HAN SONG
ENDMILL DESIGNER

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Vol.9 END MILLS

HAN SONG
ENDMILL DESIGNER

Vol.9

END MILLS

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COST EFFECTIVE SOLUTIONS

Icon Guide Line

Coating

- R — R Coating
- S — S Coating
- H — H Coating
- D — Diamond Coating
- A — A Coating
- DLC — DLC Coating
- X — X Coating
- Non — Non Coating

No. of Flutes

- 2 Flutes
- 3 Flutes
- 4 Flutes
- 5 Flutes
- 6 Flutes

Tolerance

- R — Radius Tolerance
- CR — Corner Radius Tolerance
- Outside Diameter Tolerance

Helix Angle

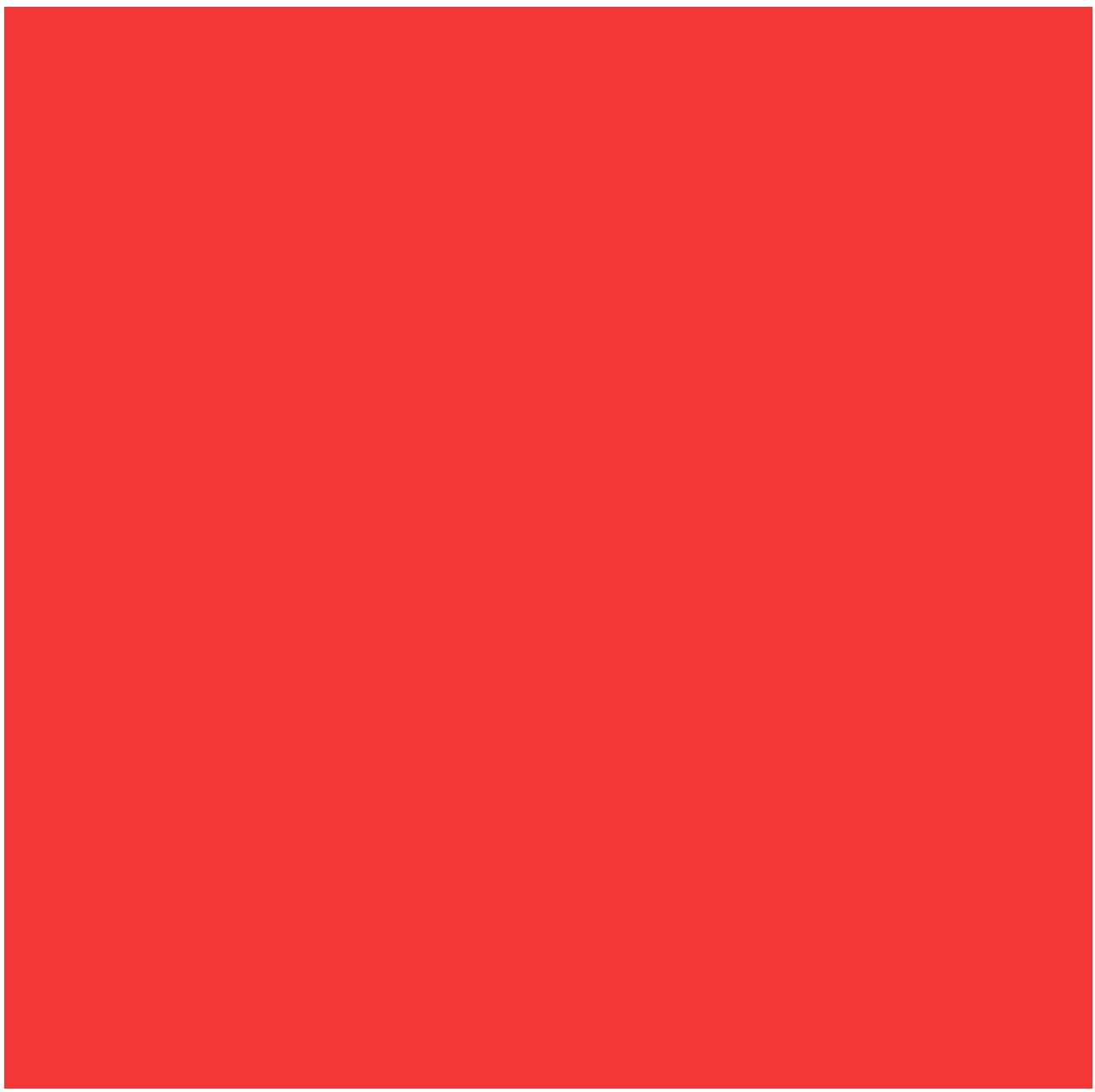
- 20° — Helix Angle 20°
- 30° — Helix Angle 30°
- 35° — Helix Angle 35°
- 40° — Helix Angle 40°
- 43° — Helix Angle 43°
- 45° — Helix Angle 45°

Cutting Condition

- page No. — Indicates page No. of cutting condition

VOL.9

END MILLS



제품 번호 표기법
PRODUCT NOTATION

| 유효장 있는 제품(리브 엔드밀)의 표기(Rib End Mill Notation)

2	H	R	B	0 2 0	1 0 0	4	4 5
1	2	3	4	5	6	7	8

1	날수(Flutes)	1날 : 1Flute 2날 : 2Flutes 3날 : 3Flutes 4날 : 4Flutes 5날 : 5Flutes 6날 : 6Flutes
2	시리즈(Series)	R : R-PRO H : H-PRO A : A-PRO X : X-PRO K : A-PLUS M : ABS D : D-PRO S : S-PRO
3	유효장(Effective length type)	R : Rib End Mill
4	형태(Type)	B : Ball End Mill R : Radius E : Flat
5	외경(Outside diameter)	002 : 0.2mm 020 : 2mm 120 : 12mm
6	유효장 길이(Effective length)	100 : 10mm R15 : R1.5mm Corner Radius
7	생크경(Shank diameter)	4 : 4mm A: 10mm G : 16mm
8	전장(Overall length)	45 : 45mm 60 : 60mm A0 : 100mm B0 : 110mm F0 : 150mm

* 생크경(Shank diameter) : 10단위 이상 표기(More than 10 Notation)
* 전장(Overall length) : 100단위 이상 표기(More than 100 Notation)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

| 유효장 없는 제품의 표기(Non-Rib End Mill Notation)

2	H	P	B	0 2 0	1 0 0	4	4 5
1	2	3	4	5	6	7	

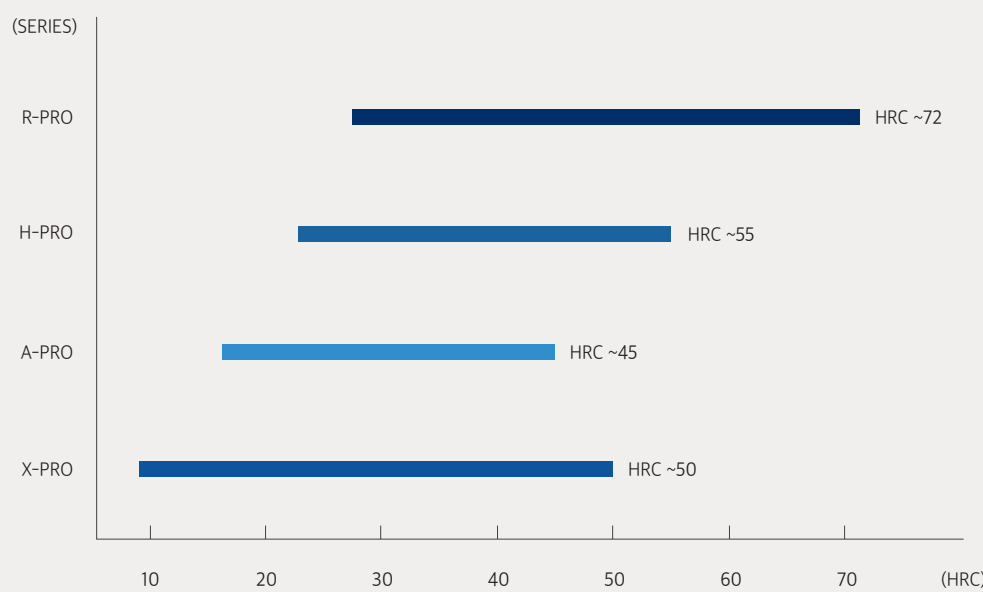
1	날수 (Flutes)	1날 : 1Flute 2날 : 2Flutes 3날 : 3Flutes 4날 : 4Flutes 5날 : 5Flutes 6날 : 6Flutes
2	시리즈 (Series)	RP : R-PRO HP : H-PRO AP : A-PRO XP : X-PRO XO : X-PRO Roughing KP : A-PLUS AL : AL-PRO M : ABS D : D-PRO S : S-PRO
3	형태 (Type)	B : Ball End Mill R : Radius E : Flat
4	외경 (Outside diameter)	002 : 0.2mm 020 : 2mm 120 : 12mm
5	유효장 길이 (Effective length)	100 : 10mm R15 : R1.5mm Corner Radius
6	생크경 (Shank diameter)	4 : 4mm A: 10mm G : 16mm
7	전장 (Overall length)	45 : 45mm 60 : 60mm A0 : 100mm B0 : 110mm F0 : 150mm

* 생크경(Shank diameter) : 10단위 이상 표기(More than 10 Notation)
* 전장(Overall length) : 100단위 이상 표기(More than 100 Notation)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

HRC 경도에 따른 엔드밀 사용범위
RANGE OF USE ACCORDING TO HRC HARDNESS

시리즈(Series)	피삭재(Workpiece)	경도(HRC)
R-PRO	고경도 Super Hardened	HRC ~72
H-PRO	고속 High Speed	HRC ~55
A-PRO	일반강, 범용 Steel, General Purpose	HRC ~45
X-PRO	일반강, 범용 Steel, General Purpose	HRC ~50
S-PRO	SUS, 티타늄, 인코넬 SUS, Titanium, Inconel	
AL-PRO	알루미늄 Aluminium	
D-PRO	흑연 Graphite	



INDEX OF END MILLS SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	제품코드 Product Code	유효장 Effective Length
R-PRO	HRC ~72	볼 Ball	2		2RRB	Y
			2		2RSB	N
			2		2RPB	N
			3		3RSB	N
		코너 래디우스 Corner Radius	4		4RRR	Y
			4		4RCR	N
			6		6RCR	N
		플랫 Flat	2		2RRE	Y
			4		4RRE	Y
			4		4RPE	N
			4		4RLE	N
		테이퍼 Taper	2		2RTB	N
			3		3RTB	N
			2		2RTR	N
			4		4RTR	N
H-PRO	HRC ~55	볼 Ball	2		2HRB	Y
			2		2HSB	N
			2		2HPB	N
			3		3HPB	N
			4		4HPB	N
		코너 래디우스 Corner Radius	2		2HRR	Y
			2		2HCR	N
			4		4HRR	Y
			4		4HCR	N
			4		4HIT	Y
		플랫 Flat	2		2HRE	Y
			2		2HPE	N
			2		2HLE	N

○ 적절 (Suitable)　◎ 최적 (Most suitable)

탄소강	합금강	프리하든강	열처리강		SUS	내열합금강	알루미늄	동	흑연	수지	페이지
Carbon Steel	Aalloy Steel	Preharden Steel	~HRC50	~HRC70	Stainless Steels	Heat Resistant Super Alloy	Aluminium	Copper	Graphite	Plastic	Page
	○	○	○	◎		○					26
	○	○	○	◎		○					30
	○	○	○	◎		○					31
	○	○	○	◎		○					33
	○	○	○	◎		○					34
	○	○	○	◎		○					39
	○	○	○	◎		○					41
	○	○	○	◎		○					42
	○	○	○	◎		○					44
	○	○	○	◎		○					46
	○	○	○	◎		○					47
	○	○	○	◎		○					48
	○	○	○	◎		○					49
	○	○	○	◎		○					50
	○	○	○	◎		○					52
○	○	◎	◎	○				○	○		56
○	○	◎	◎	○				○	○		62
○	○	◎	◎	○				○	○		64
○	○	◎	◎	○				○	○		67
○	○	◎	◎	○				○	○		68
○	◎	◎	◎	○				○	○		69
○	◎	◎	◎	○				○	○		81
○	◎	◎	◎	○				○	○		86
○	◎	◎	◎	○				○	○		100
○	◎	◎	◎	○				○	○		105
○	○	◎	◎	○				○	○		107
○	○	◎	◎	○				○	○		113
○	○	◎	◎	○				○	○		117

INDEX OF END MILLS SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	제품코드 Product Code	유효장 Effective Length
H-PRO	HRC ~55	플랫 Flat	4		4HRE	Y
			4		4HPE	N
			4		4HLE	N
			4		4HHE	N
			6		6HPE	N
		코너 라운딩 커터 Inner Corner Radius	2		2IRC	N
			4		4IRC	N
A-PRO	HRC ~ 45	볼 Ball	2		2ARB	Y
			2		2ASB	Y
			2		2APB	N
		코너 래디우스 Corner Radius	2		2ARR	Y
			2		2ACR	N
			2		2ALR	Y
			4		4ARR	Y
			4		4ACR	N
			4		4ALR	Y
		플랫 Flat	2		2ARE	Y
			2		2APE	N
			2		2AEL	N
			4		4APE	N
			4		4AEL	N
			4		4APL	Y
X-PRO	HRC ~ 50	라핑 Roughing	3		3XOE	N
			4		4XOE	N
		플랫 Flat	2		2XPE	N
			4		4XPE	N
			4		4XREV	Y
			4		4XPEV	N

○ 적절 (Suitable)　◎ 최적 (Most suitable)

탄소강	합금강	프리하든강	열처리강		SUS	내열합금강	알루미늄	동	흑연	수지	페이지
Carbon Steel	Aalloy Steel	Preharden Steel	~HRC50	~HRC70	Stainless Steels	Heat Resistant Super Alloy	Aluminium	Copper	Graphite	Plastic	Page
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○	◎	◎	◎	○				○	○		128
○	◎	◎	◎	○				○	○		129
◎	◎	◎	◎				◎	○		◎	130
◎	◎	◎	◎				◎	○		◎	131
◎	◎	◎	◎		○			◎			134
◎	◎	◎	◎		○			◎			136
◎	◎	◎	◎		○			◎			137
◎	◎	◎	◎		○			◎			139
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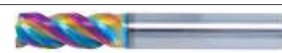
◎	◎	◎	◎		○			◎			142
◎	◎	◎	◎		○			◎			143
◎	◎	◎	◎		○			◎			144
◎	◎	◎	◎		○			◎			145
◎	◎	◎	◎		○			◎			146
◎	◎	◎	◎		○			◎			148
◎	◎	◎	◎		○			◎			150
◎	◎	◎	◎		○			◎			151
◎	◎	◎	◎		○			◎			152
◎	◎	◎	◎		○			◎			153
◎	◎	○	○								156
◎	◎	○	○								157
◎	◎	○	○		○						158
◎	◎	○	○		○						159
◎	◎	○	○		○						160
◎	◎	○	○		○						161

INDEX OF END MILLS SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	제품코드 Product Code	유효장 Effective Length
SUS MILL	SUS 티타늄 인코넬 SUS Titanium Inconel	코너 라핑 Corner Roughing	3		3SM22	N
			4		4SM22	N
			5		5SM22	N
		코너 래디우스 Corner Radius	3		SM20	N
		플랫 Flat	3		3SM30	N
			4		4SM30	N
S-PRO	SUS 티타늄 인코넬 SUS Titanium Inconel	볼 Ball	4		4SUB	N
		코너 래디우스 Corner Radius	4		4SUR	N
			4		4SURA	N
		플랫 Flat	4		4SUE	N
			4		4SUEA	N
D-PRO	흑연 동, 동합금 Graphite Copper, Copper alloy	볼 Ball	2		2DRB	Y
			2		2DPB	N
		코너 래디우스 Corner Radius	2		2DRR	Y
			4		4DRR	Y
		플랫 Flat	2		2DRE	Y
			2		2DPE	N
			4		4DPE	N
A-PLUS	동, 동합금 비철, 비철합금 수지 Copper, Copper alloy Non-Ferrous, Non-Ferrous alloy Plastic	볼 Ball	2		2KRB	Y
			2		2KSB	Y
			2		2KLB	Y
		코너 래디우스 Corner Radius	2		2KRR	Y
		플랫 Flat	2		2KRE	Y
			2		2KPE	N
AL-PRO	알루미늄 비철, 비철합금 수지 Aluminium Non-Ferrous, Non-Ferrous alloy Plastic	플랫 Flat	1		1ALE	N
			2		2ALE	N
			3		3ALE	N

○ 적절 (Suitable)　◎ 최적 (Most suitable)

탄소강	합금강	프리하든강	열처리강		SUS	내열합금강	알루미늄	동	흑연	수지	페이지
Carbon Steel	Aalloy Steel	Preharden Steel	~HRC50	~HRC70	Stainless Steels	Heat Resistant Super Alloy	Aluminium	Copper	Graphite	Plastic	Page
◎	◎	◎			◎	○					164
◎	◎	◎			◎	○					
◎	◎	◎			◎	○					
◎	◎	◎			◎	○					165
◎	◎	◎			◎	○					167
◎	◎	◎			◎	○					
◎	◎	◎			◎	○					170
◎	◎	◎			◎	○					171
◎	◎	◎			◎	○					173
◎	◎	◎			◎	○					175
◎	◎	◎			◎	○					177
								○	◎		182
								◎	◎		186
								◎	◎		187
								◎	◎		192
								◎	◎		195
								◎	◎		196
								◎	◎		198
							○	◎	◎	◎	202
							○	◎	◎	◎	204
							○	◎	◎	◎	205
							○	◎	◎	◎	206
							○	◎	◎	◎	208
							○	◎	◎	◎	210
							◎			○	214
							◎	○		○	216
							◎	○		○	218

INDEX OF END MILLS SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	제품코드 Product Code	유효장 Effective Length
AL MILL	알루미늄 수지 비철합금 Aluminium Plastic Non-Ferrous Alloy	라핑 Roughing	3		3LM32	N
ABS	아크릴 수지 아세탈 플라스틱 엔지니어링 Acrylic plastic Acetal plastic Engineering	볼 Ball	2		2MRB	Y
			2		2MMB	N
		플랫 Flat	2		2MRE	Y
			2		2MME	N
"MICRO GRAIN"	비금속 일반강 Nonmetal Low Carbon Steel	볼 Ball	2		2MGB	N
		플랫 Flat	2		2MGE	N
			4		4MGE	N
"MULTI PURPOSE"	일반강 열처리강 Low Carbon Steel Heat Treated Steel	센터링 Centering	2		2CEN	N

○ 적절 (Suitable)　◎ 최적 (Most suitable)

탄소강	합금강	프리하든강	열처리강		SUS	내열합금강	알루미늄	동	흑연	수지	페이지
Carbon Steel	Aalloy Steel	Preharden Steel	~HRC50	~HRC70	Stainless Steels	Heat Resistant Super Alloy	Aluminium	Copper	Graphite	Plastic	Page
							◎	○		○	224
							○	○		◎	228
							○	○		◎	230
							○	○		◎	232
							○	○		◎	234
◎	○							○			238
◎	○							○			239
◎	○							○			241
◎	○						◎	○		◎	246

R-PRO series

p. 24~

초고경도용

Super hardened and high speed steel

HRC ~ 72

- 초고경도 가공에 특화
- 내마모성 및 Chattering 방지 극대화
- 날부 파손 방지 및 절삭성 증대를 위한 형상 설계

- Optimize to super harden steel
- Maximized the wear resistance and chattering
- Geometry design to protect the breakage of cutting edge and improve the cutting performance

H-PRO series

p. 54~

고경도용

Hardened and high speed steel

HRC ~ 55

- 내마모성 및 Chattering 방지 극대화
- 고정밀 공차 적용으로 초정밀 가공에 적합
- 고속 가공용으로 설계

- Maximized the wear resistance and chattering
- Optimized to high precision in machining by applying close tolerance
- Designed for high speed cutting

A-PRO series

p. 132~

일반강
General steel

HRC ~ 45

- 날부 파손 방지 및 절삭성 극대화를 위한 형상설계
- 열박음 척 사용에 적합
- 깊은 측면 가공 적합

- Geometry design to protect the breakage of cutting edge and improve the cutting performance
- Optimized to use shrink-fit chuck
- Suitable to deep shoulder milling

X-PRO series

p. 154~

라핑, 일반강, 주철

Roughing, General steel, Cast iron

HRC ~ 50

- 내마모성을 개선하여 더욱 빠르고 거친 가공 (황삭에 최적화)
- 칩 배출 용이한 형상 설계
- 절삭 저항력을 줄여 엔드밀 수명 증대

- Rapid and rough machining by improving wear resistance
- Easy to chips evacuation
- Increased tool life by reducing cutting force

SUS MILL series

p. 162~

SUS, 티타늄, 인코넬
SUS, Titanium, Inconel

- 합금강, SUS계열, 티타늄, 인코넬 등 난삭재 가공에 적합
- 신규 코팅 및 신규 형상 적용하여 강력한 절삭 및 내마모성 우수
- 진동을 최소화하는 Flute 디자인 적용하여 고속·고이송 가공이 가능

- Suitable for cutting difficult to cut materials like Alloy steels, Stainless steels, Titanium, Inconel etc
- Suitable for heavy cutting and good wear resistance due to new coating and new configuration of tool
- Available high speed cutting and high feed cutting due to special flute design minimizing vibration

S-PRO series

p. 168~

SUS, 티타늄, 인코넬
SUS, Titanium, Inconel

- Chattering 방지 위한 부등 분할 형상 설계
- 매끄러운 칩 배출 및 면조도 우수
- 합금강, SUS 계열, 티타늄 등 난삭재 가공 탁월함

- Differential pitch to minimize chattering
- Excellent surface roughness and smooth chip evacuation
- Outstanding performance for Alloy steels, SUS, Titanium and hard to cut materials

D-PRO series

p. 180~

흑연, 동, 동합금
Graphite, Copper, Copper Alloy

- 흑연(그라파이트), 동전극, 탄소섬유, Glass 몰드 등 비금속 계열 적용
- 다양한 가공물 크기 적용 위한 유효장, 전장 길이 다양화
- 순수 다이아몬드 코팅(CVD) 적용 코팅 안정성 증대

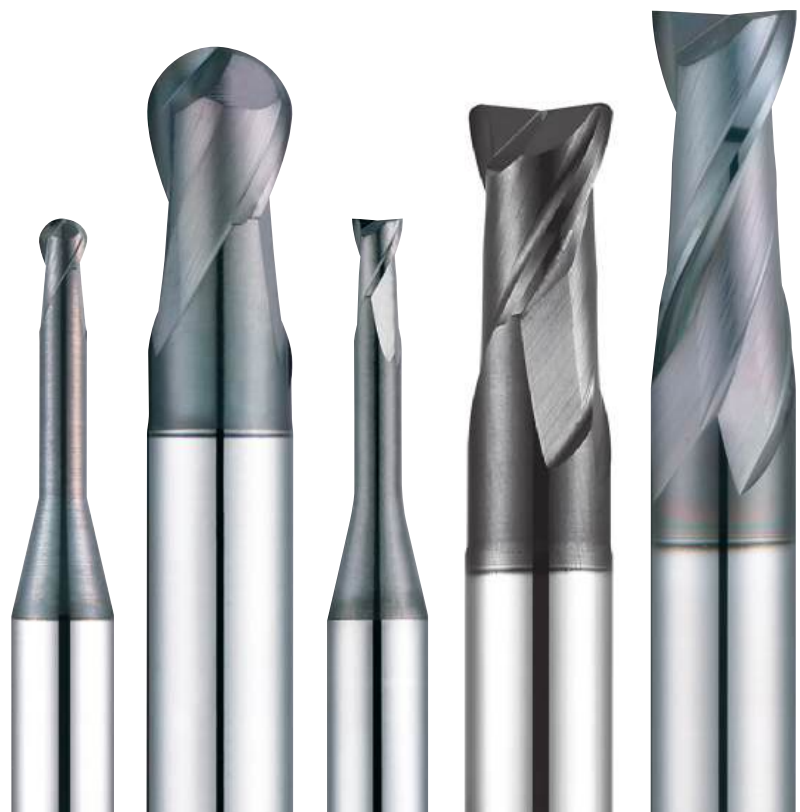
- Graphite, Copper, Reinforced Plastic, Glass injection Molding and Non-Ferrous material
- The wide range of effective length and overall length for various work shape
- Improve the performance for the best pure diamond coating(CVD)

A-PLUS series

p. 200~

동, 동합금, 비철합금, 수지

Copper, Copper alloy, Non-Ferrous Alloy, Plastic



- Chattering 방지 위한 부등 분할 형상 설계
- 매끄러운 칩 배출 및 면조도 우수
- 합금강, SUS 계열, 티타늄 등 난삭재 가공 탁월함

- Differential pitch to minimize chattering
- Excellent surface roughness and smooth chip evacuation
- Outstanding performance for Alloy steels, SUS, Titanium and hard to cut materials

AL-PRO series

p. 212~

알루미늄, 수지, 비철합금
Aluminium, Plastic, Non-Ferrous Alloy

- 알루미늄, 알루미늄 합금 절삭에 특화된 날부 형상 설계
- Flute Polishing 연삭으로 면조도 향상 및 칩 배출 용이
- 다양한 날장 길이, 전장 길이 선택으로 맞춤 가공 가능

- Special design for Aluminum and Aluminum alloy
- Good surface finish and chip evacuation thank to flute polishing
- Wide range of cutting length and overall length

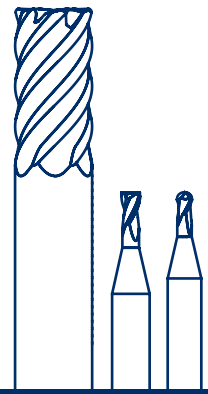
AL MILL series

p. 222~

알루미늄, 수지, 비철합금
Aluminium, Plastic, Non-Ferrous Alloy

- 알루미늄 및 알루미늄 합금, 비철계열에 적용
- 고속, 황삭 가공이 가능한 날부 형상 적용
- 고정밀 인선 직경 공차

- Suitable for nonferrous metals including Aluminum and Aluminum Alloys
- Special cutting edges for high speed and rough cutting
- Very precise tolerance of cutting diameters



- 초고경도 가공에 특화
- 내마모성 및 Chattering 방지 극대화
- 날부 파손 방지 및 절삭성 증대를 위한 형상 설계

- Optimize to super harden steel
- Maximized the wear resistance and chattering
- Geometry design to protect the breakage of cutting edge and improve the cutting performance

볼 Ball

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
0.1 ~ 5	0 ~ -0.010	R0.05 ~ R2.5	±0.005
6 ~ 12	0 ~ -0.015	R3 ~ R6	±0.010

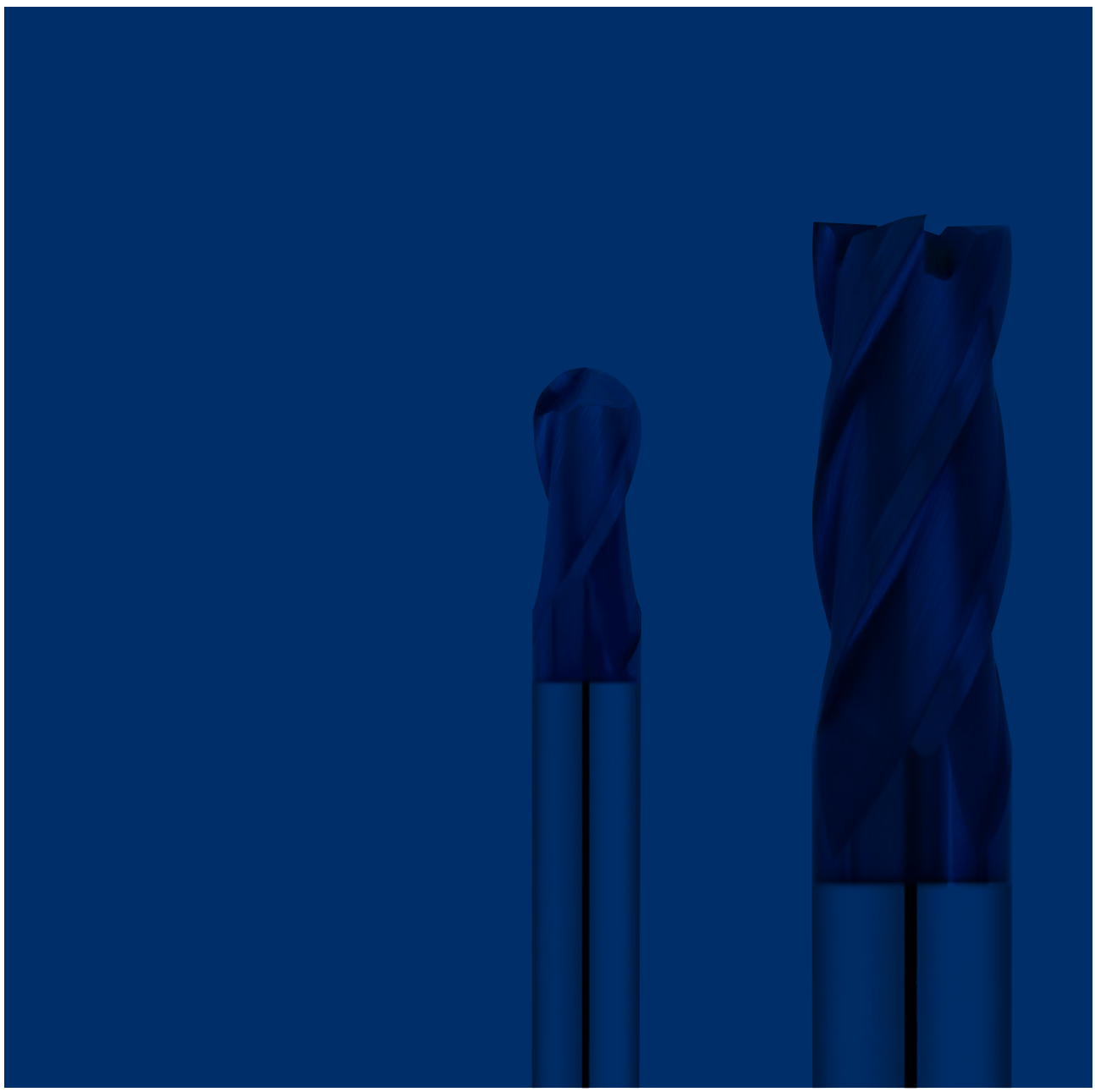
코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
1 ~ 5	0 ~ -0.010	R0.02 ~ R0.5	±0.005
6 ~ 12	0 ~ -0.015	R1 ~ R1.5	±0.010
		R2 ~ R3	±0.015

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
0.1 ~ 5	0 ~ -0.010
6 ~ 12	0 ~ -0.015

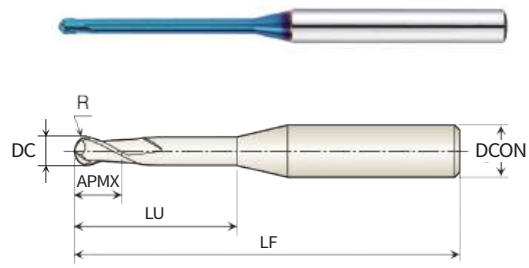
R-PRO 01



2RRB

2날 리브 볼 엔드밀

2 Flutes Rib Ball End Mills



R 2 R 30° page No.250

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRB-001-002-445	0.1	2	R0.05	0.1	0.2	4	45
2RRB-001-003-445	0.1	2	R0.05	0.1	0.3	4	45
2RRB-001-005-445	0.1	2	R0.05	0.1	0.5	4	45
2RRB-002-006-445	0.2	2	R0.1	0.2	0.6	4	45
2RRB-002-010-445	0.2	2	R0.1	0.2	1	4	45
2RRB-002-015-445	0.2	2	R0.1	0.2	1.5	4	45
2RRB-002-020-445	0.2	2	R0.1	0.2	2	4	45
2RRB-003-010-445	0.3	2	R0.15	0.3	1	4	45
2RRB-003-015-445	0.3	2	R0.15	0.3	1.5	4	45
2RRB-003-020-445	0.3	2	R0.15	0.3	2	4	45
2RRB-003-025-445	0.3	2	R0.15	0.3	2.5	4	45
2RRB-003-030-445	0.3	2	R0.15	0.3	3	4	45
2RRB-004-010-445	0.4	2	R0.2	0.4	1	4	45
2RRB-004-015-445	0.4	2	R0.2	0.4	1.5	4	45
2RRB-004-020-445	0.4	2	R0.2	0.4	2	4	45
2RRB-004-025-445	0.4	2	R0.2	0.4	2.5	4	45
2RRB-004-030-445	0.4	2	R0.2	0.4	3	4	45
2RRB-004-040-445	0.4	2	R0.2	0.4	4	4	45
2RRB-004-050-445	0.4	2	R0.2	0.4	5	4	45
2RRB-005-010-445	0.5	2	R0.25	0.5	1	4	45
2RRB-005-015-445	0.5	2	R0.25	0.5	1.5	4	45
2RRB-005-020-445	0.5	2	R0.25	0.5	2	4	45
2RRB-005-025-445	0.5	2	R0.25	0.5	2.5	4	45
2RRB-005-030-445	0.5	2	R0.25	0.5	3	4	45
2RRB-005-040-445	0.5	2	R0.25	0.5	4	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRB-005-050-445	0.5	2	R0.25	0.5	5	4	45
2RRB-005-060-445	0.5	2	R0.25	0.5	6	4	45
2RRB-005-080-445	0.5	2	R0.25	0.5	8	4	45
2RRB-006-020-445	0.6	2	R0.3	0.6	2	4	45
2RRB-006-030-445	0.6	2	R0.3	0.6	3	4	45
2RRB-006-040-445	0.6	2	R0.3	0.6	4	4	45
2RRB-006-050-445	0.6	2	R0.3	0.6	5	4	45
2RRB-006-060-445	0.6	2	R0.3	0.6	6	4	45
2RRB-006-080-445	0.6	2	R0.3	0.6	8	4	45
2RRB-006-100-445	0.6	2	R0.3	0.6	10	4	45
2RRB-008-020-445	0.8	2	R0.4	0.8	2	4	45
2RRB-008-030-445	0.8	2	R0.4	0.8	3	4	45
2RRB-008-040-445	0.8	2	R0.4	0.8	4	4	45
2RRB-008-050-445	0.8	2	R0.4	0.8	5	4	45
2RRB-008-060-445	0.8	2	R0.4	0.8	6	4	45
2RRB-008-080-445	0.8	2	R0.4	0.8	8	4	45
2RRB-008-100-445	0.8	2	R0.4	0.8	10	4	45
2RRB-008-120-445	0.8	2	R0.4	0.8	12	4	45
2RRB-010-030-445	1.0	2	R0.5	1	3	4	45
2RRB-010-040-445	1.0	2	R0.5	1	4	4	45
2RRB-010-050-445	1.0	2	R0.5	1	5	4	45
2RRB-010-060-445	1.0	2	R0.5	1	6	4	45
2RRB-010-070-445	1.0	2	R0.5	1	7	4	45
2RRB-010-080-445	1.0	2	R0.5	1	8	4	45
2RRB-010-090-445	1.0	2	R0.5	1	9	4	45
2RRB-010-100-445	1.0	2	R0.5	1	10	4	45
2RRB-010-120-445	1.0	2	R0.5	1	12	4	45
2RRB-010-140-450	1.0	2	R0.5	1	14	4	50
2RRB-010-160-450	1.0	2	R0.5	1	16	4	50
2RRB-010-180-450	1.0	2	R0.5	1	18	4	50
2RRB-010-200-450	1.0	2	R0.5	1	20	4	50
2RRB-012-040-445	1.2	2	R0.6	1.2	4	4	45
2RRB-012-060-445	1.2	2	R0.6	1.2	6	4	45
2RRB-012-080-445	1.2	2	R0.6	1.2	8	4	45
2RRB-012-100-445	1.2	2	R0.6	1.2	10	4	45
2RRB-012-120-445	1.2	2	R0.6	1.2	12	4	45
2RRB-015-040-445	1.5	2	R0.75	1.5	4	4	45
2RRB-015-060-445	1.5	2	R0.75	1.5	6	4	45
2RRB-015-080-445	1.5	2	R0.75	1.5	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRB-015-100-445	1.5	2	R0.75	1.5	10	4	45
2RRB-015-120-445	1.5	2	R0.75	1.5	12	4	45
2RRB-015-140-450	1.5	2	R0.75	1.5	14	4	50
2RRB-015-160-450	1.5	2	R0.75	1.5	16	4	50
2RRB-015-180-450	1.5	2	R0.75	1.5	18	4	50
2RRB-015-200-450	1.5	2	R0.75	1.5	20	4	50
2RRB-020-060-445	2.0	2	R1.0	2	6	4	45
2RRB-020-080-445	2.0	2	R1.0	2	8	4	45
2RRB-020-100-445	2.0	2	R1.0	2	10	4	45
2RRB-020-120-445	2.0	2	R1.0	2	12	4	45
2RRB-020-140-450	2.0	2	R1.0	2	14	4	50
2RRB-020-160-450	2.0	2	R1.0	2	16	4	50
2RRB-020-180-450	2.0	2	R1.0	2	18	4	50
2RRB-020-200-450	2.0	2	R1.0	2	20	4	50
2RRB-020-250-460	2.0	2	R1.0	2	25	4	60
2RRB-020-300-470	2.0	2	R1.0	2	30	4	70
2RRB-025-080-445	2.5	2	R1.25	2.5	8	4	45
2RRB-025-100-445	2.5	2	R1.25	2.5	10	4	45
2RRB-025-120-445	2.5	2	R1.25	2.5	12	4	45
2RRB-025-160-450	2.5	2	R1.25	2.5	16	4	50
2RRB-025-200-450	2.5	2	R1.25	2.5	20	4	50
2RRB-030-080-650	3.0	2	R1.5	3	8	6	50
2RRB-030-100-650	3.0	2	R1.5	3	10	6	50
2RRB-030-120-650	3.0	2	R1.5	3	12	6	50
2RRB-030-140-660	3.0	2	R1.5	3	14	6	60
2RRB-030-160-660	3.0	2	R1.5	3	16	6	60
2RRB-030-180-660	3.0	2	R1.5	3	18	6	60
2RRB-030-200-660	3.0	2	R1.5	3	20	6	60
2RRB-030-250-665	3.0	2	R1.5	3	25	6	65
2RRB-030-300-670	3.0	2	R1.5	3	30	6	70
2RRB-030-350-680	3.0	2	R1.5	3	35	6	80
2RRB-040-100-650	4.0	2	R2.0	4	10	6	50
2RRB-040-120-650	4.0	2	R2.0	4	12	6	50
2RRB-040-160-660	4.0	2	R2.0	4	16	6	60
2RRB-040-200-660	4.0	2	R2.0	4	20	6	60
2RRB-040-250-665	4.0	2	R2.0	4	25	6	65
2RRB-040-300-670	4.0	2	R2.0	4	30	6	70
2RRB-040-350-680	4.0	2	R2.0	4	35	6	80
2RRB-040-400-680	4.0	2	R2.0	4	40	6	80

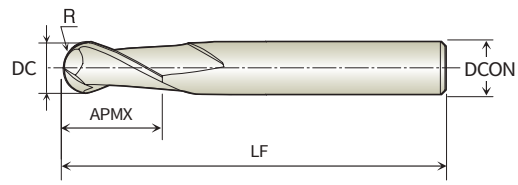
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRB-050-120-650	5.0	2	R2.5	5	12	6	50
2RRB-050-300-670	5.0	2	R2.5	5	30	6	70
2RRB-060-150-660	6.0	2	R3.0	7	15	6	60
2RRB-060-200-660	6.0	2	R3.0	7	20	6	60
2RRB-060-300-670	6.0	2	R3.0	7	30	6	70
2RRB-080-150-865	8.0	2	R4.0	8	15	8	65
2RRB-080-200-860	8.0	2	R4.0	8	20	8	60
2RRB-080-300-880	8.0	2	R4.0	8	30	8	80
2RRB-100-200-A60	10.0	2	R5.0	10	20	10	60
2RRB-100-250-A70	10.0	2	R5.0	10	25	10	70
2RRB-100-350-AA0	10.0	2	R5.0	10	35	10	100
2RRB-120-300-C80	12.0	2	R6.0	12	30	12	80
2RRB-120-400-CB0	12.0	2	R6.0	12	40	12	110

2RSB

2날 숏 볼 엔드밀

2 Flutes Short Ball End Mills



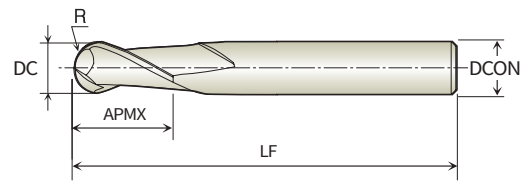
page No.252

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2RSB-001-001-440	0.1	2	R0.05	0.1	4	40
2RSB-002-002-440	0.2	2	R0.1	0.2	4	40
2RSB-003-003-440	0.3	2	R0.15	0.3	4	40
2RSB-004-004-440	0.4	2	R0.2	0.4	4	40
2RSB-005-005-440	0.5	2	R0.25	0.5	4	40
2RSB-006-006-440	0.6	2	R0.3	0.6	4	40
2RSB-007-007-440	0.7	2	R0.35	0.7	4	40
2RSB-008-008-440	0.8	2	R0.4	0.8	4	40
2RSB-009-009-440	0.9	2	R0.45	0.9	4	40
2RSB-010-015-640	1.0	2	R0.5	1.5	6	40
2RSB-015-023-640	1.5	2	R0.75	2.3	6	40
2RSB-020-030-645	2.0	2	R1.0	3	6	45
2RSB-030-045-645	3.0	2	R1.5	4.5	6	45
2RSB-040-060-645	4.0	2	R2.0	6	6	45
2RSB-050-075-650	5.0	2	R2.5	7.5	6	50
2RSB-060-080-660	6.0	2	R3.0	8	6	60
2RSB-080-110-860	8.0	2	R4.0	11	8	60
2RSB-100-130-A60	10.0	2	R5.0	13	10	60
2RSB-120-150-C60	12.0	2	R6.0	15	12	60

2RPB

2날 볼 엔드밀
2 Flutes Ball End Mills



R 2 R 30° page No.251

(Unit: mm)

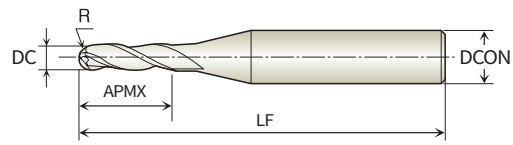
제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2RPB-001-002-445	0.1	2	R0.05	0.2	4	45
2RPB-002-004-445	0.2	2	R0.1	0.4	4	45
2RPB-003-006-445	0.3	2	R0.15	0.6	4	45
2RPB-004-008-445	0.4	2	R0.2	0.8	4	45
2RPB-005-010-445	0.5	2	R0.25	1	4	45
2RPB-006-012-445	0.6	2	R0.3	1.2	4	45
2RPB-007-015-445	0.7	2	R0.35	1.5	4	45
2RPB-008-015-445	0.8	2	R0.4	1.5	4	45
2RPB-010-020-450	1.0	2	R0.5	2	4	50
2RPB-010-020-650	1.0	2	R0.5	2	6	50
2RPB-012-025-450	1.2	2	R0.6	2.5	4	50
2RPB-015-040-450	1.5	2	R0.75	4	4	50
2RPB-015-040-650	1.5	2	R0.75	4	6	50
2RPB-020-050-450	2.0	2	R1.0	5	4	50
2RPB-020-050-660	2.0	2	R1.0	5	6	60
2RPB-025-060-660	2.5	2	R1.25	6	6	60
2RPB-030-080-360	3.0	2	R1.5	8	3	60
2RPB-030-080-460	3.0	2	R1.5	8	4	60
2RPB-030-080-680	3.0	2	R1.5	8	6	80
2RPB-035-080-660	3.5	2	R1.75	8	6	60
2RPB-040-080-460	4.0	2	R2.0	8	4	60
2RPB-040-080-480	4.0	2	R2.0	8	4	80
2RPB-040-080-670	4.0	2	R2.0	8	6	70
2RPB-045-100-670	4.5	2	R2.25	10	6	70
2RPB-050-100-680	5.0	2	R2.5	10	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2RPB-055-120-680	5.5	2	R2.75	12	6	80
2RPB-060-120-675	6.0	2	R3.0	12	6	75
2RPB-060-120-690	6.0	2	R3.0	12	6	90
2RPB-070-140-8A0	7.0	2	R3.5	14	8	100
2RPB-080-140-875	8.0	2	R4.0	14	8	75
2RPB-080-140-8A0	8.0	2	R4.0	14	8	100
2RPB-090-180-AA0	9.0	2	R4.5	18	10	100
2RPB-100-180-A75	10.0	2	R5.0	18	10	75
2RPB-100-180-AA0	10.0	2	R5.0	18	10	100
2RPB-120-220-C80	12.0	2	R6.0	22	12	80
2RPB-120-220-CB0	12.0	2	R6.0	22	12	110

3RSB

3날 숏 볼 엔드밀
3 Flutes Short Ball End Mills



page No.253

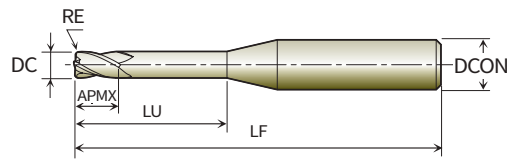
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
3RSB-010-015-640	1.0	3	R0.5	1.5	6	40
3RSB-020-030-645	2.0	3	R1.0	3	6	45
3RSB-030-045-645	3.0	3	R1.5	4.5	6	45
3RSB-040-060-645	4.0	3	R2.0	6	6	45
3RSB-050-075-650	5.0	3	R2.5	7.5	6	50
3RSB-060-080-660	6.0	3	R3.0	8	6	60
3RSB-080-110-860	8.0	3	R4.0	11	8	60
3RSB-100-130-A60	10.0	3	R5.0	13	10	60
3RSB-120-150-C60	12.0	3	R6.0	15	12	60

4RRR

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



R 4 CR 30° page No.254

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRR-008-R005-020-445	0.8	4	R0.05	1.2	2	4	45
4RRR-008-R005-040-445	0.8	4	R0.05	1.2	4	4	45
4RRR-008-R005-060-445	0.8	4	R0.05	1.2	6	4	45
4RRR-008-R01-020-445	0.8	4	R0.1	1.2	2	4	45
4RRR-008-R01-040-445	0.8	4	R0.1	1.2	4	4	45
4RRR-010-R005-040-445	1.0	4	R0.05	1.5	4	4	45
4RRR-010-R005-060-445	1.0	4	R0.05	1.5	6	4	45
4RRR-010-R005-080-445	1.0	4	R0.05	1.5	8	4	45
4RRR-010-R005-100-445	1.0	4	R0.05	1.5	10	4	45
4RRR-010-R01-040-445	1.0	4	R0.1	1.5	4	4	45
4RRR-010-R01-060-445	1.0	4	R0.1	1.5	6	4	45
4RRR-010-R01-080-445	1.0	4	R0.1	1.5	8	4	45
4RRR-010-R02-040-445	1.0	4	R0.2	1.5	4	4	45
4RRR-010-R02-060-445	1.0	4	R0.2	1.5	6	4	45
4RRR-010-R02-080-445	1.0	4	R0.2	1.5	8	4	45
4RRR-010-R02-100-445	1.0	4	R0.2	1.5	10	4	45
4RRR-010-R02-120-445	1.0	4	R0.2	1.5	12	4	45
4RRR-010-R03-040-445	1.0	4	R0.3	1.5	4	4	45
4RRR-010-R03-060-445	1.0	4	R0.3	1.5	6	4	45
4RRR-010-R03-080-445	1.0	4	R0.3	1.5	8	4	45
4RRR-015-R01-040-445	1.5	4	R0.1	2.3	4	4	45
4RRR-015-R01-060-445	1.5	4	R0.1	2.3	6	4	45
4RRR-015-R01-080-445	1.5	4	R0.1	2.3	8	4	45
4RRR-015-R01-100-445	1.5	4	R0.1	2.3	10	4	45
4RRR-015-R02-040-445	1.5	4	R0.2	2.3	4	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRR-015-R02-060-445	1.5	4	R0.2	2.3	6	4	45
4RRR-015-R02-080-445	1.5	4	R0.2	2.3	8	4	45
4RRR-015-R02-100-445	1.5	4	R0.2	2.3	10	4	45
4RRR-015-R02-120-445	1.5	4	R0.2	2.3	12	4	45
4RRR-015-R02-160-450	1.5	4	R0.2	2.3	16	4	50
4RRR-020-R01-040-445	2.0	4	R0.1	3	4	4	45
4RRR-020-R01-060-445	2.0	4	R0.1	3	6	4	45
4RRR-020-R01-080-445	2.0	4	R0.1	3	8	4	45
4RRR-020-R01-100-445	2.0	4	R0.1	3	10	4	45
4RRR-020-R01-120-445	2.0	4	R0.1	3	12	4	45
4RRR-020-R02-040-445	2.0	4	R0.2	3	4	4	45
4RRR-020-R02-060-445	2.0	4	R0.2	3	6	4	45
4RRR-020-R02-080-445	2.0	4	R0.2	3	8	4	45
4RRR-020-R02-100-445	2.0	4	R0.2	3	10	4	45
4RRR-020-R02-120-445	2.0	4	R0.2	3	12	4	45
4RRR-020-R02-160-450	2.0	4	R0.2	3	16	4	50
4RRR-020-R03-060-445	2.0	4	R0.3	3	6	4	45
4RRR-020-R03-080-445	2.0	4	R0.3	3	8	4	45
4RRR-020-R03-100-445	2.0	4	R0.3	3	10	4	45
4RRR-020-R03-120-445	2.0	4	R0.3	3	12	4	45
4RRR-020-R05-040-445	2.0	4	R0.5	3	4	4	45
4RRR-020-R05-060-445	2.0	4	R0.5	3	6	4	45
4RRR-020-R05-080-445	2.0	4	R0.5	3	8	4	45
4RRR-020-R05-100-445	2.0	4	R0.5	3	10	4	45
4RRR-020-R05-120-445	2.0	4	R0.5	3	12	4	45
4RRR-030-R01-100-450	3.0	4	R0.1	4.5	10	4	50
4RRR-030-R01-120-650	3.0	4	R0.1	4.5	12	6	50
4RRR-030-R02-100-350	3.0	4	R0.2	4.5	10	3	50
4RRR-030-R02-100-450	3.0	4	R0.2	4.5	10	4	50
4RRR-030-R02-080-650	3.0	4	R0.2	4.5	8	6	50
4RRR-030-R02-100-650	3.0	4	R0.2	4.5	10	6	50
4RRR-030-R02-120-650	3.0	4	R0.2	4.5	12	6	50
4RRR-030-R02-160-660	3.0	4	R0.2	4.5	16	6	60
4RRR-030-R02-200-660	3.0	4	R0.2	4.5	20	6	60
4RRR-030-R03-100-350	3.0	4	R0.3	4.5	10	3	50
4RRR-030-R03-100-450	3.0	4	R0.3	4.5	10	4	50
4RRR-030-R03-080-650	3.0	4	R0.3	4.5	8	6	50
4RRR-030-R03-100-650	3.0	4	R0.3	4.5	10	6	50
4RRR-030-R03-120-650	3.0	4	R0.3	4.5	12	6	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRR-030-R03-160-660	3.0	4	R0.3	4.5	16	6	60
4RRR-030-R03-200-660	3.0	4	R0.3	4.5	20	6	60
4RRR-030-R05-100-350	3.0	4	R0.5	4.5	10	3	50
4RRR-030-R05-100-450	3.0	4	R0.5	4.5	10	4	50
4RRR-030-R05-080-650	3.0	4	R0.5	4.5	8	6	50
4RRR-030-R05-100-650	3.0	4	R0.5	4.5	10	6	50
4RRR-030-R05-120-650	3.0	4	R0.5	4.5	12	6	50
4RRR-030-R05-160-660	3.0	4	R0.5	4.5	16	6	60
4RRR-030-R05-200-660	3.0	4	R0.5	4.5	20	6	60
4RRR-030-R10-100-350	3.0	4	R1.0	4.5	10	3	50
4RRR-030-R10-100-450	3.0	4	R1.0	4.5	10	4	50
4RRR-030-R10-080-650	3.0	4	R1.0	4.5	8	6	50
4RRR-030-R10-100-650	3.0	4	R1.0	4.5	10	6	50
4RRR-030-R10-120-650	3.0	4	R1.0	4.5	12	6	50
4RRR-030-R10-160-660	3.0	4	R1.0	4.5	16	6	60
4RRR-030-R10-200-660	3.0	4	R1.0	4.5	20	6	60
4RRR-040-R01-120-450	4.0	4	R0.1	6	12	4	50
4RRR-040-R02-120-450	4.0	4	R0.2	6	12	4	50
4RRR-040-R02-100-650	4.0	4	R0.2	6	10	6	50
4RRR-040-R02-120-650	4.0	4	R0.2	6	12	6	50
4RRR-040-R02-160-660	4.0	4	R0.2	6	16	6	60
4RRR-040-R02-200-660	4.0	4	R0.2	6	20	6	60
4RRR-040-R02-250-665	4.0	4	R0.2	6	25	6	65
4RRR-040-R02-300-670	4.0	4	R0.2	6	30	6	70
4RRR-040-R03-120-450	4.0	4	R0.3	6	12	4	50
4RRR-040-R03-100-650	4.0	4	R0.3	6	10	6	50
4RRR-040-R03-120-650	4.0	4	R0.3	6	12	6	50
4RRR-040-R03-160-660	4.0	4	R0.3	6	16	6	60
4RRR-040-R03-200-660	4.0	4	R0.3	6	20	6	60
4RRR-040-R05-120-450	4.0	4	R0.3	6	12	4	50
4RRR-040-R05-160-450	4.0	4	R0.5	6	16	4	50
4RRR-040-R05-160-4A0	4.0	4	R0.5	6	16	4	100
4RRR-040-R05-100-650	4.0	4	R0.5	6	10	6	50
4RRR-040-R05-120-650	4.0	4	R0.5	6	12	6	50
4RRR-040-R05-160-660	4.0	4	R0.5	6	16	6	60
4RRR-040-R05-200-660	4.0	4	R0.5	6	20	6	60
4RRR-040-R05-250-665	4.0	4	R0.5	6	25	6	65
4RRR-040-R05-300-670	4.0	4	R0.5	6	30	6	70
4RRR-040-R10-120-450	4.0	4	R1.0	6	12	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRR-050-R05-180-660	5.0	4	R0.5	7.5	18	6	60
4RRR-060-R01-200-660	6.0	4	R0.1	9	20	6	60
4RRR-060-R02-200-660	6.0	4	R0.2	9	20	6	60
4RRR-060-R02-200-675	6.0	4	R0.2	9	20	6	75
4RRR-060-R02-200-6A0	6.0	4	R0.2	9	20	6	100
4RRR-060-R03-200-660	6.0	4	R0.3	9	20	6	60
4RRR-060-R03-200-675	6.0	4	R0.3	9	20	6	75
4RRR-060-R03-200-6A0	6.0	4	R0.3	9	20	6	100
4RRR-060-R05-200-660	6.0	4	R0.5	9	20	6	60
4RRR-060-R05-200-675	6.0	4	R0.5	9	20	6	75
4RRR-060-R05-200-6A0	6.0	4	R0.5	9	20	6	100
4RRR-060-R10-200-660	6.0	4	R1.0	9	20	6	60
4RRR-060-R10-200-675	6.0	4	R1.0	9	20	6	75
4RRR-060-R10-200-6A0	6.0	4	R1.0	9	20	6	100
4RRR-080-R01-240-865	8.0	4	R0.1	12	24	8	65
4RRR-080-R02-240-865	8.0	4	R0.2	12	24	8	65
4RRR-080-R02-240-875	8.0	4	R0.2	12	24	8	75
4RRR-080-R02-240-8A0	8.0	4	R0.2	12	24	8	100
4RRR-080-R03-240-865	8.0	4	R0.3	12	24	8	65
4RRR-080-R03-240-875	8.0	4	R0.3	12	24	8	75
4RRR-080-R03-240-8A0	8.0	4	R0.3	12	24	8	100
4RRR-080-R05-240-865	8.0	4	R0.5	12	24	8	65
4RRR-080-R05-240-875	8.0	4	R0.5	12	24	8	75
4RRR-080-R05-240-8A0	8.0	4	R0.5	12	24	8	100
4RRR-080-R10-240-865	8.0	4	R1.0	12	24	8	65
4RRR-080-R10-240-875	8.0	4	R1.0	12	24	8	75
4RRR-080-R10-240-8A0	8.0	4	R1.0	12	24	8	100
4RRR-100-R02-300-A75	10.0	4	R0.2	15	30	10	75
4RRR-100-R02-300-AA0	10.0	4	R0.2	15	30	10	100
4RRR-100-R05-300-A75	10.0	4	R0.5	15	30	10	75
4RRR-100-R05-300-AA0	10.0	4	R0.5	15	30	10	100
4RRR-100-R10-300-A75	10.0	4	R1.0	15	30	10	75
4RRR-100-R10-300-AA0	10.0	4	R1.0	15	30	10	100
4RRR-100-R10-300-AF0	10.0	4	R1.0	15	30	10	150
4RRR-120-R05-300-C80	12.0	4	R0.5	18	30	12	80
4RRR-120-R05-300-CB0	12.0	4	R0.5	18	30	12	110
4RRR-120-R05-300-CF0	12.0	4	R0.5	18	30	12	150
4RRR-120-R10-300-C80	12.0	4	R1.0	18	30	12	80
4RRR-120-R10-300-CB0	12.0	4	R1.0	18	30	12	110

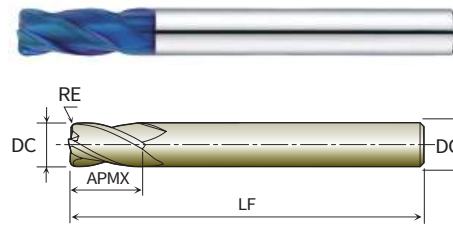
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRR-120-R10-300-CF0	12.0	4	R1.0	18	30	12	150

4RCR

4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



R 4 CR 30° page No.254

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4RCR-010-R01-025-445	1.0	4	R0.1	2.5	4	45
4RCR-010-R02-025-445	1.0	4	R0.2	2.5	4	45
4RCR-010-R03-025-445	1.0	4	R0.3	2.5	4	45
4RCR-015-R01-040-445	1.5	4	R0.1	4	4	45
4RCR-015-R02-040-445	1.5	4	R0.2	4	4	45
4RCR-015-R03-040-445	1.5	4	R0.3	4	4	45
4RCR-015-R05-040-445	1.5	4	R0.5	4	4	45
4RCR-020-R01-060-445	2.0	4	R0.1	6	4	45
4RCR-020-R02-060-445	2.0	4	R0.2	6	4	45
4RCR-020-R03-060-445	2.0	4	R0.3	6	4	45
4RCR-020-R05-060-445	2.0	4	R0.5	6	4	45
4RCR-025-R01-060-450	2.5	4	R0.1	6	4	50
4RCR-025-R02-060-450	2.5	4	R0.2	6	4	50
4RCR-025-R03-060-450	2.5	4	R0.3	6	4	50
4RCR-025-R05-060-450	2.5	4	R0.5	6	4	50
4RCR-030-R01-080-660	3.0	4	R0.1	8	6	60
4RCR-030-R02-080-660	3.0	4	R0.2	8	6	60
4RCR-030-R03-080-660	3.0	4	R0.3	8	6	60
4RCR-030-R05-080-660	3.0	4	R0.5	8	6	60
4RCR-040-R01-100-670	4.0	4	R0.1	10	6	70
4RCR-040-R02-100-670	4.0	4	R0.2	10	6	70
4RCR-040-R03-100-670	4.0	4	R0.3	10	6	70
4RCR-040-R05-100-670	4.0	4	R0.5	10	6	70
4RCR-040-R10-100-670	4.0	4	R1.0	10	6	70
4RCR-050-R01-130-675	5.0	4	R0.1	13	6	75

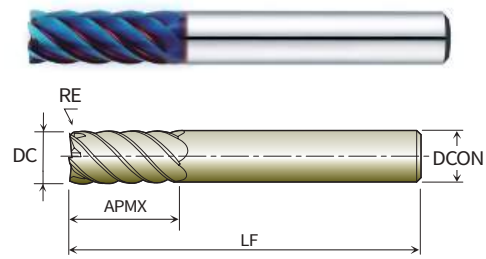
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4RCR-050-R02-130-675	5.0	4	R0.2	13	6	75
4RCR-050-R03-130-675	5.0	4	R0.3	13	6	75
4RCR-050-R05-130-675	5.0	4	R0.5	13	6	75
4RCR-050-R10-130-675	5.0	4	R1.0	13	6	75
4RCR-060-R01-130-690	6.0	4	R0.1	13	6	90
4RCR-060-R02-130-690	6.0	4	R0.2	13	6	90
4RCR-060-R03-130-690	6.0	4	R0.3	13	6	90
4RCR-060-R05-130-690	6.0	4	R0.5	13	6	90
4RCR-060-R10-130-690	6.0	4	R1.0	13	6	90
4RCR-080-R01-190-8A0	8.0	4	R0.1	19	8	100
4RCR-080-R02-190-8A0	8.0	4	R0.2	19	8	100
4RCR-080-R03-190-8A0	8.0	4	R0.3	19	8	100
4RCR-080-R05-190-8A0	8.0	4	R0.5	19	8	100
4RCR-080-R10-190-8A0	8.0	4	R1.0	19	8	100
4RCR-080-R20-190-8A0	8.0	4	R2.0	19	8	100
4RCR-100-R02-220-AA0	10.0	4	R0.2	22	10	100
4RCR-100-R03-220-AA0	10.0	4	R0.3	22	10	100
4RCR-100-R05-220-AA0	10.0	4	R0.5	22	10	100
4RCR-100-R10-220-AA0	10.0	4	R1.0	22	10	100
4RCR-100-R20-220-AA0	10.0	4	R2.0	22	10	100
4RCR-120-R02-260-CB0	12.0	4	R0.2	26	12	110
4RCR-120-R03-260-CB0	12.0	4	R0.3	26	12	110
4RCR-120-R05-260-CB0	12.0	4	R0.5	26	12	110
4RCR-120-R10-260-CB0	12.0	4	R1.0	26	12	110
4RCR-120-R20-260-CB0	12.0	4	R2.0	26	12	110

6RCR

6날 45° 코너 래디우스 엔드밀

6 Flutes 45° Corner Radius End Mills



R | 6 | CR | 45° | page No.259

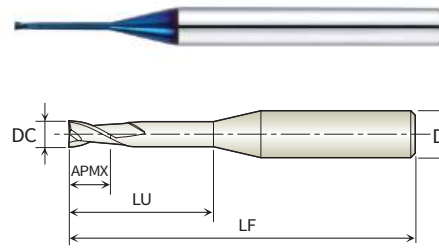
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
6RCR-030-R05-080-650	3.0	6	R0.5	8	6	50
6RCR-040-R05-100-650	4.0	6	R0.5	10	6	50
6RCR-060-R05-130-650	6.0	6	R0.5	13	6	50
6RCR-080-R05-190-865	8.0	6	R0.5	19	8	65
6RCR-100-R05-220-A70	10.0	6	R0.5	22	10	70
6RCR-120-R05-260-C80	12.0	6	R0.5	26	12	80

2RRE

2날 리브 플랫 엔드밀

2 Flutes Rib Flat End Mills



R | 2 | OD | 30° | page No.255

(Unit: mm)

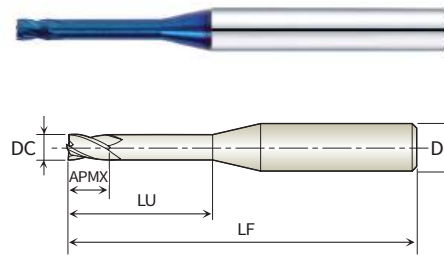
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRE-001-003-445	0.1	2	0.15	0.3	4	45
2RRE-001-005-445	0.1	2	0.15	0.5	4	45
2RRE-002-005-445	0.2	2	0.3	0.5	4	45
2RRE-002-010-445	0.2	2	0.3	1	4	45
2RRE-002-020-445	0.2	2	0.3	2	4	45
2RRE-003-005-445	0.3	2	0.45	0.5	4	45
2RRE-003-010-445	0.3	2	0.45	1	4	45
2RRE-003-015-445	0.3	2	0.45	1.5	4	45
2RRE-003-020-445	0.3	2	0.45	2	4	45
2RRE-003-025-445	0.3	2	0.45	2.5	4	45
2RRE-003-030-445	0.3	2	0.45	3	4	45
2RRE-004-010-445	0.4	2	0.6	1	4	45
2RRE-004-015-445	0.4	2	0.6	1.5	4	45
2RRE-004-020-445	0.4	2	0.6	2	4	45
2RRE-004-025-445	0.4	2	0.6	2.5	4	45
2RRE-004-030-445	0.4	2	0.6	3	4	45
2RRE-004-035-445	0.4	2	0.6	3.5	4	45
2RRE-004-040-445	0.4	2	0.6	4	4	45
2RRE-005-010-445	0.5	2	0.7	1	4	45
2RRE-005-020-445	0.5	2	0.7	2	4	45
2RRE-005-030-445	0.5	2	0.7	3	4	45
2RRE-005-040-445	0.5	2	0.7	4	4	45
2RRE-005-050-445	0.5	2	0.7	5	4	45
2RRE-005-060-445	0.5	2	0.7	6	4	45
2RRE-005-080-445	0.5	2	0.7	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RRE-006-020-445	0.6	2	0.9	2	4	45
2RRE-006-030-445	0.6	2	0.9	3	4	45
2RRE-006-040-445	0.6	2	0.9	4	4	45
2RRE-006-050-445	0.6	2	0.9	5	4	45
2RRE-006-060-445	0.6	2	0.9	6	4	45
2RRE-006-080-445	0.6	2	0.9	8	4	45
2RRE-006-100-445	0.6	2	0.9	10	4	45
2RRE-007-020-445	0.7	2	1	2	4	45
2RRE-007-040-445	0.7	2	1	4	4	45
2RRE-007-060-445	0.7	2	1	6	4	45
2RRE-007-080-445	0.7	2	1	8	4	45
2RRE-007-100-445	0.7	2	1	10	4	45
2RRE-007-120-445	0.7	2	1	12	4	45
2RRE-008-020-445	0.8	2	1.2	2	4	45
2RRE-008-030-445	0.8	2	1.2	3	4	45
2RRE-008-040-445	0.8	2	1.2	4	4	45
2RRE-008-050-445	0.8	2	1.2	5	4	45
2RRE-008-060-445	0.8	2	1.2	6	4	45
2RRE-008-080-445	0.8	2	1.2	8	4	45
2RRE-008-100-445	0.8	2	1.2	10	4	45
2RRE-008-120-445	0.8	2	1.2	12	4	45
2RRE-009-060-445	0.9	2	1.3	6	4	45
2RRE-009-080-445	0.9	2	1.3	8	4	45
2RRE-009-100-445	0.9	2	1.3	10	4	45

4RRE

4날 리브 플랫 엔드밀
4 Flutes Rib Flat End Mills



R | 4 | OD | 30° | page No.256

(Unit: mm)

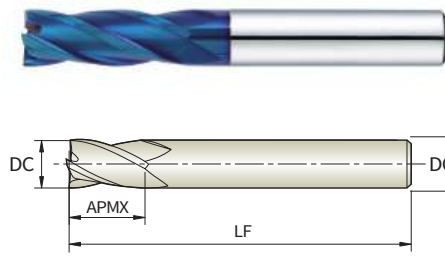
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRE-010-030-445	1.0	4	1.5	3	4	45
4RRE-010-040-445	1.0	4	1.5	4	4	45
4RRE-010-060-445	1.0	4	1.5	6	4	45
4RRE-010-080-445	1.0	4	1.5	8	4	45
4RRE-010-100-445	1.0	4	1.5	10	4	45
4RRE-015-040-445	1.5	4	2.3	4	4	45
4RRE-015-060-445	1.5	4	2.3	6	4	45
4RRE-015-080-445	1.5	4	2.3	8	4	45
4RRE-015-100-445	1.5	4	2.3	10	4	45
4RRE-015-120-445	1.5	4	2.3	12	4	45
4RRE-015-160-450	1.5	4	2.3	16	4	50
4RRE-020-060-445	2.0	4	3	6	4	45
4RRE-020-080-445	2.0	4	3	8	4	45
4RRE-020-100-445	2.0	4	3	10	4	45
4RRE-020-120-445	2.0	4	3	12	4	45
4RRE-020-160-450	2.0	4	3	16	4	50
4RRE-020-200-450	2.0	4	3	20	4	50
4RRE-030-080-650	3.0	4	4.5	8	6	50
4RRE-030-100-650	3.0	4	4.5	10	6	50
4RRE-030-120-650	3.0	4	4.5	12	6	50
4RRE-030-160-660	3.0	4	4.5	16	6	60
4RRE-030-200-660	3.0	4	4.5	20	6	60
4RRE-040-100-650	4.0	4	6	10	6	50
4RRE-040-120-650	4.0	4	6	12	6	50
4RRE-040-160-660	4.0	4	6	16	6	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RRE-040-200-660	4.0	4	6	20	6	60
4RRE-040-250-665	4.0	4	6	25	6	65
4RRE-050-160-660	5.0	4	8	16	6	60
4RRE-050-300-670	5.0	4	8	30	6	70
4RRE-060-150-660	6.0	4	9	15	6	60
4RRE-060-200-660	6.0	4	9	20	6	60
4RRE-060-300-670	6.0	4	9	30	6	70
4RRE-080-200-865	8.0	4	12	20	8	65
4RRE-080-300-880	8.0	4	12	30	8	80
4RRE-080-400-8A0	8.0	4	12	40	8	100
4RRE-100-250-A70	10.0	4	15	25	10	70
4RRE-100-350-AA0	10.0	4	15	35	10	100
4RRE-100-450-AA0	10.0	4	15	45	10	100
4RRE-120-300-C80	12.0	4	18	30	12	80
4RRE-120-400-CB0	12.0	4	18	40	12	110
4RRE-120-500-CB0	12.0	4	18	50	12	110

