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VOL.8 HAN SONG END MILLS

HAN SONG ENDMILL DESIGNER

VOL.8

COST EFFECTIVE SOLUTIONS

END MILLS

HAN SONG
ENDMILL DESIGNER

HAN SONG
END MILLS

Icon Guide Line

Coating

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

No. of Flutes

- 1 — 1 Flutes
- 2 — 2 Flutes
- 3 — 3 Flutes
- 4 — 4 Flutes
- 5 — 5 Flutes
- 6 — 6 Flutes

Tolerance

- R — Radius Tolerance
- CR — Corner Radius Tolerance
- OD — 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

제품 번호 표기법(Product notation)

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

2	H	R	B	020	100	4	45
1	2	3	4	5	6	7	8

1	날수 (Flutes)	1날 : 1Flutes 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(Flat End Mill Notation)

2	HP	B	020	100	4	45
1	2	3	4	5	6	7

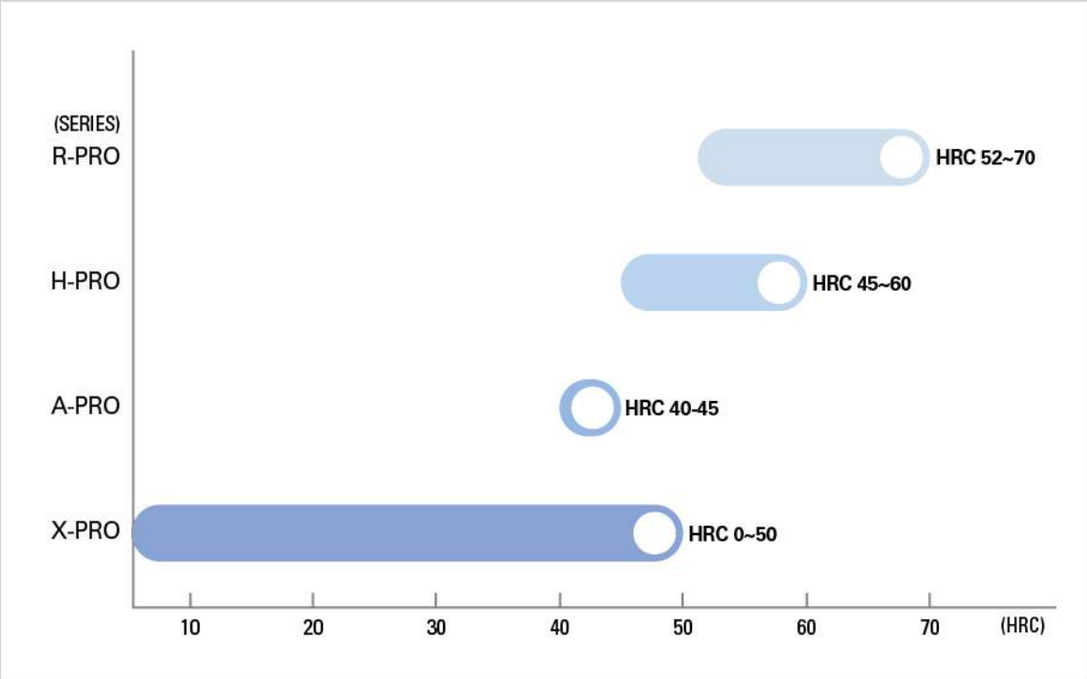
1	날수 (Flutes)	1날 : 1Flutes 2날 : 2Flutes 3날 : 3Flutes 4날 : 4Flutes 5날 : 5Flutes 6날 : 6Flutes
2	시리즈 (Series)	RP : R-PRO HP : H-PRO AP : A-PRO XP : X-PRO XO : X-PRO Roughing KP : A-PLUS AL : AL-PRO M : ABS D : D-PRO S : S-PRO
3	형태 (Type)	B : Ball End Mill R : Radius E : Flat
4	외경 (Outside diameter)	002 : 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)

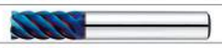
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

HRC 경도에 따른 엔드밀 사용범위(Range of use according to HRC hardness)

시리즈(Series)	피삭재(Workpiece)	경도(HRC)
R-PRO	고경도 Super Hardness	HRC 52 ~ 70
H-PRO	고속 High Speed	HRC 45 ~ 55
A-PRO	일반강, 범용 Low Carbon Steel General-Purpose	HRC ~ 45
X-PRO	일반강, 범용 Low Carbon Steel General-Purpose	HRC ~ 50
S-PRO	SUS	
AL-PRO	알루미늄 Aluminium	
D-PRO	흑연 Graphite	



INDEX OF END MILLE SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	모델번호 Model NO.	유효장 Effective Length	탄소강 Carbon Steel	합금강 Aalloy Steel	프리 하든강 Preharden Steel	열처리강 ~HRC50	열처리강 ~HRC70	SUS Stainless Steels	내열 합금강 Heat resisting alloy steel	알루미늄 Aluminium	동 Copper	흑연 Graphite	수지 Plastic	페이지 Page
R-PRO	HRC 52 ~ 70	볼 Ball	2		2RRB	Y		○	○	○	◎		○					012
			2		2RSB	N		○	○	○	◎		○					016
			2		2RPB	N		○	○	○	◎		○					017
			3		3RSB	N		○	○	○	◎		○					019
		코너 래디우스 Corner Radius	4		4RRR	Y		○	○	○	◎		○					020
			4		4RCR	N		○	○	○	◎		○					025
			6		6RCR	N		○	○	○	◎		○					027
		플랫 Flat	2		2RRE	Y		○	○	○	◎		○					028
			4		4RRE	Y		○	○	○	◎		○					030
			4		4RPE	N		○	○	○	◎		○					032
			4		4RLE	N		○	○	○	◎		○					033
		테이퍼 Taper	2		2RTB	N		○	○	○	◎		○					034
			3		3RTB	N		○	○	○	◎		○					035
			2		2RTR	N		○	○	○	◎		○					036
			4		4RTR	N		○	○	○	◎		○					038
H-PRO	HRC 45 ~ 55	볼 Ball	2		2HRB	Y	○	○	◎	◎	○				○	○		042
			2		2HSB	N	○	○	◎	◎	○				○	○		047
			2		2HPB	N	○	○	◎	◎	○				○	○		049
			3		3HPB	N	○	○	◎	◎	○				○	○		053
			4		4HPB	N	○	○	◎	◎	○				○	○		054
		코너 래디우스 Corner Radius	2		2HRR	Y	○	◎	◎	◎	○				○	○		055
			2		2HCR	N	○	◎	◎	◎	○				○	○		068
			4		4HRR	Y	○	◎	◎	◎	○				○	○		074
			4		4HCR	N	○	◎	◎	◎	○				○	○		089
			4		4HIT	Y	○	◎	◎	◎	○				○	○		094
		플랫 Flat	2		2HRE	Y	○	○	◎	◎	○				○	○		096
			2		2HPE	N	○	○	◎	◎	○				○	○		102
			2		2HLE	N	○	○	◎	◎	○				○	○		106
			4		4HRE	Y	○	◎	◎	◎	○				○	○		109
			4		4HPE	N	○	◎	◎	◎	○				○	○		112
			4		4HLE	N	○	○	◎	◎	○				○	○		114
			4		4HHE	N	○	◎	◎	◎	○				○	○		117
			6		6HPE	N	○	◎	◎	◎	○				○	○		118
		코너 라운딩 커터 Inner Corner Radius	2		2IRC	N	◎	◎	◎	◎				◎	○		◎	119
			4		4IRC	N	◎	◎	◎	◎				◎	○		◎	121

○ 적절 (Suitable) ◎ 최적 (Most suitable)

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시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	모델번호 Model NO.	유효장 Effective Length	탄소강 Carbon Steel	합금강 Aalloy Steel	프리 하든강 Preharden Steel	열처리강 ~HRC50	열처리강 ~HRC70	SUS Stainless Steels	내열 합금강 Heat resisting alloy steel	알루미늄 Aluminium	동 Copper	흑연 Graphite	수지 Plastic	페이지 Page
A-PRO	HRC ~ 45	볼 Ball	2		2ARB	Y	◎	◎	◎	◎		○			◎			124
			2		2ASB	Y	◎	◎	◎	◎		○			◎			126
			2		2APB	N	◎	◎	◎	◎		○			◎			127
		코너 래디우스 Corner Radius	2		2ARR	Y	◎	◎	◎	◎		○			◎			129
			2		2ACR	N	◎	◎	◎	◎		○			◎			131
			2		2ALR	Y	◎	◎	◎	◎		○			◎			132
			4		4ARR	Y	◎	◎	◎	◎		○			◎			133
			4		4ACR	N	◎	◎	◎	◎		○			◎			134
			4		4ALR	Y	◎	◎	◎	◎		○			◎			135
		플랫 Flat	2		2ARE	Y	◎	◎	◎	◎		○			◎			136
			2		2APE	N	◎	◎	◎	◎		○			◎			138
			2		2AEL	N	◎	◎	◎	◎		○			◎			140
			4		4APE	N	◎	◎	◎	◎		○			◎			141
			4		4AEL	N	◎	◎	◎	◎		○			◎			142
			4		4APL	Y	◎	◎	◎	◎		○			◎			143
X-PRO	HRC ~ 50	라핑 Roughing	3		3XOE	N	◎	◎	○	○								146
			4		4XOE	N	◎	◎	○	○								147
		플랫 Flat	2		2XPE	N	◎	◎	○	○		○						148
			4		4XPE	N	◎	◎	○	○		○						149
			4		4XREV	Y	◎	◎	○	○		○						150
			4		4XPEV	N	◎	◎	○	○		○						151
S-PRO	SUS 티타늄 인코넬 SUS Titanium Inconel	볼 Ball	4		4SUB	N	◎	◎	◎			◎	○					154
		코너 래디우스 Corner Radius	4		4SUR	N	◎	◎	◎			◎	○					155
			4		4SURA	N	◎	◎	◎			◎	○					157
		플랫 Flat	4		4SUE	N	◎	◎	◎			◎	○					159
			4		4SUEA	N	◎	◎	◎			◎	○					161

○ 적절 (Suitable) ◎ 최적 (Most suitable)

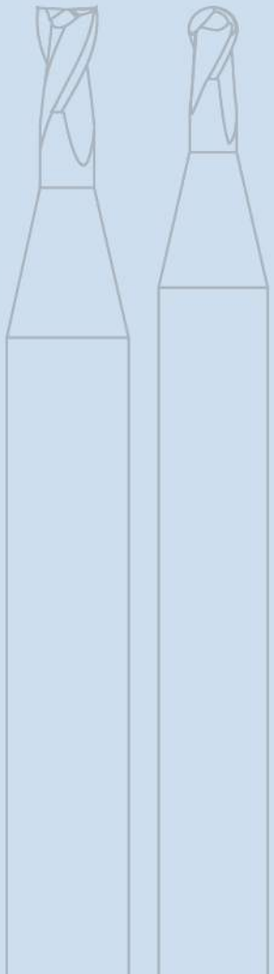
INDEX OF END MILLE SERIES

시리즈 Series	피삭재 Workpiece	분류 Type	날수 Flutes	형상 Appearance	모델번호 Model NO.	유효장 Effective Length	탄소강 Carbon Steel	합금강 Aalloy Steel	프리 하든강 Preharden Steel	열처리강 ~HRC50	열처리강 ~HRC70	SUS Stainless Steels	내열 합금강 Heat resisting alloy steel	알루미늄 Aluminium	동 Copper	흑연 Graphite	수지 Plastic	페이지 Page
D-PRO	흑연 동, 동합금 Graphite Copper	볼 Ball	2		2DRB	Y									○	◎		166
			2		2DPB	N									◎	◎		170
		코너 래디우스 Corner Radius	2		2DRR	Y									◎	◎		171
			4		4DRR	Y									◎	◎		177
		플랫 Flat	2		2DRE	Y									◎	◎		180
			2		2DPE	N									◎	◎		181
			4		4DPE	N									◎	◎		183
A-PLUS	동, 동합금 비철합금수지 Copper Graphite Plastic	볼 Ball	2		2KRB	Y								○	◎	◎	◎	186
			2		2KSB	Y								○	◎	◎	◎	188
			2		2KLB	Y								○	◎	◎	◎	189
		코너 래디우스 Corner Radius	2		2KRR	Y								○	◎	◎	◎	190
		플랫 Flat	2		2KRE	Y								○	◎	◎	◎	192
			2		2KPE	N								○	◎	◎	◎	194
AL-PRO	알루미늄 수지 비철합금 Aluminium Plastic Non-Ferrous Alloy	플랫 Flat	1		1ALE	N								◎			○	198
			2		2ALE	N								◎	○		○	200
			3		3ALE	N								◎	○		○	202
ABS	수지 아크릴 아세탈 플라스틱 엔지니어링 PC, PE ABS Plastic Acrylic Acetal Plastic Engineering	볼 Ball	2		2MRB	Y								○	○		◎	208
			2		2MMB	N								○	○		◎	210
		플랫 Flat	2		2MRE	Y								○	○		◎	212
			2		2MME	N								○	○		◎	214
MICRO GRAIN	비금속 일반강 Nonmetal Low Carbon Steel	볼 Ball	2		2MGB	N	◎	○							○			218
		플랫 Flat	2		2MGE	N	◎	○							○			219
			4		4MGE	N	◎	○							○			221
MULTI PURPOSE	일반강 열처리강 Low Carbon Steel Heat Treated Steel	센터링 Centering	2		2CEN	N	◎	○						◎	○		◎	226

○ 적절 (Suitable) ◎ 최적 (Most suitable)

PART 1

R-PRO SERIES



볼 Ball

사이즈 D Size	인선직경공차(mm) D 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 D Size	인선직경공차(mm) D Tolerance	코너R반경(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 D Size	인선직경공차(mm) D Tolerance
0.1 ~ 0.9	0 ~ −0.010
1 ~ 5	0 ~ −0.010
6 ~ 12	0 ~ −0.015

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

- Hardened steels, alloy steel
- Maximized the wear resistance & minimized chattering
- Geometry design to protect the breakage of cutting edge and improve the cutting performance.

