 250 S06	3	3.6	25	65	6								
2HREG 030 300 S06	3	3.6	30	70	6								
2HREG 030 350 S06	3	3.6	35	75	6								
2HREG 030 400 S06	3	3.6	40	80	6								
2HREG 030 450 S06	3	3.6	45	90	6								
2HREG 030 500 S06	3	3.6	50	100	6								
2HREG 030 600 S06	3	3.6	60	100	6								
2HREG 040 080 S06	4	4.8	8	45	6								
2HREG 040 100 S06	4	4.8	10	50	6								
2HREG 040 120 S06	4	4.8	12	50	6								
2HREG 040 160 S06	4	4.8	16	55	6								
2HREG 040 200 S06	4	4.8	20	60	6								
2HREG 040 250 S06	4	4.8	25	65	6								
2HREG 040 300 S06	4	4.8	30	70	6								
2HREG 040 350 S06	4	4.8	35	75	6								
2HREG 040 400 S06	4	4.8	40	80	6								
2HREG 040 450 S06	4	4.8	45	90	6								



- 중저경도강(HRC52이하), 프리하든강계열, 탄소강, 금형강 등 다양한 피삭재 가공
- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5µm)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.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

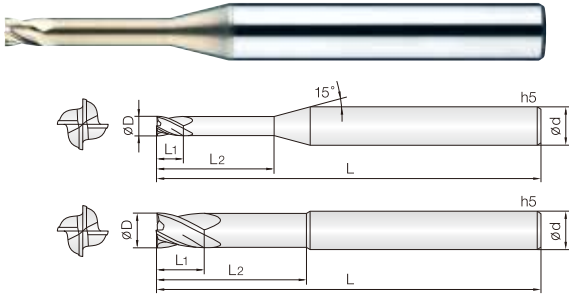
G series

2
WC 미립자
JCRO Coating
ID1 +0-0.005
ID2 +0-0.01
ID3 -0.01-0.025
ID4 -0.015-0.03
35° Helix Angle
Shield Edge
CUTTING DATA 366P

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



- 중저경도강(HRC52이하), 프리하든강계열, 탄소강, 금형강등 다양한 피삭재 가공
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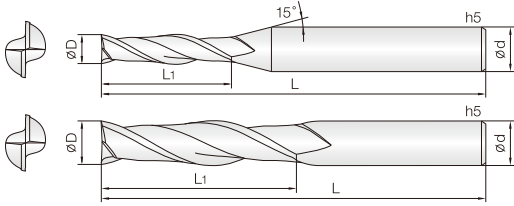
- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials by JCRO coating.
- High precise edge tolerance.
- Minimize fracturing by high TRS fine(0.5 μ m) WC grade.



D Size	D Tolerance
ø0.8 ~ 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
4HREG 008 020 S04	0.8	0.9	2	45	4		4HREG 030 250 S06	3	3.6	25	65	6	
4HREG 008 040 S04	0.8	0.9	4	45	4		4HREG 030 300 S06	3	3.6	30	70	6	
4HREG 008 060 S04	0.8	0.9	6	45	4		4HREG 030 350 S06	3	3.6	35	75	6	
4HREG 008 080 S04	0.8	0.9	8	45	4		4HREG 030 400 S06	3	3.6	40	80	6	
4HREG 008 100 S04	0.8	0.9	10	45	4		4HREG 040 100 S06	4	4.8	10	50	6	
4HREG 008 120 S04	0.8	0.9	12	45	4		4HREG 040 120 S06	4	4.8	12	50	6	
4HREG 008 160 S04	0.8	0.9	16	45	4		4HREG 040 160 S06	4	4.8	16	55	6	
4HREG 009 020 S04	0.9	1	2	45	4		4HREG 040 200 S06	4	4.8	20	60	6	
4HREG 009 060 S04	0.9	1	6	45	4		4HREG 040 250 S06	4	4.8	25	65	6	
4HREG 009 080 S04	0.9	1	8	45	4		4HREG 040 300 S06	4	4.8	30	70	6	
4HREG 009 100 S04	0.9	1	10	45	4		4HREG 040 400 S06	4	4.8	40	80	6	
4HREG 010 030 S04	1	1.2	3	45	4		4HREG 040 450 S06	4	4.8	45	90	6	
4HREG 010 040 S04	1	1.2	4	45	4		4HREG 040 500 S06	4	4.8	50	100	6	
4HREG 010 060 S04	1	1.2	6	45	4		4HREG 050 150 S06	5	6	15	55	6	
4HREG 010 080 S04	1	1.2	8	45	4		4HREG 050 200 S06	5	6	20	60	6	
4HREG 010 100 S04	1	1.2	10	50	4		4HREG 050 250 S06	5	6	25	65	6	
4HREG 010 120 S04	1	1.2	12	50	4		4HREG 050 300 S06	5	6	30	70	6	
4HREG 010 160 S04	1	1.2	16	50	4		4HREG 050 400 S06	5	6	40	80	6	
4HREG 010 200 S04	1	1.2	20	50	4		4HREG 050 500 S06	5	6	50	100	6	
4HREG 010 250 S04	1	1.2	25	60	4		4HREG 060 200 S06	6	10	20	60	6	
4HREG 012 060 S04	1.2	1.4	6	45	4		4HREG 060 300 S06	6	10	30	75	6	
4HREG 012 080 S04	1.2	1.4	8	45	4		4HREG 060 400 S06	6	10	40	80	6	
4HREG 012 100 S04	1.2	1.4	10	50	4		4HREG 060 500 S06	6	10	50	90	6	
4HREG 012 120 S04	1.2	1.4	12	50	4		4HREG 080 200 S08	8	12	20	65	8	
4HREG 012 160 S04	1.2	1.4	16	50	4		4HREG 080 300 S08	8	12	30	80	8	
4HREG 015 060 S04	1.5	1.8	6	45	4		4HREG 080 400 S08	8	12	40	100	8	
4HREG 015 080 S04	1.5	1.8	8	45	4		4HREG 100 250 S10	10	15	25	70	10	
4HREG 015 100 S04	1.5	1.8	10	50	4		4HREG 100 350 S10	10	15	35	90	10	
4HREG 015 120 S04	1.5	1.8	12	50	4		4HREG 100 450 S10	10	15	45	110	10	
4HREG 015 160 S04	1.5	1.8	16	50	4		4HREG 120 300 S12	12	18	30	80	12	
4HREG 015 200 S04	1.5	1.8	20	50	4		4HREG 120 400 S12	12	18	40	100	12	
4HREG 015 250 S04	1.5	1.8	25	60	4		4HREG 120 500 S12	12	18	50	120	12	
4HREG 020 060 S04	2	2.4	6	45	4								
4HREG 020 080 S04	2	2.4	8	45	4								
4HREG 020 100 S04	2	2.4	10	50	4								
4HREG 020 120 S04	2	2.4	12	50	4								
4HREG 020 160 S04	2	2.4	16	50	4								
4HREG 020 200 S04	2	2.4	20	50	4								
4HREG 020 250 S04	2	2.4	25	60	4								
4HREG 020 300 S04	2	2.4	30	70	4								
4HREG 025 100 S04	2.5	3	10	50	4								
4HREG 025 120 S04	2.5	3	12	50	4								
4HREG 025 160 S04	2.5	3	16	50	4								
4HREG 025 200 S04	2.5	3	20	50	4								
4HREG 025 250 S04	2.5	3	25	60	4								
4HREG 025 300 S04	2.5	3	30	70	4								
4HREG 030 100 S06	3	3.6	10	50	6								
4HREG 030 120 S06	3	3.6	12	50	6								
4HREG 030 160 S06	3	3.6	16	55	6								
4HREG 030 200 S06	3	3.6	20	60	6								



• 중저경도강 (HRC52이하), 프리하든강계열, 탄소강, 금형강 등 다양한 피삭재 가공

- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길이와 전장을 채택, 다양한 작업에 효율성을 극대화 하였습니다.
- 코너부 강성을 보강하여 날부치핑을 최소화 하였습니다.

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

- Optimum for various work materials by JCRO coating.
- Improve tool performance by even run-out and tolerance control.
- Various flute and overall length design for covering wide range applications as well as high efficiency machining.
- Minimize edge chipping by improving corner strength.

2

WC
미립자

JCRO
Coating

|D|
+0-0.01

|D|
-0.01-0.025

|D|
-0.015-0.03

35°
Helix Angle

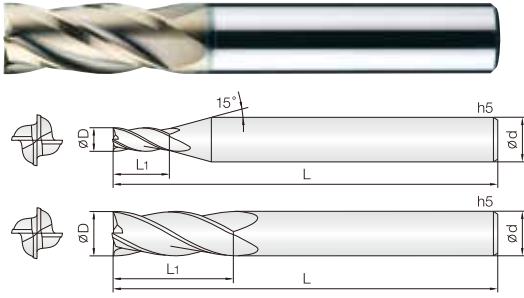
Shield Edge

CUTTING
DATA

D Size	D Tolerance
ø 1 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 20	-0.015 ~ -0.03mm

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
2LEMG 010 030 S06	1	3	60	6		2LEMG 160 700 S16	16	70	130	16	
2LEMG 010 050 S06	1	5	60	6		2LEMG 160 800 S16	16	80	160	16	
2LEMG 010 070 S06	1	7	60	6		2LEMG 200 500 160	20	50	160	20	
2LEMG 010 100 S06	1	10	60	6		2LEMG 200 600 S20	20	60	130	20	
2LEMG 010 150 S06	1	15	60	6		2LEMG 200 1000 S20	20	100	200	20	
2LEMG 015 060 S06	1.5	6	60	6		2LEMG 250 750 S25	25	75	160	25	
2LEMG 015 075 S06	1.5	7.5	60	6							
2LEMG 015 100 S06	1.5	10	60	6							
2LEMG 015 150 S06	1.5	15	60	6							
2LEMG 015 200 S06	1.5	20	60	6							
2LEMG 020 060 S06	2	6	60	6							
2LEMG 020 100 S06	2	10	60	6							
2LEMG 020 150 S06	2	15	60	6							
2LEMG 020 200 S06	2	20	60	6							
2LEMG 030 120 S06	3	12	70	6							
2LEMG 030 150 S06	3	15	70	6							
2LEMG 030 200 S06	3	20	70	6							
2LEMG 030 250 S06	3	25	70	6							
2LEMG 030 300 S06	3	30	70	6							
2LEMG 040 150 S06	4	15	70	6							
2LEMG 040 200 S06	4	20	70	6							
2LEMG 040 300 S06	4	30	75	6							
2LEMG 050 200 S06	5	20	70	6							
2LEMG 050 250 S06	5	25	75	6							
2LEMG 050 300 S06	5	30	80	6							
2LEMG 060 200 S06	6	20	75	6							
2LEMG 060 200 100	6	20	100	6							
2LEMG 060 250 S06	6	25	75	6							
2LEMG 060 300 S06	6	30	80	6							
2LEMG 080 250 S08	8	25	75	8							
2LEMG 080 250 100	8	25	100	8							
2LEMG 080 300 S08	8	30	80	8							
2LEMG 080 350 S08	8	35	80	8							
2LEMG 080 400 S08	8	40	90	8							
2LEMG 080 500 S08	8	50	100	8							
2LEMG 100 300 S10	10	30	80	10							
2LEMG 100 300 110	10	30	110	10							
2LEMG 100 350 S10	10	35	90	10							
2LEMG 100 400 S10	10	40	90	10							
2LEMG 100 500 S10	10	50	100	10							
2LEMG 100 600 S10	10	60	110	10							
2LEMG 120 300 S12	12	30	90	12							
2LEMG 120 350 110	12	35	110	12							
2LEMG 120 400 S12	12	40	100	12							
2LEMG 120 500 S12	12	50	100	12							
2LEMG 120 600 S12	12	60	110	12							
2LEMG 120 700 S12	12	70	130	12							
2LEMG 140 500 S14	14	50	110	14							
2LEMG 160 400 160	16	40	160	16							
2LEMG 160 550 S16	16	55	120	16							



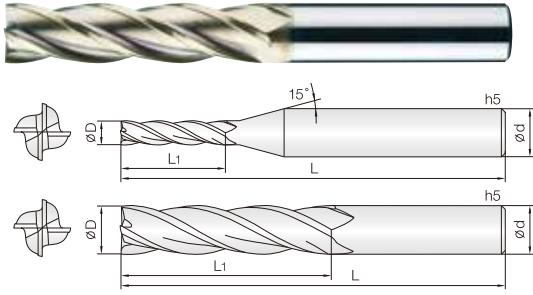
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- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 항절력이 높은 미립자 초경합금(0.5 μ m)을 채택, 엔드밀의 파손을 최소화 하였습니다.
- Endmills for various work materials (~HRc52), pre-hardened steel, carbon steel, mold steel.
- Optimum for various work materials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