4RPE

4날 플랫 엔드밀
4 Flutes Flat End Mills



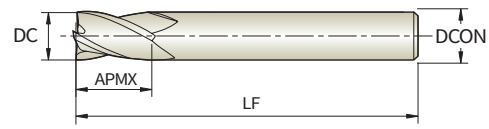
R 4 OD 30° page No.257

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4RPE-010-025-445	1.0	4	2.5	4	45
4RPE-012-040-445	1.2	4	4	4	45
4RPE-015-040-445	1.5	4	4	4	45
4RPE-020-060-445	2.0	4	6	4	45
4RPE-025-080-445	2.5	4	8	4	45
4RPE-030-100-450	3.0	4	10	4	50
4RPE-035-100-650	3.5	4	10	6	50
4RPE-040-120-450	4.0	4	12	4	50
4RPE-050-150-650	5.0	4	15	6	50
4RPE-060-150-650	6.0	4	15	6	50
4RPE-060-150-675	6.0	4	15	6	75
4RPE-070-200-865	7.0	4	20	8	65
4RPE-080-200-865	8.0	4	20	8	65
4RPE-080-200-875	8.0	4	20	8	75
4RPE-100-250-A70	10.0	4	25	10	70
4RPE-100-250-A75	10.0	4	25	10	75
4RPE-120-300-C80	12.0	4	30	12	80

4RLE

4날 롱 플랫 엔드밀
4 Flutes Long Flat End Mills



R 4 OD 30° page No.257

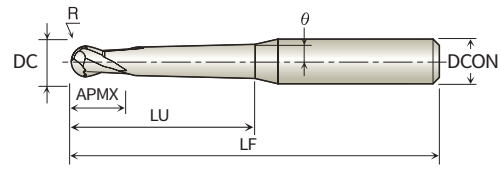
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4RLE-080-300-8A0	8.0	4	30	8	100
4RLE-100-350-AA0	10.0	4	35	10	100
4RLE-120-400-CA0	12.0	4	40	12	100

2RTB

2날 테이퍼 넥 볼 엔드밀

2 Flutes Taper Neck Ball End Mills



R 2 R 30° page No.250

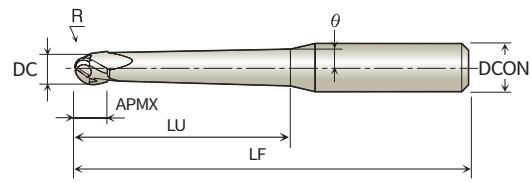
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RTB-010-010-460	1.0	2	R0.5	고객 맞춤 주문 Provide Custom-made Order	1	고객 맞춤 주문 Provide Custom-made Order	4	60
2RTB-010-010-480	1.0	2	R0.5		1		4	80
2RTB-010-010-690	1.0	2	R0.5		1		6	90
2RTB-015-015-460	1.5	2	R0.75		1.5		4	60
2RTB-015-015-480	1.5	2	R0.75		1.5		4	80
2RTB-015-015-690	1.5	2	R0.75		1.5		6	90
2RTB-020-020-470	2.0	2	R1		2		4	70
2RTB-020-020-490	2.0	2	R1		2		4	90
2RTB-020-020-690	2.0	2	R1		2		6	90
2RTB-030-030-680	3.0	2	R1.5		3		6	80
2RTB-030-030-6A0	3.0	2	R1.5		3		6	100
2RTB-030-030-8B0	3.0	2	R1.5		3		8	110
2RTB-040-040-680	4.0	2	R2		4		6	80
2RTB-040-040-6B0	4.0	2	R2		4		6	110
2RTB-040-040-8B0	4.0	2	R2		4		8	110
2RTB-050-050-890	5.0	2	R2.5		5		8	90
2RTB-050-050-8B0	5.0	2	R2.5		5		8	110
2RTB-060-060-8B0	6.0	2	R3		6		8	110
2RTB-060-060-AF0	6.0	2	R3		6		10	150
2RTB-080-080-AB0	8.0	2	R4		8		10	110
2RTB-080-080-CG0	8.0	2	R4		8		12	160
2RTB-100-100-CB0	10.0	2	R5		10		12	110
2RTB-100-100-CG0	10.0	2	R5		10		12	160
2RTB-120-120-GG0	12.0	2	R6		12		16	160

3RTB

3날 테이퍼 넥 볼 엔드밀

3 Flutes Taper Neck Ball End Mills



page No.253

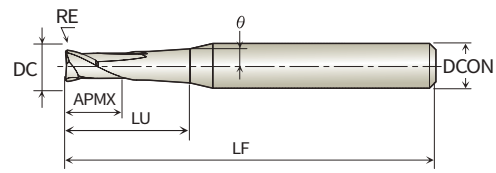
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
3RTB-010-010-460	1.0	3	R0.5	고객 맞춤 주문 Provide Custom-made Order	1	고객 맞춤 주문 Provide Custom-made Order	4	60
3RTB-010-010-480	1.0	3	R0.5		1		4	80
3RTB-010-010-690	1.0	3	R0.5		1		6	90
3RTB-015-015-460	1.5	3	R0.75		1.5		4	60
3RTB-015-015-480	1.5	3	R0.75		1.5		4	80
3RTB-015-015-690	1.5	3	R0.75		1.5		6	90
3RTB-020-020-470	2.0	3	R1		2		4	70
3RTB-020-020-490	2.0	3	R1		2		4	90
3RTB-020-020-690	2.0	3	R1		2		6	90
3RTB-030-030-680	3.0	3	R1.5		3		6	80
3RTB-030-030-6A0	3.0	3	R1.5		3		6	100
3RTB-030-030-8B0	3.0	3	R1.5		3		8	110
3RTB-040-040-680	4.0	3	R2		4		6	80
3RTB-040-040-6B0	4.0	3	R2		4		6	110
3RTB-040-040-8B0	4.0	3	R2		4		8	110
3RTB-050-050-890	5.0	3	R2.5		5		8	90
3RTB-050-050-8B0	5.0	3	R2.5		5		8	110
3RTB-060-060-8B0	6.0	3	R3		6		8	110
3RTB-060-060-AF0	6.0	3	R3		6		10	150
3RTB-080-080-AB0	8.0	3	R4		8		10	110
3RTB-080-080-CG0	8.0	3	R4		8		12	160
3RTB-100-100-CB0	10.0	3	R5		10		12	110
3RTB-100-100-CG0	10.0	3	R5		10		12	160
3RTB-120-120-GG0	12.0	3	R6		12		16	160

2RTR

2날 테이퍼 넥 코너 래디우스 엔드밀

2 Flutes Taper Neck Corner Radius End Mills



R ② CR 30° page No.258

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RTR-010-R01-010-460	1.0	2	R0.1	고객 맞춤 주문 Provide Custom-made Order	1	고객 맞춤 주문 Provide Custom-made Order	4	60
2RTR-010-R01-010-480	1.0	2	R0.1		1		4	80
2RTR-010-R01-010-680	1.0	2	R0.1		1		6	80
2RTR-010-R02-010-460	1.0	2	R0.2		1		4	60
2RTR-010-R02-010-480	1.0	2	R0.2		1		4	80
2RTR-010-R02-010-680	1.0	2	R0.2		1		6	80
2RTR-010-R03-010-460	1.0	2	R0.3		1		4	60
2RTR-010-R03-010-480	1.0	2	R0.3		1		4	80
2RTR-010-R03-010-680	1.0	2	R0.3		1		6	80
2RTR-015-R02-015-460	1.5	2	R0.2		1.5		4	60
2RTR-015-R02-015-480	1.5	2	R0.2		1.5		4	80
2RTR-015-R02-015-680	1.5	2	R0.2		1.5		6	80
2RTR-015-R03-015-460	1.5	2	R0.3		1.5		4	60
2RTR-015-R03-015-480	1.5	2	R0.3		1.5		4	80
2RTR-015-R03-015-680	1.5	2	R0.3		1.5		6	80
2RTR-015-R05-015-460	1.5	2	R0.5		1.5		4	60
2RTR-015-R05-015-480	1.5	2	R0.5		1.5		4	80
2RTR-015-R05-015-680	1.5	2	R0.5		1.5		6	80
2RTR-020-R02-020-470	2.0	2	R0.2		2		4	70
2RTR-020-R02-020-480	2.0	2	R0.2		2		4	80
2RTR-020-R02-020-680	2.0	2	R0.2		2		6	80
2RTR-020-R03-015-460	2.0	2	R0.3		1.5		4	60
2RTR-020-R03-015-480	2.0	2	R0.3		1.5		4	80
2RTR-020-R03-015-680	2.0	2	R0.3		1.5		6	80
2RTR-020-R05-020-470	2.0	2	R0.5		2		4	70

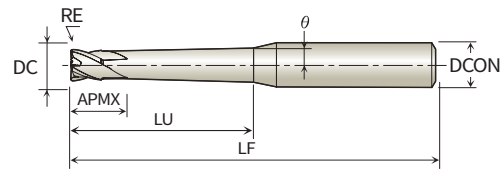
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2RTR-020-R05-020-480	2.0	2	R0.5	고객 맞춤 주문 Provide Custom- made Order	2	고객 맞춤 주문 Provide Custom- made Order	4	80
2RTR-020-R05-020-680	2.0	2	R0.5		2		6	80
2RTR-030-R02-030-680	3.0	2	R0.2		3		6	80
2RTR-030-R02-030-6A0	3.0	2	R0.2		3		6	100
2RTR-030-R03-030-680	3.0	2	R0.3		3		6	80
2RTR-030-R03-030-6A0	3.0	2	R0.3		3		6	100
2RTR-030-R05-030-680	3.0	2	R0.5		3		6	80
2RTR-030-R05-030-6A0	3.0	2	R0.5		3		6	100
2RTR-040-R02-040-680	4.0	2	R0.2		4		6	80
2RTR-040-R02-040-6A0	4.0	2	R0.2		4		6	100
2RTR-040-R03-040-680	4.0	2	R0.3		4		6	80
2RTR-040-R03-040-6A0	4.0	2	R0.3		4		6	100
2RTR-040-R05-040-680	4.0	2	R0.5		4		6	80
2RTR-040-R05-040-6A0	4.0	2	R0.5		4		6	100
2RTR-040-R10-040-680	4.0	2	R1		4		6	80
2RTR-040-R10-040-6A0	4.0	2	R1		4		6	100

4RTR

4날 테이퍼 넥 코너 래디우스 엔드밀

4 Flutes Taper Neck Corner Radius End Mills



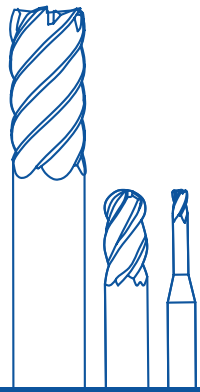
R | 4 | CR | 30° | page No.254

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RTR-010-R01-010-460	1.0	4	R0.1	고객 맞춤 주문 Provide Custom-made Order	1	고객 맞춤 주문 Provide Custom-made Order	4	60
4RTR-010-R01-010-480	1.0	4	R0.1		1		4	80
4RTR-010-R01-010-680	1.0	4	R0.1		1		6	80
4RTR-010-R02-010-460	1.0	4	R0.2		1		4	60
4RTR-010-R02-010-480	1.0	4	R0.2		1		4	80
4RTR-010-R02-010-680	1.0	4	R0.2		1		6	80
4RTR-015-R02-015-460	1.5	4	R0.2		1.5		4	60
4RTR-015-R02-015-480	1.5	4	R0.2		1.5		4	80
4RTR-015-R02-015-680	1.5	4	R0.2		1.5		6	80
4RTR-015-R03-015-460	1.5	4	R0.3		1.5		4	60
4RTR-015-R03-015-480	1.5	4	R0.3		1.5		4	80
4RTR-015-R03-015-680	1.5	4	R0.3		1.5		6	80
4RTR-015-R05-015-460	1.5	4	R0.5		1.5		4	60
4RTR-015-R05-015-480	1.5	4	R0.5		1.5		4	80
4RTR-015-R05-015-680	1.5	4	R0.5		1.5		6	80
4RTR-020-R02-020-470	2.0	4	R0.2		2		4	70
4RTR-020-R02-020-480	2.0	4	R0.2		2		4	80
4RTR-020-R02-020-680	2.0	4	R0.2		2		6	80
4RTR-020-R05-020-470	2.0	4	R0.5		2		4	70
4RTR-020-R05-020-480	2.0	4	R0.5		2		4	80
4RTR-020-R05-020-680	2.0	4	R0.5		2		6	80
4RTR-025-R03-025-470	2.5	4	R0.3		2.5		4	70
4RTR-025-R03-025-480	2.5	4	R0.3		2.5		4	80
4RTR-025-R03-025-680	2.5	4	R0.3		2.5		6	80
4RTR-025-R05-025-470	2.5	4	R0.5		2.5		4	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	테이퍼각 PSIR	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4RTR-025-R05-025-480	2.5	4	R0.5		2.5		4	80
4RTR-025-R05-025-680	2.5	4	R0.5		2.5		6	80
4RTR-030-R03-030-680	3.0	4	R0.3		3		6	80
4RTR-030-R03-030-6A0	3.0	4	R0.3		3		6	100
4RTR-030-R05-030-680	3.0	4	R0.5		3		6	80
4RTR-030-R05-030-6A0	3.0	4	R0.5		3		6	100
4RTR-040-R03-040-680	4.0	4	R0.3		4		6	80
4RTR-040-R03-040-6A0	4.0	4	R0.3		4		6	100
4RTR-040-R05-040-680	4.0	4	R0.5		4		6	80
4RTR-040-R05-040-6A0	4.0	4	R0.5		4		6	100



- 내마모성 및 Chattering 방지 극대화
- 고정밀 공차 적용으로 초정밀 가공에 적합
- 고속 가공용으로 설계

- Maximized the wear resistance and chattering
- Optimized to high precision in machining by applying close tolerance
- Designed for high speed cutting

볼 Ball

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
0.1 ~ 0.25	0 ~ -0.005	R0.05 ~ R2.9	±0.005
0.3 ~ 5.8	0 ~ -0.010	R3 ~ R6	±0.010
6 ~ 12	0 ~ -0.015	R6.5 ~ R10	±0.015
13 ~ 20	0 ~ -0.020		

코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
0.2 ~ 0.25	0 ~ -0.005	R0.02 ~ R0.5	±0.005
0.3 ~ 5	0 ~ -0.010	R1 ~ R1.5	±0.010
6 ~ 12	0 ~ -0.015	R2 ~ R3	±0.015
16 ~ 20	0 ~ -0.020		

HIT 고속고이송 High Speed & Feedrate

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
0.8 ~ 5	0 ~ -0.010	R0.02 ~ R0.5	±0.005
6 ~ 12	0 ~ -0.015	R1 ~ R1.5	±0.010
		R2	±0.015

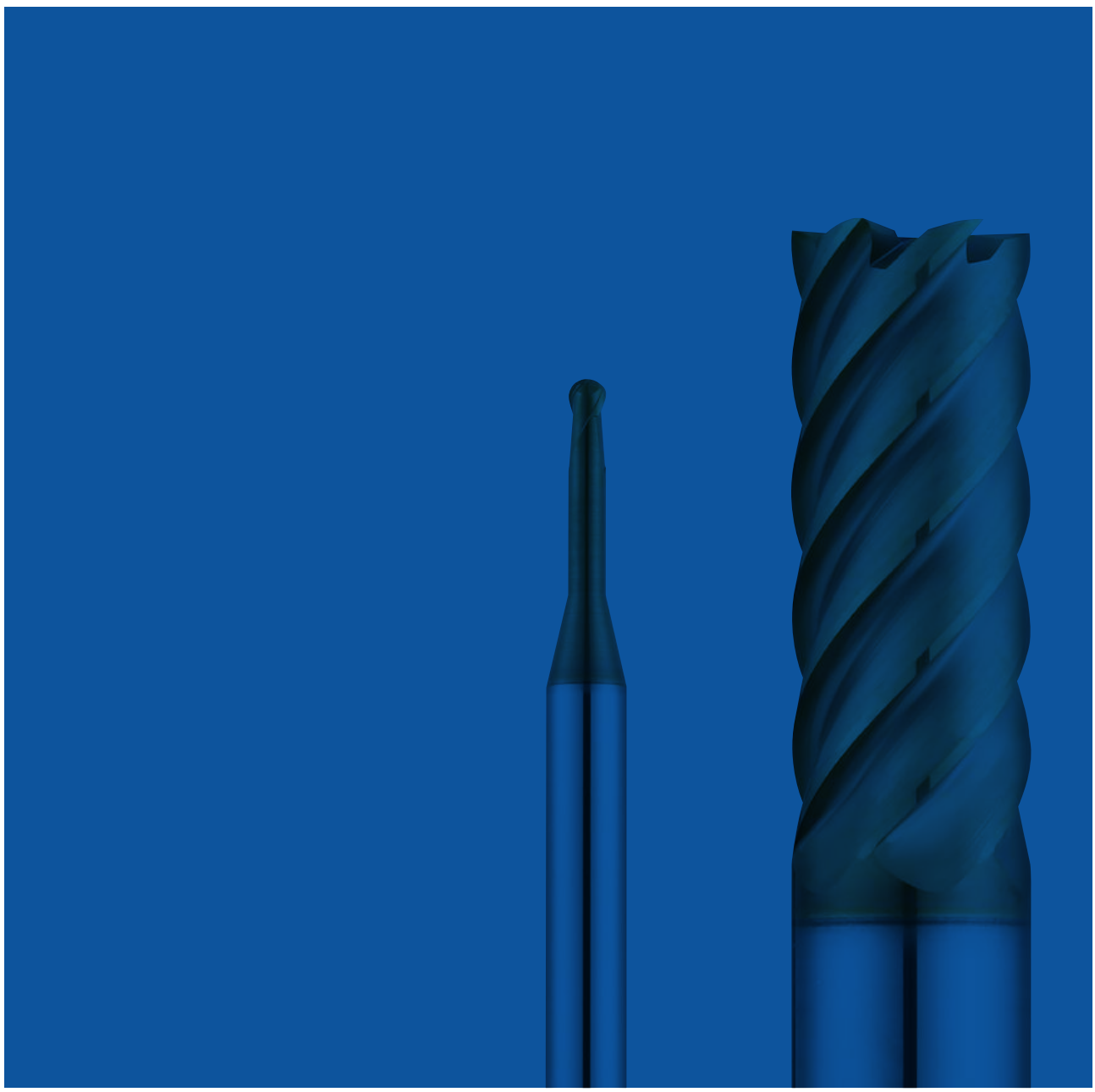
코너 라운딩 커터 Inner Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
0.5 ~ 0.9	0 ~ -0.010	R0.1 ~ R2.5	±0.010
1.4 ~ 5.9	0 ~ -0.020	R3 ~ R8	±0.020

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance		
0.05 ~ 0.25	0 ~ -0.005		
0.3 ~ 5.9	0 ~ -0.010		
6 ~ 12	0 ~ -0.015		
13 ~ 25	0 ~ -0.020		

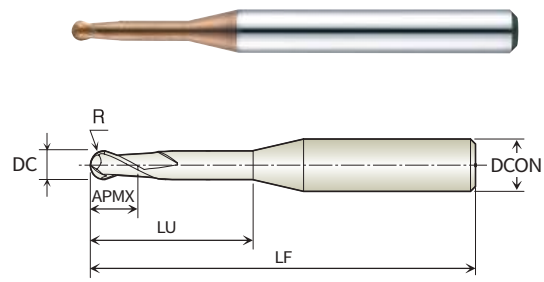
H-PRO 02



2HRB

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills



H 2 R 30° page No.260

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-001-003-445	0.1	2	R0.05	0.1	0.3	4	45
2HRB-001-005-445	0.1	2	R0.05	0.1	0.3	4	45
2HRB-0015-005-445	0.15	2	R0.075	0.15	0.5	4	45
2HRB-0016-005-445	0.16	2	R0.08	0.16	0.5	4	45
2HRB-002-005-445	0.2	2	R0.1	0.2	0.5	4	45
2HRB-002-005-650	0.2	2	R0.1	0.2	0.5	6	50
2HRB-002-010-445	0.2	2	R0.1	0.2	1	4	45
2HRB-002-015-445	0.2	2	R0.1	0.2	1.5	4	45
2HRB-002-020-445	0.2	2	R0.1	0.2	2	4	45
2HRB-002-025-445	0.2	2	R0.1	0.2	2.5	4	45
2HRB-002-030-445	0.2	2	R0.1	0.2	3	4	45
2HRB-0025-008-445	0.25	2	R0.125	0.25	0.8	4	45
2HRB-003-005-445	0.3	2	R0.15	0.3	0.5	4	45
2HRB-003-010-445	0.3	2	R0.15	0.3	1	4	45
2HRB-003-015-445	0.3	2	R0.15	0.3	1.5	4	45
2HRB-003-020-445	0.3	2	R0.15	0.3	2	4	45
2HRB-003-025-445	0.3	2	R0.15	0.3	2.5	4	45
2HRB-003-030-445	0.3	2	R0.15	0.3	3	4	45
2HRB-003-035-445	0.3	2	R0.15	0.3	3.5	4	45
2HRB-003-040-445	0.3	2	R0.15	0.3	4	4	45
2HRB-003-050-445	0.3	2	R0.15	0.3	5	4	45
2HRB-004-010-445	0.4	2	R0.2	0.4	1	4	45
2HRB-004-010-650	0.4	2	R0.2	0.4	1	6	50
2HRB-004-015-445	0.4	2	R0.2	0.4	1.5	4	45
2HRB-004-020-445	0.4	2	R0.2	0.4	2	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-004-025-445	0.4	2	R0.2	0.4	2.5	4	45
2HRB-004-030-445	0.4	2	R0.2	0.4	3	4	45
2HRB-004-035-445	0.4	2	R0.2	0.4	3.5	4	45
2HRB-004-040-445	0.4	2	R0.2	0.4	4	4	45
2HRB-004-045-445	0.4	2	R0.2	0.4	4.5	4	45
2HRB-004-050-445	0.4	2	R0.2	0.4	5	4	45
2HRB-004-060-445	0.4	2	R0.2	0.4	6	4	45
2HRB-004-080-445	0.4	2	R0.2	0.4	8	4	45
2HRB-004-100-445	0.4	2	R0.2	0.4	10	4	45
2HRB-005-010-445	0.5	2	R0.25	0.5	1	4	45
2HRB-005-015-445	0.5	2	R0.25	0.5	1.5	4	45
2HRB-005-015-650	0.5	2	R0.25	0.5	1.5	6	50
2HRB-005-020-445	0.5	2	R0.25	0.5	2	4	45
2HRB-005-025-445	0.5	2	R0.25	0.5	2.5	4	45
2HRB-005-030-445	0.5	2	R0.25	0.5	3	4	45
2HRB-005-035-445	0.5	2	R0.25	0.5	3.5	4	45
2HRB-005-040-445	0.5	2	R0.25	0.5	4	4	45
2HRB-005-045-445	0.5	2	R0.25	0.5	4.5	4	45
2HRB-005-050-445	0.5	2	R0.25	0.5	5	4	45
2HRB-005-060-445	0.5	2	R0.25	0.5	6	4	45
2HRB-005-080-445	0.5	2	R0.25	0.5	8	4	45
2HRB-005-100-445	0.5	2	R0.25	0.5	10	4	45
2HRB-005-120-445	0.5	2	R0.25	0.5	12	4	45
2HRB-005-140-445	0.5	2	R0.25	0.5	14	4	45
2HRB-006-010-445	0.6	2	R0.3	0.6	1	4	45
2HRB-006-015-650	0.6	2	R0.3	0.6	1.5	6	50
2HRB-006-020-445	0.6	2	R0.3	0.6	2	4	45
2HRB-006-030-445	0.6	2	R0.3	0.6	3	4	45
2HRB-006-040-445	0.6	2	R0.3	0.6	4	4	45
2HRB-006-050-445	0.6	2	R0.3	0.6	5	4	45
2HRB-006-060-445	0.6	2	R0.3	0.6	6	4	45
2HRB-006-080-445	0.6	2	R0.3	0.6	8	4	45
2HRB-006-100-445	0.6	2	R0.3	0.6	10	4	45
2HRB-006-120-445	0.6	2	R0.3	0.6	12	4	45
2HRB-006-140-445	0.6	2	R0.3	0.6	14	4	45
2HRB-006-160-445	0.6	2	R0.3	0.6	16	4	45
2HRB-007-020-445	0.7	2	R0.35	0.7	2	4	45
2HRB-007-040-445	0.7	2	R0.35	0.7	4	4	45
2HRB-007-060-445	0.7	2	R0.35	0.7	6	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-007-080-445	0.7	2	R0.35	0.7	8	4	45
2HRB-007-100-445	0.7	2	R0.35	0.7	10	4	45
2HRB-007-120-445	0.7	2	R0.35	0.7	12	4	45
2HRB-008-020-445	0.8	2	R0.4	0.8	2	4	45
2HRB-008-020-650	0.8	2	R0.4	0.8	2	6	50
2HRB-008-030-445	0.8	2	R0.4	0.8	3	4	45
2HRB-008-040-445	0.8	2	R0.4	0.8	4	4	45
2HRB-008-050-445	0.8	2	R0.4	0.8	5	4	45
2HRB-008-060-445	0.8	2	R0.4	0.8	6	4	45
2HRB-008-080-445	0.8	2	R0.4	0.8	8	4	45
2HRB-008-100-445	0.8	2	R0.4	0.8	10	4	45
2HRB-008-120-445	0.8	2	R0.4	0.8	12	4	45
2HRB-008-140-445	0.8	2	R0.4	0.8	14	4	45
2HRB-008-160-445	0.8	2	R0.4	0.8	16	4	45
2HRB-009-040-445	0.9	2	R0.45	0.9	4	4	45
2HRB-010-020-445	1	2	R0.5	1	2	4	45
2HRB-010-025-650	1	2	R0.5	1	2.5	6	50
2HRB-010-030-445	1	2	R0.5	1	3	4	45
2HRB-010-040-445	1	2	R0.5	1	4	4	45
2HRB-010-050-445	1	2	R0.5	1	5	4	45
2HRB-010-060-445	1	2	R0.5	1	6	4	45
2HRB-010-080-445	1	2	R0.5	1	8	4	45
2HRB-010-100-445	1	2	R0.5	1	10	4	45
2HRB-010-120-445	1	2	R0.5	1	12	4	45
2HRB-010-140-450	1	2	R0.5	1	14	4	50
2HRB-010-160-450	1	2	R0.5	1	16	4	50
2HRB-010-180-450	1	2	R0.5	1	18	4	50
2HRB-010-200-450	1	2	R0.5	1	20	4	50
2HRB-010-220-460	1	2	R0.5	1	22	4	60
2HRB-010-250-460	1	2	R0.5	1	25	4	60
2HRB-010-300-470	1	2	R0.5	1	30	4	70
2HRB-012-030-650	1.2	2	R0.6	1.2	3	6	50
2HRB-012-040-445	1.2	2	R0.6	1.2	4	4	45
2HRB-012-060-445	1.2	2	R0.6	1.2	6	4	45
2HRB-012-080-445	1.2	2	R0.6	1.2	8	4	45
2HRB-012-100-445	1.2	2	R0.6	1.2	10	4	45
2HRB-012-120-445	1.2	2	R0.6	1.2	12	4	45
2HRB-012-140-450	1.2	2	R0.6	1.2	14	4	50
2HRB-012-160-450	1.2	2	R0.6	1.2	16	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-012-200-450	1.2	2	R0.6	1.2	20	4	50
2HRB-012-240-460	1.2	2	R0.6	1.2	24	4	60
2HRB-014-060-445	1.4	2	R0.7	1.4	6	4	45
2HRB-014-080-445	1.4	2	R0.7	1.4	8	4	45
2HRB-014-120-445	1.4	2	R0.7	1.4	12	4	45
2HRB-014-160-450	1.4	2	R0.7	1.4	16	4	50
2HRB-015-030-445	1.5	2	R0.75	1.5	3	4	45
2HRB-015-040-445	1.5	2	R0.75	1.5	4	4	45
2HRB-015-040-650	1.5	2	R0.75	1.5	4	6	50
2HRB-015-060-445	1.5	2	R0.75	1.5	6	4	45
2HRB-015-080-445	1.5	2	R0.75	1.5	8	4	45
2HRB-015-100-445	1.5	2	R0.75	1.5	10	4	45
2HRB-015-120-445	1.5	2	R0.75	1.5	12	4	45
2HRB-015-140-450	1.5	2	R0.75	1.5	14	4	50
2HRB-015-160-450	1.5	2	R0.75	1.5	16	4	50
2HRB-015-180-450	1.5	2	R0.75	1.5	18	4	50
2HRB-015-200-450	1.5	2	R0.75	1.5	20	4	50
2HRB-015-220-460	1.5	2	R0.75	1.5	22	4	60
2HRB-015-250-460	1.5	2	R0.75	1.5	25	4	60
2HRB-015-300-470	1.5	2	R0.75	1.5	30	4	70
2HRB-015-350-470	1.5	2	R0.75	1.5	35	4	70
2HRB-015-400-480	1.5	2	R0.75	1.5	40	4	80
2HRB-016-060-445	1.6	2	R0.8	1.6	6	4	45
2HRB-016-080-445	1.6	2	R0.8	1.6	8	4	45
2HRB-016-120-445	1.6	2	R0.8	1.6	12	4	45
2HRB-016-160-450	1.6	2	R0.8	1.6	16	4	50
2HRB-016-200-450	1.6	2	R0.8	1.6	20	4	50
2HRB-018-060-445	1.8	2	R0.9	1.8	6	4	45
2HRB-018-080-445	1.8	2	R0.9	1.8	8	4	45
2HRB-018-120-445	1.8	2	R0.9	1.8	12	4	45
2HRB-018-160-450	1.8	2	R0.9	1.8	16	4	50
2HRB-018-200-450	1.8	2	R0.9	1.8	20	4	50
2HRB-020-040-445	2	2	R1.0	2	4	4	45
2HRB-020-060-445	2	2	R1.0	2	6	4	45
2HRB-020-060-650	2	2	R1.0	2	6	6	50
2HRB-020-080-445	2	2	R1.0	2	8	4	45
2HRB-020-100-445	2	2	R1.0	2	10	4	45
2HRB-020-120-445	2	2	R1.0	2	12	4	45
2HRB-020-140-450	2	2	R1.0	2	14	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-020-160-450	2	2	R1.0	2	16	4	50
2HRB-020-180-450	2	2	R1.0	2	18	4	50
2HRB-020-200-450	2	2	R1.0	2	20	4	50
2HRB-020-220-460	2	2	R1.0	2	22	4	60
2HRB-020-250-460	2	2	R1.0	2	25	4	60
2HRB-020-300-470	2	2	R1.0	2	30	4	70
2HRB-020-350-470	2	2	R1.0	2	35	4	70
2HRB-020-400-480	2	2	R1.0	2	40	4	80
2HRB-020-450-480	2	2	R1.0	2	45	4	80
2HRB-020-500-490	2	2	R1.0	2	50	4	90
2HRB-025-060-650	2.5	2	R1.25	2.5	6	6	50
2HRB-025-080-445	2.5	2	R1.25	2.5	8	4	45
2HRB-025-100-445	2.5	2	R1.25	2.5	10	4	45
2HRB-025-120-445	2.5	2	R1.25	2.5	12	4	45
2HRB-025-160-450	2.5	2	R1.25	2.5	16	4	50
2HRB-025-200-450	2.5	2	R1.25	2.5	20	4	50
2HRB-025-250-460	2.5	2	R1.25	2.5	25	4	60
2HRB-025-300-470	2.5	2	R1.25	2.5	30	4	70
2HRB-025-350-470	2.5	2	R1.25	2.5	35	4	70
2HRB-025-400-480	2.5	2	R1.25	2.5	40	4	80
2HRB-030-060-360	3	2	R1.5	3	6	3	60
2HRB-030-060-650	3	2	R1.5	3	6	6	50
2HRB-030-080-650	3	2	R1.5	3	8	6	50
2HRB-030-100-650	3	2	R1.5	3	10	6	50
2HRB-030-120-650	3	2	R1.5	3	12	6	50
2HRB-030-140-660	3	2	R1.5	3	14	6	60
2HRB-030-160-660	3	2	R1.5	3	16	6	60
2HRB-030-180-660	3	2	R1.5	3	18	6	60
2HRB-030-200-660	3	2	R1.5	3	20	6	60
2HRB-030-250-665	3	2	R1.5	3	25	6	65
2HRB-030-300-670	3	2	R1.5	3	30	6	70
2HRB-030-350-680	3	2	R1.5	3	35	6	80
2HRB-030-400-680	3	2	R1.5	3	40	6	80
2HRB-030-450-690	3	2	R1.5	3	45	6	90
2HRB-030-500-6A0	3	2	R1.5	3	50	6	100
2HRB-030-600-6B0	3	2	R1.5	3	60	6	110
2HRB-030-650-6B0	3	2	R1.5	3	65	6	110
2HRB-030-700-6B0	3	2	R1.5	3	70	6	110
2HRB-040-080-470	4	2	R2.0	4	8	4	70

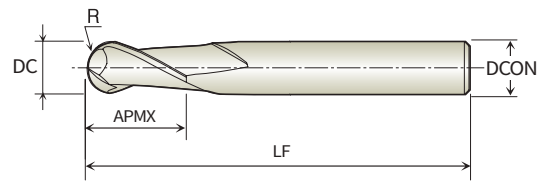
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRB-040-080-650	4	2	R2.0	4	8	6	50
2HRB-040-100-650	4	2	R2.0	4	10	6	50
2HRB-040-120-650	4	2	R2.0	4	12	6	50
2HRB-040-140-660	4	2	R2.0	4	14	6	60
2HRB-040-160-660	4	2	R2.0	4	16	6	60
2HRB-040-200-660	4	2	R2.0	4	20	6	60
2HRB-040-250-665	4	2	R2.0	4	25	6	65
2HRB-040-300-670	4	2	R2.0	4	30	6	70
2HRB-040-350-680	4	2	R2.0	4	35	6	80
2HRB-040-400-680	4	2	R2.0	4	40	6	80
2HRB-040-450-690	4	2	R2.0	4	45	6	90
2HRB-040-500-6A0	4	2	R2.0	4	50	6	100
2HRB-040-550-6B0	4	2	R2.0	4	55	6	110
2HRB-040-600-6B0	4	2	R2.0	4	60	6	110
2HRB-040-650-6B0	4	2	R2.0	4	65	6	110
2HRB-040-700-6B0	4	2	R2.0	4	70	6	110
2HRB-050-120-650	5	2	R2.5	5	12	6	50
2HRB-050-160-660	5	2	R2.5	5	16	6	60
2HRB-050-200-660	5	2	R2.5	5	20	6	60
2HRB-050-250-665	5	2	R2.5	5	25	6	65
2HRB-050-300-670	5	2	R2.5	5	30	6	70
2HRB-050-400-680	5	2	R2.5	5	40	6	80
2HRB-050-450-690	5	2	R2.5	5	45	6	90
2HRB-050-500-6A0	5	2	R2.5	5	50	6	100
2HRB-050-600-6B0	5	2	R2.5	5	60	6	110
2HRB-050-650-6B0	5	2	R2.5	5	65	6	110
2HRB-050-700-6B0	5	2	R2.5	5	70	6	110
2HRB-060-150-660	6	2	R3.0	7	15	6	60
2HRB-060-300-670	6	2	R3.0	6	30	6	70
2HRB-060-300-690	6	2	R3.0	6	30	6	90
2HRB-080-200-860	8	2	R4.0	10	20	8	60
2HRB-080-300-880	8	2	R4.0	8	30	8	80
2HRB-100-250-A70	10	2	R5.0	12	25	10	70
2HRB-100-350-AA0	10	2	R5.0	10	35	10	100
2HRB-120-300-C80	12	2	R6.0	14	30	12	80
2HRB-120-400-CB0	12	2	R6.0	12	40	12	110

2HSB

2날 숏 볼 엔드밀

2 Flutes Short Ball End Mills



H 2 R 30° page No.261

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HSB-001-001-440	0.1	2	R0.05	0.1	4	40
2HSB-002-002-440	0.2	2	R0.1	0.2	4	40
2HSB-002-003-440	0.2	2	R0.1	0.3	4	40
2HSB-003-003-440	0.3	2	R0.15	0.3	4	40
2HSB-004-004-440	0.4	2	R0.2	0.4	4	40
2HSB-004-006-440	0.4	2	R0.2	0.6	4	40
2HSB-005-005-440	0.5	2	R0.25	0.5	4	40
2HSB-006-006-440	0.6	2	R0.3	0.6	4	40
2HSB-007-007-440	0.7	2	R0.35	0.7	4	40
2HSB-008-008-440	0.8	2	R0.4	0.8	4	40
2HSB-009-009-440	0.9	2	R0.45	0.9	4	40
2HSB-010-010-440	1	2	R0.5	1	4	40
2HSB-010-010-640	1	2	R0.5	1	6	40
2HSB-010-015-440	1	2	R0.5	1.5	4	40
2HSB-010-015-640	1	2	R0.5	1.5	6	40
2HSB-015-015-440	1.5	2	R0.75	1.5	4	40
2HSB-015-015-640	1.5	2	R0.75	1.5	6	40
2HSB-015-023-440	1.5	2	R0.75	2.3	4	40
2HSB-015-023-640	1.5	2	R0.75	2.3	6	40
2HSB-020-020-445	2	2	R1.0	2	4	45
2HSB-020-020-645	2	2	R1.0	2	6	45
2HSB-020-030-445	2	2	R1.0	3	4	45
2HSB-020-030-645	2	2	R1.0	3	6	45
2HSB-030-030-445	3	2	R1.5	3	4	45
2HSB-030-030-645	3	2	R1.5	3	6	45

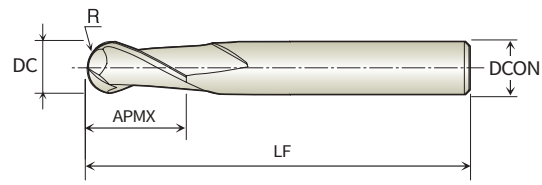
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HSB-030-045-445	3	2	R1.5	4.5	4	45
2HSB-030-045-645	3	2	R1.5	4.5	6	45
2HSB-040-040-445	4	2	R2.0	4	4	45
2HSB-040-040-645	4	2	R2.0	4	6	45
2HSB-040-060-445	4	2	R2.0	6	4	45
2HSB-040-060-645	4	2	R2.0	6	6	45
2HSB-050-050-650	5	2	R2.5	5	6	50
2HSB-050-075-650	5	2	R2.5	7.5	6	50
2HSB-060-060-650	6	2	R3.0	6	6	50
2HSB-060-080-660	6	2	R3.0	8	6	60
2HSB-080-080-850	8	2	R4.0	8	8	50
2HSB-080-110-860	8	2	R4.0	11	8	60
2HSB-100-100-A60	10	2	R5.0	10	10	60
2HSB-100-130-A60	10	2	R5.0	13	10	60
2HSB-120-120-C60	12	2	R6.0	12	12	60
2HSB-120-150-C60	12	2	R6.0	15	12	60

2HPB

2날 볼 엔드밀
2 Flutes Ball End Mills

H 2 R 30° page No.262



(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HPB-001-002-445	0.1	2	R0.05	0.2	4	45
2HPB-0015-003-445	0.15	2	R0.075	0.3	4	45
2HPB-002-004-445	0.2	2	R0.1	0.4	4	45
2HPB-003-006-445	0.3	2	R0.15	0.6	4	45
2HPB-004-008-445	0.4	2	R0.2	0.8	4	45
2HPB-004-008-645	0.4	2	R0.2	0.8	6	45
2HPB-005-010-445	0.5	2	R0.25	1	4	45
2HPB-005-010-645	0.5	2	R0.25	1	6	45
2HPB-006-012-445	0.6	2	R0.3	1.2	4	45
2HPB-006-012-645	0.6	2	R0.3	1.2	6	45
2HPB-007-015-445	0.7	2	R0.35	1.5	4	45
2HPB-008-015-445	0.8	2	R0.4	1.5	4	45
2HPB-008-015-645	0.8	2	R0.4	1.5	6	45
2HPB-010-020-350	1	2	R0.5	2	3	50
2HPB-010-020-450	1	2	R0.5	2	4	50
2HPB-010-020-650	1	2	R0.5	2	6	50
2HPB-011-024-450	1.1	2	R0.55	2.4	4	50
2HPB-012-025-350	1.2	2	R0.6	2.5	3	50
2HPB-012-025-450	1.2	2	R0.6	2.5	4	50
2HPB-012-025-650	1.2	2	R0.6	2.5	6	50
2HPB-013-032-450	1.3	2	R0.65	3.2	4	50
2HPB-014-035-450	1.4	2	R0.7	3.5	4	50
2HPB-015-040-350	1.5	2	R0.75	4	3	50
2HPB-015-040-450	1.5	2	R0.75	4	4	50
2HPB-015-040-650	1.5	2	R0.75	4	6	50

(Unit: mm)

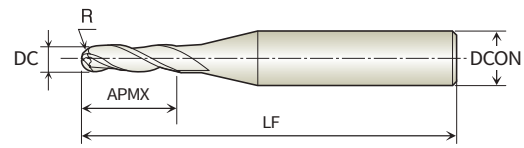
제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HPB-015-040-670	1.5	2	R0.75	4	6	70
2HPB-015-040-6A0	1.5	2	R0.75	4	6	100
2HPB-016-040-450	1.6	2	R0.8	4	4	50
2HPB-017-042-450	1.7	2	R0.85	4.2	4	50
2HPB-018-045-450	1.8	2	R0.9	4.5	4	50
2HPB-019-047-450	1.9	2	R0.95	4.7	4	50
2HPB-020-050-350	2	2	R1.0	5	3	50
2HPB-020-050-450	2	2	R1.0	5	4	50
2HPB-020-050-660	2	2	R1.0	5	6	60
2HPB-020-050-680	2	2	R1.0	5	6	80
2HPB-020-050-6A0	2	2	R1.0	5	6	100
2HPB-022-055-450	2.2	2	R1.1	5.5	4	50
2HPB-024-060-450	2.4	2	R1.2	6	4	50
2HPB-025-060-350	2.5	2	R1.25	6	3	50
2HPB-025-060-450	2.5	2	R1.25	6	4	50
2HPB-025-060-660	2.5	2	R1.25	6	6	60
2HPB-025-060-680	2.5	2	R1.25	6	6	80
2HPB-025-060-6A0	2.5	2	R1.25	6	6	100
2HPB-026-060-450	2.6	2	R1.3	6	4	50
2HPB-028-070-450	2.8	2	R1.4	7	4	50
2HPB-030-080-360	3	2	R1.5	8	3	60
2HPB-030-080-460	3	2	R1.5	8	4	60
2HPB-030-080-660	3	2	R1.5	8	6	60
2HPB-030-080-680	3	2	R1.5	8	6	80
2HPB-030-080-6A0	3	2	R1.5	8	6	100
2HPB-032-080-460	3.2	2	R1.6	8	4	60
2HPB-034-080-460	2.4	2	R1.7	8	4	60
2HPB-035-080-660	3.5	2	R1.75	8	6	60
2HPB-036-080-460	3.6	2	R1.8	8	4	60
2HPB-038-080-460	3.8	2	R1.9	8	4	60
2HPB-040-080-460	4	2	R2.0	8	4	60
2HPB-040-080-480	4	2	R2.0	8	4	80
2HPB-040-080-670	4	2	R2.0	8	6	70
2HPB-040-080-690	4	2	R2.0	8	6	90
2HPB-040-080-6C0	4	2	R2.0	8	6	120
2HPB-042-100-670	4.2	2	R2.1	10	6	70
2HPB-044-100-670	4.4	2	R2.2	10	6	70
2HPB-045-100-670	4.5	2	R2.25	10	6	70
2HPB-046-100-670	4.6	2	R2.3	10	6	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HPB-047-100-670	4.7	2	R2.35	10	6	70
2HPB-048-100-670	4.8	2	R2.4	10	6	70
2HPB-050-100-680	5	2	R2.5	10	6	80
2HPB-052-120-680	5.2	2	R2.6	12	6	80
2HPB-054-120-680	5.4	2	R2.7	12	6	80
2HPB-055-120-680	5.5	2	R2.75	12	6	80
2HPB-056-120-680	5.6	2	R2.8	12	6	80
2HPB-058-120-680	5.8	2	R2.9	12	6	80
2HPB-060-120-675	6	2	R3.0	12	6	75
2HPB-060-120-680	6	2	R3.0	12	6	80
2HPB-060-120-690	6	2	R3.0	12	6	90
2HPB-060-120-6C0	6	2	R3.0	12	6	120
2HPB-060-120-6F0	6	2	R3.0	12	6	150
2HPB-070-140-8A0	7	2	R3.5	14	8	100
2HPB-080-140-875	8	2	R4.0	14	8	75
2HPB-080-140-8A0	8	2	R4.0	14	8	100
2HPB-080-140-8D0	8	2	R4.0	14	8	130
2HPB-080-140-8F0	8	2	R4.0	14	8	150
2HPB-090-180-AA0	9	2	R4.5	18	10	100
2HPB-100-180-A75	10	2	R5.0	18	10	75
2HPB-100-180-AA0	10	2	R5.0	18	10	100
2HPB-100-180-AD0	10	2	R5.0	18	10	130
2HPB-100-180-AF0	10	2	R5.0	18	10	150
2HPB-100-180-AI0	10	2	R5.0	18	10	180
2HPB-110-220-CB0	11	2	R5.5	22	12	110
2HPB-120-220-CB0	12	2	R6.0	22	12	110
2HPB-120-220-CD0	12	2	R6.0	22	12	130
2HPB-120-220-CF0	12	2	R6.0	22	12	150
2HPB-120-220-CK0	12	2	R6.0	22	12	200
2HPB-130-240-EB0	13	2	R6.5	24	14	110
2HPB-140-240-EB0	14	2	R7.0	24	14	110
2HPB-160-300-GB0	16	2	R8.0	30	16	110
2HPB-160-300-GF0	16	2	R8.0	30	16	150
2HPB-200-380-KB0	20	2	R10.0	38	20	110
2HPB-200-380-KF0	20	2	R10.0	38	20	150

3HPB

3날 볼 엔드밀
3 Flutes Ball End Mills



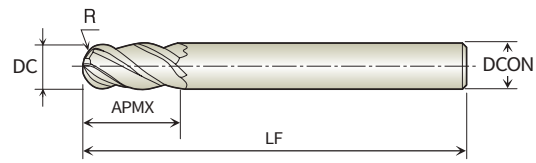
H 3 R 30° page No.263

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
3HPB-010-020-650	1	3	R0.5	2	6	50
3HPB-020-050-660	2	3	R1.0	5	6	60
3HPB-030-080-660	3	3	R1.5	8	6	60
3HPB-040-080-460	4	3	R2.0	8	4	60
3HPB-040-080-670	4	3	R2.0	8	6	70
3HPB-050-100-680	5	3	R2.5	10	6	80
3HPB-060-120-690	6	3	R3.0	12	6	90
3HPB-080-140-8A0	8	3	R4.0	14	8	100
3HPB-100-180-AA0	10	3	R5.0	18	10	100
3HPB-120-220-CB0	12	3	R6.0	22	12	110

4HPB

4날 볼 엔드밀
4 Flutes Ball End Mills



H 4 R 30° page No.264

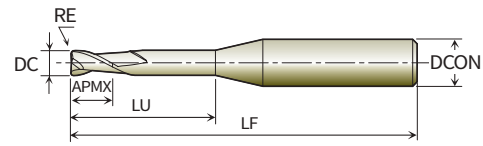
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HPB-010-020-650	1	4	R0.5	2	6	50
4HPB-015-040-650	1.5	4	R0.75	4	6	50
4HPB-020-050-660	2	4	R1.0	5	6	60
4HPB-030-080-660	3	4	R1.5	8	6	60
4HPB-040-080-460	4	4	R2.0	8	4	60
4HPB-040-080-670	4	4	R2.0	8	6	70
4HPB-050-100-680	5	4	R2.5	10	6	80
4HPB-060-120-690	6	4	R3.0	12	6	90
4HPB-080-140-8A0	8	4	R4.0	14	8	100
4HPB-100-180-AA0	10	4	R5.0	18	10	100
4HPB-120-220-CB0	12	4	R6.0	22	12	110
4HPB-160-300-GD0	16	4	R8.0	30	16	130
4HPB-200-380-KF0	20	4	R10.0	38	20	150

2HRR

2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



H CR 30° page No.265

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-002-R002-005-445	0.2	2	R0.02	0.3	0.5	4	45
2HRR-002-R002-010-445	0.2	2	R0.02	0.3	1	4	45
2HRR-002-R002-015-445	0.2	2	R0.02	0.3	1.5	4	45
2HRR-002-R005-010-445	0.2	2	R0.05	0.3	1	4	45
2HRR-002-R005-015-445	0.2	2	R0.05	0.3	1.5	4	45
2HRR-003-R005-010-445	0.3	2	R0.05	0.45	1	4	45
2HRR-003-R005-020-445	0.3	2	R0.05	0.45	2	4	45
2HRR-003-R005-030-445	0.3	2	R0.05	0.45	3	4	45
2HRR-004-R005-010-445	0.4	2	R0.05	0.6	1	4	45
2HRR-004-R005-020-445	0.4	2	R0.05	0.6	2	4	45
2HRR-004-R005-030-445	0.4	2	R0.05	0.6	3	4	45
2HRR-004-R005-040-445	0.4	2	R0.05	0.6	4	4	45
2HRR-004-R01-010-445	0.4	2	R0.1	0.6	1	4	45
2HRR-004-R01-015-445	0.4	2	R0.1	0.6	1.5	4	45
2HRR-004-R01-020-445	0.4	2	R0.1	0.6	2	4	45
2HRR-004-R01-030-445	0.4	2	R0.1	0.6	3	4	45
2HRR-004-R01-040-445	0.4	2	R0.1	0.6	4	4	45
2HRR-005-R002-010-445	0.5	2	R0.02	0.7	1	4	45
2HRR-005-R002-015-445	0.5	2	R0.02	0.7	1.5	4	45
2HRR-005-R002-020-445	0.5	2	R0.02	0.7	2	4	45
2HRR-005-R002-025-445	0.5	2	R0.02	0.7	2.5	4	45
2HRR-005-R002-030-445	0.5	2	R0.02	0.7	3	4	45
2HRR-005-R002-040-445	0.5	2	R0.02	0.7	4	4	45
2HRR-005-R002-050-445	0.5	2	R0.02	0.7	5	4	45
2HRR-005-R002-060-445	0.5	2	R0.02	0.7	6	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-005-R002-080-445	0.5	2	R0.02	0.7	8	4	45
2HRR-005-R002-100-445	0.5	2	R0.02	0.7	10	4	45
2HRR-005-R005-010-445	0.5	2	R0.05	0.7	1	4	45
2HRR-005-R005-015-445	0.5	2	R0.05	0.7	1.5	4	45
2HRR-005-R005-020-445	0.5	2	R0.05	0.7	2	4	45
2HRR-005-R005-025-445	0.5	2	R0.05	0.7	2.5	4	45
2HRR-005-R005-030-445	0.5	2	R0.05	0.7	3	4	45
2HRR-005-R005-040-445	0.5	2	R0.05	0.7	4	4	45
2HRR-005-R005-050-445	0.5	2	R0.05	0.7	5	4	45
2HRR-005-R005-060-445	0.5	2	R0.05	0.7	6	4	45
2HRR-005-R005-080-445	0.5	2	R0.05	0.7	8	4	45
2HRR-005-R005-100-445	0.5	2	R0.05	0.7	10	4	45
2HRR-005-R01-010-445	0.5	2	R0.1	0.7	1	4	45
2HRR-005-R01-015-445	0.5	2	R0.1	0.7	1.5	4	45
2HRR-005-R01-020-445	0.5	2	R0.1	0.7	2	4	45
2HRR-005-R01-025-445	0.5	2	R0.1	0.7	2.5	4	45
2HRR-005-R01-030-445	0.5	2	R0.1	0.7	3	4	45
2HRR-005-R01-040-445	0.5	2	R0.1	0.7	4	4	45
2HRR-005-R01-050-445	0.5	2	R0.1	0.7	5	4	45
2HRR-005-R01-060-445	0.5	2	R0.1	0.7	6	4	45
2HRR-005-R01-080-445	0.5	2	R0.1	0.7	8	4	45
2HRR-005-R01-100-445	0.5	2	R0.1	0.7	10	4	45
2HRR-006-R002-020-445	0.6	2	R0.02	0.9	2	4	45
2HRR-006-R002-030-445	0.6	2	R0.02	0.9	3	4	45
2HRR-006-R002-040-445	0.6	2	R0.02	0.9	4	4	45
2HRR-006-R002-060-445	0.6	2	R0.02	0.9	6	4	45
2HRR-006-R002-080-445	0.6	2	R0.02	0.9	8	4	45
2HRR-006-R002-100-445	0.6	2	R0.02	0.9	10	4	45
2HRR-006-R005-020-445	0.6	2	R0.05	0.9	2	4	45
2HRR-006-R005-030-445	0.6	2	R0.05	0.9	3	4	45
2HRR-006-R005-040-445	0.6	2	R0.05	0.9	4	4	45
2HRR-006-R005-060-445	0.6	2	R0.05	0.9	6	4	45
2HRR-006-R005-080-445	0.6	2	R0.05	0.9	8	4	45
2HRR-006-R005-100-445	0.6	2	R0.05	0.9	10	4	45
2HRR-006-R01-020-445	0.6	2	R0.1	0.9	2	4	45
2HRR-006-R01-030-445	0.6	2	R0.1	0.9	3	4	45
2HRR-006-R01-040-445	0.6	2	R0.1	0.9	4	4	45
2HRR-006-R01-060-445	0.6	2	R0.1	0.9	6	4	45
2HRR-006-R01-080-445	0.6	2	R0.1	0.9	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-006-R01-100-445	0.6	2	R0.1	0.9	10	4	45
2HRR-007-R01-020-445	0.7	2	R0.1	1	2	4	45
2HRR-007-R01-040-445	0.7	2	R0.1	1	4	4	45
2HRR-007-R01-060-445	0.7	2	R0.1	1	6	4	45
2HRR-008-R002-020-445	0.8	2	R0.02	1.2	2	4	45
2HRR-008-R002-040-445	0.8	2	R0.02	1.2	4	4	45
2HRR-008-R002-060-445	0.8	2	R0.02	1.2	6	4	45
2HRR-008-R002-080-445	0.8	2	R0.02	1.2	8	4	45
2HRR-008-R002-100-445	0.8	2	R0.02	1.2	10	4	45
2HRR-008-R005-020-445	0.8	2	R0.05	1.2	2	4	45
2HRR-008-R005-040-445	0.8	2	R0.05	1.2	4	4	45
2HRR-008-R005-060-445	0.8	2	R0.05	1.2	6	4	45
2HRR-008-R005-080-445	0.8	2	R0.05	1.2	8	4	45
2HRR-008-R005-100-445	0.8	2	R0.05	1.2	10	4	45
2HRR-008-R01-020-445	0.8	2	R0.1	1.2	2	4	45
2HRR-008-R01-040-445	0.8	2	R0.1	1.2	4	4	45
2HRR-008-R01-060-445	0.8	2	R0.1	1.2	6	4	45
2HRR-008-R01-080-445	0.8	2	R0.1	1.2	8	4	45
2HRR-008-R01-100-445	0.8	2	R0.1	1.2	10	4	45
2HRR-008-R02-020-445	0.8	2	R0.2	1.2	2	4	45
2HRR-008-R02-040-445	0.8	2	R0.2	1.2	4	4	45
2HRR-008-R02-060-445	0.8	2	R0.2	1.2	6	4	45
2HRR-008-R02-080-445	0.8	2	R0.2	1.2	8	4	45
2HRR-008-R02-100-445	0.8	2	R0.2	1.2	10	4	45
2HRR-010-R005-040-445	1	2	R0.05	1.5	4	4	45
2HRR-010-R005-060-445	1	2	R0.05	1.5	6	4	45
2HRR-010-R005-080-445	1	2	R0.05	1.5	8	4	45
2HRR-010-R005-100-445	1	2	R0.05	1.5	10	4	45
2HRR-010-R005-120-445	1	2	R0.05	1.5	12	4	45
2HRR-010-R005-160-450	1	2	R0.05	1.5	16	4	50
2HRR-010-R005-200-450	1	2	R0.05	1.5	20	4	50
2HRR-010-R005-220-460	1	2	R0.05	1.5	22	4	60
2HRR-010-R005-250-460	1	2	R0.05	1.5	25	4	60
2HRR-010-R01-040-445	1	2	R0.1	1.5	4	4	45
2HRR-010-R01-060-445	1	2	R0.1	1.5	6	4	45
2HRR-010-R01-080-445	1	2	R0.1	1.5	8	4	45
2HRR-010-R01-100-445	1	2	R0.1	1.5	10	4	45
2HRR-010-R01-120-445	1	2	R0.1	1.5	12	4	45
2HRR-010-R01-160-450	1	2	R0.1	1.5	16	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-010-R01-200-450	1	2	R0.1	1.5	20	4	50
2HRR-010-R01-220-460	1	2	R0.1	1.5	22	4	60
2HRR-010-R01-250-460	1	2	R0.1	1.5	25	4	60
2HRR-010-R02-040-445	1	2	R0.2	1.5	4	4	45
2HRR-010-R02-060-445	1	2	R0.2	1.5	6	4	45
2HRR-010-R02-080-445	1	2	R0.2	1.5	8	4	45
2HRR-010-R02-100-445	1	2	R0.2	1.5	10	4	45
2HRR-010-R02-120-445	1	2	R0.2	1.5	12	4	45
2HRR-010-R02-160-450	1	2	R0.2	1.5	16	4	50
2HRR-010-R02-200-450	1	2	R0.2	1.5	20	4	50
2HRR-010-R02-220-460	1	2	R0.2	1.5	22	4	60
2HRR-010-R02-250-460	1	2	R0.2	1.5	25	4	60
2HRR-010-R025-040-665	1	2	R0.25	1.5	4	4	65
2HRR-010-R025-080-665	1	2	R0.25	1.5	8	4	65
2HRR-010-R03-040-445	1	2	R0.3	1.5	4	4	45
2HRR-010-R03-060-445	1	2	R0.3	1.5	6	4	45
2HRR-010-R03-080-445	1	2	R0.3	1.5	8	4	45
2HRR-010-R03-100-445	1	2	R0.3	1.5	10	4	45
2HRR-010-R03-120-445	1	2	R0.3	1.5	12	4	45
2HRR-010-R03-160-450	1	2	R0.3	1.5	16	4	50
2HRR-010-R03-200-450	1	2	R0.3	1.5	20	4	50
2HRR-010-R03-220-460	1	2	R0.3	1.5	22	4	60
2HRR-010-R03-250-460	1	2	R0.3	1.5	25	4	60
2HRR-012-R01-040-445	1.2	2	R0.1	1.8	4	4	45
2HRR-012-R01-060-445	1.2	2	R0.1	1.8	6	4	45
2HRR-012-R01-080-445	1.2	2	R0.1	1.8	8	4	45
2HRR-012-R01-100-445	1.2	2	R0.1	1.8	10	4	45
2HRR-012-R01-120-445	1.2	2	R0.1	1.8	12	4	45
2HRR-012-R01-160-450	1.2	2	R0.1	1.8	16	4	50
2HRR-012-R01-200-450	1.2	2	R0.1	1.8	20	4	50
2HRR-012-R02-040-445	1.2	2	R0.2	1.8	4	4	45
2HRR-012-R02-060-445	1.2	2	R0.2	1.8	6	4	45
2HRR-012-R02-080-445	1.2	2	R0.2	1.8	8	4	45
2HRR-012-R02-100-445	1.2	2	R0.2	1.8	10	4	45
2HRR-012-R02-120-445	1.2	2	R0.2	1.8	12	4	45
2HRR-012-R02-160-450	1.2	2	R0.2	1.8	16	4	50
2HRR-012-R02-200-450	1.2	2	R0.2	1.8	20	4	50
2HRR-012-R03-040-445	1.2	2	R0.3	1.8	4	4	45
2HRR-012-R03-060-445	1.2	2	R0.3	1.8	6	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-012-R03-080-445	1.2	2	R0.3	1.8	8	4	45
2HRR-012-R03-100-445	1.2	2	R0.3	1.8	10	4	45
2HRR-012-R03-120-445	1.2	2	R0.3	1.8	12	4	45
2HRR-012-R03-160-450	1.2	2	R0.3	1.8	16	4	50
2HRR-012-R03-200-450	1.2	2	R0.3	1.8	20	4	50
2HRR-015-R01-040-445	1.5	2	R0.1	2.3	4	4	45
2HRR-015-R01-060-445	1.5	2	R0.1	2.3	6	4	45
2HRR-015-R01-080-445	1.5	2	R0.1	2.3	8	4	45
2HRR-015-R01-100-445	1.5	2	R0.1	2.3	10	4	45
2HRR-015-R01-120-445	1.5	2	R0.1	2.3	12	4	45
2HRR-015-R01-160-450	1.5	2	R0.1	2.3	16	4	50
2HRR-015-R01-200-450	1.5	2	R0.1	2.3	20	4	50
2HRR-015-R01-220-460	1.5	2	R0.1	2.3	22	4	60
2HRR-015-R01-250-460	1.5	2	R0.1	2.3	25	4	60
2HRR-015-R02-040-445	1.5	2	R0.2	2.3	4	4	45
2HRR-015-R02-060-445	1.5	2	R0.2	2.3	6	4	45
2HRR-015-R02-080-445	1.5	2	R0.2	2.3	8	4	45
2HRR-015-R02-100-445	1.5	2	R0.2	2.3	10	4	45
2HRR-015-R02-120-445	1.5	2	R0.2	2.3	12	4	45
2HRR-015-R02-160-450	1.5	2	R0.2	2.3	16	4	50
2HRR-015-R02-200-450	1.5	2	R0.2	2.3	20	4	50
2HRR-015-R02-220-460	1.5	2	R0.2	2.3	22	4	60
2HRR-015-R02-250-460	1.5	2	R0.2	2.3	25	4	60
2HRR-015-R03-040-445	1.5	2	R0.3	2.3	4	4	45
2HRR-015-R03-060-445	1.5	2	R0.3	2.3	6	4	45
2HRR-015-R03-060-670	1.5	2	R0.3	2.3	6	6	70
2HRR-015-R03-080-445	1.5	2	R0.3	2.3	8	4	45
2HRR-015-R03-080-670	1.5	2	R0.3	2.3	8	6	70
2HRR-015-R03-100-445	1.5	2	R0.3	2.3	10	4	45
2HRR-015-R03-100-670	1.5	2	R0.3	2.3	10	6	70
2HRR-015-R03-120-445	1.5	2	R0.3	2.3	12	4	45
2HRR-015-R03-160-450	1.5	2	R0.3	2.3	16	4	50
2HRR-015-R03-200-450	1.5	2	R0.3	2.3	20	4	50
2HRR-015-R03-220-460	1.5	2	R0.3	2.3	22	4	60
2HRR-015-R03-250-460	1.5	2	R0.3	2.3	25	4	60
2HRR-015-R05-040-445	1.5	2	R0.5	2.3	4	4	45
2HRR-015-R05-060-445	1.5	2	R0.5	2.3	6	4	45
2HRR-015-R05-080-445	1.5	2	R0.5	2.3	8	4	45
2HRR-015-R05-100-445	1.5	2	R0.5	2.3	10	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-015-R05-120-445	1.5	2	R0.5	2.3	12	4	45
2HRR-015-R05-160-450	1.5	2	R0.5	2.3	16	4	50
2HRR-015-R05-200-450	1.5	2	R0.5	2.3	20	4	50
2HRR-015-R05-220-460	1.5	2	R0.5	2.3	22	4	60
2HRR-015-R05-250-460	1.5	2	R0.5	2.3	25	4	60
2HRR-020-R01-040-445	2	2	R0.1	3	4	4	45
2HRR-020-R01-060-445	2	2	R0.1	3	6	4	45
2HRR-020-R01-080-445	2	2	R0.1	3	8	4	45
2HRR-020-R01-100-445	2	2	R0.1	3	10	4	45
2HRR-020-R01-120-445	2	2	R0.1	3	12	4	45
2HRR-020-R01-160-450	2	2	R0.1	3	16	4	50
2HRR-020-R01-200-450	2	2	R0.1	3	20	4	50
2HRR-020-R01-250-460	2	2	R0.1	3	25	4	60
2HRR-020-R01-300-470	2	2	R0.1	3	30	4	70
2HRR-020-R02-040-445	2	2	R0.2	3	4	4	45
2HRR-020-R02-060-445	2	2	R0.2	3	6	4	45
2HRR-020-R02-080-445	2	2	R0.2	3	8	4	45
2HRR-020-R02-100-445	2	2	R0.2	3	10	4	45
2HRR-020-R02-120-445	2	2	R0.2	3	12	4	45
2HRR-020-R02-160-450	2	2	R0.2	3	16	4	50
2HRR-020-R02-200-450	2	2	R0.2	3	20	4	50
2HRR-020-R02-250-460	2	2	R0.2	3	25	4	60
2HRR-020-R02-300-470	2	2	R0.2	3	30	4	70
2HRR-020-R03-040-445	2	2	R0.3	3	4	4	45
2HRR-020-R03-060-445	2	2	R0.3	3	6	4	45
2HRR-020-R03-080-445	2	2	R0.3	3	8	4	45
2HRR-020-R03-100-445	2	2	R0.3	3	10	4	45
2HRR-020-R03-120-445	2	2	R0.3	3	12	4	45
2HRR-020-R03-160-450	2	2	R0.3	3	16	4	50
2HRR-020-R03-200-450	2	2	R0.3	3	20	4	50
2HRR-020-R03-250-460	2	2	R0.3	3	25	4	60
2HRR-020-R03-300-470	2	2	R0.3	3	30	4	70
2HRR-020-R05-040-445	2	2	R0.5	3	4	4	45
2HRR-020-R05-060-445	2	2	R0.5	3	6	4	45
2HRR-020-R05-060-670	2	2	R0.5	3	6	6	70
2HRR-020-R05-080-445	2	2	R0.5	3	8	4	45
2HRR-020-R05-100-445	2	2	R0.5	3	10	4	45
2HRR-020-R05-100-670	2	2	R0.5	3	10	6	70
2HRR-020-R05-120-445	2	2	R0.5	3	12	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-020-R05-120-670	2	2	R0.5	3	12	6	70
2HRR-020-R05-160-450	2	2	R0.5	3	16	4	50
2HRR-020-R05-160-670	2	2	R0.5	3	16	6	70
2HRR-020-R05-180-450	2	2	R0.5	3	18	4	50
2HRR-020-R05-200-450	2	2	R0.5	3	20	4	50
2HRR-020-R05-250-460	2	2	R0.5	3	25	4	60
2HRR-020-R05-300-470	2	2	R0.5	3	30	4	70
2HRR-025-R01-100-445	2.5	2	R0.1	3.8	10	4	45
2HRR-025-R01-160-450	2.5	2	R0.1	3.8	16	4	50
2HRR-025-R01-200-450	2.5	2	R0.1	3.8	20	4	50
2HRR-025-R01-250-460	2.5	2	R0.1	3.8	25	4	60
2HRR-025-R01-300-470	2.5	2	R0.1	3.8	30	4	70
2HRR-025-R02-100-445	2.5	2	R0.2	3.8	10	4	45
2HRR-025-R02-160-450	2.5	2	R0.2	3.8	16	4	50
2HRR-025-R02-200-450	2.5	2	R0.2	3.8	20	4	50
2HRR-025-R02-250-460	2.5	2	R0.2	3.8	25	4	60
2HRR-025-R02-300-470	2.5	2	R0.2	3.8	30	4	70
2HRR-025-R03-100-445	2.5	2	R0.3	3.8	10	4	45
2HRR-025-R03-160-450	2.5	2	R0.3	3.8	16	4	50
2HRR-025-R03-200-450	2.5	2	R0.3	3.8	20	4	50
2HRR-025-R03-250-460	2.5	2	R0.3	3.8	25	4	60
2HRR-025-R03-300-470	2.5	2	R0.3	3.8	30	4	70
2HRR-025-R05-100-445	2.5	2	R0.5	3.8	10	4	45
2HRR-025-R05-140-450	2.5	2	R0.5	3.8	14	4	50
2HRR-025-R05-160-450	2.5	2	R0.5	3.8	16	4	50
2HRR-025-R05-180-450	2.5	2	R0.5	3.8	18	4	50
2HRR-025-R05-200-450	2.5	2	R0.5	3.8	20	4	50
2HRR-025-R05-250-460	2.5	2	R0.5	3.8	25	4	60
2HRR-025-R05-300-470	2.5	2	R0.5	3.8	30	4	70
2HRR-025-R10-100-445	2.5	2	R1.0	3.8	10	4	45
2HRR-030-R01-080-650	3	2	R0.1	4.5	8	6	50
2HRR-030-R01-100-650	3	2	R0.1	4.5	10	6	50
2HRR-030-R01-120-650	3	2	R0.1	4.5	12	6	50
2HRR-030-R01-160-660	3	2	R0.1	4.5	16	6	60
2HRR-030-R01-200-660	3	2	R0.1	4.5	20	6	60
2HRR-030-R01-250-665	3	2	R0.1	4.5	25	6	65
2HRR-030-R01-300-670	3	2	R0.1	4.5	30	6	70
2HRR-030-R01-350-680	3	2	R0.1	4.5	35	6	80
2HRR-030-R01-400-680	3	2	R0.1	4.5	40	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-030-R02-080-650	3	2	R0.2	4.5	8	6	50
2HRR-030-R02-100-650	3	2	R0.2	4.5	10	6	50
2HRR-030-R02-120-650	3	2	R0.2	4.5	12	6	50
2HRR-030-R02-160-660	3	2	R0.2	4.5	16	6	60
2HRR-030-R02-200-660	3	2	R0.2	4.5	20	6	60
2HRR-030-R02-250-665	3	2	R0.2	4.5	25	6	65
2HRR-030-R02-300-670	3	2	R0.2	4.5	30	6	70
2HRR-030-R02-350-680	3	2	R0.2	4.5	35	6	80
2HRR-030-R02-400-680	3	2	R0.2	4.5	40	6	80
2HRR-030-R03-080-650	3	2	R0.3	4.5	8	6	50
2HRR-030-R03-100-650	3	2	R0.3	4.5	10	6	50
2HRR-030-R03-120-650	3	2	R0.3	4.5	12	6	50
2HRR-030-R03-160-660	3	2	R0.3	4.5	16	6	60
2HRR-030-R03-200-660	3	2	R0.3	4.5	20	6	60
2HRR-030-R03-250-665	3	2	R0.3	4.5	25	6	65
2HRR-030-R03-300-670	3	2	R0.3	4.5	30	6	70
2HRR-030-R03-350-680	3	2	R0.3	4.5	35	6	80
2HRR-030-R03-400-680	3	2	R0.3	4.5	40	6	80
2HRR-030-R05-080-650	3	2	R0.5	4.5	8	6	50
2HRR-030-R05-080-675	3	2	R0.5	4.5	8	6	75
2HRR-030-R05-100-650	3	2	R0.5	4.5	10	6	50
2HRR-030-R05-120-650	3	2	R0.5	4.5	12	6	50
2HRR-030-R05-120-675	3	2	R0.5	4.5	12	6	75
2HRR-030-R05-160-660	3	2	R0.5	4.5	16	6	60
2HRR-030-R05-200-660	3	2	R0.5	4.5	20	6	60
2HRR-030-R05-200-675	3	2	R0.5	4.5	20	6	75
2HRR-030-R05-250-665	3	2	R0.5	4.5	25	6	65
2HRR-030-R05-300-670	3	2	R0.5	4.5	30	6	70
2HRR-030-R05-350-680	3	2	R0.5	4.5	35	6	80
2HRR-030-R05-400-680	3	2	R0.5	4.5	40	6	80
2HRR-030-R10-080-650	3	2	R1.0	4.5	8	6	50
2HRR-030-R10-100-650	3	2	R1.0	4.5	10	6	50
2HRR-030-R10-120-650	3	2	R1.0	4.5	12	6	50
2HRR-030-R10-160-660	3	2	R1.0	4.5	16	6	60
2HRR-030-R10-200-660	3	2	R1.0	4.5	20	6	60
2HRR-030-R10-250-665	3	2	R1.0	4.5	25	6	65
2HRR-030-R10-300-670	3	2	R1.0	4.5	30	6	70
2HRR-030-R10-350-680	3	2	R1.0	4.5	35	6	80
2HRR-030-R10-400-680	3	2	R1.0	4.5	40	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-035-R05-100-650	3.5	2	R0.5	4.5	10	6	50
2HRR-035-R05-160-660	3.5	2	R0.5	4.5	16	6	60
2HRR-040-R01-080-650	4	2	R0.1	6	8	6	50
2HRR-040-R01-100-650	4	2	R0.1	6	10	6	50
2HRR-040-R01-120-650	4	2	R0.1	6	12	6	50
2HRR-040-R01-160-660	4	2	R0.1	6	16	6	60
2HRR-040-R01-200-660	4	2	R0.1	6	20	6	60
2HRR-040-R01-250-665	4	2	R0.1	6	25	6	65
2HRR-040-R01-300-670	4	2	R0.1	6	30	6	70
2HRR-040-R01-350-680	4	2	R0.1	6	35	6	80
2HRR-040-R01-400-680	4	2	R0.1	6	40	6	80
2HRR-040-R01-450-690	4	2	R0.1	6	45	6	90
2HRR-040-R01-500-6A0	4	2	R0.1	6	50	6	100
2HRR-040-R02-080-650	4	2	R0.2	6	8	6	50
2HRR-040-R02-100-650	4	2	R0.2	6	10	6	50
2HRR-040-R02-120-650	4	2	R0.2	6	12	6	50
2HRR-040-R02-160-660	4	2	R0.2	6	16	6	60
2HRR-040-R02-200-660	4	2	R0.2	6	20	6	60
2HRR-040-R02-250-665	4	2	R0.2	6	25	6	65
2HRR-040-R02-300-670	4	2	R0.2	6	30	6	70
2HRR-040-R02-350-680	4	2	R0.2	6	35	6	80
2HRR-040-R02-400-680	4	2	R0.2	6	40	6	80
2HRR-040-R02-450-690	4	2	R0.2	6	45	6	90
2HRR-040-R02-500-6A0	4	2	R0.2	6	50	6	100
2HRR-040-R03-080-650	4	2	R0.3	6	8	6	50
2HRR-040-R03-100-650	4	2	R0.3	6	10	6	50
2HRR-040-R03-120-650	4	2	R0.3	6	12	6	50
2HRR-040-R03-160-660	4	2	R0.3	6	16	6	60
2HRR-040-R03-200-660	4	2	R0.3	6	20	6	60
2HRR-040-R03-250-665	4	2	R0.3	6	25	6	65
2HRR-040-R03-300-670	4	2	R0.3	6	30	6	70
2HRR-040-R03-350-680	4	2	R0.3	6	35	6	80
2HRR-040-R03-400-680	4	2	R0.3	6	40	6	80
2HRR-040-R03-450-690	4	2	R0.3	6	45	6	90
2HRR-040-R03-500-6A0	4	2	R0.3	6	50	6	100
2HRR-040-R05-080-650	4	2	R0.5	6	8	6	50
2HRR-040-R05-100-650	4	2	R0.5	6	10	6	50
2HRR-040-R05-120-650	4	2	R0.5	6	12	6	50
2HRR-040-R05-120-675	4	2	R0.5	6	12	6	75