2RRB

2날 리브 볼 엔드밀

2 Flutes Rib Ball End Mills

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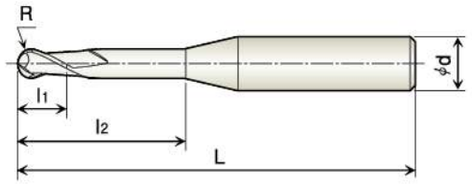

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRB 001 002 445	R0.05	0.1	0.2	4	45
2RRB 001 003 445	R0.05	0.1	0.3	4	45
2RRB 001 005 445	R0.05	0.1	0.5	4	45
2RRB 002 006 445	R0.1	0.2	0.6	4	45
2RRB 002 010 445	R0.1	0.2	1	4	45
2RRB 002 015 445	R0.1	0.2	1.5	4	45
2RRB 002 020 445	R0.1	0.2	2	4	45
2RRB 003 010 445	R0.15	0.3	1	4	45
2RRB 003 015 445	R0.15	0.3	1.5	4	45
2RRB 003 020 445	R0.15	0.3	2	4	45
2RRB 003 025 445	R0.15	0.3	2.5	4	45
2RRB 003 030 445	R0.15	0.3	3	4	45
2RRB 004 010 445	R0.2	0.4	1	4	45
2RRB 004 015 445	R0.2	0.4	1.5	4	45
2RRB 004 020 445	R0.2	0.4	2	4	45
2RRB 004 025 445	R0.2	0.4	2.5	4	45
2RRB 004 030 445	R0.2	0.4	3	4	45
2RRB 004 040 445	R0.2	0.4	4	4	45
2RRB 004 050 445	R0.2	0.4	5	4	45
2RRB 005 010 445	R0.25	0.5	1	4	45
2RRB 005 015 445	R0.25	0.5	1.5	4	45
2RRB 005 020 445	R0.25	0.5	2	4	45
2RRB 005 025 445	R0.25	0.5	2.5	4	45
2RRB 005 030 445	R0.25	0.5	3	4	45
2RRB 005 040 445	R0.25	0.5	4	4	45

2날 리브 볼 엔드밀

2 Flutes Rib Ball End Mills

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unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRB 005 050 445	R0.25	0.5	5	4	45
2RRB 005 060 445	R0.25	0.5	6	4	45
2RRB 005 080 445	R0.25	0.5	8	4	45
2RRB 006 020 445	R0.3	0.6	2	4	45
2RRB 006 030 445	R0.3	0.6	3	4	45
2RRB 006 040 445	R0.3	0.6	4	4	45
2RRB 006 050 445	R0.3	0.6	5	4	45
2RRB 006 060 445	R0.3	0.6	6	4	45
2RRB 006 080 445	R0.3	0.6	8	4	45
2RRB 006 100 445	R0.3	0.6	10	4	45
2RRB 008 020 445	R0.4	0.8	2	4	45
2RRB 008 030 445	R0.4	0.8	3	4	45
2RRB 008 040 445	R0.4	0.8	4	4	45
2RRB 008 050 445	R0.4	0.8	5	4	45
2RRB 008 060 445	R0.4	0.8	6	4	45
2RRB 008 080 445	R0.4	0.8	8	4	45
2RRB 008 100 445	R0.4	0.8	10	4	45
2RRB 008 120 445	R0.4	0.8	12	4	45
2RRB 010 030 445	R0.5	1	3	4	45
2RRB 010 040 445	R0.5	1	4	4	45
2RRB 010 050 445	R0.5	1	5	4	45
2RRB 010 060 445	R0.5	1	6	4	45
2RRB 010 070 445	R0.5	1	7	4	45
2RRB 010 080 445	R0.5	1	8	4	45
2RRB 010 090 445	R0.5	1	9	4	45
2RRB 010 100 445	R0.5	1	10	4	45
2RRB 010 120 445	R0.5	1	12	4	45
2RRB 010 140 450	R0.5	1	14	4	50
2RRB 010 160 450	R0.5	1	16	4	50
2RRB 010 180 450	R0.5	1	18	4	50
2RRB 010 200 450	R0.5	1	20	4	50
2RRB 012 040 445	R0.6	1.2	4	4	45
2RRB 012 060 445	R0.6	1.2	6	4	45
2RRB 012 080 445	R0.6	1.2	8	4	45
2RRB 012 100 445	R0.6	1.2	10	4	45

2날 리브 볼 엔드밀

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2 Flutes Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRB 012 120 445	R0.6	1.2	12	4	45
2RRB 015 040 445	R0.75	1.5	4	4	45
2RRB 015 060 445	R0.75	1.5	6	4	45
2RRB 015 080 445	R0.75	1.5	8	4	45
2RRB 015 100 445	R0.75	1.5	10	4	45
2RRB 015 120 445	R0.75	1.5	12	4	45
2RRB 015 140 450	R0.75	1.5	14	4	50
2RRB 015 160 450	R0.75	1.5	16	4	50
2RRB 015 180 450	R0.75	1.5	18	4	50
2RRB 015 200 450	R0.75	1.5	20	4	50
2RRB 020 060 445	R1.0	2	6	4	45
2RRB 020 080 445	R1.0	2	8	4	45
2RRB 020 100 445	R1.0	2	10	4	45
2RRB 020 120 445	R1.0	2	12	4	45
2RRB 020 140 450	R1.0	2	14	4	50
2RRB 020 160 450	R1.0	2	16	4	50
2RRB 020 180 450	R1.0	2	18	4	50
2RRB 020 200 450	R1.0	2	20	4	50
2RRB 020 250 460	R1.0	2	25	4	60
2RRB 020 300 470	R1.0	2	30	4	70
2RRB 025 080 445	R1.25	2.5	8	4	45
2RRB 025 100 445	R1.25	2.5	10	4	45
2RRB 025 120 445	R1.25	2.5	12	4	45
2RRB 025 160 450	R1.25	2.5	16	4	50
2RRB 025 200 450	R1.25	2.5	20	4	50
2RRB 030 080 650	R1.5	3	8	6	50
2RRB 030 100 650	R1.5	3	10	6	50
2RRB 030 120 650	R1.5	3	12	6	50
2RRB 030 140 660	R1.5	3	14	6	60
2RRB 030 160 660	R1.5	3	16	6	60
2RRB 030 180 660	R1.5	3	18	6	60
2RRB 030 200 660	R1.5	3	20	6	60
2RRB 030 250 665	R1.5	3	25	6	65
2RRB 030 300 670	R1.5	3	30	6	70
2RRB 030 350 680	R1.5	3	35	6	80

2날 리브 볼 엔드밀

R 2 R 30° PAGE No.230

2 Flutes Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRB 040 100 650	R2.0	4	10	6	50
2RRB 040 120 650	R2.0	4	12	6	50
2RRB 040 160 660	R2.0	4	16	6	60
2RRB 040 200 660	R2.0	4	20	6	60
2RRB 040 250 665	R2.0	4	25	6	65
2RRB 040 300 670	R2.0	4	30	6	70
2RRB 040 350 680	R2.0	4	35	6	80
2RRB 040 400 680	R2.0	4	40	6	80
2RRB 050 120 650	R2.5	5	12	6	50
2RRB 050 300 670	R2.5	5	30	6	70
2RRB 060 150 660	R3.0	7	15	6	60
2RRB 060 200 660	R3.0	6	20	6	60
2RRB 060 300 670	R3.0	6	30	6	70
2RRB 080 150 865	R4.0	8	15	8	65
2RRB 080 200 860	R4.0	8	20	8	60
2RRB 080 300 880	R4.0	8	30	8	80
2RRB 100 200 A60	R5.0	10	20	10	60
2RRB 100 250 A70	R5.0	10	25	10	70
2RRB 100 350 AA0	R5.0	10	35	10	100
2RRB 120 300 C80	R6.0	12	30	12	80
2RRB 120 400 CB0	R6.0	12	40	12	110

2RSB

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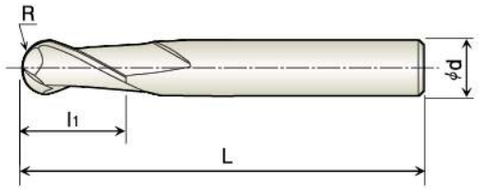
2날 쇼트 볼 엔드밀

2 Flutes Short Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RSB 001 001 440	R0.05	0.1	4	40
2RSB 002 002 440	R0.1	0.2	4	40
2RSB 003 003 440	R0.15	0.3	4	40
2RSB 004 004 440	R0.2	0.4	4	40
2RSB 005 005 440	R0.25	0.5	4	40
2RSB 006 006 440	R0.3	0.6	4	40
2RSB 007 007 440	R0.35	0.7	4	40
2RSB 008 008 440	R0.4	0.8	4	40
2RSB 009 009 440	R0.45	0.9	4	40
2RSB 010 015 640	R0.5	1.5	6	40
2RSB 015 023 640	R0.75	2.3	6	40
2RSB 020 030 645	R1.0	3	6	45
2RSB 030 045 645	R1.5	4.5	6	45
2RSB 040 060 645	R2.0	6	6	45
2RSB 050 075 650	R2.5	7.5	6	50
2RSB 060 080 660	R3.0	8	6	60
2RSB 080 110 860	R4.0	11	8	60
2RSB 100 130 A60	R5.0	13	10	60
2RSB 120 150 C60	R6.0	15	12	60

2RPB

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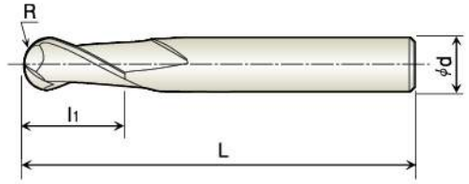
2날 볼 엔드밀

2 Flutes Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RPB 001 002 445	R0.05	0.2	4	45
2RPB 002 004 445	R0.1	0.4	4	45
2RPB 003 006 445	R0.15	0.6	4	45
2RPB 004 008 445	R0.2	0.8	4	45
2RPB 005 010 445	R0.25	1	4	45
2RPB 006 012 445	R0.3	1.2	4	45
2RPB 007 015 445	R0.35	1.5	4	45
2RPB 008 015 445	R0.4	1.5	4	45
2RPB 010 020 450	R0.5	2	4	50
2RPB 010 020 650	R0.5	2	6	50
2RPB 012 025 450	R0.6	2.5	4	50
2RPB 015 040 450	R0.75	4	4	50
2RPB 015 040 650	R0.75	4	6	50
2RPB 020 050 450	R1.0	5	4	50
2RPB 020 050 660	R1.0	5	6	60
2RPB 025 060 660	R1.25	6	6	60
2RPB 030 080 360	R1.5	8	3	60
2RPB 030 080 460	R1.5	8	4	60
2RPB 030 080 680	R1.5	8	6	80
2RPB 035 080 660	R1.75	8	6	60
2RPB 040 080 460	R2.0	8	4	60
2RPB 040 080 480	R2.0	8	4	80
2RPB 040 080 670	R2.0	8	6	70
2RPB 045 100 670	R2.25	10	6	70

2날 볼 엔드밀

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2 Flutes Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RPB 050 100 680	R2.5	10	6	80
2RPB 055 120 680	R2.75	12	6	80
2RPB 060 120 675	R3.0	12	6	75
2RPB 060 120 690	R3.0	12	6	90
2RPB 070 140 8A0	R3.5	14	8	100
2RPB 080 140 875	R4.0	14	8	75
2RPB 080 140 8A0	R4.0	14	8	100
2RPB 090 180 AA0	R4.5	18	10	100
2RPB 100 180 A75	R5.0	18	10	75
2RPB 100 180 AA0	R5.0	18	10	100
2RPB 120 220 C80	R6.0	22	12	80
2RPB 120 220 CB0	R6.0	22	12	110

3RSB

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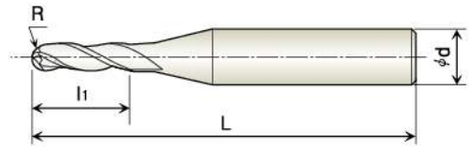
3날 쇼트 볼 엔드밀

3 Flutes Short Ball End Mills



unit(mm)

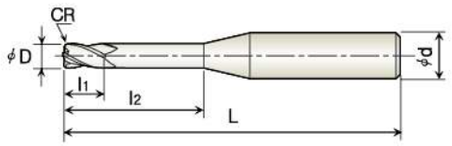
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3RSB 010 015 640	R0.5	1.5	6	40
3RSB 020 030 645	R1.0	3	6	45
3RSB 030 045 645	R1.5	4.5	6	45
3RSB 040 060 645	R2.0	6	6	45
3RSB 050 075 650	R2.5	7.5	6	50
3RSB 060 080 660	R3.0	8	6	60
3RSB 080 110 860	R4.0	11	8	60
3RSB 100 130 A60	R5.0	13	10	60
3RSB 120 150 C60	R6.0	15	12	60