D Size	D Tolerance
ø 0.8 ~ 5.5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 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 080 080 S08	8	8	50	8	
4HCEG 010 010 S04	1	1	40	4		4HCEG 080 190 S08	8	19	60	8	
4HCEG 010 025 S04	1	2.5	40	4		4HCEG 080 200 S08	8	20	70	8	
4HCEG 010 025 S06	1	2.5	40	6		4HCEG 085 190 S10	8.5	19	70	10	
4HCEG 010 025 060	1	2.5	60	6		4HCEG 090 190 S10	9	19	70	10	
4HCEG 010 025 080	1	2.5	80	6		4HCEG 095 190 S10	9.5	19	70	10	
4HCEG 010 040 S06	1	4	50	6		4HCEG 100 100 S10	10	10	60	10	
4HCEG 012 012 S04	1.2	1.2	40	4		4HCEG 100 220 S10	10	22	70	10	
4HCEG 012 030 S04	1.2	3	40	4		4HCEG 100 250 S10	10	25	75	10	
4HCEG 012 030 S06	1.2	3	40	6		4HCEG 105 220 S12	10.5	22	75	12	
4HCEG 012 030 060	1.2	3	60	6		4HCEG 110 220 S12	11	22	75	12	
4HCEG 012 060 S06	1.2	6	50	6		4HCEG 115 220 S12	11.5	22	75	12	
4HCEG 015 015 S04	1.5	1.5	40	4		4HCEG 120 120 S12	12	12	65	12	
4HCEG 015 040 S04	1.5	4	40	4		4HCEG 120 260 S12	12	26	75	12	
4HCEG 015 040 S06	1.5	4	40	6		4HCEG 120 300 S12	12	30	80	12	
4HCEG 015 040 060	1.5	4	60	6		4HCEG 140 260 S14	14	26	80	14	
4HCEG 015 040 080	1.5	4	80	6		4HCEG 140 260 S16	14	26	85	16	
4HCEG 020 020 S04	2	2	40	4		4HCEG 160 350 S16	16	35	100	16	
4HCEG 020 060 S04	2	6	40	4		4HCEG 160 400 S16	16	40	100	16	
4HCEG 020 060 S06	2	6	40	6		4HCEG 180 350 S18	18	35	100	18	
4HCEG 020 060 060	2	6	60	6		4HCEG 200 400 S20	20	40	100	20	
4HCEG 020 060 100	2	6	100	6		4HCEG 200 450 S20	20	45	100	20	
4HCEG 025 080 S04	2.5	8	45	4							
4HCEG 025 080 S06	2.5	8	45	6							
4HCEG 025 080 070	2.5	8	70	6							
4HCEG 025 080 100	2.5	8	100	6							
4HCEG 030 080 S03	3	8	45	3							
4HCEG 030 080 S04	3	8	45	4							
4HCEG 030 080 S06	3	8	45	6							
4HCEG 030 080 070	3	8	70	6							
4HCEG 030 080 100	3	8	100	6							
4HCEG 035 100 S06	3.5	10	45	6							
4HCEG 040 040 S04	4	4	40	4							
4HCEG 040 110 S04	4	11	45	4							
4HCEG 040 110 S06	4	11	45	6							
4HCEG 040 110 070	4	11	70	6							
4HCEG 040 110 100	4	11	100	6							
4HCEG 045 110 S06	4.5	11	45	6							
4HCEG 050 130 S06	5	13	50	6							
4HCEG 050 130 080	5	13	80	6							
4HCEG 050 130 100	5	13	100	6							
4HCEG 055 130 S06	5.5	13	50	6							
4HCEG 060 060 S06	6	6	45	6							
4HCEG 060 130 S06	6	13	50	6							
4HCEG 060 130 080	6	13	80	6							
4HCEG 060 130 100	6	13	100	6							
4HCEG 060 150 S06	6	15	60	6							
4HCEG 065 160 S08	6.5	16	60	8							
4HCEG 070 160 S08	7	16	60	8							
4HCEG 075 160 S08	7.5	16	60	8							



• 중저경도강 (HRC52이하), 프리하든강계열, 탄소강, 금형강 등 다양한 피삭재 가공

- JCRO 코팅 처리하여 넓은 영역의 피삭재 가공에 적합합니다.
- 균일한 런아웃 공차관리로 공구의 성능을 향상시켰습니다.
- 다양한 날길기와 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.

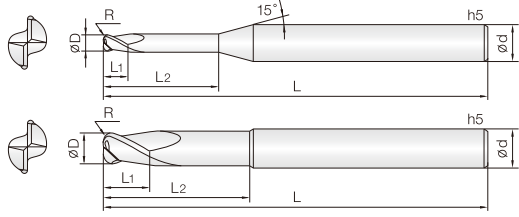
- Optimum for various work materials by JCRO coating.
- Improve tool performance by even run-out and tolerance control.
- Various flute and overall length design for covering wide range applications as well as high efficiency machining.
- Minimize edge chipping by improving corner strength.



D Size	D Tolerance
ø 1 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm
ø 14 ~ 25	-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
4LEMG 010 030 S06	1	3	60	6		4LEMG 200 1000 S20	20	100	200	20	
4LEMG 010 050 S06	1	5	60	6		4LEMG 250 750 S25	25	75	160	25	
4LEMG 015 060 S06	1.5	6	60	6							
4LEMG 015 080 S06	1.5	8	60	6							
4LEMG 020 080 S06	2	8	60	6							
4LEMG 020 100 S06	2	10	60	6							
4LEMG 030 100 S06	3	10	70	6							
4LEMG 030 150 S06	3	15	70	6							
4LEMG 030 200 S06	3	20	70	6							
4LEMG 030 250 S06	3	25	70	6							
4LEMG 040 120 S06	4	12	70	6							
4LEMG 040 150 S04	4	15	70	4							
4LEMG 040 150 S06	4	15	70	6							
4LEMG 040 200 S04	4	20	70	4							
4LEMG 040 200 S06	4	20	70	6							
4LEMG 040 250 S06	4	25	70	6							
4LEMG 040 300 S06	4	30	75	6							
4LEMG 050 200 S06	5	20	70	6							
4LEMG 050 250 S06	5	25	75	6							
4LEMG 050 300 S06	5	30	80	6							
4LEMG 060 200 S06	6	20	75	6							
4LEMG 060 200 100	6	20	100	6							
4LEMG 060 250 S06	6	25	75	6							
4LEMG 060 300 S06	6	30	80	6							
4LEMG 060 350 S06	6	35	80	6							
4LEMG 080 250 S08	8	25	75	8							
4LEMG 080 250 100	8	25	100	8							
4LEMG 080 300 S08	8	30	80	8							
4LEMG 080 350 S08	8	35	90	8							
4LEMG 080 400 S08	8	40	90	8							
4LEMG 080 450 S08	8	45	100	8							
4LEMG 100 300 S10	10	30	80	10							
4LEMG 100 300 110	10	30	110	10							
4LEMG 100 350 S10	10	35	90	10							
4LEMG 100 400 S10	10	40	90	10							
4LEMG 100 500 S10	10	50	100	10							
4LEMG 100 600 S10	10	60	110	10							
4LEMG 120 300 S12	12	30	90	12							
4LEMG 120 350 110	12	35	110	12							
4LEMG 120 400 S12	12	40	100	12							
4LEMG 120 500 S12	12	50	100	12							
4LEMG 120 600 S12	12	60	110	12							
4LEMG 120 700 S12	12	70	130	12							
4LEMG 140 500 S14	14	50	110	14							
4LEMG 160 400 160	16	40	160	16							
4LEMG 160 550 S16	16	55	120	16							
4LEMG 160 700 S16	16	70	130	16							
4LEMG 180 800 160	18	80	160	18							
4LEMG 200 500 160	20	50	160	20							
4LEMG 200 600 S20	20	60	130	20							



- 중저경도강 (HRC52이하), 프리하드강계열, 탄소강, 금형강등가공
- 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 μ 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 μ m) WC grade.

G series

2

WC
미립자

JCRO
Coating

R
 ± 0.005

R
 ± 0.01

R
 ± 0.015

35°
Helix Angle

CUTTING
DATA

R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 3 369P

D Size	D Tolerance
$\phi 0.2 \sim 5$	+0 ~ -0.01mm
$\phi 6 \sim 12$	-0.005 ~ -0.015mm
$\phi 16$	-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 008 002 040	0.8 X R0.2	0.9	4	45	4	
2CREG 002 0002 015	0.2 X R0.02	0.2	1.5	40	4		2CREG 008 002 060	0.8 X R0.2	0.9	6	45	4	
2CREG 002 0005 010	0.2 X R0.05	0.2	1	40	4		2CREG 008 002 080	0.8 X R0.2	0.9	8	45	4	
2CREG 002 0005 015	0.2 X R0.05	0.2	1.5	40	4		2CREG 010 001 040	1 X R0.1	1.2	4	45	4	
2CREG 003 0005 010	0.3 X R0.05	0.3	1	40	4		2CREG 010 001 060	1 X R0.1	1.2	6	45	4	
2CREG 003 0005 020	0.3 X R0.05	0.3	2	40	4		2CREG 010 001 080	1 X R0.1	1.2	8	45	4	
2CREG 003 0005 030	0.3 X R0.05	0.3	3	40	4		2CREG 010 001 100	1 X R0.1	1.2	10	50	4	
2CREG 004 0005 010	0.4 X R0.05	0.5	1	40	4		2CREG 010 001 120	1 X R0.1	1.2	12	50	4	
2CREG 004 0005 020	0.4 X R0.05	0.5	2	40	4		2CREG 010 001 160	1 X R0.1	1.2	16	50	4	
2CREG 004 0005 030	0.4 X R0.05	0.5	3	40	4		2CREG 010 001 200	1 X R0.1	1.2	20	50	4	
2CREG 004 0005 040	0.4 X R0.05	0.5	4	40	4		2CREG 010 002 040	1 X R0.2	1.2	4	45	4	
2CREG 004 001 010	0.4 X R0.1	0.5	1	40	4		2CREG 010 002 060	1 X R0.2	1.2	6	45	4	
2CREG 004 001 015	0.4 X R0.1	0.5	1.5	40	4		2CREG 010 002 080	1 X R0.2	1.2	8	45	4	
2CREG 004 001 020	0.4 X R0.1	0.5	2	40	4		2CREG 010 002 100	1 X R0.2	1.2	10	50	4	
2CREG 004 001 030	0.4 X R0.1	0.5	3	40	4		2CREG 010 002 120	1 X R0.2	1.2	12	50	4	
2CREG 004 001 040	0.4 X R0.1	0.5	4	40	4		2CREG 010 002 160	1 X R0.2	1.2	16	50	4	
2CREG 005 0005 010	0.5 X R0.05	0.6	1	45	4		2CREG 010 002 200	1 X R0.2	1.2	20	50	4	
2CREG 005 0005 015	0.5 X R0.05	0.6	1.5	45	4		2CREG 010 003 040	1 X R0.3	1.2	4	45	4	
2CREG 005 0005 020	0.5 X R0.05	0.6	2	45	4		2CREG 010 003 060	1 X R0.3	1.2	6	45	4	
2CREG 005 0005 025	0.5 X R0.05	0.6	2.5	45	4		2CREG 010 003 080	1 X R0.3	1.2	8	45	4	
2CREG 005 0005 030	0.5 X R0.05	0.6	3	45	4		2CREG 010 003 100	1 X R0.3	1.2	10	50	4	
2CREG 005 0005 040	0.5 X R0.05	0.6	4	45	4		2CREG 010 003 120	1 X R0.3	1.2	12	50	4	
2CREG 005 0005 050	0.5 X R0.05	0.6	5	45	4		2CREG 010 003 160	1 X R0.3	1.2	16	50	4	
2CREG 005 0005 060	0.5 X R0.05	0.6	6	45	4		2CREG 010 003 200	1 X R0.3	1.2	20	50	4	
2CREG 005 001 010	0.5 X R0.1	0.6	1	45	4		2CREG 012 001 040	1.2 X R0.1	1.4	4	45	4	
2CREG 005 001 015	0.5 X R0.1	0.6	1.5	45	4		2CREG 012 001 060	1.2 X R0.1	1.4	6	45	4	
2CREG 005 001 020	0.5 X R0.1	0.6	2	45	4		2CREG 012 001 080	1.2 X R0.1	1.4	8	45	4	
2CREG 005 001 025	0.5 X R0.1	0.6	2.5	45	4		2CREG 012 001 100	1.2 X R0.1	1.4	10	50	4	
2CREG 005 001 030	0.5 X R0.1	0.6	3	45	4		2CREG 012 001 120	1.2 X R0.1	1.4	12	50	4	
2CREG 005 001 040	0.5 X R0.1	0.6	4	45	4		2CREG 012 001 160	1.2 X R0.1	1.4	16	50	4	
2CREG 005 001 050	0.5 X R0.1	0.6	5	45	4		2CREG 012 001 200	1.2 X R0.1	1.4	20	50	4	
2CREG 005 001 060	0.5 X R0.1	0.6	6	45	4		2CREG 012 002 040	1.2 X R0.2	1.4	4	45	4	
2CREG 006 0005 020	0.6 X R0.05	0.7	2	45	4		2CREG 012 002 060	1.2 X R0.2	1.4	6	45	4	
2CREG 006 0005 030	0.6 X R0.05	0.7	3	45	4		2CREG 012 002 080	1.2 X R0.2	1.4	8	45	4	
2CREG 006 0005 040	0.6 X R0.05	0.7	4	45	4		2CREG 012 002 100	1.2 X R0.2	1.4	10	50	4	
2CREG 006 0005 060	0.6 X R0.05	0.7	6	45	4		2CREG 012 002 120	1.2 X R0.2	1.4	12	50	4	
2CREG 006 0005 080	0.6 X R0.05	0.7	8	45	4		2CREG 012 002 160	1.2 X R0.2	1.4	16	50	4	
2CREG 006 001 020	0.6 X R0.1	0.7	2	45	4		2CREG 012 002 200	1.2 X R0.2	1.4	20	50	4	
2CREG 006 001 030	0.6 X R0.1	0.7	3	45	4		2CREG 012 003 040	1.2 X R0.3	1.4	4	45	4	
2CREG 006 001 040	0.6 X R0.1	0.7	4	45	4		2CREG 012 003 060	1.2 X R0.3	1.4	6	45	4	
2CREG 006 001 060	0.6 X R0.1	0.7	6	45	4		2CREG 012 003 080	1.2 X R0.3	1.4	8	45	4	
2CREG 006 001 080	0.6 X R0.1	0.7	8	45	4		2CREG 012 003 100	1.2 X R0.3	1.4	10	50	4	
2CREG 007 001 020	0.7 X R0.1	0.8	2	45	4		2CREG 012 003 120	1.2 X R0.3	1.4	12	50	4	
2CREG 007 001 040	0.7 X R0.1	0.8	4	45	4		2CREG 012 003 160	1.2 X R0.3	1.4	16	50	4	
2CREG 007 001 060	0.7 X R0.1	0.8	6	45	4		2CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
2CREG 008 001 020	0.8 X R0.1	0.9	2	45	4		2CREG 015 001 040	1.5 X R0.1	1.8	4	45	4	
2CREG 008 001 040	0.8 X R0.1	0.9	4	45	4		2CREG 015 001 060	1.5 X R0.1	1.8	6	45	4	
2CREG 008 001 060	0.8 X R0.1	0.9	6	45	4		2CREG 015 001 080	1.5 X R0.1	1.8	8	45	4	
2CREG 008 001 080	0.8 X R0.1	0.9	8	45	4		2CREG 015 001 100	1.5 X R0.1	1.8	10	50	4	
2CREG 008 002 020	0.8 X R0.2	0.9	2	45	4		2CREG 015 001 120	1.5 X R0.1	1.8	12	50	4	