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-040-R05-160-660	4	2	R0.5	6	16	6	60
2HRR-040-R05-200-660	4	2	R0.5	6	20	6	60
2HRR-040-R05-200-675	4	2	R0.5	6	20	6	75
2HRR-040-R05-250-665	4	2	R0.5	6	25	6	65
2HRR-040-R05-250-675	4	2	R0.5	6	25	6	75
2HRR-040-R05-300-670	4	2	R0.5	6	30	6	70
2HRR-040-R05-350-680	4	2	R0.5	6	35	6	80
2HRR-040-R05-400-680	4	2	R0.5	6	40	6	80
2HRR-040-R05-450-690	4	2	R0.5	6	45	6	90
2HRR-040-R05-500-6A0	4	2	R0.5	6	50	6	100
2HRR-040-R10-080-650	4	2	R1.0	6	8	6	50
2HRR-040-R10-100-650	4	2	R1.0	6	10	6	50
2HRR-040-R10-120-650	4	2	R1.0	6	12	6	50
2HRR-040-R10-120-675	4	2	R1.0	6	12	6	75
2HRR-040-R10-160-660	4	2	R1.0	6	16	6	60
2HRR-040-R10-200-660	4	2	R1.0	6	20	6	60
2HRR-040-R10-250-665	4	2	R1.0	6	25	6	65
2HRR-040-R10-300-670	4	2	R1.0	6	30	6	70
2HRR-040-R10-350-680	4	2	R1.0	6	35	6	80
2HRR-040-R10-400-680	4	2	R1.0	6	40	6	80
2HRR-040-R10-450-690	4	2	R1.0	6	45	6	90
2HRR-040-R10-500-6A0	4	2	R1.0	6	50	6	100
2HRR-050-R02-150-660	5	2	R0.2	7.5	15	6	60
2HRR-050-R02-250-665	5	2	R0.2	7.5	25	6	65
2HRR-050-R02-300-670	5	2	R0.2	7.5	30	6	70
2HRR-050-R02-400-680	5	2	R0.2	7.5	40	6	80
2HRR-050-R02-500-6A0	5	2	R0.2	7.5	50	6	100
2HRR-050-R05-180-660	5	2	R0.5	7.5	18	6	60
2HRR-050-R05-250-665	5	2	R0.5	7.5	25	6	65
2HRR-050-R05-300-670	5	2	R0.5	7.5	30	6	70
2HRR-050-R05-400-680	5	2	R0.5	7.5	40	6	80
2HRR-050-R05-500-6A0	5	2	R0.5	7.5	50	6	100
2HRR-050-R10-180-660	5	2	R1.0	7.5	18	6	60
2HRR-050-R10-250-665	5	2	R1.0	7.5	25	6	65
2HRR-050-R10-300-670	5	2	R1.0	7.5	30	6	70
2HRR-050-R10-400-680	5	2	R1.0	7.5	40	6	80
2HRR-050-R10-500-6A0	5	2	R1.0	7.5	50	6	100
2HRR-060-R01-200-660	6	2	R0.1	9	20	6	60
2HRR-060-R01-400-690	6	2	R0.1	9	40	6	90

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-060-R02-200-660	6	2	R0.2	9	20	6	60
2HRR-060-R02-400-690	6	2	R0.2	9	40	6	90
2HRR-060-R03-200-660	6	2	R0.3	9	20	6	60
2HRR-060-R03-400-690	6	2	R0.3	9	40	6	90
2HRR-060-R05-200-660	6	2	R0.5	9	20	6	60
2HRR-060-R05-400-690	6	2	R0.5	9	40	6	90
2HRR-060-R10-200-660	6	2	R1.0	9	20	6	60
2HRR-060-R10-400-690	6	2	R1.0	9	40	6	90
2HRR-060-R15-200-660	6	2	R1.5	9	20	6	60
2HRR-060-R15-400-690	6	2	R1.5	9	40	6	90
2HRR-080-R02-240-865	8	2	R0.2	12	24	8	65
2HRR-080-R02-400-8A0	8	2	R0.2	12	40	8	100
2HRR-080-R03-240-865	8	2	R0.3	12	24	8	65
2HRR-080-R03-400-8A0	8	2	R0.3	12	40	8	100
2HRR-080-R05-240-865	8	2	R0.5	12	24	8	65
2HRR-080-R05-240-880	8	2	R0.5	12	24	8	80
2HRR-080-R05-400-8A0	8	2	R0.5	12	40	8	100
2HRR-080-R10-240-865	8	2	R1.0	12	24	8	65
2HRR-080-R10-240-880	8	2	R1.0	12	24	8	80
2HRR-080-R10-400-8A0	8	2	R1.0	12	40	8	100
2HRR-080-R15-240-865	8	2	R1.5	12	24	8	65
2HRR-080-R15-400-8A0	8	2	R1.5	12	40	8	100
2HRR-080-R20-240-865	8	2	R2.0	12	24	8	65
2HRR-100-R02-300-A70	10	2	R0.2	15	30	10	70
2HRR-100-R02-400-AA0	10	2	R0.2	15	40	10	100
2HRR-100-R03-300-A70	10	2	R0.3	15	30	10	70
2HRR-100-R03-400-AA0	10	2	R0.3	15	40	10	100
2HRR-100-R05-300-A70	10	2	R0.5	15	30	10	70
2HRR-100-R05-400-AA0	10	2	R0.5	15	40	10	100
2HRR-100-R10-300-A70	10	2	R1.0	15	30	10	70
2HRR-100-R10-400-AA0	10	2	R1.0	15	40	10	100
2HRR-100-R15-300-A70	10	2	R1.5	15	30	10	70
2HRR-100-R15-400-AA0	10	2	R1.5	15	40	10	100
2HRR-100-R20-300-A70	10	2	R2.0	15	30	10	70
2HRR-100-R20-400-AA0	10	2	R2.0	15	40	10	100
2HRR-120-R02-300-C80	12	2	R0.2	18	30	12	80
2HRR-120-R02-500-CB0	12	2	R0.2	18	50	12	110
2HRR-120-R03-300-C80	12	2	R0.3	18	30	12	80
2HRR-120-R03-500-CB0	12	2	R0.3	18	50	12	110

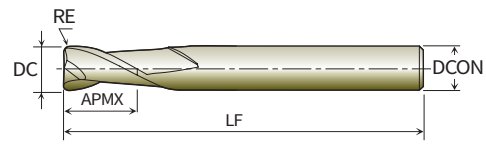
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRR-120-R05-300-C80	12	2	R0.5	18	30	12	80
2HRR-120-R05-500-CB0	12	2	R0.5	18	50	12	110
2HRR-120-R10-300-C80	12	2	R1.0	18	30	12	80
2HRR-120-R10-500-CB0	12	2	R1.0	18	50	12	110
2HRR-120-R15-300-C80	12	2	R1.5	18	30	12	80
2HRR-120-R15-500-CB0	12	2	R1.5	18	50	12	110
2HRR-120-R20-300-C80	12	2	R2.0	18	30	12	80
2HRR-120-R20-500-CB0	12	2	R2.0	18	50	12	110
2HRR-120-R30-300-C80	12	2	R3.0	18	30	12	80
2HRR-120-R30-500-CB0	12	2	R3.0	18	50	12	110
2HRR-160-R05-400-GB0	16	2	R0.5	24	40	16	110
2HRR-160-R05-400-GF0	16	2	R0.5	24	40	16	150
2HRR-160-R10-400-GB0	16	2	R1.0	24	40	16	110
2HRR-160-R10-400-GF0	16	2	R1.0	24	40	16	150

2HCR

2날 코너 래디우스 엔드밀

2 Flutes Corner Radius End Mills



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(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HCR-002-R002-004-445	0.2	2	R0.02	0.4	4	45
2HCR-002-R005-004-445	0.2	2	R0.05	0.4	4	45
2HCR-003-R002-006-445	0.3	2	R0.02	0.6	4	45
2HCR-003-R005-006-445	0.3	2	R0.05	0.6	4	45
2HCR-003-R01-006-445	0.3	2	R0.1	0.6	4	45
2HCR-004-R002-008-445	0.4	2	R0.02	0.8	4	45
2HCR-004-R005-008-445	0.4	2	R0.05	0.8	4	45
2HCR-004-R01-008-445	0.4	2	R0.1	0.8	4	45
2HCR-005-R002-010-445	0.5	2	R0.02	1	4	45
2HCR-005-R005-010-445	0.5	2	R0.05	1	4	45
2HCR-005-R01-010-445	0.5	2	R0.1	1	4	45
2HCR-006-R002-012-445	0.6	2	R0.02	1.2	4	45
2HCR-006-R005-012-445	0.6	2	R0.05	1.2	4	45
2HCR-006-R01-012-445	0.6	2	R0.1	1.2	4	45
2HCR-006-R02-012-445	0.6	2	R0.2	1.2	4	45
2HCR-007-R005-014-445	0.7	2	R0.05	1.4	4	45
2HCR-007-R01-014-445	0.7	2	R0.1	1.4	4	45
2HCR-007-R02-014-445	0.7	2	R0.2	1.4	4	45
2HCR-008-R002-016-445	0.8	2	R0.02	1.6	4	45
2HCR-008-R005-016-445	0.8	2	R0.05	1.6	4	45
2HCR-008-R01-016-445	0.8	2	R0.1	1.6	4	45
2HCR-008-R02-016-445	0.8	2	R0.2	1.6	4	45
2HCR-009-R005-018-445	0.9	2	R0.05	1.8	4	45
2HCR-009-R01-018-445	0.9	2	R0.1	1.8	4	45
2HCR-010-R002-025-445	1	2	R0.02	2.5	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HCR-010-R005-025-445	1	2	R0.05	2.5	4	45
2HCR-010-R01-025-445	1	2	R0.1	2.5	4	45
2HCR-010-R02-025-445	1	2	R0.2	2.5	4	45
2HCR-010-R03-025-445	1	2	R0.3	2.5	4	45
2HCR-012-R002-032-445	1.2	2	R0.02	3.2	4	45
2HCR-012-R005-032-445	1.2	2	R0.05	3.2	4	45
2HCR-012-R01-032-445	1.2	2	R0.1	3.2	4	45
2HCR-012-R02-032-445	1.2	2	R0.2	3.2	4	45
2HCR-012-R03-032-445	1.2	2	R0.3	3.2	4	45
2HCR-015-R002-040-445	1.5	2	R0.02	4	4	45
2HCR-015-R005-040-445	1.5	2	R0.05	4	4	45
2HCR-015-R01-040-445	1.5	2	R0.1	4	4	45
2HCR-015-R02-040-445	1.5	2	R0.2	4	4	45
2HCR-015-R03-040-445	1.5	2	R0.3	4	4	45
2HCR-015-R05-040-445	1.5	2	R0.5	4	4	45
2HCR-020-R002-060-445	2	2	R0.02	6	4	45
2HCR-020-R005-060-445	2	2	R0.05	6	4	45
2HCR-020-R01-060-445	2	2	R0.1	6	4	45
2HCR-020-R02-060-445	2	2	R0.2	6	4	45
2HCR-020-R03-060-445	2	2	R0.3	6	4	45
2HCR-020-R05-060-445	2	2	R0.5	6	4	45
2HCR-025-R005-060-450	2.5	2	R0.05	6	4	50
2HCR-025-R01-060-450	2.5	2	R0.1	6	4	50
2HCR-025-R02-060-450	2.5	2	R0.2	6	4	50
2HCR-025-R03-060-450	2.5	2	R0.3	6	4	50
2HCR-025-R05-060-450	2.5	2	R0.5	6	4	50
2HCR-030-R005-080-660	3	2	R0.05	8	6	60
2HCR-030-R01-080-660	3	2	R0.1	8	6	60
2HCR-030-R02-080-660	3	2	R0.2	8	6	60
2HCR-030-R03-080-660	3	2	R0.3	8	6	60
2HCR-030-R05-080-660	3	2	R0.5	8	6	60
2HCR-030-R10-080-660	3	2	R1.0	8	6	60
2HCR-035-R01-090-670	3.5	2	R0.1	9	6	70
2HCR-035-R02-090-670	3.5	2	R0.2	9	6	70
2HCR-035-R03-090-670	3.5	2	R0.3	9	6	70
2HCR-035-R05-090-670	3.5	2	R0.5	9	6	70
2HCR-035-R10-090-670	3.5	2	R1.0	9	6	70
2HCR-040-R005-100-460	4	2	R0.05	10	4	60
2HCR-040-R005-100-670	4	2	R0.05	10	6	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HCR-040-R01-100-460	4	2	R0.1	10	4	60
2HCR-040-R01-100-670	4	2	R0.1	10	6	70
2HCR-040-R02-100-460	4	2	R0.2	10	4	60
2HCR-040-R02-100-670	4	2	R0.2	10	6	70
2HCR-040-R03-100-460	4	2	R0.3	10	4	60
2HCR-040-R03-100-670	4	2	R0.3	10	6	70
2HCR-040-R05-100-460	4	2	R0.5	10	4	60
2HCR-040-R05-100-670	4	2	R0.5	10	6	70
2HCR-040-R10-100-460	4	2	R1.0	10	4	60
2HCR-040-R10-100-670	4	2	R1.0	10	6	70
2HCR-045-R01-110-675	4.5	2	R0.1	11	6	75
2HCR-045-R02-110-675	4.5	2	R0.2	11	6	75
2HCR-045-R03-110-675	4.5	2	R0.3	11	6	75
2HCR-045-R05-110-675	4.5	2	R0.5	11	6	75
2HCR-050-R01-130-675	5	2	R0.1	13	6	75
2HCR-050-R02-130-675	5	2	R0.2	13	6	75
2HCR-050-R03-130-675	5	2	R0.3	13	6	75
2HCR-050-R05-130-675	5	2	R0.5	13	6	75
2HCR-050-R10-130-675	5	2	R1.0	13	6	75
2HCR-060-R005-110-660	6	2	R0.05	11	6	60
2HCR-060-R005-130-690	6	2	R0.05	13	6	90
2HCR-060-R01-110-660	6	2	R0.1	11	6	60
2HCR-060-R01-130-690	6	2	R0.1	13	6	90
2HCR-060-R02-110-660	6	2	R0.2	11	6	60
2HCR-060-R02-130-690	6	2	R0.2	13	6	90
2HCR-060-R03-110-660	6	2	R0.3	11	6	60
2HCR-060-R03-130-690	6	2	R0.3	13	6	90
2HCR-060-R05-110-660	6	2	R0.5	11	6	60
2HCR-060-R05-130-690	6	2	R0.5	13	6	90
2HCR-060-R10-110-660	6	2	R1.0	11	6	60
2HCR-060-R10-130-690	6	2	R1.0	13	6	90
2HCR-060-R15-110-660	6	2	R1.5	11	6	60
2HCR-060-R15-130-690	6	2	R1.5	13	6	90
2HCR-060-R20-110-660	6	2	R2.0	11	6	60
2HCR-060-R20-130-690	6	2	R2.0	13	6	90
2HCR-060-R25-130-690	6	2	R2.5	13	6	90
2HCR-080-R01-160-870	8	2	R0.1	16	8	70
2HCR-080-R01-190-8A0	8	2	R0.1	19	8	100
2HCR-080-R02-160-870	8	2	R0.2	16	8	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HCR-080-R02-190-8A0	8	2	R0.2	19	8	100
2HCR-080-R03-160-870	8	2	R0.3	16	8	70
2HCR-080-R03-190-8A0	8	2	R0.3	19	8	100
2HCR-080-R05-160-870	8	2	R0.5	16	8	70
2HCR-080-R05-190-8A0	8	2	R0.5	19	8	100
2HCR-080-R10-160-870	8	2	R1.0	16	8	70
2HCR-080-R10-190-8A0	8	2	R1.0	19	8	100
2HCR-080-R15-160-870	8	2	R1.5	16	8	70
2HCR-080-R15-190-8A0	8	2	R1.5	19	8	100
2HCR-080-R20-160-870	8	2	R2.0	16	8	70
2HCR-080-R20-190-8A0	8	2	R2.0	19	8	100
2HCR-080-R25-190-8A0	8	2	R2.5	19	8	100
2HCR-080-R30-190-8A0	8	2	R3.0	19	8	100
2HCR-080-R35-190-8A0	8	2	R3.5	19	8	100
2HCR-100-R01-190-A75	10	2	R0.1	19	10	75
2HCR-100-R01-220-AA0	10	2	R0.1	22	10	100
2HCR-100-R02-190-A75	10	2	R0.2	19	10	75
2HCR-100-R02-220-AA0	10	2	R0.2	22	10	100
2HCR-100-R03-190-A75	10	2	R0.3	19	10	75
2HCR-100-R03-220-AA0	10	2	R0.3	22	10	100
2HCR-100-R05-190-A75	10	2	R0.5	19	10	75
2HCR-100-R05-220-AA0	10	2	R0.5	22	10	100
2HCR-100-R10-190-A75	10	2	R1.0	19	10	75
2HCR-100-R10-220-AA0	10	2	R1.0	22	10	100
2HCR-100-R15-190-A75	10	2	R1.5	19	10	75
2HCR-100-R15-220-AA0	10	2	R1.5	22	10	100
2HCR-100-R20-190-A75	10	2	R2.0	19	10	75
2HCR-100-R20-220-AA0	10	2	R2.0	22	10	100
2HCR-100-R25-220-AA0	10	2	R2.5	22	10	100
2HCR-100-R30-220-AA0	10	2	R3.0	22	10	100
2HCR-100-R40-220-AA0	10	2	R4.0	22	10	100
2HCR-120-R01-220-C80	12	2	R0.1	22	12	80
2HCR-120-R01-260-CB0	12	2	R0.1	26	12	110
2HCR-120-R02-220-C80	12	2	R0.2	22	12	80
2HCR-120-R02-260-CB0	12	2	R0.2	26	12	110
2HCR-120-R03-220-C80	12	2	R0.3	22	12	80
2HCR-120-R03-260-CB0	12	2	R0.3	26	12	110
2HCR-120-R05-220-C80	12	2	R0.5	22	12	80

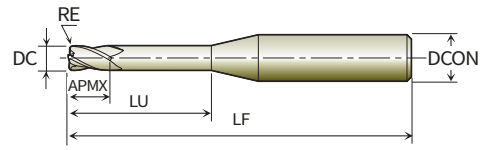
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2HCR-120-R05-260-CB0	12	2	R0.5	26	12	110
2HCR-120-R05-260-CD0	12	2	R0.5	26	12	130
2HCR-120-R10-220-C80	12	2	R1.0	22	12	80
2HCR-120-R10-260-CB0	12	2	R1.0	26	12	110
2HCR-120-R10-260-CD0	12	2	R1.0	26	12	130
2HCR-120-R15-220-C80	12	2	R1.5	22	12	80
2HCR-120-R15-260-CB0	12	2	R1.5	26	12	110
2HCR-120-R15-260-CD0	12	2	R1.5	26	12	130
2HCR-120-R20-220-C80	12	2	R2.0	22	12	80
2HCR-120-R20-260-CB0	12	2	R2.0	26	12	110
2HCR-120-R20-260-CD0	12	2	R2.0	26	12	130
2HCR-120-R25-260-CB0	12	2	R2.5	26	12	110
2HCR-120-R30-260-CB0	12	2	R3.0	26	12	110
2HCR-120-R40-260-CB0	12	2	R4.0	26	12	110
2HCR-120-R50-260-CB0	12	2	R5.0	26	12	110
2HCR-160-R05-320-GB0	16	2	R0.5	32	16	110
2HCR-160-R05-320-GF0	16	2	R0.5	32	16	150
2HCR-160-R10-320-GB0	16	2	R1.0	32	16	110
2HCR-160-R10-320-GF0	16	2	R1.0	32	16	150
2HCR-160-R15-320-GB0	16	2	R1.5	32	16	110
2HCR-160-R20-320-GB0	16	2	R2.0	32	16	110
2HCR-160-R30-320-GB0	16	2	R3.0	32	16	110
2HCR-200-R05-380-KB0	20	2	R0.5	38	20	110
2HCR-200-R05-380-KF0	20	2	R0.5	38	20	150
2HCR-200-R10-380-KB0	20	2	R1.0	38	20	110
2HCR-200-R10-380-KF0	20	2	R1.0	38	20	150
2HCR-200-R15-380-KB0	20	2	R1.5	38	20	110
2HCR-200-R20-380-KB0	20	2	R2.0	38	20	110
2HCR-200-R30-380-KB0	20	2	R3.0	38	20	110

4HRR

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



H 4 CR 30° page No.266

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-008-R002-020-445	0.8	4	R0.02	1.2	2	4	45
4HRR-008-R002-040-445	0.8	4	R0.02	1.2	4	4	45
4HRR-008-R002-060-445	0.8	4	R0.02	1.2	6	4	45
4HRR-008-R002-080-445	0.8	4	R0.02	1.2	8	4	45
4HRR-008-R002-100-445	0.8	4	R0.02	1.2	10	4	45
4HRR-008-R005-020-445	0.8	4	R0.05	1.2	2	4	45
4HRR-008-R005-040-445	0.8	4	R0.05	1.2	4	4	45
4HRR-008-R005-060-445	0.8	4	R0.05	1.2	6	4	45
4HRR-008-R005-080-445	0.8	4	R0.05	1.2	8	4	45
4HRR-008-R005-100-445	0.8	4	R0.05	1.2	10	4	45
4HRR-008-R01-020-445	0.8	4	R0.1	1.2	2	4	45
4HRR-008-R01-040-445	0.8	4	R0.1	1.2	4	4	45
4HRR-008-R01-060-445	0.8	4	R0.1	1.2	6	4	45
4HRR-008-R01-080-445	0.8	4	R0.1	1.2	8	4	45
4HRR-008-R01-100-445	0.8	4	R0.1	1.2	10	4	45
4HRR-010-R002-040-445	1	4	R0.02	1.5	4	4	45
4HRR-010-R002-060-445	1	4	R0.02	1.5	6	4	45
4HRR-010-R002-080-445	1	4	R0.02	1.5	8	4	45
4HRR-010-R002-100-445	1	4	R0.02	1.5	10	4	45
4HRR-010-R002-120-445	1	4	R0.02	1.5	12	4	45
4HRR-010-R002-160-450	1	4	R0.02	1.5	16	4	50
4HRR-010-R002-200-450	1	4	R0.02	1.5	20	4	50
4HRR-010-R005-040-445	1	4	R0.05	1.5	4	4	45
4HRR-010-R005-060-445	1	4	R0.05	1.5	6	4	45
4HRR-010-R005-080-445	1	4	R0.05	1.5	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-010-R005-100-445	1	4	R0.05	1.5	10	4	45
4HRR-010-R005-120-445	1	4	R0.05	1.5	12	4	45
4HRR-010-R005-160-450	1	4	R0.05	1.5	16	4	50
4HRR-010-R005-200-450	1	4	R0.05	1.5	20	4	50
4HRR-010-R01-040-445	1	4	R0.1	1.5	4	4	45
4HRR-010-R01-060-445	1	4	R0.1	1.5	6	4	45
4HRR-010-R01-080-445	1	4	R0.1	1.5	8	4	45
4HRR-010-R01-100-445	1	4	R0.1	1.5	10	4	45
4HRR-010-R01-120-445	1	4	R0.1	1.5	12	4	45
4HRR-010-R01-160-450	1	4	R0.1	1.5	16	4	50
4HRR-010-R01-200-450	1	4	R0.1	1.5	20	4	50
4HRR-010-R02-040-445	1	4	R0.2	1.5	4	4	45
4HRR-010-R02-060-445	1	4	R0.2	1.5	6	4	45
4HRR-010-R02-080-445	1	4	R0.2	1.5	8	4	45
4HRR-010-R02-100-445	1	4	R0.2	1.5	10	4	45
4HRR-010-R02-120-445	1	4	R0.2	1.5	12	4	45
4HRR-010-R02-160-450	1	4	R0.2	1.5	16	4	50
4HRR-010-R02-200-450	1	4	R0.2	1.5	20	4	50
4HRR-010-R03-040-445	1	4	R0.3	1.5	4	4	50
4HRR-010-R03-060-445	1	4	R0.3	1.5	6	4	50
4HRR-010-R03-080-445	1	4	R0.3	1.5	8	4	50
4HRR-010-R03-100-445	1	4	R0.3	1.5	10	4	50
4HRR-010-R03-120-445	1	4	R0.3	1.5	12	4	50
4HRR-010-R03-160-450	1	4	R0.3	1.5	16	4	50
4HRR-010-R03-200-450	1	4	R0.3	1.5	20	4	50
4HRR-012-R002-040-445	1.2	4	R0.02	1.8	4	4	45
4HRR-012-R002-060-445	1.2	4	R0.02	1.8	6	4	45
4HRR-012-R002-080-445	1.2	4	R0.02	1.8	8	4	45
4HRR-012-R002-100-445	1.2	4	R0.02	1.8	10	4	45
4HRR-012-R002-120-445	1.2	4	R0.02	1.8	12	4	45
4HRR-012-R002-160-450	1.2	4	R0.02	1.8	16	4	50
4HRR-012-R002-200-450	1.2	4	R0.02	1.8	20	4	50
4HRR-012-R005-040-445	1.2	4	R0.05	1.8	4	4	45
4HRR-012-R005-060-445	1.2	4	R0.05	1.8	6	4	45
4HRR-012-R005-080-445	1.2	4	R0.05	1.8	8	4	45
4HRR-012-R005-100-445	1.2	4	R0.05	1.8	10	4	45
4HRR-012-R005-120-445	1.2	4	R0.05	1.8	12	4	45
4HRR-012-R005-160-450	1.2	4	R0.05	1.8	16	4	50
4HRR-012-R005-200-450	1.2	4	R0.05	1.8	20	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-012-R01-040-445	1.2	4	R0.1	1.8	4	4	45
4HRR-012-R01-060-445	1.2	4	R0.1	1.8	6	4	45
4HRR-012-R01-080-445	1.2	4	R0.1	1.8	8	4	45
4HRR-012-R01-100-445	1.2	4	R0.1	1.8	10	4	45
4HRR-012-R01-120-445	1.2	4	R0.1	1.8	12	4	45
4HRR-012-R01-160-450	1.2	4	R0.1	1.8	16	4	50
4HRR-012-R01-200-450	1.2	4	R0.1	1.8	20	4	50
4HRR-012-R02-040-445	1.2	4	R0.2	1.8	4	4	45
4HRR-012-R02-060-445	1.2	4	R0.2	1.8	6	4	45
4HRR-012-R02-080-445	1.2	4	R0.2	1.8	8	4	45
4HRR-012-R02-100-445	1.2	4	R0.2	1.8	10	4	45
4HRR-012-R02-120-445	1.2	4	R0.2	1.8	12	4	45
4HRR-012-R02-160-450	1.2	4	R0.2	1.8	16	4	50
4HRR-012-R02-200-450	1.2	4	R0.2	1.8	20	4	50
4HRR-012-R03-040-445	1.2	4	R0.3	1.8	4	4	45
4HRR-012-R03-060-445	1.2	4	R0.3	1.8	6	4	45
4HRR-012-R03-080-445	1.2	4	R0.3	1.8	8	4	45
4HRR-012-R03-100-445	1.2	4	R0.3	1.8	10	4	45
4HRR-012-R03-120-445	1.2	4	R0.3	1.8	12	4	45
4HRR-012-R03-160-450	1.2	4	R0.3	1.8	16	4	50
4HRR-012-R03-200-450	1.2	4	R0.3	1.8	20	4	50
4HRR-015-R002-040-445	1.5	4	R0.02	2.3	4	4	45
4HRR-015-R002-060-445	1.5	4	R0.02	2.3	6	4	45
4HRR-015-R002-080-445	1.5	4	R0.02	2.3	8	4	45
4HRR-015-R002-100-445	1.5	4	R0.02	2.3	10	4	45
4HRR-015-R002-120-445	1.5	4	R0.02	2.3	12	4	45
4HRR-015-R002-160-450	1.5	4	R0.02	2.3	16	4	50
4HRR-015-R002-200-450	1.5	4	R0.02	2.3	20	4	50
4HRR-015-R002-220-460	1.5	4	R0.02	2.3	22	4	60
4HRR-015-R002-250-460	1.5	4	R0.02	2.3	25	4	60
4HRR-015-R005-040-445	1.5	4	R0.05	2.3	4	4	45
4HRR-015-R005-060-445	1.5	4	R0.05	2.3	6	4	45
4HRR-015-R005-080-445	1.5	4	R0.05	2.3	8	4	45
4HRR-015-R005-100-445	1.5	4	R0.05	2.3	10	4	45
4HRR-015-R005-120-445	1.5	4	R0.05	2.3	12	4	45
4HRR-015-R005-160-450	1.5	4	R0.05	2.3	16	4	50
4HRR-015-R005-200-450	1.5	4	R0.05	2.3	20	4	50
4HRR-015-R005-220-460	1.5	4	R0.05	2.3	22	4	60
4HRR-015-R005-250-460	1.5	4	R0.05	2.3	25	4	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-015-R01-040-445	1.5	4	R0.1	2.3	4	4	45
4HRR-015-R01-060-445	1.5	4	R0.1	2.3	6	4	45
4HRR-015-R01-080-445	1.5	4	R0.1	2.3	8	4	45
4HRR-015-R01-100-445	1.5	4	R0.1	2.3	10	4	45
4HRR-015-R01-120-445	1.5	4	R0.1	2.3	12	4	45
4HRR-015-R01-160-450	1.5	4	R0.1	2.3	16	4	50
4HRR-015-R01-200-450	1.5	4	R0.1	2.3	20	4	50
4HRR-015-R01-220-460	1.5	4	R0.1	2.3	22	4	60
4HRR-015-R01-250-460	1.5	4	R0.1	2.3	25	4	60
4HRR-015-R02-040-445	1.5	4	R0.2	2.3	4	4	45
4HRR-015-R02-060-445	1.5	4	R0.2	2.3	6	4	45
4HRR-015-R02-080-445	1.5	4	R0.2	2.3	8	4	45
4HRR-015-R02-100-445	1.5	4	R0.2	2.3	10	4	45
4HRR-015-R02-120-445	1.5	4	R0.2	2.3	12	4	45
4HRR-015-R02-160-450	1.5	4	R0.2	2.3	16	4	50
4HRR-015-R02-200-450	1.5	4	R0.2	2.3	20	4	50
4HRR-015-R02-220-460	1.5	4	R0.2	2.3	22	4	60
4HRR-015-R02-250-460	1.5	4	R0.2	2.3	25	4	60
4HRR-015-R03-040-445	1.5	4	R0.3	2.3	4	4	45
4HRR-015-R03-060-445	1.5	4	R0.3	2.3	6	4	45
4HRR-015-R03-080-445	1.5	4	R0.3	2.3	8	4	45
4HRR-015-R03-100-445	1.5	4	R0.3	2.3	10	4	45
4HRR-015-R03-120-445	1.5	4	R0.3	2.3	12	4	45
4HRR-015-R03-160-450	1.5	4	R0.3	2.3	16	4	50
4HRR-015-R03-200-450	1.5	4	R0.3	2.3	20	4	50
4HRR-015-R03-220-460	1.5	4	R0.3	2.3	22	4	60
4HRR-015-R03-250-460	1.5	4	R0.3	2.3	25	4	60
4HRR-015-R05-040-445	1.5	4	R0.5	2.3	4	4	45
4HRR-015-R05-060-445	1.5	4	R0.5	2.3	6	4	45
4HRR-015-R05-080-445	1.5	4	R0.5	2.3	8	4	45
4HRR-015-R05-100-445	1.5	4	R0.5	2.3	10	4	45
4HRR-015-R05-120-445	1.5	4	R0.5	2.3	12	4	45
4HRR-015-R05-160-450	1.5	4	R0.5	2.3	16	4	50
4HRR-015-R05-200-450	1.5	4	R0.5	2.3	20	4	50
4HRR-015-R05-220-460	1.5	4	R0.5	2.3	22	4	60
4HRR-015-R05-250-460	1.5	4	R0.5	2.3	25	4	60
4HRR-020-R002-040-445	2	4	R0.02	3	4	4	45
4HRR-020-R002-060-445	2	4	R0.02	3	6	4	45
4HRR-020-R002-080-445	2	4	R0.02	3	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-020-R002-100-445	2	4	R0.02	3	10	4	45
4HRR-020-R002-120-445	2	4	R0.02	3	12	4	45
4HRR-020-R002-140-450	2	4	R0.02	3	14	4	50
4HRR-020-R002-160-450	2	4	R0.02	3	16	4	50
4HRR-020-R002-180-450	2	4	R0.02	3	18	4	50
4HRR-020-R002-200-450	2	4	R0.02	3	20	4	50
4HRR-020-R002-220-460	2	4	R0.02	3	22	4	60
4HRR-020-R002-250-460	2	4	R0.02	3	25	4	60
4HRR-020-R002-300-470	2	4	R0.02	3	30	4	70
4HRR-020-R002-350-470	2	4	R0.02	3	35	4	70
4HRR-020-R005-040-445	2	4	R0.05	3	4	4	45
4HRR-020-R005-060-445	2	4	R0.05	3	6	4	45
4HRR-020-R005-080-445	2	4	R0.05	3	8	4	45
4HRR-020-R005-100-445	2	4	R0.05	3	10	4	45
4HRR-020-R005-120-445	2	4	R0.05	3	12	4	45
4HRR-020-R005-140-450	2	4	R0.05	3	14	4	50
4HRR-020-R005-160-450	2	4	R0.05	3	16	4	50
4HRR-020-R005-180-450	2	4	R0.05	3	18	4	50
4HRR-020-R005-200-450	2	4	R0.05	3	20	4	50
4HRR-020-R005-220-460	2	4	R0.05	3	22	4	60
4HRR-020-R005-250-460	2	4	R0.05	3	25	4	60
4HRR-020-R005-300-470	2	4	R0.05	3	30	4	70
4HRR-020-R005-350-470	2	4	R0.05	3	35	4	70
4HRR-020-R01-040-445	2	4	R0.1	3	4	4	45
4HRR-020-R01-060-445	2	4	R0.1	3	6	4	45
4HRR-020-R01-080-445	2	4	R0.1	3	8	4	45
4HRR-020-R01-100-445	2	4	R0.1	3	10	4	45
4HRR-020-R01-120-445	2	4	R0.1	3	12	4	45
4HRR-020-R01-140-450	2	4	R0.1	3	14	4	50
4HRR-020-R01-160-450	2	4	R0.1	3	16	4	50
4HRR-020-R01-180-450	2	4	R0.1	3	18	4	50
4HRR-020-R01-200-450	2	4	R0.1	3	20	4	50
4HRR-020-R01-220-460	2	4	R0.1	3	22	4	60
4HRR-020-R01-250-460	2	4	R0.1	3	25	4	60
4HRR-020-R01-300-470	2	4	R0.1	3	30	4	70
4HRR-020-R01-350-470	2	4	R0.1	3	35	4	70
4HRR-020-R02-040-445	2	4	R0.2	3	4	4	45
4HRR-020-R02-060-445	2	4	R0.2	3	6	4	45
4HRR-020-R02-080-445	2	4	R0.2	3	8	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-020-R02-100-445	2	4	R0.2	3	10	4	45
4HRR-020-R02-120-445	2	4	R0.2	3	12	4	45
4HRR-020-R02-140-450	2	4	R0.2	3	14	4	50
4HRR-020-R02-160-450	2	4	R0.2	3	16	4	50
4HRR-020-R02-180-450	2	4	R0.2	3	18	4	50
4HRR-020-R02-200-450	2	4	R0.2	3	20	4	50
4HRR-020-R02-220-460	2	4	R0.2	3	22	4	60
4HRR-020-R02-250-460	2	4	R0.2	3	25	4	60
4HRR-020-R02-300-470	2	4	R0.2	3	30	4	70
4HRR-020-R02-350-470	2	4	R0.2	3	35	4	70
4HRR-020-R03-040-445	2	4	R0.3	3	4	4	45
4HRR-020-R03-060-445	2	4	R0.3	3	6	4	45
4HRR-020-R03-080-445	2	4	R0.3	3	8	4	45
4HRR-020-R03-100-445	2	4	R0.3	3	10	4	45
4HRR-020-R03-120-445	2	4	R0.3	3	12	4	45
4HRR-020-R03-140-450	2	4	R0.3	3	14	4	50
4HRR-020-R03-160-450	2	4	R0.3	3	16	4	50
4HRR-020-R03-180-450	2	4	R0.3	3	18	4	50
4HRR-020-R03-200-450	2	4	R0.3	3	20	4	50
4HRR-020-R03-220-460	2	4	R0.3	3	22	4	60
4HRR-020-R03-250-460	2	4	R0.3	3	25	4	60
4HRR-020-R03-300-470	2	4	R0.3	3	30	4	70
4HRR-020-R03-350-470	2	4	R0.3	3	35	4	70
4HRR-020-R05-040-445	2	4	R0.5	3	4	4	45
4HRR-020-R05-060-445	2	4	R0.5	3	6	4	45
4HRR-020-R05-080-445	2	4	R0.5	3	8	4	45
4HRR-020-R05-100-445	2	4	R0.5	3	10	4	45
4HRR-020-R05-120-445	2	4	R0.5	3	12	4	45
4HRR-020-R05-140-450	2	4	R0.5	3	14	4	50
4HRR-020-R05-160-450	2	4	R0.5	3	16	4	50
4HRR-020-R05-180-450	2	4	R0.5	3	18	4	50
4HRR-020-R05-200-450	2	4	R0.5	3	20	4	50
4HRR-020-R05-220-460	2	4	R0.5	3	22	4	60
4HRR-020-R05-250-460	2	4	R0.5	3	25	4	60
4HRR-020-R05-300-470	2	4	R0.5	3	30	4	70
4HRR-020-R05-350-470	2	4	R0.5	3	35	4	70
4HRR-025-R01-060-445	2.5	4	R0.1	3.8	6	4	45
4HRR-025-R01-080-445	2.5	4	R0.1	3.8	8	4	45
4HRR-025-R01-100-445	2.5	4	R0.1	3.8	10	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-025-R01-120-445	2.5	4	R0.1	3.8	12	4	45
4HRR-025-R01-160-450	2.5	4	R0.1	3.8	16	4	50
4HRR-025-R01-200-450	2.5	4	R0.1	3.8	20	4	50
4HRR-025-R01-250-460	2.5	4	R0.1	3.8	25	4	60
4HRR-025-R01-300-470	2.5	4	R0.1	3.8	30	4	70
4HRR-025-R02-060-445	2.5	4	R0.2	3.8	6	4	45
4HRR-025-R02-080-445	2.5	4	R0.2	3.8	8	4	45
4HRR-025-R02-100-445	2.5	4	R0.2	3.8	10	4	45
4HRR-025-R02-120-445	2.5	4	R0.2	3.8	12	4	45
4HRR-025-R02-160-450	2.5	4	R0.2	3.8	16	4	50
4HRR-025-R02-200-450	2.5	4	R0.2	3.8	20	4	50
4HRR-025-R02-250-460	2.5	4	R0.2	3.8	25	4	60
4HRR-025-R02-300-470	2.5	4	R0.2	3.8	30	4	70
4HRR-025-R03-060-445	2.5	4	R0.3	3.8	6	4	45
4HRR-025-R03-080-445	2.5	4	R0.3	3.8	8	4	45
4HRR-025-R03-100-445	2.5	4	R0.3	3.8	10	4	45
4HRR-025-R03-120-445	2.5	4	R0.3	3.8	12	4	45
4HRR-025-R03-160-450	2.5	4	R0.3	3.8	16	4	50
4HRR-025-R03-200-450	2.5	4	R0.3	3.8	20	4	50
4HRR-025-R03-250-460	2.5	4	R0.3	3.8	25	4	60
4HRR-025-R03-300-470	2.5	4	R0.3	3.8	30	4	70
4HRR-025-R05-060-445	2.5	4	R0.5	3.8	6	4	45
4HRR-025-R05-080-445	2.5	4	R0.5	3.8	8	4	45
4HRR-025-R05-100-445	2.5	4	R0.5	3.8	10	4	45
4HRR-025-R05-120-445	2.5	4	R0.5	3.8	12	4	45
4HRR-025-R05-160-450	2.5	4	R0.5	3.8	16	4	50
4HRR-025-R05-200-450	2.5	4	R0.5	3.8	20	4	50
4HRR-025-R05-250-460	2.5	4	R0.5	3.8	25	4	60
4HRR-025-R05-300-470	2.5	4	R0.5	3.8	30	4	70
4HRR-030-R01-080-650	3	4	R0.1	4.5	8	6	50
4HRR-030-R01-100-450	3	4	R0.1	4.5	10	4	50
4HRR-030-R01-100-650	3	4	R0.1	4.5	10	6	50
4HRR-030-R01-120-650	3	4	R0.1	4.5	12	6	50
4HRR-030-R01-160-660	3	4	R0.1	4.5	16	6	60
4HRR-030-R01-200-660	3	4	R0.1	4.5	20	6	60
4HRR-030-R01-250-665	3	4	R0.1	4.5	25	6	65
4HRR-030-R01-300-670	3	4	R0.1	4.5	30	6	70
4HRR-030-R01-350-680	3	4	R0.1	4.5	35	6	80
4HRR-030-R01-400-680	3	4	R0.1	4.5	40	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-030-R01-500-6A0	3	4	R0.1	4.5	50	6	100
4HRR-030-R02-100-350	3	4	R0.2	4.5	10	3	50
4HRR-030-R02-100-450	3	4	R0.2	4.5	10	4	50
4HRR-030-R02-080-650	3	4	R0.2	4.5	8	6	50
4HRR-030-R02-100-650	3	4	R0.2	4.5	10	6	50
4HRR-030-R02-120-650	3	4	R0.2	4.5	12	6	50
4HRR-030-R02-160-660	3	4	R0.2	4.5	16	6	60
4HRR-030-R02-200-660	3	4	R0.2	4.5	20	6	60
4HRR-030-R02-250-665	3	4	R0.2	4.5	25	6	65
4HRR-030-R02-300-670	3	4	R0.2	4.5	30	6	70
4HRR-030-R02-350-680	3	4	R0.2	4.5	35	6	80
4HRR-030-R02-400-680	3	4	R0.2	4.5	40	6	80
4HRR-030-R02-500-6A0	3	4	R0.2	4.5	50	6	100
4HRR-030-R03-080-650	3	4	R0.3	4.5	8	6	50
4HRR-030-R03-100-350	3	4	R0.3	4.5	10	3	50
4HRR-030-R03-100-450	3	4	R0.3	4.5	10	4	50
4HRR-030-R03-100-650	3	4	R0.3	4.5	10	6	50
4HRR-030-R03-120-650	3	4	R0.3	4.5	12	6	50
4HRR-030-R03-160-660	3	4	R0.3	4.5	16	6	60
4HRR-030-R03-200-660	3	4	R0.3	4.5	20	6	60
4HRR-030-R03-250-665	3	4	R0.3	4.5	25	6	65
4HRR-030-R03-300-670	3	4	R0.3	4.5	30	6	70
4HRR-030-R03-350-680	3	4	R0.3	4.5	35	6	80
4HRR-030-R03-400-680	3	4	R0.3	4.5	40	6	80
4HRR-030-R03-500-6A0	3	4	R0.3	4.5	50	6	100
4HRR-030-R05-080-650	3	4	R0.5	4.5	8	6	50
4HRR-030-R05-100-350	3	4	R0.5	4.5	10	3	50
4HRR-030-R05-100-450	3	4	R0.5	4.5	10	4	50
4HRR-030-R05-100-650	3	4	R0.5	4.5	10	6	50
4HRR-030-R05-120-650	3	4	R0.5	4.5	12	6	50
4HRR-030-R05-160-660	3	4	R0.5	4.5	16	6	60
4HRR-030-R05-200-660	3	4	R0.5	4.5	20	6	60
4HRR-030-R05-250-665	3	4	R0.5	4.5	25	6	65
4HRR-030-R05-300-670	3	4	R0.5	4.5	30	6	70
4HRR-030-R05-350-675	3	4	R0.5	4.5	35	6	75
4HRR-030-R05-400-680	3	4	R0.5	4.5	40	6	80
4HRR-030-R05-500-6A0	3	4	R0.5	4.5	50	6	100
4HRR-030-R10-080-650	3	4	R1.0	4.5	8	6	50
4HRR-030-R10-100-350	3	4	R1.0	4.5	10	3	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-030-R10-100-450	3	4	R1.0	4.5	10	4	50
4HRR-030-R10-100-650	3	4	R1.0	4.5	10	6	50
4HRR-030-R10-120-650	3	4	R1.0	4.5	12	6	50
4HRR-030-R10-160-660	3	4	R1.0	4.5	16	6	60
4HRR-030-R10-200-660	3	4	R1.0	4.5	20	6	60
4HRR-030-R10-250-665	3	4	R1.0	4.5	25	6	65
4HRR-030-R10-300-670	3	4	R1.0	4.5	30	6	70
4HRR-030-R10-350-680	3	4	R1.0	4.5	35	6	80
4HRR-030-R10-400-680	3	4	R1.0	4.5	40	6	80
4HRR-030-R10-500-6A0	3	4	R1.0	4.5	50	6	100
4HRR-040-R01-080-650	4	4	R0.1	6	8	6	50
4HRR-040-R01-100-650	4	4	R0.1	6	10	6	50
4HRR-040-R01-120-450	4	4	R0.1	6	12	4	50
4HRR-040-R01-120-650	4	4	R0.1	6	12	6	50
4HRR-040-R01-160-660	4	4	R0.1	6	16	6	60
4HRR-040-R01-200-660	4	4	R0.1	6	20	6	60
4HRR-040-R01-250-665	4	4	R0.1	6	25	6	65
4HRR-040-R01-300-670	4	4	R0.1	6	30	6	70
4HRR-040-R01-350-680	4	4	R0.1	6	35	6	80
4HRR-040-R01-400-680	4	4	R0.1	6	40	6	80
4HRR-040-R01-450-690	4	4	R0.1	6	45	6	90
4HRR-040-R01-500-6A0	4	4	R0.1	6	50	6	100
4HRR-040-R02-080-650	4	4	R0.2	6	8	6	50
4HRR-040-R02-100-650	4	4	R0.2	6	10	6	50
4HRR-040-R02-120-450	4	4	R0.2	6	12	4	50
4HRR-040-R02-120-650	4	4	R0.2	6	12	6	50
4HRR-040-R02-160-660	4	4	R0.2	6	16	6	60
4HRR-040-R02-200-660	4	4	R0.2	6	20	6	60
4HRR-040-R02-250-665	4	4	R0.2	6	25	6	65
4HRR-040-R02-300-670	4	4	R0.2	6	30	6	70
4HRR-040-R02-350-680	4	4	R0.2	6	35	6	80
4HRR-040-R02-400-680	4	4	R0.2	6	40	6	80
4HRR-040-R02-450-690	4	4	R0.2	6	45	6	90
4HRR-040-R02-500-6A0	4	4	R0.2	6	50	6	100
4HRR-040-R03-080-650	4	4	R0.3	6	8	6	50
4HRR-040-R03-100-650	4	4	R0.3	6	10	6	50
4HRR-040-R03-120-450	4	4	R0.3	6	12	4	50
4HRR-040-R03-120-650	4	4	R0.3	6	12	6	50
4HRR-040-R03-160-660	4	4	R0.3	6	16	6	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-040-R03-200-660	4	4	R0.3	6	20	6	60
4HRR-040-R03-250-665	4	4	R0.3	6	25	6	65
4HRR-040-R03-300-670	4	4	R0.3	6	30	6	70
4HRR-040-R03-350-680	4	4	R0.3	6	35	6	80
4HRR-040-R03-400-680	4	4	R0.3	6	40	6	80
4HRR-040-R03-450-690	4	4	R0.3	6	45	6	90
4HRR-040-R03-500-6A0	4	4	R0.3	6	50	6	100
4HRR-040-R05-080-650	4	4	R0.5	6	8	6	50
4HRR-040-R05-100-650	4	4	R0.5	6	10	6	50
4HRR-040-R05-120-450	4	4	R0.5	6	12	4	50
4HRR-040-R05-120-650	4	4	R0.5	6	12	6	50
4HRR-040-R05-160-450	4	4	R0.5	6	16	4	50
4HRR-040-R05-160-4A0	4	4	R0.5	6	16	4	100
4HRR-040-R05-160-660	4	4	R0.5	6	16	6	60
4HRR-040-R05-200-660	4	4	R0.5	6	20	6	60
4HRR-040-R05-250-665	4	4	R0.5	6	25	6	65
4HRR-040-R05-300-670	4	4	R0.5	6	30	6	70
4HRR-040-R05-350-680	4	4	R0.5	6	35	6	80
4HRR-040-R05-400-680	4	4	R0.5	6	40	6	80
4HRR-040-R05-450-690	4	4	R0.5	6	45	6	90
4HRR-040-R05-500-6A0	4	4	R0.5	6	50	6	100
4HRR-040-R10-080-650	4	4	R1.0	6	8	6	50
4HRR-040-R10-100-650	4	4	R1.0	6	10	6	50
4HRR-040-R10-120-450	4	4	R1.0	6	12	4	50
4HRR-040-R10-120-650	4	4	R1.0	6	12	6	50
4HRR-040-R10-160-450	4	4	R1.0	6	16	4	50
4HRR-040-R10-160-660	4	4	R1.0	6	16	6	60
4HRR-040-R10-200-660	4	4	R1.0	6	20	6	60
4HRR-040-R10-250-665	4	4	R1.0	6	25	6	65
4HRR-040-R10-300-670	4	4	R1.0	6	30	6	70
4HRR-040-R10-350-680	4	4	R1.0	6	35	6	80
4HRR-040-R10-400-680	4	4	R1.0	6	40	6	80
4HRR-040-R10-450-690	4	4	R1.0	6	45	6	90
4HRR-040-R10-500-6A0	4	4	R1.0	6	50	6	100
4HRR-050-R01-180-660	5	4	R0.1	7.5	18	6	60
4HRR-050-R01-300-670	5	4	R0.1	7.5	30	6	70
4HRR-050-R01-400-680	5	4	R0.1	7.5	40	6	80
4HRR-050-R01-500-6A0	5	4	R0.1	7.5	50	6	100
4HRR-050-R02-180-660	5	4	R0.2	7.5	18	6	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-050-R02-300-670	5	4	R0.2	7.5	30	6	70
4HRR-050-R02-400-680	5	4	R0.2	7.5	40	6	80
4HRR-050-R02-500-6A0	5	4	R0.2	7.5	50	6	100
4HRR-050-R03-180-660	5	4	R0.3	7.5	18	6	60
4HRR-050-R03-300-670	5	4	R0.3	7.5	30	6	70
4HRR-050-R03-400-680	5	4	R0.3	7.5	40	6	80
4HRR-050-R03-500-6A0	5	4	R0.3	7.5	50	6	100
4HRR-050-R05-180-660	5	4	R0.5	7.5	18	6	60
4HRR-050-R05-300-670	5	4	R0.5	7.5	30	6	70
4HRR-050-R05-400-680	5	4	R0.5	7.5	40	6	80
4HRR-050-R05-500-6A0	5	4	R0.5	7.5	50	6	100
4HRR-050-R10-180-660	5	4	R1.0	7.5	18	6	60
4HRR-050-R10-300-670	5	4	R1.0	7.5	30	6	70
4HRR-050-R10-400-680	5	4	R1.0	7.5	40	6	80
4HRR-050-R10-500-6A0	5	4	R1.0	7.5	50	6	100
4HRR-060-R01-200-660	6	4	R0.1	9	20	6	60
4HRR-060-R01-400-690	6	4	R0.1	9	40	6	90
4HRR-060-R01-500-6A0	6	4	R0.1	9	50	6	100
4HRR-060-R02-200-660	6	4	R0.2	9	20	6	60
4HRR-060-R02-200-675	6	4	R0.2	9	20	6	75
4HRR-060-R02-200-6A0	6	4	R0.2	9	20	6	100
4HRR-060-R02-300-680	6	4	R0.2	9	30	6	80
4HRR-060-R02-400-690	6	4	R0.2	9	40	6	90
4HRR-060-R02-500-6A0	6	4	R0.2	9	50	6	100
4HRR-060-R03-200-660	6	4	R0.3	9	20	6	60
4HRR-060-R03-200-675	6	4	R0.3	9	20	6	75
4HRR-060-R03-200-6A0	6	4	R0.3	9	20	6	100
4HRR-060-R03-300-680	6	4	R0.3	9	30	6	80
4HRR-060-R03-400-690	6	4	R0.3	9	40	6	90
4HRR-060-R03-500-6A0	6	4	R0.3	9	50	6	100
4HRR-060-R05-200-660	6	4	R0.5	9	20	6	60
4HRR-060-R05-200-675	6	4	R0.5	9	20	6	75
4HRR-060-R05-200-6A0	6	4	R0.5	9	20	6	100
4HRR-060-R05-300-680	6	4	R0.5	9	30	6	80
4HRR-060-R05-400-690	6	4	R0.5	9	40	6	90
4HRR-060-R05-500-6A0	6	4	R0.5	9	50	6	100
4HRR-060-R10-200-660	6	4	R1.0	9	20	6	60
4HRR-060-R10-200-675	6	4	R1.0	9	20	6	75
4HRR-060-R10-200-6A0	6	4	R1.0	9	20	6	100

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-060-R10-300-680	6	4	R1.0	9	30	6	80
4HRR-060-R10-400-690	6	4	R1.0	9	40	6	90
4HRR-060-R10-500-6A0	6	4	R1.0	9	50	6	100
4HRR-060-R15-200-660	6	4	R1.5	9	20	6	60
4HRR-060-R15-200-675	6	4	R1.5	9	20	6	75
4HRR-060-R15-200-6A0	6	4	R1.5	9	20	6	100
4HRR-060-R15-300-680	6	4	R1.5	9	30	6	80
4HRR-060-R15-400-690	6	4	R1.5	9	40	6	90
4HRR-060-R15-500-6A0	6	4	R1.5	9	50	6	100
4HRR-060-R20-200-660	6	4	R2.0	9	20	6	60
4HRR-060-R20-200-675	6	4	R2.0	9	20	6	75
4HRR-060-R20-200-6A0	6	4	R2.0	9	20	6	100
4HRR-060-R20-400-690	6	4	R2.0	9	40	6	90
4HRR-080-R01-240-865	8	4	R0.1	12	24	8	65
4HRR-080-R02-240-865	8	4	R0.2	12	24	8	65
4HRR-080-R02-240-875	8	4	R0.2	12	24	8	75
4HRR-080-R02-240-8A0	8	4	R0.2	12	24	8	100
4HRR-080-R03-240-865	8	4	R0.3	12	24	8	65
4HRR-080-R03-240-875	8	4	R0.3	12	24	8	75
4HRR-080-R03-240-8A0	8	4	R0.3	12	24	8	100
4HRR-080-R05-240-865	8	4	R0.5	12	24	8	65
4HRR-080-R05-240-875	8	4	R0.5	12	24	8	75
4HRR-080-R05-240-8A0	8	4	R0.5	12	24	8	100
4HRR-080-R05-300-890	8	4	R0.5	12	30	8	90
4HRR-080-R05-400-8A0	8	4	R0.5	12	40	8	100
4HRR-080-R10-240-865	8	4	R1.0	12	24	8	65
4HRR-080-R10-240-875	8	4	R1.0	12	24	8	75
4HRR-080-R10-240-8A0	8	4	R1.0	12	24	8	100
4HRR-080-R10-240-8C5	8	4	R1.0	12	24	8	125
4HRR-080-R10-300-890	8	4	R1.0	12	30	8	90
4HRR-080-R10-400-8A0	8	4	R1.0	12	40	8	100
4HRR-080-R15-240-865	8	4	R1.5	12	24	8	65
4HRR-080-R15-240-875	8	4	R1.5	12	24	8	75
4HRR-080-R15-240-8A0	8	4	R1.5	12	24	8	100
4HRR-080-R15-400-8A0	8	4	R1.5	12	40	8	100
4HRR-080-R20-240-865	8	4	R2.0	12	24	8	65
4HRR-080-R20-240-875	8	4	R2.0	12	24	8	75
4HRR-080-R20-300-890	8	4	R2.0	12	30	8	90
4HRR-100-R02-300-A70	10	4	R0.2	15	30	10	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-100-R02-300-A75	10	4	R0.2	15	30	10	75
4HRR-100-R02-300-AA0	10	4	R0.2	15	30	10	100
4HRR-100-R03-300-A70	10	4	R0.3	15	30	10	70
4HRR-100-R03-300-A75	10	4	R0.3	15	30	10	75
4HRR-100-R03-300-AA0	10	4	R0.3	15	30	10	100
4HRR-100-R05-300-A70	10	4	R0.5	15	30	10	70
4HRR-100-R05-300-A75	10	4	R0.5	15	30	10	75
4HRR-100-R05-300-AA0	10	4	R0.5	15	30	10	100
4HRR-100-R05-400-AA0	10	4	R0.5	15	40	10	100
4HRR-100-R10-300-A70	10	4	R1.0	15	30	10	70
4HRR-100-R10-300-A75	10	4	R1.0	15	30	10	75
4HRR-100-R10-300-AA0	10	4	R1.0	15	30	10	100
4HRR-100-R10-300-AF0	10	4	R1.0	15	30	10	150
4HRR-100-R10-400-AA0	10	4	R1.0	15	40	10	100
4HRR-100-R15-300-A70	10	4	R1.5	15	30	10	70
4HRR-100-R15-300-A75	10	4	R1.5	15	30	10	75
4HRR-100-R15-300-AA0	10	4	R1.5	15	30	10	100
4HRR-100-R15-400-AA0	10	4	R1.5	15	30	10	100
4HRR-100-R20-300-A70	10	4	R2.0	15	30	10	70
4HRR-100-R20-300-A75	10	4	R2.0	15	30	10	75
4HRR-100-R20-300-AA0	10	4	R2.0	15	30	10	100
4HRR-100-R20-400-AA0	10	4	R2.0	15	40	10	100
4HRR-100-R25-300-A70	10	4	R2.5	15	30	10	70
4HRR-120-R03-300-C80	12	4	R0.3	18	30	12	80
4HRR-120-R03-300-CB0	12	4	R0.3	18	30	12	110
4HRR-120-R05-300-C80	12	4	R0.5	18	30	12	80
4HRR-120-R05-300-CB0	12	4	R0.5	18	30	12	110
4HRR-120-R05-300-CF0	12	4	R0.5	18	30	12	150
4HRR-120-R05-400-CB0	12	4	R0.5	18	40	12	110
4HRR-120-R10-300-C80	12	4	R1.0	18	30	12	80
4HRR-120-R10-300-CB0	12	4	R1.0	18	30	12	110
4HRR-120-R10-300-CF0	12	4	R1.0	18	30	12	150
4HRR-120-R10-400-CB0	12	4	R1.0	18	40	12	110
4HRR-120-R15-300-C80	12	4	R1.5	18	30	12	80
4HRR-120-R15-300-CB0	12	4	R1.5	18	30	12	110
4HRR-120-R15-400-CB0	12	4	R1.5	18	40	12	110
4HRR-120-R20-300-C80	12	4	R2.0	18	30	12	80
4HRR-120-R20-300-CB0	12	4	R2.0	18	30	12	110
4HRR-120-R20-300-CF0	12	4	R2.0	18	30	12	150

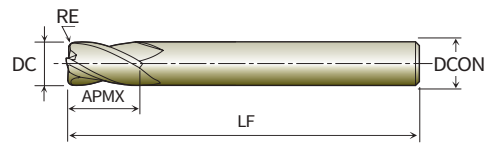
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRR-120-R20-300-CK0	12	4	R2.0	18	30	12	200
4HRR-120-R20-400-CB0	12	4	R2.0	18	40	12	110
4HRR-120-R30-300-C80	12	4	R3.0	18	30	12	80
4HRR-120-R30-300-CB0	12	4	R3.0	18	30	12	110

4HCR

4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



H 4 CR 30° page No.266

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HCR-010-R002-025-445	1	4	R0.02	2.5	4	45
4HCR-010-R005-025-445	1	4	R0.05	2.5	4	45
4HCR-010-R01-025-445	1	4	R0.1	2.5	4	45
4HCR-010-R02-025-445	1	4	R0.2	2.5	4	45
4HCR-010-R03-025-445	1	4	R0.3	2.5	4	45
4HCR-012-R002-032-445	1.2	4	R0.02	3.2	4	45
4HCR-012-R005-032-445	1.2	4	R0.05	3.2	4	45
4HCR-012-R01-032-445	1.2	4	R0.1	3.2	4	45
4HCR-012-R02-032-445	1.2	4	R0.2	3.2	4	45
4HCR-012-R03-032-445	1.2	4	R0.3	3.2	4	45
4HCR-015-R002-040-445	1.5	4	R0.02	4	4	45
4HCR-015-R005-040-445	1.5	4	R0.05	4	4	45
4HCR-015-R01-040-445	1.5	4	R0.1	4	4	45
4HCR-015-R02-040-445	1.5	4	R0.2	4	4	45
4HCR-015-R03-040-445	1.5	4	R0.3	4	4	45
4HCR-015-R05-040-445	1.5	4	R0.5	4	4	45
4HCR-020-R002-060-445	2	4	R0.02	6	4	45
4HCR-020-R005-060-445	2	4	R0.05	6	4	45
4HCR-020-R01-060-445	2	4	R0.1	6	4	45
4HCR-020-R02-060-445	2	4	R0.2	6	4	45
4HCR-020-R03-060-445	2	4	R0.3	6	4	45
4HCR-020-R05-060-445	2	4	R0.5	6	4	45
4HCR-025-R005-060-450	2.5	4	R0.05	6	4	50
4HCR-025-R01-060-450	2.5	4	R0.1	6	4	50
4HCR-025-R02-060-450	2.5	4	R0.2	6	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HCR-025-R03-060-450	2.5	4	R0.3	6	4	50
4HCR-025-R05-060-450	2.5	4	R0.5	6	4	50
4HCR-030-R005-080-660	3	4	R0.05	8	6	60
4HCR-030-R01-080-660	3	4	R0.1	8	6	60
4HCR-030-R02-080-660	3	4	R0.2	8	6	60
4HCR-030-R03-080-660	3	4	R0.3	8	6	60
4HCR-030-R05-080-660	3	4	R0.5	8	6	60
4HCR-030-R10-080-660	3	4	R1.0	8	6	60
4HCR-035-R01-090-670	3.5	4	R0.1	9	6	70
4HCR-035-R02-090-670	3.5	4	R0.2	9	6	70
4HCR-035-R03-090-670	3.5	4	R0.3	9	6	70
4HCR-035-R05-090-670	3.5	4	R0.5	9	6	70
4HCR-035-R10-090-670	3.5	4	R1.0	9	6	70
4HCR-040-R005-100-460	4	4	R0.05	10	4	60
4HCR-040-R005-100-670	4	4	R0.05	10	6	70
4HCR-040-R01-100-460	4	4	R0.1	10	4	60
4HCR-040-R01-100-670	4	4	R0.1	10	6	70
4HCR-040-R02-100-460	4	4	R0.2	10	4	60
4HCR-040-R02-100-670	4	4	R0.2	10	6	70
4HCR-040-R03-100-460	4	4	R0.3	10	4	60
4HCR-040-R03-100-670	4	4	R0.3	10	6	70
4HCR-040-R05-100-460	4	4	R0.5	10	4	60
4HCR-040-R05-100-670	4	4	R0.5	10	6	70
4HCR-040-R10-100-460	4	4	R1.0	10	4	60
4HCR-040-R10-100-670	4	4	R1.0	10	6	70
4HCR-045-R01-110-675	4.5	4	R0.1	11	6	75
4HCR-045-R02-110-675	4.5	4	R0.2	11	6	75
4HCR-045-R03-110-675	4.5	4	R0.3	11	6	75
4HCR-045-R05-110-675	4.5	4	R0.5	11	6	75
4HCR-050-R01-130-675	5	4	R0.1	13	6	75
4HCR-050-R02-130-675	5	4	R0.2	13	6	75
4HCR-050-R03-130-675	5	4	R0.3	13	6	75
4HCR-050-R05-130-675	5	4	R0.5	13	6	75
4HCR-050-R10-130-675	5	4	R1.0	13	6	75
4HCR-060-R005-110-660	6	4	R0.05	11	6	60
4HCR-060-R005-130-690	6	4	R0.05	13	6	90
4HCR-060-R01-110-660	6	4	R0.1	11	6	60
4HCR-060-R01-130-690	6	4	R0.1	13	6	90
4HCR-060-R02-110-660	6	4	R0.2	11	6	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HCR-060-R02-130-690	6	4	R0.2	13	6	90
4HCR-060-R03-110-660	6	4	R0.3	11	6	60
4HCR-060-R03-130-690	6	4	R0.3	13	6	90
4HCR-060-R05-110-660	6	4	R0.5	11	6	60
4HCR-060-R05-130-690	6	4	R0.5	13	6	90
4HCR-060-R10-110-660	6	4	R1.0	11	6	60
4HCR-060-R10-130-690	6	4	R1.0	13	6	90
4HCR-060-R15-110-660	6	4	R1.5	11	6	60
4HCR-060-R15-130-690	6	4	R1.5	13	6	90
4HCR-060-R20-110-660	6	4	R2.0	11	6	60
4HCR-060-R20-130-690	6	4	R2.0	13	6	90
4HCR-060-R25-130-690	6	4	R2.5	13	6	90
4HCR-080-R01-160-870	8	4	R0.1	16	8	70
4HCR-080-R01-190-8A0	8	4	R0.1	19	8	100
4HCR-080-R02-160-870	8	4	R0.2	16	8	70
4HCR-080-R02-190-8A0	8	4	R0.2	19	8	100
4HCR-080-R03-160-870	8	4	R0.3	16	8	70
4HCR-080-R03-190-8A0	8	4	R0.3	19	8	100
4HCR-080-R05-160-870	8	4	R0.5	16	8	70
4HCR-080-R05-190-8A0	8	4	R0.5	19	8	100
4HCR-080-R10-160-870	8	4	R1.0	16	8	70
4HCR-080-R10-190-8A0	8	4	R1.0	19	8	100
4HCR-080-R15-160-870	8	4	R1.5	16	8	70
4HCR-080-R15-190-8A0	8	4	R1.5	19	8	100
4HCR-080-R20-160-870	8	4	R2.0	16	8	70
4HCR-080-R20-190-8A0	8	4	R2.0	19	8	100
4HCR-080-R25-190-8A0	8	4	R2.5	19	8	100
4HCR-080-R30-190-8A0	8	4	R3	19	8	100
4HCR-080-R35-190-8A0	8	4	R3.5	19	8	100
4HCR-100-R01-190-A75	10	4	R0.1	19	10	75
4HCR-100-R01-220-AA0	10	4	R0.1	22	10	100
4HCR-100-R02-190-A75	10	4	R0.2	19	10	75
4HCR-100-R02-220-AA0	10	4	R0.2	22	10	100
4HCR-100-R03-190-A75	10	4	R0.3	19	10	75
4HCR-100-R03-220-AA0	10	4	R0.3	22	10	100
4HCR-100-R05-190-A75	10	4	R0.5	19	10	75
4HCR-100-R05-220-AA0	10	4	R0.5	22	10	100
4HCR-100-R10-190-A75	10	4	R1.0	19	10	75
4HCR-100-R10-220-AA0	10	4	R1.0	22	10	100