4RRR

R 4 CR 30° PAGE No.234

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRR 008 R005 020 445	0.8	R0.05	1.2	2	4	45
4RRR 008 R005 040 445	0.8	R0.05	1.2	4	4	45
4RRR 008 R005 060 445	0.8	R0.05	1.2	6	4	45
4RRR 008 R01 020 445	0.8	R0.1	1.2	2	4	45
4RRR 008 R01 040 445	0.8	R0.1	1.2	4	4	45
4RRR 010 R005 040 445	1	R0.05	1.5	4	4	45
4RRR 010 R005 060 445	1	R0.05	1.5	6	4	45
4RRR 010 R005 080 445	1	R0.05	1.5	8	4	45
4RRR 010 R005 100 445	1	R0.05	1.5	10	4	45
4RRR 010 R01 040 445	1	R0.1	1.5	4	4	45
4RRR 010 R01 060 445	1	R0.1	1.5	6	4	45
4RRR 010 R01 080 445	1	R0.1	1.5	8	4	45
4RRR 010 R02 040 445	1	R0.2	1.5	4	4	45
4RRR 010 R02 060 445	1	R0.2	1.5	6	4	45
4RRR 010 R02 080 445	1	R0.2	1.5	8	4	45
4RRR 010 R02 100 445	1	R0.2	1.5	10	4	45
4RRR 010 R02 120 445	1	R0.2	1.5	12	4	45
4RRR 010 R03 040 445	1	R0.3	1.5	4	4	45
4RRR 010 R03 060 445	1	R0.3	1.5	6	4	45
4RRR 010 R03 080 445	1	R0.3	1.5	8	4	45
4RRR 015 R01 040 445	1.5	R0.1	2.3	4	4	45
4RRR 015 R01 060 445	1.5	R0.1	2.3	6	4	45
4RRR 015 R01 080 445	1.5	R0.1	2.3	8	4	45
4RRR 015 R01 100 445	1.5	R0.1	2.3	10	4	45
4RRR 015 R02 040 445	1.5	R0.2	2.3	4	4	45

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills

R 4 CR 30° PAGE No.234

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRR 015 R02 060 445	1.5	R0.2	2.3	6	4	45
4RRR 015 R02 080 445	1.5	R0.2	2.3	8	4	45
4RRR 015 R02 100 445	1.5	R0.2	2.3	10	4	45
4RRR 015 R02 120 445	1.5	R0.2	2.3	12	4	45
4RRR 015 R02 160 450	1.5	R0.2	2.3	16	4	50
4RRR 020 R01 040 445	2	R0.1	3	4	4	45
4RRR 020 R01 060 445	2	R0.1	3	6	4	45
4RRR 020 R01 080 445	2	R0.1	3	8	4	45
4RRR 020 R01 100 445	2	R0.1	3	10	4	45
4RRR 020 R01 120 445	2	R0.1	3	12	4	45
4RRR 020 R02 040 445	2	R0.2	3	4	4	45
4RRR 020 R02 060 445	2	R0.2	3	6	4	45
4RRR 020 R02 080 445	2	R0.2	3	8	4	45
4RRR 020 R02 100 445	2	R0.2	3	10	4	45
4RRR 020 R02 120 445	2	R0.2	3	12	4	45
4RRR 020 R02 160 450	2	R0.2	3	16	4	50
4RRR 020 R03 060 445	2	R0.3	3	6	4	45
4RRR 020 R03 080 445	2	R0.3	3	8	4	45
4RRR 020 R03 100 445	2	R0.3	3	10	4	45
4RRR 020 R03 120 445	2	R0.3	3	12	4	45
4RRR 020 R05 040 445	2	R0.5	3	4	4	45
4RRR 020 R05 060 445	2	R0.5	3	6	4	45
4RRR 020 R05 080 445	2	R0.5	3	8	4	45
4RRR 020 R05 100 445	2	R0.5	3	10	4	45
4RRR 020 R05 120 445	2	R0.5	3	12	4	45
4RRR 030 R01 100 450	3	R0.1	4.5	10	4	50
4RRR 030 R01 120 650	3	R0.1	4.5	12	6	50
4RRR 030 R02 100 350	3	R0.2	4.5	10	3	50
4RRR 030 R02 100 450	3	R0.2	4.5	10	4	50
4RRR 030 R02 080 650	3	R0.2	4.5	8	6	50
4RRR 030 R02 100 650	3	R0.2	4.5	10	6	50
4RRR 030 R02 120 650	3	R0.2	4.5	12	6	50
4RRR 030 R02 160 660	3	R0.2	4.5	16	6	60
4RRR 030 R02 200 660	3	R0.2	4.5	20	6	60
4RRR 030 R03 100 350	3	R0.3	4.5	10	3	50

4날 리브 코너 래디우스 엔드밀

R 4 CR 30° PAGE No.234

4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRR 030 R03 100 450	3	R0.3	4.5	10	4	50
4RRR 030 R03 080 650	3	R0.3	4.5	8	6	50
4RRR 030 R03 100 650	3	R0.3	4.5	10	6	50
4RRR 030 R03 120 650	3	R0.3	4.5	12	6	50
4RRR 030 R03 160 660	3	R0.3	4.5	16	6	60
4RRR 030 R03 200 660	3	R0.3	4.5	20	6	60
4RRR 030 R05 100 350	3	R0.5	4.5	10	3	50
4RRR 030 R05 100 450	3	R0.5	4.5	10	4	50
4RRR 030 R05 080 650	3	R0.5	4.5	8	6	50
4RRR 030 R05 100 650	3	R0.5	4.5	10	6	50
4RRR 030 R05 120 650	3	R0.5	4.5	12	6	50
4RRR 030 R05 160 660	3	R0.5	4.5	16	6	60
4RRR 030 R05 200 660	3	R0.5	4.5	20	6	60
4RRR 030 R10 100 350	3	R1.0	4.5	10	3	50
4RRR 030 R10 100 450	3	R1.0	4.5	10	4	50
4RRR 030 R10 080 650	3	R1.0	4.5	8	6	50
4RRR 030 R10 100 650	3	R1.0	4.5	10	6	50
4RRR 030 R10 120 650	3	R1.0	4.5	12	6	50
4RRR 030 R10 160 660	3	R1.0	4.5	16	6	60
4RRR 030 R10 200 660	3	R1.0	4.5	20	6	60
4RRR 040 R01 120 450	4	R0.1	6	12	4	50
4RRR 040 R02 120 450	4	R0.2	6	12	4	50
4RRR 040 R02 100 650	4	R0.2	6	10	6	50
4RRR 040 R02 120 650	4	R0.2	6	12	6	50
4RRR 040 R02 160 660	4	R0.2	6	16	6	60
4RRR 040 R02 200 660	4	R0.2	6	20	6	60
4RRR 040 R02 250 665	4	R0.2	6	25	6	65
4RRR 040 R02 300 670	4	R0.2	6	30	6	70
4RRR 040 R03 120 450	4	R0.3	6	12	4	50
4RRR 040 R03 100 650	4	R0.3	6	10	6	50
4RRR 040 R03 120 650	4	R0.3	6	12	6	50
4RRR 040 R03 160 660	4	R0.3	6	16	6	60
4RRR 040 R03 200 660	4	R0.3	6	20	6	60
4RRR 040 R05 120 450	4	R0.5	6	12	4	50
4RRR 040 R05 160 450	4	R0.5	6	16	4	50

4날 리브 코너 래디우스 엔드밀

R 4 CR 30° PAGE No.234

4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRR 040 R05 160 4A0	4	R0.5	6	16	4	100
4RRR 040 R05 100 650	4	R0.5	6	10	6	50
4RRR 040 R05 120 650	4	R0.5	6	12	6	50
4RRR 040 R05 160 660	4	R0.5	6	16	6	60
4RRR 040 R05 200 660	4	R0.5	6	20	6	60
4RRR 040 R05 250 665	4	R0.5	6	25	6	65
4RRR 040 R05 300 670	4	R0.5	6	30	6	70
4RRR 040 R10 120 450	4	R1.0	6	12	4	50
4RRR 050 R05 180 660	5	R0.5	7.5	18	6	60
4RRR 060 R01 200 660	6	R0.1	9	20	6	60
4RRR 060 R02 200 660	6	R0.2	9	20	6	60
4RRR 060 R02 200 675	6	R0.2	9	20	6	75
4RRR 060 R02 200 6A0	6	R0.2	9	20	6	100
4RRR 060 R03 200 660	6	R0.3	9	20	6	60
4RRR 060 R03 200 675	6	R0.3	9	20	6	75
4RRR 060 R03 200 6A0	6	R0.3	9	20	6	100
4RRR 060 R05 200 660	6	R0.5	9	20	6	60
4RRR 060 R05 200 675	6	R0.5	9	20	6	75
4RRR 060 R05 200 6A0	6	R0.5	9	20	6	100
4RRR 060 R10 200 660	6	R1.0	9	20	6	60
4RRR 060 R10 200 675	6	R1.0	9	20	6	75
4RRR 060 R10 200 6A0	6	R1.0	9	20	6	100
4RRR 080 R01 240 865	8	R0.1	12	24	8	65
4RRR 080 R02 240 865	8	R0.2	12	24	8	65
4RRR 080 R02 240 875	8	R0.2	12	24	8	75
4RRR 080 R02 240 8A0	8	R0.2	12	24	8	100
4RRR 080 R03 240 865	8	R0.3	12	24	8	65
4RRR 080 R03 240 875	8	R0.3	12	24	8	75
4RRR 080 R03 240 8A0	8	R0.3	12	24	8	100
4RRR 080 R05 240 865	8	R0.5	12	24	8	65
4RRR 080 R05 240 875	8	R0.5	12	24	8	75
4RRR 080 R05 240 8A0	8	R0.5	12	24	8	100
4RRR 080 R10 240 865	8	R1.0	12	24	8	65
4RRR 080 R10 240 875	8	R1.0	12	24	8	75
4RRR 080 R10 240 8A0	8	R1.0	12	24	8	100

4날 리브 코너 래디우스 엔드밀

R 4 CR 30° PAGE No.234

4 Flutes Rib Corner Radius End Mills

unit(mm)

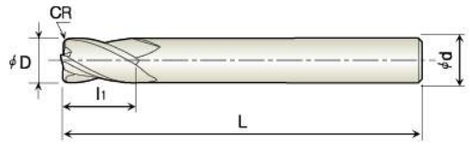
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRR 100 R02 300 A75	10	R0.2	15	30	10	75
4RRR 100 R02 300 AA0	10	R0.2	15	30	10	100
4RRR 100 R05 300 A75	10	R0.5	15	30	10	75
4RRR 100 R05 300 AA0	10	R0.5	15	30	10	100
4RRR 100 R10 300 A75	10	R1.0	15	30	10	75
4RRR 100 R10 300 AA0	10	R1.0	15	30	10	100
4RRR 100 R10 300 AF0	10	R1.0	15	30	10	150
4RRR 120 R05 300 C80	12	R0.5	18	30	12	80
4RRR 120 R05 300 CB0	12	R0.5	18	30	12	110
4RRR 120 R05 300 CF0	12	R0.5	18	30	12	150
4RRR 120 R10 300 C80	12	R1.0	18	30	12	80
4RRR 120 R10 300 CB0	12	R1.0	18	30	12	110
4RRR 120 R10 300 CF0	12	R1.0	18	30	12	150

4RCR

R 4 CR 30° PAGE No.234

4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RCR 010 R01 025 445	1	R0.1	2.5	4	45
4RCR 010 R02 025 445	1	R0.2	2.5	4	45
4RCR 010 R03 025 445	1	R0.3	2.5	4	45
4RCR 015 R01 040 445	1.5	R0.1	4	4	45
4RCR 015 R02 040 445	1.5	R0.2	4	4	45
4RCR 015 R03 040 445	1.5	R0.3	4	4	45
4RCR 015 R05 040 445	1.5	R0.5	4	4	45
4RCR 020 R01 060 445	2	R0.1	6	4	45
4RCR 020 R02 060 445	2	R0.2	6	4	45
4RCR 020 R03 060 445	2	R0.3	6	4	45
4RCR 020 R05 060 445	2	R0.5	6	4	45
4RCR 025 R01 060 450	2.5	R0.1	6	4	50
4RCR 025 R02 060 450	2.5	R0.2	6	4	50
4RCR 025 R03 060 450	2.5	R0.3	6	4	50
4RCR 025 R05 060 450	2.5	R0.5	6	4	50
4RCR 030 R01 080 660	3	R0.1	8	6	60
4RCR 030 R02 080 660	3	R0.2	8	6	60
4RCR 030 R03 080 660	3	R0.3	8	6	60
4RCR 030 R05 080 660	3	R0.5	8	6	60
4RCR 040 R01 100 670	4	R0.1	10	6	70
4RCR 040 R02 100 670	4	R0.2	10	6	70
4RCR 040 R03 100 670	4	R0.3	10	6	70
4RCR 040 R05 100 670	4	R0.5	10	6	70
4RCR 040 R10 100 670	4	R1.0	10	6	70
4RCR 050 R01 130 675	5	R0.1	13	6	75

4날 코너 래디우스 엔드밀

R 4 CR 30° PAGE No.234

4 Flutes Corner Radius End Mills

unit(mm)