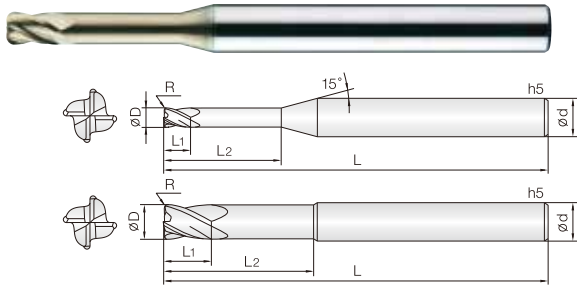
단위: mm

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
2CREG 015 001 160	1.5 X R0.1	1.8	16	50	4		2CREG 025 001 160	2.5 X R0.1	3	16	50	4	
2CREG 015 001 200	1.5 X R0.1	1.8	20	50	4		2CREG 025 001 200	2.5 X R0.1	3	20	50	4	
2CREG 015 001 220	1.5 X R0.1	1.8	22	60	4		2CREG 025 001 250	2.5 X R0.1	3	25	60	4	
2CREG 015 001 250	1.5 X R0.1	1.8	25	60	4		2CREG 025 001 300	2.5 X R0.1	3	30	70	4	
2CREG 015 002 040	1.5 X R0.2	1.8	4	45	4		2CREG 025 002 100	2.5 X R0.2	3	10	50	4	
2CREG 015 002 060	1.5 X R0.2	1.8	6	45	4		2CREG 025 002 160	2.5 X R0.2	3	16	50	4	
2CREG 015 002 080	1.5 X R0.2	1.8	8	45	4		2CREG 025 002 200	2.5 X R0.2	3	20	50	4	
2CREG 015 002 100	1.5 X R0.2	1.8	10	50	4		2CREG 025 002 250	2.5 X R0.2	3	25	60	4	
2CREG 015 002 120	1.5 X R0.2	1.8	12	50	4		2CREG 025 002 300	2.5 X R0.2	3	30	70	4	
2CREG 015 002 160	1.5 X R0.2	1.8	16	50	4		2CREG 025 003 100	2.5 X R0.3	3	10	50	4	
2CREG 015 002 200	1.5 X R0.2	1.8	20	50	4		2CREG 025 003 160	2.5 X R0.3	3	16	50	4	
2CREG 015 002 220	1.5 X R0.2	1.8	22	60	4		2CREG 025 003 200	2.5 X R0.3	3	20	50	4	
2CREG 015 002 250	1.5 X R0.2	1.8	25	60	4		2CREG 025 003 250	2.5 X R0.3	3	25	60	4	
2CREG 015 003 040	1.5 X R0.3	1.8	4	45	4		2CREG 025 003 300	2.5 X R0.3	3	30	70	4	
2CREG 015 003 060	1.5 X R0.3	1.8	6	45	4		2CREG 025 005 100	2.5 X R0.5	3	10	50	4	
2CREG 015 003 080	1.5 X R0.3	1.8	8	45	4		2CREG 025 005 160	2.5 X R0.5	3	16	50	4	
2CREG 015 003 100	1.5 X R0.3	1.8	10	50	4		2CREG 025 005 200	2.5 X R0.5	3	20	50	4	
2CREG 015 003 120	1.5 X R0.3	1.8	12	50	4		2CREG 025 005 250	2.5 X R0.5	3	25	60	4	
2CREG 015 003 160	1.5 X R0.3	1.8	16	50	4		2CREG 025 005 300	2.5 X R0.5	3	30	70	4	
2CREG 015 003 200	1.5 X R0.3	1.8	20	50	4		2CREG 030 001 100	3 X R0.1	3.6	10	50	6	
2CREG 015 003 220	1.5 X R0.3	1.8	22	60	4		2CREG 030 001 120	3 X R0.1	3.6	12	50	6	
2CREG 015 003 250	1.5 X R0.3	1.8	25	60	4		2CREG 030 001 160	3 X R0.1	3.6	16	55	6	
2CREG 015 005 040	1.5 X R0.5	1.8	4	45	4		2CREG 030 001 200	3 X R0.1	3.6	20	60	6	
2CREG 015 005 060	1.5 X R0.5	1.8	6	45	4		2CREG 030 001 250	3 X R0.1	3.6	25	65	6	
2CREG 015 005 080	1.5 X R0.5	1.8	8	45	4		2CREG 030 001 300	3 X R0.1	3.6	30	70	6	
2CREG 015 005 100	1.5 X R0.5	1.8	10	50	4		2CREG 030 001 350	3 X R0.1	3.6	35	75	6	
2CREG 015 005 120	1.5 X R0.5	1.8	12	50	4		2CREG 030 001 400	3 X R0.1	3.6	40	80	6	
2CREG 015 005 160	1.5 X R0.5	1.8	16	50	4		2CREG 030 002 100	3 X R0.2	3.6	10	50	6	
2CREG 015 005 200	1.5 X R0.5	1.8	20	50	4		2CREG 030 002 120	3 X R0.2	3.6	12	50	6	
2CREG 015 005 220	1.5 X R0.5	1.8	22	60	4		2CREG 030 002 160	3 X R0.2	3.6	16	55	6	
2CREG 015 005 250	1.5 X R0.5	1.8	25	60	4		2CREG 030 002 200	3 X R0.2	3.6	20	60	6	
2CREG 020 001 060	2 X R0.1	2.4	6	45	4		2CREG 030 002 250	3 X R0.2	3.6	25	65	6	
2CREG 020 001 080	2 X R0.1	2.4	8	45	4		2CREG 030 002 300	3 X R0.2	3.6	30	70	6	
2CREG 020 001 100	2 X R0.1	2.4	10	50	4		2CREG 030 002 350	3 X R0.2	3.6	35	75	6	
2CREG 020 001 120	2 X R0.1	2.4	12	50	4		2CREG 030 002 400	3 X R0.2	3.6	40	80	6	
2CREG 020 001 160	2 X R0.1	2.4	16	50	4		2CREG 030 003 100	3 X R0.3	3.6	10	50	6	
2CREG 020 001 200	2 X R0.1	2.4	20	50	4		2CREG 030 003 120	3 X R0.3	3.6	12	50	6	
2CREG 020 001 250	2 X R0.1	2.4	25	60	4		2CREG 030 003 160	3 X R0.3	3.6	16	55	6	
2CREG 020 001 300	2 X R0.1	2.4	30	70	4		2CREG 030 003 200	3 X R0.3	3.6	20	60	6	
2CREG 020 002 060	2 X R0.2	2.4	6	45	4		2CREG 030 003 250	3 X R0.3	3.6	25	65	6	
2CREG 020 002 080	2 X R0.2	2.4	8	45	4		2CREG 030 003 300	3 X R0.3	3.6	30	70	6	
2CREG 020 002 100	2 X R0.2	2.4	10	50	4		2CREG 030 003 350	3 X R0.3	3.6	35	75	6	
2CREG 020 002 120	2 X R0.2	2.4	12	50	4		2CREG 030 003 400	3 X R0.3	3.6	40	80	6	
2CREG 020 002 160	2 X R0.2	2.4	16	50	4		2CREG 030 005 100	3 X R0.5	3.6	10	50	6	
2CREG 020 002 200	2 X R0.2	2.4	20	50	4		2CREG 030 005 120	3 X R0.5	3.6	12	50	6	
2CREG 020 002 250	2 X R0.2	2.4	25	60	4		2CREG 030 005 160	3 X R0.5	3.6	16	55	6	
2CREG 020 002 300	2 X R0.2	2.4	30	70	4		2CREG 030 005 200	3 X R0.5	3.6	20	60	6	
2CREG 020 003 060	2 X R0.3	2.4	6	45	4		2CREG 030 005 250	3 X R0.5	3.6	25	65	6	
2CREG 020 003 080	2 X R0.3	2.4	8	45	4		2CREG 030 005 300	3 X R0.5	3.6	30	70	6	
2CREG 020 003 100	2 X R0.3	2.4	10	50	4		2CREG 030 005 350	3 X R0.5	3.6	35	75	6	
2CREG 020 003 120	2 X R0.3	2.4	12	50	4		2CREG 030 005 400	3 X R0.5	3.6	40	80	6	
2CREG 020 003 160	2 X R0.3	2.4	16	50	4		2CREG 030 010 100	3 X R1	3.6	10	50	6	
2CREG 020 003 200	2 X R0.3	2.4	20	50	4		2CREG 030 010 120	3 X R1	3.6	12	50	6	
2CREG 020 003 250	2 X R0.3	2.4	25	60	4		2CREG 030 010 160	3 X R1	3.6	16	55	6	
2CREG 020 003 300	2 X R0.3	2.4	30	70	4		2CREG 030 010 200	3 X R1	3.6	20	60	6	
2CREG 020 005 060	2 X R0.5	2.4	6	45	4		2CREG 030 010 250	3 X R1	3.6	25	65	6	
2CREG 020 005 080	2 X R0.5	2.4	8	45	4		2CREG 030 010 300	3 X R1	3.6	30	70	6	
2CREG 020 005 100	2 X R0.5	2.4	10	50	4		2CREG 030 010 350	3 X R1	3.6	35	75	6	
2CREG 020 005 120	2 X R0.5	2.4	12	50	4		2CREG 030 010 400	3 X R1	3.6	40	80	6	
2CREG 020 005 160	2 X R0.5	2.4	16	50	4		2CREG 040 001 050	4 X R0.1	4.8	12	50	4	
2CREG 020 005 200	2 X R0.5	2.4	20	50	4		2CREG 040 001 070	4 X R0.1	4.8	20	70	4	
2CREG 020 005 250	2 X R0.5	2.4	25	60	4		2CREG 040 001 120	4 X R0.1	4.8	12	50	6	
2CREG 020 005 300	2 X R0.5	2.4	30	70	4		2CREG 040 001 160	4 X R0.1	4.8	16	55	6	
2CREG 025 001 100	2.5 X R0.1	3	10	50	4		2CREG 040 001 200	4 X R0.1	4.8	20	60	6	

단위: mm

G series

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



D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 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
4CREG 010 0005 040	1 X R0.05	1.2	4	45	4	
4CREG 010 0005 060	1 X R0.05	1.2	6	45	4	
4CREG 010 0005 080	1 X R0.05	1.2	8	45	4	
4CREG 010 0005 100	1 X R0.05	1.2	10	50	4	
4CREG 010 0005 120	1 X R0.05	1.2	12	50	4	
4CREG 010 0005 160	1 X R0.05	1.2	16	50	4	
4CREG 010 0005 200	1 X R0.05	1.2	20	50	4	
4CREG 010 001 040	1 X R0.1	1.2	4	45	4	
4CREG 010 001 060	1 X R0.1	1.2	6	45	4	
4CREG 010 001 080	1 X R0.1	1.2	8	45	4	
4CREG 010 001 100	1 X R0.1	1.2	10	50	4	
4CREG 010 001 120	1 X R0.1	1.2	12	50	4	
4CREG 010 001 160	1 X R0.1	1.2	16	50	4	
4CREG 010 001 200	1 X R0.1	1.2	20	50	4	
4CREG 010 002 040	1 X R0.2	1.2	4	45	4	
4CREG 010 002 060	1 X R0.2	1.2	6	45	4	
4CREG 010 002 080	1 X R0.2	1.2	8	45	4	
4CREG 010 002 100	1 X R0.2	1.2	10	50	4	
4CREG 010 002 120	1 X R0.2	1.2	12	50	4	
4CREG 010 002 160	1 X R0.2	1.2	16	50	4	
4CREG 010 002 200	1 X R0.2	1.2	20	50	4	
4CREG 010 003 040	1 X R0.3	1.2	4	45	4	
4CREG 010 003 060	1 X R0.3	1.2	6	45	4	
4CREG 010 003 080	1 X R0.3	1.2	8	45	4	
4CREG 010 003 100	1 X R0.3	1.2	10	50	4	
4CREG 010 003 120	1 X R0.3	1.2	12	50	4	
4CREG 010 003 160	1 X R0.3	1.2	16	50	4	
4CREG 010 003 200	1 X R0.3	1.2	20	50	4	
4CREG 012 001 040	1.2 X R0.1	1.4	4	45	4	
4CREG 012 001 060	1.2 X R0.1	1.4	6	45	4	
4CREG 012 001 080	1.2 X R0.1	1.4	8	45	4	
4CREG 012 001 100	1.2 X R0.1	1.4	10	50	4	
4CREG 012 001 120	1.2 X R0.1	1.4	12	50	4	
4CREG 012 001 160	1.2 X R0.1	1.4	16	50	4	
4CREG 012 001 200	1.2 X R0.1	1.4	20	50	4	
4CREG 012 002 040	1.2 X R0.2	1.4	4	45	4	
4CREG 012 002 060	1.2 X R0.2	1.4	6	45	4	
4CREG 012 002 080	1.2 X R0.2	1.4	8	45	4	
4CREG 012 002 100	1.2 X R0.2	1.4	10	50	4	
4CREG 012 002 120	1.2 X R0.2	1.4	12	50	4	
4CREG 012 002 160	1.2 X R0.2	1.4	16	50	4	
4CREG 012 002 200	1.2 X R0.2	1.4	20	50	4	
4CREG 012 003 040	1.2 X R0.3	1.4	4	45	4	
4CREG 012 003 060	1.2 X R0.3	1.4	6	45	4	
4CREG 012 003 080	1.2 X R0.3	1.4	8	45	4	
4CREG 012 003 100	1.2 X R0.3	1.4	10	50	4	
4CREG 012 003 120	1.2 X R0.3	1.4	12	50	4	
4CREG 012 003 160	1.2 X R0.3	1.4	16	50	4	
4CREG 012 003 200	1.2 X R0.3	1.4	20	50	4	
4CREG 015 001 060	1.5 X R0.1	1.8	6	45	4	