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HCR-100-R15-190-A75	10	4	R1.5	19	10	75
4HCR-100-R15-220-AA0	10	4	R1.5	22	10	100
4HCR-100-R20-190-A75	10	4	R2.0	19	10	75
4HCR-100-R20-220-AA0	10	4	R2.0	22	10	100
4HCR-100-R25-220-AA0	10	4	R2.5	22	10	100
4HCR-100-R30-220-AA0	10	4	R3.0	22	10	100
4HCR-100-R40-220-AA0	10	4	R4.0	22	10	100
4HCR-120-R01-220-C80	12	4	R0.1	22	12	80
4HCR-120-R01-260-CB0	12	4	R0.1	26	12	110
4HCR-120-R02-220-C80	12	4	R0.2	22	12	80
4HCR-120-R02-260-CB0	12	4	R0.2	26	12	110
4HCR-120-R03-220-C80	12	4	R0.3	22	12	80
4HCR-120-R03-260-CB0	12	4	R0.3	26	12	110
4HCR-120-R05-220-C80	12	4	R0.5	22	12	80
4HCR-120-R05-260-CB0	12	4	R0.5	26	12	110
4HCR-120-R05-260-CD0	12	4	R0.5	26	12	130
4HCR-120-R10-220-C80	12	4	R1.0	22	12	80
4HCR-120-R10-260-CB0	12	4	R1.0	26	12	110
4HCR-120-R10-260-CD0	12	4	R1.0	26	12	130
4HCR-120-R15-220-C80	12	4	R1.5	22	12	80
4HCR-120-R15-260-CB0	12	4	R1.5	26	12	110
4HCR-120-R15-260-CD0	12	4	R1.5	26	12	130
4HCR-120-R20-220-C80	12	4	R2.0	22	12	80
4HCR-120-R20-260-CB0	12	4	R2.0	26	12	110
4HCR-120-R20-260-CD0	12	4	R2.0	26	12	130
4HCR-120-R25-260-CB0	12	4	R2.5	26	12	110
4HCR-120-R30-260-CB0	12	4	R3.0	26	12	110
4HCR-120-R40-260-CB0	12	4	R4.0	26	12	110
4HCR-120-R50-260-CB0	12	4	R5.0	26	12	110
4HCR-160-R05-320-GB0	16	4	R0.5	32	16	110
4HCR-160-R05-320-GF0	16	4	R0.5	32	16	150
4HCR-160-R10-320-GB0	16	4	R1.0	32	16	110
4HCR-160-R10-320-GF0	16	4	R1.0	32	16	150
4HCR-160-R15-320-GB0	16	4	R1.5	32	16	110
4HCR-160-R20-320-GB0	16	4	R2.0	32	16	110
4HCR-160-R30-320-GB0	16	4	R3.0	32	16	110
4HCR-200-R05-380-KB0	20	4	R0.5	38	20	110
4HCR-200-R05-380-KF0	20	4	R0.5	38	20	150
4HCR-200-R10-380-KB0	20	4	R1.0	38	20	110

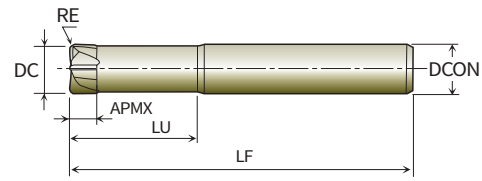
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4HCR-200-R10-380-KF0	20	4	R1.0	38	20	150
4HCR-200-R15-380-KB0	20	4	R1.5	38	20	110
4HCR-200-R20-380-KB0	20	4	R2.0	38	20	110
4HCR-200-R30-380-KB0	20	4	R3.0	38	20	110

4HIT

4날 HIT 엔드밀 (고속고이송)

4 Flutes HIT End Mills for High Speed & Feedrate



H 4 CR page No.267

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HIT-015-R03-040-645	1.5	4	R0.3	0.8	4	6	45
4HIT-020-R05-060-650	2	4	R0.5	1	6	6	50
4HIT-020-R05-060-670	2	4	R0.5	1	6	6	70
4HIT-030-R05-080-650	3	4	R0.5	1.5	8	6	50
4HIT-030-R05-080-670	3	4	R0.5	1.5	8	6	70
4HIT-030-R10-080-650	3	4	R1.0	1.5	8	6	50
4HIT-030-R10-200-660	3	4	R1.0	1.5	20	6	60
4HIT-040-R05-120-660	4	4	R0.5	2	12	6	60
4HIT-040-R05-120-670	4	4	R0.5	2	12	14	70
4HIT-040-R05-160-660	4	4	R0.5	2	16	6	60
4HIT-040-R05-160-670	4	4	R0.5	2	16	14	70
4HIT-040-R10-120-660	4	4	R1.0	2	12	6	60
4HIT-040-R10-120-670	4	4	R1.0	2	12	14	70
4HIT-040-R10-160-660	4	4	R1.0	2	16	6	60
4HIT-040-R10-160-670	4	4	R1.0	2	16	14	70
4HIT-050-R10-150-660	5	4	R1.0	2.5	15	6	60
4HIT-060-R05-120-660	6	4	R0.5	3	12	6	60
4HIT-060-R05-150-660	6	4	R0.5	3	15	6	60
4HIT-060-R05-150-680	6	4	R0.5	3	15	16	80
4HIT-060-R05-200-680	6	4	R0.5	3	20	6	80
4HIT-060-R05-300-680	6	4	R0.5	3	30	6	80
4HIT-060-R10-150-660	6	4	R1.0	3	15	6	60
4HIT-060-R10-150-680	6	4	R1.0	3	15	16	80
4HIT-060-R10-200-680	6	4	R1.0	3	20	6	80
4HIT-060-R10-300-680	6	4	R1.0	3	30	6	80

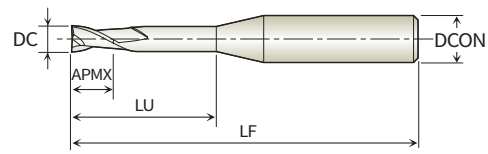
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HIT-060-R15-150-660	6	4	R1.5	3	15	6	60
4HIT-080-R05-200-865	8	4	R0.5	4	20	8	65
4HIT-080-R05-200-890	8	4	R0.5	4	20	18	90
4HIT-080-R05-200-8A0	8	4	R0.5	4	20	18	100
4HIT-080-R05-400-890	8	4	R0.5	4	40	8	90
4HIT-080-R10-200-865	8	4	R1.0	4	20	8	65
4HIT-080-R10-200-890	8	4	R1.0	4	20	18	90
4HIT-080-R10-200-8A0	8	4	R1.0	4	20	18	100
4HIT-080-R10-300-890	8	4	R1.0	4	30	8	90
4HIT-080-R10-400-890	8	4	R1.0	4	40	8	90
4HIT-080-R20-200-865	8	4	R2.0	4	20	8	65
4HIT-080-R20-200-8A0	8	4	R2.0	4	20	18	100
4HIT-100-R05-250-A70	10	4	R0.5	5	25	10	70
4HIT-100-R05-250-AA0	10	4	R0.5	5	25	10	100
4HIT-100-R10-250-A70	10	4	R1.0	5	25	10	70
4HIT-100-R10-250-AA0	10	4	R1.0	5	25	10	100
4HIT-100-R10-250-AB0	10	4	R1.0	5	25	10	110
4HIT-100-R10-400-AA0	10	4	R1.0	5	40	10	100
4HIT-100-R20-200-A70	10	4	R2.0	5	20	10	70
4HIT-100-R20-250-A70	10	4	R2.0	5	25	10	70
4HIT-100-R20-250-AB0	10	4	R2.0	5	25	10	110
4HIT-120-R10-300-C80	12	4	R1.0	6	30	12	80
4HIT-120-R10-300-CB0	12	4	R1.0	6	30	12	110
4HIT-120-R10-400-CB0	12	4	R1.0	6	40	12	110
4HIT-120-R20-300-C80	12	4	R2.0	6	30	12	80
4HIT-120-R20-300-CB0	12	4	R2.0	6	30	12	110
4HIT-120-R20-400-CB0	12	4	R2.0	6	40	12	110

2HRE

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills



H 2 OD 30° page No.268

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-001-003-445	0.1	2	0.15	0.3	4	45
2HRE-001-005-445	0.1	2	0.15	0.5	4	45
2HRE-002-005-445	0.2	2	0.3	0.5	4	45
2HRE-002-010-445	0.2	2	0.3	1	4	45
2HRE-002-015-445	0.2	2	0.3	1.5	4	45
2HRE-002-020-445	0.2	2	0.3	2	4	45
2HRE-002-025-445	0.2	2	0.3	2.5	4	45
2HRE-002-030-445	0.2	2	0.3	3	4	45
2HRE-003-005-445	0.3	2	0.45	0.5	4	45
2HRE-003-010-445	0.3	2	0.45	1	4	45
2HRE-003-015-445	0.3	2	0.45	1.5	4	45
2HRE-003-020-445	0.3	2	0.45	2	4	45
2HRE-003-025-445	0.3	2	0.45	2.5	4	45
2HRE-003-030-445	0.3	2	0.45	3	4	45
2HRE-003-035-445	0.3	2	0.45	3.5	4	45
2HRE-003-040-445	0.3	2	0.45	4	4	45
2HRE-003-050-445	0.3	2	0.45	5	4	45
2HRE-004-010-445	0.4	2	0.6	1	4	45
2HRE-004-015-445	0.4	2	0.6	1.5	4	45
2HRE-004-020-445	0.4	2	0.6	2	4	45
2HRE-004-025-445	0.4	2	0.6	2.5	4	45
2HRE-004-030-445	0.4	2	0.6	3	4	45
2HRE-004-035-445	0.4	2	0.6	3.5	4	45
2HRE-004-040-445	0.4	2	0.6	4	4	45
2HRE-004-050-445	0.4	2	0.6	5	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-004-060-445	0.4	2	0.6	6	4	45
2HRE-004-080-445	0.4	2	0.6	8	4	45
2HRE-004-100-445	0.4	2	0.6	10	4	45
2HRE-005-010-445	0.5	2	0.7	1	4	45
2HRE-005-020-445	0.5	2	0.7	2	4	45
2HRE-005-030-445	0.5	2	0.7	3	4	45
2HRE-005-040-445	0.5	2	0.7	4	4	45
2HRE-005-050-445	0.5	2	0.7	5	4	45
2HRE-005-060-445	0.5	2	0.7	6	4	45
2HRE-005-080-445	0.5	2	0.7	8	4	45
2HRE-005-100-445	0.5	2	0.7	10	4	45
2HRE-005-120-445	0.5	2	0.7	12	4	45
2HRE-005-140-445	0.5	2	0.7	14	4	45
2HRE-006-020-445	0.6	2	0.9	2	4	45
2HRE-006-030-445	0.6	2	0.9	3	4	45
2HRE-006-040-445	0.6	2	0.9	4	4	45
2HRE-006-050-445	0.6	2	0.9	5	4	45
2HRE-006-060-445	0.6	2	0.9	6	4	45
2HRE-006-080-445	0.6	2	0.9	8	4	45
2HRE-006-100-445	0.6	2	0.9	10	4	45
2HRE-006-120-445	0.6	2	0.9	12	4	45
2HRE-006-140-445	0.6	2	0.9	14	4	45
2HRE-006-160-445	0.6	2	0.9	16	4	45
2HRE-007-020-445	0.7	2	1	2	4	45
2HRE-007-040-445	0.7	2	1	4	4	45
2HRE-007-060-445	0.7	2	1	6	4	45
2HRE-007-080-445	0.7	2	1	8	4	45
2HRE-007-100-445	0.7	2	1	10	4	45
2HRE-007-120-445	0.7	2	1	12	4	45
2HRE-008-020-445	0.8	2	1.2	2	4	45
2HRE-008-030-445	0.8	2	1.2	3	4	45
2HRE-008-040-445	0.8	2	1.2	4	4	45
2HRE-008-050-445	0.8	2	1.2	5	4	45
2HRE-008-060-445	0.8	2	1.2	6	4	45
2HRE-008-080-445	0.8	2	1.2	8	4	45
2HRE-008-100-445	0.8	2	1.2	10	4	45
2HRE-008-120-445	0.8	2	1.2	12	4	45
2HRE-008-140-445	0.8	2	1.2	14	4	45
2HRE-009-060-445	0.9	2	1.3	6	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-009-080-445	0.9	2	1.3	8	4	45
2HRE-009-100-445	0.9	2	1.3	10	4	45
2HRE-010-020-445	1	2	1.5	2	4	45
2HRE-010-030-445	1	2	1.5	3	4	45
2HRE-010-040-445	1	2	1.5	4	4	45
2HRE-010-050-445	1	2	1.5	5	4	45
2HRE-010-060-445	1	2	1.5	6	4	45
2HRE-010-080-445	1	2	1.5	8	4	45
2HRE-010-100-445	1	2	1.5	10	4	45
2HRE-010-120-445	1	2	1.5	12	4	45
2HRE-010-140-450	1	2	1.5	14	4	50
2HRE-010-160-450	1	2	1.5	16	4	50
2HRE-010-180-450	1	2	1.5	18	4	50
2HRE-010-200-450	1	2	1.5	20	4	50
2HRE-010-250-460	1	2	1.5	25	4	60
2HRE-010-300-470	1	2	1.5	30	4	70
2HRE-012-040-445	1.2	2	1.8	4	4	45
2HRE-012-060-445	1.2	2	1.8	6	4	45
2HRE-012-080-445	1.2	2	1.8	8	4	45
2HRE-012-100-445	1.2	2	1.8	10	4	45
2HRE-012-120-445	1.2	2	1.8	12	4	45
2HRE-012-160-450	1.2	2	1.8	16	4	50
2HRE-012-200-450	1.2	2	1.8	20	4	50
2HRE-012-250-460	1.2	2	1.8	25	4	60
2HRE-012-300-470	1.2	2	1.8	30	4	70
2HRE-014-060-445	1.4	2	2.1	6	4	45
2HRE-014-080-445	1.4	2	2.1	8	4	45
2HRE-014-100-445	1.4	2	2.1	10	4	45
2HRE-014-120-445	1.4	2	2.1	12	4	45
2HRE-014-140-450	1.4	2	2.1	14	4	50
2HRE-014-160-450	1.4	2	2.1	16	4	50
2HRE-014-200-450	1.4	2	2.1	20	4	50
2HRE-015-040-445	1.5	2	2.3	4	4	45
2HRE-015-060-445	1.5	2	2.3	6	4	45
2HRE-015-080-445	1.5	2	2.3	8	4	45
2HRE-015-100-445	1.5	2	2.3	10	4	45
2HRE-015-120-445	1.5	2	2.3	12	4	45
2HRE-015-140-450	1.5	2	2.3	14	4	50
2HRE-015-160-450	1.5	2	2.3	16	4	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-015-180-450	1.5	2	2.3	18	4	50
2HRE-015-200-450	1.5	2	2.3	20	4	50
2HRE-015-250-460	1.5	2	2.3	25	4	60
2HRE-015-300-470	1.5	2	2.3	30	4	70
2HRE-016-100-445	1.6	2	2.4	10	4	45
2HRE-016-120-445	1.6	2	2.4	12	4	45
2HRE-016-140-450	1.6	2	2.4	14	4	50
2HRE-016-180-450	1.6	2	2.4	18	4	50
2HRE-018-100-445	1.8	2	2.7	10	4	45
2HRE-018-140-450	1.8	2	2.7	14	4	50
2HRE-018-180-450	1.8	2	2.7	18	4	50
2HRE-020-040-445	2	2	3	4	4	45
2HRE-020-060-445	2	2	3	6	4	45
2HRE-020-080-445	2	2	3	8	4	45
2HRE-020-100-445	2	2	3	10	4	45
2HRE-020-120-445	2	2	3	12	4	45
2HRE-020-140-450	2	2	3	14	4	50
2HRE-020-160-450	2	2	3	16	4	50
2HRE-020-180-450	2	2	3	18	4	50
2HRE-020-200-450	2	2	3	20	4	50
2HRE-020-220-460	2	2	3	22	4	60
2HRE-020-250-460	2	2	3	25	4	60
2HRE-020-300-470	2	2	3	30	4	70
2HRE-020-350-470	2	2	3	35	4	70
2HRE-020-400-480	2	2	3	40	4	80
2HRE-020-450-480	2	2	3	45	4	80
2HRE-020-500-490	2	2	3	50	4	90
2HRE-025-080-445	2.5	2	3.8	8	4	45
2HRE-025-100-445	2.5	2	3.8	10	4	45
2HRE-025-120-445	2.5	2	3.8	12	4	45
2HRE-025-160-450	2.5	2	3.8	16	4	50
2HRE-025-200-450	2.5	2	3.8	20	4	50
2HRE-025-250-460	2.5	2	3.8	25	4	60
2HRE-025-300-470	2.5	2	3.8	30	4	70
2HRE-025-350-470	2.5	2	3.8	35	4	70
2HRE-025-400-480	2.5	2	3.8	40	4	80
2HRE-025-500-490	2.5	2	3.8	50	4	90
2HRE-030-080-650	3	2	4.5	8	6	50
2HRE-030-100-650	3	2	4.5	10	6	50

(Unit: mm)

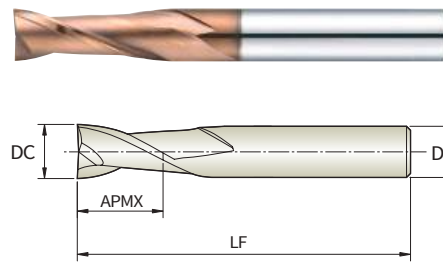
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-030-120-650	3	2	4.5	12	6	50
2HRE-030-140-660	3	2	4.5	14	6	60
2HRE-030-160-660	3	2	4.5	16	6	60
2HRE-030-180-660	3	2	4.5	18	6	60
2HRE-030-200-660	3	2	4.5	20	6	60
2HRE-030-250-665	3	2	4.5	25	6	65
2HRE-030-300-670	3	2	4.5	30	6	70
2HRE-030-350-680	3	2	4.5	35	6	80
2HRE-030-400-680	3	2	4.5	40	6	80
2HRE-030-450-690	3	2	4.5	45	6	90
2HRE-030-500-6A0	3	2	4.5	50	6	100
2HRE-030-600-6B0	3	2	4.5	60	6	110
2HRE-040-080-650	4	2	6	8	6	50
2HRE-040-100-650	4	2	6	10	6	50
2HRE-040-120-650	4	2	6	12	6	50
2HRE-040-160-660	4	2	6	16	6	60
2HRE-040-200-660	4	2	6	20	6	60
2HRE-040-250-665	4	2	6	25	6	65
2HRE-040-300-670	4	2	6	30	6	70
2HRE-040-350-680	4	2	6	35	6	80
2HRE-040-400-680	4	2	6	40	6	80
2HRE-040-450-690	4	2	6	45	6	90
2HRE-040-500-6A0	4	2	6	50	6	100
2HRE-040-550-6B0	4	2	6	55	6	110
2HRE-040-600-6B0	4	2	6	60	6	110
2HRE-050-160-660	5	2	8	16	6	60
2HRE-050-200-660	5	2	8	20	6	60
2HRE-050-250-665	5	2	8	25	6	65
2HRE-050-300-670	5	2	8	30	6	70
2HRE-050-350-680	5	2	8	35	6	80
2HRE-050-400-680	5	2	8	40	6	80
2HRE-050-500-6A0	5	2	8	50	6	100
2HRE-050-600-6B0	5	2	8	60	6	110
2HRE-060-200-660	6	2	9	20	6	60
2HRE-060-300-670	6	2	9	30	6	70
2HRE-060-400-690	6	2	9	40	6	90
2HRE-060-500-6A0	6	2	9	50	6	100
2HRE-060-600-6B0	6	2	9	60	6	110
2HRE-080-200-865	8	2	12	20	8	65

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2HRE-080-300-880	8	2	12	30	8	80
2HRE-080-400-8A0	8	2	12	40	8	100
2HRE-100-250-A70	10	2	15	25	10	70
2HRE-100-350-AA0	10	2	15	35	10	100
2HRE-100-450-AA0	10	2	15	45	10	100
2HRE-120-300-C80	12	2	18	30	12	80
2HRE-120-400-CB0	12	2	18	40	12	110
2HRE-120-500-CB0	12	2	18	50	12	110

2HPE

2날 플랫 엔드밀
2 Flutes Flat End Mills



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(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HPE-001-002-445	0.1	2	0.2	4	45
2HPE-0015-003-445	0.15	2	0.3	4	45
2HPE-002-004-445	0.2	2	0.4	4	45
2HPE-0025-005-445	0.25	2	0.5	4	45
2HPE-003-006-445	0.3	2	0.6	4	45
2HPE-0035-007-445	0.35	2	0.7	4	45
2HPE-004-008-445	0.4	2	0.8	4	45
2HPE-0045-009-445	0.45	2	0.9	4	45
2HPE-005-010-345	0.5	2	1	3	45
2HPE-005-010-445	0.5	2	1	4	45
2HPE-0055-011-445	0.55	2	1.1	4	45
2HPE-006-012-345	0.6	2	1.2	3	45
2HPE-006-012-445	0.6	2	1.2	4	45
2HPE-0065-013-445	0.65	2	1.3	4	45
2HPE-007-014-445	0.7	2	1.4	4	45
2HPE-0075-015-445	0.75	2	1.5	4	45
2HPE-008-016-345	0.8	2	1.6	3	45
2HPE-008-016-445	0.8	2	1.6	4	45
2HPE-0085-017-445	0.85	2	1.7	4	45
2HPE-009-018-445	0.9	2	1.8	4	45
2HPE-0095-019-445	0.95	2	1.9	4	45
2HPE-010-025-345	1	2	2.5	3	45
2HPE-010-025-445	1	2	2.5	4	45
2HPE-010-025-645	1	2	2.5	6	45
2HPE-0105-025-645	1.05	2	2.5	6	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HPE-011-025-645	1.1	2	2.5	6	45
2HPE-012-040-345	1.2	2	4	3	45
2HPE-012-040-445	1.2	2	4	4	45
2HPE-012-040-645	1.2	2	4	6	45
2HPE-0125-040-645	1.25	2	4	6	45
2HPE-013-040-645	1.3	2	4	6	45
2HPE-0135-040-645	1.35	2	4	6	45
2HPE-014-040-645	1.4	2	4	6	45
2HPE-0145-040-645	1.45	2	4	6	45
2HPE-015-040-345	1.5	2	4	3	45
2HPE-015-040-445	1.5	2	4	4	45
2HPE-015-040-645	1.5	2	4	6	45
2HPE-0155-040-645	1.55	2	4	6	45
2HPE-016-040-645	1.6	2	4	6	45
2HPE-0165-040-645	1.65	2	4	6	45
2HPE-017-042-645	1.7	2	4.2	6	45
2HPE-0175-042-645	1.75	2	4.2	6	45
2HPE-018-045-645	1.8	2	4.5	6	45
2HPE-0185-045-645	1.85	2	4.5	6	45
2HPE-019-050-645	1.9	2	5	6	45
2HPE-020-060-345	2	2	6	3	45
2HPE-020-060-445	2	2	6	4	45
2HPE-020-060-645	2	2	6	6	45
2HPE-021-060-645	2.1	2	6	6	45
2HPE-022-060-645	2.2	2	6	6	45
2HPE-023-060-645	2.3	2	6	6	45
2HPE-024-080-650	2.4	2	8	6	50
2HPE-025-080-350	2.5	2	8	3	50
2HPE-025-080-450	2.5	2	8	4	50
2HPE-025-080-650	2.5	2	8	6	50
2HPE-026-080-650	2.6	2	8	6	50
2HPE-027-080-650	2.7	2	8	6	50
2HPE-028-080-650	2.8	2	8	6	50
2HPE-029-080-650	2.9	2	8	6	50
2HPE-030-080-450	3	2	8	4	50
2HPE-030-100-350	3	2	10	3	50
2HPE-030-100-650	3	2	10	6	50
2HPE-031-100-650	3.1	2	10	6	50
2HPE-032-100-650	3.2	2	10	6	50

(Unit: mm)

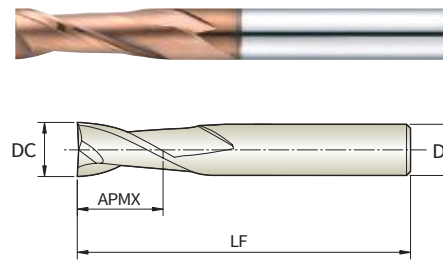
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HPE-033-100-650	3.3	2	10	6	50
2HPE-034-100-650	3.4	2	10	6	50
2HPE-035-100-650	3.5	2	10	6	50
2HPE-036-100-650	3.6	2	10	6	50
2HPE-037-100-650	3.7	2	10	6	50
2HPE-038-100-650	3.8	2	10	6	50
2HPE-039-100-650	3.9	2	10	6	50
2HPE-040-120-450	4	2	12	4	50
2HPE-040-120-650	4	2	12	6	50
2HPE-041-120-650	4.1	2	12	6	50
2HPE-042-120-650	4.2	2	12	6	50
2HPE-043-120-650	4.3	2	12	6	50
2HPE-044-120-650	4.4	2	12	6	50
2HPE-045-120-650	4.5	2	12	6	50
2HPE-046-130-650	4.6	2	13	6	50
2HPE-047-130-650	4.7	2	13	6	50
2HPE-048-130-650	4.8	2	13	6	50
2HPE-049-130-650	4.9	2	13	6	50
2HPE-050-150-650	5	2	15	6	50
2HPE-051-150-650	5.1	2	15	6	50
2HPE-052-150-650	5.2	2	15	6	50
2HPE-053-150-650	5.3	2	15	6	50
2HPE-054-150-650	5.4	2	15	6	50
2HPE-055-150-650	5.5	2	15	6	50
2HPE-056-150-650	5.6	2	15	6	50
2HPE-057-150-650	5.7	2	15	6	50
2HPE-058-150-650	5.8	2	15	6	50
2HPE-059-150-650	5.9	2	15	6	50
2HPE-060-150-650	6	2	15	6	50
2HPE-061-160-860	6.1	2	16	8	60
2HPE-062-160-860	6.2	2	16	8	60
2HPE-063-160-860	6.3	2	16	8	60
2HPE-064-160-860	6.4	2	16	8	60
2HPE-065-160-860	6.5	2	16	8	60
2HPE-070-200-865	7	2	20	8	65
2HPE-075-200-865	7.5	2	20	8	65
2HPE-080-200-865	8	2	20	8	65
2HPE-085-200-A65	8.5	2	20	10	65
2HPE-090-250-A70	9	2	25	10	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HPE-095-250-A70	9.5	2	25	10	70
2HPE-100-250-A70	10	2	25	10	70
2HPE-105-250-C75	10.5	2	25	12	75
2HPE-110-250-C75	11	2	25	12	75
2HPE-115-250-C75	11.5	2	25	12	75
2HPE-120-300-C80	12	2	30	12	80
2HPE-130-350-E90	13	2	35	14	90
2HPE-140-350-E90	14	2	35	14	90
2HPE-150-350-GA0	15	2	35	16	100
2HPE-160-400-GA0	16	2	40	16	100
2HPE-180-450-IA0	18	2	45	18	100
2HPE-200-450-KA0	20	2	45	20	100

2HLE

2날 롱 플랫 엔드밀
2 Flutes Long Length Flat End Mills



H 2 OD 30° page No.270

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HLE-010-030-660	1	2	3	6	60
2HLE-010-050-660	1	2	5	6	60
2HLE-010-070-660	1	2	7	6	60
2HLE-010-100-660	1	2	10	6	60
2HLE-010-120-660	1	2	12	6	60
2HLE-010-150-660	1	2	15	6	60
2HLE-015-060-660	1.5	2	6	6	60
2HLE-015-080-660	1.5	2	8	6	60
2HLE-015-100-660	1.5	2	10	6	60
2HLE-015-150-660	1.5	2	15	6	60
2HLE-015-200-660	1.5	2	20	6	60
2HLE-020-100-660	2	2	10	6	60
2HLE-020-120-660	2	2	12	6	60
2HLE-020-150-660	2	2	15	6	60
2HLE-020-200-660	2	2	20	6	60
2HLE-030-120-670	3	2	12	6	70
2HLE-030-150-670	3	2	15	6	70
2HLE-030-200-670	3	2	20	6	70
2HLE-030-250-670	3	2	25	6	70
2HLE-030-300-670	3	2	30	6	70
2HLE-040-150-670	4	2	15	6	70
2HLE-040-200-670	4	2	20	6	70
2HLE-040-300-675	4	2	30	6	75
2HLE-040-350-675	4	2	35	6	75
2HLE-040-400-680	4	2	40	6	80

(Unit: mm)

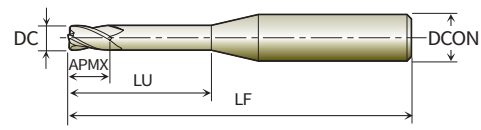
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HLE-050-200-670	5	2	20	6	70
2HLE-050-250-670	5	2	25	6	70
2HLE-050-300-675	5	2	30	6	75
2HLE-050-400-680	5	2	40	6	80
2HLE-060-200-670	6	2	20	6	70
2HLE-060-200-6A0	6	2	20	6	100
2HLE-060-250-675	6	2	25	6	75
2HLE-060-300-680	6	2	30	6	80
2HLE-060-350-680	6	2	35	6	80
2HLE-060-400-690	6	2	40	6	90
2HLE-080-250-875	8	2	25	8	75
2HLE-080-250-8A0	8	2	25	8	100
2HLE-080-300-880	8	2	30	8	80
2HLE-080-350-880	8	2	35	8	80
2HLE-080-400-890	8	2	40	8	90
2HLE-080-450-8A0	8	2	45	8	100
2HLE-080-500-8A0	8	2	50	8	100
2HLE-080-550-8A0	8	2	55	8	100
2HLE-100-300-A80	10	2	30	10	80
2HLE-100-350-AA0	10	2	35	10	100
2HLE-100-400-AA0	10	2	40	10	100
2HLE-100-450-AA0	10	2	45	10	100
2HLE-100-500-AA0	10	2	50	10	100
2HLE-100-550-AB0	10	2	55	10	110
2HLE-100-600-AB0	10	2	60	10	110
2HLE-100-650-AC0	10	2	65	10	120
2HLE-100-700-AC0	10	2	70	10	120
2HLE-120-300-CA0	12	2	30	12	100
2HLE-120-350-CA0	12	2	35	12	100
2HLE-120-400-CA0	12	2	40	12	100
2HLE-120-450-CA0	12	2	45	12	100
2HLE-120-500-CA0	12	2	50	12	100
2HLE-120-550-CB0	12	2	55	12	110
2HLE-120-600-CB0	12	2	60	12	110
2HLE-120-700-CD0	12	2	70	12	130
2HLE-140-500-EB0	14	2	50	14	110
2HLE-160-400-GF0	16	2	40	16	150
2HLE-160-550-GC0	16	2	55	16	120
2HLE-160-700-GD0	16	2	70	16	130

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2HLE-200-500-KF0	20	2	50	20	150
2HLE-200-600-KD0	20	2	60	20	130
2HLE-250-750-PF0	25	2	75	25	150

4HRE

4날 리브가공용 플랫 엔드밀
4 Flutes Rib Flat End Mills



H 4 OD 30° page No.271

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRE-008-020-445	0.8	4	1.2	2	4	45
4HRE-008-040-445	0.8	4	1.2	4	4	45
4HRE-008-060-445	0.8	4	1.2	6	4	45
4HRE-008-080-445	0.8	4	1.2	8	4	45
4HRE-008-100-445	0.8	4	1.2	10	4	45
4HRE-008-120-445	0.8	4	1.2	12	4	45
4HRE-008-160-445	0.8	4	1.2	16	4	45
4HRE-009-020-445	0.9	4	1.4	2	4	45
4HRE-009-060-445	0.9	4	1.4	6	4	45
4HRE-009-080-445	0.9	4	1.4	8	4	45
4HRE-009-100-445	0.9	4	1.4	10	4	45
4HRE-010-020-445	1	4	1.5	2	4	45
4HRE-010-030-445	1	4	1.5	3	4	45
4HRE-010-040-445	1	4	1.5	4	4	45
4HRE-010-060-445	1	4	1.5	6	4	45
4HRE-010-080-445	1	4	1.5	8	4	45
4HRE-010-100-445	1	4	1.5	10	4	45
4HRE-010-120-445	1	4	1.5	12	4	45
4HRE-010-140-450	1	4	1.5	14	4	50
4HRE-010-160-450	1	4	1.5	16	4	50
4HRE-010-200-450	1	4	1.5	20	4	50
4HRE-010-250-460	1	4	1.5	25	4	60
4HRE-012-040-445	1.2	4	1.8	4	4	45
4HRE-012-060-445	1.2	4	1.8	6	4	45
4HRE-012-080-445	1.2	4	1.8	8	4	45

(Unit: mm)

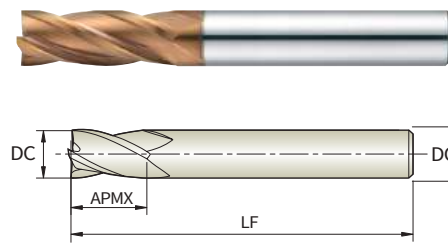
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRE-012-100-445	1.2	4	1.8	10	4	45
4HRE-012-120-445	1.2	4	1.8	12	4	45
4HRE-012-160-450	1.2	4	1.8	16	4	50
4HRE-015-040-445	1.5	4	2.3	4	4	45
4HRE-015-060-445	1.5	4	2.3	6	4	45
4HRE-015-080-445	1.5	4	2.3	8	4	45
4HRE-015-100-445	1.5	4	2.3	10	4	45
4HRE-015-120-445	1.5	4	2.3	12	4	45
4HRE-015-160-450	1.5	4	2.3	16	4	50
4HRE-015-200-450	1.5	4	2.3	20	4	50
4HRE-015-250-460	1.5	4	2.3	25	4	60
4HRE-020-040-445	2	4	3	4	4	45
4HRE-020-060-445	2	4	3	6	4	45
4HRE-020-080-445	2	4	3	8	4	45
4HRE-020-100-445	2	4	3	10	4	45
4HRE-020-120-445	2	4	3	12	4	45
4HRE-020-140-450	2	4	3	14	4	50
4HRE-020-160-450	2	4	3	16	4	50
4HRE-020-180-450	2	4	3	18	4	50
4HRE-020-200-450	2	4	3	20	4	50
4HRE-020-250-460	2	4	3	25	4	60
4HRE-020-300-470	2	4	3	30	4	70
4HRE-025-100-445	2.5	4	3.8	10	4	45
4HRE-025-120-445	2.5	4	3.8	12	4	45
4HRE-025-160-450	2.5	4	3.8	16	4	50
4HRE-025-200-450	2.5	4	3.8	20	4	50
4HRE-025-250-460	2.5	4	3.8	25	4	60
4HRE-025-300-470	2.5	4	3.8	30	4	70
4HRE-030-060-645	3	4	4.5	6	6	45
4HRE-030-080-650	3	4	4.5	8	6	50
4HRE-030-100-650	3	4	4.5	10	6	50
4HRE-030-120-650	3	4	4.5	12	6	50
4HRE-030-160-660	3	4	4.5	16	6	60
4HRE-030-200-660	3	4	4.5	20	6	60
4HRE-030-250-665	3	4	4.5	25	6	65
4HRE-030-300-670	3	4	4.5	30	6	70
4HRE-030-350-680	3	4	4.5	35	6	80
4HRE-030-400-680	3	4	4.5	40	6	80
4HRE-040-080-650	4	4	6	8	6	50

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4HRE-040-100-650	4	4	6	10	6	50
4HRE-040-120-650	4	4	6	12	6	50
4HRE-040-160-660	4	4	6	16	6	60
4HRE-040-200-660	4	4	6	20	6	60
4HRE-040-250-665	4	4	6	25	6	65
4HRE-040-300-670	4	4	6	30	6	70
4HRE-040-400-680	4	4	6	40	6	80
4HRE-040-450-690	4	4	6	45	6	90
4HRE-040-500-6A0	4	4	6	50	6	100
4HRE-050-160-660	5	4	8	16	6	60
4HRE-050-200-660	5	4	8	20	6	60
4HRE-050-250-665	5	4	8	25	6	65
4HRE-050-300-670	5	4	8	30	6	70
4HRE-050-400-680	5	4	8	40	6	80
4HRE-050-500-6A0	5	4	8	50	6	100
4HRE-060-200-660	6	4	9	20	6	60
4HRE-060-300-670	6	4	9	30	6	70
4HRE-060-400-690	6	4	9	40	6	90
4HRE-060-500-6A0	6	4	9	50	6	100
4HRE-080-200-865	8	4	12	20	8	65
4HRE-080-300-880	8	4	12	30	8	80
4HRE-080-400-8A0	8	4	12	40	8	100
4HRE-100-250-A70	10	4	15	25	10	70
4HRE-100-350-AA0	10	4	15	35	10	100
4HRE-100-450-AA0	10	4	15	45	10	100
4HRE-120-300-C80	12	4	18	30	12	80
4HRE-120-400-CB0	12	4	18	40	12	110
4HRE-120-500-CB0	12	4	18	50	12	110

4HPE

4날 플랫 엔드밀
4 Flutes Flat End Mills



H | 4 | OD | 30° | page No.273

(Unit: mm)

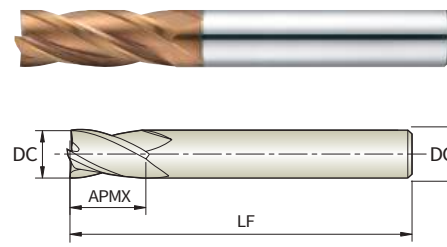
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HPE-008-016-445	0.8	4	1.6	4	45
4HPE-010-025-445	1	4	2.5	4	45
4HPE-010-025-645	1	4	2.5	6	45
4HPE-012-040-445	1.2	4	4	4	45
4HPE-015-040-445	1.5	4	4	4	45
4HPE-015-040-645	1.5	4	4	6	45
4HPE-020-060-445	2	4	6	4	45
4HPE-020-060-645	2	4	6	6	45
4HPE-025-080-445	2.5	4	8	4	45
4HPE-025-080-645	2.5	4	8	6	45
4HPE-030-100-350	3	4	10	3	50
4HPE-030-100-450	3	4	10	4	50
4HPE-030-100-650	3	4	10	6	50
4HPE-035-100-650	3.5	4	10	6	50
4HPE-040-120-450	4	4	12	4	50
4HPE-040-120-650	4	4	12	6	50
4HPE-045-120-650	4.5	4	12	6	50
4HPE-050-150-650	5	4	15	6	50
4HPE-055-150-650	5.5	4	15	6	50
4HPE-060-150-650	6	4	15	6	50
4HPE-060-150-675	6	4	15	6	75
4HPE-060-150-6A0	6	4	15	6	100
4HPE-070-200-865	7	4	20	8	65
4HPE-080-200-865	8	4	20	8	65
4HPE-080-200-875	8	4	20	8	75

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HPE-080-200-8A0	8	4	20	8	100
4HPE-100-250-A70	10	4	25	10	70
4HPE-100-250-A75	10	4	25	10	75
4HPE-100-250-AA0	10	4	25	10	100
4HPE-120-300-C80	12	4	30	12	80
4HPE-120-300-CA0	12	4	30	12	100
4HPE-140-350-E90	14	4	35	14	90
4HPE-160-400-GA0	16	4	40	16	100
4HPE-180-450-IA0	18	4	45	18	100
4HPE-200-450-KA0	20	4	45	20	100

4HLE

4날 롱 플랫 엔드밀
4 Flutes Long Length Flat End Mills



H 4 OD 30° page No.272

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HLE-010-030-660	1	4	3	6	60
4HLE-010-050-660	1	4	5	6	60
4HLE-010-070-660	1	4	7	6	60
4HLE-015-060-660	1.5	4	6	6	60
4HLE-015-080-660	1.5	4	8	6	60
4HLE-015-100-660	1.5	4	10	6	60
4HLE-020-080-660	2	4	8	6	60
4HLE-020-100-660	2	4	10	6	60
4HLE-020-120-660	2	4	12	6	60
4HLE-020-150-660	2	4	15	6	60
4HLE-030-100-670	3	4	10	6	70
4HLE-030-150-670	3	4	15	6	70
4HLE-030-200-670	3	4	20	6	70
4HLE-030-250-670	3	4	25	6	70
4HLE-030-300-670	3	4	30	6	70
4HLE-040-120-670	4	4	12	6	70
4HLE-040-150-470	4	4	15	4	70
4HLE-040-150-670	4	4	15	6	70
4HLE-040-200-470	4	4	20	4	70
4HLE-040-200-670	4	4	20	6	70
4HLE-040-250-670	4	4	25	6	70
4HLE-040-300-675	4	4	30	6	75
4HLE-040-350-675	4	4	35	6	75
4HLE-040-400-680	4	4	40	6	80
4HLE-050-200-670	5	4	20	6	70

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HLE-050-250-670	5	4	25	6	70
4HLE-050-300-675	5	4	30	6	75
4HLE-050-400-680	5	4	40	6	80
4HLE-060-200-670	6	4	20	6	70
4HLE-060-200-6A0	6	4	20	6	100
4HLE-060-250-675	6	4	25	6	75
4HLE-060-250-6A0	6	4	25	6	100
4HLE-060-300-680	6	4	30	6	80
4HLE-060-350-680	6	4	35	6	80
4HLE-060-400-690	6	4	40	6	90
4HLE-080-250-875	8	4	25	8	75
4HLE-080-250-8A0	8	4	25	8	100
4HLE-080-300-880	8	4	30	8	80
4HLE-080-300-8A0	8	4	30	8	100
4HLE-080-300-8F0	8	4	30	8	150
4HLE-080-350-880	8	4	35	8	80
4HLE-080-400-890	8	4	40	8	90
4HLE-080-450-8A0	8	4	45	8	100
4HLE-080-500-8A0	8	4	50	8	100
4HLE-080-550-8A0	8	4	55	8	100
4HLE-100-300-A80	10	4	30	10	80
4HLE-100-350-AA0	10	4	35	10	100
4HLE-100-350-AF0	10	4	35	10	150
4HLE-100-400-AA0	10	4	40	10	100
4HLE-100-450-AA0	10	4	45	10	100
4HLE-100-500-AA0	10	4	50	10	100
4HLE-100-550-AB0	10	4	55	10	110
4HLE-100-600-AB0	10	4	60	10	110
4HLE-100-650-AC0	10	4	65	10	120
4HLE-100-700-AC0	10	4	70	10	120
4HLE-120-300-CA0	12	4	30	12	100
4HLE-120-350-CA0	12	4	35	12	100
4HLE-120-400-CA0	12	4	40	12	100
4HLE-120-400-CF0	12	4	40	12	150
4HLE-120-450-CA0	12	4	45	12	100
4HLE-120-500-CA0	12	4	50	12	100
4HLE-120-550-CB0	12	4	55	12	110
4HLE-120-600-CB0	12	4	60	12	110
4HLE-120-700-CD0	12	4	70	12	130

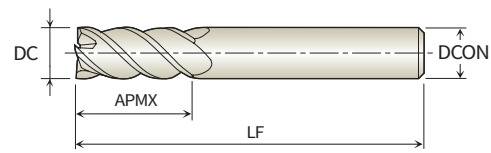
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HLE-140-500-EB0	14	4	50	14	110
4HLE-160-400-GF0	16	4	40	16	150
4HLE-160-550-GC0	16	4	55	16	120
4HLE-160-700-GD0	16	4	70	16	130
4HLE-200-500-KF0	20	4	50	20	150
4HLE-200-600-KD0	20	4	60	20	130
4HLE-250-750-PF0	20	4	75	25	150

4HHE

4날 43° 헬릭스 플랫 엔드밀

4 Flutes 43° HELIX Flat End Mills



H 4 OD 43° page No.274

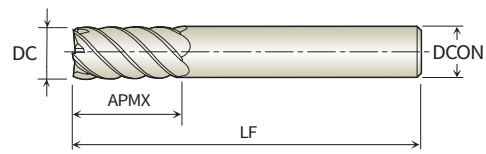
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4HHE-010-020-445	1	4	2	4	45
4HHE-010-020-645	1	4	2	6	45
4HHE-015-040-445	1.5	4	4	4	45
4HHE-015-040-645	1.5	4	4	6	45
4HHE-020-050-445	2	4	5	4	45
4HHE-020-050-645	2	4	5	6	45
4HHE-030-080-350	3	4	8	3	50
4HHE-030-080-445	3	4	8	4	45
4HHE-030-080-650	3	4	8	6	50
4HHE-040-100-460	4	4	10	4	60
4HHE-040-100-650	4	4	10	6	50
4HHE-040-120-445	4	4	12	4	45
4HHE-050-130-650	5	4	13	6	50
4HHE-060-150-650	6	4	15	6	50
4HHE-060-150-675	6	4	15	6	75
4HHE-080-200-865	8	4	20	8	65
4HHE-080-200-875	8	4	20	8	75
4HHE-100-250-A70	10	4	25	10	70
4HHE-100-250-A75	10	4	25	10	75
4HHE-120-300-C80	12	4	30	12	80
4HHE-160-400-GA0	16	4	40	16	100
4HHE-200-450-KA0	20	4	45	20	100

6HPE

6날 45° 헬릭스 플랫 엔드밀

6 Flutes 45° HELIX Flat End Mills



H 6 OD 45° page No.275

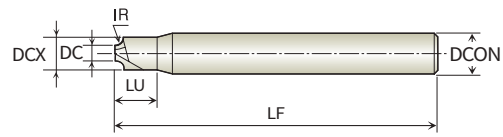
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
6HPE-060-150-650	6	6	15	6	50
6HPE-080-200-865	8	6	20	8	65
6HPE-100-250-A70	10	6	25	10	70
6HPE-120-300-C80	12	6	30	12	80
6HPE-160-400-GA0	16	6	40	16	100
6HPE-200-450-KA0	20	6	45	20	100

2IRC

2날 코너 라운딩 커터

2 Flutes Inner Corner Radius



H 2 R page No.276

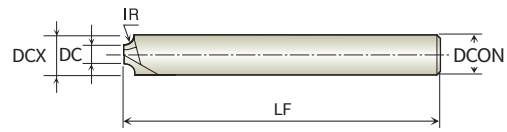
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	역코너반경 PRFRAD	날장 APMX	생크경 DCON	전장 LF
2IRC-005-IR055-017-445	0.5	2	R0.55	1.7	4	45
2IRC-005-IR06-018-445	0.5	2	R0.6	1.8	4	45
2IRC-005-IR065-019-445	0.5	2	R0.65	1.9	4	45
2IRC-005-IR07-020-445	0.5	2	R0.7	2	4	45
2IRC-009-IR05-020-445	0.9	2	R0.5	2	4	45
2IRC-009-IR075-025-445	0.9	2	R0.75	2.5	4	45
2IRC-009-IR08-026-445	0.9	2	R0.8	2.6	4	45
2IRC-009-IR085-027-445	0.9	2	R0.85	2.7	4	45
2IRC-009-IR09-028-445	0.9	2	R0.9	2.8	4	45
2IRC-009-IR095-029-445	0.9	2	R0.95	2.9	4	45
2IRC-009-IR10-030-650	0.9	2	R1.0	3	6	50
2IRC-009-IR125-035-650	0.9	2	R1.25	3.5	4	45
2IRC-014-IR15-045-650	1.4	2	R1.5	4.5	6	50
2IRC-014-IR20-055-650	1.4	2	R2.0	5.5	6	50
2IRC-019-IR25-070-860	1.9	2	R2.5	7	8	60
2IRC-019-IR30-080-860	1.9	2	R3.0	8	8	60
2IRC-019-IR35-090-A70	1.9	2	R3.5	9	10	70
2IRC-019-IR40-100-A70	1.9	2	R4.0	10	10	70
2IRC-019-IR45-110-C80	1.9	2	R4.5	11	12	80
2IRC-019-IR50-120-C80	1.9	2	R5.0	12	12	80
2IRC-034-IR125-060-650	3.4	2	R1.25	6	6	50
2IRC-039-IR10-060-650	3.9	2	R1.0	6	6	50
2IRC-039-IR20-080-860	3.9	2	R2.0	8	8	60
2IRC-039-IR60-160-G85	3.9	2	R6.0	16	16	85
2IRC-039-IR80-200-K85	3.9	2	R8.0	20	20	85
2IRC-049-IR05-060-660	4.9	2	R0.5	6	6	60
2IRC-049-IR15-080-860	4.9	2	R1.5	8	8	60
2IRC-059-IR10-080-860	5.9	2	R1.0	8	8	60
2IRC-059-IR70-200-K85	5.9	2	R7.0	20	20	85

4IRC

4날 코너 라운딩 커터

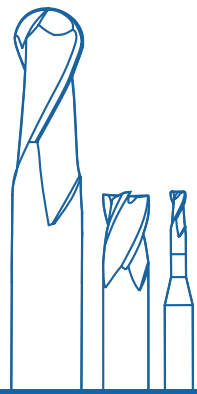
4 Flutes Inner Corner Radius



H 4 R page No.277

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	역코너반경 PRFRAD	날장 APMX	생크경 DCON	전장 LF
4IRC-019-IR10-040-450	1.9	4	R1.0	4	4	50
4IRC-024-IR075-040-450	2.4	4	R0.75	4	4	50
4IRC-029-IR05-040-450	2.9	4	R0.5	4	4	50
4IRC-039-IR10-060-650	3.9	4	R1.0	6	6	50
4IRC-039-IR20-080-860	3.9	4	R2.0	8	8	60
4IRC-039-IR30-100-A70	3.9	4	R3.0	10	10	70
4IRC-039-IR40-120-C80	3.9	4	R4.0	12	12	80
4IRC-039-IR60-160-G80	3.9	4	R6.0	16	16	80
4IRC-049-IR05-060-650	4.9	4	R0.5	6	6	50
4IRC-049-IR075-060-650	4.9	4	R0.75	6	6	50
4IRC-049-IR15-080-860	4.9	4	R1.5	8	8	60
4IRC-049-IR25-100-A70	4.9	4	R2.5	10	10	70
4IRC-059-IR10-080-860	5.9	4	R1.0	8	8	60
4IRC-059-IR20-100-A70	5.9	4	R2.0	10	10	70
4IRC-059-IR30-120-C80	5.9	4	R3.0	12	12	80
4IRC-059-IR50-160-G80	5.9	4	R5.0	16	16	80



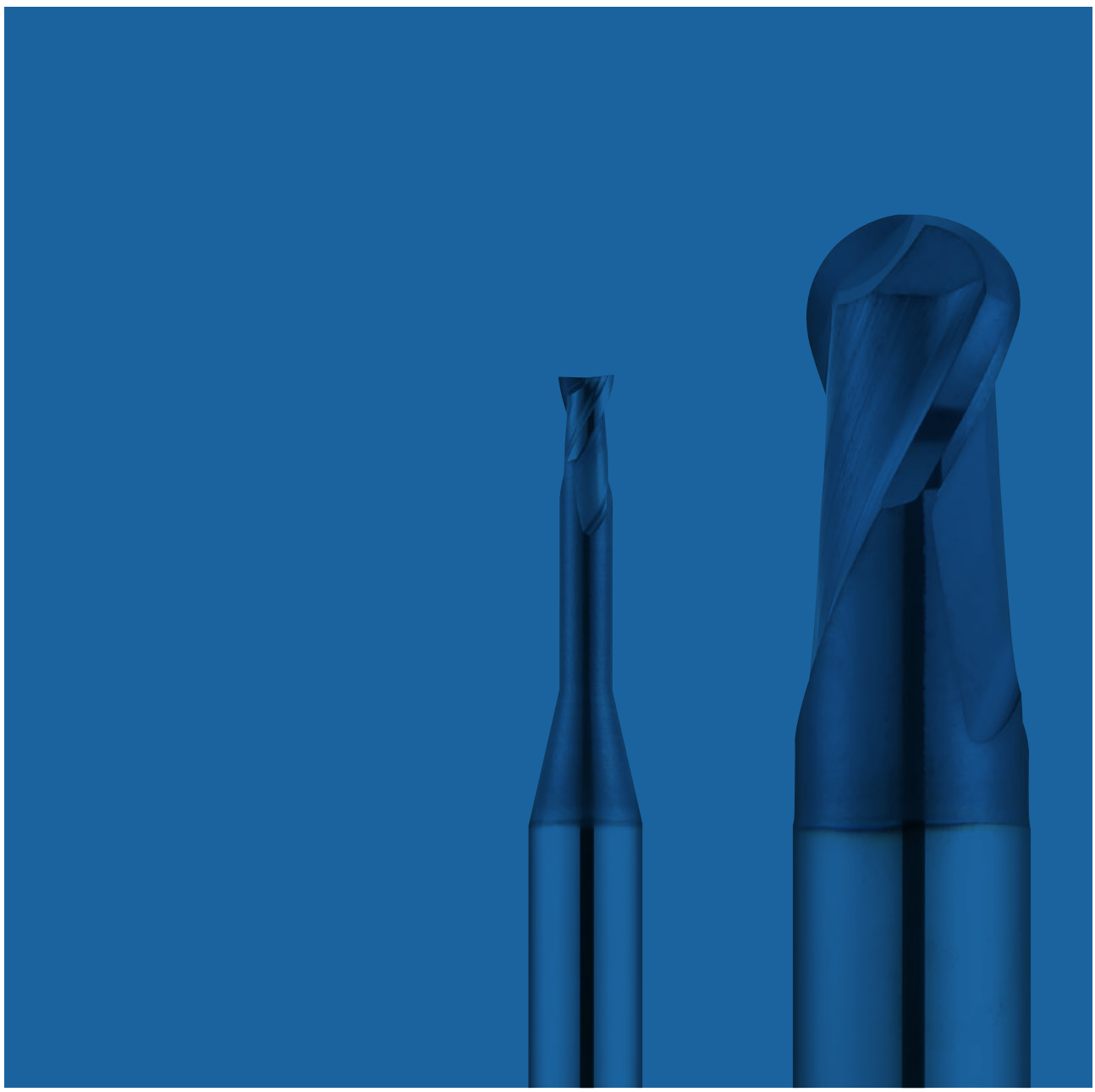
- 날부 파손 방지 및 절삭성 극대화를 위한 형상설계
- 열박음 척 사용에 적합
- 깊은 측면 가공 적합

- Geometry design to protect the breakage of cutting edge and improve the cutting performance
- Optimized to use shrink-fit chuck
- Suitable to deep shoulder milling

전체 타입 All Type

사이즈 DC Size	인선직경공차(mm) DC Tolerance
ALL	0 ~ -0.020

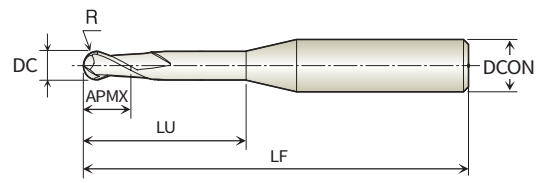
A-PRO 03



2ARB

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills



A 2 R 30° page No.278

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARB-004-010-445	0.4	2	R0.2	0.4	1	4	45
2ARB-004-020-445	0.4	2	R0.2	0.4	2	4	45
2ARB-005-020-445	0.5	2	R0.25	0.5	2	4	45
2ARB-005-040-445	0.5	2	R0.25	0.5	4	4	45
2ARB-006-020-445	0.6	2	R0.3	0.6	2	4	45
2ARB-006-030-445	0.6	2	R0.3	0.6	3	4	45
2ARB-006-040-445	0.6	2	R0.3	0.6	4	4	45
2ARB-006-050-445	0.6	2	R0.3	0.6	5	4	45
2ARB-006-060-445	0.6	2	R0.3	0.6	6	4	45
2ARB-008-020-445	0.8	2	R0.4	0.8	2	4	45
2ARB-008-030-445	0.8	2	R0.4	0.8	3	4	45
2ARB-008-040-445	0.8	2	R0.4	0.8	4	4	45
2ARB-008-050-445	0.8	2	R0.4	0.8	5	4	45
2ARB-008-060-445	0.8	2	R0.4	0.8	6	4	45
2ARB-008-080-445	0.8	2	R0.4	0.8	8	4	45
2ARB-010-030-445	1	2	R0.5	1	3	4	45
2ARB-010-040-445	1	2	R0.5	1	4	4	45
2ARB-010-050-445	1	2	R0.5	1	5	4	45
2ARB-010-060-445	1	2	R0.5	1	6	4	45
2ARB-010-080-445	1	2	R0.5	1	8	4	45
2ARB-010-100-445	1	2	R0.5	1	10	4	45
2ARB-010-120-445	1	2	R0.5	1	12	4	45
2ARB-012-080-445	1.2	2	R0.6	1.2	8	4	45
2ARB-012-100-445	1.2	2	R0.6	1.2	10	4	45
2ARB-012-120-445	1.2	2	R0.6	1.2	12	4	45

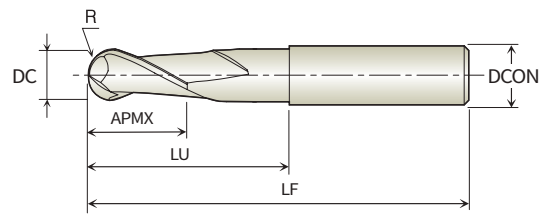
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARB-015-060-445	1.5	2	R0.75	1.5	6	4	45
2ARB-015-080-445	1.5	2	R0.75	1.5	8	4	45
2ARB-015-100-445	1.5	2	R0.75	1.5	10	4	45
2ARB-015-120-445	1.5	2	R0.75	1.5	12	4	45
2ARB-015-160-450	1.5	2	R0.75	1.5	16	4	50
2ARB-016-080-445	1.6	2	R0.8	1.6	8	4	45
2ARB-016-120-445	1.6	2	R0.8	1.6	12	4	45
2ARB-020-080-445	2	2	R1.0	2	8	4	45
2ARB-020-100-445	2	2	R1.0	2	10	4	45
2ARB-020-120-445	2	2	R1.0	2	12	4	45
2ARB-020-160-450	2	2	R1.0	2	16	4	50
2ARB-020-200-450	2	2	R1.0	2	20	4	50
2ARB-025-080-650	2.5	2	R1.25	2.5	8	6	50
2ARB-030-120-650	3	2	R1.5	3	12	6	50
2ARB-030-160-660	3	2	R1.5	3	16	6	60
2ARB-030-200-660	3	2	R1.5	3	20	6	60
2ARB-030-250-665	3	2	R1.5	3	25	6	65
2ARB-040-120-650	4	2	R2.0	4	12	6	50
2ARB-040-160-660	4	2	R2.0	4	16	6	60
2ARB-040-200-660	4	2	R2.0	4	20	6	60
2ARB-040-250-665	4	2	R2.0	4	25	6	65
2ARB-040-300-670	4	2	R2.0	4	30	6	70

2ASB

2날 숏 볼 엔드밀

2 Flutes Short Ball End Mills



A 2 R 30° page No.279

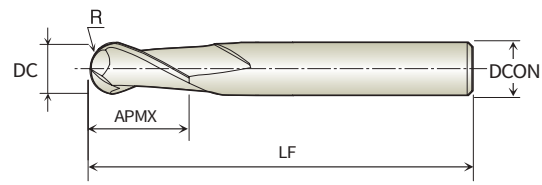
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ASB-004-010-650	0.4	2	R0.2	0.4	1	6	50
2ASB-005-015-650	0.5	2	R0.25	0.5	1.5	6	50
2ASB-006-015-650	0.6	2	R0.3	0.6	1.5	6	50
2ASB-008-020-650	0.8	2	R0.4	0.8	2	6	50
2ASB-010-025-650	1	2	R0.5	1	2.5	6	50
2ASB-015-040-650	1.5	2	R0.75	1.5	4	6	50
2ASB-020-060-650	2	2	R1.0	2	6	6	50
2ASB-025-060-650	2.5	2	R1.25	2.5	6	6	50
2ASB-030-080-650	3	2	R1.5	3	8	6	50
2ASB-040-100-650	4	2	R2.0	4	10	6	50
2ASB-050-120-650	5	2	R2.5	5	12	6	50
2ASB-060-150-660	6	2	R3.0	7	15	6	60
2ASB-080-200-860	8	2	R4.0	10	20	8	60
2ASB-100-250-A70	10	2	R5.0	12	25	10	70
2ASB-120-300-C80	12	2	R6.0	14	30	12	80

2APB

2날 볼 엔드밀

2 Flutes Ball End Mills



page No.280

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2APB-004-008-445	0.4	2	R0.2	0.8	4	45
2APB-005-010-445	0.5	2	R0.25	1	4	45
2APB-006-012-445	0.6	2	R0.3	1.2	4	45
2APB-008-015-445	0.8	2	R0.4	1.5	4	45
2APB-010-020-650	1	2	R0.5	2	6	50
2APB-015-040-650	1.5	2	R0.75	4	6	50
2APB-020-050-660	2	2	R1.0	5	6	60
2APB-025-060-660	2.5	2	R1.25	6	6	60
2APB-030-080-360	3	2	R1.5	8	3	60
2APB-030-080-660	3	2	R1.5	8	6	60
2APB-035-080-660	3.5	2	R1.75	8	6	60
2APB-040-080-470	4	2	R2.0	8	4	70
2APB-040-080-670	4	2	R2.0	8	6	70
2APB-045-100-670	4.5	2	R2.25	10	6	70
2APB-050-100-680	5	2	R2.5	10	6	80
2APB-055-120-680	5.5	2	R2.75	12	6	80
2APB-060-120-690	6	2	R3.0	12	6	90
2APB-065-140-890	6.5	2	R3.25	14	8	90
2APB-070-140-890	7	2	R3.5	14	8	90
2APB-080-140-8A0	8	2	R4.0	14	8	100
2APB-090-180-AA0	9	2	R4.5	18	10	100
2APB-100-180-AA0	10	2	R5.0	18	10	100
2APB-100-250-AF0	10	2	R5.0	25	10	150
2APB-120-220-CB0	12	2	R6.0	22	12	110
2APB-120-300-CF0	12	2	R6.0	30	12	150

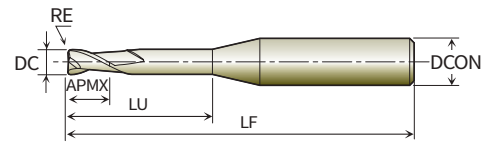
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2APB-160-300-GA0	16	2	R8.0	30	16	100
2APB-160-300-GF0	16	2	R8.0	30	16	150
2APB-200-380-KA0	20	2	R10.0	38	20	100
2APB-200-380-KF0	20	2	R10.0	38	20	150

2ARR

2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



A | CR | 35° | page No.281

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARR-010-R02-030-650	1	2	R0.2	1.5	3	6	50
2ARR-010-R02-060-650	1	2	R0.2	1.5	6	6	50
2ARR-010-R02-080-650	1	2	R0.2	1.5	8	6	50
2ARR-015-R02-045-650	1.5	2	R0.2	2.3	4.5	6	50
2ARR-015-R02-100-650	1.5	2	R0.2	2.3	10	6	50
2ARR-015-R02-120-650	1.5	2	R0.2	2.3	12	6	50
2ARR-015-R05-045-650	1.5	2	R0.5	2.3	4.5	6	50
2ARR-020-R02-060-650	2	2	R0.2	3	6	6	50
2ARR-020-R02-120-650	2	2	R0.2	3	12	6	50
2ARR-020-R02-160-660	2	2	R0.2	3	16	6	60
2ARR-020-R05-060-650	2	2	R0.5	3	6	6	50
2ARR-025-R02-080-650	2.5	2	R0.2	4	8	6	50
2ARR-025-R05-080-650	2.5	2	R0.5	4	8	6	50
2ARR-030-R03-120-650	3	2	R0.3	4.5	12	6	50
2ARR-030-R03-160-660	3	2	R0.3	4.5	16	6	60
2ARR-030-R05-120-650	3	2	R0.5	4.5	12	6	50
2ARR-030-R05-160-660	3	2	R0.5	4.5	16	6	60
2ARR-030-R10-120-650	3	2	R1.0	4.5	12	6	50
2ARR-040-R03-150-660	4	2	R0.3	6	15	6	60
2ARR-040-R05-150-660	4	2	R0.5	6	15	6	60
2ARR-040-R05-200-660	4	2	R0.5	6	20	6	60
2ARR-040-R10-150-660	4	2	R1.0	6	15	6	60
2ARR-050-R03-180-660	5	2	R0.3	7.5	18	6	60
2ARR-050-R05-180-660	5	2	R0.5	7.5	18	6	60
2ARR-060-R03-180-660	6	2	R0.3	9	18	6	60

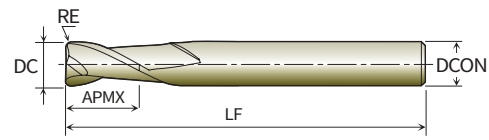
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARR-060-R05-180-660	6	2	R0.5	9	18	6	60
2ARR-060-R10-180-660	6	2	R1.0	9	18	6	60
2ARR-060-R15-180-660	6	2	R1.5	9	18	6	60
2ARR-080-R03-240-865	8	2	R0.3	12	24	8	65
2ARR-080-R05-240-865	8	2	R0.5	12	24	8	65
2ARR-080-R10-240-865	8	2	R1.0	12	24	8	65
2ARR-080-R15-240-865	8	2	R1.5	12	24	8	65
2ARR-100-R03-300-A70	10	2	R0.3	15	30	10	70
2ARR-100-R05-300-A70	10	2	R0.5	15	30	10	70
2ARR-100-R10-300-A70	10	2	R1.0	15	30	10	70
2ARR-100-R15-300-A70	10	2	R1.5	15	30	10	70
2ARR-120-R05-300-C80	12	2	R0.5	18	30	12	80
2ARR-120-R10-300-C80	12	2	R1.0	18	30	12	80
2ARR-120-R15-300-C80	12	2	R1.5	18	30	12	80

2ACR

2날 코너 래디우스 엔드밀

2 Flutes Corner Radius End Mills



A | CR | 35° | page No.282

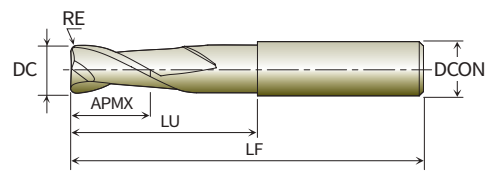
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2ACR-060-R05-130-690	6	2	R0.5	13	6	90
2ACR-060-R10-130-690	6	2	R1.0	13	6	90
2ACR-080-R05-190-8A0	8	2	R0.5	19	8	100
2ACR-080-R10-190-8A0	8	2	R1.0	19	8	100
2ACR-100-R05-220-AA0	10	2	R0.5	22	10	100
2ACR-100-R10-220-AA0	10	2	R1.0	22	10	100
2ACR-120-R05-260-CB0	12	2	R0.5	26	12	110
2ACR-120-R10-260-CB0	12	2	R1.0	26	12	110

2ALR

2날 롱생크 코너 래디우스 엔드밀

2 Flutes Long Shank Corner Radius End Mills



A 2 CR 35° page No.283

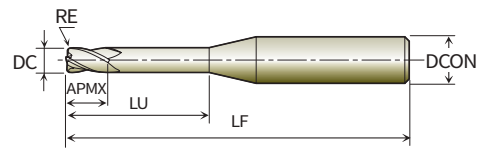
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ALR-060-R05-180-680	6	2	R0.5	9	18	6	80
2ALR-060-R10-180-680	6	2	R1.0	9	18	6	80
2ALR-080-R05-240-890	8	2	R0.5	12	24	8	90
2ALR-080-R10-240-890	8	2	R1.0	12	24	8	90
2ALR-100-R05-300-AA0	10	2	R0.5	15	30	10	100
2ALR-100-R10-300-AA0	10	2	R1.0	15	30	10	100
2ALR-120-R05-300-CB0	12	2	R0.5	18	30	12	110
2ALR-120-R10-300-CB0	12	2	R1.0	18	30	12	110

4ARR

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



A 4 CR 45° page No.284

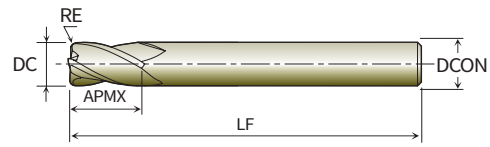
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4ARR-020-R03-060-650	2	4	R0.3	3	6	6	50
4ARR-030-R03-120-650	3	4	R0.3	4.5	12	6	50
4ARR-030-R03-160-660	3	4	R0.3	4.5	16	6	60
4ARR-030-R05-120-650	3	4	R0.5	4.5	12	6	50
4ARR-030-R05-160-660	3	4	R0.5	4.5	16	6	60
4ARR-040-R03-150-660	4	4	R0.3	6	15	6	60
4ARR-040-R03-200-660	4	4	R0.3	6	20	6	60
4ARR-040-R05-150-660	4	4	R0.5	6	15	6	60
4ARR-040-R05-200-660	4	4	R0.5	6	20	6	60
4ARR-040-R10-150-660	4	4	R1.0	6	15	6	60
4ARR-060-R05-180-660	6	4	R0.5	9	18	6	60
4ARR-060-R10-180-660	6	4	R1.0	9	18	6	60
4ARR-060-R15-180-660	6	4	R1.5	9	18	6	60
4ARR-080-R05-240-865	8	4	R0.5	12	24	8	65
4ARR-080-R10-240-865	8	4	R1.0	12	24	8	65
4ARR-080-R15-240-865	8	4	R1.5	12	24	8	65
4ARR-080-R20-240-865	8	4	R2.0	12	24	8	65
4ARR-100-R05-300-A70	10	4	R0.5	15	30	10	70
4ARR-100-R10-300-A70	10	4	R1.0	15	30	10	70
4ARR-100-R15-300-A70	10	4	R1.5	15	30	10	70
4ARR-100-R20-300-A70	10	4	R2.0	15	30	10	70
4ARR-120-R05-300-C80	12	4	R0.5	18	30	12	80
4ARR-120-R10-300-C80	12	4	R1.0	18	30	12	80
4ARR-120-R15-300-C80	12	4	R1.5	18	30	12	80
4ARR-120-R20-300-C80	12	4	R2.0	18	30	12	80