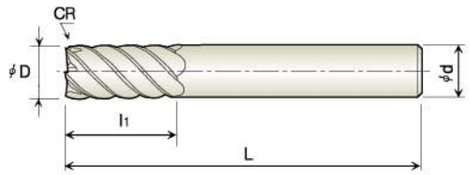
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RCR 050 R02 130 675	5	R0.2	13	6	75
4RCR 050 R03 130 675	5	R0.3	13	6	75
4RCR 050 R05 130 675	5	R0.5	13	6	75
4RCR 050 R10 130 675	5	R1.0	13	6	75
4RCR 060 R01 130 690	6	R0.1	13	6	90
4RCR 060 R02 130 690	6	R0.2	13	6	90
4RCR 060 R03 130 690	6	R0.3	13	6	90
4RCR 060 R05 130 690	6	R0.5	13	6	90
4RCR 060 R10 130 690	6	R1.0	13	6	90
4RCR 080 R01 190 8A0	8	R0.1	19	8	100
4RCR 080 R02 190 8A0	8	R0.2	19	8	100
4RCR 080 R03 190 8A0	8	R0.3	19	8	100
4RCR 080 R05 190 8A0	8	R0.5	19	8	100
4RCR 080 R10 190 8A0	8	R1.0	19	8	100
4RCR 080 R20 190 8A0	8	R2.0	19	8	100
4RCR 100 R02 220 AA0	10	R0.2	22	10	100
4RCR 100 R03 220 AA0	10	R0.3	22	10	100
4RCR 100 R05 220 AA0	10	R0.5	22	10	100
4RCR 100 R10 220 AA0	10	R1.0	22	10	100
4RCR 100 R20 220 AA0	10	R2.0	22	10	100
4RCR 120 R02 260 CB0	12	R0.2	26	12	110
4RCR 120 R03 260 CB0	12	R0.3	26	12	110
4RCR 120 R05 260 CB0	12	R0.5	26	12	110
4RCR 120 R10 260 CB0	12	R1.0	26	12	110
4RCR 120 R20 260 CB0	12	R2.0	26	12	110

6RCR

R 6 CR 45° PAGE No.239

6날 45° 코너 래디우스 엔드밀

6 Flutes 45° Corner Radius End Mills



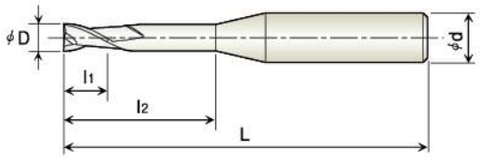
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
6RCR 030 R05 080 650	3	R0.5	8	6	50
6RCR 040 R05 100 650	4	R0.5	10	6	50
6RCR 060 R05 130 650	6	R0.5	13	6	50
6RCR 080 R05 190 865	8	R0.5	19	8	65
6RCR 100 R05 220 A70	10	R0.5	22	10	70
6RCR 120 R05 260 C80	12	R0.5	26	12	80

2RRE

2날 리브 플랫 엔드밀

2 Flutes Rib Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRE 001 003 445	0.1	0.15	0.3	4	45
2RRE 001 005 445	0.1	0.15	0.5	4	45
2RRE 002 005 445	0.2	0.3	0.5	4	45
2RRE 002 010 445	0.2	0.3	1	4	45
2RRE 002 020 445	0.2	0.3	2	4	45
2RRE 003 005 445	0.3	0.45	0.5	4	45
2RRE 003 010 445	0.3	0.45	1	4	45
2RRE 003 015 445	0.3	0.45	1.5	4	45
2RRE 003 020 445	0.3	0.45	2	4	45
2RRE 003 025 445	0.3	0.45	2.5	4	45
2RRE 003 030 445	0.3	0.45	3	4	45
2RRE 004 010 445	0.4	0.6	1	4	45
2RRE 004 015 445	0.4	0.6	1.5	4	45
2RRE 004 020 445	0.4	0.6	2	4	45
2RRE 004 025 445	0.4	0.6	2.5	4	45
2RRE 004 030 445	0.4	0.6	3	4	45
2RRE 004 035 445	0.4	0.6	3.5	4	45
2RRE 004 040 445	0.4	0.6	4	4	45
2RRE 005 010 445	0.5	0.7	1	4	45
2RRE 005 020 445	0.5	0.7	2	4	45
2RRE 005 030 445	0.5	0.7	3	4	45
2RRE 005 040 445	0.5	0.7	4	4	45
2RRE 005 050 445	0.5	0.7	5	4	45
2RRE 005 060 445	0.5	0.7	6	4	45
2RRE 005 080 445	0.5	0.7	8	4	45

2날 리브 플랫 엔드밀

2 Flutes Rib Flat End Mills

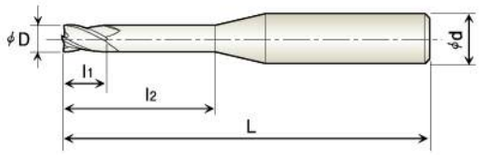
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RRE 006 020 445	0.6	0.9	2	4	45
2RRE 006 030 445	0.6	0.9	3	4	45
2RRE 006 040 445	0.6	0.9	4	4	45
2RRE 006 050 445	0.6	0.9	5	4	45
2RRE 006 060 445	0.6	0.9	6	4	45
2RRE 006 080 445	0.6	0.9	8	4	45
2RRE 006 100 445	0.6	0.9	10	4	45
2RRE 007 020 445	0.7	1	2	4	45
2RRE 007 040 445	0.7	1	4	4	45
2RRE 007 060 445	0.7	1	6	4	45
2RRE 007 080 445	0.7	1	8	4	45
2RRE 007 100 445	0.7	1	10	4	45
2RRE 007 120 445	0.7	1	12	4	45
2RRE 008 020 445	0.8	1.2	2	4	45
2RRE 008 030 445	0.8	1.2	3	4	45
2RRE 008 040 445	0.8	1.2	4	4	45
2RRE 008 050 445	0.8	1.2	5	4	45
2RRE 008 060 445	0.8	1.2	6	4	45
2RRE 008 080 445	0.8	1.2	8	4	45
2RRE 008 100 445	0.8	1.2	10	4	45
2RRE 008 120 445	0.8	1.2	12	4	45
2RRE 009 060 445	0.9	1.3	6	4	45
2RRE 009 080 445	0.9	1.3	8	4	45
2RRE 009 100 445	0.9	1.3	10	4	45

4RRE

4날 리브 플랫 엔드밀

4 Flutes Rib Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRE 010 030 445	1	1.5	3	4	45
4RRE 010 040 445	1	1.5	4	4	45
4RRE 010 060 445	1	1.5	6	4	45
4RRE 010 080 445	1	1.5	8	4	45
4RRE 010 100 445	1	1.5	10	4	45
4RRE 015 040 445	1.5	2.3	4	4	45
4RRE 015 060 445	1.5	2.3	6	4	45
4RRE 015 080 445	1.5	2.3	8	4	45
4RRE 015 100 445	1.5	2.3	10	4	45
4RRE 015 120 445	1.5	2.3	12	4	45
4RRE 015 160 450	1.5	2.3	16	4	50
4RRE 020 060 445	2	3	6	4	45
4RRE 020 080 445	2	3	8	4	45
4RRE 020 100 445	2	3	10	4	45
4RRE 020 120 445	2	3	12	4	45
4RRE 020 160 450	2	3	16	4	50
4RRE 020 200 450	2	3	20	4	50
4RRE 030 080 650	3	4.5	8	6	50
4RRE 030 100 650	3	4.5	10	6	50
4RRE 030 120 650	3	4.5	12	6	50
4RRE 030 160 660	3	4.5	16	6	60
4RRE 030 200 660	3	4.5	20	6	60
4RRE 040 100 650	4	6	10	6	50
4RRE 040 120 650	4	6	12	6	50
4RRE 040 160 660	4	6	16	6	60

4날 리브 플랫 엔드밀

4 Flutes Rib Flat End Mills

unit(mm)

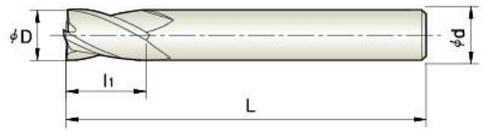
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RRE 040 200 660	4	6	20	6	60
4RRE 040 250 665	4	6	25	6	65
4RRE 050 160 660	5	8	16	6	60
4RRE 050 300 670	5	8	30	6	70
4RRE 060 150 660	6	9	15	6	60
4RRE 060 200 660	6	9	20	6	60
4RRE 060 300 670	6	9	30	6	70
4RRE 080 200 865	8	12	20	8	65
4RRE 080 300 880	8	12	30	8	80
4RRE 080 400 8A0	8	12	40	8	100
4RRE 100 250 A70	10	15	25	10	70
4RRE 100 350 AA0	10	15	35	10	100
4RRE 100 450 AA0	10	15	45	10	100
4RRE 120 300 C80	12	18	30	12	80
4RRE 120 400 CB0	12	18	40	12	110
4RRE 120 500 CB0	12	18	50	12	110

4RPE

R 4 OD 30° PAGE No.237

4날 플랫 엔드밀

4 Flutes Flat End Mills



unit(mm)

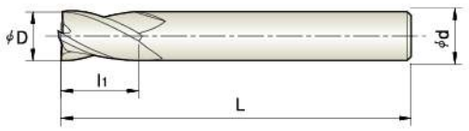
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RPE 010 025 445	1	2.5	4	45
4RPE 012 040 445	1.2	4	4	45
4RPE 015 040 445	1.5	4	4	45
4RPE 020 060 445	2	6	4	45
4RPE 025 080 445	2.5	8	4	45
4RPE 030 100 450	3	10	4	50
4RPE 035 100 650	3.5	10	6	50
4RPE 040 120 450	4	12	4	50
4RPE 050 150 650	5	15	6	50
4RPE 060 150 650	6	15	6	50
4RPE 060 150 675	6	15	6	75
4RPE 070 200 865	7	20	8	65
4RPE 080 200 865	8	20	8	65
4RPE 080 200 875	8	20	8	75
4RPE 100 250 A70	10	25	10	70
4RPE 100 250 A75	10	25	10	75
4RPE 120 300 C80	12	30	12	80

4RLE

R 4 OD 30° PAGE No.237

4날 롱 플랫 엔드밀

4 Flutes Long Flat End Mills



unit(mm)

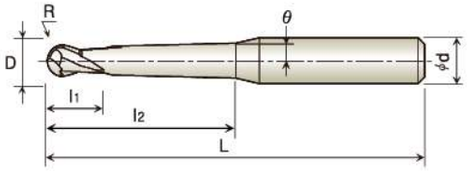
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RLE 080 300 8A0	8	30	8	100
4RLE 100 350 AA0	10	35	10	100
4RLE 120 400 CA0	12	40	12	100

2RTB

R 2 R 30° PAGE No.230

2날 테이퍼 넥 볼 엔드밀

2 Flutes Taper Neck Ball End Mills



unit(mm)

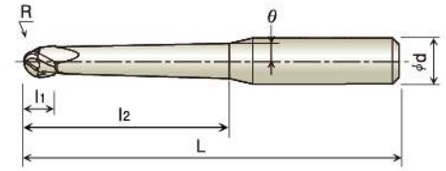
모델번호	볼반경 Radius of Ball Nose (R)	포인트각도 Angle(θ)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RTB 010 010 460	R0.5	고객 맞춤 각도주문 Angle Custom-Order	1	고객 맞춤 유효장주문 Effective Length Custom-Order	4	60
2RTB 010 010 480	R0.5		1		4	80
2RTB 010 010 690	R0.5		1		6	90
2RTB 015 015 460	R0.75		1.5		4	60
2RTB 015 015 480	R0.75		1.5		4	80
2RTB 015 015 690	R0.75		1.5		6	90
2RTB 020 020 470	R1		2		4	70
2RTB 020 020 490	R1		2		4	90
2RTB 020 020 690	R1		2		6	90
2RTB 030 030 680	R1.5		3		6	80
2RTB 030 030 6A0	R1.5		3		6	100
2RTB 030 030 8B0	R1.5		3		8	110
2RTB 040 040 680	R2		4		6	80
2RTB 040 040 6B0	R2		4		6	110
2RTB 040 040 8B0	R2		4		8	110
2RTB 050 050 890	R2.5		5		8	90
2RTB 050 050 8B0	R2.5		5		8	110
2RTB 060 060 8B0	R3		6		8	110
2RTB 060 060 AF0	R3		6		10	150
2RTB 080 080 AB0	R4		8		10	110
2RTB 080 080 CG0	R4		8		12	160
2RTB 100 100 CB0	R5		10		12	110
2RTB 100 100 CG0	R5		10		12	160
2RTB 120 120 GG0	R6		12		16	160

3RTB

R 3 R 30° PAGE No.233

3날 테이퍼 넥 볼 엔드밀

3 Flutes Taper Neck Ball End Mills



unit(mm)