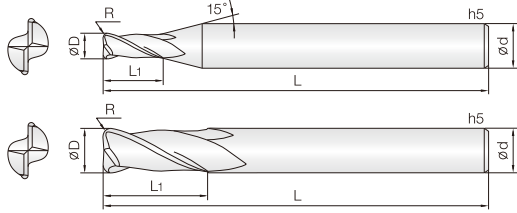
Order Number	날경 Diameter D x R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
4CREG 015 001 080	1.5 X R0.1	1.8	8	45	4	
4CREG 015 001 100	1.5 X R0.1	1.8	10	50	4	
4CREG 015 001 120	1.5 X R0.1	1.8	12	50	4	
4CREG 015 001 160	1.5 X R0.1	1.8	16	50	4	
4CREG 015 001 200	1.5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

단위: mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
4CREG 020 003 080	2 X R0.3	2.4	8	45	4		4CREG 030 005 250	3 X R0.5	3.6	25	65	6	
4CREG 020 003 100	2 X R0.3	2.4	10	50	4		4CREG 030 005 300	3 X R0.5	3.6	30	70	6	
4CREG 020 003 120	2 X R0.3	2.4	12	50	4		4CREG 030 005 350	3 X R0.5	3.6	35	75	6	
4CREG 020 003 160	2 X R0.3	2.4	16	50	4		4CREG 030 005 400	3 X R0.5	3.6	40	80	6	
4CREG 020 003 200	2 X R0.3	2.4	20	50	4		4CREG 030 005 500	3 X R0.5	3.6	50	100	6	
4CREG 020 003 250	2 X R0.3	2.4	25	60	4		4CREG 030 010 100	3 X R1	3.6	10	50	6	
4CREG 020 003 300	2 X R0.3	2.4	30	70	4		4CREG 030 010 160	3 X R1	3.6	16	55	6	
4CREG 020 003 350	2 X R0.3	2.4	35	70	4		4CREG 030 010 200	3 X R1	3.6	20	60	6	
4CREG 020 005 060	2 X R0.5	2.4	6	45	4		4CREG 030 010 250	3 X R1	3.6	25	65	6	
4CREG 020 005 080	2 X R0.5	2.4	8	45	4		4CREG 030 010 300	3 X R1	3.6	30	70	6	
4CREG 020 005 100	2 X R0.5	2.4	10	50	4		4CREG 030 010 350	3 X R1	3.6	35	75	6	
4CREG 020 005 120	2 X R0.5	2.4	12	50	4		4CREG 030 010 400	3 X R1	3.6	40	80	6	
4CREG 020 005 160	2 X R0.5	2.4	16	50	4		4CREG 030 010 500	3 X R1	3.6	50	100	6	
4CREG 020 005 200	2 X R0.5	2.4	20	50	4		4CREG 040 001 050	4 X R0.1	4.8	12	50	4	
4CREG 020 005 250	2 X R0.5	2.4	25	60	4		4CREG 040 001 070	4 X R0.1	4.8	20	70	4	
4CREG 020 005 300	2 X R0.5	2.4	30	70	4		4CREG 040 001 120	4 X R0.1	4.8	12	50	6	
4CREG 020 005 350	2 X R0.5	2.4	35	70	4		4CREG 040 001 160	4 X R0.1	4.8	16	55	6	
4CREG 025 001 100	2.5 X R0.1	3	10	50	4		4CREG 040 001 200	4 X R0.1	4.8	20	60	6	
4CREG 025 001 160	2.5 X R0.1	3	16	50	4		4CREG 040 001 250	4 X R0.1	4.8	25	65	6	
4CREG 025 001 200	2.5 X R0.1	3	20	50	4		4CREG 040 001 300	4 X R0.1	4.8	30	70	6	
4CREG 025 001 250	2.5 X R0.1	3	25	60	4		4CREG 040 001 350	4 X R0.1	4.8	35	75	6	
4CREG 025 001 300	2.5 X R0.1	3	30	70	4		4CREG 040 001 400	4 X R0.1	4.8	40	80	6	
4CREG 025 002 100	2.5 X R0.2	3	10	50	4		4CREG 040 001 450	4 X R0.1	4.8	45	90	6	
4CREG 025 002 160	2.5 X R0.2	3	16	50	4		4CREG 040 001 500	4 X R0.1	4.8	50	100	6	
4CREG 025 002 200	2.5 X R0.2	3	20	50	4		4CREG 040 002 050	4 X R0.2	4.8	12	50	4	
4CREG 025 002 250	2.5 X R0.2	3	25	60	4		4CREG 040 002 070	4 X R0.2	4.8	20	70	4	
4CREG 025 002 300	2.5 X R0.2	3	30	70	4		4CREG 040 002 120	4 X R0.2	4.8	12	50	6	
4CREG 025 003 100	2.5 X R0.3	3	10	50	4		4CREG 040 002 160	4 X R0.2	4.8	16	55	6	
4CREG 025 003 160	2.5 X R0.3	3	16	50	4		4CREG 040 002 200	4 X R0.2	4.8	20	60	6	
4CREG 025 003 200	2.5 X R0.3	3	20	50	4		4CREG 040 002 250	4 X R0.2	4.8	25	65	6	
4CREG 025 003 250	2.5 X R0.3	3	25	60	4		4CREG 040 002 300	4 X R0.2	4.8	30	70	6	
4CREG 025 003 300	2.5 X R0.3	3	30	70	4		4CREG 040 002 350	4 X R0.2	4.8	35	75	6	
4CREG 025 005 100	2.5 X R0.5	3	10	50	4		4CREG 040 002 400	4 X R0.2	4.8	40	80	6	
4CREG 025 005 160	2.5 X R0.5	3	16	50	4		4CREG 040 002 450	4 X R0.2	4.8	45	90	6	
4CREG 025 005 200	2.5 X R0.5	3	20	50	4		4CREG 040 002 500	4 X R0.2	4.8	50	100	6	
4CREG 025 005 250	2.5 X R0.5	3	25	60	4		4CREG 040 003 050	4 X R0.3	4.8	12	50	4	
4CREG 025 005 300	2.5 X R0.5	3	30	70	4		4CREG 040 003 070	4 X R0.3	4.8	20	70	4	
4CREG 030 001 100	3 X R0.1	3.6	10	50	6		4CREG 040 003 120	4 X R0.3	4.8	12	50	6	
4CREG 030 001 160	3 X R0.1	3.6	16	55	6		4CREG 040 003 160	4 X R0.3	4.8	16	55	6	
4CREG 030 001 200	3 X R0.1	3.6	20	60	6		4CREG 040 003 200	4 X R0.3	4.8	20	60	6	
4CREG 030 001 250	3 X R0.1	3.6	25	65	6		4CREG 040 003 250	4 X R0.3	4.8	25	65	6	
4CREG 030 001 300	3 X R0.1	3.6	30	70	6		4CREG 040 003 300	4 X R0.3	4.8	30	70	6	
4CREG 030 001 350	3 X R0.1	3.6	35	75	6		4CREG 040 003 350	4 X R0.3	4.8	35	75	6	
4CREG 030 001 400	3 X R0.1	3.6	40	80	6		4CREG 040 003 400	4 X R0.3	4.8	40	80	6	
4CREG 030 001 500	3 X R0.1	3.6	50	100	6		4CREG 040 003 450	4 X R0.3	4.8	45	90	6	
4CREG 030 002 100	3 X R0.2	3.6	10	50	6		4CREG 040 003 500	4 X R0.3	4.8	50	100	6	
4CREG 030 002 160	3 X R0.2	3.6	16	55	6		4CREG 040 005 050	4 X R0.5	4.8	12	50	4	
4CREG 030 002 200	3 X R0.2	3.6	20	60	6		4CREG 040 005 070	4 X R0.5	4.8	20	70	4	
4CREG 030 002 250	3 X R0.2	3.6	25	65	6		4CREG 040 005 120	4 X R0.5	4.8	12	50	6	
4CREG 030 002 300	3 X R0.2	3.6	30	70	6		4CREG 040 005 160	4 X R0.5	4.8	16	55	6	
4CREG 030 002 350	3 X R0.2	3.6	35	75	6		4CREG 040 005 200	4 X R0.5	4.8	20	60	6	
4CREG 030 002 400	3 X R0.2	3.6	40	80	6		4CREG 040 005 250	4 X R0.5	4.8	25	65	6	
4CREG 030 002 500	3 X R0.2	3.6	50	100	6		4CREG 040 005 300	4 X R0.5	4.8	30	70	6	
4CREG 030 003 100	3 X R0.3	3.6	10	50	6		4CREG 040 005 350	4 X R0.5	4.8	35	75	6	
4CREG 030 003 160	3 X R0.3	3.6	16	55	6		4CREG 040 005 400	4 X R0.5	4.8	40	80	6	
4CREG 030 003 200	3 X R0.3	3.6	20	60	6		4CREG 040 005 450	4 X R0.5	4.8	45	90	6	
4CREG 030 003 250	3 X R0.3	3.6	25	65	6		4CREG 040 005 500	4 X R0.5	4.8	50	100	6	
4CREG 030 003 300	3 X R0.3	3.6	30	70	6		4CREG 040 010 050	4 X R1	4.8	12	50	4	
4CREG 030 003 350	3 X R0.3	3.6	35	75	6		4CREG 040 010 070	4 X R1	4.8	20	70	4	
4CREG 030 003 400	3 X R0.3	3.6	40	80	6		4CREG 040 010 120	4 X R1	4.8	12	50	6	
4CREG 030 003 500	3 X R0.3	3.6	50	100	6		4CREG 040 010 160	4 X R1	4.8	16	55	6	
4CREG 030 005 100	3 X R0.5	3.6	10	50	6		4CREG 040 010 200	4 X R1	4.8	20	60	6	
4CREG 030 005 160	3 X R0.5	3.6	16	55	6		4CREG 040 010 250	4 X R1	4.8	25	65	6	
4CREG 030 005 200	3 X R0.5	3.6	20	60	6		4CREG 040 010 300	4 X R1	4.8	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	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 040 010 350	4 X R1	4.8	35	75	6		4CREG 120 010 260	12 X R1	13	26	80	12	
4CREG 040 010 400	4 X R1	4.8	40	80	6		4CREG 120 010 400	12 X R1	13	40	110	12	
4CREG 040 010 450	4 X R1	4.8	45	90	6		4CREG 120 015 260	12 X R1.5	13	26	80	12	
4CREG 040 010 500	4 X R1	4.8	50	100	6		4CREG 120 015 400	12 X R1.5	13	40	110	12	
4CREG 050 001 150	5 X R0.1	6	15	55	6		4CREG 120 020 260	12 X R2	13	26	80	12	
4CREG 050 001 300	5 X R0.1	6	30	70	6		4CREG 120 030 260	12 X R3	13	26	80	12	
4CREG 050 001 400	5 X R0.1	6	40	80	6								
4CREG 050 001 500	5 X R0.1	6	50	100	6								
4CREG 050 002 150	5 X R0.2	6	15	55	6								
4CREG 050 002 300	5 X R0.2	6	30	70	6								
4CREG 050 002 400	5 X R0.2	6	40	80	6								
4CREG 050 002 500	5 X R0.2	6	50	100	6								
4CREG 050 003 150	5 X R0.3	6	15	55	6								
4CREG 050 003 300	5 X R0.3	6	30	70	6								
4CREG 050 003 400	5 X R0.3	6	40	80	6								
4CREG 050 003 500	5 X R0.3	6	50	100	6								
4CREG 050 005 150	5 X R0.5	6	15	55	6								
4CREG 050 005 300	5 X R0.5	6	30	70	6								
4CREG 050 005 400	5 X R0.5	6	40	80	6								
4CREG 050 005 500	5 X R0.5	6	50	100	6								
4CREG 050 010 150	5 X R1	6	15	55	6								
4CREG 050 010 300	5 X R1	6	30	70	6								
4CREG 050 010 400	5 X R1	6	40	80	6								
4CREG 050 010 500	5 X R1	6	50	100	6								
4CREG 060 001 200	6 X R0.1	7	20	60	6								
4CREG 060 001 400	6 X R0.1	7	40	80	6								
4CREG 060 001 500	6 X R0.1	7	50	100	6								
4CREG 060 002 200	6 X R0.2	7	20	60	6								
4CREG 060 002 400	6 X R0.2	7	40	80	6								
4CREG 060 002 500	6 X R0.2	7	50	100	6								
4CREG 060 003 200	6 X R0.3	7	20	60	6								
4CREG 060 003 400	6 X R0.3	7	40	80	6								
4CREG 060 003 500	6 X R0.3	7	50	100	6								
4CREG 060 005 200	6 X R0.5	7	20	60	6								
4CREG 060 005 400	6 X R0.5	7	40	80	6								
4CREG 060 005 500	6 X R0.5	7	50	100	6								
4CREG 060 010 200	6 X R1	7	20	60	6								
4CREG 060 010 400	6 X R1	7	40	80	6								
4CREG 060 010 500	6 X R1	7	50	100	6								
4CREG 060 015 200	6 X R1.5	7	20	60	6								
4CREG 060 015 400	6 X R1.5	7	40	80	6								
4CREG 060 015 500	6 X R1.5	7	50	100	6								
4CREG 080 002 220	8 X R0.2	9	22	65	8								
4CREG 080 003 220	8 X R0.3	9	22	65	8								
4CREG 080 005 220	8 X R0.5	9	22	65	8								
4CREG 080 005 400	8 X R0.5	9	40	100	8								
4CREG 080 010 220	8 X R1	9	22	65	8								
4CREG 080 010 400	8 X R1	9	40	100	8								
4CREG 080 015 220	8 X R1.5	9	22	65	8								
4CREG 080 015 400	8 X R1.5	9	40	100	8								
4CREG 080 020 220	8 X R2	9	22	65	8								
4CREG 100 002 240	10 X R0.2	11	24	70	10								
4CREG 100 003 240	10 X R0.3	11	24	70	10								
4CREG 100 005 240	10 X R0.5	11	24	70	10								
4CREG 100 005 400	10 X R0.5	11	40	100	10								
4CREG 100 010 240	10 X R1	11	24	70	10								
4CREG 100 010 400	10 X R1	11	40	100	10								
4CREG 100 015 240	10 X R1.5	11	24	70	10								
4CREG 100 015 400	10 X R1.5	11	40	100	10								
4CREG 100 020 240	10 X R2	11	24	70	10								
4CREG 100 025 240	10 X R2.5	11	24	70	10								
4CREG 120 003 260	12 X R0.3	13	26	80	12								
4CREG 120 005 260	12 X R0.5	13	26	80	12								
4CREG 120 005 400	12 X R0.5	13	40	110	12								