4ACR

4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



A 4 CR 35° page No.285

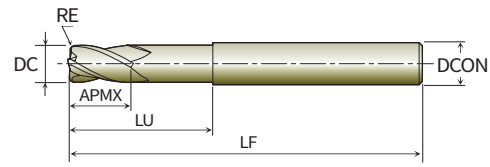
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4ACR-060-R05-130-690	6	4	R0.5	13	6	90
4ACR-060-R10-130-690	6	4	R1.0	13	6	90
4ACR-080-R05-190-8A0	8	4	R0.5	19	8	100
4ACR-080-R10-190-8A0	8	4	R1.0	19	8	100
4ACR-100-R05-220-AA0	10	4	R0.5	22	10	100
4ACR-100-R10-220-AA0	10	4	R1.0	22	10	100
4ACR-120-R05-260-CB0	12	4	R0.5	26	12	110
4ACR-120-R10-260-CB0	12	4	R1.0	26	12	110

4ALR

4날 롱생크 코너 래디우스 엔드밀

4 Flutes Long Shank Corner Radius End Mills



A 4 CR 45° page No.286

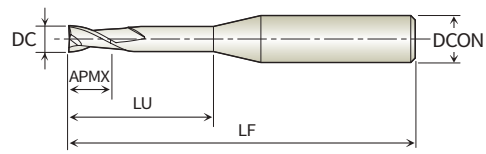
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4ALR-060-R05-180-680	6	4	R0.5	9	18	6	80
4ALR-060-R10-180-680	6	4	R1.0	9	18	6	80
4ALR-080-R05-240-8A0	8	4	R0.5	12	24	8	100
4ALR-080-R10-240-8A0	8	4	R1.0	12	24	8	100
4ALR-100-R05-300-AA0	10	4	R0.5	15	30	10	100
4ALR-100-R10-300-AA0	10	4	R1.0	15	30	10	100
4ALR-120-R05-300-CB0	12	4	R0.5	18	30	12	110
4ALR-120-R10-300-CB0	12	4	R1.0	18	30	12	110

2ARE

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills



A 2 OD 30° page No.287

(Unit: mm)

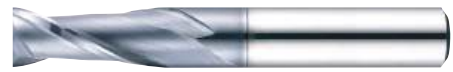
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARE-004-010-445	0.4	2	0.6	1	4	45
2ARE-004-020-445	0.4	2	0.6	2	4	45
2ARE-005-020-445	0.5	2	0.7	2	4	45
2ARE-005-030-445	0.5	2	0.7	3	4	45
2ARE-005-040-445	0.5	2	0.7	4	4	45
2ARE-006-020-445	0.6	2	0.9	2	4	45
2ARE-006-030-445	0.6	2	0.9	3	4	45
2ARE-006-040-445	0.6	2	0.9	4	4	45
2ARE-006-050-445	0.6	2	0.9	5	4	45
2ARE-006-060-445	0.6	2	0.9	6	4	45
2ARE-007-030-445	0.7	2	1	3	4	45
2ARE-007-040-445	0.7	2	1	4	4	45
2ARE-007-060-445	0.7	2	1	6	4	45
2ARE-008-020-445	0.8	2	1.2	2	4	45
2ARE-008-030-445	0.8	2	1.2	3	4	45
2ARE-008-040-445	0.8	2	1.2	4	4	45
2ARE-008-050-445	0.8	2	1.2	5	4	45
2ARE-008-060-445	0.8	2	1.2	6	4	45
2ARE-008-080-445	0.8	2	1.2	8	4	45
2ARE-010-030-445	1	2	1.5	3	4	45
2ARE-010-040-445	1	2	1.5	4	4	45
2ARE-010-050-445	1	2	1.5	5	4	45
2ARE-010-060-445	1	2	1.5	6	4	45
2ARE-010-080-445	1	2	1.5	8	4	45
2ARE-010-100-445	1	2	1.5	10	4	45

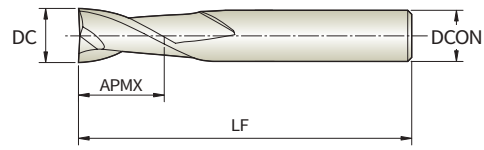
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2ARE-010-120-445	1	2	1.5	12	4	45
2ARE-012-080-445	1.2	2	1.8	8	4	45
2ARE-012-100-445	1.2	2	1.8	10	4	45
2ARE-012-120-445	1.2	2	1.8	12	4	45
2ARE-015-060-445	1.5	2	2.3	6	4	45
2ARE-015-080-445	1.5	2	2.3	8	4	45
2ARE-015-100-445	1.5	2	2.3	10	4	45
2ARE-015-120-445	1.5	2	2.3	12	4	45
2ARE-015-160-450	1.5	2	2.3	16	4	50
2ARE-020-080-445	2	2	3	8	4	45
2ARE-020-100-445	2	2	3	10	4	45
2ARE-020-120-445	2	2	3	12	4	45
2ARE-020-160-450	2	2	3	16	4	50
2ARE-020-200-450	2	2	3	20	4	50
2ARE-025-080-650	2.5	2	3.8	8	6	50
2ARE-025-120-650	2.5	2	3.8	12	6	50
2ARE-030-120-650	3	2	4.5	12	6	50
2ARE-030-160-660	3	2	4.5	16	6	60
2ARE-030-200-660	3	2	4.5	20	6	60
2ARE-040-120-650	4	2	6	12	6	50
2ARE-040-160-660	4	2	6	16	6	60
2ARE-040-200-660	4	2	6	20	6	60
2ARE-040-250-665	4	2	6	25	6	65

2APE

2날 플랫 엔드밀
2 Flutes Flat End Mills





A ② OD 30° page No.288

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2APE-004-008-445	0.4	2	0.8	4	45
2APE-005-010-445	0.5	2	1	4	45
2APE-006-012-445	0.6	2	1.2	4	45
2APE-007-014-445	0.7	2	1.4	4	45
2APE-008-016-445	0.8	2	1.6	4	45
2APE-010-025-645	1	2	2.5	6	45
2APE-012-040-645	1.2	2	4	6	45
2APE-015-040-645	1.5	2	4	6	45
2APE-020-060-645	2	2	6	6	45
2APE-025-080-650	2.5	2	8	6	50
2APE-030-100-350	3	2	10	3	50
2APE-030-100-650	3	2	10	6	50
2APE-035-100-650	3.5	2	10	6	50
2APE-040-120-455	4	2	12	4	55
2APE-040-120-650	4	2	12	6	50
2APE-045-120-650	4.5	2	12	6	50
2APE-050-150-650	5	2	15	6	50
2APE-055-150-650	5.5	2	15	6	50
2APE-060-150-650	6	2	15	6	50
2APE-065-150-865	6.5	2	15	8	65
2APE-070-200-865	7	2	20	8	65
2APE-075-200-865	7.5	2	20	8	65
2APE-080-200-865	8	2	20	8	65
2APE-085-200-A65	8.5	2	20	10	65
2APE-090-250-A70	9	2	25	10	70

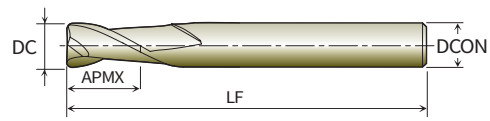
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2APE-095-250-A70	9.5	2	25	10	70
2APE-100-250-A70	10	2	25	10	70
2APE-105-280-C80	10.5	2	25	12	70
2APE-110-300-C80	11	2	25	12	70
2APE-115-250-C70	11.5	2	25	12	70
2APE-120-300-C80	12	2	30	12	80
2APE-130-350-E90	13	2	35	14	90
2APE-140-350-E90	14	2	35	14	90
2APE-160-400-GA0	16	2	40	16	100
2APE-180-450-IA0	18	2	45	18	100
2APE-200-450-KA0	20	2	45	20	100

2AEL

2날 롱 플랫 엔드밀

2 Flutes Long Length Flat End Mills



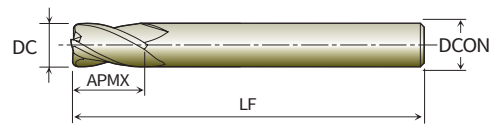
A 2 OD 30° page No.289

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2AEL-010-040-645	1	2	4	6	45
2AEL-020-080-645	2	2	8	6	45
2AEL-030-120-650	3	2	12	6	50
2AEL-030-150-660	3	2	15	6	60
2AEL-040-160-660	4	2	16	6	60
2AEL-040-200-670	4	2	20	6	70
2AEL-050-250-680	5	2	25	6	80
2AEL-060-200-670	6	2	20	6	70
2AEL-060-250-680	6	2	25	6	80
2AEL-080-280-890	8	2	28	8	90
2AEL-080-350-890	8	2	35	8	90
2AEL-100-350-AA0	10	2	35	10	100
2AEL-100-450-AB0	10	2	45	10	110
2AEL-120-400-CB0	12	2	40	12	110

4APE

4날 플랫 엔드밀
4 Flutes Flat End Mills



A 4 OD 30° page No.290

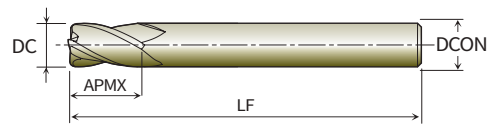
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4APE-020-060-645	2	4	6	6	45
4APE-025-080-645	2.5	4	8	6	45
4APE-030-100-650	3	4	10	6	50
4APE-035-100-650	3.5	4	10	6	50
4APE-040-120-650	4	4	12	6	50
4APE-045-120-650	4.5	4	12	6	50
4APE-050-150-650	5	4	15	6	50
4APE-055-150-650	5.5	4	15	6	50
4APE-060-150-650	6	4	15	6	50
4APE-065-180-865	6.5	4	18	8	65
4APE-070-200-865	7	4	20	8	65
4APE-075-200-865	7.5	4	20	8	65
4APE-080-200-865	8	4	20	8	65
4APE-085-230-A65	8.5	4	23	10	65
4APE-090-250-A70	9	4	25	10	70
4APE-095-250-A70	9.5	4	25	10	70
4APE-100-250-A70	10	4	25	10	70
4APE-105-280-C70	10.5	4	28	12	70
4APE-110-280-C70	11	4	28	12	70
4APE-115-300-C70	11.5	4	30	12	70
4APE-120-300-C80	12	4	30	12	80
4APE-130-350-E90	13	4	35	14	90
4APE-140-350-E90	14	4	35	14	90
4APE-160-400-GA0	16	4	40	16	100
4APE-180-450-IA0	18	4	45	18	100
4APE-200-450-KA0	20	4	45	20	100

4AEL

4날 롱 플랫 엔드밀

4 Flutes Long Length Flat End Mills



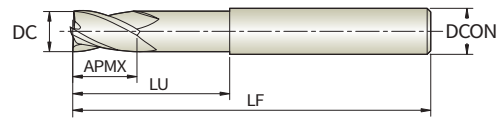
A 4 OD 30° page No.291

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4AEL-020-080-645	2	4	8	6	45
4AEL-030-150-660	3	4	15	6	60
4AEL-040-200-670	4	4	20	6	70
4AEL-050-250-680	5	4	25	6	80
4AEL-060-200-670	6	4	20	6	70
4AEL-060-250-680	6	4	25	6	80
4AEL-080-300-890	8	4	30	8	90
4AEL-080-350-890	8	4	35	8	90
4AEL-100-350-AA0	10	4	35	10	100
4AEL-100-450-AB0	10	4	45	10	110
4AEL-120-400-CB0	12	4	40	12	110
4AEL-120-500-CB0	12	4	50	12	110
4AEL-120-600-CC0	12	4	60	12	120

4APL

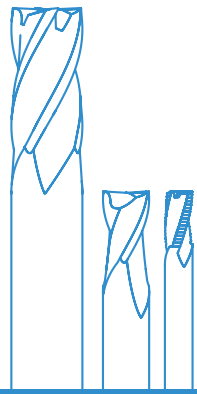
4날 롱 생크 플랫 엔드밀
4 Flutes Long Shank Flat End Mills



A 4 OD 30° page No.292

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4APL-040-180-470	4	4	6	18	4	70
4APL-060-180-680	6	4	9	18	6	80
4APL-080-240-8A0	8	4	12	24	8	100
4APL-100-300-AA0	10	4	15	30	10	100
4APL-120-300-CB0	12	4	18	30	12	110



- 내마모성을 개선하여 더욱 빠르고 거친 가공 (황삭에 최적화)
- 칩 배출 용이한 형상 설계
- 절삭 저항력을 줄여 엔드밀 수명 증대

- Rapid and rough machining by improving wear resistance
- Easy to chips evacuation
- Increased tool life by reducing cutting force

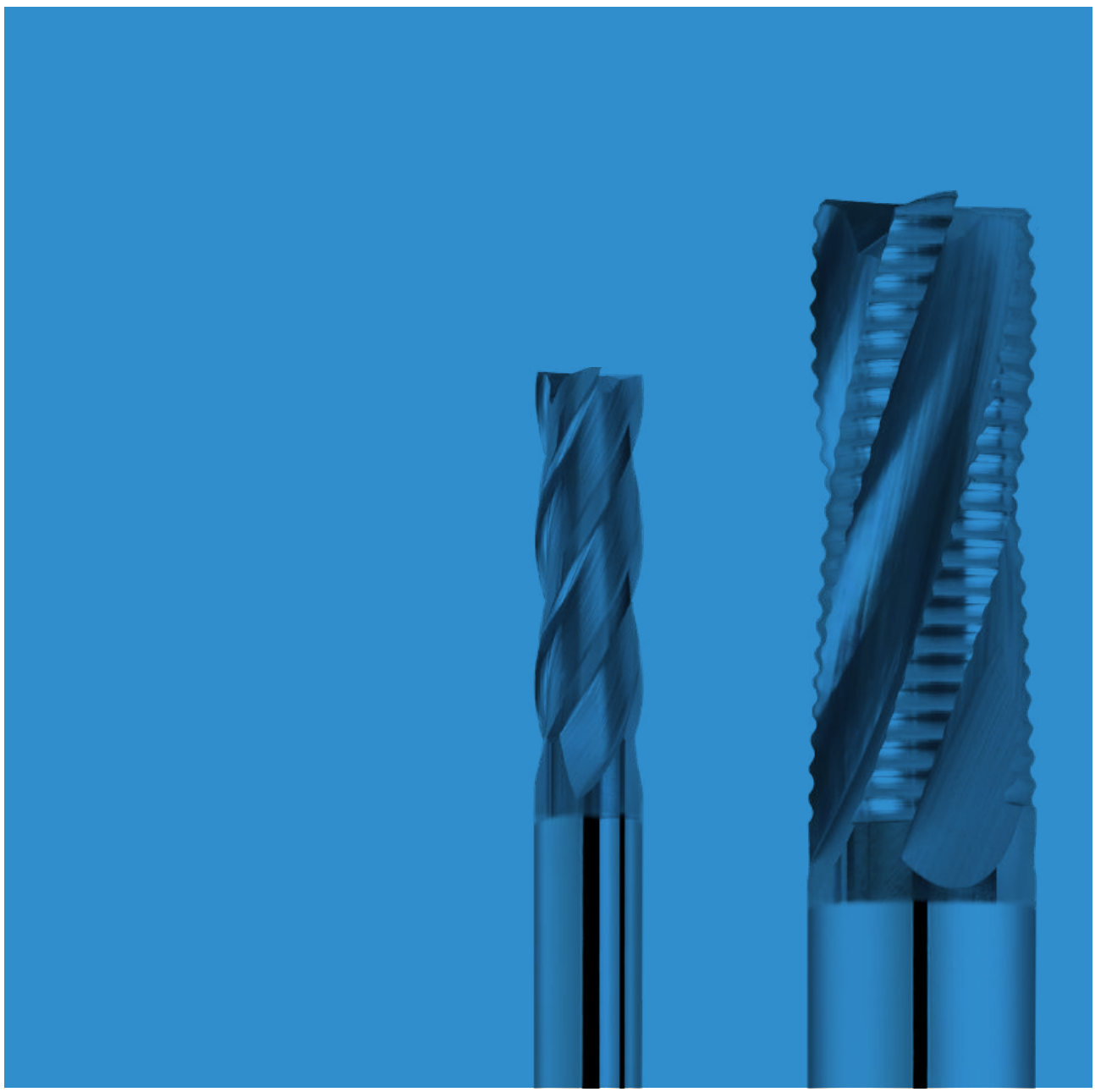
라핑 Roughing

사이즈 DC Size	인선직경공차(mm) DC Tolerance
6 ~ 12	0 ~ -0.04
14 ~ 20	0 ~ -0.05

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
6 ~ 12	0 ~ -0.025
14 ~ 20	0 ~ -0.030

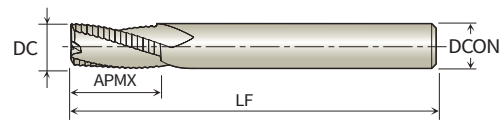
X-PRO 04



3XOE

3날 라핑 엔드밀

3 Flutes Roughing End Mills



X 3 OD 20° page No.293

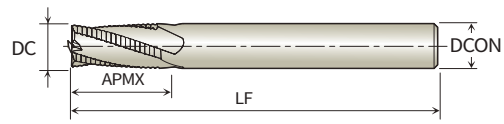
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3XOE-040-100-650	4	3	10	6	50
3XOE-060-090-660	6	3	9	6	60
3XOE-060-150-660	6	3	15	6	60
3XOE-080-120-865	8	3	12	8	65
3XOE-080-200-865	8	3	20	8	65

4XOE

4날 라핑 엔드밀

4 Flutes Roughing End Mills



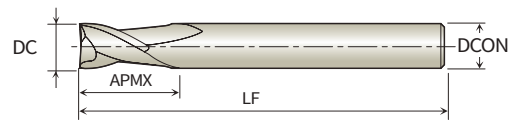
X 4 OD 20° page No.293

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4XOE-100-150-A70	10	4	15	10	70
4XOE-100-250-A70	10	4	25	10	70
4XOE-120-180-C80	12	4	18	12	80
4XOE-120-300-C80	12	4	30	12	80
4XOE-140-250-EA0	14	4	25	14	100
4XOE-160-250-GA0	16	4	25	16	100
4XOE-160-400-GA0	16	4	40	16	100

2XPE

2날 플랫 엔드밀
2 Flutes Flat End Mills



X 2 OD 30° page No.296

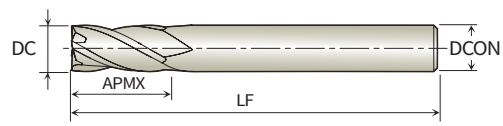
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2XPE-060-120-660	6	2	12	6	60
2XPE-060-150-660	6	2	15	6	60
2XPE-060-200-660	6	2	20	6	60
2XPE-080-160-870	8	2	16	8	70
2XPE-080-200-870	8	2	20	8	70
2XPE-080-250-870	8	2	25	8	70
2XPE-100-220-A75	10	2	22	10	75
2XPE-100-250-A75	10	2	25	10	75
2XPE-100-300-A75	10	2	30	10	75
2XPE-120-260-C80	12	2	26	12	80
2XPE-120-300-C80	12	2	30	12	80
2XPE-120-350-CA0	12	2	35	12	100
2XPE-120-400-CA0	12	2	40	12	100
2XPE-160-320-GA0	16	2	32	16	100
2XPE-160-400-GA0	16	2	40	16	100

4XPE

4날 플랫 엔드밀

4 Flutes Flat End Mills



page No.297

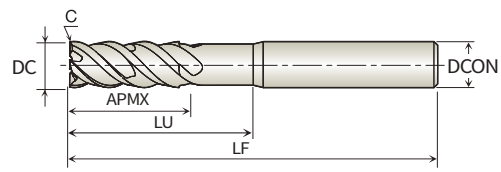
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4XPE-030-080-655	3	4	8	6	55
4XPE-040-100-655	4	4	10	6	55
4XPE-050-130-655	5	4	13	6	55
4XPE-060-120-660	6	4	12	6	60
4XPE-060-150-660	6	4	15	6	60
4XPE-060-200-660	6	4	20	6	60
4XPE-080-160-870	8	4	16	8	70
4XPE-080-200-870	8	4	20	8	70
4XPE-080-250-870	8	4	25	8	70
4XPE-100-220-A75	10	4	22	10	75
4XPE-100-250-A75	10	4	25	10	75
4XPE-100-300-A75	10	4	30	10	75
4XPE-120-260-C80	12	4	26	12	80
4XPE-120-300-C80	12	4	30	12	80
4XPE-120-350-CA0	12	4	35	12	100
4XPE-120-400-CA0	12	4	40	12	100
4XPE-160-320-GA0	16	4	32	16	100
4XPE-160-400-GA0	16	4	40	16	100

4XREV

4날 X-VIC 리브 플랫 엔드밀

4 Flutes X-VIC Rib Flat End Mills



X 4 OD 46° page No.294

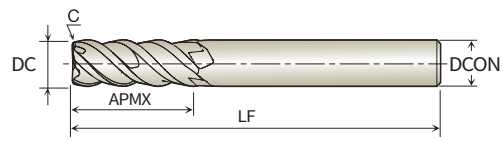
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	챔퍼 CHW	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4XREV-060-200-660	6	4	0.06	13	20	6	60
4XREV-080-260-870	8	4	0.08	19	26	8	70
4XREV-100-300-A75	10	4	0.1	22	30	10	75
4XREV-120-360-C80	12	4	0.12	26	36	12	80
4XREV-140-360-EB0	14	4	0.14	26	36	14	110
4XREV-160-420-GB0	16	4	0.16	32	42	16	110
4XREV-200-520-KB0	20	4	0.2	38	52	20	110

4XPEV

4날 X-VIC 플랫 엔드밀

4 Flutes X-VIC Flat End Mills



X 4 OD 46° page No.295

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	챔퍼 CHW	날장 APMX	생크경 DCON	전장 LF
4XPEV-060-130-660	6	4	0.1	13	6	60
4XPEV-080-190-870	8	4	0.1	19	8	70
4XPEV-100-220-A75	10	4	0.1	22	10	75
4XPEV-120-260-C80	12	4	0.1	26	12	80
4XPEV-140-260-EB0	14	4	0.15	26	14	110
4XPEV-160-320-GB0	16	4	0.15	32	16	110
4XPEV-200-380-KB0	20	4	0.15	38	20	110

- 합금강, SUS계열, 티타늄, 인코넬 등 난삭재 가공에 적합
- 신규 코팅 및 신규 형상 적용하여 강력한 절삭 및 내마모성 우수
- 진동을 최소화하는 Flute 디자인 적용하여 고속·고이송 가공이 가능

- Suitable for cutting difficult to cut materials like Alloy steels, Stainless steels, Titanium, Inconel etc
- Suitable for heavy cutting and good wear resistance due to new coating and new configuration of tool
- Available high speed cutting and high feed cutting due to special flute design minimizing vibration

코너 라핑 Corner Roughing

사이즈 DC Size	인선직경공차(mm) DC Tolerance
3 ~ 10	0 ~ -0.05
11 ~ 20	0 ~ -0.07

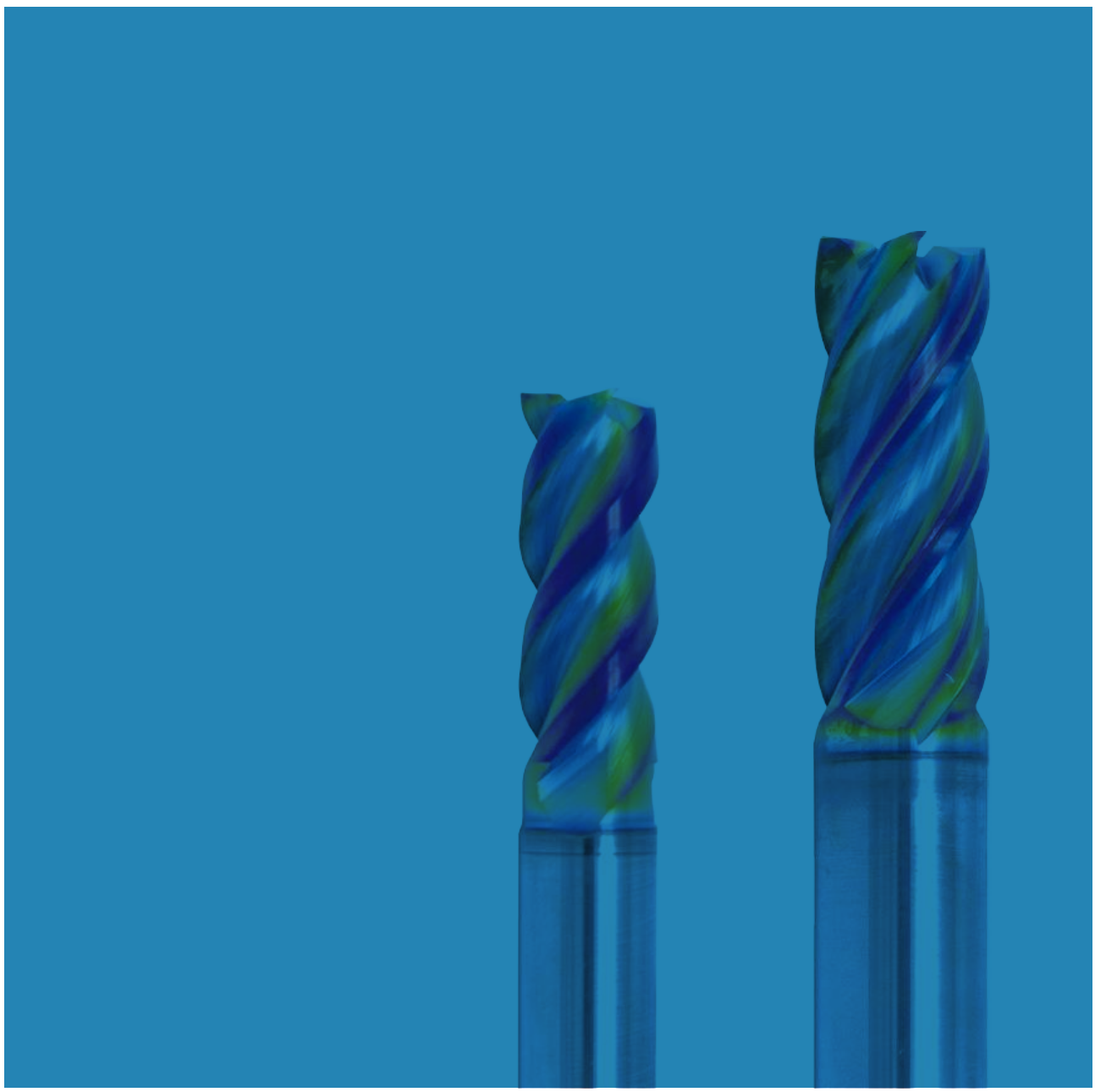
코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
1 ~ 8	0 ~ -0.02	1 ~ 20	±0.015
9 ~ 20	0 ~ -0.03		

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
1 ~ 8	0 ~ -0.02
9 ~ 20	0 ~ -0.03

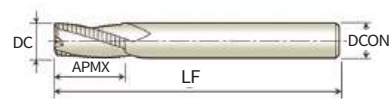
SUS MILL 05



SM22

서스 밀 코너 래디우스 라핑 엔드밀

SUS Mill Corner Radius Roughing End Milll



S (3) (4) (5) OD 45°

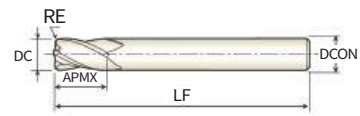
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
3SM22-030-110	3	3	R0.2	9	11	6	50
3SM22-040-140	4	3	R0.2	11	14	6	50
4SM22-050-180	5	4	R0.2	15	18	6	50
4SM22-060-200	6	4	R0.2	15	20	6	60
4SM22-070-240	7	4	R0.2	19	24	8	70
4SM22-080-250	8	4	R0.2	20	25	8	70
4SM22-090-280	9	4	R0.3	21	28	10	70
4SM22-100-300	10	4	R1.0	23	30	10	75
4SM22-110-340	11	4	R0.3	26	34	12	80
4SM22-120-350	12	4	R0.3	27	35	12	80
5SM22-140-370	14	5	R0.5	29	37	16	90
5SM22-160-400	16	5	R0.5	33	40	16	100
5SM22-160-500	16	5	R0.5	43	50	16	100
5SM22-160-400-R15	16	5	R1.5	33	40	16	100
5SM22-200-460	20	5	R0.5	39	46	20	100
5SM22-200-530	20	5	R0.5	46	53	20	100
5SM22-200-460-R20	20	5	R2.0	39	46	20	100

SM20

서스 밀 코너 래디우스 엔드밀

SUS Mill Corner Radius End Mill



S 3 CR 45°

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
3SM20-010-025	1	3	R0.1	2.5	6	50
3SM20-015-040	1.5	3	R0.1	4	6	50
3SM20-015-040-R02	1.5	3	R0.2	4	6	50
3SM20-020-060	2	3	R0.1	6	6	50
3SM20-025-070	2.5	3	R0.2	7	6	50
3SM20-030-080	3	3	R0.2	8	6	55
3SM20-040-100	4	3	R0.2	10	6	55
3SM20-040-100-R03	4	3	R0.3	10	6	55
3SM20-040-100-R05	4	3	R0.5	10	6	55
3SM20-050-160	5	3	R0.2	16	6	55
3SM20-060-160	6	3	R0.3	16	6	60
3SM20-060-160-R10	6	3	R1.0	16	6	60
3SM20-080-210	8	3	R0.3	21	8	70
3SM20-080-210-R10	8	3	R1.0	21	8	70
3SM20-100-260	10	3	R0.3	26	10	75
3SM20-100-260-R10	10	3	R1.0	26	10	75
3SM20-100-260-R20	10	3	R2.0	26	10	75
3SM20-100-260-R30	10	3	R3.0	26	10	75
3SM20-120-310	12	3	R0.5	31	12	80
3SM20-120-310-R10	12	3	R1.0	31	12	80
3SM20-120-310-R15	12	3	R1.5	31	12	80
3SM20-120-310-R20	12	3	R2.0	31	12	80
3SM20-120-310-R30	12	3	R3.0	31	12	80
3SM20-120-310-R40	12	3	R4.0	31	12	80
3SM20-140-360	14	3	R0.5	36	14	90

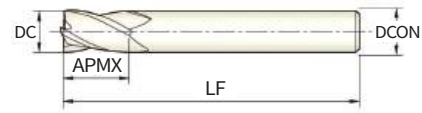
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
3SM20-140-360-R10	14	3	R1.0	36	14	90
3SM20-160-430	16	3	R0.5	43	16	100
3SM20-160-430-R10	16	3	R1.0	43	16	100
3SM20-180-460	18	3	R0.5	46	18	100
3SM20-200-490	20	3	R0.5	49	20	100
3SM20-200-490-R10	20	3	R1.0	49	20	100

SM30

서스 밀 플랫 엔드밀

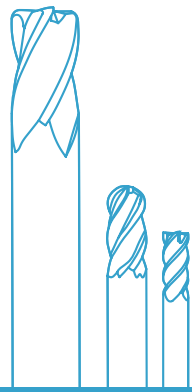
SUS Mill Flat End Mill



S 3 4 OD 45°

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3SM30-010-025	1	3	2.5	6	50
3SM30-012-030	1.2	3	3	6	50
3SM30-015-040	1.5	3	4	6	50
3SM30-020-060	2	3	6	6	50
3SM30-025-070	2.5	3	7	6	50
3SM30-030-080	3	3	8	6	55
3SM30-030-110	3	3	11	6	60
3SM30-040-100	4	3	10	6	55
3SM30-040-130	4	3	13	6	60
3SM30-050-140	5	3	14	6	55
3SM30-060-160	6	3	16	6	60
3SM30-060-210	6	3	21	6	65
3SM30-080-210	8	3	21	8	70
3SM30-080-310	8	3	31	8	80
3SM30-100-260	10	3	26	10	75
3SM30-100-360	10	3	36	10	85
3SM30-120-310	12	3	31	12	80
3SM30-120-410	12	3	41	12	90
3SM30-140-360	14	3	36	16	90
3SM30-160-430	16	3	43	16	100
3SM30-180-460	18	3	46	16	100
3SM30-200-490	20	3	49	20	100



- Chattering 방지 위한 부등 분할 형상 설계
- 매끄러운 칩 배출 및 면조도 우수
- 합금강, SUS 계열, 티타늄 등 난삭재 가공 탁월함

- Differential pitch to minimize chattering
- Excellent surface roughness and smooth chip evacuation
- Outstanding performance for Alloy steels, SUS, Titanium and hard to cut materials

볼 Ball

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
3 ~ 5	0 ~ -0.010	R1.5 ~ R2.5	±0.010
6 ~ 12	0 ~ -0.015	R3 ~ R6	±0.010
6 ~ 12	0 ~ -0.025	R8 ~ R10	±0.015

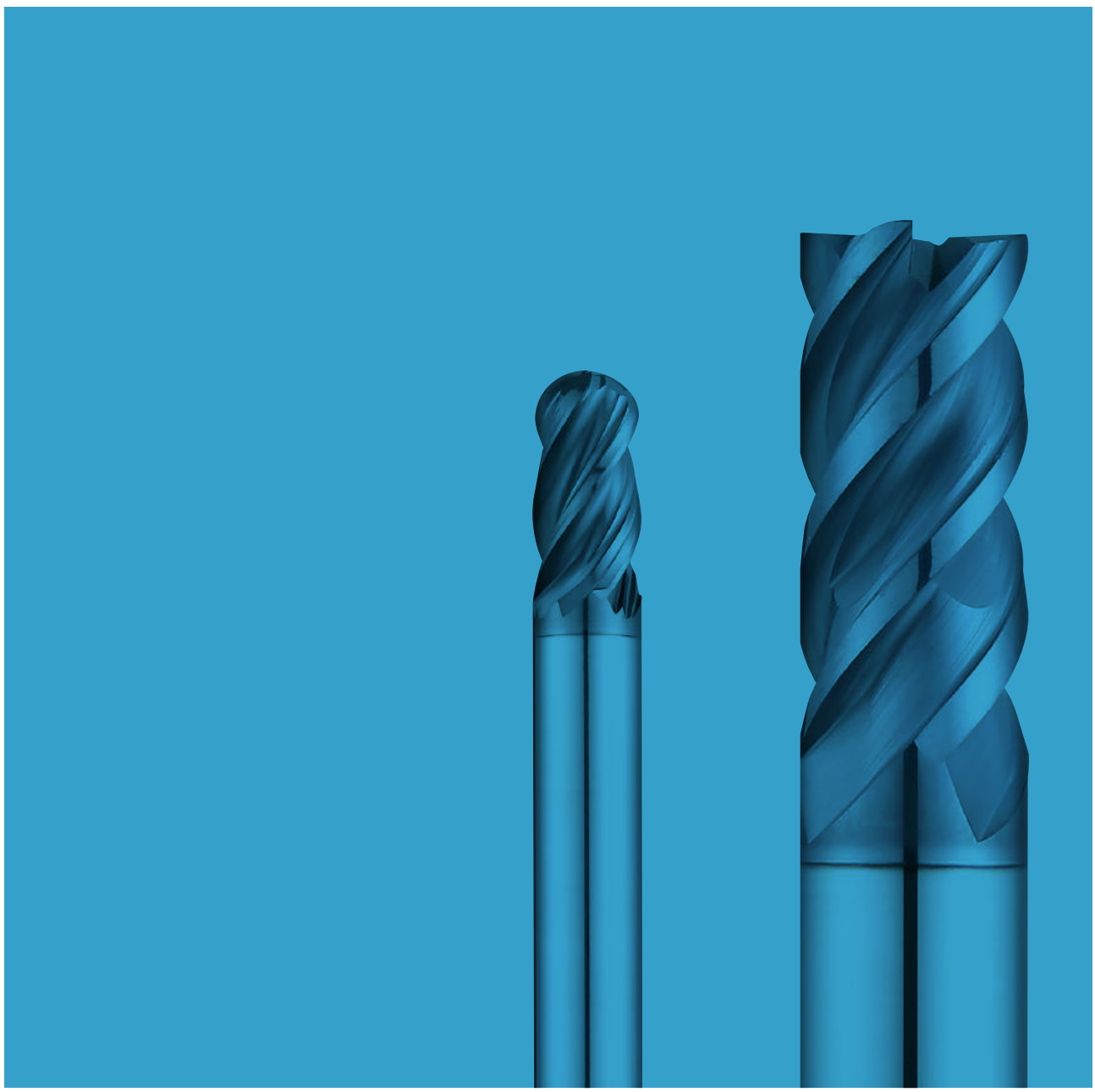
코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
1 ~ 5	0 ~ -0.010	R0.1 ~ R0.5	±0.005
6 ~ 12	0 ~ -0.015	R1 ~ R1.5	±0.010
14 ~ 20	0 ~ -0.025	R2 ~ R3	±0.015

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
1 ~ 5	0 ~ -0.010
6 ~ 12	0 ~ -0.015
14 ~ 20	0 ~ -0.025

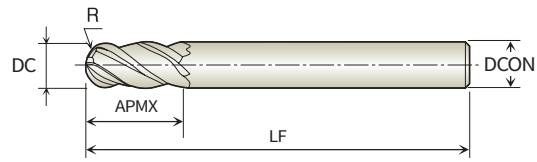
S-PRO 06



4SUB

4날 SUS용 볼 엔드밀

4 Flutes Ball End Mills For SUS



S 4 R 45° page No.298

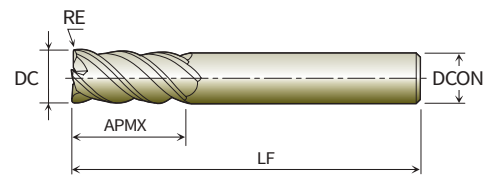
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4SUB-030-080-660	3	4	R1.5	8	6	60
4SUB-040-080-670	4	4	R2.0	8	6	70
4SUB-050-120-680	5	4	R2.5	12	6	80
4SUB-060-120-690	6	4	R3.0	12	6	90
4SUB-080-160-8A0	8	4	R4.0	16	8	100
4SUB-100-200-AA0	10	4	R5.0	20	10	100
4SUB-120-250-CA0	12	4	R6.0	25	12	100
4SUB-160-300-GA0	16	4	R8.0	30	16	100
4SUB-200-380-KA0	20	4	R10.0	38	20	100

4SUR

4날 SUS용 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills For SUS



S 4 CR 43° page No.299

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4SUR-010-R01-025-650	1	4	R0.1	2.5	6	50
4SUR-010-R02-025-650	1	4	R0.2	2.5	6	50
4SUR-012-R01-030-650	1.2	4	R0.1	3	6	50
4SUR-015-R01-040-650	1.5	4	R0.1	4	6	50
4SUR-015-R02-040-650	1.5	4	R0.2	4	6	50
4SUR-020-R01-060-650	2	4	R0.1	6	6	50
4SUR-020-R02-060-650	2	4	R0.2	6	6	50
4SUR-025-R02-070-650	2.5	4	R0.2	7	6	50
4SUR-030-R02-080-655	3	4	R0.2	8	6	55
4SUR-030-R03-080-655	3	4	R0.3	8	6	55
4SUR-030-R05-080-655	3	4	R0.5	8	6	55
4SUR-040-R02-100-655	4	4	R0.2	10	6	55
4SUR-040-R03-100-655	4	4	R0.3	10	6	55
4SUR-040-R05-100-655	4	4	R0.5	10	6	55
4SUR-050-R02-150-660	5	4	R0.2	15	6	60
4SUR-050-R03-150-660	5	4	R0.3	15	6	60
4SUR-050-R05-150-660	5	4	R0.5	15	6	60
4SUR-060-R02-150-660	6	4	R0.2	15	6	60
4SUR-060-R03-130-660	6	4	R0.3	13	6	60
4SUR-060-R03-150-660	6	4	R0.3	15	6	60
4SUR-060-R05-150-660	6	4	R0.5	15	6	60
4SUR-070-R03-160-865	7	4	R0.3	16	8	65
4SUR-080-R03-200-870	8	4	R0.3	20	8	70
4SUR-080-R05-200-870	8	4	R0.5	20	8	70
4SUR-080-R10-200-870	8	4	R1.0	20	8	70
4SUR-090-R03-190-A70	9	4	R0.3	19	10	70

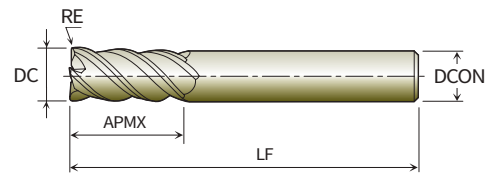
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4SUR-100-R03-220-A70	10	4	R0.3	22	10	70
4SUR-100-R03-250-A75	10	4	R0.3	25	10	75
4SUR-100-R05-250-A75	10	4	R0.5	25	10	75
4SUR-100-R10-250-A75	10	4	R1.0	25	10	75
4SUR-100-R15-250-A75	10	4	R1.5	25	10	75
4SUR-100-R20-250-A75	10	4	R2.0	25	10	75
4SUR-100-R30-250-A75	10	4	R3.0	25	10	75
4SUR-120-R03-260-C80	12	4	R0.3	26	12	80
4SUR-120-R05-300-C80	12	4	R0.5	30	12	80
4SUR-120-R10-300-C80	12	4	R1.0	30	12	80
4SUR-120-R15-300-C80	12	4	R1.5	30	12	80
4SUR-120-R20-300-C80	12	4	R2.0	30	12	80
4SUR-120-R30-300-C80	12	4	R3.0	30	12	80
4SUR-120-R40-300-C80	12	4	R4.0	30	12	80
4SUR-140-R03-260-E90	14	4	R0.3	26	14	90
4SUR-160-R03-320-GA0	16	4	R0.3	32	16	100
4SUR-180-R03-320-IA0	18	4	R0.3	32	18	100
4SUR-200-R03-380-KA0	20	4	R0.3	38	20	100

4SURA

4날 인코넬용 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills For INCONEL



S 4 CR 43° page No.299

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4SURA-010-R01-025-650	1	4	R0.1	2.5	6	50
4SURA-010-R02-025-650	1	4	R0.2	2.5	6	50
4SURA-012-R01-030-650	1.2	4	R0.1	3	6	50
4SURA-015-R01-040-650	1.5	4	R0.1	4	6	50
4SURA-015-R02-040-650	1.5	4	R0.2	4	6	50
4SURA-020-R01-060-650	2	4	R0.1	6	6	50
4SURA-020-R02-060-650	2	4	R0.2	6	6	50
4SURA-025-R02-070-650	2.5	4	R0.2	7	6	50
4SURA-030-R02-080-655	3	4	R0.2	8	6	55
4SURA-030-R03-080-655	3	4	R0.3	8	6	55
4SURA-030-R05-080-655	3	4	R0.5	8	6	55
4SURA-040-R02-100-655	4	4	R0.2	10	6	55
4SURA-040-R03-100-655	4	4	R0.3	10	6	55
4SURA-040-R05-100-655	4	4	R0.5	10	6	55
4SURA-050-R02-150-660	5	4	R0.2	15	6	60
4SURA-050-R03-150-660	5	4	R0.3	15	6	60
4SURA-050-R05-150-660	5	4	R0.5	15	6	60
4SURA-060-R02-150-660	6	4	R0.2	15	6	60
4SURA-060-R03-130-660	6	4	R0.3	13	6	60
4SURA-060-R03-150-660	6	4	R0.3	15	6	60
4SURA-060-R05-150-660	6	4	R0.5	15	6	60
4SURA-070-R03-160-865	7	4	R0.3	16	8	65
4SURA-080-R03-200-870	8	4	R0.3	20	8	70
4SURA-080-R05-200-870	8	4	R0.5	20	8	70
4SURA-080-R10-200-870	8	4	R1.0	20	8	70
4SURA-090-R03-190-A70	9	4	R0.3	19	10	70

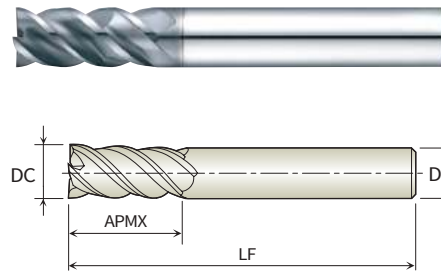
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
4SURA-100-R03-220-A70	10	4	R0.3	22	10	70
4SURA-100-R03-250-A75	10	4	R0.3	25	10	75
4SURA-100-R05-250-A75	10	4	R0.5	25	10	75
4SURA-100-R10-250-A75	10	4	R1.0	25	10	75
4SURA-100-R15-250-A75	10	4	R1.5	25	10	75
4SURA-100-R20-250-A75	10	4	R2.0	25	10	75
4SURA-100-R30-250-A75	10	4	R3.0	25	10	75
4SURA-120-R03-260-C80	12	4	R0.3	26	12	80
4SURA-120-R05-300-C80	12	4	R0.5	30	12	80
4SURA-120-R10-300-C80	12	4	R1.0	30	12	80
4SURA-120-R15-300-C80	12	4	R1.5	30	12	80
4SURA-120-R20-300-C80	12	4	R2.0	30	12	80
4SURA-120-R30-300-C80	12	4	R3.0	30	12	80
4SURA-120-R40-300-C80	12	4	R4.0	30	12	80
4SURA-140-R03-260-E90	14	4	R0.3	26	14	90
4SURA-160-R03-320-GA0	16	4	R0.3	32	16	100
4SURA-180-R03-320-IA0	18	4	R0.3	32	18	100
4SURA-200-R03-380-KA0	20	4	R0.3	38	20	100

4SUE

4날 SUS용 플랫 엔드밀

4 Flutes Flat End Mills For SUS



S 4 OD 43° page No.300

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4SUE-010-025-650	1	4	2.5	6	50
4SUE-012-030-650	1.2	4	3	6	50
4SUE-015-040-650	1.5	4	4	6	50
4SUE-020-060-650	2	4	6	6	50
4SUE-025-070-650	2.5	4	7	6	50
4SUE-030-080-655	3	4	8	6	55
4SUE-030-100-660	3	4	10	6	60
4SUE-035-100-655	3.5	4	10	6	55
4SUE-040-100-655	4	4	10	6	55
4SUE-040-120-660	4	4	12	6	60
4SUE-045-120-655	4.5	4	12	6	55
4SUE-050-150-655	5	4	15	6	55
4SUE-055-150-660	5.5	4	15	6	60
4SUE-060-130-660	6	4	13	6	60
4SUE-060-150-660	6	4	15	6	60
4SUE-060-200-665	6	4	20	6	65
4SUE-065-150-860	6.5	4	15	8	60
4SUE-070-160-865	7	4	16	8	65
4SUE-070-200-870	7	4	20	8	70
4SUE-080-160-865	8	4	16	8	65
4SUE-080-200-870	8	4	20	8	70
4SUE-080-250-870	8	4	25	8	70
4SUE-080-300-880	8	4	30	8	80
4SUE-085-200-A70	8.5	4	20	10	70
4SUE-090-190-A70	9	4	19	10	70
4SUE-090-250-A80	9	4	25	10	80

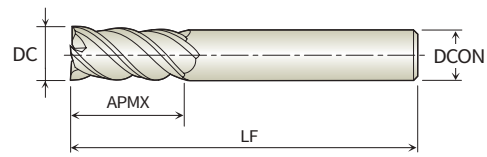
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4SUE-100-220-A70	10	4	22	10	70
4SUE-100-250-A75	10	4	25	10	75
4SUE-100-350-A85	10	4	35	10	85
4SUE-120-260-C80	12	4	26	12	80
4SUE-120-300-C80	12	4	30	12	80
4SUE-120-400-C90	12	4	40	12	90
4SUE-140-260-E90	14	4	26	14	90
4SUE-160-320-GA0	16	4	32	16	100
4SUE-180-320-IA0	18	4	32	18	100
4SUE-200-380-KA0	20	4	38	20	100

4SUEA

4날 인코넬용 플랫 엔드밀

4 Flutes Flat End Mills For INCONEL



S 4 OD 43° page No.300

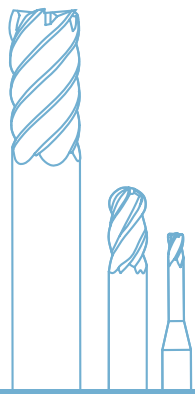
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4SUEA-010-025-650	1	4	2.5	6	50
4SUEA-012-030-650	1.2	4	3	6	50
4SUEA-015-040-650	1.5	4	4	6	50
4SUEA-020-060-650	2	4	6	6	50
4SUEA-025-070-650	2.5	4	7	6	50
4SUEA-030-080-655	3	4	8	6	55
4SUEA-030-100-660	3	4	10	6	60
4SUEA-035-100-655	3.5	4	10	6	55
4SUEA-040-100-655	4	4	10	6	55
4SUEA-040-120-660	4	4	12	6	60
4SUEA-045-120-655	4.5	4	12	6	55
4SUEA-050-150-655	5	4	15	6	55
4SUEA-055-150-660	5.5	4	15	6	60
4SUEA-060-130-660	6	4	13	6	60
4SUEA-060-150-660	6	4	15	6	60
4SUEA-060-200-665	6	4	20	6	65
4SUEA-065-150-860	6.5	4	15	8	60
4SUEA-070-160-865	7	4	16	8	65
4SUEA-070-200-870	7	4	20	8	70
4SUEA-080-160-865	8	4	16	8	65
4SUEA-080-200-870	8	4	20	8	70
4SUEA-080-250-870	8	4	25	8	70
4SUEA-080-300-880	8	4	30	8	80
4SUEA-085-200-A70	8.5	4	20	10	70
4SUEA-090-190-A70	9	4	19	10	70
4SUEA-090-250-A80	9	4	25	10	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4SUEA-100-220-A70	10	4	22	10	70
4SUEA-100-250-A75	10	4	25	10	75
4SUEA-100-350-A85	10	4	35	10	85
4SUEA-120-260-C80	12	4	26	12	80
4SUEA-120-300-C80	12	4	30	12	80
4SUEA-120-400-C90	12	4	40	12	90
4SUEA-140-260-E90	14	4	26	14	90
4SUEA-160-320-GA0	16	4	32	16	100
4SUEA-180-320-IA0	18	4	32	18	100
4SUEA-200-380-KA0	20	4	38	20	100

S-PRO



- 흑연(그라파이트), 동전극, 탄소섬유, Glass 몰드 등 비금속 계열 적용
- 다양한 가공물 크기 적용 위한 유효장, 전장 길이 다양화
- 순수 다이아몬드 코팅(CVD) 적용 코팅 안정성 증대

- Graphite, Copper, Reinforced Plastic, Glass injection Molding and Non-Ferrous material
- The wide range of effective length and overall length for various work shape
- Improve the performance for the best pure diamond coating(CVD)

볼 Ball

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
0.2 ~ 5	0 ~ -0.010	R0.1 ~ R2.5	±0.005
6 ~ 12	0 ~ -0.015	R3 ~ R6	±0.010

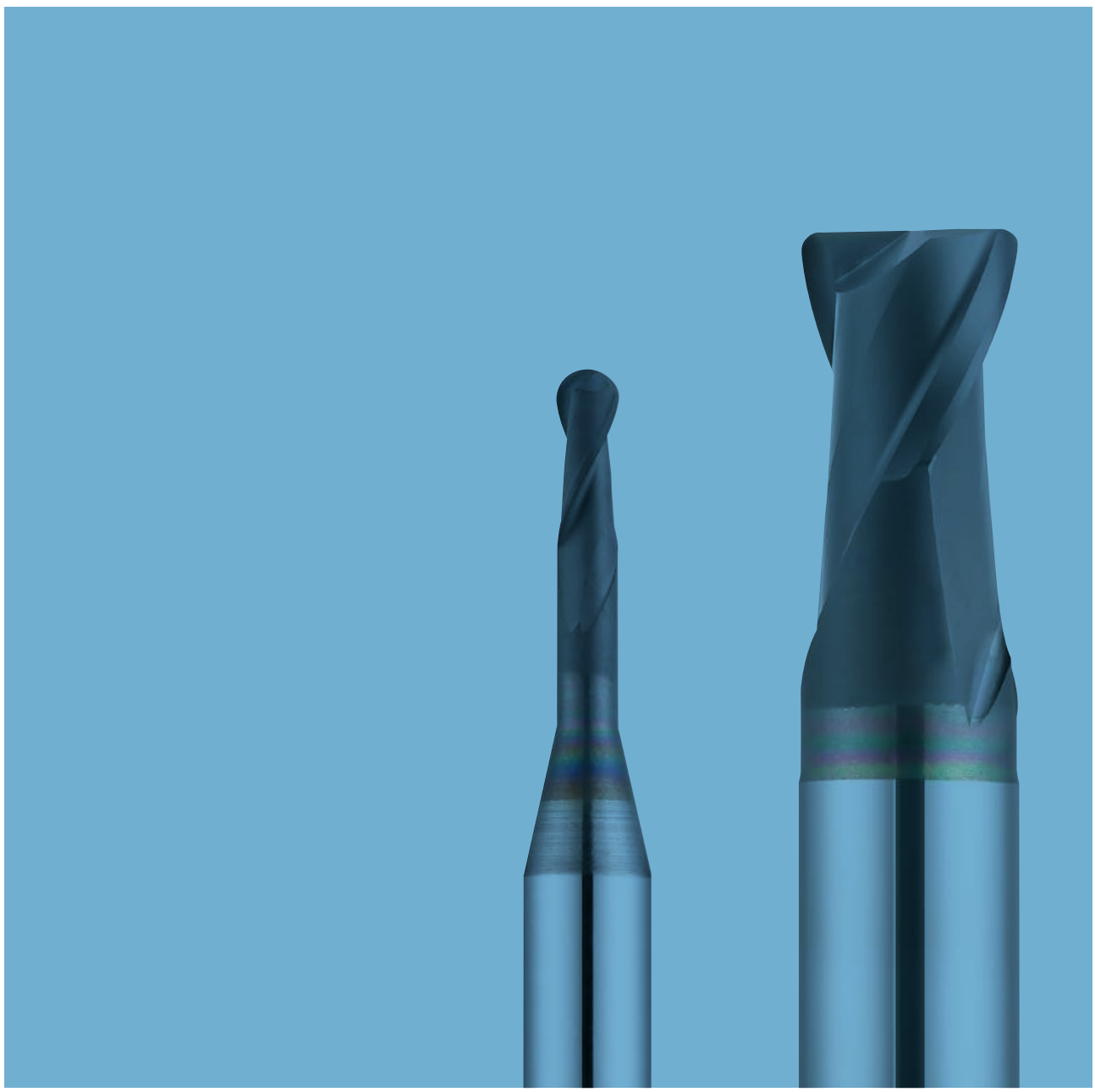
코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
2 ~ 5	0 ~ -0.010	R0.05 ~ R0.5	±0.005
6 ~ 12	0 ~ -0.015	R1	±0.010

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
0.5 ~ 5	0 ~ -0.010
6 ~ 12	0 ~ -0.015

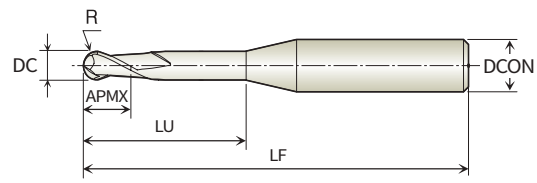
D-PRO 07



2DRB

2날 다이아몬드 코팅 리브 볼 엔드밀

2 Flutes Diamond Coated Rib Ball End Mills



DIA 2 R 30° page No.301

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRB-002-010-445	0.2	2	R0.1	0.2	1	4	45
2DRB-002-015-445	0.2	2	R0.1	0.2	1.5	4	45
2DRB-003-010-445	0.3	2	R0.15	0.3	1	4	45
2DRB-003-020-445	0.3	2	R0.15	0.3	2	4	45
2DRB-004-010-445	0.4	2	R0.2	0.4	1	4	45
2DRB-004-020-445	0.4	2	R0.2	0.4	2	4	45
2DRB-004-030-445	0.4	2	R0.2	0.4	3	4	45
2DRB-004-040-445	0.4	2	R0.2	0.4	4	4	45
2DRB-004-050-445	0.4	2	R0.2	0.4	5	4	45
2DRB-004-060-445	0.4	2	R0.2	0.4	6	4	45
2DRB-005-020-445	0.5	2	R0.25	0.5	2	4	45
2DRB-005-030-445	0.5	2	R0.25	0.5	3	4	45
2DRB-005-040-445	0.5	2	R0.25	0.5	4	4	45
2DRB-005-050-445	0.5	2	R0.25	0.5	5	4	45
2DRB-005-060-445	0.5	2	R0.25	0.5	6	4	45
2DRB-005-080-445	0.5	2	R0.25	0.5	8	4	45
2DRB-006-020-445	0.6	2	R0.3	0.6	2	4	45
2DRB-006-030-445	0.6	2	R0.3	0.6	3	4	45
2DRB-006-040-445	0.6	2	R0.3	0.6	4	4	45
2DRB-006-050-445	0.6	2	R0.3	0.6	5	4	45
2DRB-006-060-445	0.6	2	R0.3	0.6	6	4	45
2DRB-006-080-445	0.6	2	R0.3	0.6	8	4	45
2DRB-006-100-445	0.6	2	R0.3	0.6	10	4	45
2DRB-006-120-445	0.6	2	R0.3	0.6	12	4	45
2DRB-008-030-445	0.8	2	R0.4	0.8	3	4	45
2DRB-008-040-445	0.8	2	R0.4	0.8	4	4	45

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRB-008-050-445	0.8	2	R0.4	0.8	5	4	45
2DRB-008-060-445	0.8	2	R0.4	0.8	6	4	45
2DRB-008-080-445	0.8	2	R0.4	0.8	8	4	45
2DRB-008-100-445	0.8	2	R0.4	0.8	10	4	45
2DRB-008-150-445	0.8	2	R0.4	0.8	15	4	45
2DRB-008-200-445	0.8	2	R0.4	0.8	20	4	45
2DRB-010-030-450	1	2	R0.5	2	3	4	50
2DRB-010-040-450	1	2	R0.5	2	4	4	50
2DRB-010-050-450	1	2	R0.5	2	5	4	50
2DRB-010-060-450	1	2	R0.5	2	6	4	50
2DRB-010-100-450	1	2	R0.5	2	10	4	50
2DRB-010-120-450	1	2	R0.5	2	12	4	50
2DRB-010-160-460	1	2	R0.5	3	16	4	60
2DRB-010-180-460	1	2	R0.5	3	18	4	60
2DRB-010-200-460	1	2	R0.5	3	20	4	60
2DRB-010-250-480	1	2	R0.5	3	25	4	80
2DRB-010-300-480	1	2	R0.5	3	30	4	80
2DRB-010-350-480	1	2	R0.5	3	35	4	80
2DRB-010-400-480	1	2	R0.5	3	40	4	80
2DRB-015-100-460	1.5	2	R0.75	4	10	4	60
2DRB-015-150-460	1.5	2	R0.75	4	15	4	60
2DRB-015-200-460	1.5	2	R0.75	4	20	4	60
2DRB-015-100-480	1.5	2	R0.75	4.5	10	4	80
2DRB-015-120-480	1.5	2	R0.75	4.5	12	4	80
2DRB-015-150-480	1.5	2	R0.75	4.5	15	4	80
2DRB-015-180-480	1.5	2	R0.75	4.5	18	4	80
2DRB-015-200-480	1.5	2	R0.75	4.5	20	4	80
2DRB-015-250-480	1.5	2	R0.75	4.5	25	4	80
2DRB-015-300-480	1.5	2	R0.75	4.5	30	4	80
2DRB-015-350-480	1.5	2	R0.75	4.5	35	4	80
2DRB-015-400-480	1.5	2	R0.75	4.5	40	4	80
2DRB-020-100-460	2	2	R1.0	5	10	4	60
2DRB-020-150-460	2	2	R1.0	5	15	4	60
2DRB-020-200-460	2	2	R1.0	5	20	4	60
2DRB-020-100-480	2	2	R1.0	6	10	4	80
2DRB-020-150-480	2	2	R1.0	6	15	4	80
2DRB-020-200-480	2	2	R1.0	6	20	4	80
2DRB-020-250-480	2	2	R1.0	6	25	4	80
2DRB-020-300-480	2	2	R1.0	6	30	4	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRB-020-350-480	2	2	R1.0	6	35	4	80
2DRB-020-400-4A0	2	2	R1.0	6	40	4	100
2DRB-020-450-4A0	2	2	R1.0	6	45	4	100
2DRB-020-500-4A0	2	2	R1.0	6	50	4	100
2DRB-020-600-4A0	2	2	R1.0	6	60	4	100
2DRB-030-150-4A0	3	2	R1.5	9	15	4	100
2DRB-030-200-4A0	3	2	R1.5	9	20	4	100
2DRB-030-250-4A0	3	2	R1.5	9	25	4	100
2DRB-030-300-4A0	3	2	R1.5	9	30	4	100
2DRB-030-350-4A0	3	2	R1.5	9	35	4	100
2DRB-030-400-4A0	3	2	R1.5	9	40	4	100
2DRB-030-500-4A0	3	2	R1.5	9	50	4	100
2DRB-030-600-4A0	3	2	R1.5	9	60	4	100
2DRB-030-160-660	3	2	R1.5	8	16	6	60
2DRB-030-200-660	3	2	R1.5	8	20	6	60
2DRB-030-300-675	3	2	R1.5	12	30	6	75
2DRB-030-350-680	3	2	R1.5	12	35	6	80
2DRB-040-300-480	4	2	R2.0	16	30	4	80
2DRB-040-400-4A0	4	2	R2.0	16	40	4	100
2DRB-040-400-4D0	4	2	R2.0	16	40	4	130
2DRB-040-500-4F0	4	2	R2.0	16	50	4	150
2DRB-040-160-660	4	2	R2.0	8	16	6	60
2DRB-040-200-670	4	2	R2.0	8	20	6	70
2DRB-040-300-680	4	2	R2.0	12	30	6	80
2DRB-040-400-685	4	2	R2.0	12	40	6	85
2DRB-060-250-680	6	2	R3.0	16	25	6	80
2DRB-060-250-6B0	6	2	R3.0	16	25	6	110
2DRB-060-300-6F0	6	2	R3.0	16	30	6	150
2DRB-060-400-6B0	6	2	R3.0	16	40	6	110
2DRB-060-500-6F0	6	2	R3.0	16	50	6	150
2DRB-080-300-880	8	2	R4.0	20	30	8	80
2DRB-080-300-8B0	8	2	R4.0	20	30	8	110
2DRB-080-400-8B0	8	2	R4.0	20	40	8	110
2DRB-080-400-8K0	8	2	R4.0	20	40	8	200
2DRB-080-500-8G0	8	2	R4.0	20	50	8	160
2DRB-100-350-AB0	10	2	R5.0	22	35	10	110
2DRB-100-500-AB0	10	2	R5.0	22	50	10	110
2DRB-100-500-AK0	10	2	R5.0	22	50	10	200
2DRB-100-600-AG0	10	2	R5.0	22	60	10	160

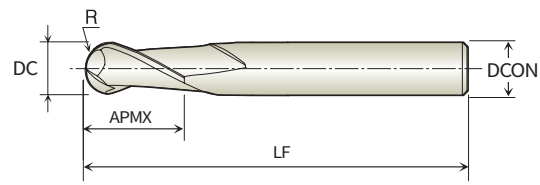
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRB-120-500-CB0	12	2	R6.0	25	50	12	110
2DRB-120-500-CG0	12	2	R6.0	25	50	12	160
2DRB-120-600-CK0	12	2	R6.0	25	60	12	200

2DPB

2날 다이아몬드 코팅 볼 엔드밀

2 Flutes Diamond Coated Ball End Mills



DIA 2 R 30° page No.302

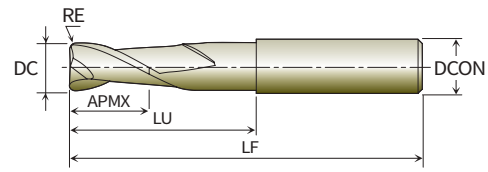
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2DPB-006-012-445	0.6	2	R0.3	1.2	4	45
2DPB-008-015-445	0.8	2	R0.4	1.5	4	45
2DPB-010-030-450	1.0	2	R0.5	3	4	50
2DPB-015-050-450	1.5	2	R0.75	5	4	50
2DPB-020-070-460	2	2	R1.0	7	4	60
2DPB-030-100-660	3	2	R1.5	10	6	60
2DPB-040-120-670	4	2	R2.0	12	6	70
2DPB-040-200-4A0	4	2	R2.0	20	4	100
2DPB-050-200-6A0	5	2	R2.5	20	6	100
2DPB-060-200-6B0	6	2	R3.0	20	6	110
2DPB-060-300-6F0	6	2	R3.0	30	6	150
2DPB-080-200-8B0	8	2	R4.0	20	8	110
2DPB-080-300-8F0	8	2	R4.0	30	8	150
2DPB-100-200-AB0	10	2	R5.0	20	10	110
2DPB-100-350-AF0	10	2	R5.0	35	10	150
2DPB-120-200-CB0	12	2	R6.0	20	12	110
2DPB-120-400-CF0	12	2	R6.0	40	12	150