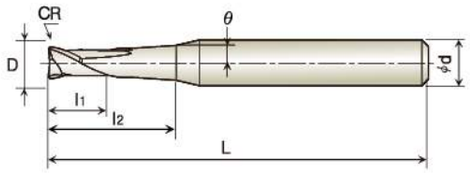
모델번호	볼반경 Radius of Ball Nose (R)	포인트각도 Angle(θ)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3RTB 010 010 460	R0.5	고객 맞춤 각도주문 Angle Custom-Order	1	고객 맞춤 유효장주문 Effective Length Custom-Order	4	60
3RTB 010 010 480	R0.5		1		4	80
3RTB 010 010 690	R0.5		1		6	90
3RTB 015 015 460	R0.75		1.5		4	60
3RTB 015 015 480	R0.75		1.5		4	80
3RTB 015 015 690	R0.75		1.5		6	90
3RTB 020 020 470	R1		2		4	70
3RTB 020 020 490	R1		2		4	90
3RTB 020 020 690	R1		2		6	90
3RTB 030 030 680	R1.5		3		6	80
3RTB 030 030 6A0	R1.5		3		6	100
3RTB 030 030 8B0	R1.5		3		8	110
3RTB 040 040 680	R2		4		6	80
3RTB 040 040 6B0	R2		4		6	110
3RTB 040 040 8B0	R2		4		8	110
3RTB 050 050 890	R2.5		5		8	90
3RTB 050 050 8B0	R2.5		5		8	110
3RTB 060 060 8B0	R3		6		8	110
3RTB 060 060 AF0	R3		6		10	150
3RTB 080 080 AB0	R4		8		10	110
3RTB 080 080 CG0	R4		8		12	160
3RTB 100 100 CB0	R5		10		12	110
3RTB 100 100 CG0	R5		10		12	160
3RTB 120 120 GG0	R6		12		16	160

2RTR

R 2 CR 30° PAGE No.238

2날 테이퍼 넥 코너 래디우스 엔드밀

2 Flutes Taper Neck Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle(θ)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RTR 010 R01 010 460	1	고객 맞춤 각도주문 Angle Custom-Order	R0.1	1	고객 맞춤 유효장주문 Effective Length Custom-Order	4	60
2RTR 010 R01 010 480	1		R0.1	1		4	80
2RTR 010 R01 010 680	1		R0.1	1		6	80
2RTR 010 R02 010 460	1		R0.2	1		4	60
2RTR 010 R02 010 480	1		R0.2	1		4	80
2RTR 010 R02 010 680	1		R0.2	1		6	80
2RTR 010 R03 010 460	1		R0.3	1		4	60
2RTR 010 R03 010 480	1		R0.3	1		4	80
2RTR 010 R03 010 680	1		R0.3	1		6	80
2RTR 015 R02 015 460	1.5		R0.2	1.5		4	60
2RTR 015 R02 015 480	1.5		R0.2	1.5		4	80
2RTR 015 R02 015 680	1.5		R0.2	1.5		6	80
2RTR 015 R03 015 460	1.5		R0.3	1.5		4	60
2RTR 015 R03 015 480	1.5		R0.3	1.5		4	80
2RTR 015 R03 015 680	1.5		R0.3	1.5		6	80
2RTR 015 R05 015 460	1.5		R0.5	1.5		4	60
2RTR 015 R05 015 480	1.5		R0.5	1.5		4	80
2RTR 015 R05 015 680	1.5		R0.5	1.5		6	80
2RTR 020 R02 020 470	2		R0.2	2		4	70
2RTR 020 R02 020 480	2		R0.2	2		4	80
2RTR 020 R02 020 680	2		R0.2	2		6	80
2RTR 020 R03 015 460	2		R0.3	1.5		4	60
2RTR 020 R03 015 480	2		R0.3	1.5		4	80
2RTR 020 R03 015 680	2		R0.3	1.5		6	80

2날 테이퍼 넥 코너 래디우스 엔드밀

R 2 CR 30° PAGE No.238

2 Flutes Taper Neck Corner Radius End Mills

unit(mm)

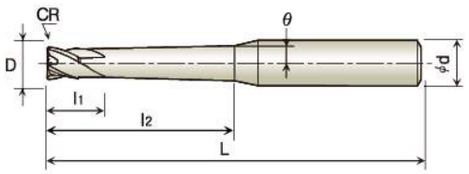
모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle(θ)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2RTR 020 R05 020 470	2	고객 맞춤 각도주문 Angle Custom-Order	R0.5	2	고객 맞춤 유효장주문 Effective Length Custom-Order	4	70
2RTR 020 R05 020 480	2		R0.5	2		4	80
2RTR 020 R05 020 680	2		R0.5	2		6	80
2RTR 030 R02 030 680	3		R0.2	3		6	80
2RTR 030 R02 030 6A0	3		R0.2	3		6	100
2RTR 030 R03 030 680	3		R0.3	3		6	80
2RTR 030 R03 030 6A0	3		R0.3	3		6	100
2RTR 030 R05 030 680	3		R0.5	3		6	80
2RTR 030 R05 030 6A0	3		R0.5	3		6	100
2RTR 040 R02 040 680	4		R0.2	4		6	80
2RTR 040 R02 040 6A0	4		R0.2	4		6	100
2RTR 040 R03 040 680	4		R0.3	4		6	80
2RTR 040 R03 040 6A0	4		R0.3	4		6	100
2RTR 040 R05 040 680	4		R0.5	4		6	80
2RTR 040 R05 040 6A0	4		R0.5	4		6	100
2RTR 040 R10 040 680	4		R1	4		6	80
2RTR 040 R10 040 6A0	4		R1	4		6	100

4RTR

R 4 CR 30° PAGE No.234

4날 테이퍼 넥 코너 래디우스 엔드밀

4 Flutes Taper Neck Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle(θ)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RTR 010 R01 010 460	1	고객 맞춤 각도주문 Angle Custom-Order	R0.1	1	고객 맞춤 유효장주문 Effective Length Custom-Order	4	60
4RTR 010 R01 010 480	1		R0.1	1		4	80
4RTR 010 R01 010 680	1		R0.1	1		6	80
4RTR 010 R02 010 460	1		R0.2	1		4	60
4RTR 010 R02 010 480	1		R0.2	1		4	80
4RTR 010 R02 010 680	1		R0.2	1		6	80
4RTR 015 R02 015 460	1.5		R0.2	1.5		4	60
4RTR 015 R02 015 480	1.5		R0.2	1.5		4	80
4RTR 015 R02 015 680	1.5		R0.2	1.5		6	80
4RTR 015 R03 015 460	1.5		R0.3	1.5		4	60
4RTR 015 R03 015 480	1.5		R0.3	1.5		4	80
4RTR 015 R03 015 680	1.5		R0.3	1.5		6	80
4RTR 015 R05 015 460	1.5		R0.5	1.5		4	60
4RTR 015 R05 015 480	1.5		R0.5	1.5		4	80
4RTR 015 R05 015 680	1.5		R0.5	1.5		6	80
4RTR 020 R02 020 470	2		R0.2	2		4	70
4RTR 020 R02 020 480	2		R0.2	2		4	80
4RTR 020 R02 020 680	2		R0.2	2		6	80
4RTR 020 R05 020 470	2		R0.5	2		4	70
4RTR 020 R05 020 480	2		R0.5	2		4	80
4RTR 020 R05 020 680	2		R0.5	2		6	80
4RTR 025 R03 025 470	2.5		R0.3	2.5		4	70
4RTR 025 R03 025 480	2.5		R0.3	2.5		4	80
4RTR 025 R03 025 680	2.5		R0.3	2.5		6	80

4날 테이퍼 넥 코너 래디우스 엔드밀

R 4 CR 30° PAGE No.234

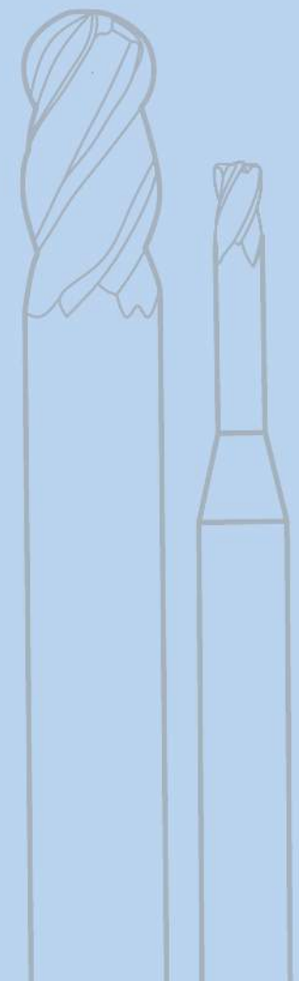
4 Flutes Taper Neck Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle(θ)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length(l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4RTR 025 R05 025 470	2.5	고객 맞춤 각도주문 Angle Custom-Order	R0.5	2.5	고객 맞춤 유효장주문 Effective Length Custom-Order	4	70
4RTR 025 R05 025 480	2.5		R0.5	2.5		4	80
4RTR 025 R05 025 680	2.5		R0.5	2.5		6	80
4RTR 030 R03 030 680	3		R0.3	3		6	80
4RTR 030 R03 030 6A0	3		R0.3	3		6	100
4RTR 030 R05 030 680	3		R0.5	3		6	80
4RTR 030 R05 030 6A0	3		R0.5	3		6	100
4RTR 040 R03 040 680	4		R0.3	4		6	80
4RTR 040 R03 040 6A0	4		R0.3	4		6	100
4RTR 040 R05 040 680	4		R0.5	4		6	80
4RTR 040 R05 040 6A0	4		R0.5	4		6	100

PART 2

H-PRO SERIES



볼 Ball

사이즈 D Size	인선직경공차(mm) D 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 D Size	인선직경공차(mm) D Tolerance	코너R반경(mm) R Size	R공차(mm) R 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 D Size	인선직경공차(mm) D Tolerance	코너R반경(mm) R Size	R공차(mm) R 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 D Size	인선직경공차(mm) D Tolerance	코너R반경(mm) R Size	R공차(mm) R 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 D Size	인선직경공차(mm) D 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

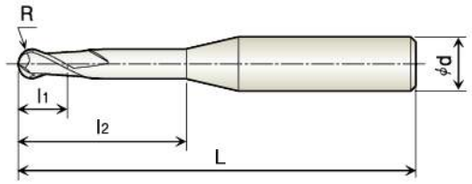
- 내마모성 및 Chattering 방지 극대화
- 고정밀 공차 적용으로 초정밀 가공에 적합
- 고속, 고이송 가공용으로 설계

- Maximized the wear resistance & minimized chattering
- Optimized to high precision in machining by applying lower tolerance
- Designed for high speed cutting

2HRB

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRB 001 003 445	R0.05	0.1	0.3	4	45
2HRB 001 005 445	R0.05	0.1	0.5	4	45
2HRB 0015 005 445	R0.075	0.15	0.5	4	45
2HRB 0016 005 445	R0.08	0.16	0.5	4	45
2HRB 002 005 445	R0.1	0.2	0.5	4	45
2HRB 002 005 650	R0.1	0.2	0.5	6	50
2HRB 002 010 445	R0.1	0.2	1	4	45
2HRB 002 015 445	R0.1	0.2	1.5	4	45
2HRB 002 020 445	R0.1	0.2	2	4	45
2HRB 002 025 445	R0.1	0.2	2.5	4	45
2HRB 002 030 445	R0.1	0.2	3	4	45
2HRB 0025 008 445	R0.125	0.25	0.8	4	45
2HRB 003 005 445	R0.15	0.3	0.5	4	45
2HRB 003 010 445	R0.15	0.3	1	4	45
2HRB 003 015 445	R0.15	0.3	1.5	4	45
2HRB 003 020 445	R0.15	0.3	2	4	45
2HRB 003 025 445	R0.15	0.3	2.5	4	45
2HRB 003 030 445	R0.15	0.3	3	4	45
2HRB 003 035 445	R0.15	0.3	3.5	4	45
2HRB 003 040 445	R0.15	0.3	4	4	45
2HRB 003 050 445	R0.15	0.3	5	4	45
2HRB 004 010 445	R0.2	0.4	1	4	45
2HRB 004 010 650	R0.2	0.4	1	6	50
2HRB 004 015 445	R0.2	0.4	1.5	4	45

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRB 004 020 445	R0.2	0.4	2	4	45
2HRB 004 025 445	R0.2	0.4	2.5	4	45
2HRB 004 030 445	R0.2	0.4	3	4	45
2HRB 004 035 445	R0.2	0.4	3.5	4	45
2HRB 004 040 445	R0.2	0.4	4	4	45
2HRB 004 045 445	R0.2	0.4	4.5	4	45
2HRB 004 050 445	R0.2	0.4	5	4	45
2HRB 004 060 445	R0.2	0.4	6	4	45
2HRB 004 080 445	R0.2	0.4	8	4	45
2HRB 004 100 445	R0.2	0.4	10	4	45
2HRB 005 010 445	R0.25	0.5	1	4	45
2HRB 005 015 445	R0.25	0.5	1.5	4	45
2HRB 005 015 650	R0.25	0.5	1.5	6	50
2HRB 005 020 445	R0.25	0.5	2	4	45
2HRB 005 025 445	R0.25	0.5	2.5	4	45
2HRB 005 030 445	R0.25	0.5	3	4	45
2HRB 005 035 445	R0.25	0.5	3.5	4	45
2HRB 005 040 445	R0.25	0.5	4	4	45
2HRB 005 045 445	R0.25	0.5	4.5	4	45
2HRB 005 050 445	R0.25	0.5	5	4	45
2HRB 005 060 445	R0.25	0.5	6	4	45
2HRB 005 080 445	R0.25	0.5	8	4	45
2HRB 005 100 445	R0.25	0.5	10	4	45
2HRB 005 120 445	R0.25	0.5	12	4	45
2HRB 005 140 445	R0.25	0.5	14	4	45
2HRB 006 010 445	R0.3	0.6	1	4	45
2HRB 006 015 650	R0.3	0.6	1.5	6	50
2HRB 006 020 445	R0.3	0.6	2	4	45
2HRB 006 030 445	R0.3	0.6	3	4	45
2HRB 006 040 445	R0.3	0.6	4	4	45
2HRB 006 050 445	R0.3	0.6	5	4	45
2HRB 006 060 445	R0.3	0.6	6	4	45
2HRB 006 080 445	R0.3	0.6	8	4	45
2HRB 006 100 445	R0.3	0.6	10	4	45