- 중저경도강 (HRC52이하), 프리하든강계열, 탄소강, 금형강등가공
- 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(0.5µm)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 flute length for wide range application.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

G series

2

WC
미립자

JCRO
Coating

R
± 0.005

R
± 0.01

R
± 0.015

35°
Helix Angle

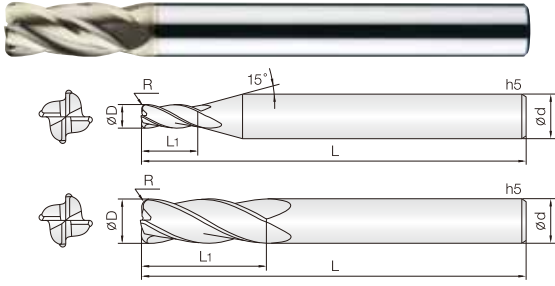
CUTTING
DATA

R0.05 ~ 0.5 R1 ~ 1.5 R2 ~ 5 371P

D Size	D Tolerance
Ø0.4 ~ 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 Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
2NCRG 004 0005 S04	0.4 X R0.05	0.8	45	4		2NCRG 040 010 060	4 X R1	9	60	4	
2NCRG 004 001 S04	0.4 X R0.1	0.8	45	4		2NCRG 040 010 080	4 X R1	9	80	4	
2NCRG 005 0005 S04	0.5 X R0.05	1	45	4		2NCRG 040 010 S06	4 X R1	10	70	6	
2NCRG 005 001 S04	0.5 X R0.1	1	45	4		2NCRG 050 001 S06	5 X R0.1	13	75	6	
2NCRG 006 0005 S04	0.6 X R0.05	1.2	45	4		2NCRG 050 002 S06	5 X R0.2	13	75	6	
2NCRG 006 001 S04	0.6 X R0.1	1.2	45	4		2NCRG 050 003 S06	5 X R0.3	13	75	6	
2NCRG 006 002 S04	0.6 X R0.2	1.2	45	4		2NCRG 050 005 S06	5 X R0.5	13	75	6	
2NCRG 007 0005 S04	0.7 X R0.05	1.4	45	4		2NCRG 050 010 S06	5 X R1	13	75	6	
2NCRG 007 001 S04	0.7 X R0.1	1.4	45	4		2NCRG 060 001 060	6 X R0.1	11	60	6	
2NCRG 007 002 S04	0.7 X R0.2	1.4	45	4		2NCRG 060 001 090	6 X R0.1	13	90	6	
2NCRG 008 0005 S04	0.8 X R0.05	1.6	45	4		2NCRG 060 002 060	6 X R0.2	11	60	6	
2NCRG 008 001 S04	0.8 X R0.1	1.6	45	4		2NCRG 060 002 090	6 X R0.2	13	90	6	
2NCRG 008 002 S04	0.8 X R0.2	1.6	45	4		2NCRG 060 003 060	6 X R0.3	11	60	6	
2NCRG 009 0005 S04	0.9 X R0.05	1.8	45	4		2NCRG 060 003 090	6 X R0.3	13	90	6	
2NCRG 009 001 S04	0.9 X R0.1	1.8	45	4		2NCRG 060 005 060	6 X R0.5	11	60	6	
2NCRG 010 001 S04	1 X R0.1	2.5	45	4		2NCRG 060 005 090	6 X R0.5	13	90	6	
2NCRG 010 002 S04	1 X R0.2	2.5	45	4		2NCRG 060 010 060	6 X R1	11	60	6	
2NCRG 010 003 S04	1 X R0.3	2.5	45	4		2NCRG 060 010 090	6 X R1	13	90	6	
2NCRG 012 001 S04	1.2 X R0.1	3.2	45	4		2NCRG 060 015 060	6 X R1.5	11	60	6	
2NCRG 012 002 S04	1.2 X R0.2	3.2	45	4		2NCRG 060 015 090	6 X R1.5	13	90	6	
2NCRG 012 003 S04	1.2 X R0.3	3.2	45	4		2NCRG 060 020 060	6 X R2	11	60	6	
2NCRG 015 001 S04	1.5 X R0.1	4	45	4		2NCRG 060 020 090	6 X R2	13	90	6	
2NCRG 015 002 S04	1.5 X R0.2	4	45	4		2NCRG 060 025 090	6 X R2.5	13	90	6	
2NCRG 015 003 S04	1.5 X R0.3	4	45	4		2NCRG 080 001 070	8 X R0.1	16	70	8	
2NCRG 015 005 S04	1.5 X R0.5	4	45	4		2NCRG 080 001 100	8 X R0.1	19	100	8	
2NCRG 020 001 S04	2 X R0.1	6	45	4		2NCRG 080 002 070	8 X R0.2	16	70	8	
2NCRG 020 002 S04	2 X R0.2	6	45	4		2NCRG 080 002 100	8 X R0.2	19	100	8	
2NCRG 020 003 S04	2 X R0.3	6	45	4		2NCRG 080 003 070	8 X R0.3	16	70	8	
2NCRG 020 005 S04	2 X R0.5	6	45	4		2NCRG 080 003 100	8 X R0.3	19	100	8	
2NCRG 025 001 S04	2.5 X R0.1	6	50	4		2NCRG 080 005 070	8 X R0.5	16	70	8	
2NCRG 025 002 S04	2.5 X R0.2	6	50	4		2NCRG 080 005 100	8 X R0.5	19	100	8	
2NCRG 025 003 S04	2.5 X R0.3	6	50	4		2NCRG 080 005 120	8 X R0.5	19	120	8	
2NCRG 025 005 S04	2.5 X R0.5	6	50	4		2NCRG 080 010 070	8 X R1	16	70	8	
2NCRG 030 001 S06	3 X R0.1	8	60	6		2NCRG 080 010 100	8 X R1	19	100	8	
2NCRG 030 002 S06	3 X R0.2	8	60	6		2NCRG 080 010 120	8 X R1	19	120	8	
2NCRG 030 003 S06	3 X R0.3	8	60	6		2NCRG 080 015 070	8 X R1.5	16	70	8	
2NCRG 030 005 S06	3 X R0.5	8	60	6		2NCRG 080 015 100	8 X R1.5	19	100	8	
2NCRG 030 010 S06	3 X R1	8	60	6		2NCRG 080 020 070	8 X R2	16	70	8	
2NCRG 040 001 060	4 X R0.1	9	60	4		2NCRG 080 020 100	8 X R2	19	100	8	
2NCRG 040 001 080	4 X R0.1	9	80	4		2NCRG 080 025 100	8 X R2.5	19	100	8	
2NCRG 040 001 S06	4 X R0.1	10	70	6		2NCRG 080 030 100	8 X R3	19	100	8	
2NCRG 040 002 060	4 X R0.2	9	60	4		2NCRG 080 035 100	8 X R3.5	19	100	8	
2NCRG 040 002 080	4 X R0.2	9	80	4		2NCRG 100 001 075	10 X R0.1	19	75	10	
2NCRG 040 002 S06	4 X R0.2	10	70	6		2NCRG 100 001 100	10 X R0.1	22	100	10	
2NCRG 040 003 060	4 X R0.3	9	60	4		2NCRG 100 002 075	10 X R0.2	19	75	10	
2NCRG 040 003 080	4 X R0.3	9	80	4		2NCRG 100 002 100	10 X R0.2	22	100	10	
2NCRG 040 003 S06	4 X R0.3	10	70	6		2NCRG 100 003 075	10 X R0.3	19	75	10	
2NCRG 040 005 060	4 X R0.5	9	60	4		2NCRG 100 003 100	10 X R0.3	22	100	10	
2NCRG 040 005 080	4 X R0.5	9	80	4		2NCRG 100 005 075	10 X R0.5	19	75	10	
2NCRG 040 005 S06	4 X R0.5	10	70	6		2NCRG 100 005 100	10 X R0.5	22	100	10	



- 중저경도강 (HRC52이하), 프리하드강계열, 탄소강, 금형강등가공
- 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(0.5µm)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 flute length for wide range application.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.

G series

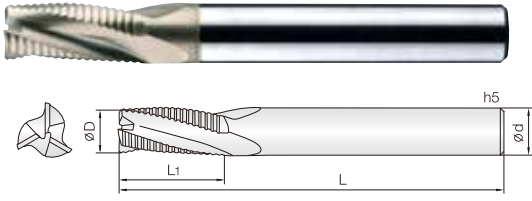


D Size	D Tolerance
ø1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

단위: mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	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
4NCRG 010 0005 S04	1 X R0.05	2.5	45	4		4NCRG 060 005 080	6 X R0.5	13	80	6	
4NCRG 010 001 S04	1 X R0.1	2.5	45	4		4NCRG 060 010 060	6 X R1	11	60	6	
4NCRG 010 002 S04	1 X R0.2	2.5	45	4		4NCRG 060 010 080	6 X R1	13	80	6	
4NCRG 010 003 S04	1 X R0.3	2.5	45	4		4NCRG 060 015 060	6 X R1.5	11	60	6	
4NCRG 015 0005 S04	1.5 X R0.05	4	45	4		4NCRG 060 015 080	6 X R1.5	13	80	6	
4NCRG 015 001 S04	1.5 X R0.1	4	45	4		4NCRG 060 020 060	6 X R2	11	60	6	
4NCRG 015 002 S04	1.5 X R0.2	4	45	4		4NCRG 060 020 080	6 X R2	13	80	6	
4NCRG 015 003 S04	1.5 X R0.3	4	45	4		4NCRG 080 001 070	8 X R0.1	16	70	8	
4NCRG 015 005 S04	1.5 X R0.5	4	45	4		4NCRG 080 001 090	8 X R0.1	19	90	8	
4NCRG 020 0005 S04	2 X R0.05	6	45	4		4NCRG 080 002 070	8 X R0.2	16	70	8	
4NCRG 020 001 S04	2 X R0.1	6	45	4		4NCRG 080 002 090	8 X R0.2	19	90	8	
4NCRG 020 002 S04	2 X R0.2	6	45	4		4NCRG 080 003 070	8 X R0.3	16	70	8	
4NCRG 020 003 S04	2 X R0.3	6	45	4		4NCRG 080 003 090	8 X R0.3	19	90	8	
4NCRG 020 005 S04	2 X R0.5	6	45	4		4NCRG 080 005 070	8 X R0.5	16	70	8	
4NCRG 025 001 S04	2.5 X R0.1	6	50	4		4NCRG 080 005 090	8 X R0.5	19	90	8	
4NCRG 025 002 S04	2.5 X R0.2	6	50	4		4NCRG 080 005 110	8 X R0.5	19	110	8	
4NCRG 025 003 S04	2.5 X R0.3	6	50	4		4NCRG 080 010 070	8 X R1	16	70	8	
4NCRG 025 005 S04	2.5 X R0.5	6	50	4		4NCRG 080 010 090	8 X R1	19	90	8	
4NCRG 030 001 S06	3 X R0.1	8	60	6		4NCRG 080 010 110	8 X R1	19	110	8	
4NCRG 030 002 S06	3 X R0.2	8	60	6		4NCRG 080 015 070	8 X R1.5	16	70	8	
4NCRG 030 003 S06	3 X R0.3	8	60	6		4NCRG 080 015 090	8 X R1.5	19	90	8	
4NCRG 030 005 S06	3 X R0.5	8	60	6		4NCRG 080 015 110	8 X R1.5	19	110	8	
4NCRG 030 010 S06	3 X R1	8	60	6		4NCRG 080 020 070	8 X R2	16	70	8	
4NCRG 040 001 060	4 X R0.1	9	60	4		4NCRG 080 020 090	8 X R2	19	90	8	
4NCRG 040 001 080	4 X R0.1	9	80	4		4NCRG 080 020 110	8 X R2	19	110	8	
4NCRG 040 001 S06	4 X R0.1	10	70	6		4NCRG 080 025 090	8 X R2.5	19	90	8	
4NCRG 040 002 060	4 X R0.2	9	60	4		4NCRG 100 001 075	10 X R0.1	19	75	10	
4NCRG 040 002 080	4 X R0.2	9	80	4		4NCRG 100 001 100	10 X R0.1	22	100	10	
4NCRG 040 002 S06	4 X R0.2	10	70	6		4NCRG 100 002 075	10 X R0.2	19	75	10	
4NCRG 040 003 060	4 X R0.3	9	60	4		4NCRG 100 002 100	10 X R0.2	22	100	10	
4NCRG 040 003 080	4 X R0.3	9	80	4		4NCRG 100 003 075	10 X R0.3	19	75	10	
4NCRG 040 003 S06	4 X R0.3	10	70	6		4NCRG 100 003 100	10 X R0.3	22	100	10	
4NCRG 040 005 060	4 X R0.5	9	60	4		4NCRG 100 005 075	10 X R0.5	19	75	10	
4NCRG 040 005 080	4 X R0.5	9	80	4		4NCRG 100 005 100	10 X R0.5	22	100	10	
4NCRG 040 005 S06	4 X R0.5	10	70	6		4NCRG 100 005 120	10 X R0.5	22	120	10	
4NCRG 040 010 060	4 X R1	9	60	4		4NCRG 100 010 075	10 X R1	19	75	10	
4NCRG 040 010 080	4 X R1	9	80	4		4NCRG 100 010 100	10 X R1	22	100	10	
4NCRG 040 010 S06	4 X R1	10	70	6		4NCRG 100 010 120	10 X R1	22	120	10	
4NCRG 050 001 S06	5 X R0.1	13	75	6		4NCRG 100 015 075	10 X R1.5	19	75	10	
4NCRG 050 002 S06	5 X R0.2	13	75	6		4NCRG 100 015 100	10 X R1.5	22	100	10	
4NCRG 050 003 S06	5 X R0.3	13	75	6		4NCRG 100 015 120	10 X R1.5	22	120	10	
4NCRG 050 005 S06	5 X R0.5	13	75	6		4NCRG 100 020 075	10 X R2	19	75	10	
4NCRG 050 010 S06	5 X R1	13	75	6		4NCRG 100 020 100	10 X R2	22	100	10	
4NCRG 060 001 060	6 X R0.1	11	60	6		4NCRG 100 020 120	10 X R2	22	120	10	
4NCRG 060 001 080	6 X R0.1	13	80	6		4NCRG 100 025 075	10 X R2.5	19	75	10	
4NCRG 060 002 060	6 X R0.2	11	60	6		4NCRG 100 025 100	10 X R2.5	22	100	10	
4NCRG 060 002 080	6 X R0.2	13	80	6		4NCRG 100 025 120	10 X R2.5	22	120	10	
4NCRG 060 003 060	6 X R0.3	11	60	6		4NCRG 100 030 100	10 X R3	22	100	10	
4NCRG 060 003 080	6 X R0.3	13	80	6		4NCRG 120 002 080	12 X R0.2	22	80	12	
4NCRG 060 005 060	6 X R0.5	11	60	6		4NCRG 120 002 110	12 X R0.2	26	110	12	

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 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.
- Maximize work efficiency by high speed machining.
- Minimize fracturing at high feed by high TRS fine WC grade.