2DRR

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

2 Flutes Diamond Coated Rib Corner Radius End Mills



DIA page No.303

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRR-002-R002-015-460	0.2	2	R0.02	0.4	1.5	4	60
2DRR-003-R002-015-460	0.3	2	R0.02	0.6	1.5	4	60
2DRR-003-R002-030-460	0.3	2	R0.02	0.6	3	4	60
2DRR-003-R002-045-460	0.3	2	R0.02	0.6	4.5	4	60
2DRR-003-R002-060-460	0.3	2	R0.02	0.6	6	4	60
2DRR-004-R002-020-460	0.4	2	R0.02	0.8	2	4	60
2DRR-004-R002-040-460	0.4	2	R0.02	0.8	4	4	60
2DRR-004-R002-060-460	0.4	2	R0.02	0.8	6	4	60
2DRR-004-R002-080-460	0.4	2	R0.02	0.8	8	4	60
2DRR-005-R005-015-460	0.5	2	R0.05	1	1.5	4	60
2DRR-005-R005-025-460	0.5	2	R0.05	1	2.5	4	60
2DRR-005-R005-035-460	0.5	2	R0.05	1	3.5	4	60
2DRR-005-R005-050-460	0.5	2	R0.05	1	5	4	60
2DRR-005-R005-075-460	0.5	2	R0.05	1	7.5	4	60
2DRR-005-R005-100-460	0.5	2	R0.05	1	10	4	60
2DRR-006-R005-020-460	0.6	2	R0.05	1.2	2	4	60
2DRR-006-R005-030-460	0.6	2	R0.05	1.2	3	4	60
2DRR-006-R005-060-460	0.6	2	R0.05	1.2	6	4	60
2DRR-006-R005-090-460	0.6	2	R0.05	1.2	9	4	60
2DRR-006-R005-120-460	0.6	2	R0.05	1.2	12	4	60
2DRR-008-R005-025-460	0.8	2	R0.05	1.6	2.5	4	60
2DRR-008-R005-040-460	0.8	2	R0.05	1.6	4	4	60
2DRR-008-R005-080-460	0.8	2	R0.05	1.6	8	4	60
2DRR-008-R005-100-460	0.8	2	R0.05	1.6	10	4	60
2DRR-008-R005-160-460	0.8	2	R0.05	1.6	16	4	60
2DRR-010-R005-030-460	1	2	R0.05	2	3	4	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRR-010-R005-050-460	1	2	R0.05	2	5	4	60
2DRR-010-R005-100-460	1	2	R0.05	2	10	4	60
2DRR-010-R005-150-460	1	2	R0.05	2	15	4	60
2DRR-010-R005-200-460	1	2	R0.05	2	20	4	60
2DRR-010-R01-030-460	1	2	R0.1	2	3	4	60
2DRR-010-R01-050-460	1	2	R0.1	2	5	4	60
2DRR-010-R01-100-460	1	2	R0.1	2	10	4	60
2DRR-010-R01-150-460	1	2	R0.1	2	15	4	60
2DRR-010-R01-200-460	1	2	R0.1	2	20	4	60
2DRR-010-R02-030-460	1	2	R0.2	2	3	4	60
2DRR-010-R02-050-460	1	2	R0.2	2	5	4	60
2DRR-010-R02-100-460	1	2	R0.2	2	10	4	60
2DRR-010-R02-150-460	1	2	R0.2	2	15	4	60
2DRR-010-R02-200-460	1	2	R0.2	2	20	4	60
2DRR-015-R005-040-460	1.5	2	R0.05	3	4	4	60
2DRR-015-R005-050-460	1.5	2	R0.05	3	5	4	60
2DRR-015-R005-100-460	1.5	2	R0.05	3	10	4	60
2DRR-015-R005-150-460	1.5	2	R0.05	3	15	4	60
2DRR-015-R005-200-460	1.5	2	R0.05	3	20	4	60
2DRR-015-R01-040-460	1.5	2	R0.1	3	4	4	60
2DRR-015-R01-050-460	1.5	2	R0.1	3	5	4	60
2DRR-015-R01-100-460	1.5	2	R0.1	3	10	4	60
2DRR-015-R01-150-460	1.5	2	R0.1	3	15	4	60
2DRR-015-R01-200-460	1.5	2	R0.1	3	20	4	60
2DRR-015-R015-040-460	1.5	2	R0.15	3	4	4	60
2DRR-015-R015-050-460	1.5	2	R0.15	3	5	4	60
2DRR-015-R015-100-460	1.5	2	R0.15	3	10	4	60
2DRR-015-R015-150-460	1.5	2	R0.15	3	15	4	60
2DRR-015-R015-200-460	1.5	2	R0.15	3	20	4	60
2DRR-015-R02-040-460	1.5	2	R0.2	3	4	4	60
2DRR-015-R02-050-460	1.5	2	R0.2	3	5	4	60
2DRR-015-R02-100-460	1.5	2	R0.2	3	10	4	60
2DRR-015-R02-150-460	1.5	2	R0.2	3	15	4	60
2DRR-015-R02-200-460	1.5	2	R0.2	3	20	4	60
2DRR-015-R03-040-460	1.5	2	R0.3	3	4	4	60
2DRR-015-R03-050-460	1.5	2	R0.3	3	5	4	60
2DRR-015-R03-100-460	1.5	2	R0.3	3	10	4	60
2DRR-015-R03-150-460	1.5	2	R0.3	3	15	4	60
2DRR-015-R03-200-460	1.5	2	R0.3	3	20	4	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRR-020-R005-040-460	2	2	R0.05	3	4	4	60
2DRR-020-R005-060-460	2	2	R0.05	3	6	4	60
2DRR-020-R005-120-460	2	2	R0.05	3	12	4	60
2DRR-020-R005-180-460	2	2	R0.05	3	18	4	60
2DRR-020-R005-250-460	2	2	R0.05	3	25	4	60
2DRR-020-R005-300-460	2	2	R0.05	3	30	4	60
2DRR-020-R01-040-460	2	2	R0.1	3	4	4	60
2DRR-020-R01-060-460	2	2	R0.1	3	6	4	60
2DRR-020-R01-120-460	2	2	R0.1	3	12	4	60
2DRR-020-R01-180-460	2	2	R0.1	3	18	4	60
2DRR-020-R01-250-460	2	2	R0.1	3	25	4	60
2DRR-020-R01-300-460	2	2	R0.1	3	30	4	60
2DRR-020-R02-040-460	2	2	R0.2	3	4	4	60
2DRR-020-R02-060-460	2	2	R0.2	3	6	4	60
2DRR-020-R02-120-460	2	2	R0.2	3	12	4	60
2DRR-020-R02-180-460	2	2	R0.2	3	18	4	60
2DRR-020-R02-250-460	2	2	R0.2	3	25	4	60
2DRR-020-R02-300-460	2	2	R0.2	3	30	4	60
2DRR-020-R03-040-460	2	2	R0.3	3	4	4	60
2DRR-020-R03-060-460	2	2	R0.3	3	6	4	60
2DRR-020-R03-120-460	2	2	R0.3	3	12	4	60
2DRR-020-R03-180-460	2	2	R0.3	3	18	4	60
2DRR-020-R03-250-460	2	2	R0.3	3	25	4	60
2DRR-020-R03-300-460	2	2	R0.3	3	30	4	60
2DRR-020-R05-040-460	2	2	R0.5	3	4	4	60
2DRR-020-R05-060-460	2	2	R0.5	3	6	4	60
2DRR-020-R05-120-460	2	2	R0.5	3	12	4	60
2DRR-020-R05-180-460	2	2	R0.5	3	18	4	60
2DRR-020-R05-250-460	2	2	R0.5	3	25	4	60
2DRR-020-R05-300-460	2	2	R0.5	3	30	4	60
2DRR-030-R005-060-480	3	2	R0.05	4.5	6	4	80
2DRR-030-R005-100-480	3	2	R0.05	4.5	10	4	80
2DRR-030-R005-200-480	3	2	R0.05	4.5	20	4	80
2DRR-030-R005-300-480	3	2	R0.05	4.5	30	4	80
2DRR-030-R005-400-480	3	2	R0.05	4.5	40	4	80
2DRR-030-R01-060-480	3	2	R0.1	4.5	6	4	80
2DRR-030-R01-100-480	3	2	R0.1	4.5	10	4	80
2DRR-030-R01-200-480	3	2	R0.1	4.5	20	4	80
2DRR-030-R01-300-480	3	2	R0.1	4.5	30	4	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRR-030-R01-400-480	3	2	R0.1	4.5	40	4	80
2DRR-030-R02-060-480	3	2	R0.2	4.5	6	4	80
2DRR-030-R02-100-480	3	2	R0.2	4.5	10	4	80
2DRR-030-R02-200-480	3	2	R0.2	4.5	20	4	80
2DRR-030-R02-300-480	3	2	R0.2	4.5	30	4	80
2DRR-030-R02-400-480	3	2	R0.2	4.5	40	4	80
2DRR-030-R03-060-480	3	2	R0.3	4.5	6	4	80
2DRR-030-R03-100-480	3	2	R0.3	4.5	10	4	80
2DRR-030-R03-200-480	3	2	R0.3	4.5	20	4	80
2DRR-030-R03-300-480	3	2	R0.3	4.5	30	4	80
2DRR-030-R03-400-480	3	2	R0.3	4.5	40	4	80
2DRR-030-R05-060-480	3	2	R0.5	4.5	6	4	80
2DRR-030-R05-100-480	3	2	R0.5	4.5	10	4	80
2DRR-030-R05-200-480	3	2	R0.5	4.5	20	4	80
2DRR-030-R05-300-480	3	2	R0.5	4.5	30	4	80
2DRR-030-R05-400-480	3	2	R0.5	4.5	40	4	80
2DRR-030-R10-060-480	3	2	R1.0	4.5	6	4	80
2DRR-030-R10-100-480	3	2	R1.0	4.5	10	4	80
2DRR-030-R10-200-480	3	2	R1.0	4.5	20	4	80
2DRR-030-R10-300-480	3	2	R1.0	4.5	30	4	80
2DRR-030-R10-400-480	3	2	R1.0	4.5	40	4	80
2DRR-040-R005-100-480	4	2	R0.05	6	10	4	80
2DRR-040-R005-150-480	4	2	R0.05	6	15	4	80
2DRR-040-R005-250-480	4	2	R0.05	6	25	4	80
2DRR-040-R005-400-480	4	2	R0.05	6	40	4	80
2DRR-040-R01-100-480	4	2	R0.1	6	10	4	80
2DRR-040-R01-150-480	4	2	R0.1	6	15	4	80
2DRR-040-R01-250-480	4	2	R0.1	6	25	4	80
2DRR-040-R01-400-480	4	2	R0.1	6	40	4	80
2DRR-040-R02-100-480	4	2	R0.2	6	10	4	80
2DRR-040-R02-150-480	4	2	R0.2	6	15	4	80
2DRR-040-R02-250-480	4	2	R0.2	6	25	4	80
2DRR-040-R02-400-480	4	2	R0.2	6	40	4	80
2DRR-040-R05-100-480	4	2	R0.5	6	10	4	80
2DRR-040-R05-150-480	4	2	R0.5	6	15	4	80
2DRR-040-R05-250-480	4	2	R0.5	6	25	4	80
2DRR-040-R05-400-480	4	2	R0.5	6	40	4	80
2DRR-040-R10-100-480	4	2	R1.0	6	10	4	80
2DRR-040-R10-150-480	4	2	R1.0	6	15	4	80

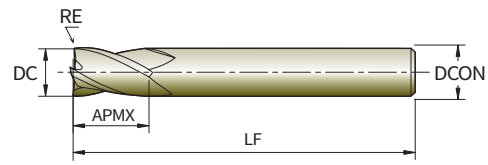
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRR-040-R10-250-480	4	2	R1.0	6	25	4	80
2DRR-040-R10-400-480	4	2	R1.0	6	40	4	80
2DRR-050-R005-100-6B0	5	2	R0.05	7.5	10	6	110
2DRR-050-R005-150-6B0	5	2	R0.05	7.5	15	6	110
2DRR-050-R005-300-6B0	5	2	R0.05	7.5	30	6	110
2DRR-050-R005-500-6B0	5	2	R0.05	7.5	50	6	110
2DRR-050-R01-100-6B0	5	2	R0.1	7.5	10	6	110
2DRR-050-R01-150-6B0	5	2	R0.1	7.5	15	6	110
2DRR-050-R01-300-6B0	5	2	R0.1	7.5	30	6	110
2DRR-050-R01-500-6B0	5	2	R0.1	7.5	50	6	110
2DRR-050-R02-100-6B0	5	2	R0.2	7.5	10	6	110
2DRR-050-R02-150-6B0	5	2	R0.2	7.5	15	6	110
2DRR-050-R02-300-6B0	5	2	R0.2	7.5	30	6	110
2DRR-050-R02-500-6B0	5	2	R0.2	7.5	50	6	110
2DRR-050-R05-100-6B0	5	2	R0.5	7.5	10	6	110
2DRR-050-R05-150-6B0	5	2	R0.5	7.5	15	6	110
2DRR-050-R05-300-6B0	5	2	R0.5	7.5	30	6	110
2DRR-050-R05-500-6B0	5	2	R0.5	7.5	50	6	110
2DRR-060-R005-150-6B0	6	2	R0.05	9	15	6	110
2DRR-060-R005-200-6B0	6	2	R0.05	9	20	6	110
2DRR-060-R005-300-6B0	6	2	R0.05	9	30	6	110
2DRR-060-R005-500-6B0	6	2	R0.05	9	50	6	110
2DRR-060-R01-150-6B0	6	2	R0.1	9	15	6	110
2DRR-060-R01-200-6B0	6	2	R0.1	9	20	6	110
2DRR-060-R01-300-6B0	6	2	R0.1	9	30	6	110
2DRR-060-R01-500-6B0	6	2	R0.1	9	50	6	110
2DRR-060-R02-150-6B0	6	2	R0.2	9	15	6	110
2DRR-060-R02-200-6B0	6	2	R0.2	9	20	6	110
2DRR-060-R02-300-6B0	6	2	R0.2	9	30	6	110
2DRR-060-R02-500-6B0	6	2	R0.2	9	50	6	110
2DRR-060-R05-150-6B0	6	2	R0.5	9	15	6	110
2DRR-060-R05-200-6B0	6	2	R0.5	9	20	6	110
2DRR-060-R05-300-6B0	6	2	R0.5	9	30	6	110
2DRR-060-R05-500-6B0	6	2	R0.5	9	50	6	110
2DRR-060-R10-150-6B0	6	2	R1.0	9	15	6	110
2DRR-060-R10-200-6B0	6	2	R1.0	9	20	6	110
2DRR-060-R10-300-6B0	6	2	R1.0	9	30	6	110
2DRR-060-R10-500-6B0	6	2	R1.0	9	50	6	110

4DRR

4날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

4 Flutes Diamond Coated Rib Corner Radius End Mills



DIA 4 CR 30° page No.304

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4DRR-020-R005-040-460	2	4	R0.05	3	4	4	60
4DRR-020-R005-060-460	2	4	R0.05	3	6	4	60
4DRR-020-R005-120-460	2	4	R0.05	3	12	4	60
4DRR-020-R005-180-460	2	4	R0.05	3	18	4	60
4DRR-020-R005-250-460	2	4	R0.05	3	25	4	60
4DRR-020-R005-300-460	2	4	R0.05	3	30	4	60
4DRR-020-R01-040-460	2	4	R0.1	3	4	4	60
4DRR-020-R01-060-460	2	4	R0.1	3	6	4	60
4DRR-020-R01-120-460	2	4	R0.1	3	12	4	60
4DRR-020-R01-180-460	2	4	R0.1	3	18	4	60
4DRR-020-R01-250-460	2	4	R0.1	3	25	4	60
4DRR-020-R01-300-460	2	4	R0.1	3	30	4	60
4DRR-020-R02-040-460	2	4	R0.2	3	4	4	60
4DRR-020-R02-060-460	2	4	R0.2	3	6	4	60
4DRR-020-R02-120-460	2	4	R0.2	3	12	4	60
4DRR-020-R02-180-460	2	4	R0.2	3	18	4	60
4DRR-020-R02-250-460	2	4	R0.2	3	25	4	60
4DRR-020-R02-300-460	2	4	R0.2	3	30	4	60
4DRR-020-R03-040-460	2	4	R0.3	3	4	4	60
4DRR-020-R03-060-460	2	4	R0.3	3	6	4	60
4DRR-020-R03-120-460	2	4	R0.3	3	12	4	60
4DRR-020-R03-180-460	2	4	R0.3	3	18	4	60
4DRR-020-R03-250-460	2	4	R0.3	3	25	4	60
4DRR-020-R03-300-460	2	4	R0.3	3	30	4	60
4DRR-020-R05-040-460	2	4	R0.5	3	4	4	60
4DRR-020-R05-060-460	2	4	R0.5	3	6	4	60

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4DRR-020-R05-120-460	2	4	R0.5	3	12	4	60
4DRR-020-R05-180-460	2	4	R0.5	3	18	4	60
4DRR-020-R05-250-460	2	4	R0.5	3	25	4	60
4DRR-020-R05-300-460	2	4	R0.5	3	30	4	60
4DRR-030-R005-060-480	3	4	R0.05	4.5	6	4	80
4DRR-030-R005-100-480	3	4	R0.05	4.5	10	4	80
4DRR-030-R005-200-480	3	4	R0.05	4.5	20	4	80
4DRR-030-R005-300-480	3	4	R0.05	4.5	30	4	80
4DRR-030-R005-400-480	3	4	R0.05	4.5	40	4	80
4DRR-030-R01-060-480	3	4	R0.1	4.5	6	4	80
4DRR-030-R01-100-480	3	4	R0.1	4.5	10	4	80
4DRR-030-R01-200-480	3	4	R0.1	4.5	20	4	80
4DRR-030-R01-300-480	3	4	R0.1	4.5	30	4	80
4DRR-030-R01-400-480	3	4	R0.1	4.5	40	4	80
4DRR-030-R02-060-480	3	4	R0.2	4.5	6	4	80
4DRR-030-R02-100-480	3	4	R0.2	4.5	10	4	80
4DRR-030-R02-200-480	3	4	R0.2	4.5	20	4	80
4DRR-030-R02-300-480	3	4	R0.2	4.5	30	4	80
4DRR-030-R02-400-480	3	4	R0.2	4.5	40	4	80
4DRR-030-R03-060-480	3	4	R0.3	4.5	6	4	80
4DRR-030-R03-100-480	3	4	R0.3	4.5	10	4	80
4DRR-030-R03-200-480	3	4	R0.3	4.5	20	4	80
4DRR-030-R03-300-480	3	4	R0.3	4.5	30	4	80
4DRR-030-R03-400-480	3	4	R0.3	4.5	40	4	80
4DRR-030-R05-060-480	3	4	R0.5	4.5	6	4	80
4DRR-030-R05-100-480	3	4	R0.5	4.5	10	4	80
4DRR-030-R05-200-480	3	4	R0.5	4.5	20	4	80
4DRR-030-R05-300-480	3	4	R0.5	4.5	30	4	80
4DRR-030-R05-400-480	3	4	R0.5	4.5	40	4	80
4DRR-030-R10-060-480	3	4	R1.0	4.5	6	4	80
4DRR-030-R10-100-480	3	4	R1.0	4.5	10	4	80
4DRR-030-R10-200-480	3	4	R1.0	4.5	20	4	80
4DRR-030-R10-300-480	3	4	R1.0	4.5	30	4	80
4DRR-030-R10-400-480	3	4	R1.0	4.5	40	4	80
4DRR-040-R03-200-4A0	4	4	R0.3	6	20	4	100
4DRR-040-R05-200-4A0	4	4	R0.5	6	20	4	100
4DRR-040-R10-200-4A0	4	4	R1.0	6	20	4	100
4DRR-060-R03-250-6B0	6	4	R0.3	9	25	6	110
4DRR-060-R05-250-6B0	6	4	R0.5	9	25	6	110

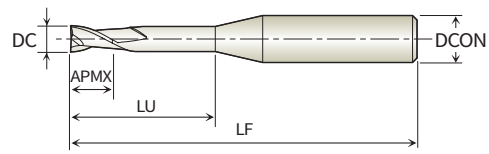
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
4DRR-060-R05-300-6F0	6	4	R0.5	9	30	6	150
4DRR-060-R10-250-6B0	6	4	R1.0	9	25	6	110
4DRR-060-R10-300-6F0	6	4	R1.0	9	30	6	150
4DRR-080-R03-300-8B0	8	4	R0.3	12	30	8	110
4DRR-080-R05-300-8B0	8	4	R0.5	12	30	8	110
4DRR-080-R05-400-8G0	8	4	R0.5	12	40	8	160
4DRR-080-R10-300-8B0	8	4	R1.0	12	30	8	110
4DRR-080-R10-400-8G0	8	4	R1.0	12	40	8	160
4DRR-100-R05-350-AB0	10	4	R0.5	15	35	10	110
4DRR-100-R05-450-AG0	10	4	R0.5	15	45	10	160
4DRR-100-R10-350-AB0	10	4	R1.0	15	35	10	110
4DRR-100-R10-450-AG0	10	4	R1.0	15	45	10	160
4DRR-120-R05-400-CB0	12	4	R0.5	18	40	12	110
4DRR-120-R05-450-CG0	12	4	R0.5	18	45	12	160
4DRR-120-R10-400-CB0	12	4	R1.0	18	40	12	110
4DRR-120-R10-450-CG0	12	4	R1.0	18	45	12	160

2DRE

2날 다이아몬드 코팅 리브 플랫 엔드밀

2 Flutes Diamond Coated Rib Flat End Mills



DIA 2 OD 30° page No.305

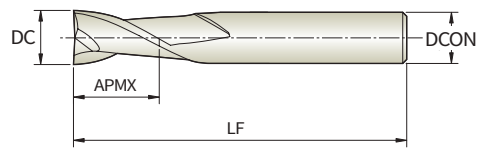
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2DRE-010-050-460	1	2	3	5	4	60
2DRE-010-100-460	1	2	3	10	4	60
2DRE-010-150-460	1	2	3	15	4	60
2DRE-010-200-460	1	2	3	20	4	60
2DRE-010-250-460	1	2	3	25	4	60
2DRE-015-100-460	1.5	2	6	10	4	60
2DRE-015-150-460	1.5	2	6	15	4	60
2DRE-015-200-460	1.5	2	6	20	4	60
2DRE-015-250-460	1.5	2	6	25	4	60
2DRE-020-120-480	2	2	8	12	4	80
2DRE-020-150-480	2	2	8	15	4	80
2DRE-020-200-480	2	2	8	20	4	80
2DRE-020-250-480	2	2	8	25	4	80
2DRE-020-300-480	2	2	8	30	4	80
2DRE-020-400-480	2	2	8	40	4	80
2DRE-030-200-480	3	2	12	20	4	80
2DRE-030-250-480	3	2	12	25	4	80
2DRE-030-300-480	3	2	12	30	4	80
2DRE-030-400-480	3	2	12	40	4	80
2DRE-080-400-8G0	8	2	25	40	8	160
2DRE-100-500-AG0	10	2	25	50	10	160
2DRE-120-600-CG0	12	2	25	60	12	160

2DPE

2날 다이아몬드 코팅 플랫 엔드밀

2 Flutes Diamond Coated Flat End Mills



DIA 2 OD 30° page No.306

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2DPE-002-004-445	0.2	2	0.4	4	45
2DPE-003-006-445	0.3	2	0.6	4	45
2DPE-004-008-445	0.4	2	0.8	4	45
2DPE-005-010-445	0.5	2	1	4	45
2DPE-006-012-445	0.6	2	1.2	4	45
2DPE-007-014-445	0.7	2	1.4	4	45
2DPE-008-016-445	0.8	2	1.6	4	45
2DPE-009-018-445	0.9	2	1.8	4	45
2DPE-010-030-450	1	2	3	4	50
2DPE-015-040-450	1.5	2	4	4	50
2DPE-020-060-460	2	2	6	4	60
2DPE-020-080-480	2	2	8	4	80
2DPE-025-080-460	2.5	2	8	4	60
2DPE-030-100-660	3	2	10	6	60
2DPE-030-120-480	3	2	12	4	80
2DPE-040-120-660	4	2	12	6	60
2DPE-050-150-660	5	2	15	6	60
2DPE-050-200-6B0	5	2	20	6	110
2DPE-050-300-680	5	2	30	6	80
2DPE-060-150-670	6	2	15	6	70
2DPE-060-250-6B0	6	2	25	6	110
2DPE-060-250-6F0	6	2	25	6	150
2DPE-060-300-670	6	2	30	6	70
2DPE-070-200-870	7	2	20	8	70
2DPE-080-200-870	8	2	20	8	70
2DPE-080-300-880	8	2	30	8	80

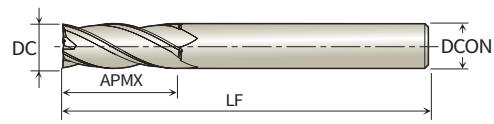
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2DPE-100-200-A75	10	2	20	10	75
2DPE-120-260-C80	12	2	26	12	80

4DPE

4날 다이아몬드 코팅 플랫 엔드밀

4 Flutes Diamond Coated Flat End Mills

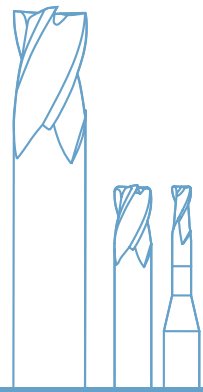


DIA 4 OD 30° page No.307

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4DPE-020-060-445	2	4	6	4	45
4DPE-020-100-460	2	4	10	4	60
4DPE-030-090-650	3	4	9	6	50
4DPE-030-150-360	3	4	15	3	60
4DPE-030-150-460	3	4	15	4	60
4DPE-040-120-650	4	4	12	6	50
4DPE-040-200-480	4	4	20	4	80
4DPE-060-180-660	6	4	18	6	60
4DPE-060-250-6B0	6	4	25	6	110
4DPE-060-250-6F0	6	4	25	6	150
4DPE-080-240-870	8	4	24	8	70
4DPE-080-350-8B0	6	4	35	8	110
4DPE-080-350-8G0	6	4	35	8	160
4DPE-100-250-A80	10	4	25	10	80
4DPE-100-400-AB0	10	4	40	10	110
4DPE-100-500-AG0	10	4	50	10	160
4DPE-120-250-C80	12	4	25	12	80
4DPE-120-450-CB0	12	4	45	12	110
4DPE-120-550-CG0	12	4	55	12	160

D-PRO



- 동, 흑연 및 비철 가공용으로 설계
- 내마모성 및 윤활성을 극대화한 특수 코팅 적용
- 원활한 칩 배출을 위한 형상 설계

- Copper, Graphite and Non-ferrous metal
- Special coating to maximize the wear-resistance and lubrication
- Smooth chip evacuation

볼 Ball

사이즈 DC Size	인선직경공차(mm) DC Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
0.4 ~ 5	0 ~ -0.010	R0.2 ~ R2.5	±0.005
6 ~ 12	0 ~ -0.015	R3 ~ R6	±0.010

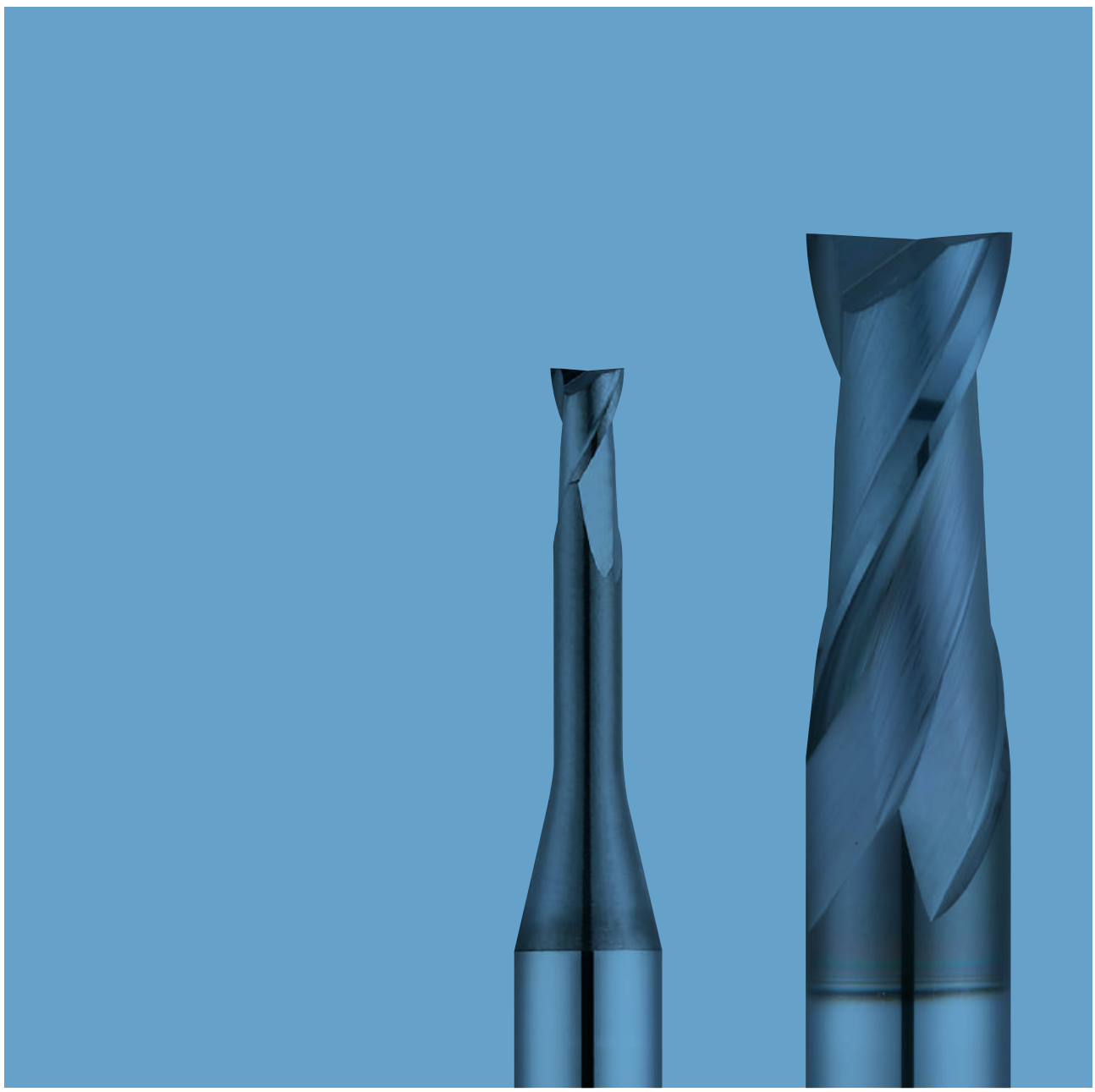
코너 래디우스 Corner Radius

사이즈 DC Size	인선직경공차(mm) DC Tolerance	코너R반경(mm) RE Size	R공차(mm) RE Tolerance
1.5 ~ 5	0 ~ -0.010	R0.05 ~ R0.5	±0.005
6 ~ 12	0 ~ -0.015	R1 ~ R1.5	±0.010

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
0.5 ~ 5	0 ~ -0.010
6 ~ 12	0 ~ -0.015

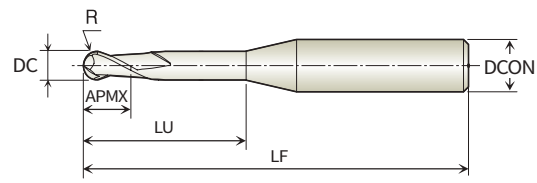
A-PLUS 08



2KRB

2날 리브 볼 엔드밀

2 Flutes Rib Ball End Mills



DLC 2 R 30° page No.308

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRB-001-003-445	0.1	2	R0.05	0.1	0.3	4	45
2KRB-002-005-445	0.2	2	R0.1	0.2	0.5	4	45
2KRB-002-010-445	0.2	2	R0.1	0.2	1	4	45
2KRB-002-015-445	0.2	2	R0.1	0.2	1.5	4	45
2KRB-002-020-445	0.2	2	R0.1	0.2	2	4	45
2KRB-003-005-445	0.3	2	R0.15	0.3	0.5	4	45
2KRB-003-010-445	0.3	2	R0.15	0.3	1	4	45
2KRB-003-015-445	0.3	2	R0.15	0.3	1.5	4	45
2KRB-003-020-445	0.3	2	R0.15	0.3	2	4	45
2KRB-004-010-445	0.4	2	R0.2	0.4	1	4	45
2KRB-004-020-445	0.4	2	R0.2	0.4	2	4	45
2KRB-004-030-445	0.4	2	R0.2	0.4	3	4	45
2KRB-004-040-445	0.4	2	R0.2	0.4	4	4	45
2KRB-004-050-445	0.4	2	R0.2	0.4	5	4	45
2KRB-005-020-445	0.5	2	R0.25	0.5	2	4	45
2KRB-005-030-445	0.5	2	R0.25	0.5	3	4	45
2KRB-005-040-445	0.5	2	R0.25	0.5	4	4	45
2KRB-005-060-445	0.5	2	R0.25	0.5	6	4	45
2KRB-006-020-445	0.6	2	R0.3	0.6	2	4	45
2KRB-006-040-445	0.6	2	R0.3	0.6	4	4	45
2KRB-006-060-445	0.6	2	R0.3	0.6	6	4	45
2KRB-006-080-445	0.6	2	R0.3	0.6	8	4	45
2KRB-006-100-445	0.6	2	R0.3	0.6	10	4	45
2KRB-008-020-445	0.8	2	R0.4	0.8	2	4	45
2KRB-008-040-445	0.8	2	R0.4	0.8	4	4	45
2KRB-008-060-445	0.8	2	R0.4	0.8	6	4	45

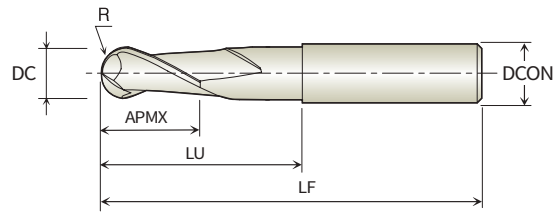
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRB-008-080-445	0.8	2	R0.4	0.8	8	4	45
2KRB-008-100-445	0.8	2	R0.4	0.8	10	4	45
2KRB-010-040-445	1	2	R0.5	1	4	4	45
2KRB-010-060-445	1	2	R0.5	1	6	4	45
2KRB-010-080-445	1	2	R0.5	1	8	4	45
2KRB-010-100-445	1	2	R0.5	1	10	4	45
2KRB-015-060-445	1.5	2	R0.75	1.5	6	4	45
2KRB-015-080-445	1.5	2	R0.75	1.5	8	4	45
2KRB-015-100-445	1.5	2	R0.75	1.5	10	4	45
2KRB-015-120-445	1.5	2	R0.75	1.5	12	4	45
2KRB-015-160-450	1.5	2	R0.75	1.5	16	4	50
2KRB-020-060-445	2	2	R1.0	2	6	4	45
2KRB-020-080-445	2	2	R1.0	2	8	4	45
2KRB-020-100-445	2	2	R1.0	2	10	4	45
2KRB-020-120-445	2	2	R1.0	2	12	4	45
2KRB-020-140-450	2	2	R1.0	2	14	4	50
2KRB-030-120-650	3	2	R1.5	3	12	6	50
2KRB-030-160-660	3	2	R1.5	3	16	6	60
2KRB-030-200-660	3	2	R1.5	3	20	6	60
2KRB-040-120-650	4	2	R2.0	4	12	6	50
2KRB-040-160-660	4	2	R2.0	4	16	6	60
2KRB-040-200-660	4	2	R2.0	4	20	6	60
2KRB-040-250-665	4	2	R2.0	4	25	6	65

2KSB

2날 숏 볼 엔드밀

2 Flutes Short Ball End Mills



DLC 2 R 30° page No.309

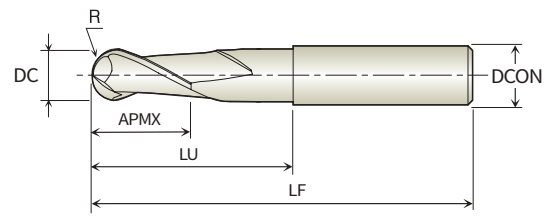
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KSB-004-010-650	0.4	2	R0.2	0.4	1	6	50
2KSB-005-015-650	0.5	2	R0.25	0.5	1.5	6	50
2KSB-006-015-650	0.6	2	R0.3	0.6	1.5	6	50
2KSB-008-020-650	0.8	2	R0.4	0.8	2	6	50
2KSB-010-025-650	1	2	R0.5	1	2.5	6	50
2KSB-012-030-650	1.2	2	R0.6	1.2	3	6	50
2KSB-015-040-650	1.5	2	R0.75	1.5	4	6	50
2KSB-020-060-650	2	2	R1.0	2	6	6	50
2KSB-025-060-650	2.5	2	R1.25	2.5	6	6	50
2KSB-030-080-650	3	2	R1.5	3	8	6	50
2KSB-040-100-650	4	2	R2.0	4	10	6	50
2KSB-050-120-650	5	2	R2.5	5	12	6	50
2KSB-060-150-660	6	2	R3.0	7	15	6	60
2KSB-080-200-860	8	2	R4.0	10	20	8	60
2KSB-100-250-A70	10	2	R5.0	12	25	10	70
2KSB-120-300-C80	12	2	R6.0	14	30	12	80

2KLB

2날 롱 볼 엔드밀

2 Flutes Long Ball End Mills



DLC

page No.310

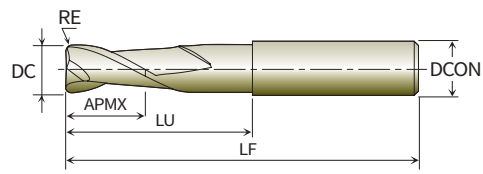
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KLB-010-030-650	1	2	R0.5	1.5	3	6	50
2KLB-015-040-650	1.5	2	R0.75	2	4	6	50
2KLB-020-060-660	2	2	R1.0	3	6	6	60
2KLB-030-080-660	3	2	R1.5	4	8	6	60
2KLB-040-100-670	4	2	R2.0	6	10	6	70
2KLB-050-120-680	5	2	R2.5	8	12	6	80
2KLB-060-150-690	6	2	R3.0	9	15	6	90
2KLB-080-200-8A0	8	2	R4.0	12	20	8	100
2KLB-100-250-AA0	10	2	R5.0	15	25	10	100
2KLB-120-300-CB0	12	2	R6.0	18	30	12	110

2KRR

2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



DLC 2 CR 30° page No.311

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRR-015-R02-040-445	1.5	2	R0.2	2.3	4	4	45
2KRR-020-R03-060-445	2	2	R0.3	3	6	4	45
2KRR-020-R03-100-445	2	2	R0.3	3	10	4	45
2KRR-020-R05-060-445	2	2	R0.5	3	6	4	45
2KRR-020-R05-100-445	2	2	R0.5	3	10	4	45
2KRR-020-R05-140-450	2	2	R0.5	3	14	4	50
2KRR-020-R10-060-445	2	2	R1.0	3	6	4	45
2KRR-020-R10-100-445	2	2	R1.0	3	10	4	45
2KRR-030-R05-100-650	3	2	R0.5	4.5	10	6	50
2KRR-030-R05-120-650	3	2	R0.5	4.5	12	6	50
2KRR-030-R05-160-660	3	2	R0.5	4.5	16	6	60
2KRR-030-R05-200-660	3	2	R0.5	4.5	20	6	60
2KRR-040-R05-120-650	4	2	R0.5	6	12	6	50
2KRR-040-R05-160-660	4	2	R0.5	6	16	6	60
2KRR-040-R05-200-660	4	2	R0.5	6	20	6	60
2KRR-060-R05-180-660	6	2	R0.5	9	18	6	60
2KRR-060-R10-180-660	6	2	R1.0	9	18	6	60
2KRR-060-R15-180-660	6	2	R1.5	9	18	6	60
2KRR-080-R05-240-865	8	2	R0.5	12	24	8	65
2KRR-080-R10-240-865	8	2	R1.0	12	24	8	65
2KRR-080-R15-240-865	8	2	R1.5	12	24	8	65
2KRR-100-R05-300-A70	10	2	R0.5	15	30	10	70
2KRR-100-R10-300-A70	10	2	R1.0	15	30	10	70
2KRR-100-R15-300-A70	10	2	R1.5	15	30	10	70
2KRR-120-R05-300-C80	12	2	R0.5	18	30	12	80
2KRR-120-R10-300-C80	12	2	R1.0	18	30	12	80

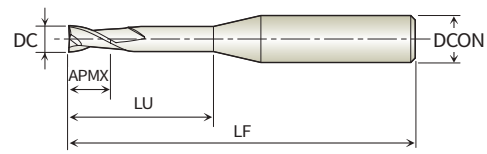
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRR-120-R15-300-C80	12	2	R1.5	18	30	12	80

2KRE

2날 리브 플랫 엔드밀

2 Flutes Rib Flat End Mills



DLC 2 OD 30° page No.312

(Unit: mm)

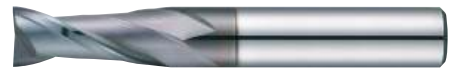
제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRE-001-003-445	0.1	2	0.15	0.3	4	45
2KRE-001-005-445	0.1	2	0.15	0.5	4	45
2KRE-002-005-445	0.2	2	0.3	0.5	4	45
2KRE-002-010-445	0.2	2	0.3	1	4	45
2KRE-002-015-445	0.2	2	0.3	1.5	4	45
2KRE-002-020-445	0.2	2	0.3	2	4	45
2KRE-003-005-445	0.3	2	0.45	0.5	4	45
2KRE-003-010-445	0.3	2	0.45	1	4	45
2KRE-003-015-445	0.3	2	0.45	1.5	4	45
2KRE-003-020-445	0.3	2	0.45	2	4	45
2KRE-004-010-445	0.4	2	0.6	1	4	45
2KRE-004-020-445	0.4	2	0.6	2	4	45
2KRE-004-030-445	0.4	2	0.6	3	4	45
2KRE-004-040-445	0.4	2	0.6	4	4	45
2KRE-004-050-445	0.4	2	0.6	5	4	45
2KRE-005-020-445	0.5	2	0.7	2	4	45
2KRE-005-040-445	0.5	2	0.7	4	4	45
2KRE-005-060-445	0.5	2	0.7	6	4	45
2KRE-006-020-445	0.6	2	0.9	2	4	45
2KRE-006-040-445	0.6	2	0.9	4	4	45
2KRE-006-060-445	0.6	2	0.9	6	4	45
2KRE-008-020-445	0.8	2	1.2	2	4	45
2KRE-008-040-445	0.8	2	1.2	4	4	45
2KRE-008-060-445	0.8	2	1.2	6	4	45
2KRE-008-080-445	0.8	2	1.2	8	4	45
2KRE-010-040-445	1	2	1.5	4	4	45

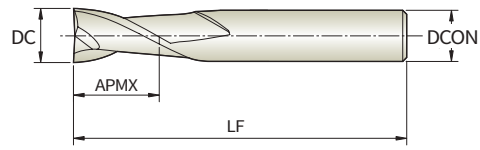
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2KRE-010-060-445	1	2	1.5	6	4	45
2KRE-010-080-445	1	2	1.5	8	4	45
2KRE-010-100-445	1	2	1.5	10	4	45
2KRE-015-060-445	1.5	2	2.3	6	4	45
2KRE-015-080-445	1.5	2	2.3	8	4	45
2KRE-015-100-445	1.5	2	2.3	10	4	45
2KRE-015-120-445	1.5	2	2.3	12	4	45
2KRE-015-160-450	1.5	2	2.3	16	4	50
2KRE-020-060-445	2	2	3	6	4	45
2KRE-020-080-445	2	2	3	8	4	45
2KRE-020-100-445	2	2	3	10	4	45
2KRE-020-120-445	2	2	3	12	4	45
2KRE-020-140-450	2	2	3	14	4	50
2KRE-030-120-650	3	2	4.5	12	6	50
2KRE-030-160-660	3	2	4.5	16	6	60
2KRE-030-200-660	3	2	4.5	20	6	60
2KRE-040-120-650	4	2	6	12	6	50
2KRE-040-160-660	4	2	6	16	6	60
2KRE-040-200-660	4	2	6	20	6	60
2KRE-040-250-665	4	2	6	25	6	65

2KPE

2날 플랫 엔드밀
2 Flutes Flat End Mills



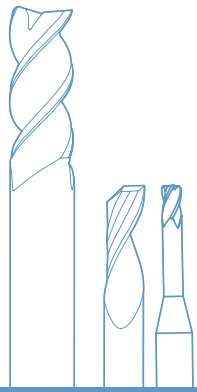


DLC 2 OD 30° page No.313

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2KPE-004-008-445	0.4	2	0.8	4	45
2KPE-005-010-445	0.5	2	1	4	45
2KPE-006-012-445	0.6	2	1.2	4	45
2KPE-007-014-445	0.7	2	1.4	4	45
2KPE-008-016-445	0.8	2	1.6	4	45
2KPE-010-025-645	1	2	2.5	6	45
2KPE-010-040-645	1	2	4	6	45
2KPE-012-040-645	1.2	2	4	6	45
2KPE-015-040-645	1.5	2	4	6	45
2KPE-020-060-645	2	2	6	6	45
2KPE-020-080-645	2	2	8	6	45
2KPE-025-080-650	2.5	2	8	6	50
2KPE-030-100-650	3	2	10	6	50
2KPE-030-120-650	3	2	12	6	50
2KPE-035-100-650	3.5	2	10	6	50
2KPE-040-120-650	4	2	12	6	50
2KPE-040-160-660	4	2	16	6	60
2KPE-050-150-650	5	2	15	6	50
2KPE-060-150-660	6	2	15	6	60
2KPE-060-240-660	6	2	24	6	60
2KPE-080-200-865	8	2	20	8	65
2KPE-100-250-A70	10	2	25	10	70
2KPE-120-300-C80	12	2	30	12	80

A-PLUS



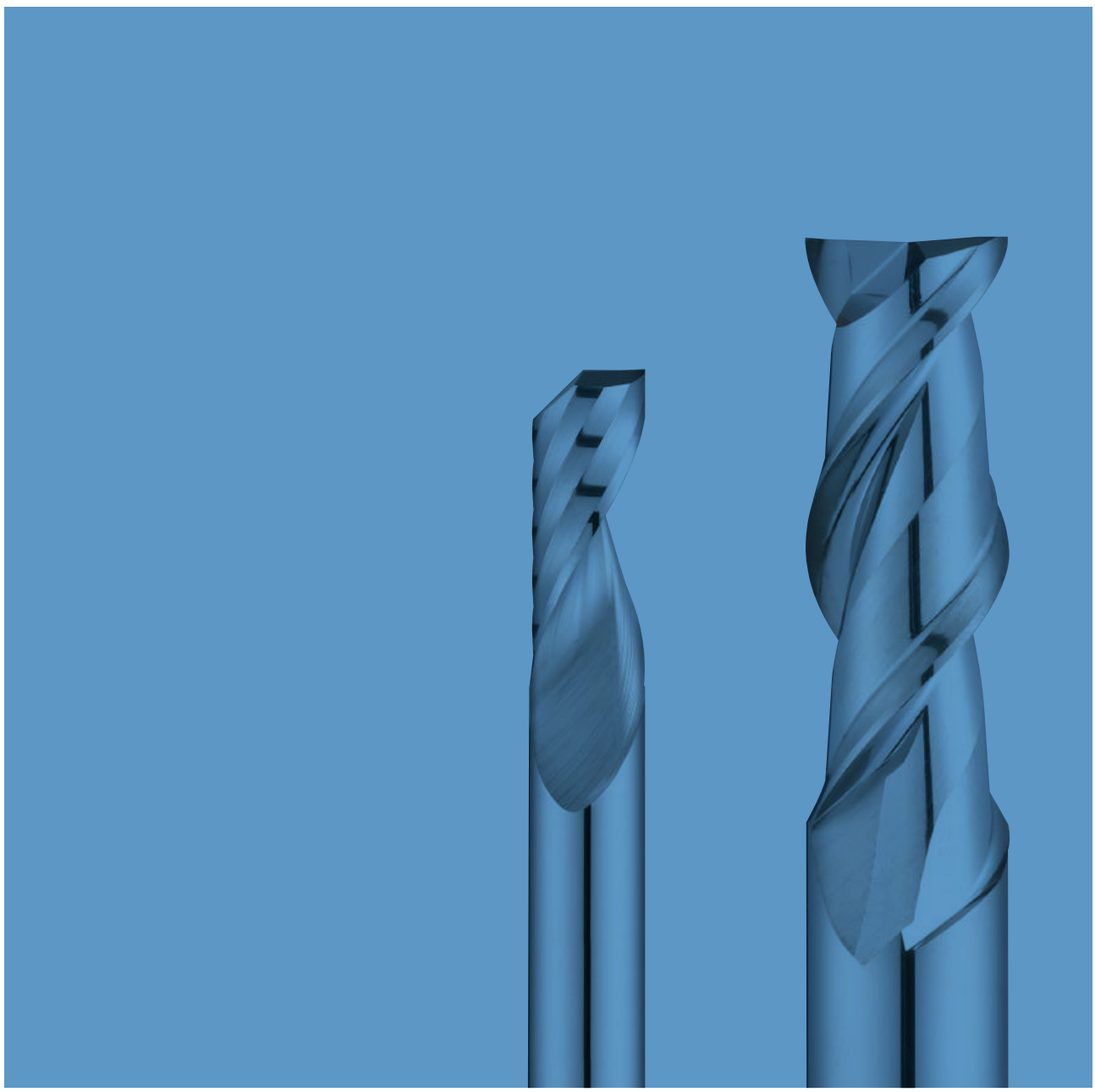
- 알루미늄, 알루미늄 합금 절삭에 특화된 날부 형상 설계
- Flute Polishing 연삭으로 면조도 향상 및 칩 배출 용이
- 다양한 날장 길이, 전장 길이 선택으로 맞춤 가공 가능

- Special design for Aluminum and Aluminum alloy
- Good surface finish and chip evacuation thank to flute polishing
- Wide range of cutting length and overall length

전체 타입 All Type

사이즈 DC Size	인선직경공차(mm) DC Tolerance
ALL	-0.005 ~ -0.015

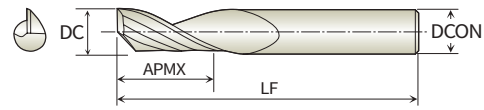
AL-PRO 09



1ALE

1날 플랫 엔드밀, 알루미늄, 수지가공용, 비코팅

1 Flute Flat End Mills For ALUMINIUM, RESIN, ABS



Non ① OD 30° page No.314

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
1ALE-005-010-440	0.5	1	1	4	40
1ALE-006-012-440	0.6	1	1.2	4	40
1ALE-007-014-440	0.7	1	1.4	4	40
1ALE-008-016-440	0.8	1	1.6	4	40
1ALE-009-018-440	0.9	1	1.8	4	40
1ALE-010-030-645	1	1	3	6	45
1ALE-010-040-645	1	1	4	6	45
1ALE-010-050-645	1	1	5	6	45
1ALE-010-060-650	1	1	6	6	50
1ALE-015-040-645	1.5	1	4	6	45
1ALE-015-060-650	1.5	1	6	6	50
1ALE-015-080-650	1.5	1	8	6	50
1ALE-015-100-650	1.5	1	10	6	50
1ALE-020-060-650	2	1	6	6	50
1ALE-020-080-650	2	1	8	6	50
1ALE-020-100-650	2	1	10	6	50
1ALE-020-120-650	2	1	12	6	50
1ALE-030-080-650	3	1	8	6	50
1ALE-030-100-650	3	1	10	6	50
1ALE-030-120-650	3	1	12	6	50
1ALE-030-160-650	3	1	16	6	50
1ALE-040-120-650	4	1	12	6	50
1ALE-040-160-650	4	1	16	6	50
1ALE-040-210-660	4	1	21	6	60
1ALE-050-160-660	5	1	16	6	60
1ALE-050-210-660	5	1	21	6	60

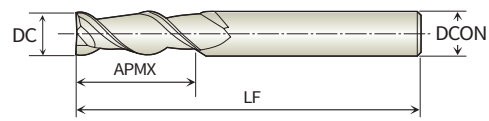
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
1ALE-050-260-660	5	1	26	6	60
1ALE-060-160-660	6	1	16	6	60
1ALE-060-210-660	6	1	21	6	60
1ALE-060-260-665	6	1	26	6	65
1ALE-060-320-670	6	1	32	6	70
1ALE-080-210-870	8	1	21	8	70
1ALE-080-260-875	8	1	26	8	75
1ALE-080-320-880	8	1	32	8	80
1ALE-080-360-890	8	1	36	8	90
1ALE-100-260-A75	10	1	26	10	75
1ALE-100-320-A80	10	1	32	10	80
1ALE-120-260-C80	12	1	26	12	80
1ALE-120-360-C90	12	1	36	12	90

2ALE

2날 플랫 엔드밀, 알루미늄용 헬릭스 45° 비코팅

2 Flutes 45° HELIX Flat End Mills For ALUMINIUM



Non | 2 | OD | 45° | page No.315

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2ALE-010-030-650	1	2	3	6	50
2ALE-010-060-660	1	2	6	6	60
2ALE-012-040-650	1.2	2	4	6	50
2ALE-015-060-650	1.5	2	6	6	50
2ALE-015-080-660	1.5	2	8	6	60
2ALE-020-060-650	2	2	6	6	50
2ALE-020-100-660	2	2	10	6	60
2ALE-025-120-660	2.5	2	12	6	60
2ALE-030-120-660	3	2	12	6	60
2ALE-030-150-665	3	2	15	6	65
2ALE-040-140-660	4	2	14	6	60
2ALE-040-160-665	4	2	16	6	65
2ALE-050-170-660	5	2	17	6	60
2ALE-050-220-660	5	2	22	6	60
2ALE-060-170-660	6	2	17	6	60
2ALE-060-220-660	6	2	22	6	60
2ALE-070-230-865	7	2	23	8	65
2ALE-080-230-870	8	2	23	8	70
2ALE-080-310-880	8	2	31	8	80
2ALE-100-280-A75	10	2	28	10	75
2ALE-100-360-A90	10	2	36	10	90
2ALE-120-330-C80	12	2	33	12	80
2ALE-120-410-CA0	12	2	41	12	100
2ALE-120-450-CA0	12	2	45	12	100
2ALE-140-380-E90	14	2	38	14	90
2ALE-160-450-GA0	16	2	45	16	100

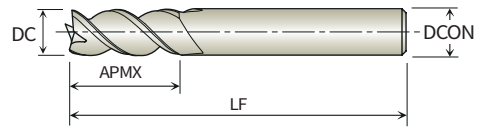
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2ALE-160-530-GB0	16	2	53	16	110
2ALE-180-490-IA0	18	2	49	18	100
2ALE-200-500-KA0	20	2	50	20	100
2ALE-200-550-KB0	20	2	55	20	110
2ALE-250-500-PC0	25	2	50	25	120

3ALE

3날 플랫 엔드밀, 알루미늄용 헬릭스 45° 비코팅

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM



Non 3 OD 45° page No.316

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3ALE-010-020-640	1	3	2	6	40
3ALE-010-025-640	1	3	2.5	6	40
3ALE-010-030-650	1	3	3	6	50
3ALE-010-040-660	1	3	4	6	60
3ALE-010-060-660	1	3	6	6	60
3ALE-012-040-650	1.2	3	4	6	50
3ALE-015-030-640	1.5	3	3	6	40
3ALE-015-050-650	1.5	3	5	6	50
3ALE-015-060-660	1.5	3	6	6	60
3ALE-015-080-660	1.5	3	8	6	60
3ALE-015-100-660	1.5	3	10	6	60
3ALE-020-030-640	2	3	3	6	40
3ALE-020-060-650	2	3	6	6	50
3ALE-020-080-660	2	3	8	6	60
3ALE-020-100-660	2	3	10	6	60
3ALE-020-120-660	2	3	12	6	60
3ALE-025-080-640	2.5	3	8	6	40
3ALE-025-100-660	2.5	3	10	6	60
3ALE-025-120-660	2.5	3	12	6	60
3ALE-030-040-645	3	3	4	6	45
3ALE-030-080-645	3	3	8	6	45
3ALE-030-110-660	3	3	11	6	60
3ALE-030-150-665	3	3	15	6	65
3ALE-030-200-670	3	3	20	6	70
3ALE-030-250-675	3	3	25	6	75
3ALE-030-300-680	3	3	30	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3ALE-035-120-660	3.5	3	12	6	60
3ALE-040-050-645	4	3	5	6	45
3ALE-040-080-645	4	3	8	6	45
3ALE-040-110-645	4	3	11	6	45
3ALE-040-130-660	4	3	13	6	60
3ALE-040-160-665	4	3	16	6	65
3ALE-040-200-670	4	3	20	6	70
3ALE-040-260-675	4	3	26	6	75
3ALE-040-300-680	4	3	30	6	80
3ALE-045-150-660	4.5	3	15	6	60
3ALE-050-060-645	5	3	6	6	45
3ALE-050-170-660	5	3	17	6	60
3ALE-050-220-660	5	3	22	6	60
3ALE-050-250-670	5	3	25	6	70
3ALE-050-300-675	5	3	30	6	75
3ALE-050-350-680	5	3	35	6	80
3ALE-050-400-685	5	3	40	6	85
3ALE-050-450-690	5	3	45	6	90
3ALE-055-170-660	5.5	3	17	6	60
3ALE-060-070-650	6	3	7	6	50
3ALE-060-130-650	6	3	13	6	50
3ALE-060-170-660	6	3	17	6	60
3ALE-060-220-660	6	3	22	6	60
3ALE-060-250-670	6	3	25	6	70
3ALE-060-300-675	6	3	30	6	75
3ALE-060-350-680	6	3	35	6	80
3ALE-060-420-690	6	3	42	6	90
3ALE-060-500-6A0	6	3	50	6	100
3ALE-070-220-865	7	3	22	8	65
3ALE-080-090-860	8	3	9	8	60
3ALE-080-190-860	8	3	19	8	60
3ALE-080-220-870	8	3	22	8	70
3ALE-080-280-880	8	3	28	8	80
3ALE-080-300-880	8	3	30	8	80
3ALE-080-350-885	8	3	35	8	85
3ALE-080-400-890	8	3	40	8	90
3ALE-080-450-895	8	3	45	8	95
3ALE-080-500-8A0	8	3	50	8	100
3ALE-080-550-8B0	8	3	55	8	110

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3ALE-080-660-8B0	8	3	66	8	110
3ALE-090-270-A70	9	3	27	10	70
3ALE-100-110-A65	10	3	11	10	65
3ALE-100-220-A65	10	3	22	10	65
3ALE-100-270-A75	10	3	27	10	75
3ALE-100-320-A90	10	3	32	10	90
3ALE-100-350-A90	10	3	35	10	90
3ALE-100-400-A90	10	3	40	10	90
3ALE-100-450-AA0	10	3	45	10	100
3ALE-100-500-AA0	10	3	50	10	100
3ALE-100-550-AB0	10	3	55	10	110
3ALE-100-600-AB0	10	3	60	10	110
3ALE-100-650-AC0	10	3	65	10	120
3ALE-120-130-C70	12	3	13	12	70
3ALE-120-260-C70	12	3	26	12	70
3ALE-120-320-C80	12	3	32	12	80
3ALE-120-400-CA0	12	3	40	12	100
3ALE-120-450-CA0	12	3	45	12	100
3ALE-120-500-CA0	12	3	50	12	100
3ALE-120-550-CB0	12	3	55	12	110
3ALE-120-600-CB0	12	3	60	12	110
3ALE-120-650-CC0	12	3	65	12	120
3ALE-120-700-CC0	12	3	70	12	120
3ALE-120-750-CE0	12	3	75	12	140
3ALE-120-800-CE0	12	3	80	12	140
3ALE-140-370-E90	14	3	37	14	90
3ALE-140-370-G90	14	3	37	16	90
3ALE-160-1050-GK0	16	3	37	16	90
3ALE-160-1150-GK0	16	3	37	16	90
3ALE-160-180-G90	16	3	18	16	90
3ALE-160-320-G90	16	3	32	16	90
3ALE-160-420-GA0	16	3	42	16	100
3ALE-160-520-GB0	16	3	52	16	110
3ALE-160-550-GB0	16	3	55	16	110
3ALE-160-650-GD0	16	3	65	16	130
3ALE-160-750-GF0	16	3	75	16	150
3ALE-160-850-GG0	16	3	85	16	150
3ALE-160-950-GI0	16	3	95	16	150
3ALE-180-450-IA0	18	3	45	18	100

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3ALE-200-1050-KK0	20	3	45	18	100
3ALE-200-1150-KK0	20	3	45	18	100
3ALE-200-1250-KM0	20	3	45	18	100
3ALE-200-230-K90	20	3	23	20	90
3ALE-200-380-K90	20	3	38	20	90
3ALE-200-480-KA0	20	3	48	20	100
3ALE-200-550-KB0	20	3	55	20	110
3ALE-200-650-KD0	20	3	65	20	130
3ALE-200-750-KF0	20	3	75	20	150
3ALE-200-850-KG0	20	3	85	20	150
3ALE-200-950-KI0	20	3	95	20	150
3ALE-250-500-PC0	25	3	50	25	120

- 알루미늄 및 알루미늄 합금, 비철계열에 적용
- 고속, 황삭 가공이 가능한 날부 형상 적용
- 고정밀 인선 직경 공차

- Suitable for nonferrous metals including Aluminum and Aluminum Alloys
- Special cutting edges for high speed and rough cutting
- Very precise tolerance of cutting diameters

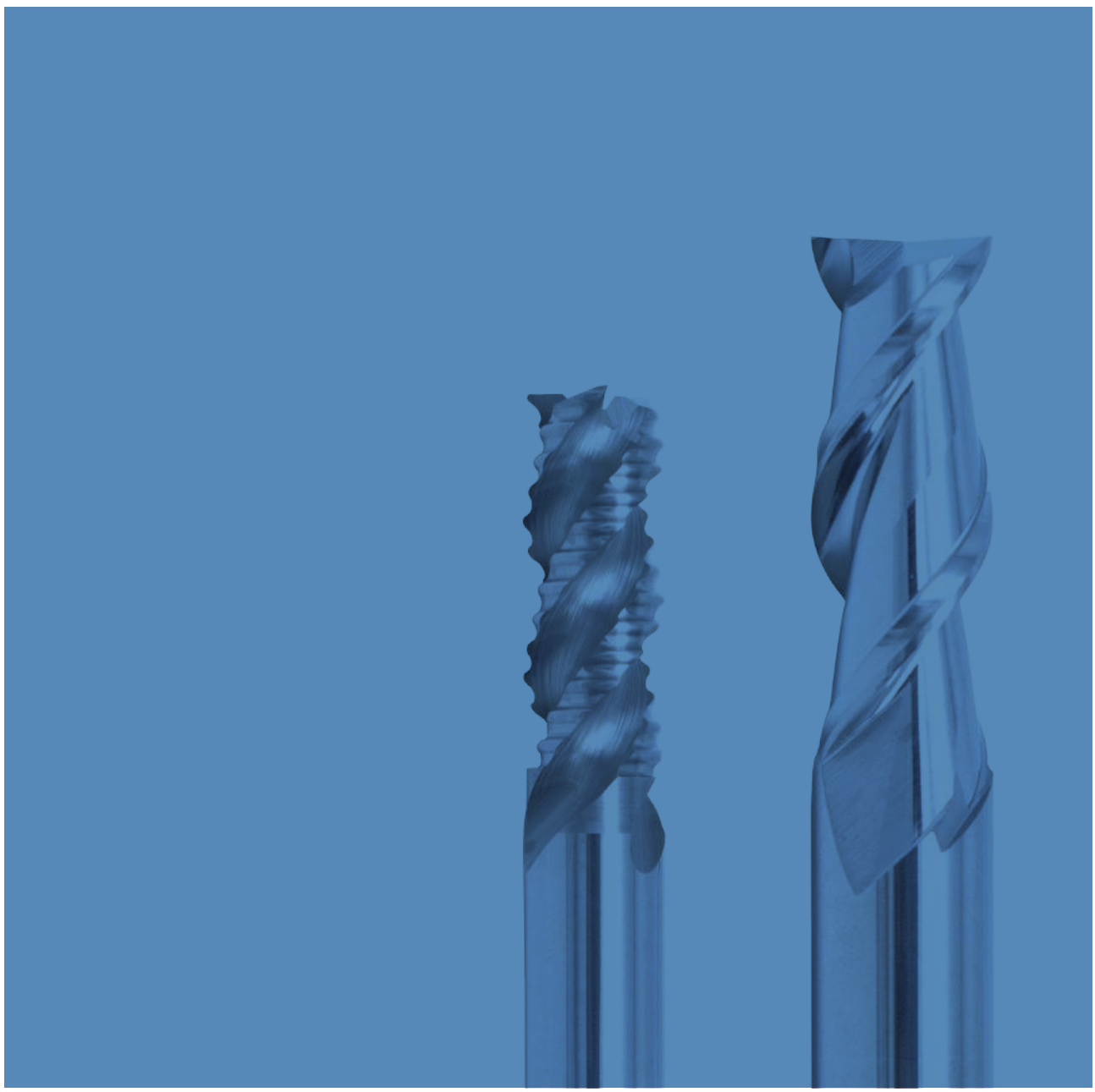
라핑 Roughing

사이즈 DC Size	인선직경공차(mm) DC Tolerance
4 ~ 6	0 ~ -0.048
7 ~ 10	0 ~ -0.058
12 ~ 18	0 ~ -0.07
18 ~ 20	0 ~ -0.084

플랫 Flat

사이즈 DC Size	인선직경공차(mm) DC Tolerance
1 ~ 8	0 ~ -0.015
9 ~ 20	0 ~ -0.02

AL MILL 10



LM32

알 밀 라핑 엔드밀

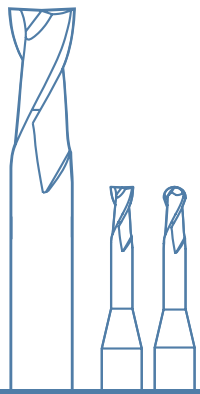
AL Mill Roughing End Mill

Non

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
3LM32-040-100	4	3	10	6	55
3LM32-050-150	5	3	15	6	55
3LM32-060-150	6	3	15	6	60
3LM32-060-250	6	3	25	6	80
3LM32-080-200	8	3	20	8	65
3LM32-080-300	8	3	30	8	90
3LM32-100-250	10	3	25	10	70
3LM32-100-400	10	3	40	10	100
3LM32-120-300	12	3	30	12	80
3LM32-120-500	12	3	50	12	110
3LM32-140-350	14	3	35	14	90
3LM32-160-420	16	3	42	16	100
3LM32-160-520	16	3	52	16	150
3LM32-180-450	18	3	45	18	100
3LM32-200-480	20	3	48	20	100
3LM32-200-550	20	3	55	20	160

AL MILL



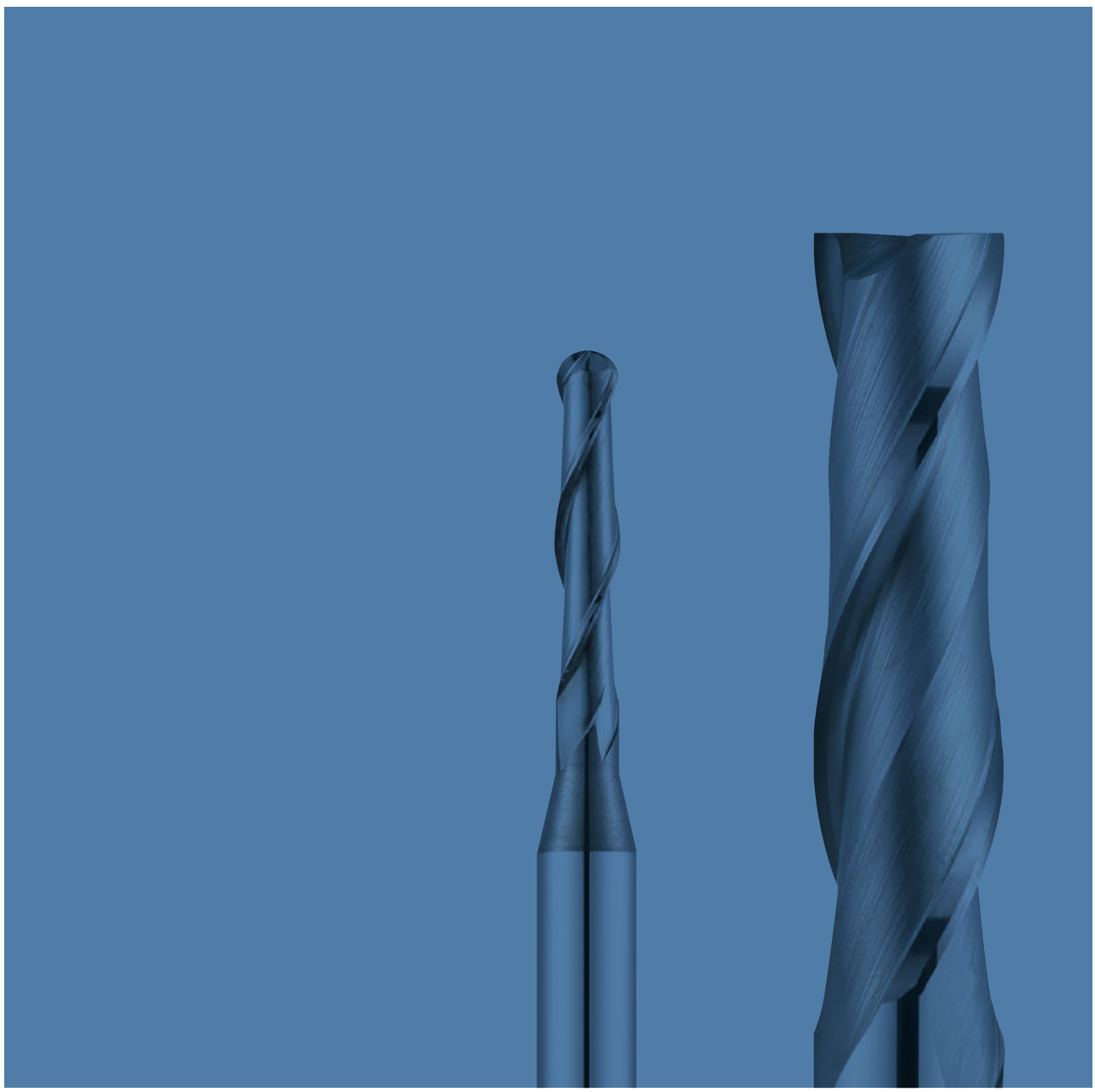
- 원활한 칩 배출을 위한 형상 설계
- 쾌속 절삭을 위한 예리한 인선
- 정밀 가공 시 형상 유지력 향상

- Smooth chip evacuation
- Sharp cutting edge for rapid cutting
- Improve to keep shape for precision-work

전체 타입 All Type

사이즈 DC Size	인선직경공차(mm) DC Tolerance
ALL	-0.005 ~ -0.020

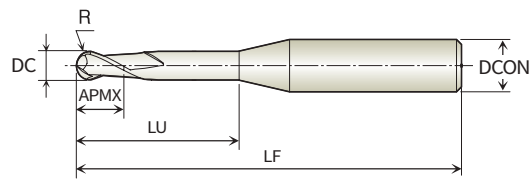
ABS 11



2MRB

2날 수지가공용 리브 볼 엔드밀

2 Flutes Rib Ball End Mills For RESIN, PLASTIC, ABS



Non 2 R 30° page No.317

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2MRB-002-010-345	0.2	2	R0.1	0.4	1	3	45
2MRB-002-015-345	0.2	2	R0.1	0.4	1.5	3	45
2MRB-002-020-345	0.2	2	R0.1	0.4	2	3	45
2MRB-003-015-345	0.3	2	R0.15	1	1.5	3	45
2MRB-003-020-345	0.3	2	R0.15	1	2	3	45
2MRB-003-025-345	0.3	2	R0.15	1	2.5	3	45
2MRB-003-030-345	0.3	2	R0.15	1	3	3	45
2MRB-004-030-345	0.4	2	R0.2	1.2	3	3	45
2MRB-005-050-350	0.5	2	R0.25	1.5	5	3	50
2MRB-006-060-350	0.6	2	R0.3	3	6	3	50
2MRB-007-070-350	0.7	2	R0.35	3	7	3	50
2MRB-008-080-350	0.8	2	R0.4	4	8	3	50
2MRB-009-100-350	0.9	2	R0.45	4	10	3	50
2MRB-010-060-660	1	2	R0.5	3	6	6	60
2MRB-010-070-660	1	2	R0.5	3	7	6	60
2MRB-010-100-365	1	2	R0.5	5	10	3	65
2MRB-010-100-660	1	2	R0.5	5	10	6	60
2MRB-010-150-365	1	2	R0.5	5	15	3	65
2MRB-010-200-380	1	2	R0.5	5	20	3	80
2MRB-010-250-380	1	2	R0.5	5	25	3	80
2MRB-015-100-660	1.5	2	R0.75	5	10	6	60
2MRB-015-150-380	1.5	2	R0.75	10	15	3	80
2MRB-015-150-660	1.5	2	R0.75	10	15	6	60
2MRB-015-200-380	1.5	2	R0.75	10	20	3	80
2MRB-015-250-380	1.5	2	R0.75	10	25	3	80
2MRB-020-100-665	2	2	R1.0	5	10	6	65

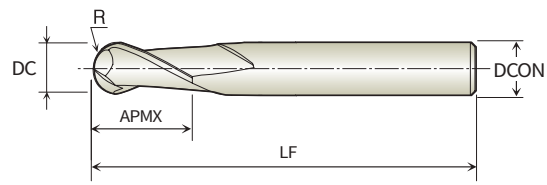
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2MRB-020-150-380	2	2	R1.0	10	15	3	80
2MRB-020-150-665	2	2	R1.0	10	15	6	65
2MRB-020-200-380	2	2	R1.0	10	20	3	80
2MRB-020-250-380	2	2	R1.0	10	25	3	80
2MRB-020-300-380	2	2	R1.0	10	30	3	80
2MRB-025-200-380	2.5	2	R1.25	15	20	3	80
2MRB-030-150-680	3	2	R1.5	8	15	6	80
2MRB-040-250-680	4	2	R2.0	20	25	6	80
2MRB-040-300-680	4	2	R2.0	20	30	6	80
2MRB-040-400-6A0	4	2	R2.0	20	40	6	100

2MMB

2날 수지가공용 볼 엔드밀

2 Flutes Ball End Mills For RESIN, PLASTIC, ABS



Non 2 R 30° page No.317

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2MMB-003-010-345	0.3	2	R0.15	1	3	45
2MMB-004-012-345	0.4	2	R0.2	1.2	3	45
2MMB-004-020-345	0.4	2	R0.2	2	3	45
2MMB-005-015-350	0.5	2	R0.25	1.5	3	50
2MMB-005-020-350	0.5	2	R0.25	2	3	50
2MMB-006-030-350	0.6	2	R0.3	3	3	50
2MMB-007-030-350	0.7	2	R0.35	3	3	50
2MMB-008-040-350	0.8	2	R0.4	4	3	50
2MMB-009-040-350	0.9	2	R0.45	4	3	50
2MMB-010-050-365	1	2	R0.5	5	3	65
2MMB-015-100-380	1.5	2	R0.75	10	3	80
2MMB-020-100-380	2	2	R1.0	10	3	80
2MMB-025-100-380	2.5	2	R1.25	10	3	80
2MMB-025-150-380	2.5	2	R1.25	15	3	80
2MMB-030-100-365	3	2	R1.5	10	3	65
2MMB-030-200-380	3	2	R1.5	20	3	80
2MMB-030-200-3A0	3	2	R1.5	20	3	100
2MMB-040-200-480	4	2	R2.0	20	4	80
2MMB-040-200-4A0	4	2	R2.0	20	4	100
2MMB-040-200-680	4	2	R2.0	20	6	80
2MMB-050-300-5A0	5	2	R2.5	30	5	100
2MMB-050-300-5C0	5	2	R2.5	30	5	120
2MMB-060-250-690	6	2	R3.0	25	6	90
2MMB-060-300-6A0	6	2	R3.0	30	6	100
2MMB-060-400-6C0	6	2	R3.0	40	6	120
2MMB-060-400-6F0	6	2	R3.0	40	6	150