2날 리브가공용 볼 엔드밀

H 2 R 30° PAGE No.240

2 Flutes Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRB 006 120 445	R0.3	0.6	12	4	45
2HRB 006 140 445	R0.3	0.6	14	4	45
2HRB 006 160 445	R0.3	0.6	16	4	45
2HRB 007 020 445	R0.35	0.7	2	4	45
2HRB 007 040 445	R0.35	0.7	4	4	45
2HRB 007 060 445	R0.35	0.7	6	4	45
2HRB 007 080 445	R0.35	0.7	8	4	45
2HRB 007 100 445	R0.35	0.7	10	4	45
2HRB 007 120 445	R0.35	0.7	12	4	45
2HRB 008 020 445	R0.4	0.8	2	4	45
2HRB 008 020 650	R0.4	0.8	2	6	50
2HRB 008 030 445	R0.4	0.8	3	4	45
2HRB 008 040 445	R0.4	0.8	4	4	45
2HRB 008 050 445	R0.4	0.8	5	4	45
2HRB 008 060 445	R0.4	0.8	6	4	45
2HRB 008 080 445	R0.4	0.8	8	4	45
2HRB 008 100 445	R0.4	0.8	10	4	45
2HRB 008 120 445	R0.4	0.8	12	4	45
2HRB 008 140 445	R0.4	0.8	14	4	45
2HRB 008 160 445	R0.4	0.8	16	4	45
2HRB 009 040 445	R0.45	0.9	4	4	45
2HRB 010 020 445	R0.5	1	2	4	45
2HRB 010 025 650	R0.5	1	2.5	6	50
2HRB 010 030 445	R0.5	1	3	4	45
2HRB 010 040 445	R0.5	1	4	4	45
2HRB 010 050 445	R0.5	1	5	4	45
2HRB 010 060 445	R0.5	1	6	4	45
2HRB 010 080 445	R0.5	1	8	4	45
2HRB 010 100 445	R0.5	1	10	4	45
2HRB 010 120 445	R0.5	1	12	4	45
2HRB 010 140 450	R0.5	1	14	4	50
2HRB 020 060 445	R1.0	2	6	4	45
2HRB 020 060 650	R1.0	2	6	6	50
2HRB 020 080 445	R1.0	2	8	4	45

2날 리브가공용 볼 엔드밀

H 2 R 30° PAGE No.240

2 Flutes Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRB 020 100 445	R1.0	2	10	4	45
2HRB 020 120 445	R1.0	2	12	4	45
2HRB 020 140 450	R1.0	2	14	4	50
2HRB 020 160 450	R1.0	2	16	4	50
2HRB 020 180 450	R1.0	2	18	4	50
2HRB 020 200 450	R1.0	2	20	4	50
2HRB 020 220 460	R1.0	2	22	4	60
2HRB 020 250 460	R1.0	2	25	4	60
2HRB 020 300 470	R1.0	2	30	4	70
2HRB 020 350 470	R1.0	2	35	4	70
2HRB 025 060 650	R1.25	2.5	6	6	50
2HRB 025 080 445	R1.25	2.5	8	4	45
2HRB 025 100 445	R1.25	2.5	10	4	45
2HRB 025 120 445	R1.25	2.5	12	4	45
2HRB 025 160 450	R1.25	2.5	16	4	50
2HRB 025 200 450	R1.25	2.5	20	4	50
2HRB 025 250 460	R1.25	2.5	25	4	60
2HRB 025 300 470	R1.25	2.5	30	4	70
2HRB 025 350 470	R1.25	2.5	35	4	70
2HRB 030 060 360	R1.5	3	6	3	60
2HRB 030 060 650	R1.5	3	6	6	50
2HRB 030 080 650	R1.5	3	8	6	50
2HRB 030 100 650	R1.5	3	10	6	50
2HRB 030 120 650	R1.5	3	12	6	50
2HRB 030 140 660	R1.5	3	14	6	60
2HRB 030 160 660	R1.5	3	16	6	60
2HRB 030 180 660	R1.5	3	18	6	60
2HRB 030 200 660	R1.5	3	20	6	60
2HRB 030 250 665	R1.5	3	25	6	65
2HRB 030 300 670	R1.5	3	30	6	70
2HRB 030 350 680	R1.5	3	35	6	80
2HRB 030 400 680	R1.5	3	40	6	80
2HRB 030 500 6A0	R1.5	3	50	6	100
2HRB 040 080 470	R2.0	4	8	4	70

2날 리브가공용 볼 엔드밀

H 2 R 30° PAGE No.240

2 Flutes Rib Ball End Mills

unit(mm)

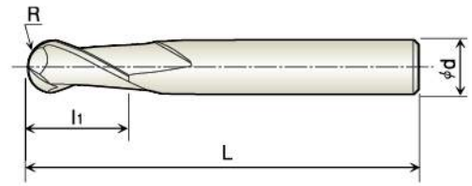
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRB 040 080 650	R2.0	4	8	6	50
2HRB 040 100 650	R2.0	4	10	6	50
2HRB 040 120 650	R2.0	4	12	6	50
2HRB 040 140 660	R2.0	4	14	6	60
2HRB 040 160 660	R2.0	4	16	6	60
2HRB 040 200 660	R2.0	4	20	6	60
2HRB 040 250 665	R2.0	4	25	6	65
2HRB 040 300 670	R2.0	4	30	6	70
2HRB 040 350 680	R2.0	4	35	6	80
2HRB 040 400 680	R2.0	4	40	6	80
2HRB 040 450 690	R2.0	4	45	6	90
2HRB 040 500 6A0	R2.0	4	50	6	100
2HRB 040 550 6B0	R2.0	4	55	6	110
2HRB 040 600 6B0	R2.0	4	60	6	110
2HRB 040 650 6B0	R2.0	4	65	6	110
2HRB 040 700 6B0	R2.0	4	70	6	110
2HRB 050 120 650	R2.5	5	12	6	50
2HRB 050 160 660	R2.5	5	16	6	60
2HRB 050 200 660	R2.5	5	20	6	60
2HRB 050 250 665	R2.5	5	25	6	65
2HRB 050 300 670	R2.5	5	30	6	70
2HRB 050 400 680	R2.5	5	40	6	80
2HRB 050 450 690	R2.5	5	45	6	90
2HRB 050 500 6A0	R2.5	5	50	6	100
2HRB 050 600 6B0	R2.5	5	60	6	110
2HRB 050 650 6B0	R2.5	5	65	6	110
2HRB 050 700 6B0	R2.5	5	70	6	110
2HRB 060 150 660	R3.0	7	15	6	60
2HRB 060 300 670	R3.0	6	30	6	70
2HRB 060 300 690	R3.0	6	30	6	90
2HRB 080 200 860	R4.0	10	20	8	60
2HRB 080 300 880	R4.0	8	30	8	80
2HRB 100 250 A70	R5.0	12	25	10	70
2HRB 100 350 AA0	R5.0	10	35	10	100
2HRB 120 300 C80	R6.0	14	30	12	80
2HRB 120 400 CB0	R6.0	12	40	12	110

2HSB

H 2 R 30° PAGE No.241

2날 쇼트 볼 엔드밀

2 Flutes Short Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HSB 001 001 440	R0.05	0.1	4	40
2HSB 002 002 440	R0.1	0.2	4	40
2HSB 002 003 440	R0.1	0.3	4	40
2HSB 003 003 440	R0.15	0.3	4	40
2HSB 004 004 440	R0.2	0.4	4	40
2HSB 004 006 440	R0.2	0.6	4	40
2HSB 005 005 440	R0.25	0.5	4	40
2HSB 006 006 440	R0.3	0.6	4	40
2HSB 007 007 440	R0.35	0.7	4	40
2HSB 008 008 440	R0.4	0.8	4	40
2HSB 009 009 440	R0.45	0.9	4	40
2HSB 010 010 440	R0.5	1	4	40
2HSB 010 010 640	R0.5	1	6	40
2HSB 010 015 440	R0.5	1.5	4	40
2HSB 010 015 640	R0.5	1.5	6	40
2HSB 015 015 440	R0.75	1.5	4	40
2HSB 015 015 640	R0.75	1.5	6	40
2HSB 015 023 440	R0.75	2.3	4	40
2HSB 015 023 640	R0.75	2.3	6	40
2HSB 020 020 445	R1.0	2	4	45
2HSB 020 020 645	R1.0	2	6	45
2HSB 020 030 445	R1.0	3	4	45
2HSB 020 030 645	R1.0	3	6	45
2HSB 030 030 445	R1.5	3	4	45

2날 쇼트 볼 엔드밀

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2 Flutes Short Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HSB 030 030 645	R1.5	3	6	45
2HSB 030 045 445	R1.5	4.5	4	45
2HSB 030 045 645	R1.5	4.5	6	45
2HSB 040 040 445	R2.0	4	4	45
2HSB 040 040 645	R2.0	4	6	45
2HSB 040 060 445	R2.0	6	4	45
2HSB 040 060 645	R2.0	6	6	45
2HSB 050 050 650	R2.5	5	6	50
2HSB 050 075 650	R2.5	7.5	6	50
2HSB 060 060 650	R3.0	6	6	50
2HSB 060 080 660	R3.0	8	6	60
2HSB 080 080 850	R4.0	8	8	50
2HSB 080 110 860	R4.0	11	8	60
2HSB 100 100 A60	R5.0	10	10	60
2HSB 100 130 A60	R5.0	13	10	60
2HSB 120 120 C60	R6.0	12	12	60
2HSB 120 150 C60	R6.0	15	12	60

2HPB

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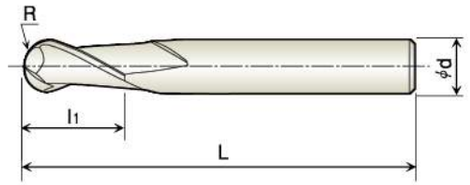
2날 볼 엔드밀

2 Flutes Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPB 001 002 445	R0.05	0.2	4	45
2HPB 0015 003 445	R0.075	0.3	4	45
2HPB 002 004 445	R0.1	0.4	4	45
2HPB 003 006 445	R0.15	0.6	4	45
2HPB 004 008 445	R0.2	0.8	4	45
2HPB 004 008 645	R0.2	0.8	6	45
2HPB 005 010 445	R0.25	1	4	45
2HPB 005 010 645	R0.25	1	6	45
2HPB 006 012 445	R0.3	1.2	4	45
2HPB 006 012 645	R0.3	1.2	6	45
2HPB 007 015 445	R0.35	1.5	4	45
2HPB 008 015 445	R0.4	1.5	4	45
2HPB 008 015 645	R0.4	1.5	6	45
2HPB 010 020 350	R0.5	2	3	50
2HPB 010 020 450	R0.5	2	4	50
2HPB 010 020 650	R0.5	2	6	50
2HPB 011 024 450	R0.55	2.4	4	50
2HPB 012 025 350	R0.6	2.5	3	50
2HPB 012 025 450	R0.6	2.5	4	50
2HPB 012 025 650	R0.6	2.5	6	50
2HPB 013 032 450	R0.65	3.2	4	50
2HPB 014 035 450	R0.7	3.5	4	50
2HPB 015 040 350	R0.75	4	3	50
2HPB 015 040 450	R0.75	4	4	50

2날 볼 엔드밀

H 2 R 30° PAGE No.242

2 Flutes Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPB 015 040 650	R0.75	4	6	50
2HPB 015 040 670	R0.75	4	6	70
2HPB 015 040 6A0	R0.75	4	6	100
2HPB 016 040 450	R0.8	4	4	50
2HPB 017 042 450	R0.85	4.2	4	50
2HPB 018 045 450	R0.9	4.5	4	50
2HPB 019 047 450	R0.95	4.7	4	50
2HPB 020 050 350	R1.0	5	3	50
2HPB 020 050 450	R1.0	5	4	50
2HPB 020 050 660	R1.0	5	6	60
2HPB 020 050 680	R1.0	5	6	80
2HPB 020 050 6A0	R1.0	5	6	100
2HPB 022 055 450	R1.1	5.5	4	50
2HPB 024 060 450	R1.2	6	4	50
2HPB 025 060 350	R1.25	6	3	50
2HPB 025 060 450	R1.25	6	4	50
2HPB 025 060 660	R1.25	6	6	60
2HPB 025 060 680	R1.25	6	6	80
2HPB 025 060 6A0	R1.25	6	6	100
2HPB 026 060 450	R1.3	6	4	50
2HPB 028 070 450	R1.4	7	4	50
2HPB 030 080 360	R1.5	8	3	60
2HPB 030 080 460	R1.5	8	4	60
2HPB 030 080 660	R1.5	8	6	60
2HPB 030 080 680	R1.5	8	6	80
2HPB 030 080 6A0	R1.5	8	6	100
2HPB 032 080 460	R1.6	8	4	60
2HPB 034 080 460	R1.7	8	4	60
2HPB 035 080 660	R1.75	8	6	60
2HPB 036 080 460	R1.8	8	4	60
2HPB 038 080 460	R1.9	8	4	60
2HPB 040 080 460	R2.0	8	4	60
2HPB 040 080 480	R2.0	8	4	80
2HPB 040 080 670	R2.0	8	6	70