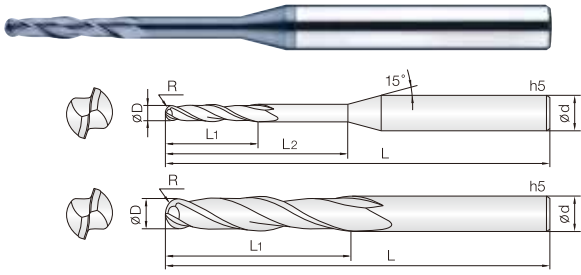
G series

3 4 **WC** 미립자 **JCRO** Coating **DI** -0.02-0.04 **DI** -0.02-0.05 **35°** Helix Angle **Shield Edge** **CUTTING DATA** 372P

D Size	D Tolerance
Ø 4 ~ 9	-0.02 ~ -0.04mm
Ø 10 ~ 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	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							



- 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.



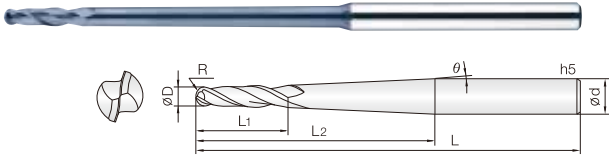
0.25 ~ 2.5R 3R ~ 6R 8R ~ 12.5R

374P

D Size	D Tolerance
Ø 0.5 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 16 ~ 25	-0.01 ~ -0.02mm

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
2GBE 005 020 S04	0.25R X 0.5	2	-	50	4		2GBE 050 250 S06	2.5R X 5	25	-	90	6	
2GBE 005 050 S04	0.25R X 0.5	2	5	50	4		2GBE 050 500 S06	2.5R X 5	25	50	110	6	
2GBE 010 050 S04	0.5R X 1	5	-	60	4		2GBE 060 250 110	3R X 6	25	-	110	6	
2GBE 010 050 S06	0.5R X 1	5	-	60	6		2GBE 060 300 150	3R X 6	30	-	150	6	
2GBE 010 100 S04	0.5R X 1	5	10	60	4		2GBE 060 300 200	3R X 6	30	-	200	6	
2GBE 010 100 S06	0.5R X 1	5	10	60	6		2GBE 060 300 220	3R X 6	30	-	220	6	
2GBE 010 150 S04	0.5R X 1	5	15	60	4		2GBE 080 350 110	4R X 8	35	-	110	8	
2GBE 010 200 S04	0.5R X 1	5	20	60	4		2GBE 080 400 150	4R X 8	40	-	150	8	
2GBE 010 250 S04	0.5R X 1	5	25	70	4		2GBE 080 400 200	4R X 8	40	-	200	8	
2GBE 010 300 S04	0.5R X 1	5	30	80	4		2GBE 080 400 220	4R X 8	40	-	220	8	
2GBE 010 350 S04	0.5R X 1	5	35	80	4		2GBE 100 400 120	5R X 10	40	-	120	10	
2GBE 010 400 S04	0.5R X 1	5	40	90	4		2GBE 100 450 150	5R X 10	45	-	150	10	
2GBE 015 080 S06	0.75R X 1.5	8	-	60	6		2GBE 100 450 200	5R X 10	45	-	200	10	
2GBE 015 100 S04	0.75R X 1.5	8	10	60	4		2GBE 100 450 230	5R X 10	45	-	230	10	
2GBE 015 150 S04	0.75R X 1.5	8	15	60	4		2GBE 120 500 130	6R X 12	50	-	130	12	
2GBE 015 150 S06	0.75R X 1.5	8	15	60	6		2GBE 120 500 150	6R X 12	50	-	150	12	
2GBE 015 200 S04	0.75R X 1.5	8	20	60	4		2GBE 120 550 200	6R X 12	55	-	200	12	
2GBE 015 250 S04	0.75R X 1.5	8	25	70	4		2GBE 120 550 250	6R X 12	55	-	250	12	
2GBE 015 300 S04	0.75R X 1.5	8	30	80	4		2GBE 160 600 160	8R X 16	60	-	160	16	
2GBE 015 350 S04	0.75R X 1.5	8	35	80	4		2GBE 160 650 200	8R X 16	65	-	200	16	
2GBE 015 400 S04	0.75R X 1.5	8	40	90	4		2GBE 160 650 250	8R X 16	65	-	250	16	
2GBE 020 100 S04	1R X 2	10	-	60	4		2GBE 160 700 320	8R X 16	70	-	320	16	
2GBE 020 100 S06	1R X 2	10	-	70	6		2GBE 200 700 160	10R X 20	70	-	160	20	
2GBE 020 150 S04	1R X 2	10	15	60	4		2GBE 200 750 200	10R X 20	75	-	200	20	
2GBE 020 200 S04	1R X 2	10	20	60	4		2GBE 200 750 250	10R X 20	75	-	250	20	
2GBE 020 200 S06	1R X 2	10	20	70	6		2GBE 200 900 320	10R X 20	90	-	320	20	
2GBE 020 250 S04	1R X 2	10	25	70	4		2GBE 250 1000 250	12.5R X 25	100	-	250	25	
2GBE 020 300 S04	1R X 2	10	30	80	4								
2GBE 020 350 S04	1R X 2	10	35	80	4								
2GBE 020 400 S04	1R X 2	10	40	90	4								
2GBE 020 500 S04	1R X 2	10	50	100	4								
2GBE 020 600 S04	1R X 2	10	60	100	4								
2GBE 025 200 S04	1.25R X 2.5	10	20	70	4								
2GBE 030 150 100	1.5R X 3	15	-	100	3								
2GBE 030 150 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								
2GBE 050 250 100	2.5R X 5	25	-	100	5								
2GBE 050 250 130	2.5R X 5	25	-	130	5								



- 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.

2

WC
미립자

ALTIN
Coating

R
± 0.005

R
± 0.01

30°
Helix Angle

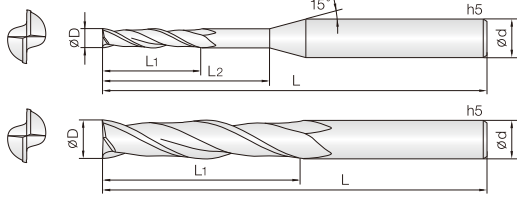
CUTTING
DATA

0.5R~2.5R 3R~6R 375P

D Size	D Tolerance
Ø 1 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 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	샤프크 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	샤프크 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									



- 그래파이트(흑연), HRC48 이하의고경도강, 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 HRC48 이하의 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

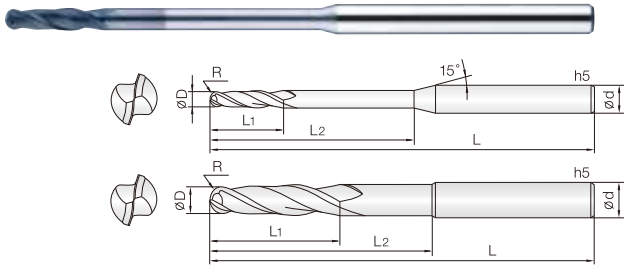
376P

D Size	D Tolerance
Ø 0.5 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 16 ~ 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
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



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철, 비금속 계열의 다양한 피삭재 전용 엔드밀
- CVD 순수다이아몬드코팅을적용하여내마모성이우수합니다.
- 다양한피삭재의형상에적용하도록규격을다양화하여, 넓은가공 영역에뛰어난수명과성능을발휘합니다.

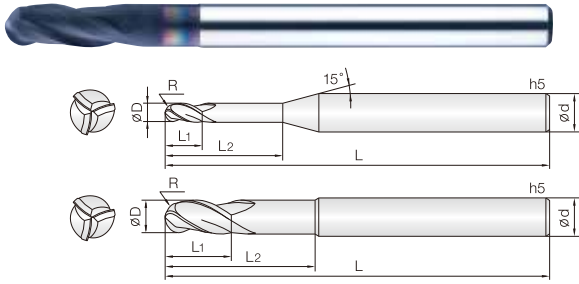
- Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.
- Excellent wear resistance by applying qualified CVD diamond coating.
- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
ø 0.2 ~ 12	+0 ~ -0.02mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DBE 002 010 S04	0.1R X 0.2	1	-	45	4		2DBE 010 500 S04	0.5R X 1	3	50	80	4	
2DBE 003 012 S04	0.15R X 0.3	1.2	-	45	4		2DBE 015 045 S04	0.75R X 1.5	4.5	-	60	4	
2DBE 003 020 S04	0.15R X 0.3	1.2	2	45	4		2DBE 015 080 S04	0.75R X 1.5	4.5	8	80	4	
2DBE 004 015 S04	0.2R X 0.4	1.5	-	45	4		2DBE 015 100 S04	0.75R X 1.5	4.5	10	80	4	
2DBE 004 020 S04	0.2R X 0.4	1.5	2	45	4		2DBE 015 120 S04	0.75R X 1.5	4.5	12	80	4	
2DBE 004 030 S04	0.2R X 0.4	1.5	3	45	4		2DBE 015 150 S04	0.75R X 1.5	4.5	15	80	4	
2DBE 004 040 S04	0.2R X 0.4	1.5	4	45	4		2DBE 015 180 S04	0.75R X 1.5	4.5	18	80	4	
2DBE 004 050 S04	0.2R X 0.4	1.5	5	45	4		2DBE 015 200 S04	0.75R X 1.5	4.5	20	80	4	
2DBE 004 080 S04	0.2R X 0.4	1.5	8	45	4		2DBE 015 250 S04	0.75R X 1.5	4.5	25	80	4	
2DBE 004 100 S04	0.2R X 0.4	1.5	10	45	4		2DBE 015 300 S04	0.75R X 1.5	4.5	30	80	4	
2DBE 005 020 S04	0.25R X 0.5	2	-	45	4		2DBE 015 350 S04	0.75R X 1.5	4.5	35	80	4	
2DBE 005 030 S04	0.25R X 0.5	2	3	45	4		2DBE 015 400 S04	0.75R X 1.5	4.5	40	80	4	
2DBE 005 040 S04	0.25R X 0.5	2	4	45	4		2DBE 020 060 S04	1R X 2	6	-	60	4	
2DBE 005 050 S04	0.25R X 0.5	2	5	45	4		2DBE 020 100 S04	1R X 2	6	10	80	4	
2DBE 005 060 S04	0.25R X 0.5	2	6	45	4		2DBE 020 150 S04	1R X 2	6	15	80	4	
2DBE 005 080 S04	0.25R X 0.5	2	8	45	4		2DBE 020 200 S04	1R X 2	6	20	80	4	
2DBE 005 100 S04	0.25R X 0.5	2	10	45	4		2DBE 020 250 S04	1R X 2	6	25	80	4	
2DBE 005 120 S04	0.25R X 0.5	2	12	45	4		2DBE 020 300 S04	1R X 2	6	30	80	4	
2DBE 006 020 S04	0.3R X 0.6	2	-	45	4		2DBE 020 350 S04	1R X 2	6	35	80	4	
2DBE 006 030 S04	0.3R X 0.6	2	3	45	4		2DBE 020 400 S04	1R X 2	6	40	100	4	
2DBE 006 040 S04	0.3R X 0.6	2	4	45	4		2DBE 020 450 S04	1R X 2	6	45	100	4	
2DBE 006 050 S04	0.3R X 0.6	2	5	45	4		2DBE 020 500 S04	1R X 2	6	50	100	4	
2DBE 006 060 S04	0.3R X 0.6	2	6	45	4		2DBE 020 600 S04	1R X 2	6	60	100	4	
2DBE 006 080 S04	0.3R X 0.6	2	8	45	4		2DBE 020 700 S04	1R X 2	6	70	100	4	
2DBE 006 100 S04	0.3R X 0.6	2	10	45	4		2DBE 030 150 100	1.5R X 3	8	15	100	3	
2DBE 006 120 S04	0.3R X 0.6	2	12	45	4		2DBE 030 080 S04	1.5R X 3	8	-	60	4	
2DBE 006 150 S04	0.3R X 0.6	2	15	45	4		New 2DBE 030 080 S06	1.5R X 3	3	8	60	6	
2DBE 006 200 S04	0.3R X 0.6	2	20	45	4		2DBE 030 150 S04	1.5R X 3	8	15	100	4	
2DBE 008 030 S04	0.4R X 0.8	3	-	45	4		2DBE 030 200 S04	1.5R X 3	8	20	100	4	
2DBE 008 040 S04	0.4R X 0.8	3	4	45	4		2DBE 030 250 S04	1.5R X 3	8	25	100	4	
2DBE 008 050 S04	0.4R X 0.8	3	5	45	4		2DBE 030 300 S04	1.5R X 3	8	30	100	4	
2DBE 008 060 S04	0.4R X 0.8	3	6	45	4		2DBE 030 350 S04	1.5R X 3	8	35	100	4	
2DBE 008 080 S04	0.4R X 0.8	3	8	45	4		2DBE 030 400 S04	1.5R X 3	8	40	100	4	
2DBE 008 100 S04	0.4R X 0.8	3	10	45	4		2DBE 030 500 S04	1.5R X 3	8	50	100	4	
2DBE 008 150 S04	0.4R X 0.8	3	15	45	4		2DBE 030 600 S04	1.5R X 3	8	60	100	4	
2DBE 008 200 S04	0.4R X 0.8	3	20	45	4		2DBE 030 700 S04	1.5R X 3	8	70	100	4	
2DBE 010 030 S04	0.5R X 1	3	-	60	4		2DBE 040 040 060	2R X 4	4	-	60	4	
2DBE 010 040 S04	0.5R X 1	3	4	60	4		2DBE 040 160 060	2R X 4	16	-	60	4	
2DBE 010 050 S04	0.5R X 1	3	5	60	4		2DBE 040 160 080	2R X 4	16	-	80	4	
2DBE 010 060 S04	0.5R X 1	3	6	60	4		2DBE 040 300 080	2R X 4	16	30	80	4	
2DBE 010 080 S04	0.5R X 1	3	8	60	4		2DBE 040 160 100	2R X 4	16	-	100	4	
2DBE 010 100 S04	0.5R X 1	3	10	60	4		2DBE 040 400 100	2R X 4	16	40	100	4	
2DBE 010 120 S04	0.5R X 1	3	12	60	4		2DBE 040 160 130	2R X 4	16	-	130	4	
2DBE 010 150 S04	0.5R X 1	3	15	60	4		2DBE 040 400 130	2R X 4	16	40	130	4	
2DBE 010 200 S04	0.5R X 1	3	20	60	4		2DBE 040 160 150	2R X 4	16	-	150	4	
2DBE 010 250 S04	0.5R X 1	3	25	80	4		2DBE 040 500 150	2R X 4	16	50	150	4	
2DBE 010 300 S04	0.5R X 1	3	30	80	4		2DBE 050 160 110	2.5R X 5	16	-	110	5	
2DBE 010 350 S04	0.5R X 1	3	35	80	4		2DBE 050 400 110	2.5R X 5	16	40	110	5	
2DBE 010 400 S04	0.5R X 1	3	40	80	4		2DBE 050 200 S06	2.5R X 5	16	20	110	6	
2DBE 010 450 S04	0.5R X 1	3	45	80	4		2DBE 050 400 S06	2.5R X 5	16	40	110	6	