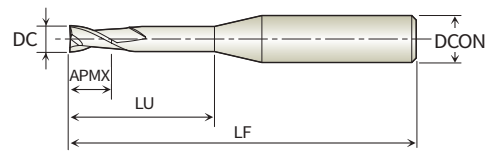
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2MMB-080-450-8C0	8	2	R4.0	45	8	120
2MMB-080-450-8F0	8	2	R4.0	45	8	150
2MMB-100-500-AC0	10	2	R5.0	50	10	120
2MMB-100-500-AF0	10	2	R5.0	50	10	150
2MMB-120-500-CC0	12	2	R6.0	50	12	120
2MMB-120-500-CF0	12	2	R6.0	50	12	150

2MRE

2날 수지가공용 리브 플랫 엔드밀

2 Flutes Rib SQUARE End Mills For RESIN, PLASTIC, ABS



Non | 2 | OD | 30° | page No.318

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2MRE-002-010-345	0.2	2	0.4	1	3	45
2MRE-002-015-345	0.2	2	0.4	1.5	3	45
2MRE-002-020-345	0.2	2	0.4	2	3	45
2MRE-003-015-345	0.3	2	1	1.5	3	45
2MRE-003-020-345	0.3	2	1	2	3	45
2MRE-003-025-345	0.3	2	1	2.5	3	45
2MRE-003-030-345	0.3	2	1	3	3	45
2MRE-004-030-345	0.4	2	1.2	3	3	45
2MRE-005-050-350	0.5	2	2	5	3	50
2MRE-006-060-350	0.6	2	3	6	3	50
2MRE-007-070-350	0.7	2	3	7	3	50
2MRE-008-080-350	0.8	2	4	8	3	50
2MRE-009-090-350	0.9	2	4	9	3	50
2MRE-010-050-660	1	2	2.5	5	6	60
2MRE-010-100-365	1	2	5	10	3	65
2MRE-010-100-660	1	2	5	10	6	60
2MRE-010-150-365	1	2	5	15	3	65
2MRE-010-200-380	1	2	5	20	3	80
2MRE-010-250-380	1	2	5	25	3	80
2MRE-015-100-660	1.5	2	5	10	6	60
2MRE-015-150-380	1.5	2	10	15	3	80
2MRE-015-150-660	1.5	2	10	15	6	60
2MRE-015-200-380	1.5	2	10	20	3	80
2MRE-020-100-660	2	2	5	10	6	60
2MRE-020-150-380	2	2	10	15	3	80
2MRE-020-150-660	2	2	10	15	6	60

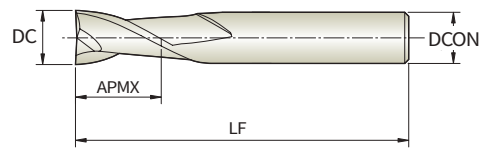
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	유효장 LU	생크경 DCON	전장 LF
2MRE-020-200-380	2	2	10	20	3	80
2MRE-020-250-380	2	2	10	25	3	80
2MRE-020-300-380	2	2	10	30	3	80
2MRE-025-200-380	2.5	2	15	20	3	80
2MRE-030-150-680	3	2	10	15	6	80

2MME

2날 수지가공용 플랫 엔드밀

2 Flutes Flat End Mills For RESIN, PLASTIC, ABS



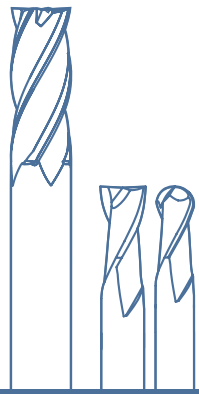
Non | 2 | OD | 30° | page No.318

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2MME-003-010-345	0.3	2	1	3	45
2MME-003-018-345	0.3	2	1.8	3	45
2MME-004-012-345	0.4	2	1.2	3	45
2MME-004-020-345	0.4	2	2	3	45
2MME-005-015-350	0.5	2	1.5	3	50
2MME-005-020-350	0.5	2	2	3	50
2MME-006-030-350	0.6	2	3	3	50
2MME-007-030-350	0.7	2	3	3	50
2MME-008-040-350	0.8	2	4	3	50
2MME-009-040-350	0.9	2	4	3	50
2MME-010-050-365	1	2	5	3	65
2MME-015-100-380	1.5	2	10	3	80
2MME-020-100-380	2	2	10	3	80
2MME-025-150-380	2.5	2	15	3	80
2MME-030-100-365	3	2	10	3	65
2MME-030-100-665	3	2	10	6	65
2MME-030-200-380	3	2	20	3	80
2MME-030-200-3A0	3	2	20	3	100
2MME-030-200-3C0	3	2	20	3	120
2MME-040-200-480	4	2	20	4	80
2MME-040-200-4A0	4	2	20	4	100
2MME-040-250-4C0	4	2	25	4	120
2MME-050-300-5A0	5	2	30	5	100
2MME-050-300-5C0	5	2	30	5	120
2MME-060-250-680	6	2	25	6	80
2MME-060-300-680	6	2	30	6	80

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2MME-060-400-6A0	6	2	40	6	100
2MME-060-400-6C0	6	2	40	6	120
2MME-060-400-6F0	6	2	40	6	150
2MME-080-350-8A0	8	2	35	8	100
2MME-080-450-8C0	8	2	45	8	120
2MME-080-450-8G0	8	2	45	8	160
2MME-100-400-AA0	10	2	40	10	100
2MME-100-500-AC0	10	2	50	10	120
2MME-100-500-AG0	10	2	50	10	160
2MME-120-400-CA0	12	2	40	12	100
2MME-120-500-CC0	12	2	50	12	120
2MME-120-500-CG0	12	2	50	12	160



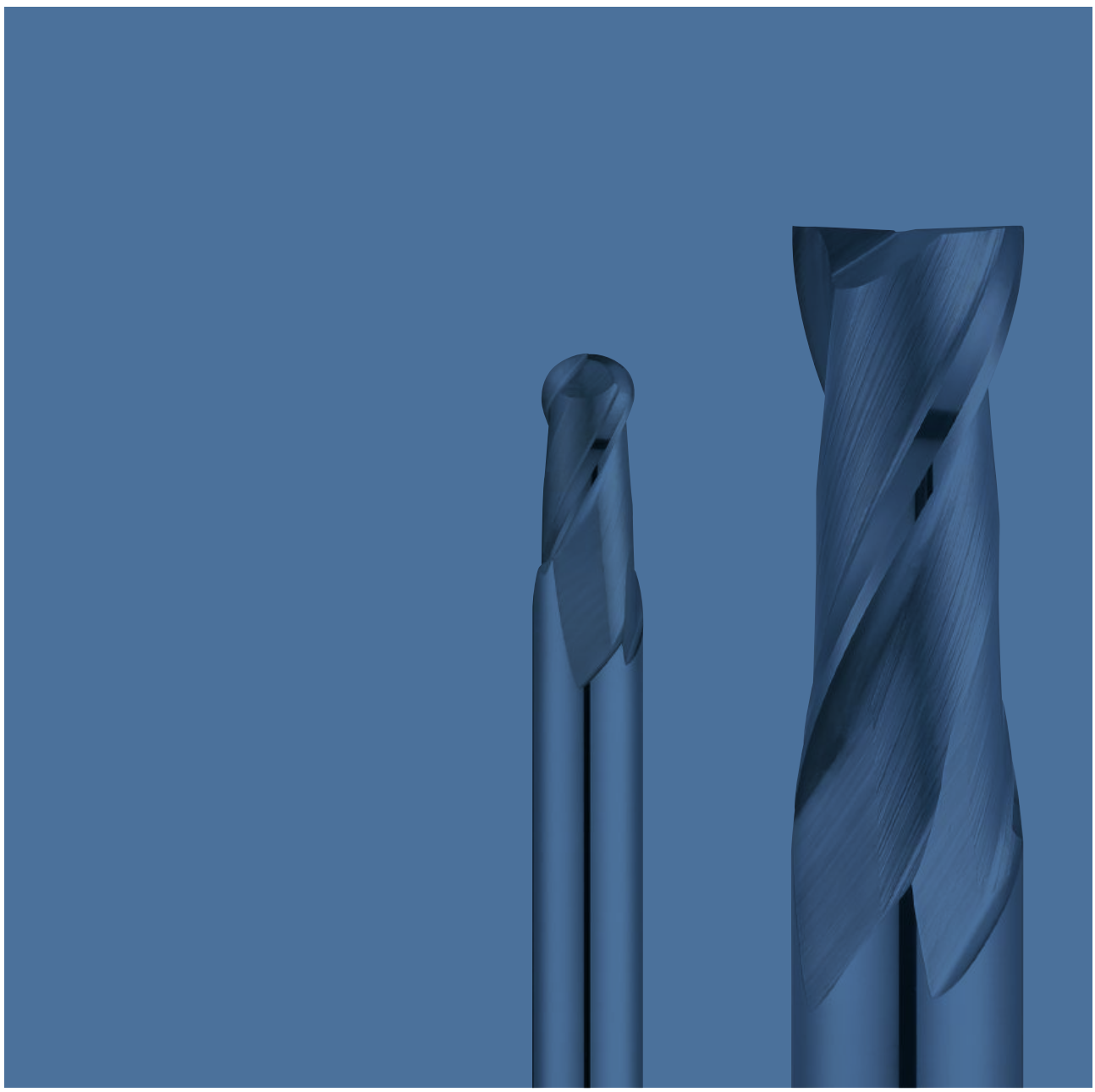
- 일반강, 비철 소재 가공에 적합
- 쾌속 절삭을 위한 예리한 인선
- 뛰어난 가공면 조도

- Mild steel and non-ferrous materials
- Sharp cutting edge for rapid cutting
- Excellent surface finish

전체 타입 All Type

사이즈 DC Size	인선직경공차(mm) DC Tolerance
ALL	-0.005 ~ -0.020

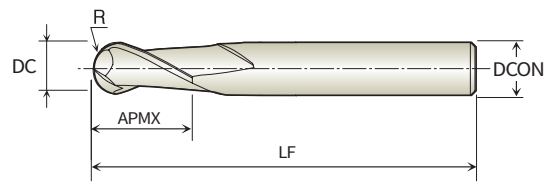
MICRO GRAIN 12



2MGB

초경, 2날 볼 엔드밀

2 Flutes Ball End Mills



Non 2 R 30° page No.319

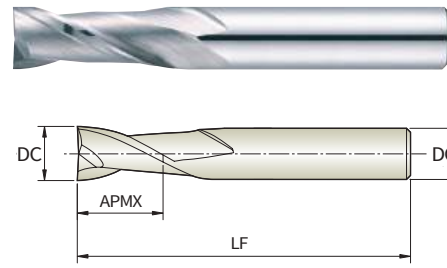
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	반경 RE	날장 APMX	생크경 DCON	전장 LF
2MGB-010-020-650	1	2	R0.5	2	6	50
2MGB-015-040-650	1.5	2	R0.75	4	6	50
2MGB-020-050-660	2	2	R1.0	5	6	60
2MGB-025-060-660	2.5	2	R1.25	6	6	60
2MGB-030-080-660	3	2	R1.5	8	6	60
2MGB-035-080-660	3.5	2	R1.75	8	6	60
2MGB-040-080-670	4	2	R2.0	8	6	70
2MGB-045-080-670	4.5	2	R2.25	8	6	70
2MGB-050-100-680	5	2	R2.5	10	6	80
2MGB-055-100-690	5.5	2	R2.75	10	6	90
2MGB-060-120-690	6	2	R3.0	12	6	90
2MGB-080-140-8A0	8	2	R4.0	14	8	100
2MGB-100-180-AA0	10	2	R5.0	18	10	100
2MGB-120-220-CB0	12	2	R6.0	22	12	110

2MGE

초경, 2날 플랫 엔드밀

2 Flutes Flat End Mills



Non | 2 | OD | 30° | page No.320

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2MGE-010-030-645	1	2	3	6	45
2MGE-012-040-645	1.2	2	4	6	45
2MGE-015-040-645	1.5	2	4	6	45
2MGE-020-060-645	2	2	6	6	45
2MGE-025-080-650	2.5	2	8	6	50
2MGE-030-100-650	3	2	10	6	50
2MGE-035-100-650	3.5	2	10	6	50
2MGE-040-120-650	4	2	12	6	50
2MGE-045-120-650	4.5	2	12	6	50
2MGE-050-150-650	5	2	15	6	50
2MGE-055-150-650	5.5	2	15	6	50
2MGE-060-150-650	6	2	15	6	50
2MGE-065-180-865	6.5	2	18	8	65
2MGE-070-200-865	7	2	20	8	65
2MGE-075-200-865	7.5	2	20	8	65
2MGE-080-200-865	8	2	20	8	65
2MGE-085-230-A70	8.5	2	23	10	70
2MGE-090-230-A70	9	2	23	10	70
2MGE-095-230-A70	9.5	2	23	10	70
2MGE-100-250-A70	10	2	25	10	70
2MGE-105-280-C80	10.5	2	28	12	80
2MGE-110-280-C80	11	2	28	12	80
2MGE-115-280-C80	11.5	2	28	12	80
2MGE-120-300-C80	12	2	30	12	80
2MGE-130-350-E90	13	2	35	14	90
2MGE-140-350-E90	14	2	35	14	90

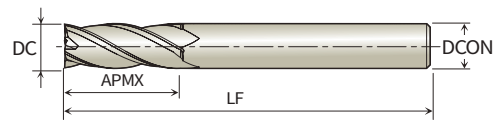
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
2MGE-160-400-G90	16	2	40	16	90
2MGE-180-450-IA0	18	2	45	18	100
2MGE-200-450-KA0	20	2	45	20	100

4MGE

초경, 4날 플랫 엔드밀

4 Flutes Flat End Mills



Non 4 OD 30° page No.321

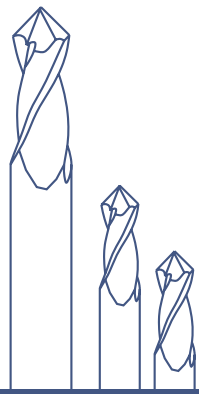
(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4MGE-010-030-645	1	4	3	6	45
4MGE-015-040-645	1.5	4	4	6	45
4MGE-020-060-645	2	4	6	6	45
4MGE-025-080-650	2.5	4	8	6	50
4MGE-030-100-650	3	4	10	6	50
4MGE-035-100-650	3.5	4	10	6	50
4MGE-040-120-650	4	4	12	6	50
4MGE-045-120-650	4.5	4	12	6	50
4MGE-050-150-650	5	4	15	6	50
4MGE-055-150-650	5.5	4	15	6	50
4MGE-060-150-650	6	4	15	6	50
4MGE-065-180-865	6.5	4	18	8	65
4MGE-070-200-865	7	4	20	8	65
4MGE-075-200-865	7.5	4	20	8	65
4MGE-080-200-865	8	4	20	8	65
4MGE-085-230-A70	8.5	4	23	10	70
4MGE-090-230-A70	9	4	23	10	70
4MGE-095-230-A70	9.5	4	23	10	70
4MGE-100-250-A70	10	4	25	10	70
4MGE-105-280-C80	10.5	4	28	12	80
4MGE-110-280-C80	11	4	28	12	80
4MGE-115-280-C80	11.5	4	28	12	80
4MGE-120-300-C80	12	4	30	12	80
4MGE-130-350-E90	13	4	35	14	90
4MGE-140-350-E90	14	4	35	14	90
4MGE-160-400-G90	16	4	40	16	90

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	날장 APMX	생크경 DCON	전장 LF
4MGE-180-450-IA0	18	4	45	18	100
4MGE-200-450-KA0	20	4	45	20	100

MICRO GRAIN



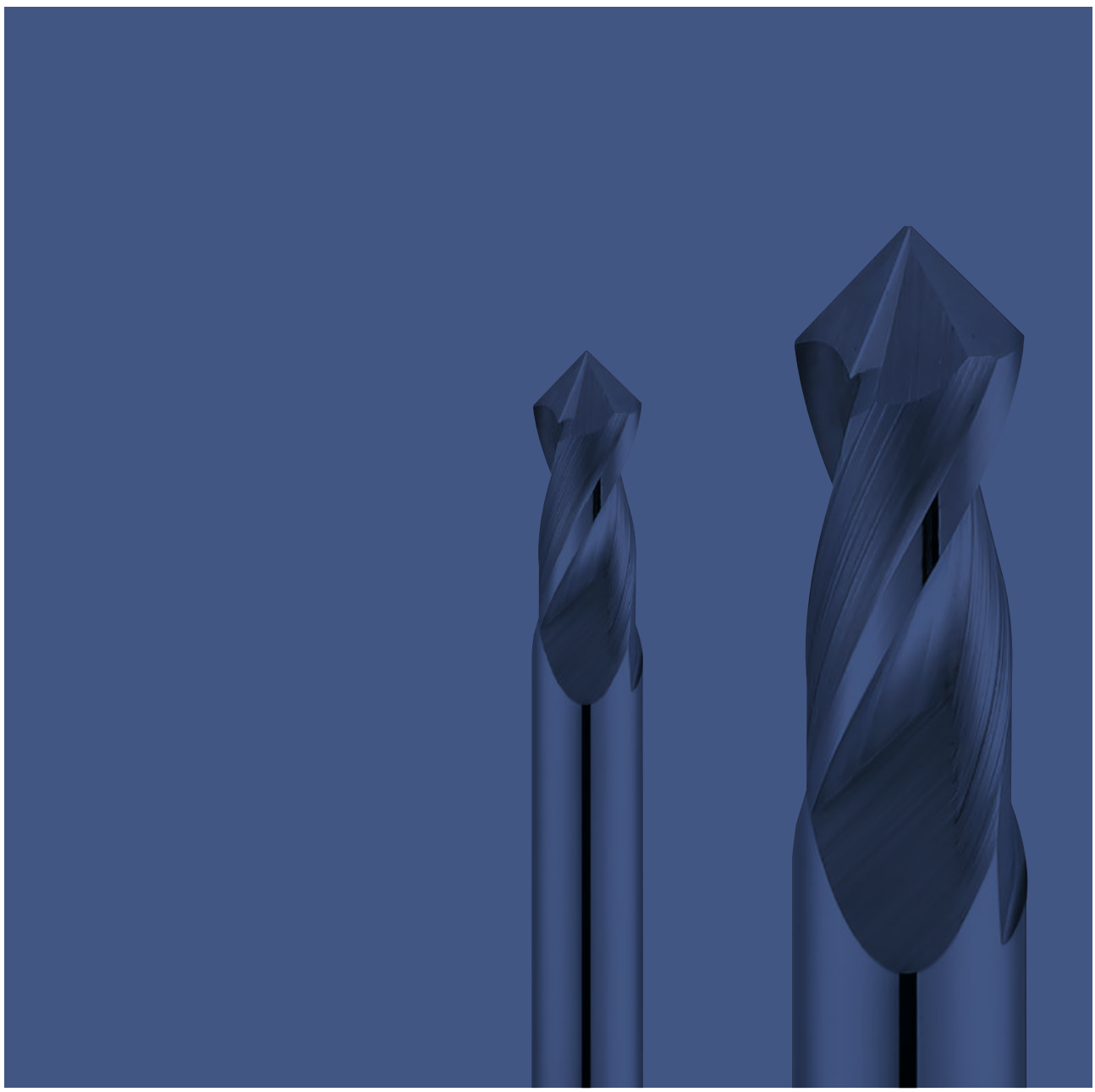
- 센터링 작업 및 모서리 면취, 측면 절삭 가능한 다기능 엔드밀
- 면조도가 뛰어남
- 내마모성 극대화

- Multi-purpose endmill for centering, corner chamfering, side cutting
- Excellent the surface roughness
- Optimized wear-resistant

센터링 Centering

사이즈 DC Size	인선직경공차(mm) DC Tolerance
1 ~ 5	-0.005 ~ -0.015
6 ~ 12	-0.005 ~ -0.025
14 ~ 16	-0.005 ~ -0.030

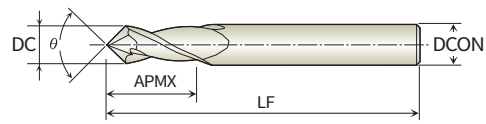
MULTI PURPOSE 13



2CEN

2날 센터링 엔드밀

2 Flutes Centering End Mills



Non ② OD 30° page No.322

(Unit: mm)

제품코드 Product Code	직경 DC	날수 ZEFP	테이퍼각 PSIR	날장 APMX	생크경 DCON	전장 LF
2CEN-003-60˚-006-345	0.3	2	60˚	0.6	3	45
2CEN-003-90˚-006-345	0.3	2	90˚	0.6	3	45
2CEN-005-60˚-010-350	0.5	2	60˚	1	3	50
2CEN-005-90˚-010-350	0.5	2	90˚	1	3	50
2CEN-008-60˚-016-350	0.8	2	60˚	1.6	3	50
2CEN-008-90˚-016-350	0.8	2	90˚	1.6	3	50
2CEN-010-60˚-020-350	1	2	60˚	2	3	50
2CEN-010-90˚-020-350	1	2	90˚	2	3	50
2CEN-020-60˚-040-350	2	2	60˚	4	3	50
2CEN-020-90˚-040-350	2	2	90˚	4	3	50
2CEN-030-60˚-060-350	3	2	60˚	6	3	50
2CEN-030-60˚-060-650	3	2	60˚	6	6	50
2CEN-030-90˚-060-350	3	2	90˚	6	3	50
2CEN-030-90˚-060-650	3	2	90˚	6	6	50
2CEN-030-90˚-060-6A0	3	2	90˚	6	6	100
2CEN-040-60˚-080-650	4	2	60˚	8	6	50
2CEN-040-90˚-080-650	4	2	90˚	8	6	50
2CEN-040-90˚-080-6A0	4	2	90˚	8	6	100
2CEN-050-60˚-100-650	5	2	60˚	10	6	50
2CEN-050-90˚-100-650	5	2	90˚	10	6	50
2CEN-060-60˚-120-660	6	2	60˚	12	6	60
2CEN-060-90˚-120-660	6	2	90˚	12	6	60
2CEN-060-90˚-120-6A0	6	2	90˚	12	6	100
2CEN-080-60˚-160-860	8	2	60˚	16	8	60
2CEN-080-90˚-160-860	8	2	90˚	16	8	60
2CEN-080-90˚-160-8A0	8	2	90˚	16	8	100

(Unit: mm)

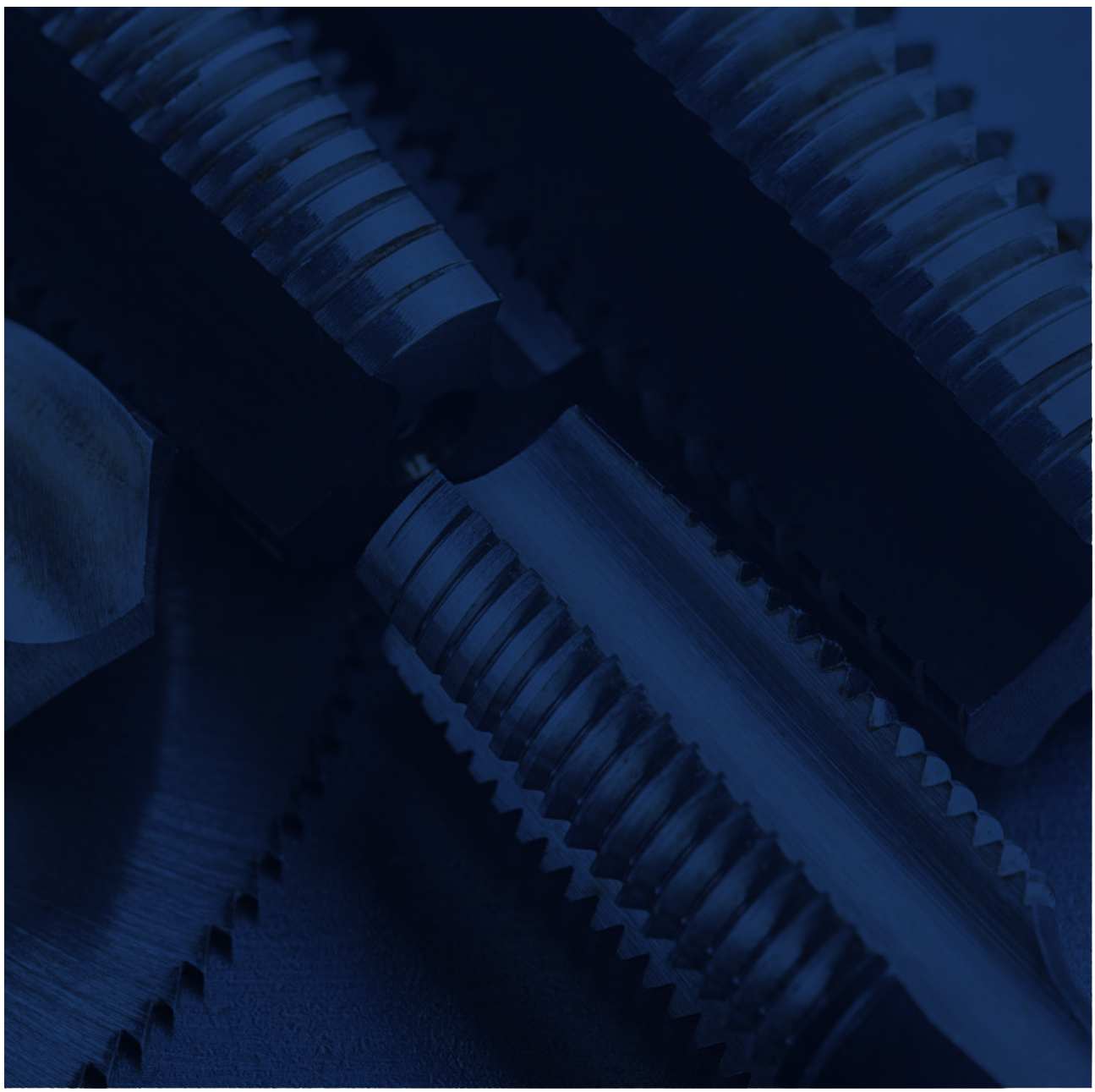
제품코드 Product Code	직경 DC	날수 ZEFP	테이퍼각 PSIR	날장 APMX	생크경 DCON	전장 LF
2CEN-100-60˚-180-A70	10	2	60˚	18	10	70
2CEN-100-90˚-180-A70	10	2	90˚	18	10	70
2CEN-100-90˚-200-AA0	10	2	90˚	20	10	100
2CEN-120-60˚-200-C80	12	2	60˚	20	12	80
2CEN-120-90˚-200-C80	12	2	90˚	20	12	80
2CEN-120-90˚-200-CA0	12	2	90˚	20	12	100
2CEN-140-60˚-260-E80	14	2	60˚	26	14	80
2CEN-140-90˚-260-E80	14	2	90˚	26	14	80
2CEN-160-60˚-320-GA0	16	2	60˚	32	16	100
2CEN-160-90˚-320-GA0	16	2	90˚	32	16	100

⚠ 경고 WARNING

- 가공 중 불꽃 발생으로 인한 화재의 위험이나 공구 파손에 의한 열발생이 일어날 수 있습니다
- 사용 전 반드시 화재 예방 대책이 마련되어 있는지 확인하시기 바랍니다

- Danger of fire by spark incidence or heat caused by tool breakage can happen during processing
- Confirm fire prevention countermeasure beforehand necessarily before use

기술자료
Technical data 14



R-PRO

2RRB & 2RTB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.001~0.005	38,000~60,000	50~120	0.001~0.002	38,000~60,000	40~60	0.001~0.002	38,000~48,000	30~50
R0.1	0.001~0.008	38,000~60,000	200~350	0.001~0.003	38,000~60,000	200~280	0.001~0.003	30,000~38,500	150~240
R0.15	0.004~0.020	38,000~60,000	200~450	0.003~0.005	38,000~60,000	200~400	0.003~0.005	30,000~34,000	150~350
R0.2	0.005~0.020	30,000~50,000	250~500	0.003~0.007	30,000~45,000	200~500	0.003~0.007	25,000~27,000	160~400
R0.25	0.006~0.030	25,000~44,000	300~650	0.003~0.010	25,000~42,000	250~500	0.003~0.010	16,000~27,500	220~400
R0.3	0.006~0.050	22,000~40,000	300~1,300	0.003~0.015	22,000~40,000	250~800	0.003~0.015	16,000~26,700	210~380
R0.4	0.006~0.100	20,000~35,000	260~1,500	0.006~0.017	20,000~40,000	240~1,500	0.006~0.017	16,000~26,700	190~480
R0.5	0.010~0.200	20,000~35,000	500~1,800	0.007~0.020	20,000~38,000	300~2,400	0.007~0.020	16,000~26,700	230~420
R0.6	0.050~0.100	20,000~35,000	600~2,500	0.011~0.015	20,000~30,000	400~2,300	0.011~0.015	23,500~24,800	260~450
R0.75	0.050~0.200	18,000~30,000	600~2,800	0.010~0.025	18,000~30,000	550~2,500	0.010~0.025	18,000~19,800	200~400
R1.0	0.050~0.200	12,000~28,000	800~3,000	0.015~0.030	12,000~20,000	850~2,300	0.015~0.030	10,000~13,000	280~400
R1.5	0.050~0.200	10,000~22,000	1,100~3,000	0.020~0.045	10,000~20,000	900~2,900	0.020~0.045	8,000~10,500	380~550
R2.0	0.100~0.300	10,000~18,000	1,300~3,300	0.030~0.050	10,000~20,000	1,800~3,000	0.030~0.050	7,000~9,000	380~590
R2.5	0.100~0.300	9,000~15,000	1,500~3,700	0.025~0.045	8,000~18,000	1,300~3,800	0.025~0.045	6,500~8,500	450~1,000
R3.0	0.100~0.300	8,000~13,000	1,800~4,000	0.020~0.040	8,000~18,000	1,500~3,800	0.020~0.040	6,500~8,000	450~1,000
R4.0	0.150~0.350	8,000~10,000	2,000~4,000	0.015~0.030	6,000~10,000	1,800~3,700	0.015~0.030	4,500~6,300	800~1,500
R5.0	0.200~0.400	6,000~9,500	2,000~4,000	0.012~0.025	4,000~9,000	1,800~3,700	0.012~0.025	3,000~6,300	800~1,500
R6.0	0.300~0.500	5,000~8,000	2,000~4,000	0.010~0.020	3,000~8,000	1,800~3,700	0.010~0.020	2,500~5,800	800~1,500
Depth of Cut									

⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

R-PRO
2RPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.003	60,000	150	0.002	60,000	100	0.001	52,500	30
R0.1	0.004	60,000	180	0.003	60,000	120	0.002	45,000	60
R0.15	0.005	45,000	310	0.004	43,500	180	0.003	32,500	90
R0.2	0.006	37,500	420	0.005	35,000	240	0.004	26,250	120
R0.25	0.007	33,000	530	0.006	30,000	300	0.005	22,500	150
R0.3	0.008	27,000	1,200	0.007	26,500	800	0.006	20,000	400
R0.4	0.100	24,000	1,600	0.009	23,500	1,000	0.008	17,500	500
R0.5	0.100	21,000	2,000	0.100	21,000	1,750	0.100	16,000	875
R0.75	0.150	17,000	2,000	0.100	18,000	1,750	0.100	14,500	875
R1.0	0.200	14,000	2,000	0.200	15,000	1,750	0.150	11,250	875
R1.25	0.200	12,250	1,100	0.200	12,250	1,800	0.150	9,200	900
R1.5	0.200	10,500	2,150	0.200	10,700	1,850	0.150	8,050	925
R2.0	0.250	9,000	2,200	0.200	9,200	1,900	0.150	6,900	950
R2.5	0.250	7,800	2,300	0.200	7,900	2,000	0.150	5,900	1,000
R3.0	0.300	6,500	2,500	0.250	6,800	2,100	0.150	5,100	1,050
R4.0	0.400	5,200	2,500	0.300	5,700	2,200	0.200	5,300	1,100
R5.0	0.500	4,300	2,200	0.400	4,500	1,900	0.300	3,400	950
R6.0	0.600	3,600	2,000	0.500	3,750	1,750	0.400	2,800	875
R6.5	0.600	3,600	1,750	0.500	3,150	1,500	0.400	2,350	750
R7.0	0.700	3,000	1,750	0.600	2,850	1,350	0.450	2,150	700
R8.0	0.700	2,500	1,500	0.600	2,300	1,200	0.450	1,800	650
R10.0	0.800	2,500	1,300	0.700	2,300	1,200	0.500	1,800	650
Depth of Cut									

⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

R-PRO
2RSB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.002	60,000	150	0.002	60,000	150	0.001	52,500	30
R0.1	0.003	60,000	180	0.002	60,000	180	0.002	45,000	60
R0.15	0.006	60,000	350	0.004	45,000	310	0.003	32,500	90
R0.2	0.010	50,000	500	0.007	37,500	420	0.005	26,250	120
R0.25	0.015	44,000	650	0.010	33,000	550	0.007	22,500	150
R0.3	0.030	40,000	1,100	0.020	30,000	1,200	0.010	20,000	400
R0.4	0.060	35,000	1,600	0.040	27,000	1,600	0.020	17,500	500
R0.5	0.020	30,000	1,750	0.100	24,000	2,000	0.050	16,000	870
R0.6	0.025	30,000	2,000	0.120	21,000	2,000	0.050	14,500	870
R0.75	0.025	30,000	2,450	0.150	17,000	2,000	0.060	11,250	900
R1.0	0.300	28,000	2,900	0.150	14,000	2,100	0.080	9,200	930
R1.5	0.400	24,500	2,950	0.200	12,250	2,150	0.100	8,050	950
R2.0	0.500	21,000	3,000	0.250	10,500	2,200	0.120	6,900	1,000
R2.5	0.500	18,000	3,200	0.250	9,000	2,300	0.150	5,900	1,050
R3.0	0.600	15,600	3,500	0.300	7,800	2,500	0.150	5,000	1,100
R4.0	0.700	13,000	3,000	0.400	6,500	2,500	0.200	4,300	950
R5.0	0.800	9,500	2,500	0.500	5,200	2,200	0.250	3,400	875
R6.0	0.900	7,500	2,000	0.600	4,300	2,000	0.300	2,800	750
Depth of Cut									

⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

R-PRO

3RSB & 3RTB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.5	0.015	24,000	1,500	0.015	16,000	1,200	0.010	9,000	850
R1.0	0.250	14,000	2,100	0.250	9,200	1,800	0.060	8,500	900
R1.5	0.300	12,250	2,150	0.300	8,500	1,800	0.080	8,000	930
R2.0	0.400	10,500	2,200	0.400	6,900	2,000	0.090	6,500	950
R2.5	0.400	9,000	2,300	0.400	5,900	2,100	0.120	5,500	1,000
R3.0	0.450	7,800	2,500	0.450	5,000	2,300	0.120	5,000	1,050
R4.0	0.550	6,500	2,500	0.550	4,300	2,300	0.160	4,000	900
R5.0	0.650	5,200	2,200	0.650	3,400	2,300	0.200	3,000	850
R6.0	0.700	4,300	2,000	0.700	2,800	1,850	0.240	2,500	700
Depth of Cut									

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1. Use a rigid precise machine and holder.
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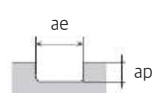
R-PRO

4RR & 4RCR & 4RTR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	0.003~0.030	25,000~30,500	630~670	0.002~0.040	12,000~25,000	300~430	0.002~0.040	10,000~20,000	200~270
1.2	0.007~0.050	25,000~28,500	650~730	0.003~0.040	10,000~25,000	300~460	0.003~0.040	9,000~20,000	200~290
1.5	0.010~0.030	23,000~24,500	680~780	0.005~0.040	9,000~23,000	400~490	0.005~0.040	8,000~20,000	200~300
2.0	0.015~0.050	20,000~22,500	720~800	0.010~0.050	7,000~20,000	400~520	0.010~0.050	6,000~18,000	200~320
3.0	0.020~0.060	16,000~16,500	720~800	0.015~0.070	5,000~16,000	400~520	0.015~0.070	5,000~15,000	200~320
4.0	0.025~0.080	14,000~13,800	750~830	0.025~0.070	4,500~14,000	400~540	0.025~0.070	4,000~10,000	200~335
5.0	0.040~0.100	12,000~13,300	820~950	0.030~0.080	3,500~12,000	400~580	0.030~0.080	3,000~8,000	250~370
6.0	0.040~0.120	12,000~11,900	800~900	0.030~0.080	3,500~12,000	400~560	0.030~0.080	3,000~8,000	250~350
8.0	0.050~0.120	10,000~10,200	780~850	0.040~0.100	4,500~10,000	350~520	0.040~0.100	2,500~7,000	300~330
10.0	0.060~0.120	8,000~9,100	710~790	0.040~0.100	4,000~8,000	300~480	0.040~0.100	2,000~5,000	300~310
12.0	0.070~0.180	7,000~8,500	710~790	0.050~0.120	3,500~7,000	300~480	0.050~0.120	2,000~4,000	300~300
Depth of Cut									

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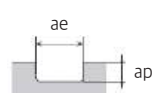
R-PRO
2RRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.1	0.006	38,000~48,000	320~345	0.006	30,000~40,000	220~245	0.006	28,350~37800	180~205
0.2	0.020	30,000~38,500	385~405	0.020	25,000~38,000	285~305	0.020	23,620~35,910	245~265
0.3	0.021	30,000~34,000	325~355	0.021	22,000~35,000	225~255	0.021	20,790~33,000	165~215
0.4	0.040	25,000~27,000	400~440	0.040	18,000~32,000	300~340	0.040	17,000~30,200	260~300
0.5	0.050	16,000~27,500	400~440	0.050	15,000~30,000	300~340	0.050	14,170~28,350	260~300
0.6	0.042	16,000~26,700	600~630	0.045	12,000~25,000	500~530	0.045	11,340~23,620	460~490
0.7	0.070	16,000~26,700	600~630	0.070	12,000~25,000	500~530	0.070	11,340~23,620	460~490
0.8	0.056	16,000~26,700	600~630	0.060	12,000~25,000	500~530	0.060	11,340~23,620	460~490
1.0	0.036	23,500~24,800	545~575	0.040	12,000~20,000	445~475	0.040	11,340~18,900	405~435
1.5	0.100	18,000~19,800	645~670	0.100	8,000~15,000	545~570	0.100	7,560~14,170	505~530
2.0	0.200	10,000~14,800	645~670	0.150	7,000~12,000	545~570	0.150	6,610~11,340	505~530
2.5	0.180	10,000~13,000	675~710	0.200	6,000~12,000	575~610	0.200	5,670~11,340	545~570
3.0	0.210	8,000~10,500	605~635	0.210	5,000~10,000	505~535	0.210	4,720~9,450	465~495
4.0	0.400	7,000~9,000	995~1150	0.370	4,000~9,000	695~750	0.370	3,780~8,500	655~710
5.0	0.090	6,500~8,500	985~1000	0.400	3,500~7,500	685~700	0.400	3,310~7,088	645~660
6.0	0.080	6,500~8,000	915~950	0.170	3,500~7,500	715~750	0.170	6,140~7,080	675~710
8.0	0.100	4,500~6,300	675~710	0.150	2,500~5,000	575~610	0.150	2,360~4,720	535~560
10.0	0.100	3,000~6,300	645~670	0.130	2,000~4,500	545~570	0.130	1,890~4,250	515~530
12.0	0.150	2,500~5,800	545~580	0.100	1,500~3,200	445~480	0.100	1,420~3,020	400~440
Depth of Cut									

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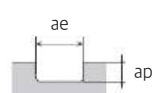
R-PRO
4RRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	0.003~0.030	25,000~38,000	200~1,200	0.002~0.040	12,000~25,000	150~250	0.002~0.010	10,000~20,000	130~155
1.2	0.007~0.050	25,000~33,000	200~1,200	0.003~0.040	10,000~25,000	150~275	0.003~0.010	9,000~20,000	130~170
1.5	0.010~0.030	16,000~28,500	200~1,200	0.005~0.040	9,000~23,000	170~290	0.005~0.015	8,000~20,000	140~185
2.0	0.015~0.050	14,000~26,000	200~1,200	0.010~0.050	7,000~20,000	200~300	0.010~0.020	6,000~18,000	140~200
3.0	0.020~0.060	12,000~17,300	200~1,200	0.015~0.070	5,000~16,000	200~300	0.015~0.025	5,000~15,000	150~230
4.0	0.025~0.080	12,000~13,200	200~1,200	0.025~0.070	4,500~14,000	225~335	0.025~0.030	4,000~10,000	150~250
5.0	0.040~0.100	8,000~12,500	250~800	0.030~0.080	3,500~12,000	225~350	0.030~0.030	3,000~8,000	130~240
6.0	0.040~0.120	7,000~10,350	250~800	0.030~0.080	3,500~12,000	225~330	0.040~0.045	3,000~8,000	130~220
8.0	0.050~0.120	3,500~7,800	300~700	0.040~0.100	4,500~10,000	200~310	0.040~0.060	2,500~7,000	120~200
10.0	0.060~0.120	3,000~6,150	300~700	0.040~0.100	4,000~8,000	200~300	0.040~0.080	2,000~5,000	100~180
12.0	0.070~0.180	3,000~5,250	300~650	0.050~0.120	3,500~7,000	150~250	0.050~0.100	2,000~4,000	100~180
Depth of Cut									

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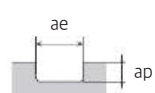
R-PRO

4RPE & 4RLE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	0.003~0.030	30,000~38,000	300~1,800	0.002~0.040	12,000~25,000	200~1,200	0.002~0.010	10,000~20,000	250~700
1.2	0.007~0.050	25,000~32,000	300~1,600	0.003~0.040	10,000~25,000	200~1,200	0.003~0.010	9,000~20,000	280~750
1.5	0.010~0.030	20,000~29,000	400~1,600	0.005~0.040	9,000~23,000	200~1,200	0.005~0.015	8,000~20,000	300~780
2.0	0.015~0.050	19,000~26,000	400~1,600	0.010~0.050	7,000~20,000	200~1,200	0.010~0.020	6,000~18,000	300~800
3.0	0.020~0.060	13,000~18,000	400~1,600	0.015~0.070	5,000~16,000	200~1,200	0.015~0.025	5,000~15,000	330~850
4.0	0.025~0.080	10,000~15,000	400~2,000	0.025~0.070	4,500~14,000	200~1,200	0.025~0.030	4,000~10,000	350~880
5.0	0.040~0.100	5,500~13,000	400~1,000	0.030~0.080	3,500~12,000	250~800	0.030~0.050	3,000~8,000	400~950
6.0	0.040~0.120	5,500~10,500	400~1,000	0.030~0.080	3,500~12,000	250~800	0.030~0.050	3,000~8,000	400~900
8.0	0.050~0.120	3,500~8,000	350~900	0.040~0.100	4,500~10,000	300~700	0.040~0.070	2,500~7,000	330~850
10.0	0.060~0.120	3,000~5,500	300~800	0.040~0.100	4,000~8,000	300~700	0.040~0.100	2,000~5,000	280~750
12.0	0.070~0.180	3,000~4,500	300~800	0.050~0.120	3,500~7,000	300~650	0.050~0.120	2,000~4,000	280~750
Depth of Cut									

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R-PRO
2RTR

High Speed Milling Condition

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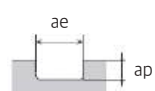
Workpiece	Preharden Steel(NAK, STAVAX)			Hardened Steels(SKD)			Hardened Steels(SKD 11)		
HRC	~ 55			55 ~ 60			60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.1	0.002~0.005	38,000~50,000	40~60	0.002~0.005	32,000~42,000	40~60	0.001~0.004	32,000~42,000	40~60
0.2	0.002~0.005	30,000~50,000	60~100	0.002~0.005	32,000~42,000	60~80	0.001~0.005	32,000~42,000	40~65
0.3	0.005~0.007	30,000~48,000	60~120	0.003~0.006	30,000~36,000	60~100	0.003~0.012	30,000~32,000	40~70
0.4	0.005~0.010	30,000~38,000	80~150	0.003~0.008	28,000~35,000	80~120	0.003~0.011	28,000~30,000	50~85
0.5	0.005~0.020	32,000~40,000	80~150	0.005~0.010	20,000~25,000	80~150	0.003~0.011	20,000~23,000	60~90
0.6	0.006~0.030	32,000~40,000	100~200	0.006~0.020	12,000~25,000	100~180	0.003~0.015	12,000~20,000	60~90
0.8	0.008~0.030	23,000~30,000	250~300	0.008~0.025	12,000~25,000	200~250	0.006~0.021	12,000~18,000	70~100
1	0.010~0.050	14,000~25,000	250~350	0.005~0.050	10,000~20,000	250~300	0.007~0.025	12,000~15,000	70~100
1.5	0.015~0.090	14,000~25,000	300~350	0.005~0.060	8,000~18,000	300~320	0.011~0.020	8,000~13,000	80~100
2	0.020~0.120	9,000~18,000	300~365	0.010~0.050	8,000~16,000	250~280	0.010~0.030	8,000~12,000	80~110
3	0.030~0.150	5,000~17,500	350~380	0.010~0.080	6,000~10,000	265~300	0.015~0.035	6,000~10,000	85~110
4	0.030~0.200	5,000~10,000	350~385	0.025~0.200	4,000~10,000	300~320	0.020~0.050	4,000~8,000	90~110
5	0.100~0.200	5,000~8,500	380~420	0.100~0.200	4,000~10,000	320~330	0.050~0.090	4,000~7,500	90~105
6	0.100~0.200	4,000~8,000	400~420	0.100~0.200	4,000~8,000	330~350	0.030~0.160	4,000~7,200	80~95
8	0.100~0.200	3,500~6,900	400~425	0.100~0.200	3,500~6,500	330~360	0.030~0.160	3,500~6,300	40~70
10	0.100~0.200	3,000~4,100	380~415	0.100~0.200	3,000~5,000	320~335	0.080~0.200	3,000~4,500	50~85
12	0.100~0.200	1,800~3,500	380~410	0.100~0.200	2,300~3,000	325~335	0.080~0.250	2,300~3,000	60~90
Depth of Cut									

⚠ 경고 WARNING

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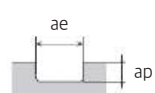
R-PRO
6RCR
High Speed Milling Condition

피삭재	프리하든강		고경도강(열처리강)			
Workpiece	Preharden Steel NAK, STAVAX		Hardened Steels SKD		Hardened Steels SKD 11	
HRC	~ 55		55 ~ 60		60 ~ 65	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
3.0	18,000	1,600	15,000	1,100	13,000	800
4.0	16,000	1,900	12,000	1,200	11,000	850
6.0	12,000	2,200	8,500	1,300	6,500	850
8.0	10,000	2,500	6,000	1,500	3,500	1,000
10.0	6,000	2,500	3,500	1,500	3,200	1,000
12.0	4,800	1,800	2,700	1,000	2,000	700
Depth of Cut						

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H-PRO

2HRB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)						통합금		
Workpiece	Preharden Steel(NAK)			Hardened Steels(SKD, STAVAX)			Hardened Steels(SKD 11)			Copper Aalloy		
HRC	30 ~ 45			45 ~ 55			55 ~ 65					
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.001~0.005	38,000~50,000	50~80	0.001~0.005	38,000~50,000	40~60	0.001~0.004	38,000~50,000	30~50	0.003~0.010	38,000~50,000	50~100
R0.1	0.001~0.010	38,000~50,000	200~350	0.001~0.009	38,000~50,000	200~280	0.001~0.005	38,000~50,000	150~240	0.010~0.020	38,000~50,000	200~500
R0.15	0.004~0.018	38,000~50,000	200~600	0.003~0.014	38,000~50,000	200~400	0.003~0.012	38,000~50,000	150~350	0.010~0.025	38,000~50,000	300~800
R0.2	0.005~0.020	30,000~45,000	250~800	0.003~0.014	30,000~45,000	200~500	0.003~0.011	30,000~45,000	160~400	0.010~0.030	30,000~42,000	300~1,000
R0.25	0.006~0.020	25,000~42,000	300~700	0.004~0.014	25,000~42,000	250~500	0.003~0.011	25,000~42,000	220~400	0.010~0.030	30,000~42,000	500~1,400
R0.3	0.006~0.030	22,000~40,000	300~1,200	0.006~0.030	22,000~40,000	250~800	0.003~0.015	20,000~27,000	210~380	0.010~0.100	24,000~40,000	350~1,600
R0.4	0.006~0.100	20,000~40,000	260~1,800	0.006~0.080	20,000~40,000	240~1,500	0.006~0.021	20,000~40,000	190~480	0.030~0.100	20,000~40,000	450~2,000
R0.5	0.010~0.200	20,000~38,000	500~2,800	0.010~0.080	20,000~38,000	300~2,400	0.007~0.025	12,000~17,000	230~420	0.050~0.200	20,000~40,000	800~3,000
R0.6	0.050~0.100	20,000~30,000	600~2,500	0.020~0.060	20,000~30,000	400~2,300	0.011~0.020	13,000~14,000	260~450	0.060~0.100	20,000~30,000	1,000~2,500
R0.75	0.050~0.200	18,000~30,000	600~3,100	0.020~0.180	18,000~30,000	550~2,500	0.010~0.030	8,500~11,000	200~400	0.100~0.300	18,000~30,000	1,200~3,000
R1.0	0.050~0.200	12,000~25,000	800~2,400	0.030~0.120	12,000~20,000	850~2,300	0.015~0.035	7,000~8,500	280~400	0.100~0.400	12,000~20,000	1,200~3,000
R1.5	0.050~0.200	10,000~20,000	1,100~3,800	0.030~0.180	10,000~20,000	900~2,900	0.020~0.050	5,200~6,000	380~550	0.200~0.500	16,000~20,000	1,800~4,000
R2.0	0.100~0.300	10,000~20,000	1,300~3,900	0.080~0.180	10,000~20,000	1,800~3,000	0.050~0.090	4,000~4,600	380~590	0.300~0.500	16,000~20,000	2,600~4,000
R2.5	0.100~0.300	9,000~20,000	1,500~3,900	0.050~0.200	8,000~18,000	1,300~3,800	0.030~0.160	6,000~16,000	450~1,000	0.300~0.500	9,000~20,000	2,600~4,000
R3.0	0.100~0.300	8,000~18,000	1,800~3,900	0.050~0.200	8,000~18,000	1,500~3,800	0.030~0.160	6,000~16,000	450~1,000	0.300~0.500	8,000~18,000	2,600~4,000
R4.0	0.150~0.350	8,000~12,000	2,000~4,000	0.100~0.250	6,000~10,000	1,800~3,700	0.080~0.200	4,000~8,000	800~1,500	0.300~0.500	8,000~12,000	2,600~5,000
R5.0	0.200~0.400	6,000~11,000	2,000~4,000	0.100~0.300	4,000~9,000	1,800~3,700	0.080~0.250	3,000~8,000	800~1,500	0.300~0.500	6,000~11,000	2,600~5,000
R6.0	0.300~0.500	5,000~10,000	2,000~4,000	0.200~0.400	3,000~8,000	1,800~3,700	0.150~0.350	2,000~6,000	800~1,500	0.300~0.500	5,000~10,000	2,600~5,000
Depth of Cut	ap											

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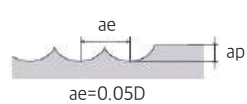
H-PRO
2HSB
High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			"Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.003	50,000	170	0.002	42,000	150	0.001	40,000	100
R0.1	0.004	50,000	200	0.003	42,000	180	0.002	40,000	120
R0.15	0.005	45,000	320	0.004	42,000	300	0.003	40,000	180
R0.2	0.006	45,000	420	0.005	42,000	400	0.004	40,000	240
R0.25	0.007	45,000	530	0.006	42,000	500	0.005	40,000	300
R0.3	0.008	42,000	1,000	0.007	40,000	1,200	0.006	40,000	800
R0.4	0.100	42,000	1,400	0.009	40,000	1,600	0.008	40,000	1,000
R0.5	0.10	40,000	2,600	0.10	30,000	2,000	0.10	25,000	1,300
R0.75	0.15	30,000	3,000	0.10	30,000	2,500	0.10	25,000	1,800
R1.0	0.20	25,000	3,000	0.20	25,000	2,500	0.15	20,000	1,800
R1.25	0.20	25,000	3,000	0.20	20,000	2,500	0.15	16,000	1,800
R1.5	0.20	20,000	3,000	0.20	18,000	2,500	0.15	14,000	2,000
R2.0	0.25	20,000	3,000	0.20	16,000	2,500	0.15	12,000	2,000
R2.5	0.25	18,000	3,000	0.20	14,000	2,500	0.15	9,000	2,000
R3.0	0.30	18,000	3,300	0.25	16,000	2,800	0.15	8,000	2,000
R4.0	0.40	16,000	3,300	0.30	12,000	2,800	0.20	7,000	1,500
R5.0	0.50	13,000	3,400	0.40	10,000	2,600	0.30	5,000	1,300
R6.0	0.60	7,000	2,000	0.50	6,000	1,800	0.40	4,000	1,100
Depth of Cut	 ae=0.05D								

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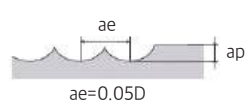
H-PRO

2HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.003	50,000	170	0.002	42,000	150	0.001	40,000	100
R0.1	0.004	50,000	200	0.003	42,000	180	0.002	40,000	120
R0.15	0.005	45,000	320	0.004	42,000	300	0.003	40,000	180
R0.2	0.006	45,000	420	0.005	42,000	400	0.004	40,000	240
R0.25	0.007	45,000	530	0.006	42,000	500	0.005	40,000	300
R0.3	0.008	42,000	1,000	0.007	40,000	1,200	0.006	40,000	800
R0.4	0.100	42,000	1,400	0.009	40,000	1,600	0.008	40,000	1,000
R0.5	0.10	40,000	2,600	0.10	30,000	2,000	0.10	25,000	1,300
R0.75	0.15	30,000	3,000	0.10	30,000	2,500	0.10	25,000	1,800
R1.0	0.20	25,000	3,000	0.20	25,000	2,500	0.15	20,000	1,800
R1.25	0.20	25,000	3,000	0.20	20,000	2,500	0.15	16,000	1,800
R1.5	0.20	20,000	3,000	0.20	18,000	2,500	0.15	14,000	2,000
R2.0	0.25	20,000	3,000	0.20	16,000	2,500	0.15	12,000	2,000
R2.5	0.25	18,000	3,000	0.20	14,000	2,500	0.15	9,000	2,000
R3.0	0.30	18,000	3,300	0.25	16,000	2,800	0.15	8,000	2,000
R4.0	0.40	16,000	3,300	0.30	12,000	2,800	0.20	7,000	1,500
R5.0	0.50	13,000	3,400	0.40	10,000	2,600	0.30	5,000	1,300
R6.0	0.60	7,000	2,000	0.50	6,000	1,800	0.40	4,000	1,100
R6.5	0.60	7,000	2,000	0.50	6,000	1,800	0.40	4,000	1,100
R7.0	0.70	5,000	1,800	0.60	4,000	1,300	0.45	3,000	800
R8.0	0.70	4,000	1,500	0.60	3,500	1,000	0.45	2,500	800
R10.0	0.80	2,500	1,200	0.70	2,000	1,000	0.50	1,800	800
Depth of Cut	 ae=0.05D								

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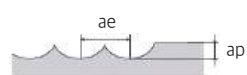
H-PRO

3HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.5	0.08	27,500	1,650	0.08	22,000	1,400	0.05	11,000	1,000
R0.75	0.12	24,000	1,650	0.12	20,000	1,400	0.08	10,000	1,000
R1.0	0.15	22,000	1,650	0.15	18,000	1,800	0.10	9,500	1,200
R1.25	0.20	20,000	2,200	0.20	14,000	1,800	0.13	7,000	1,200
R1.5	0.23	18,000	2,200	0.23	12,000	1,800	0.15	6,500	1,200
R2.0	0.30	16,500	3,300	0.30	10,000	3,500	0.20	6,000	2,000
R2.5	0.38	11,000	2,800	0.38	9,500	4,000	0.25	6,000	2,000
R3.0	0.45	10,000	2,800	0.45	9,000	4,000	0.30	5,500	2,000
R4.0	0.60	70,000	3,500	0.60	7,000	3,500	0.40	5,000	1,800
R5.0	0.75	5,500	3,300	0.75	5,000	3,200	0.50	4,000	1,800
R6.0	0.90	4,500	3,300	0.90	4,000	3,200	0.60	3,300	1,800
Depth of Cut									

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4. Adjust both Spindle speed and Feedrate by the same proportion.
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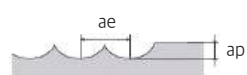
H-PRO

4HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.5	0.08	25,000	1,500	0.08	20,000	1,200	0.05	10,000	1,000
R0.75	0.12	22,000	1,500	0.12	18,000	1,200	0.08	9,500	1,000
R1.0	0.15	20,000	1,500	0.15	16,000	1,500	0.10	8,500	1,200
R1.25	0.20	18,000	2,000	0.20	13,000	1,500	0.13	6,500	1,200
R1.5	0.23	16,000	2,000	0.23	10,500	1,500	0.15	5,500	1,200
R2.0	0.30	15,000	3,000	0.30	9,000	3,000	0.20	6,200	2,000
R2.5	0.38	10,000	2,500	0.38	8,500	3,500	0.25	5,500	2,000
R3.0	0.45	9,000	2,500	0.45	8,000	3,500	0.30	5,000	2,000
R4.0	0.60	6,500	3,300	0.60	6,200	3,000	0.40	4,500	1,800
R5.0	0.75	5,000	3,000	0.75	4,500	2,700	0.50	3,600	1,800
R6.0	0.90	4,000	3,000	0.90	3,750	2,700	0.60	3,000	1,800
Depth of Cut									

⚠ 경고 WARNING

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2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

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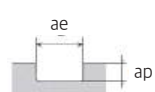
H-PRO

2HRR & 2HCR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			통합금		
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Copper Aalloy		
HRC	30 ~ 45			45 ~ 55					
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.2	0.002~0.005	30,000~38,000	80~150	0.002~0.005	32,000~42,000	60~120	0.002~0.005	30,000~38,000	120~220
0.3	0.005~0.007	28,000~35,000	100~200	0.003~0.006	30,000~36,000	80~160	0.005~0.018	28,000~35,000	180~260
0.4	0.005~0.010	25,000~30,000	200~350	0.003~0.008	28,000~35,000	120~300	0.005~0.024	25,000~30,000	200~360
0.5	0.005~0.020	18,000~30,000	200~500	0.005~0.010	20,000~25,000	150~350	0.005~0.030	22,000~30,000	220~600
0.6	0.006~0.030	18,000~30,000	180~600	0.006~0.020	12,000~25,000	100~400	0.006~0.030	18,000~30,000	250~650
0.7	0.007~0.030	18,000~30,000	140~650	0.007~0.020	12,000~25,000	100~450	0.007~0.050	18,000~30,000	250~700
0.8	0.008~0.030	14,000~25,000	250~1,100	0.008~0.025	12,000~25,000	150~900	0.008~0.060	14,000~25,000	400~1,400
1.0	0.010~0.050	14,000~25,000	250~1,100	0.005~0.050	10,000~20,000	150~900	0.010~0.080	14,000~25,000	500~2,000
1.2	0.010~0.050	11,000~25,000	300~1,100	0.008~0.050	10,000~18,000	150~800	0.010~0.080	11,000~25,000	600~2,000
1.5	0.015~0.090	10,000~20,000	300~1,600	0.005~0.060	8,000~18,000	180~1,000	0.015~0.090	10,000~20,000	800~2,000
2.0	0.020~0.120	9,000~18,000	300~2,000	0.010~0.050	8,000~16,000	250~1,000	0.020~0.130	9,000~18,000	1,200~2,500
2.5	0.050~0.130	8,000~18,000	300~2,000	0.035~0.070	8,000~16,000	250~1,000	0.050~0.130	8,000~18,000	1,200~2,800
3.0	0.030~0.150	5,000~18,000	400~1,800	0.010~0.080	6,000~10,000	250~1,000	0.030~0.200	5,000~18,000	1,500~3,000
4.0	0.030~0.200	5,000~14,000	500~1,500	0.025~0.200	4,000~10,000	300~1,000	0.030~0.300	5,000~14,000	1,500~3,200
5.0	0.100~0.200	5,000~14,000	500~1,800	0.100~0.200	4,000~13,000	400~1,500	0.100~0.400	5,000~14,000	1,500~3,200
6.0	0.100~0.200	4,000~9,000	1,000~2,000	0.100~0.200	4,000~13,000	800~1,200	0.200~0.400	8,000~14,000	2,500~3,500
8.0	0.100~0.200	3,500~6,000	1,000~2,000	0.100~0.200	3,500~7,500	800~1,200	0.200~0.400	7,000~12,000	2,500~4,000
10.0	0.100~0.200	3,000~5,000	1,000~2,000	0.100~0.200	3,000~6,000	800~1,200	0.200~0.400	5,000~12,000	2,500~4,500
12.0	0.100~0.200	3,000~5,000	1,000~2,000	0.100~0.200	3,000~5,000	800~1,200	0.200~0.400	3,000~9,000	2,500~4,500
16.0	0.100~0.200	1,800~3,000	1,000~2,000	0.100~0.200	1,800~3,000	800~1,200	0.200~0.400	1,800~3,000	2,500~4,500
20.0	0.100~0.200	1,200~2,500	1,000~2,000	0.100~0.200	1,200~2,500	800~1,200	0.200~0.400	1,200~2,500	2,500~4,500
Depth of Cut									

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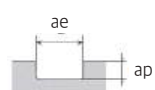
H-PRO

4HRR & 4HCR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.8	0.006~0.030	12,000~25,000	250~1,000	0.004~0.025	12,000~25,000	250~1,000	0.002~0.020	12,000~25,000	250~1,000
1.0	0.007~0.050	10,000~25,000	600~2,000	0.005~0.040	8,000~20,000	500~1,800	0.003~0.030	5,000~16,000	500~1,800
1.2	0.009~0.045	10,000~25,000	500~1,000	0.006~0.040	8,000~20,000	500~1,800	0.004~0.030	8,000~20,000	500~1,800
1.5	0.010~0.050	8,000~20,000	450~2,000	0.007~0.040	7,000~20,000	350~1,600	0.005~0.030	5,000~15,000	350~1,600
2.0	0.015~0.060	7,000~18,000	500~1,800	0.010~0.050	8,000~15,000	450~1,500	0.005~0.030	5,000~12,000	450~1,500
2.5	0.030~0.070	7,000~14,000	600~1,500	0.020~0.050	8,000~15,000	500~1,400	0.008~0.030	4,500~10,000	500~1,400
3.0	0.020~0.100	5,000~18,000	700~2,200	0.015~0.060	6,000~12,000	600~1,800	0.008~0.030	4,500~10,000	600~1,800
4.0	0.025~0.100	4,500~12,000	700~2,000	0.010~0.060	4,000~10,000	600~1,500	0.008~0.050	3,000~8,500	600~1,500
5.0	0.100~0.200	5,000~8,000	1,000~2,000	0.050~0.100	3,500~10,000	1,000~1,600	0.030~0.050	3,500~7,000	800~1,300
6.0	0.050~0.150	4,000~10,000	2,000~3,500	0.030~0.100	3,500~10,000	2,000~3,000	0.010~0.060	3,500~7,000	1,200~2,000
8.0	0.050~0.150	6,500~9,000	2,500~3,600	0.030~0.100	5,000~7,500	2,000~3,000	0.020~0.050	4,500~6,000	1,500~2,500
10.0	0.050~0.150	5,000~7,500	2,300~3,000	0.030~0.100	4,000~6,000	1,800~2,300	0.020~0.050	3,500~5,500	1,200~2,000
12.0	0.050~0.200	3,000~5,000	1,700~2,500	0.030~0.120	3,000~5,000	1,500~2,000	0.020~0.050	2,800~4,000	1,000~1,600
16.0	0.050~0.200	1,500~2,800	1,500~3,000	0.030~0.120	1,500~2,800	1,500~2,000	0.020~0.050	2,800~4,000	1,000~1,600
20.0	0.050~0.200	1,200~2,500	1,500~3,000	0.030~0.120	1,200~2,500	1,500~2,000	0.020~0.050	2,800~4,000	1,000~1,600
Depth of Cut									

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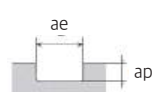
H-PRO
4HIT
High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.5	0.030~0.050	28,000~38,000	2,500~6,000	0.030~0.050	20,000~30,000	2,000~5,000	0.005~0.015	15,000~25,000	1,000~4,000
2.0	0.050~0.100	25,000~35,000	3,500~8,000	0.050~0.100	20,000~28,000	2,500~7,000	0.005~0.025	15,000~22,000	1,500~6,000
3.0	0.050~0.100	20,000~27,000	5,000~8,000	0.050~0.100	15,000~23,000	4,000~7,000	0.008~0.025	10,000~18,000	3,000~6,000
4.0	0.050~0.100	13,000~18,000	5,000~8,000	0.050~0.100	8,000~15,000	4,000~7,000	0.008~0.050	6,000~12,000	3,000~6,000
5.0	0.050~0.150	8,000~13,000	5,000~8,000	0.050~0.150	6,500~10,000	4,000~7,000	0.030~0.050	4,500~8,000	3,000~6,000
6.0	0.050~0.150	8,000~13,000	5,000~8,000	0.050~0.150	6,500~10,000	4,000~7,000	0.010~0.050	4,500~8,000	3,000~6,000
8.0	0.050~0.150	6,000~9,500	5,000~9,000	0.050~0.150	5,000~7,500	4,000~8,000	0.020~0.050	4,000~6,500	3,000~7,000
10.0	0.050~0.150	6,000~8,000	5,000~10,000	0.050~0.150	4,000~7,000	4,000~9,000	0.020~0.050	3,000~5,500	3,000~7,000
12.0	0.050~0.150	5,000~7,000	5,000~10,000	0.050~0.150	4,000~6,000	4,000~9,000	0.020~0.050	3,000~5,000	3,000~7,000
Depth of Cut									

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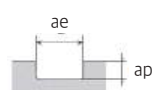
H-PRO

2HRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.1	0.001~0.004	38,000~50,000	50~80	0.001~0.004	35,000~45,000	30~65	0.001~0.002	25,000~35,000	20~60
0.2	0.002~0.005	30,000~50,000	60~240	0.002~0.005	25,000~40,000	40~200	0.002~0.003	20,000~32,000	30~160
0.3	0.003~0.007	30,000~48,000	60~350	0.003~0.007	22,000~38,000	45~300	0.002~0.003	18,000~30,000	35~250
0.4	0.003~0.010	25,000~40,000	150~500	0.003~0.010	20,000~35,000	100~400	0.002~0.005	18,000~30,000	80~350
0.5	0.003~0.020	16,000~30,000	150~500	0.003~0.020	16,000~30,000	100~400	0.001~0.007	12,000~23,000	80~360
0.6	0.004~0.020	16,000~30,000	230~620	0.004~0.020	16,000~28,000	130~500	0.002~0.007	12,000~23,000	100~400
0.7	0.010~0.040	16,000~30,000	330~650	0.005~0.040	16,000~25,000	130~550	0.003~0.020	12,000~23,000	100~450
0.8	0.005~0.040	16,000~30,000	250~900	0.005~0.040	13,500~23,000	150~800	0.002~0.040	10,000~20,000	100~650
1.0	0.005~0.050	12,000~27,000	150~1,000	0.003~0.050	10,000~23,000	60~900	0.002~0.040	6,000~18,000	50~800
1.2	0.010~0.050	12,500~25,000	350~1,000	0.007~0.050	10,000~23,000	250~900	0.003~0.040	7,000~18,000	200~800
1.5	0.010~0.070	9,000~23,000	300~1,200	0.010~0.060	8,000~20,000	200~900	0.005~0.040	7,000~18,000	150~800
2.0	0.015~0.080	7,000~20,000	280~1,000	0.015~0.060	7,000~18,000	180~900	0.010~0.050	7,000~15,000	160~750
3.0	0.030~0.100	5,000~16,000	350~900	0.020~0.100	6,000~16,000	250~800	0.015~0.070	6,000~10,000	200~700
4.0	0.035~0.100	4,500~14,000	350~900	0.035~0.100	5,000~12,000	250~800	0.025~0.070	5,000~9,500	200~700
5.0	0.050~0.120	3,500~12,000	400~1,000	0.040~0.100	4,000~10,000	300~900	0.030~0.080	3,000~8,000	250~800
6.0	0.050~0.120	3,500~12,000	400~1,000	0.040~0.120	4,000~10,000	300~900	0.030~0.080	3,000~8,000	250~800
8.0	0.060~0.150	4,500~10,000	450~1,000	0.050~0.120	3,500~9,000	350~900	0.040~0.100	2,500~7,000	300~800
10.0	0.080~0.150	4,000~8,000	500~1,000	0.060~0.120	3,000~7,000	400~900	0.040~0.100	2,000~5,000	300~800
12.0	0.080~0.200	3,500~7,000	500~1,000	0.070~0.180	2,500~6,000	400~900	0.050~0.120	1,500~4,000	300~800
Depth of Cut									