2날 볼 엔드밀

H 2 R 30° PAGE No.242

2 Flutes Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPB 040 080 690	R2.0	8	6	90
2HPB 040 080 6C0	R2.0	8	6	120
2HPB 042 100 670	R2.1	10	6	70
2HPB 044 100 670	R2.2	10	6	70
2HPB 045 100 670	R2.25	10	6	70
2HPB 046 100 670	R2.3	10	6	70
2HPB 047 100 670	R2.35	10	6	70
2HPB 048 100 670	R2.4	10	6	70
2HPB 050 100 680	R2.5	10	6	80
2HPB 052 120 680	R2.6	12	6	80
2HPB 054 120 680	R2.7	12	6	80
2HPB 055 120 680	R2.75	12	6	80
2HPB 056 120 680	R2.8	12	6	80
2HPB 058 120 680	R2.9	12	6	80
2HPB 060 120 675	R3.0	12	6	75
2HPB 060 120 680	R3.0	12	6	80
2HPB 060 120 690	R3.0	12	6	90
2HPB 060 120 6C0	R3.0	12	6	120
2HPB 060 120 6F0	R3.0	12	6	150
2HPB 070 140 8A0	R3.5	14	8	100
2HPB 080 140 875	R4.0	14	8	75
2HPB 080 140 8A0	R4.0	14	8	100
2HPB 080 140 8D0	R4.0	14	8	130
2HPB 080 140 8F0	R4.0	14	8	150
2HPB 090 180 AA0	R4.5	18	10	100
2HPB 100 180 A75	R5.0	18	10	75
2HPB 100 180 AA0	R5.0	18	10	100
2HPB 100 180 AD0	R5.0	18	10	130
2HPB 100 180 AF0	R5.0	18	10	150
2HPB 100 180 AI0	R5.0	18	10	180
2HPB 110 220 CB0	R5.5	22	12	110
2HPB 120 220 CB0	R6.0	22	12	110
2HPB 120 220 CD0	R6.0	22	12	130
2HPB 120 220 CF0	R6.0	22	12	150

2날 볼 엔드밀

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2 Flutes Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPB 120 220 CK0	R6.0	22	12	200
2HPB 130 240 EB0	R6.5	24	14	110
2HPB 140 240 EB0	R7.0	24	14	110
2HPB 160 300 GB0	R8.0	30	16	110
2HPB 160 300 GF0	R8.0	30	16	150
2HPB 200 380 KB0	R10.0	38	20	110
2HPB 200 380 KF0	R10.0	38	20	150

3HPB

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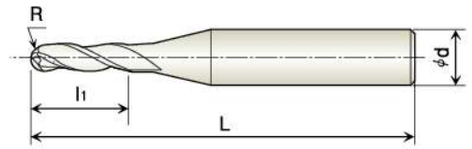
3날 볼 엔드밀

3 Flutes Ball End Mills



unit(mm)

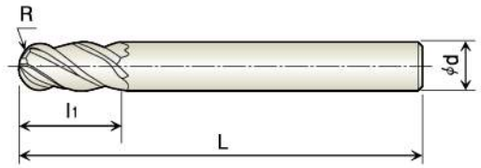
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3HPB 010 020 650	R0.5	2	6	50
3HPB 020 050 660	R1.0	5	6	60
3HPB 030 080 660	R1.5	8	6	60
3HPB 040 080 460	R2.0	8	4	60
3HPB 040 080 670	R2.0	8	6	70
3HPB 050 100 680	R2.5	10	6	80
3HPB 060 120 690	R3.0	12	6	90
3HPB 080 140 8A0	R4.0	14	8	100
3HPB 100 180 AA0	R5.0	18	10	100
3HPB 120 220 CB0	R6.0	22	12	110

4HPB

H 4 R 30° PAGE No.244

4날 볼 엔드밀

4 Flutes Ball End Mills



unit(mm)

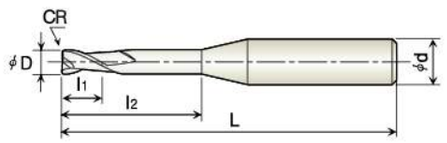
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HPB 010 020 650	R0.5	2	6	50
4HPB 015 040 650	R0.75	4	6	50
4HPB 020 050 660	R1.0	5	6	60
4HPB 030 080 660	R1.5	8	6	60
4HPB 040 080 460	R2.0	8	4	60
4HPB 040 080 670	R2.0	8	6	70
4HPB 050 100 680	R2.5	10	6	80
4HPB 060 120 690	R3.0	12	6	90
4HPB 080 140 8A0	R4.0	14	8	100
4HPB 100 180 AA0	R5.0	18	10	100
4HPB 120 220 CB0	R6.0	22	12	110
4HPB 160 300 GD0	R8.0	30	16	130
4HPB 200 380 KF0	R10.0	38	20	150

2HRR

H 2 CR 30° PAGE No.245

2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 002 R002 005 445	0.2	R0.02	0.3	0.5	4	45
2HRR 002 R002 010 445	0.2	R0.02	0.3	1	4	45
2HRR 002 R002 015 445	0.2	R0.02	0.3	1.5	4	45
2HRR 002 R005 010 445	0.2	R0.05	0.3	1	4	45
2HRR 002 R005 015 445	0.2	R0.05	0.3	1.5	4	45
2HRR 003 R005 010 445	0.3	R0.05	0.45	1	4	45
2HRR 003 R005 020 445	0.3	R0.05	0.45	2	4	45
2HRR 003 R005 030 445	0.3	R0.05	0.45	3	4	45
2HRR 004 R005 010 445	0.4	R0.05	0.6	1	4	45
2HRR 004 R005 020 445	0.4	R0.05	0.6	2	4	45
2HRR 004 R005 030 445	0.4	R0.05	0.6	3	4	45
2HRR 004 R005 040 445	0.4	R0.05	0.6	4	4	45
2HRR 004 R01 010 445	0.4	R0.1	0.6	1	4	45
2HRR 004 R01 015 445	0.4	R0.1	0.6	1.5	4	45
2HRR 004 R01 020 445	0.4	R0.1	0.6	2	4	45
2HRR 004 R01 030 445	0.4	R0.1	0.6	3	4	45
2HRR 004 R01 040 445	0.4	R0.1	0.6	4	4	45
2HRR 005 R002 010 445	0.5	R0.02	0.7	1	4	45
2HRR 005 R002 015 445	0.5	R0.02	0.7	1.5	4	45
2HRR 005 R002 020 445	0.5	R0.02	0.7	2	4	45
2HRR 005 R002 025 445	0.5	R0.02	0.7	2.5	4	45
2HRR 005 R002 030 445	0.5	R0.02	0.7	3	4	45
2HRR 005 R002 040 445	0.5	R0.02	0.7	4	4	45
2HRR 005 R002 050 445	0.5	R0.02	0.7	5	4	45

2날 리브 코너 래디우스 엔드밀

H 2 CR 30° PAGE No.245

2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 005 R002 060 445	0.5	R0.02	0.7	6	4	45
2HRR 005 R002 080 445	0.5	R0.02	0.7	8	4	45
2HRR 005 R002 100 445	0.5	R0.02	0.7	10	4	45
2HRR 005 R005 010 445	0.5	R0.05	0.7	1	4	45
2HRR 005 R005 015 445	0.5	R0.05	0.7	1.5	4	45
2HRR 005 R005 020 445	0.5	R0.05	0.7	2	4	45
2HRR 005 R005 025 445	0.5	R0.05	0.7	2.5	4	45
2HRR 005 R005 030 445	0.5	R0.05	0.7	3	4	45
2HRR 005 R005 040 445	0.5	R0.05	0.7	4	4	45
2HRR 005 R005 050 445	0.5	R0.05	0.7	5	4	45
2HRR 005 R005 060 445	0.5	R0.05	0.7	6	4	45
2HRR 005 R005 080 445	0.5	R0.05	0.7	8	4	45
2HRR 005 R005 100 445	0.5	R0.05	0.7	10	4	45
2HRR 005 R01 010 445	0.5	R0.1	0.7	1	4	45
2HRR 005 R01 015 445	0.5	R0.1	0.7	1.5	4	45
2HRR 005 R01 020 445	0.5	R0.1	0.7	2	4	45
2HRR 005 R01 025 445	0.5	R0.1	0.7	2.5	4	45
2HRR 005 R01 030 445	0.5	R0.1	0.7	3	4	45
2HRR 005 R01 040 445	0.5	R0.1	0.7	4	4	45
2HRR 005 R01 050 445	0.5	R0.1	0.7	5	4	45
2HRR 005 R01 060 445	0.5	R0.1	0.7	6	4	45
2HRR 005 R01 080 445	0.5	R0.1	0.7	8	4	45
2HRR 005 R01 100 445	0.5	R0.1	0.7	10	4	45
2HRR 006 R002 020 445	0.6	R0.02	0.9	2	4	45
2HRR 006 R002 030 445	0.6	R0.02	0.9	3	4	45
2HRR 006 R002 040 445	0.6	R0.02	0.9	4	4	45
2HRR 006 R002 060 445	0.6	R0.02	0.9	6	4	45
2HRR 006 R002 080 445	0.6	R0.02	0.9	8	4	45
2HRR 006 R002 100 445	0.6	R0.02	0.9	10	4	45
2HRR 006 R005 020 445	0.6	R0.05	0.9	2	4	45
2HRR 006 R005 030 445	0.6	R0.05	0.9	3	4	45
2HRR 006 R005 040 445	0.6	R0.05	0.9	4	4	45
2HRR 006 R005 060 445	0.6	R0.05	0.9	6	4	45
2HRR 006 R005 080 445	0.6	R0.05	0.9	8	4	45

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 006 R005 100 445	0.6	R0.05	0.9	10	4	45
2HRR 006 R01 020 445	0.6	R0.1	0.9	2	4	45
2HRR 006 R01 030 445	0.6	R0.1	0.9	3	4	45
2HRR 006 R01 040 445	0.6	R0.1	0.9	4	4	45
2HRR 006 R01 060 445	0.6	R0.1	0.9	6	4	45
2HRR 006 R01 080 445	0.6	R0.1	0.9	8	4	45
2HRR 006 R01 100 445	0.6	R0.1	0.9	10	4	45
2HRR 007 R01 020 445	0.7	R0.1	1	2	4	45
2HRR 007 R01 040 445	0.7	R0.1	1	4	4	45
2HRR 007 R01 060 445	0.7	R0.1	1	6	4	45
2HRR 008 R002 020 445	0.8	R0.02	1.2	2	4	45
2HRR 008 R002 040 445	0.8	R0.02	1.2	4	4	45
2HRR 008 R002 060 445	0.8	R0.02	1.2	6	4	45
2HRR 008 R002 080 445	0.8	R0.02	1.2	8	4	45
2HRR 008 R002 100 445	0.8	R0.02	1.2	10	4	45
2HRR 008 R005 020 445	0.8	R0.05	1.2	2	4	45
2HRR 008 R005 040 445	0.8	R0.05	1.2	4	4	45
2HRR 008 R005 060 445	0.8	R0.05	1.2	6	4	45
2HRR 008 R005 080 445	0.8	R0.05	1.2	8	4	45
2HRR 008 R005 100 445	0.8	R0.05	1.2	10	4	45
2HRR 008 R01 020 445	0.8	R0.1	1.2	2	4	45
2HRR 008 R01 040 445	0.8	R0.1	1.2	4	4	45
2HRR 008 R01 060 445	0.8	R0.1	1.2	6	4	45
2HRR 008 R01 080 445	0.8	R0.1	1.2	8	4	45
2HRR 008 R01 100 445	0.8	R0.1	1.2	10	4	45
2HRR 008 R02 020 445	0.8	R0.2	1.2	2	4	45
2HRR 008 R02 040 445	0.8	R0.2	1.2	4	4	45
2HRR 008 R02 060 445	0.8	R0.2	1.2	6	4	45
2HRR 008 R02 080 445	0.8	R0.2	1.2	8	4	45
2HRR 008 R02 100 445	0.8	R0.2	1.2	10	4	45
2HRR 010 R005 040 445	1	R0.05	1.5	4	4	45
2HRR 010 R005 060 445	1	R0.05	1.5	6	4	45
2HRR 010 R005 080 445	1	R0.05	1.5	8	4	45
2HRR 010 R005 100 445	1	R0.05	1.5	10	4	45