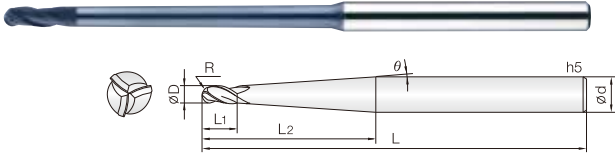
- 그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
- CVD 순수 다이아몬드 코팅을 적용하여 내마모성이 우수합니다.
- 다양한 피삭재의 형상에 적용하도록 규격을 다양화하여, 넓은 가공 영역에 뛰어난 수명과 성능을 발휘합니다.
- Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.
- Excellent wear resistance by applying qualified CVD diamond coating.
- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
ø 1 ~ 12	+0 ~ -0.02mm

단위: mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3DBE 010 030 S04	0.5R X 1	3	-	60	4		3DBE 060 500 150	3R X 6	16	50	150	6	
3DBE 010 050 S04	0.5R X 1	3	5	60	4		3DBE 060 500 180	3R X 6	16	50	180	6	
3DBE 010 100 S04	0.5R X 1	3	10	60	4		3DBE 080 400 110	4R X 8	20	40	110	8	
3DBE 010 150 S04	0.5R X 1	3	15	60	4		3DBE 080 500 150	4R X 8	20	50	150	8	
3DBE 010 200 S04	0.5R X 1	3	20	60	4		3DBE 100 400 110	5R X 10	22	40	110	10	
3DBE 010 250 S04	0.5R X 1	3	25	80	4		3DBE 100 600 160	5R X 10	22	60	160	10	
3DBE 010 300 S04	0.5R X 1	3	30	80	4		3DBE 120 500 110	6R X 12	25	50	110	12	
3DBE 010 350 S04	0.5R X 1	3	35	80	4		3DBE 120 500 160	6R X 12	25	50	160	12	
3DBE 010 400 S04	0.5R X 1	3	40	80	4		3DBE 120 600 200	6R X 12	25	60	200	12	
3DBE 010 450 S04	0.5R X 1	3	45	80	4								
3DBE 010 500 S04	0.5R X 1	3	50	80	4								
3DBE 015 045 S04	0.75R X 1.5	4.5	-	60	4								
3DBE 015 100 S04	0.75R X 1.5	4.5	10	80	4								
3DBE 015 150 S04	0.75R X 1.5	4.5	15	80	4								
3DBE 015 200 S04	0.75R X 1.5	4.5	20	80	4								
3DBE 015 250 S04	0.75R X 1.5	4.5	25	80	4								
3DBE 015 300 S04	0.75R X 1.5	4.5	30	80	4								
3DBE 015 350 S04	0.75R X 1.5	4.5	35	80	4								
3DBE 015 400 S04	0.75R X 1.5	4.5	40	80	4								
3DBE 015 450 S04	0.75R X 1.5	4.5	45	80	4								
3DBE 015 500 S04	0.75R X 1.5	4.5	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	100	4								
3DBE 020 500 S04	1R X 2	6	50	100	4								
3DBE 020 600 S04	1R X 2	6	60	100	4								
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								
3DBE 050 160 110	2.5R X 5	16	-	110	5								
3DBE 050 400 110	2.5R X 5	16	40	110	5								
3DBE 060 250 110	3R X 6	16	25	110	6								
3DBE 060 400 110	3R X 6	16	40	110	6								
3DBE 060 300 150	3R X 6	16	30	150	6								



- 그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
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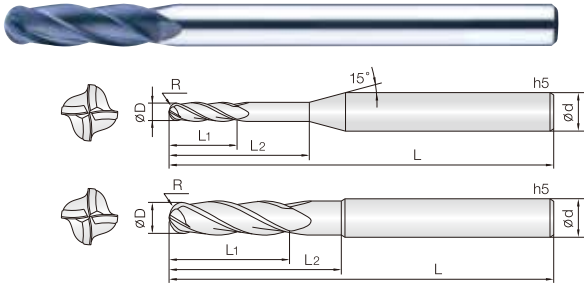


D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.04mm

단위: mm

Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter R × D	각도 Angle θ	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
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



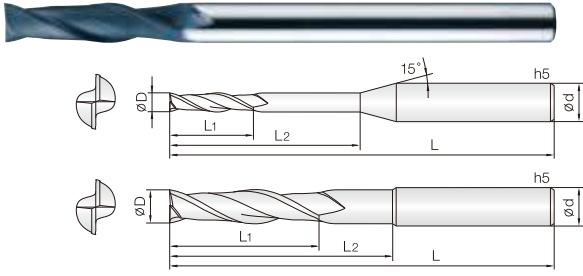
- 그라파이트(흑연), 강화플라스틱, 탄소섬유 등 비철, 비금속 계열의 다양한 피삭재 전용 엔드밀
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D Size	D Tolerance
ø1 ~ 12	+0 ~ -0.02mm

단위: mm

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



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철,비금속 계열의 다양한 피삭재 전용 엔드밀
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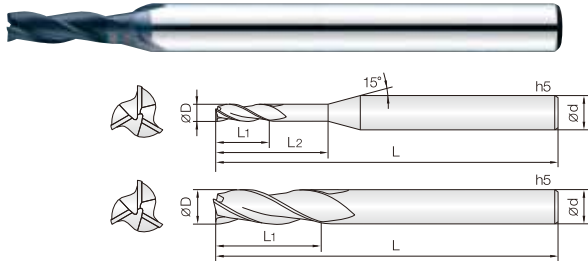


D Size	D Tolerance
Ø 0.2 ~ 12	+0 ~ -0.02mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샹크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샹크 Shank Dia d	비고
2DEM 002 004 S04	0.2	0.4	-	45	4		2DEM 040 120 S06	4	12	-	50	6	
2DEM 003 006 S04	0.3	0.6	-	45	4		2DEM 040 160 080	4	16	-	80	4	
2DEM 003 020 S04	0.3	0.6	2	45	4		2DEM 050 150 S06	5	15	-	60	6	
2DEM 003 040 S04	0.3	0.6	4	45	4		2DEM 050 200 S06	5	20	-	110	6	
2DEM 004 008 S04	0.4	0.8	-	45	4		2DEM 060 180 S06	6	18	-	60	6	
2DEM 004 020 S04	0.4	0.8	2	45	4		2DEM 060 250 110	6	25	-	110	6	
2DEM 004 040 S04	0.4	0.8	4	45	4		2DEM 060 250 150	6	25	-	150	6	
2DEM 005 010 S04	0.5	1	-	45	4		2DEM 080 240 S08	8	24	-	70	8	
2DEM 005 030 S04	0.5	1	3	45	4		2DEM 080 400 150	8	25	40	150	8	
2DEM 005 050 S04	0.5	1	5	45	4		2DEM 100 250 S10	10	25	-	80	10	
2DEM 006 012 S04	0.6	1.2	-	45	4		2DEM 100 500 160	10	25	50	160	10	
2DEM 006 030 S04	0.6	1.2	3	45	4		2DEM 120 250 S12	12	25	-	80	12	
2DEM 006 050 S04	0.6	1.2	5	45	4		2DEM 120 600 160	12	25	60	160	12	
2DEM 007 015 S04	0.7	1.5	-	45	4								
2DEM 007 040 S04	0.7	1.5	4	45	4								
2DEM 007 060 S04	0.7	1.5	6	45	4								
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 010 030 045	1	3	-	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								
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								
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								
2DEM 020 450 S04	2	8	45	80	4								
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								
2DEM 030 400 S04	3	12	40	80	4								
2DEM 030 500 S04	3	12	50	80	4								

FOR GRAPHITE



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철, 비금속 계열의 다양한 피삭재 전용 엔드밀
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2

WC
마립자

DIA.
Coating

DI
+0 -0.02

30°
Helix Angle

Shield Edge

CUTTING
DATA

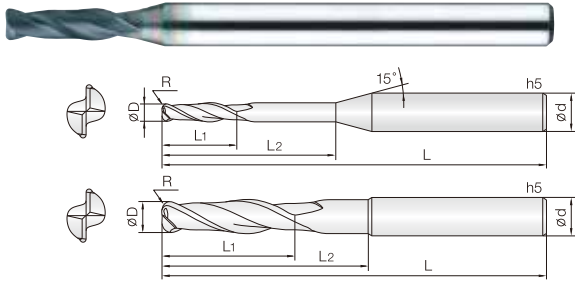
ø 1 ~ ø 12 377P

D Size	D Tolerance
ø 1 ~ 12	+0 ~ -0.02mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
3DEM 010 030 S04	1	3	-	45	4								
3DEM 010 050 S04	1	3	5	45	4								
3DEM 010 100 S04	1	3	10	45	4								
3DEM 010 150 S04	1	3	15	45	4								
3DEM 015 060 S04	1.5	6	-	60	4								
3DEM 015 100 S04	1.5	6	10	60	4								
3DEM 015 150 S04	1.5	6	15	60	4								
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								
3DEM 020 150 S04	2	10	15	60	4								
3DEM 020 200 S04	2	10	20	60	4								
3DEM 020 250 S04	2	10	25	60	4								
3DEM 030 090 S06	3	9	-	50	6								
3DEM 030 150 S03	3	15	-	60	3								
3DEM 030 150 S04	3	15	-	60	4								
3DEM 030 200 S04	3	15	20	60	4								
3DEM 030 250 S04	3	15	25	60	4								
3DEM 040 120 S06	4	12	-	50	6								
3DEM 040 200 080	4	20	-	80	4								
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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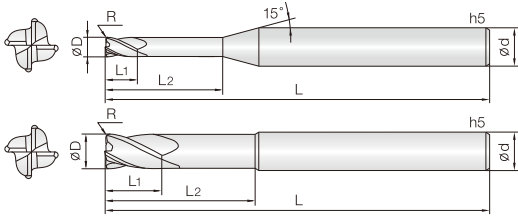
D Size	D Tolerance
ø0.2 ~ 6	+0 ~ -0.02mm