⚠ 경고 WARNING

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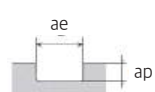
H-PRO
2HPE
High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.1	0.01	38,000~50,000	50~80	0.005	32,000~45,000	50~80	0.003	30,000~40,000	50~80
0.2	0.02	30,000~50,000	60~240	0.010	28,000~42,000	60~240	0.005	25,000~38,000	50~100
0.3	0.03	30,000~48,000	60~350	0.015	25,000~40,000	60~350	0.008	22,000~35,000	60~150
0.4	0.04	25,000~40,000	150~500	0.020	20,000~35,000	150~500	0.010	18,000~32,000	70~150
0.5	0.05	16,000~30,000	150~500	0.025	12,000~25,000	150~500	0.013	15,000~30,000	70~150
0.6	0.06	16,000~30,000	230~620	0.03	12,000~25,000	230~620	0.02	12,000~25,000	80~150
0.7	0.07	16,000~30,000	330~650	0.04	12,000~25,000	330~650	0.02	12,000~25,000	80~150
0.8	0.08	16,000~30,000	250~900	0.04	12,000~25,000	250~900	0.02	12,000~25,000	80~150
1.0	0.10	25,000~32,000	150~500	0.05	16,000~24,000	150~500	0.03	12,000~20,000	90~120
1.5	0.15	18,000~25,000	200~500	0.08	10,000~15,000	200~500	0.04	8,000~15,000	100~150
2.0	0.20	16,000~20,000	200~500	0.10	8,000~13,000	200~500	0.05	7,000~12,000	100~150
2.5	0.25	10,000~15,000	200~500	0.13	7,000~12,000	200~500	0.06	6,000~12,000	120~230
3.0	0.30	8,000~13,000	200~500	0.15	6,000~11,000	200~500	0.08	5,000~10,000	150~250
4.0	0.40	7,000~12,000	200~600	0.20	5,000~10,000	200~600	0.10	4,000~9,000	150~250
5.0	0.50	6,500~10,000	200~500	0.25	4,000~8,500	200~500	0.13	3,500~7,500	150~230
6.0	0.60	6,500~10,000	200~600	0.30	4,000~8,500	200~600	0.15	3,500~7,500	150~230
8.0	1.20	4,500~8,000	200~400	0.40	2,500~6,500	150~400	0.20	2,500~5,000	120~200
10.0	1.50	3,000~6,000	200~400	0.50	2,000~5,500	150~400	0.25	2,000~4,500	120~200
12.0	1.80	2,500~5,000	200~400	0.60	1,500~3,500	150~400	0.30	1,500~3,200	120~200
Depth of Cut									

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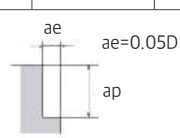
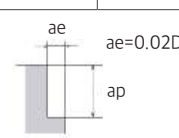
H-PRO
2HLE

Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	1.0	10,000~15,000	40~80	1.0	7,000~12,000	40~80	0.5	7,000~12,000	40~80
1.5	1.5	9,000~13,000	40~80	1.5	6,000~10,000	40~80	0.75	6,000~10,000	40~80
2.0	2.0	5,000~8,000	40~80	2.0	3,000~6,000	40~80	1.0	3,000~6,000	40~80
2.5	2.5	4,500~7,000	40~80	2.5	2,500~5,000	40~80	1.25	2,500~5,000	40~80
3.0	3.0	4,000~6,000	40~80	3.0	2,000~4,000	40~80	1.5	2,000~4,000	40~80
4.0	4.0	3,000~5,000	50~100	4.0	1,500~3,000	50~100	2.0	1,500~3,000	50~100
5.0	5.0	2,500~4,500	50~100	5.0	1,500~2,500	50~100	2.5	1,500~2,500	50~100
6.0	6.0	2,000~4,000	50~100	6.0	1,500~2,000	50~100	3.0	1,500~2,000	50~100
8.0	8.0	1,800~2,500	50~100	8.0	1,800~2,500	50~100	4.0	1,800~2,500	50~100
10.0	10.0	1,500~2,000	50~100	10.0	1,500~2,000	50~100	5.0	1,500~2,000	50~100
12.0	12.0	1,200~1,800	40~80	12.0	600~1,000	40~80	6.0	600~1,000	40~80
16.0	16.0	800~1,500	40~80	16.0	400~800	40~80	8.0	400~800	40~80
20.0	20.0	700~1,200	40~80	20.0	300~700	40~80	10.0	300~700	40~80
25.0	25.0	500~800	40~80	25.0	250~600	40~80	12.5	250~600	40~80
Depth of Cut									

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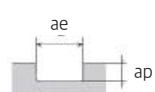
H-PRO
4HRE
High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.8	0.005~0.040	15,000~28,000	250~900	0.005~0.025	12,000~25,000	250~900	0.002~0.040	10,000~20,000	100~650
1.0	0.010~0.050	12,000~25,000	400~2,000	0.003~0.030	10,000~20,000	300~1,800	0.002~0.040	8,000~18,000	200~1,200
1.2	0.010~0.050	10,000~25,000	500~2,000	0.007~0.050	9,000~20,000	300~1,600	0.003~0.040	7,000~18,000	200~1,200
1.5	0.020~0.060	9,000~23,000	700~2,000	0.010~0.030	8,000~20,000	400~1,600	0.005~0.040	7,000~18,000	200~1,200
2.0	0.030~0.080	7,000~20,000	800~2,000	0.015~0.050	6,000~18,000	400~1,600	0.010~0.050	5,000~15,000	200~1,200
3.0	0.050~0.100	5,000~16,000	800~2,000	0.020~0.060	5,000~15,000	400~1,600	0.015~0.070	4,000~10,000	200~1,200
4.0	0.050~0.150	4,500~14,000	800~2,000	0.025~0.080	4,000~10,000	400~2,000	0.025~0.070	3,000~8,000	200~1,200
5.0	0.050~0.120	3,500~12,000	600~1,500	0.040~0.100	3,000~8,000	400~1,000	0.030~0.080	2,500~6,000	250~800
6.0	0.050~0.120	3,500~12,000	600~1,500	0.040~0.120	3,000~8,000	400~1,000	0.030~0.080	2,500~6,000	250~800
8.0	0.060~0.150	4,500~10,000	450~1,000	0.050~0.120	2,500~7,000	350~900	0.040~0.100	2,000~5,000	300~700
10.0	0.080~0.150	4,000~8,000	500~1,000	0.060~0.120	2,000~5,000	300~800	0.040~0.100	2,000~4,500	300~700
12.0	0.080~0.200	3,500~7,000	500~1,000	0.070~0.180	2,000~4,000	300~800	0.050~0.120	1,500~4,000	300~650
Depth of Cut									

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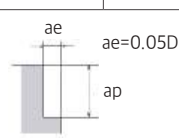
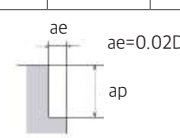
H-PRO

4HLE

Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, HPM)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	1.0	10,000~15,000	40~80	1.0	7,000~12,000	40~80	0.5	7,000~12,000	40~80
1.5	1.5	9,000~13,000	40~80	1.5	6,000~10,000	40~80	0.75	6,000~10,000	40~80
2.0	2.0	5,000~8,000	40~80	2.0	3,000~6,000	40~80	1.0	3,000~6,000	40~80
2.5	2.5	4,500~7,000	40~80	2.5	2,500~5,000	40~80	1.25	2,500~5,000	40~80
3.0	3.0	4,000~6,000	40~80	3.0	2,000~4,000	40~80	1.5	2,000~4,000	40~80
4.0	4.0	3,000~5,000	50~100	4.0	1,500~3,000	50~100	2.0	1,500~3,000	50~100
5.0	5.0	2,500~4,500	50~100	5.0	1,500~2,500	50~100	2.5	1,500~2,500	50~100
6.0	6.0	2,000~4,000	50~100	6.0	1,500~2,000	50~100	3.0	1,500~2,000	50~100
8.0	8.0	1,800~2,500	50~100	8.0	1,800~2,500	50~100	4.0	1,800~2,500	50~100
10.0	10.0	1,500~2,000	50~100	10.0	1,500~2,000	50~100	5.0	1,500~2,000	50~100
12.0	12.0	1,200~1,800	40~80	12.0	600~1,000	40~80	6.0	600~1,000	40~80
16.0	16.0	800~1,500	40~80	16.0	400~800	40~80	8.0	400~800	40~80
20.0	20.0	700~1,200	40~80	20.0	300~700	40~80	10.0	300~700	40~80
25.0	25.0	500~800	40~80	25.0	250~600	40~80	12.5	250~600	40~80
Depth of Cut									

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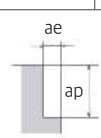
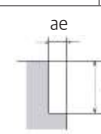
H-PRO

4HPE

Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.8	0.04	15,000~28,000	250~900	0.04	12,000~25,000	250~900	0.010	10,000~20,000	100~650
1.0	0.05	12,000~25,000	400~2,000	0.05	10,000~20,000	300~1,800	0.02	8,000~18,000	200~1,200
1.2	0.06	10,000~25,000	500~2,000	0.06	9,000~20,000	300~1,600	0.02	7,000~18,000	200~1,200
1.5	0.08	9,000~23,000	700~2,000	0.08	8,000~20,000	400~1,600	0.03	7,000~18,000	200~1,200
2.0	0.10	7,000~20,000	800~2,000	0.10	6,000~18,000	400~1,600	0.04	5,000~15,000	200~1,200
3.0	0.30	5,000~16,000	800~2,000	0.30	5,000~15,000	400~1,600	0.06	4,000~10,000	200~1,200
4.0	0.40	4,500~14,000	800~2,000	0.40	4,000~10,000	400~2,000	0.08	3,000~8,000	200~1,200
5.0	0.50	3,500~12,000	600~1,500	0.50	3,000~8,000	400~1,000	0.10	2,500~6,000	250~800
6.0	0.60	3,500~12,000	600~1,500	0.60	3,000~8,000	400~1,000	0.12	2,500~6,000	250~800
8.0	1.20	2,500~10,000	450~1,000	0.80	2,500~7,000	350~900	0.16	2,000~5,000	300~700
10.0	1.50	2,000~7,500	500~1,000	1.00	2,000~5,000	300~800	0.20	2,000~4,500	300~700
12.0	1.80	1,800~7,000	500~1,000	1.20	2,000~4,000	300~800	0.24	1,500~4,000	300~650
Depth of Cut	 ap=1.5D ae=0.05D (0.8 ≤ D ≤ Ø2) ae=0.10D (3 ≤ D ≤ Ø6) ae=0.15D (7 ≤ D ≤ Ø12)			 ae=0.03D					

⚠ 경고 WARNING

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3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
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5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

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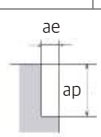
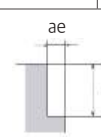
H-PRO
4HHE

Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel(NAK)			Hardened Steels(SKD 61, STAVAX)			Hardened Steels(SKD 11)		
HRC	30 ~ 45			45 ~ 55			55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	0.05	12,000~25,000	400~2,000	0.05	10,000~20,000	300~1,800	0.02	8,000~18,000	200~1,200
1.2	0.06	10,000~25,000	500~2,000	0.06	9,000~20,000	300~1,600	0.02	7,000~18,000	200~1,200
1.5	0.08	9,000~23,000	700~2,000	0.08	8,000~20,000	400~1,600	0.03	7,000~18,000	200~1,200
2.0	0.10	7,000~20,000	800~2,000	0.10	6,000~18,000	400~1,600	0.04	5,000~15,000	200~1,200
3.0	0.30	5,000~16,000	800~2,000	0.30	5,000~15,000	400~1,600	0.06	4,000~10,000	200~1,200
4.0	0.40	4,500~14,000	800~2,000	0.40	4,000~10,000	400~2,000	0.08	3,000~8,000	200~1,200
5.0	0.50	3,500~12,000	600~1,500	0.50	3,000~8,000	400~1,000	0.10	2,500~6,000	250~800
6.0	0.60	3,500~12,000	600~1,500	0.60	3,000~8,000	400~1,000	0.12	2,500~6,000	250~800
8.0	1.20	2,500~10,000	450~1,000	1.20	2,500~7,000	350~900	0.16	2,000~5,000	300~700
10.0	1.50	2,000~7,500	500~1,000	1.50	2,000~5,000	300~800	0.20	2,000~4,500	300~700
12.0	1.80	1,800~7,000	500~1,000	1.80	2,000~4,000	300~800	0.24	1,500~4,000	300~650
Depth of Cut	 ap=1.5D ae=0.05D (0.8 ≤ D ≤ Ø2) ae=0.10D (3 ≤ D ≤ Ø6) ae=0.15D (7 ≤ D ≤ Ø12)			 ae=0.03D					

⚠ 경고 WARNING

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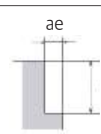
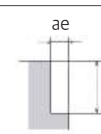
H-PRO

6HPE

High Speed Milling Condition

피삭재	프리하든강		고경도강(열처리강)					
Workpiece	Preharden Steel(NAK, CENA 1)		Hardened Steels(SKD 61, STAVAX)		Hardened Steels(SKD 11, SKD 61)		Hardened Steels(ASP)	
HRC	30 ~ 45		45 ~ 55		55 ~ 65		65 ~ 70	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6.0	13,000	4,400	11,000	3,300	8,000	2,200	5,300	1,300
8.0	10,000	4,500	8,000	3,200	6,000	2,200	4,000	1,300
10.0	8,000	4,300	6,400	3,050	4,800	2,100	3,200	1,250
12.0	6,600	4,000	5,300	2,800	4,000	1,900	2,700	1,170
16.0	5,000	3,800	4,000	2,650	3,000	1,800	2,000	1,100
20.0	4,000	3,600	3,200	2,530	2,400	1,730	1,600	1,050
Depth of Cut	 ap=1.0D ae=0.05D				 ap=1.0D ae=0.03D			

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H-PRO
2IRC

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels (S45C, SCM440, SCr415)		Alloy Steels (SKD)		Prehardened Steels (NAK 80, HPM 50)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.9	3,000~3,500	200~500	2,000~2,500	150~400	2,300~2,800	100~300
2.9	2,300~2,800	200~500	1,500~2,000	150~400	1,500~2,000	100~300
3.9	1,500~2,000	200~500	1,300~1,800	150~400	1,300~1,800	100~300
4.9	1,300~1,800	200~500	1,200~1,700	150~400	1,200~1,700	100~300
5.9	1,200~1,700	200~500	700~1,200	150~400	700~1,200	100~300

⚠ 경고 WARNING

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H-PRO
4IRC

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels (S45C, SCM440, SCr415)		Alloy Steels (SKD)		Prehardened Steels (NAK 80, HPM 50)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.9	5,500~6,500	300~800	5,000~6,000	200~700	3,800~4,800	150~650
2.9	5,000~6,000	300~800	4,000~5,000	200~700	3,200~4,200	150~650
3.9	4,000~5,000	300~800	3,800~4,800	200~700	2,800~3,800	150~650
4.9	3,800~4,800	300~800	3,200~4,200	200~700	2,500~3,500	150~650
5.9	3,200~4,200	300~800	2,500~3,500	200~700	2,000~3,000	150~650

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A-PRO

2ARB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			통합금		
Workpiece	Preharden Steel(NAK)			Hardened Steels(SKD 61, STAVAX)			Copper Aalloy		
HRC	30 ~ 45			45 ~ 55					
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.25	0.006~0.010	20,000~40,000	300~600	0.003~0.010	20,000~40,000	200~400	0.010~0.020	20,000~40,000	300~600
R0.3	0.010~0.030	20,000~40,000	600~1,000	0.003~0.030	20,000~40,000	400~800	0.020~0.040	20,000~40,000	600~1,000
R0.4	0.005~0.050	17,000~40,000	400~1,200	0.006~0.030	20,000~40,000	250~1,000	0.010~0.030	17,000~40,000	400~1,200
R0.5	0.010~0.050	15,000~38,000	400~1,400	0.010~0.030	15,000~38,000	300~1,200	0.050~0.100	15,000~40,000	800~3,000
R0.6	0.030~0.050	15,000~30,000	500~1,000	0.020~0.030	15,000~30,000	400~800	0.050~0.100	15,000~30,000	1,000~1,400
R0.75	0.030~0.050	12,000~30,000	400~1,900	0.030~0.050	12,000~30,000	300~1,400	0.050~0.100	12,000~30,000	1,000~3,000
R1.0	0.050~0.100	8,000~20,000	600~2,200	0.050~0.100	8,000~20,000	500~1,700	0.050~0.300	12,000~20,000	1,000~3,000
R1.5	0.050~0.100	12,000~20,000	1,000~2,600	0.050~0.100	12,000~20,000	1,000~2,100	0.100~0.300	12,000~20,000	1,600~3,500
R2.0	0.050~0.100	12,000~20,000	1,200~2,700	0.050~0.100	12,000~20,000	1,000~2,200	0.100~0.300	12,000~20,000	1,800~4,000
Depth of Cut									

⚠ 경고 WARNING

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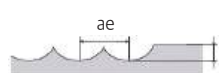
A-PRO

2ASB

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R0.5	34,000	2,000	32,000	1,600	30,000	1,500
R0.75	32,000	2,500	30,000	2,050	28,000	1,900
R1.0	30,000	2,700	28,000	2,250	25,000	2,000
R1.5	27,000	3,200	25,000	2,500	22,000	2,200
R2.0	24,000	3,300	20,000	2,700	18,300	2,450
R3.0	16,000	3,500	13,500	2,650	12,200	2,450
R4.0	12,000	3,100	10,000	2,500	9,200	2,450
R5.0	9,500	2,850	8,000	2,300	7,350	2,150
R6.0	8,000	2,800	6,700	2,250	6,100	2,100
Depth of Cut	 ap=0.02D ae=0.05D					

⚠ 경고 WARNING

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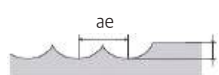
A-PRO

2APB

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R0.5	34,000	2,000	32,000	1,600	30,000	1,500
R0.75	32,000	2,500	30,000	2,050	28,000	1,900
R1.0	30,000	2,700	28,000	2,250	25,000	2,000
R1.5	27,000	3,200	25,000	2,500	22,000	2,200
R2.0	24,000	3,300	20,000	2,700	18,300	2,450
R3.0	16,000	3,500	13,500	2,650	12,200	2,450
R4.0	12,000	3,100	10,000	2,500	9,200	2,450
R5.0	9,500	2,850	8,000	2,300	7,350	2,150
R6.0	8,000	2,800	6,700	2,250	6,100	2,100
Depth of Cut	 ap=0.02D ae=0.05D					

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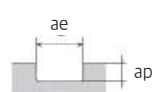
A-PRO

2ARR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			동합금		
Workpiece	Preharden Steel(NAK)			Hardened Steels(SKD 61, STAVAX)			Copper Alloys		
HRC	30 ~ 45			45 ~ 55					
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
1.0	0.020~0.030	14,000~25,000	340~1,260	0.020~0.030	14,000~25,000	170~1,050	0.030~0.050	17,000~30,000	1,200~3,000
1.5	0.020~0.030	14,000~25,000	680~1,680	0.020~0.030	14,000~25,000	510~1,470	0.050~0.100	17,000~30,000	1,500~3,000
2.0	0.020~0.030	9,000~20,000	480~1,360	0.020~0.030	9,000~20,000	360~1,190	0.050~0.100	17,000~30,000	1,500~3,000
3.0	0.040~0.060	12,000~18,000	1,800~2,100	0.040~0.060	9,000~20,000	1,500~1,800	0.050~0.100	17,000~25,000	3,000~3,500
4.0	0.040~0.060	5,000~18,000	1,950~2,250	0.040~0.060	4,000~18,000	1,650~1,950	0.080~0.120	15,000~25,000	3,200~3,500
6.0	0.040~0.060	5,000~13,000	2,400~2,800	0.040~0.060	4,000~13,000	2,200~2,400	0.080~0.120	15,000~25,000	3,800~4,200
8.0	0.040~0.060	4,000~9,000	2,200~2,400	0.040~0.060	4,000~9000	1,800~2,100	0.080~0.120	7,000~15,000	3,800~4,200
10.0	0.080~0.120	3,000~6,000	1,500~1,900	0.080~0.120	3,000~6,000	1,500~1,900	0.080~0.120	5,000~13,000	4,200~4,800
12.0	0.080~0.120	2,000~5,000	1,400~1,800	0.080~0.120	3,000~5,000	1,400~1,800	0.080~0.120	3,000~9,000	4,200~4,800
Depth of Cut									

⚠ 경고 WARNING

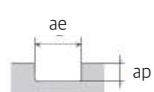
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

2ACR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6	3,800	250	2,700	130	1,600	55
8	2,900	240	2,100	120	1,200	50
10	2,300	230	1,700	100	1,000	50
12	2,000	230	1,400	100	800	45
Depth of Cut	 ap=0.3D ae=1.0D					

⚠ 경고 WARNING

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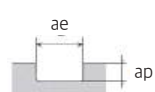
A-PRO

2ALR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6	3,800	250	2,700	130	1,600	55
8	2,900	240	2,100	120	1,200	50
10	2,300	230	1,700	100	1,000	50
12	2,000	230	1,400	100	800	45
Depth of Cut	 ap=0.3D ae=1.0D					

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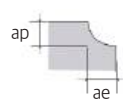
A-PRO

4ARR

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
3	21,000	3,200	19,100	2,900	17,000	2,300
4	16,000	3,200	14,300	2,850	12,800	2,350
6	10,500	4,250	9,500	3,800	8,500	3,050
8	8,000	3,500	7,200	3,200	6,400	2,500
10	6,400	3,050	5,750	2,750	5,100	2,250
12	5,300	2,750	4,800	2,500	4,250	2,050
Depth of Cut	 ap=0.01D~0.02D ae=0.20D~0.40D					

⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
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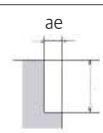
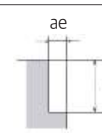
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

4ACR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6	3,800	440	2,800	140	1,600	70
8	2,900	420	2,100	140	1,200	65
10	2,400	400	1,700	120	1,000	65
12	2,000	400	1,400	120	800	60
Depth of Cut	 ap=0.1D ae=1.0D				 ap=0.02D ae=1.0D	

⚠ 경고 WARNING

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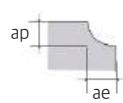
A-PRO

4ALR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6	10,500	3,850	9,000	3,450	8,000	2,700
8	7,500	3,200	6,750	2,850	6,000	2,250
10	6,050	2,800	5,400	2,500	4,750	2,000
12	5,050	2,500	4,500	2,250	4,000	1,830
Depth of Cut	 ap=0.01D~0.02D ae=0.20D~0.40D					

⚠ 경고 WARNING

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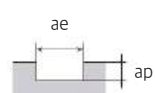
A-PRO

2ARE

High Speed Milling Condition

피삭재	탄소강			프리하든강			동합금		
Workpiece	Carbon Steels(S45C, SCM 440, SCr 415)			Preharden Steel(NAK 80, HPM 50)			Copper Alloys		
HRC	~ 30			30 ~ 45					
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
0.5	0.004~0.015	20,000~40,000	200~500	0.002~0.015	20,000~32,000	100~400	0.005~0.015	20,000~30,000	100~800
0.6	0.004~0.020	17,000~33,000	230~620	0.003~0.015	15,000~30,000	150~420	0.005~0.030	15,000~30,000	200~980
0.7	0.010~0.020	18,000~32,000	250~450	0.006~0.010	15,000~22,000	150~300	0.010~0.030	15,000~30,000	300~820
0.8	0.005~0.030	16,000~32,000	250~650	0.004~0.018	12,000~25,000	150~350	0.007~0.030	15,000~30,000	300~1,170
1.0	0.007~0.040	13,000~27,000	250~600	0.004~0.035	10,000~17,000	160~400	0.009~0.050	15,000~22,000	430~1,200
1.2	0.015~0.050	11,000~20,000	250~500	0.010~0.030	8,000~14,000	200~350	0.020~0.050	15,000~22,000	500~980
1.5	0.010~0.050	9,000~16,000	270~550	0.008~0.040	6,000~14,000	190~400	0.025~0.070	15,000~22,000	500~1,100
2.0	0.017~0.050	6,000~15,000	250~550	0.010~0.035	5,000~12,000	200~400	0.025~0.070	10,000~17,000	500~1,100
3.0	0.030~0.070	5,000~10,000	250~600	0.020~0.050	4,000~10,000	200~400	0.050~0.110	7,000~11,000	500~1150
4.0	0.040~0.100	5,000~7,000	250~650	0.030~0.070	2,800~10,000	200~410	0.060~0.150	5,000~8,500	530~1,200
Depth of Cut									

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2. 절입량의 ap는 측방향 절입량을 표시합니다.
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1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
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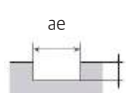
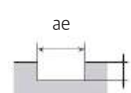
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

2APE

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	29,000	520	19,000	260	12,000	120
1.5	20,000	530	13,000	270	8,500	120
2.0	16,000	530	10,000	270	6,500	120
3.0	11,000	580	6,500	290	4,500	140
4.0	8,800	560	5,500	270	3,500	130
6.0	6,500	540	3,700	250	2,500	130
8.0	4,800	540	2,800	250	2,000	130
10.0	3,800	540	2,300	250	1,500	130
12.0	3,200	540	1,900	250	1,300	130
Depth of Cut	 ap=0.15D (D ≤ Ø3) ap=0.20D (D > Ø3)				 ap=0.10D (D ≤ Ø6) ap=0.15D (D > Ø6)	

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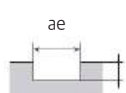
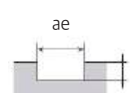
1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

2AEL

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ HRC 30		HRC 30 ~ 45		HRC 45 ~ 55	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)
1.0	29,000	520	19,000	260	12,000	120
1.5	20,000	530	13,000	270	8,500	120
2.0	16,000	530	10,000	270	6,500	120
3.0	11,000	580	6,500	290	4,500	140
4.0	8,800	560	5,500	270	3,500	130
6.0	6,500	540	3,700	250	2,500	130
8.0	4,800	540	2,800	250	2,000	130
10.0	3,800	540	2,300	250	1,500	130
12.0	3,200	540	1,900	250	1,300	130
Depth of Cut	 ap=0.15D (D ≤ Ø3) ap=0.20D (D > Ø3)				 ap=0.10D (D ≤ Ø6) ap=0.15D (D > Ø6)	

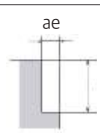
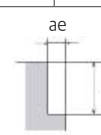
⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO
4APE

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2.0	19,000	750	15,000	650	12,000	350
3.0	15,000	1,000	12,500	800	10,000	500
4.0	11,000	1,100	9,500	850	7,900	600
6.0	7,500	1,100	6,500	850	5,200	600
8.0	5,500	1,000	4,800	750	4,000	500
10.0	4,500	1,000	3,800	750	3,200	500
12.0	3,700	1,000	3,200	750	2,500	500
Depth of Cut	 ap=1.0D, Rd=0.02D (D ≤ Ø6) ap=1.0D, Rd=0.05D (D ≤ Ø6)		 ap=1.0D, Rd=0.02D (D ≤ Ø6) ap=1.0D, Rd=0.05D (D ≤ Ø6)			

⚠ 경고 WARNING

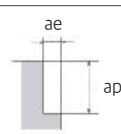
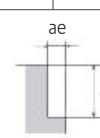
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

4AEL

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 45		45 ~ 55	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2.0	19,000	750	15,000	650	12,000	350
3.0	15,000	1,000	12,500	800	10,000	500
4.0	11,000	1,100	9,500	850	7,900	600
6.0	7,500	1,100	6,500	850	5,200	600
8.0	5,500	1,000	4,800	750	4,000	500
10.0	4,500	1,000	3,800	750	3,200	500
12.0	3,700	1,000	3,200	750	2,500	500
Depth of Cut	 ap=1.0D, Rd=0.02D (D ≤ Ø6) ap=1.0D, Rd=0.05D (D ≤ Ø6)		 ap=1.0D, Rd=0.02D (D ≤ Ø6) ap=1.0D, Rd=0.05D (D ≤ Ø6)			

⚠ 경고 WARNING

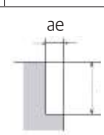
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

A-PRO

4APL

Milling Condition

피삭재	탄소강		프리하든강	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)	
HRC	~ 30		30 ~ 45	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
4.0	4,000	190	2,800	130
6.0	2,600	190	1,800	130
8.0	1,900	190	1,300	130
10.0	1,500	190	1,100	130
12.0	1,300	190	900	110
Depth of Cut	 ap=2.5D, Rd=0.05D (D ≤ Ø10) ap=2.5D, Rd=0.5mm (D ≤ Ø10)			

⚠ 경고 WARNING

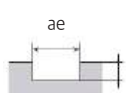
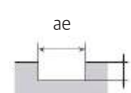
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

X-PRO

3XOE & 4XOE

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Prehardened Steels(NAK)		Hardened Steels SKD61, STAVAX	
HRC	~ 30		30 ~ 35		35 ~ 45	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6.0	4,000	230	2,900	160	2,200	130
8.0	3,500	250	2,700	180	1,700	150
10.0	2,500	280	2,100	210	1,350	170
12.0	2,000	310	1,800	240	1,200	210
16.0	1,500	330	1,700	250	900	210
Depth of Cut	 ap : 0.75D ap Max = 12mm		 ap : 0.5D			

⚠ 경고 WARNING

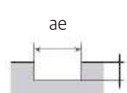
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

X-PRO

4XREV

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Prehardened Steels(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 35		35 ~ 45	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6.0	8,300	1,100	7,000	850	6,500	600
8.0	6,000	1,100	6,500	850	5,500	600
10.0	5,500	1,000	4,300	750	4,000	500
12.0	4,300	1,000	3,700	750	3,200	500
16.0	3,500	800	3,500	750	2,500	450
Depth of Cut	 ae Max : 0.4D ap Max : 1.5D					

⚠ 경고 WARNING

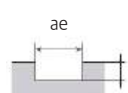
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

X-PRO

4XPEV

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Prehardened Steels(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 35		35 ~ 45	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
6.0	7,500	1,100	6,500	850	5,200	600
8.0	5,500	1,100	4,800	850	4,000	600
10.0	4,500	1,000	3,800	750	3,200	500
12.0	3,700	1,000	3,200	750	2,500	500
16.0	3,200	800	2,700	750	1,850	450
Depth of Cut	 ae Max : 0.4D ap Max : 1.5D					

⚠ 경고 WARNING

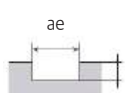
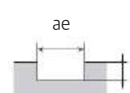
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

X-PRO

2XPE

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 35		35 ~ 45	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	29,000	520	19,000	260	12,000	120
1.5	20,000	530	13,000	270	8,500	120
2.0	16,000	530	10,000	270	6,500	120
3.0	11,000	580	6,500	290	4,500	140
4.0	8,800	560	5,500	270	3,500	130
6.0	6,500	540	3,700	250	2,500	130
8.0	4,800	540	2,800	250	2,000	130
10.0	3,800	540	2,300	250	1,500	130
12.0	3,200	540	1,900	250	1,300	130
Depth of Cut	 ap=1.5D (D ≤ Ø3) ap=0.20D (D > Ø3)			 ap=0.10D (D ≤ Ø6) ap=0.15D (D > Ø6)		

⚠ 경고 WARNING

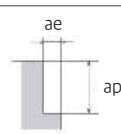
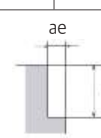
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

X-PRO

4XPE

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels(S45C)		Preharden Steel(NAK)		Hardened Steels(SKD 61, STAVAX)	
HRC	~ 30		30 ~ 35		35 ~ 45	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2.0	19,000	750	15,000	650	12,000	350
3.0	15,000	1,000	12,500	800	10,000	500
4.0	11,000	1,100	9,500	850	7,900	600
6.0	7,500	1,100	6,500	850	5,200	600
8.0	5,500	1,000	4,800	750	4,000	500
10.0	4,500	1,000	3,800	750	3,200	500
12.0	3,700	1,000	3,200	750	2,500	500
Depth of Cut	 ap=1.0D, ae=0.02D (D ≤ Ø6) ap=1.0D, ae=0.05D (D ≤ Ø6)		 ap=1.0D, ae=0.01D (D ≤ Ø6) ap=1.0D, ae=0.02D (D ≤ Ø6)			

⚠ 경고 WARNING

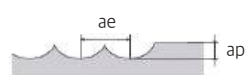
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
5. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

S-PRO

4SUB

Milling Condition

피삭재	구상흑연주철		SUS 300 계열		SUS 400 계열	
Workpiece	Cast Iron		Stainless Steel (300 Series)		Stainless Steel (400 Series)	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R1.5	12,000~15,000	250~300	6,000~8,000	80~150	8,000~12,000	130~180
R2.0	8,000~12,000	300~400	4,500~7,000	100~150	6,000~8,000	150~200
R2.5	7,000~9,000	400~500	3,000~5,000	150~200	4,500~7,000	200~250
R3.0	6,000~8,000	450~600	2,500~4,500	180~230	3,000~5,000	230~280
R4.0	4,500~7,000	500~700	2,300~3,500	230~280	2,500~4,500	400~500
R5.0	3,000~5,000	700~900	1,500~2,500	280~330	2,300~3,500	400~500
R6.0	2,500~4,500	700~900	1,200~2,000	280~330	1,500~2,500	300~400
R8.0	2,300~3,500	700~900	1,000~1,600	280~330	1,500~2,500	380~430
R10.0	1,500~2,500	600~900	800~1,200	280~330	1,300~1,800	350~400
Depth of Cut						

⚠ 경고 WARNING

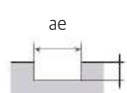
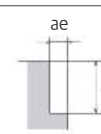
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
4. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

S-PRO

4SUR & 4SURA

Milling Condition

피삭재	구상흑연주철		SUS 300 계열		SUS 400 계열	
Workpiece	Cast Iron		Stainless Steel (300 Series)		Stainless Steel (400 Series)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	35,000~42,000	250~300	18,000~25,000	230~280	18,000~25,000	150~200
2.0	18,000~25,000	250~300	12,000~18,000	150~200	12,000~20,000	150~200
3.0	12,000~20,000	250~350	6,000~10,000	80~120	8,000~13,000	120~170
4.0	8,000~13,000	320~420	4,000~6,000	100~150	6,000~10,000	150~200
5.0	6,000~10,000	230~280	3,500~4,000	150~200	5,000~6,000	300~500
6.0	5,500~6,000	500~700	3,200~3,700	150~200	5,000~6,000	400~600
8.0	4,000~4,500	600~750	2,500~3,000	230~280	3,200~3,700	500~700
10.0	3,200~3,700	650~850	1,800~2,300	300~350	2,800~3,300	600~750
12.0	2,800~3,300	700~800	1,500~2,000	300~350	2,300~2,800	600~750
16.0	2,000~2,500	550~650	1,200~2,000	250~300	1,800~2,300	400~500
18.0	1,800~2,300	500~650	1,000~1,600	250~300	1,500~2,000	400~500
20.0	1,500~2,000	500~650	800~1,200	250~300	1,200~1,800	350~450
Depth of Cut	 ap=1.0D ae=1.0D(Max.)				 ap=1.0D(Max.) ae=0.5D(Max.)	

⚠ 경고 WARNING

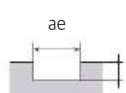
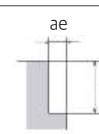
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
4. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

S-PRO

4SUE & 4SUEA

Milling Condition

피삭재	구상흑연주철		SUS 300 계열		SUS 400 계열	
Workpiece	Cast Iron		Stainless Steel (300 Series)		Stainless Steel (400 Series)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	35,000~42,000	250~300	18,000~25,000	230~280	18,000~25,000	150~200
2.0	18,000~25,000	250~300	12,000~18,000	150~200	12,000~20,000	150~200
3.0	12,000~20,000	250~350	6,000~10,000	80~120	8,000~13,000	120~170
4.0	8,000~13,000	320~420	4,000~6,000	100~150	6,000~10,000	150~200
5.0	6,000~10,000	230~280	3,500~4,000	150~200	5,000~6,000	300~500
6.0	5,500~6,000	500~700	3,200~3,700	150~200	5,000~6,000	400~600
8.0	4,000~4,500	600~750	2,500~3,000	230~280	3,200~3,700	500~700
10.0	3,200~3,700	650~850	1,800~2,300	300~350	2,800~3,300	600~750
12.0	2,800~3,300	700~800	1,500~2,000	300~350	2,300~2,800	600~750
16.0	2,000~2,500	550~650	1,200~2,000	250~300	1,800~2,300	400~500
18.0	1,800~2,300	500~650	1,000~1,600	250~300	1,500~2,000	400~500
20.0	1,500~2,000	500~650	800~1,200	250~300	1,200~1,800	350~450
Depth of Cut	 ap=1.0D ae=1.0D(Max.)				 ap=1.0D(Max.) ae=0.5D(Max.)	

⚠ 경고 WARNING

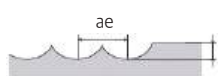
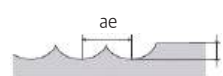
1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
4. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

D-PRO

2DRB

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R0.05	38,000~50,000	50~100	38,000~50,000	50~100
R0.1	38,000~50,000	80~150	38,000~50,000	200~500
R0.15	38,000~50,000	100~300	38,000~50,000	300~800
R0.2	30,000~42,000	200~500	30,000~42,000	300~1,000
R0.25	30,000~42,000	400~800	30,000~42,000	500~1,400
R0.3	20,000~40,000	500~900	24,000~40,000	350~1,600
R0.4	20,000~40,000	600~1,000	20,000~40,000	450~2,000
R0.5	20,000~40,000	800~2,000	20,000~40,000	800~3,000
R0.75	18,000~35,000	1,200~2,000	18,000~30,000	1,200~3,000
R1.0	12,000~30,000	1,200~2,000	12,000~20,000	1,200~3,000
R1.5	10,000~20,000	1,200~2,000	16,000~20,000	1,800~4,000
R2.0	10,000~15,000	1,300~2,000	16,000~20,000	2,100~4,000
R3.0	9,000~16,000	1,500~2,100	13,300~20,000	1,600~4,000
R4.0	8,000~12,000	1,400~2,200	10,000~16,000	1,400~3,200
R5.0	6,000~10,000	1,200~2,400	8,000~12,800	1,500~3,000
R6.0	4,000~8,000	1,200~1,900	6,600~10,000	1,300~2,600
Depth of Cut	 ap=0.1D ae=0.3D		 ap=0.05D ae=0.3D	

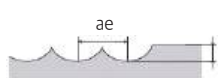
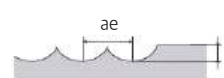
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO
2DPB

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R0.3	20,000~40,000	800~2,000	20,000~40,000	800~3,000
R0.4	20,000~40,000	800~2,000	20,000~40,000	800~3,000
R0.5	20,000~40,000	800~2,000	20,000~40,000	800~3,000
R0.75	18,000~35,000	1,200~2,000	18,000~30,000	1,200~3,000
R1.0	12,000~30,000	1,200~2,000	12,000~20,000	1,200~3,000
R1.5	10,000~20,000	1,200~2,000	16,000~20,000	1,800~4,000
R2.0	10,000~15,000	1,300~2,000	16,000~20,000	2,100~4,000
R3.0	9,000~16,000	1,500~2,100	13,300~20,000	1,600~4,000
R4.0	8,000~12,000	1,400~2,200	10,000~16,000	1,400~3,200
R5.0	6,000~10,000	1,280~2,400	8,000~12,800	1,500~3,000
R6.0	4,000~8,000	1,200~1,900	6,600~10,000	1,300~2,600
Depth of Cut	 ap=0.1D ae=0.3D		 ap=0.5D ae=0.3D	

⚠ 경고 WARNING

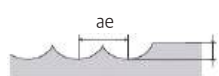
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO

2DRR

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Outside Diameter	RPM	Feed (mm/min)
0.2	38,000~50,000	80~150
0.3	38,000~50,000	100~300
0.4	30,000~42,000	200~500
0.5	30,000~42,000	400~800
0.6	20,000~40,000	500~900
0.8	20,000~40,000	600~1,000
1.0	20,000~40,000	800~2,000
1.5	18,000~35,000	1,200~2,000
2.0	12,000~30,000	1,200~2,000
3.0	10,000~20,000	1,200~2,000
4.0	10,000~15,000	1,300~2,000
6.0	9,000~16,000	1,500~2,100
Depth of Cut	 ap=0.1D ae=0.3D	

⚠ 경고 WARNING

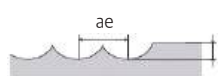
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO

4DRR

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Outside Diameter	RPM	Feed (mm/min)
2.0	12,000~30,000	2,500~4,000
3.0	10,000~20,000	2,500~4,000
4.0	10,000~15,000	3,000~5,000
6.0	9,000~16,000	4,000~6,000
8.0	8,000~12,000	4,000~6,000
10.0	6,000~10,000	4,000~6,000
12.0	4,000~8,000	4,000~6,000
Depth of Cut	 ap=0.05D ae=0.3D	

⚠ 경고 WARNING

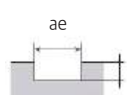
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO

2DRE

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	13,000~17,000	600~900	25,000~32,000	800~1,200
1.5	13,000~17,000	800~1,200	25,000~32,000	900~1,300
2.0	13,000~17,000	1,000~1,300	23,000~30,000	1,000~1,500
3.0	13,000~17,000	1,500~1,800	13,000~17,000	1,000~1,500
4.0	13,000~17,000	1,300~2,000	10,000~16,000	1,000~1,500
6.0	13,000~17,000	1,800~2,300	8,000~12,000	1,000~1,500
8.0	13,000~17,000	2,000~2,500	5,000~8,000	1,000~1,500
10.0	10,000~13,000	1,800~2,200	4,000~7,000	1,200~1,600
12.0	8,000~11,000	1,800~2,200	3,000~6,000	1,000~1,500
Depth of Cut	 ap=0.25D (D ≤ Ø3) ap=0.5D (D > Ø3)			

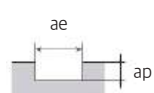
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO
2DPE

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)
0.2	30,000~40,000	350~800	30,000~40,000	250~600
0.3	30,000~40,000	350~800	30,000~40,000	250~600
0.4	28,000~35,000	500~800	28,000~35,000	300~650
0.5	25,000~32,000	500~800	25,000~32,000	300~650
0.6	25,000~32,000	500~800	25,000~32,000	300~650
0.7	23,000~30,000	500~800	23,000~30,000	400~700
0.8	20,000~30,000	500~800	20,000~30,000	500~800
1.0	13,000~17,000	600~900	25,000~32,000	800~1,200
1.5	13,000~17,000	800~1,200	25,000~32,000	900~1,300
2.0	13,000~17,000	1,000~1,300	23,000~30,000	1,000~1,500
3.0	13,000~17,000	1,500~1,800	13,000~17,000	1,000~1,500
4.0	13,000~17,000	1,300~2,000	10,000~16,000	1,000~1,500
6.0	13,000~17,000	1,800~2,300	8,000~12,000	1,000~1,500
8.0	13,000~17,000	2,000~2,500	5,000~8,000	1,000~1,500
10.0	10,000~13,000	1,800~2,200	4,000~7,000	1,200~1,600
12.0	8,000~11,000	1,800~2,200	3,000~6,000	1,000~1,500
Depth of Cut	 ap=0.25D (D ≤ Ø3) ap=0.5D (D > Ø3)			

⚠ 경고 WARNING

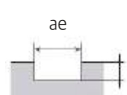
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

D-PRO

4DPE

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Outside Diameter	RPM	Feed (mm/min)
2.0	12,000~30,000	2,500~4,000
3.0	10,000~20,000	2,500~4,000
4.0	10,000~15,000	3,000~5,000
6.0	9,000~16,000	4,000~6,000
8.0	8,000~12,000	4,000~6,000
10.0	6,000~10,000	4,000~6,000
12.0	4,000~8,000	4,000~6,000
Depth of Cut	 ap=0.25D (D ≤ Ø3) ap=0.5D (D > Ø3)	

⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KRB

High Speed Milling Condition

피삭재	동합금		
Workpiece	Copper Alloys		
Radius of Ball Nose	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
R0.05	0.003~0.010	38,000~50,000	50~100
R0.1	0.010~0.020	38,000~50,000	200~500
R0.15	0.010~0.025	38,000~50,000	300~800
R0.2	0.010~0.030	30,000~42,000	300~1,000
R0.25	0.010~0.030	30,000~42,000	500~1,400
R0.3	0.010~0.100	24,000~40,000	350~1,600
R0.4	0.030~0.100	20,000~40,000	450~2,000
R0.5	0.050~0.200	20,000~40,000	800~3,000
R0.75	0.100~0.300	18,000~30,000	1,200~3,000
R1.0	0.100~0.400	12,000~20,000	1,200~3,000
R1.5	0.200~0.500	16,000~20,000	1,800~4,000
R2.0	0.300~0.500	16,000~20,000	2,100~4,000
Depth of Cut	ap		

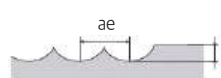
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KSB

High Speed Milling Condition

피삭재	동합금		
Workpiece	Copper Alloys		
"Radius of Ball Nose"	"Depth of Cut ap(mm)"	RPM	"Feed (mm/min)"
R0.2	0.010~0.030	30,000~42,000	300~1,000
R0.25	0.010~0.030	30,000~42,000	500~1,400
R0.3	0.010~0.100	24,000~40,000	350~1,600
R0.4	0.030~0.100	20,000~40,000	450~2,000
R0.5	0.050~0.200	20,000~40,000	800~3,000
R0.75	0.100~0.300	18,000~30,000	1,200~3,000
R1.0	0.100~0.400	12,000~20,000	1,200~3,000
R1.5	0.200~0.500	16,000~20,000	1,800~4,000
R2.0	0.300~0.500	16,000~20,000	2,100~4,000
R3.0	0.300~0.600	13,300~20,000	1,600~4,000
R4.0	0.300~0.800	10,000~16,000	1,400~3,200
R5.0	0.300~1.000	8,000~12,800	1,280~3,000
R6.0	0.300~1.200	6,600~10,000	1,190~2,660
Depth of Cut	 ae ≤ 0.6D		

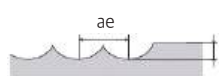
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KLB

High Speed Milling Condition

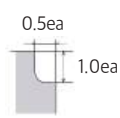
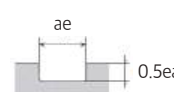
피삭재	동합금		
Workpiece	Copper Alloys		
Radius of Ball Nose	Depth of Cut ap(mm)	RPM	Feed (mm/min)
R0.5	0.050~0.200	20,000~40,000	800~3,000
R0.75	0.100~0.300	18,000~30,000	1,200~3,000
R1.0	0.100~0.400	12,000~20,000	1,200~3,000
R1.5	0.200~0.500	16,000~20,000	1,800~4,000
R2.0	0.300~0.500	16,000~20,000	2,100~4,000
R3.0	0.300~0.600	13,300~20,000	1,600~4,000
R4.0	0.300~0.800	10,000~16,000	1,400~3,200
R5.0	0.300~1.000	8,000~12,800	1,280~3,000
R6.0	0.300~1.200	6,600~10,000	1,190~2,660
Depth of Cut	 ae ≤ 0.6D		

⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KRR
High Speed Milling Condition

피삭재	동			
Workpiece	Copper			
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2.0	15,000~25,000	3,000	15,000~25,000	1,500
3.0	15,000~25,000	3,200	15,000~25,000	1,600
4.0	15,000~25,000	3,500	15,000~25,000	1,800
6.0	10,000~20,000	4,000	10,000~20,000	2,000
8.0	7,000~15,000	4,000	7,000~15,000	2,000
10.0	5,000~13,000	4,500	5,000~13,000	2,200
12.0	3,000~9,000	4,500	3,000~9,000	2,200
Depth of Cut				

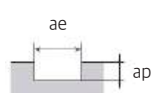
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KRE

High Speed Milling Condition

피삭재	동		
Workpiece	Copper		
Outside Diameter	Depth of Cut ap(mm)	RPM	Feed (mm/min)
0.1	0.001~0.005	39,000~50,000	50~100
0.2	0.002~0.006	39,000~50,000	300~450
0.3	0.003~0.008	39,000~50,000	350~550
0.4	0.004~0.010	39,000~50,000	390~620
0.5	0.005~0.020	34,000~50,000	430~800
0.6	0.005~0.030	34,000~50,000	400~980
0.8	0.007~0.040	21,000~42,000	420~1,170
1.0	0.009~0.060	17,000~34,000	430~1,200
1.5	0.025~0.070	15,000~22,000	500~1,100
2.0	0.025~0.070	10,000~17,000	500~1,100
3.0	0.050~0.110	7,000~11,000	600~1150
4.0	0.060~0.150	5,000~8,500	630~1,200
Depth of Cut			

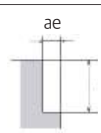
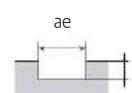
⚠ **경고 WARNING**

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

A-PLUS
2KPE

High Speed Milling Condition

피삭재	동			
Workpiece	Copper			
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
0.4	30,000~40,000	100	30,000~40,000	80
0.5	28,000~35,000	120	28,000~35,000	100
0.6	27,000~33,000	150	23,000~28,000	120
0.8	20,000~25,000	180	18,000~24,000	150
1	15,000~20,000	180	14,000~20,000	150
1.2	14,000~20,000	200	10,000~15,000	150
1.5	14,000~20,000	250	10,000~15,000	150
2	13,000~18,000	320	5,000~10,000	150
2.5	13,000~18,000	420	5,000~10,000	150
3.0	12,000~17,000	600	4,000~8,000	170
4.0	10,000~15,000	650	4,000~8,000	200
5.0	8,000~12,000	700	4,000~8,000	250
6.0	5,000~10,000	750	3,500~7,000	250
8.0	4,000~9,000	650	3,000~6,000	250
10.0	4,000~8,000	600	3,000~6,000	350
12.0	3,000~6,000	500	3,000~6,000	450
Depth of Cut	 ap=1.5D, ae=0.02D (D ≤ Ø1) ap=1.5D, ae=0.10D (D > Ø1)		 ap=0.05D (D ≤ Ø1) ap=0.10D (D > Ø1)	

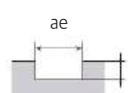
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

AL-PRO
1ALE

Milling Condition

피삭재	아크릴, 알루미늄		합금강, 주철	
Workpiece	Acrylic, Aluminium		Alloy Steels, Cast Iron	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	30,000~35,000	1,500~2,000	25,000~30,000	1,500~2,000
2.0	28,000~32,000	1,800~2,300	20,000~25,000	1,300~1,800
3.0	22,000~26,000	2,200~2,500	16,000~20,000	1,500~2,000
4.0	18,000~22,000	2,200~2,500	13,000~18,000	1,500~2,000
6.0	12,000~15,000	2,200~2,500	8,000~12,000	1,500~2,000
8.0	8,000~12,000	2,300~2,700	6,000~9,000	1,800~2,200
10.0	7,000~9,000	2,300~2,700	5,000~8,000	1,800~2,200
12.0	6,000~8,500	2,300~2,700	4,000~7,000	1,800~2,200
Depth of Cut	 ap = 0.25D			

⚠ 경고 WARNING

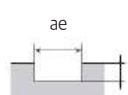
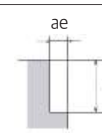
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

AL-PRO

2ALE

Milling Condition

피삭재	알루미늄		합금강, 주철	
Workpiece	Aluminium		Alloy Steels, Cast Iron	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	15,000~20,000	700~1,000	15,000~20,000	500~800
1.5	15,000~20,000	700~1,000	10,000~15,000	500~800
2.0	10,000~15,000	700~1,000	10,000~15,000	400~700
3.0	8,000~12,000	800~1,200	8,000~12,000	400~700
4.0	8,000~12,000	1,000~1,300	8,000~12,000	800~1,200
6.0	8,000~12,000	1,200~1,500	8,000~12,000	1,000~1,500
8.0	6,500~9,000	1,500~2,000	6,500~9,000	1,200~1,600
10.0	6,500~9,000	1,800~2,300	6,500~9,000	1,500~2,000
12.0	6,000~8,500	2,000~2,500	6,000~8,500	2,000~2,500
14.0	5,500~8,000	2,000~2,500	5,500~8,000	1,500~2,000
16.0	5,000~8,000	2,300~2,700	5,000~8,000	1,500~2,000
18.0	3,500~5,000	1,800~2,300	3,500~5,000	1,300~1,800
20.0	3,500~5,000	1,800~2,300	3,500~5,000	1,300~1,800
Depth of Cut	 ap = 0.25D		 ap = 1.0D, ae = 0.25D (D ≤ Ø10) ap = 1.0D, ae = 0.5D (D ≤ Ø20)	

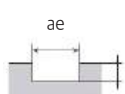
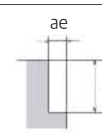
⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

AL-PRO
3ALE

Milling Condition

피삭재	알루미늄		알루미늄	
Workpiece	Aluminium		Aluminium	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	15,000~20,000	400~800	15,000~20,000	800~1,200
1.5	10,000~15,000	400~800	10,000~15,000	800~1,200
2.0	8,000~12,000	300~700	8,000~12,000	600~1,000
3.0	6,500~9,000	300~700	6,500~9,000	300~700
4.0	6,500~9,000	300~700	6,500~9,000	300~700
6.0	6,500~9,000	500~800	6,500~9,000	600~1,000
8.0	5,000~8,000	600~1,000	5,000~8,000	600~1,000
10.0	5,000~8,000	600~1,000	5,000~8,000	800~1,200
12.0	5,000~8,000	800~1,200	5,000~8,000	600~1,000
14.0	3,500~5,000	800~1,200	3,500~5,000	800~1,200
16.0	3,500~5,000	800~1,200	3,500~5,000	800~1,200
18.0	2,500~4,000	600~1,000	2,500~4,000	800~1,200
20.0	2,500~4,000	600~1,000	2,500~4,000	800~1,200
Depth of Cut	 ap = 0.2D		 ap=0.15D ae=1.0~2.5D	

⚠ 경고 WARNING

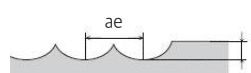
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

ABS

2MRB & 2MMB

High Speed Milling Condition

피삭재	ABS 수지, 아크릴		알루미늄합금	
Workpiece	ABS, Acrylic		Aluminium Alloys	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R0.1	20,000	200	17,500	500
R0.15	20,000	300	17,500	800
R0.2	20,000	300	16,000	1,000
R0.25	19,000	500	16,000	1,400
R0.3	19,000	500	16,000	1,600
R0.4	19,000	500	16,000	2,000
R0.5	18,000	800	15,000	3,000
R0.75	18,000	1,200	14,000	3,000
R1.0	16,000	1,200	13,000	3,000
R1.5	16,000	1,800	10,000	4,000
R2.0	15,000	2,100	8,500	4,000
R3.0	10,000	1,600	7,000	4,000
R4.0	7,000	1,400	6,000	3,200
R5.0	5,500	1,300	4,500	3,000
R6.0	4,500	1,200	3,500	2,700
Depth of Cut	 ae = 0.1D ap = 0.2D			

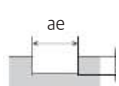
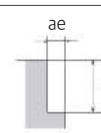
⚠ 경고 WARNING 1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.

1. Use a rigid precise machine and holder.

ABS

2MRE & 2MME

High Speed Milling Condition

피삭재	ABS 수지, 아크릴		알루미늄합금		ABS 수지, 아크릴		알루미늄합금	
Workpiece	ABS, Acrylic		Aluminium Alloys		ABS, Acrylic		Aluminium Alloys	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
0.2	17,500	110	17,500	220	20,000	210	17,500	120
0.3	17,500	120	17,500	240	20,000	260	17,500	140
0.4	16,000	120	16,000	240	20,000	340	16,000	140
0.5	16,000	125	16,000	250	19,000	410	16,000	160
0.6	16,000	140	16,000	280	19,000	520	16,000	260
0.8	16,000	180	16,000	360	19,000	680	16,000	350
1.0	15,000	250	15,000	500	18,000	850	15,000	400
1.5	14,000	350	14,000	700	18,000	900	14,000	430
2.0	13,000	380	13,000	760	16,000	1,000	13,000	500
3.0	10,000	380	10,000	760	16,000	1,000	10,000	500
4.0	8,500	370	8,500	740	15,000	1,000	8,500	360
6.0	7,000	250	7,000	500	10,000	750	7,000	270
8.0	6,000	200	6,000	400	7,000	550	6,000	220
10.0	4,500	150	4,500	300	5,500	430	4,500	200
12.0	3,500	130	3,500	260	4,500	320	3,500	180
Depth of Cut	 ap=1.0D				 ap=1.0D ae=0.03D			

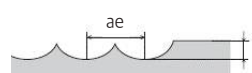
⚠ 경고 WARNING 1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.

1. Use a rigid precise machine and holder.

Micro Grain

2MGB

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels (S45C)		Alloy Steels (SCM440, SCr415)		Prehardened Steels (NAK 80, HPM 50)	
Radius of Ball Nose	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
R 0.5	16,000	500	14,000	350	12,000	200
R 0.75	14,000	600	12,000	400	10,000	300
R 1.0	12,000	700	11,000	550	9,000	450
R 1.5	8,500	700	7,000	550	6,200	450
R 2.0	6,200	700	5,500	550	4,600	450
R 3.0	4,200	700	3,600	550	3,500	450
R 4.0	3,200	700	2,700	550	2,300	450
R 5.0	2,500	700	2,200	550	1,800	450
R 6.0	2,100	700	1,800	550	1,500	450
Depth of Cut	 ap = 0.05D ae = 0.1D					

⚠ 경고 WARNING

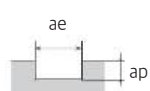
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.

1. Use a rigid precise machine and holder.
2. Use cutting Fluid.

Micro Grain

2MGE

Milling Condition

피삭재	탄소강		합금강		비철 합금	
Workpiece	Carbon Steels (S45C)		Alloy Steels (SCM440, SCr415)		Non-Ferrous Alloys (Al, Copper)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0	12,000	100	10,000	40	30,000	250
1.5	8,500	100	7,000	45	20,000	250
2.0	6,300	100	5,500	60	17,000	300
3.0	4,000	100	3,600	80	15,000	500
4.0	3,000	100	2,700	80	11,000	550
5.0	2,500	100	2,100	80	9,000	600
6.0	2,100	100	1,800	80	7,000	650
8.0	1,500	100	1,400	80	5,000	700
10.0	1,300	100	1,000	80	4,000	750
12.0	1,100	100	900	80	3,200	800
Depth of Cut	 ap = 0.3D (D < Ø3) ap = 0.5D (D ≥ Ø3)					

⚠ 경고 WARNING

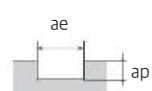
1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 절삭유 사용을 추천합니다.
3. 비철합금의 경우 건식 절삭을 권장합니다.

1. Use a rigid precise machine and holder.
2. For milling steels, non water soluble fluids are recommended.
3. Dry milling is recommended for non-ferrous alloys.

Micro Grain

4MGE

Milling Condition

피삭재	탄소강		합금강		비철 합금	
Workpiece	Carbon Steels (S45C)		Alloy Steels (SCM440, SCr415)		Non-Ferrous Alloys (Al, Copper)	
Outside Diameter	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2.0	6,000	150	5,000	50	15,000	400
3.0	3,500	150	3,300	50	13,000	600
4.0	2,500	150	2,400	80	9,000	600
6.0	2,000	150	1,500	100	6,000	700
8.0	1,300	150	1,200	100	4,000	800
10.0	1,100	150	800	100	3,000	800
12.0	900	150	700	100	2,500	1,000
Depth of Cut	ap = 1.0D, ae = 0.02D (D ≤ Ø6) ap = 1.0D, ae = 0.05D (D > Ø6)		 ap = 1.0D, ae = 0.01D (D ≤ Ø6) ap = 1.0D, ae = 0.02D (D > Ø6)			

⚠ 경고 WARNING

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.
2. 강재 가공시 비수용성 절삭유 사용을 권장합니다.
3. 비철합금의 경우 건식 절삭을 권장합니다.

1. Use a rigid precise machine and holder.
2. For milling steels, non water soluble fluids are recommended.
3. Dry milling is recommended for non-ferrous alloys.

Multi
2CEN

Milling Condition

피삭재	탄소강			프리하든강			알루미늄 합금		
Workpiece	Carbon Steels (S45C, SCM440, SCr415)			Preharden Steel (NAK 80, HPM 50)			Aluminium Alloys		
Outside Diameter	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)	Depth of Cut Ad(mm)	RPM	Feed (mm/min)
2.0	1.0~2.0	1,200~1,600	80~120	1.0~2.0	500~800	30~50	1.0~2.0	4,500~5,200	260~300
3.0	1.5~3.0	1,200~1,600	80~120	1.5~3.0	500~800	30~50	1.5~3.0	4,500~5,200	260~300
4.0	2.0~4.0	1,200~1,600	80~120	2.0~4.0	500~800	30~50	2.0~4.0	3,800~4,600	260~300
5.0	2.5~5.0	1,200~1,600	80~120	2.5~5.0	500~800	30~50	2.5~5.0	3,000~3,600	260~300
6.0	3.0~6.0	1,000~1,400	80~120	3.0~6.0	400~700	30~50	3.0~6.0	2,600~3,200	260~300
8.0	4.0~8.0	1,000~1,400	80~120	4.0~8.0	350~600	30~50	4.0~8.0	2,400~3,000	260~300
10.0	5.0~10.0	600~1,000	70~110	5.0~10.0	300~500	20~40	5.0~10.0	2,200~2,800	240~280
12.0	6.0~12.0	600~1,000	70~110	6.0~12.0	250~400	20~40	6.0~12.0	1,600~2,200	240~280
14.0	7.0~14.0	600~1,000	70~110	7.0~14.0	200~400	20~40	7.0~14.0	1,400~2,000	220~260
16.0	8.0~16.0	600~1,000	70~110	8.0~16.0	200~400	20~40	8.0~16.0	1,400~2,000	220~260
Depth of Cut	ap								

⚠ 경고 WARNING

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 ap는 측방향 절입량을 표시합니다.
3. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
4. 상기 조건표는 참고 자료이니 실제 가공 시 가공 형상, 기계 용량, 작업환경에 따로 조건을 조정해서 가공하시기 바랍니다.

1. Use a rigid precise machine and holder.
2. ap(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

부록

SUPPLEMENT

부록 SUPPLEMENT

강종에 따른 용도 Application According To Steel Grade

	한국 공업 규격(KS) Korean Industrial Standards	일본 공업 규격(JIS) Japanese Industrial Standards	미국 공업 규격(AISI) American Iron and Steel Institute
기계 구조용 탄소강 Machine Structural Carbon Steel	SM10C	S10C	1010
	SM20C	S20C	1020
	SM30C	S30C	1030
	SM35C	S35C	1035
	SM40C	S40C	1039,40
	SM45C	S45C	4045,46
	SM50C	S50C	1049
	SM55C	S55C	1055
니켈크롬강 Nickel-Chrome Steel	SNC236	SNC1	-
	SNC631	SNC2	-
	SNC415	SNC21	-
니켈크롬 몰리브덴강 Nickel Chromium Molybdenum Steel	SNCM220	SNCM21	8615,17,20
	SNCM240	SNCM6	8637,40
	SNCM439	SNCM8	4340
크롬강 Chrome Steel	SCr430	SCr2	5130,32
	SCr435	SCr3	5135
	SCr440	SCr4	5140
크롬 몰리브덴강 Chrome Molybdenum Steel	SCM430	SCM2	4130
	SCM435	SCM3	4135,37
	SCM440	SCM4	4140,42
	SCM445	SCM5	4145,47
망간강 Maganese Steel	SMN438	SMN2	1541
	SMN443	SMN3	1541
탄소 공구강 Carbon Tool Steel	STC2	SK2	W1-11 1/2
	STC3	SK3	W1-10
	STC5	SK5	W1-8
	STC7	SK7	-
고속도 공구강 High Speed Tool Steel	SKH2	SKH2	T1
	SKH3	SKH3	T4
	SKH51	SKH9	M2
	SKH55	SKH55	-
	SKH57	SKH57	-
합금 공구강 Alloy Tool Steel	STS2	SKS2	-
	STS3	SKS3	-
	STS11	SKS11	F2
	STS41	SKS41	-
	STS43	SKS43	W2-9 1/2
	STD1	SKD1	D3
	STD11	SKD11	D2
	STD12	SKD12	A2
	STD6	SKD6	H11
	STD61	SKD61	H13
	STD62	SKD62	H12
스프링강 Spring Steel	SPS1	SUP3	1075,78
	SPS4	SUP7	9260
	SPS6	SUP10	6150
	SPS13	SUP9	-
고탄소 크롬 베어링강 High Carbon Chromium Bearing Steel	STB2	SUJ2	52100
	STB3	SUJ3	-
질화강 Nitriding Steel	SACM645	SACM1	-
스테인리스강 Stainless Steel	STS410	SUS410	410
	STS420J1	SUS420J1	420
	STS420J2	SUS420J2	-

탄소함유량(%) Carbon content	용도 Use
0.08~0.13	레버, 톱날, 체인, 클러치, 기어, 볼트, 샤프트, 크랭크 샤프트, 스프라인 샤프트, 휠 플랜지, 커플링, 연결봉, 스프링, 리벳 Lever, Saw Blade, Chain, Clutch, Gear, Bolt, Shaft, Crankshaft, Spline Shaft, Wheel Flange, Coupling, Connecting Rod, Spring, Rivet
0.18~0.23	
0.28~0.34	
0.32~0.38	
0.37~0.43	
0.42~0.48	
0.47~0.53	
0.50~0.60	
0.32~0.40	볼트, 너트, 송곳, 기어, 웜기어, 스프라인 축, 캠축, 프로펠러축, 코어드릴, 피스톤봉, 고장력 볼트, 대패날 Bolt, Nut, Gimlet, Gear, Warm Gear, Spline Shaft, Camshaft, Propeller Shaft, Core Drill, Piston Rod, Plane
0.27~0.35	
0.12~0.18	
0.17~0.23	스프라인 축, 캠축, 스티어링 웜 기어, 피스톤 핀, 트랜스 미션기어, 자동장치 고속회전축, 피니언 Spline Shaft, Camshaft, Steering Warm Gear, Piston Pin, Transmission Gear, High Speed Rotating Shaft, Pinion
0.34~0.41	
0.38~0.43	
0.28~0.33	줄, 롤러, 커플링, 볼트, 너트, 스터드, 액슬 샤프트 캠축 File, Roller, Coupling, Bolt, Nut, Stud, Axle Shaft Camshaft
0.33~0.38	
0.38~0.43	
0.28~0.33	축, 롤러, 커플링, 볼터, 너트, 플랜지, 연결봉 기어, 부속품, 공구 부품 Shaft, Roller, Coupling, Bolt, Nut, Flange, Connecting Rod Gear, Accessory, Tool Parts
0.33~0.38	
0.38~0.43	
0.43~0.48	
0.36~0.44	
0.36~0.44	
1.10~1.30	끌, 칼, 탭, 드릴, 햄머, 펀치 Chisel, Knife, Tap, Drill, Hammer, Punch
1.00~1.10	
0.80~0.90	
0.65~0.80	리머, 커터, 탭, 드릴, 펀치, 엔드밀 Reamer, Cutter, Tap, Drill, Punch, End Mill
0.70~0.80	
0.80~0.90	
	냉간 끌, 냉간가공절단기, 브로치, 인발펀치, 밴딩다이스, 펀칭다이스, 포밍다이스, 기계스레딩 다이스, 냉간성형 다이스, 슬라이드롤러다이스, 슬로팅다이스 Cold Chisel, Cold Working Cutter, Broach, Banding Dies, Punching Dies, Foaming Dies, machine threading Dies, Cold Molding Dies, Slide Roller Dies, Slotting Dies
2.00~2.35	
1.40~1.60	
0.95~1.05	
0.33~0.43	
0.32~0.45	
0.30~0.40	
0.72~0.85	
0.55~0.65	
0.47~0.54	
0.98~1.10	롤러, 볼 베어링, 롤러 베어링, 궤도 륜 대형볼 roller, ball bearing, roller bearing, roller rig
Max 0.15	
Min 0.15	

부록 SUPPLEMENT

경도 환산표 Hardness Conversion Chart

Rockwell Hardness Number(HR)			Shore Hardness Number (HS)	Shore Hardness Number (HS)	Brinell Hardness Number (HB)	
Scale A 60Kgf Load Diamond Indenter	Scale B 100Kgf Load 1/16" Steel Ball	Scale C 150Kgf Load Diamond Indenter			3000Kgf Load 10mm Steel Ball	3000Kgf Load 10mm Carbide Ball
92.1		80		1865		
91.6		79		1787		
91.1		78		1710		
90.6		77		1633		
90.1		76		1556		
89.6		75		1478		
89		74		1400		
88.5		73		1323		
88		72		1245		
87.4		71		1160		
86.8		70		1076		
86.2		69		1004		
85.6		68		940		
85		67	95.2	900		
84.5		66	93.1	865		
83.9		65	91	832		739
83.4		64	88.9	800		722
82.8		63	87	772		705
82.3		62	85.2	746		688
81.8		61	83.3	720		670
81.2		60	81.6	697		654
80.7		59	79.9	674		634
80.1		58	78.2	653		615
79.6		57	76.6	633		595
79		56	75	313		577
78.5		55	73.5	595		560
78		54	71.9	577		543
77.4		53	70.4	560		525
76.8		52	69	544	500	512
76.3		51	67.6	528	487	496
75.9		50	66.2	513	475	481
75.2		49	64.7	498	464	469
74.7		48	63.4	484	451	455
74.1		47	62.1	471	442	443
73.6		46	60.8	458	432	432

부록 SUPPLEMENT

경도 환산표 Hardness Conversion Chart

Rockwell Hardness Number(HR)			Shore Hardness Number (HS)	Shore Hardness Number (HS)	Brinell Hardness Number (HB)	
Scale A 60Kgf Load Diamond Indenter	Scale B 100Kgf Load 1/16" Steel Ball	Scale C 150Kgf Load Diamond Indenter			3000Kgf Load 10mm Steel Ball	3000Kgf Load 10mm Carbide Ball
73.1		45	59.6	446	421	421
72.5		44	58.4	434	409	409
72		43	57.2	423	400	400
71.5		42	56.1	412	390	390
70.9		41	55	402	381	381
70.4		40	53.9	392	371	371
69.9		39	52.9	382	362	362
69.4		38	51.8	372	353	353
68.9		37	50.7	363	344	344
68.4	(109.0)	36	49.7	354	336	336
67.9	(108.5)	35	48.7	345	327	327
67.4	(108.0)	34	47.7	336	319	319
66.8	(107.5)	33	46.6	327	311	311
66.3	(107.0)	32	45.6	318	301	301
65.8	(106.0)	31	44.6	310	294	294
65.3	(105.5)	30	43.6	302	286	286
64.7	(104.5)	29	42.7	294	279	279
64.3	(104.0)	28	41.7	286	271	271
63.8	(103.0)	27	40.8	279	264	264
63.3	(102.5)	26	39.9	272	258	258
62.8	(101.5)	25	39.2	266	253	253
62.4	(101.0)	24	38.4	260	247	247
62	100.0	23	37.7	254	243	243
61.5	99.0	22	36.9	248	237	237
61	98.5	21	36.3	243	231	231
60.5	97.8	20	35.6	238	226	226
	96.7	(18)	34.6	230	219	219
	95.5	(16)	33.5	222	212	212
	93.9	(14)	32.3	213	203	203
	92.3	(12)	31.1	204	194	194
	90.7	(10)	30	196	187	187
	89.5	(8)		188	179	179
	87.1	(6)		180	171	171
	85.5	(4)		173	165	165
	83.5	(2)		166	158	158
	81.7	(0)		160	152	152

HAN SONG
ENDMILL DESIGNER