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
2DCR 002 0002 015	0.2 X R0.02	0.5	1.5	60	4		2DCR 015 0015 030	1.5 X R0.15	3	-	60	4	
2DCR 003 0002 015	0.3 X R0.02	0.6	1.5	60	4		2DCR 015 0015 050	1.5 X R0.15	3	5	60	4	
2DCR 003 0002 030	0.3 X R0.02	0.6	3	60	4		2DCR 015 0015 100	1.5 X R0.15	3	10	60	4	
2DCR 003 0002 045	0.3 X R0.02	0.6	4.5	60	4		2DCR 015 0015 150	1.5 X R0.15	3	15	60	4	
2DCR 003 0002 060	0.3 X R0.02	0.6	6	60	4		2DCR 015 0015 200	1.5 X R0.15	3	20	60	4	
2DCR 004 0002 020	0.4 X R0.02	0.8	2	60	4		2DCR 015 002 030	1.5 X R0.2	3	-	60	4	
2DCR 004 0002 040	0.4 X R0.02	0.8	4	60	4		2DCR 015 002 050	1.5 X R0.2	3	5	60	4	
2DCR 004 0002 060	0.4 X R0.02	0.8	6	60	4		2DCR 015 002 100	1.5 X R0.2	3	10	60	4	
2DCR 004 0002 080	0.4 X R0.02	0.8	8	60	4		2DCR 015 002 150	1.5 X R0.2	3	15	60	4	
2DCR 005 0005 010	0.5 X R0.05	1	-	60	4		2DCR 015 002 200	1.5 X R0.2	3	20	60	4	
2DCR 005 0005 025	0.5 X R0.05	1	2.5	60	4		2DCR 015 003 030	1.5 X R0.3	3	-	60	4	
2DCR 005 0005 035	0.5 X R0.05	1	3.5	60	4		2DCR 015 003 050	1.5 X R0.3	3	5	60	4	
2DCR 005 0005 050	0.5 X R0.05	1	5	60	4		2DCR 015 003 100	1.5 X R0.3	3	10	60	4	
2DCR 005 0005 075	0.5 X R0.05	1	7.5	60	4		2DCR 015 003 150	1.5 X R0.3	3	15	60	4	
2DCR 005 0005 100	0.5 X R0.05	1	10	60	4		2DCR 015 003 200	1.5 X R0.3	3	20	60	4	
2DCR 006 0005 012	0.6 X R0.05	1.2	-	60	4		2DCR 020 0005 035	2 X R0.05	3.5	-	60	4	
2DCR 006 0005 030	0.6 X R0.05	1.2	3	60	4		2DCR 020 0005 060	2 X R0.05	3.5	6	60	4	
2DCR 006 0005 060	0.6 X R0.05	1.2	6	60	4		2DCR 020 0005 120	2 X R0.05	3.5	12	60	4	
2DCR 006 0005 090	0.6 X R0.05	1.2	9	60	4		2DCR 020 0005 180	2 X R0.05	3.5	18	60	4	
2DCR 006 0005 120	0.6 X R0.05	1.2	12	60	4		2DCR 020 0005 250	2 X R0.05	3.5	25	60	4	
2DCR 008 0005 016	0.8 X R0.05	1.6	-	60	4		2DCR 020 0005 300	2 X R0.05	3.5	30	60	4	
2DCR 008 0005 040	0.8 X R0.05	1.6	4	60	4		2DCR 020 002 035	2 X R0.2	3.5	-	60	4	
2DCR 008 0005 080	0.8 X R0.05	1.6	8	60	4		2DCR 020 002 060	2 X R0.2	3.5	6	60	4	
2DCR 008 0005 100	0.8 X R0.05	1.6	10	60	4		2DCR 020 002 120	2 X R0.2	3.5	12	60	4	
2DCR 008 0005 160	0.8 X R0.05	1.6	16	60	4		2DCR 020 002 180	2 X R0.2	3.5	18	60	4	
2DCR 010 0005 020	1 X R0.05	2	-	60	4		2DCR 020 002 250	2 X R0.2	3.5	25	60	4	
2DCR 010 0005 050	1 X R0.05	2	5	60	4		2DCR 020 002 300	2 X R0.2	3.5	30	60	4	
2DCR 010 0005 100	1 X R0.05	2	10	60	4		2DCR 020 003 035	2 X R0.3	3.5	-	60	4	
2DCR 010 0005 150	1 X R0.05	2	15	60	4		2DCR 020 003 060	2 X R0.3	3.5	6	60	4	
2DCR 010 0005 200	1 X R0.05	2	20	60	4		2DCR 020 003 120	2 X R0.3	3.5	12	60	4	
2DCR 010 001 020	1 X R0.1	2	-	60	4		2DCR 020 003 180	2 X R0.3	3.5	18	60	4	
2DCR 010 001 050	1 X R0.1	2	5	60	4		2DCR 020 003 250	2 X R0.3	3.5	25	60	4	
2DCR 010 001 100	1 X R0.1	2	10	60	4		2DCR 020 003 300	2 X R0.3	3.5	30	60	4	
2DCR 010 001 150	1 X R0.1	2	15	60	4		2DCR 020 005 035	2 X R0.5	3.5	-	60	4	
2DCR 010 001 200	1 X R0.1	2	20	60	4		2DCR 020 005 060	2 X R0.5	3.5	6	60	4	
2DCR 010 002 020	1 X R0.2	2	-	60	4		2DCR 020 005 120	2 X R0.5	3.5	12	60	4	
2DCR 010 002 050	1 X R0.2	2	5	60	4		2DCR 020 005 180	2 X R0.5	3.5	18	60	4	
2DCR 010 002 100	1 X R0.2	2	10	60	4		2DCR 020 005 250	2 X R0.5	3.5	25	60	4	
2DCR 010 002 150	1 X R0.2	2	15	60	4		2DCR 020 005 300	2 X R0.5	3.5	30	60	4	
2DCR 010 002 200	1 X R0.2	2	20	60	4		2DCR 030 0005 040	3 X R0.05	4	-	80	4	
2DCR 015 0005 030	1.5 X R0.05	3	-	60	4		2DCR 030 0005 100	3 X R0.05	4	10	80	4	
2DCR 015 0005 050	1.5 X R0.05	3	5	60	4		2DCR 030 0005 200	3 X R0.05	4	20	80	4	
2DCR 015 0005 100	1.5 X R0.05	3	10	60	4		2DCR 030 0005 300	3 X R0.05	4	30	80	4	
2DCR 015 0005 150	1.5 X R0.05	3	15	60	4		2DCR 030 0005 400	3 X R0.05	4	40	80	4	
2DCR 015 0005 200	1.5 X R0.05	3	20	60	4		2DCR 030 002 040	3 X R0.2	4	-	80	4	
2DCR 015 001 030	1.5 X R0.1	3	-	60	4		2DCR 030 002 100	3 X R0.2	4	10	80	4	
2DCR 015 001 050	1.5 X R0.1	3	5	60	4		2DCR 030 002 200	3 X R0.2	4	20	80	4	
2DCR 015 001 100	1.5 X R0.1	3	10	60	4		2DCR 030 002 300	3 X R0.2	4	30	80	4	
2DCR 015 001 150	1.5 X R0.1	3	15	60	4		2DCR 030 002 400	3 X R0.2	4	40	80	4	
2DCR 015 001 200	1.5 X R0.1	3	20	60	4		2DCR 030 003 040	3 X R0.3	4	-	80	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
2DCR 030 003 100	3 X R0.3	4	10	80	4		2DCR 060 005 070	6 X R0.5	7	-	110	6	
2DCR 030 003 200	3 X R0.3	4	20	80	4		2DCR 060 005 200	6 X R0.5	7	20	110	6	
2DCR 030 003 300	3 X R0.3	4	30	80	4		2DCR 060 005 300	6 X R0.5	7	30	110	6	
2DCR 030 003 400	3 X R0.3	4	40	80	4		2DCR 060 005 500	6 X R0.5	7	50	110	6	
2DCR 030 005 040	3 X R0.5	4	-	80	4		2DCR 060 010 070	6 X R1	7	-	110	6	
2DCR 030 005 100	3 X R0.5	4	10	80	4		2DCR 060 010 200	6 X R1	7	20	110	6	
2DCR 030 005 200	3 X R0.5	4	20	80	4		2DCR 060 010 300	6 X R1	7	30	110	6	
2DCR 030 005 300	3 X R0.5	4	30	80	4		2DCR 060 010 500	6 X R1	7	50	110	6	
2DCR 030 005 400	3 X R0.5	4	40	80	4								
2DCR 030 010 040	3 X R1	4	-	80	4								
2DCR 030 010 100	3 X R1	4	10	80	4								
2DCR 030 010 200	3 X R1	4	20	80	4								
2DCR 030 010 300	3 X R1	4	30	80	4								
2DCR 030 010 400	3 X R1	4	40	80	4								
2DCR 040 0005 050	4 X R0.05	5	-	80	4								
2DCR 040 0005 150	4 X R0.05	5	15	80	4								
2DCR 040 0005 250	4 X R0.05	5	25	80	4								
2DCR 040 0005 400	4 X R0.05	5	40	80	4								
2DCR 040 002 050	4 X R0.2	5	-	80	4								
2DCR 040 002 150	4 X R0.2	5	15	80	4								
2DCR 040 002 250	4 X R0.2	5	25	80	4								
2DCR 040 002 400	4 X R0.2	5	40	80	4								
2DCR 040 005 050	4 X R0.5	5	-	80	4								
2DCR 040 005 150	4 X R0.5	5	15	80	4								
2DCR 040 005 250	4 X R0.5	5	25	80	4								
2DCR 040 005 400	4 X R0.5	5	40	80	4								
2DCR 040 010 050	4 X R1	5	-	80	4								
2DCR 040 010 150	4 X R1	5	15	80	4								
2DCR 040 010 250	4 X R1	5	25	80	4								
2DCR 040 010 400	4 X R1	5	40	80	4								
2DCR 050 0005 060	5 X R0.05	6	-	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								
2DCR 060 0005 300	6 X R0.05	7	30	110	6								
2DCR 060 0005 500	6 X R0.05	7	50	110	6								
2DCR 060 002 070	6 X R0.2	7	-	110	6								
2DCR 060 002 200	6 X R0.2	7	20	110	6								
2DCR 060 002 300	6 X R0.2	7	30	110	6								
2DCR 060 002 500	6 X R0.2	7	50	110	6								



- 그래파이트(흑연), 강화플라스틱, 탄소섬유 등 비철, 비금속 계열의 다양한 피삭재 전용 엔드밀
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4

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R0.05 ~ 1 376P

D Size	D Tolerance
Ø 2 ~ 12	+0 ~ -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
4DCR 020 0005 035	2 X R0.05	3.5	-	60	4		4DCR 040 005 100	4 X R0.5	6	20	100	4	
4DCR 020 0005 060	2 X R0.05	3.5	6	60	4		4DCR 040 010 100	4 X R1	6	20	100	4	
4DCR 020 0005 120	2 X R0.05	3.5	12	60	4		4DCR 060 003 110	6 X R0.3	9	25	110	6	
4DCR 020 0005 180	2 X R0.05	3.5	18	60	4		4DCR 060 005 110	6 X R0.5	9	25	110	6	
4DCR 020 0005 250	2 X R0.05	3.5	25	60	4		4DCR 060 005 150	6 X R0.5	9	30	150	6	
4DCR 020 0005 300	2 X R0.05	3.5	30	60	4		4DCR 060 010 110	6 X R1	9	25	110	6	
4DCR 020 002 035	2 X R0.2	3.5	-	60	4		4DCR 060 010 150	6 X R1	9	30	150	6	
4DCR 020 002 060	2 X R0.2	3.5	6	60	4		4DCR 080 003 110	8 X R0.3	12	30	110	8	
4DCR 020 002 120	2 X R0.2	3.5	12	60	4		4DCR 080 005 110	8 X R0.5	12	30	110	8	
4DCR 020 002 180	2 X R0.2	3.5	18	60	4		4DCR 080 005 150	8 X R0.5	12	40	150	8	
4DCR 020 002 250	2 X R0.2	3.5	25	60	4		4DCR 080 010 110	8 X R1	12	30	110	8	
4DCR 020 002 300	2 X R0.2	3.5	30	60	4		4DCR 080 010 150	8 X R1	12	40	150	8	
4DCR 020 003 035	2 X R0.3	3.5	-	60	4		4DCR 100 005 110	10 X R0.5	15	35	110	10	
4DCR 020 003 060	2 X R0.3	3.5	6	60	4		4DCR 100 005 160	10 X R0.5	15	45	160	10	
4DCR 020 003 120	2 X R0.3	3.5	12	60	4		4DCR 100 010 110	10 X R1	15	35	110	10	
4DCR 020 003 180	2 X R0.3	3.5	18	60	4		4DCR 100 010 160	10 X R1	15	45	160	10	
4DCR 020 003 250	2 X R0.3	3.5	25	60	4		4DCR 120 005 110	12 X R0.5	18	40	110	12	
4DCR 020 003 300	2 X R0.3	3.5	30	60	4		4DCR 120 005 160	12 X R0.5	18	45	160	12	
4DCR 020 005 035	2 X R0.5	3.5	-	60	4		4DCR 120 010 110	12 X R1	18	40	110	12	
4DCR 020 005 060	2 X R0.5	3.5	6	60	4		4DCR 120 010 160	12 X R1	18	45	160	12	
4DCR 020 005 120	2 X R0.5	3.5	12	60	4								
4DCR 020 005 180	2 X R0.5	3.5	18	60	4								
4DCR 020 005 250	2 X R0.5	3.5	25	60	4								
4DCR 020 005 300	2 X R0.5	3.5	30	60	4								
4DCR 030 0005 040	3 X R0.05	4	-	80	4								
4DCR 030 0005 100	3 X R0.05	4	10	80	4								
4DCR 030 0005 200	3 X R0.05	4	20	80	4								
4DCR 030 0005 300	3 X R0.05	4	30	80	4								
4DCR 030 0005 400	3 X R0.05	4	40	80	4								
4DCR 030 002 040	3 X R0.2	4	-	80	4								
4DCR 030 002 100	3 X R0.2	4	10	80	4								
4DCR 030 002 200	3 X R0.2	4	20	80	4								
4DCR 030 002 300	3 X R0.2	4	30	80	4								
4DCR 030 002 400	3 X R0.2	4	40	80	4								
4DCR 030 003 040	3 X R0.3	4	-	80	4								
4DCR 030 003 100	3 X R0.3	4	10	80	4								
4DCR 030 003 200	3 X R0.3	4	20	80	4								
4DCR 030 003 300	3 X R0.3	4	30	80	4								
4DCR 030 003 400	3 X R0.3	4	40	80	4								
4DCR 030 005 040	3 X R0.5	4	-	80	4								
4DCR 030 005 100	3 X R0.5	4	10	80	4								
4DCR 030 005 200	3 X R0.5	4	20	80	4								
4DCR 030 005 300	3 X R0.5	4	30	80	4								
4DCR 030 005 400	3 X R0.5	4	40	80	4								
4DCR 030 010 040	3 X R1	4	-	80	4								
4DCR 030 010 100	3 X R1	4	10	80	4								
4DCR 030 010 200	3 X R1	4	20	80	4								
4DCR 030 010 300	3 X R1	4	30	80	4								
4DCR 030 010 400	3 X R1	4	40	80	4								
4DCR 040 003 100	4 X R0.3	6	20	100	4								

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