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 010 R005 120 445	1	R0.05	1.5	12	4	45
2HRR 010 R005 160 450	1	R0.05	1.5	16	4	50
2HRR 010 R005 200 450	1	R0.05	1.5	20	4	50
2HRR 010 R005 220 460	1	R0.05	1.5	22	4	60
2HRR 010 R005 250 460	1	R0.05	1.5	25	4	60
2HRR 010 R01 040 445	1	R0.1	1.5	4	4	45
2HRR 010 R01 060 445	1	R0.1	1.5	6	4	45
2HRR 010 R01 080 445	1	R0.1	1.5	8	4	45
2HRR 010 R01 100 445	1	R0.1	1.5	10	4	45
2HRR 010 R01 120 445	1	R0.1	1.5	12	4	45
2HRR 010 R01 160 450	1	R0.1	1.5	16	4	50
2HRR 010 R01 200 450	1	R0.1	1.5	20	4	50
2HRR 010 R01 220 460	1	R0.1	1.5	22	4	60
2HRR 010 R01 250 460	1	R0.1	1.5	25	4	60
2HRR 010 R02 040 445	1	R0.2	1.5	4	4	45
2HRR 010 R02 060 445	1	R0.2	1.5	6	4	45
2HRR 010 R02 080 445	1	R0.2	1.5	8	4	45
2HRR 010 R02 100 445	1	R0.2	1.5	10	4	45
2HRR 010 R02 120 445	1	R0.2	1.5	12	4	45
2HRR 010 R02 160 450	1	R0.2	1.5	16	4	50
2HRR 010 R02 200 450	1	R0.2	1.5	20	4	50
2HRR 010 R02 220 460	1	R0.2	1.5	22	4	60
2HRR 010 R02 250 460	1	R0.2	1.5	25	4	60
2HRR 010 R025 040 665	1	R0.25	1.5	4	6	65
2HRR 010 R025 080 665	1	R0.25	1.5	8	6	65
2HRR 010 R03 040 445	1	R0.3	1.5	4	4	45
2HRR 010 R03 060 445	1	R0.3	1.5	6	4	45
2HRR 010 R03 080 445	1	R0.3	1.5	8	4	45
2HRR 010 R03 100 445	1	R0.3	1.5	10	4	45
2HRR 010 R03 120 445	1	R0.3	1.5	12	4	45
2HRR 010 R03 160 450	1	R0.3	1.5	16	4	50
2HRR 010 R03 200 450	1	R0.3	1.5	20	4	50
2HRR 010 R03 220 460	1	R0.3	1.5	22	4	60
2HRR 010 R03 250 460	1	R0.3	1.5	25	4	60

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 012 R01 040 445	1.2	R0.1	1.8	4	4	45
2HRR 012 R01 060 445	1.2	R0.1	1.8	6	4	45
2HRR 012 R01 080 445	1.2	R0.1	1.8	8	4	45
2HRR 012 R01 100 445	1.2	R0.1	1.8	10	4	45
2HRR 012 R01 120 445	1.2	R0.1	1.8	12	4	45
2HRR 012 R01 160 450	1.2	R0.1	1.8	16	4	50
2HRR 012 R01 200 450	1.2	R0.1	1.8	20	4	50
2HRR 012 R02 040 445	1.2	R0.2	1.8	4	4	45
2HRR 012 R02 060 445	1.2	R0.2	1.8	6	4	45
2HRR 012 R02 080 445	1.2	R0.2	1.8	8	4	45
2HRR 012 R02 100 445	1.2	R0.2	1.8	10	4	45
2HRR 012 R02 120 445	1.2	R0.2	1.8	12	4	45
2HRR 012 R02 160 450	1.2	R0.2	1.8	16	4	50
2HRR 012 R02 200 450	1.2	R0.2	1.8	20	4	50
2HRR 012 R03 040 445	1.2	R0.3	1.8	4	4	45
2HRR 012 R03 060 445	1.2	R0.3	1.8	6	4	45
2HRR 012 R03 080 445	1.2	R0.3	1.8	8	4	45
2HRR 012 R03 100 445	1.2	R0.3	1.8	10	4	45
2HRR 012 R03 120 445	1.2	R0.3	1.8	12	4	45
2HRR 012 R03 160 450	1.2	R0.3	1.8	16	4	50
2HRR 012 R03 200 450	1.2	R0.3	1.8	20	4	50
2HRR 015 R01 040 445	1.5	R0.1	2.3	4	4	45
2HRR 015 R01 060 445	1.5	R0.1	2.3	6	4	45
2HRR 015 R01 080 445	1.5	R0.1	2.3	8	4	45
2HRR 015 R01 100 445	1.5	R0.1	2.3	10	4	45
2HRR 015 R01 120 445	1.5	R0.1	2.3	12	4	45
2HRR 015 R01 160 450	1.5	R0.1	2.3	16	4	50
2HRR 015 R01 200 450	1.5	R0.1	2.3	20	4	50
2HRR 015 R01 220 460	1.5	R0.1	2.3	22	4	60
2HRR 015 R01 250 460	1.5	R0.1	2.3	25	4	60
2HRR 015 R02 040 445	1.5	R0.2	2.3	4	4	45
2HRR 015 R02 060 445	1.5	R0.2	2.3	6	4	45
2HRR 015 R02 080 445	1.5	R0.2	2.3	8	4	45
2HRR 015 R02 100 445	1.5	R0.2	2.3	10	4	45

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 015 R02 120 445	1.5	R0.2	2.3	12	4	45
2HRR 015 R02 160 450	1.5	R0.2	2.3	16	4	50
2HRR 015 R02 200 450	1.5	R0.2	2.3	20	4	50
2HRR 015 R02 220 460	1.5	R0.2	2.3	22	4	60
2HRR 015 R02 250 460	1.5	R0.2	2.3	25	4	60
2HRR 015 R03 040 445	1.5	R0.3	2.3	4	4	45
2HRR 015 R03 060 445	1.5	R0.3	2.3	6	4	45
2HRR 015 R03 060 670	1.5	R0.3	2.3	6	6	70
2HRR 015 R03 080 445	1.5	R0.3	2.3	8	4	45
2HRR 015 R03 080 670	1.5	R0.3	2.3	8	6	70
2HRR 015 R03 100 445	1.5	R0.3	2.3	10	4	45
2HRR 015 R03 100 670	1.5	R0.3	2.3	10	6	70
2HRR 015 R03 120 445	1.5	R0.3	2.3	12	4	45
2HRR 015 R03 160 450	1.5	R0.3	2.3	16	4	50
2HRR 015 R03 200 450	1.5	R0.3	2.3	20	4	50
2HRR 015 R03 220 460	1.5	R0.3	2.3	22	4	60
2HRR 015 R03 250 460	1.5	R0.3	2.3	25	4	60
2HRR 015 R05 040 445	1.5	R0.5	2.3	4	4	45
2HRR 015 R05 060 445	1.5	R0.5	2.3	6	4	45
2HRR 015 R05 080 445	1.5	R0.5	2.3	8	4	45
2HRR 015 R05 100 445	1.5	R0.5	2.3	10	4	45
2HRR 015 R05 120 445	1.5	R0.5	2.3	12	4	45
2HRR 015 R05 160 450	1.5	R0.5	2.3	16	4	50
2HRR 015 R05 200 450	1.5	R0.5	2.3	20	4	50
2HRR 015 R05 220 460	1.5	R0.5	2.3	22	4	60
2HRR 015 R05 250 460	1.5	R0.5	2.3	25	4	60
2HRR 020 R01 040 445	2	R0.1	3	4	4	45
2HRR 020 R01 060 445	2	R0.1	3	6	4	45
2HRR 020 R01 080 445	2	R0.1	3	8	4	45
2HRR 020 R01 100 445	2	R0.1	3	10	4	45
2HRR 020 R01 120 445	2	R0.1	3	12	4	45
2HRR 020 R01 160 450	2	R0.1	3	16	4	50
2HRR 020 R01 200 450	2	R0.1	3	20	4	50
2HRR 020 R01 250 460	2	R0.1	3	25	4	60

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 020 R01 300 470	2	R0.1	3	30	4	70
2HRR 020 R02 040 445	2	R0.2	3	4	4	45
2HRR 020 R02 060 445	2	R0.2	3	6	4	45
2HRR 020 R02 080 445	2	R0.2	3	8	4	45
2HRR 020 R02 100 445	2	R0.2	3	10	4	45
2HRR 020 R02 120 445	2	R0.2	3	12	4	45
2HRR 020 R02 160 450	2	R0.2	3	16	4	50
2HRR 020 R02 200 450	2	R0.2	3	20	4	50
2HRR 020 R02 250 460	2	R0.2	3	25	4	60
2HRR 020 R02 300 470	2	R0.2	3	30	4	70
2HRR 020 R03 040 445	2	R0.3	3	4	4	45
2HRR 020 R03 060 445	2	R0.3	3	6	4	45
2HRR 020 R03 080 445	2	R0.3	3	8	4	45
2HRR 020 R03 100 445	2	R0.3	3	10	4	45
2HRR 020 R03 120 445	2	R0.3	3	12	4	45
2HRR 020 R03 160 450	2	R0.3	3	16	4	50
2HRR 020 R03 200 450	2	R0.3	3	20	4	50
2HRR 020 R03 250 460	2	R0.3	3	25	4	60
2HRR 020 R03 300 470	2	R0.3	3	30	4	70
2HRR 020 R05 040 445	2	R0.5	3	4	4	45
2HRR 020 R05 060 445	2	R0.5	3	6	4	45
2HRR 020 R05 060 670	2	R0.5	3	6	6	70
2HRR 020 R05 080 445	2	R0.5	3	8	4	45
2HRR 020 R05 100 445	2	R0.5	3	10	4	45
2HRR 020 R05 100 670	2	R0.5	3	10	6	70
2HRR 020 R05 120 445	2	R0.5	3	12	4	45
2HRR 020 R05 120 670	2	R0.5	3	12	6	70
2HRR 020 R05 160 450	2	R0.5	3	16	4	50
2HRR 020 R05 160 670	2	R0.5	3	16	6	70
2HRR 020 R05 180 450	2	R0.5	3	18	4	50
2HRR 020 R05 200 450	2	R0.5	3	20	4	50
2HRR 020 R05 250 460	2	R0.5	3	25	4	60
2HRR 020 R05 300 470	2	R0.5	3	30	4	70
2HRR 025 R01 100 445	2.5	R0.1	3.8	10	4	45

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 025 R01 160 450	2.5	R0.1	3.8	16	4	50
2HRR 025 R01 200 450	2.5	R0.1	3.8	20	4	50
2HRR 025 R01 250 460	2.5	R0.1	3.8	25	4	60
2HRR 025 R01 300 470	2.5	R0.1	3.8	30	4	70
2HRR 025 R02 100 445	2.5	R0.2	3.8	10	4	45
2HRR 025 R02 160 450	2.5	R0.2	3.8	16	4	50
2HRR 025 R02 200 450	2.5	R0.2	3.8	20	4	50
2HRR 025 R02 250 460	2.5	R0.2	3.8	25	4	60
2HRR 025 R02 300 470	2.5	R0.2	3.8	30	4	70
2HRR 025 R03 100 445	2.5	R0.3	3.8	10	4	45
2HRR 025 R03 160 450	2.5	R0.3	3.8	16	4	50
2HRR 025 R03 200 450	2.5	R0.3	3.8	20	4	50
2HRR 025 R03 250 460	2.5	R0.3	3.8	25	4	60
2HRR 025 R03 300 470	2.5	R0.3	3.8	30	4	70
2HRR 025 R05 100 445	2.5	R0.5	3.8	10	4	45
2HRR 025 R05 140 450	2.5	R0.5	3.8	14	4	50
2HRR 025 R05 160 450	2.5	R0.5	3.8	16	4	50
2HRR 025 R05 180 450	2.5	R0.5	3.8	18	4	50
2HRR 025 R05 200 450	2.5	R0.5	3.8	20	4	50
2HRR 025 R05 250 460	2.5	R0.5	3.8	25	4	60
2HRR 025 R05 300 470	2.5	R0.5	3.8	30	4	70
2HRR 025 R10 100 445	2.5	R1.0	3.8	10	4	45
2HRR 030 R01 080 650	3	R0.1	4.5	8	6	50
2HRR 030 R01 100 650	3	R0.1	4.5	10	6	50
2HRR 030 R01 120 650	3	R0.1	4.5	12	6	50
2HRR 030 R01 160 660	3	R0.1	4.5	16	6	60
2HRR 030 R01 200 660	3	R0.1	4.5	20	6	60
2HRR 030 R01 250 665	3	R0.1	4.5	25	6	65
2HRR 030 R01 300 670	3	R0.1	4.5	30	6	70
2HRR 030 R01 350 680	3	R0.1	4.5	35	6	80
2HRR 030 R01 400 680	3	R0.1	4.5	40	6	80
2HRR 030 R02 080 650	3	R0.2	4.5	8	6	50
2HRR 030 R02 100 650	3	R0.2	4.5	10	6	50
2HRR 030 R02 120 650	3	R0.2	4.5	12	6	50

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 030 R02 160 660	3	R0.2	4.5	16	6	60
2HRR 030 R02 200 660	3	R0.2	4.5	20	6	60
2HRR 030 R02 250 665	3	R0.2	4.5	25	6	65
2HRR 030 R02 300 670	3	R0.2	4.5	30	6	70
2HRR 030 R02 350 680	3	R0.2	4.5	35	6	80
2HRR 030 R02 400 680	3	R0.2	4.5	40	6	80
2HRR 030 R03 080 650	3	R0.3	4.5	8	6	50
2HRR 030 R03 100 650	3	R0.3	4.5	10	6	50
2HRR 030 R03 120 650	3	R0.3	4.5	12	6	50
2HRR 030 R03 160 660	3	R0.3	4.5	16	6	60
2HRR 030 R03 200 660	3	R0.3	4.5	20	6	60
2HRR 030 R03 250 665	3	R0.3	4.5	25	6	65
2HRR 030 R03 300 670	3	R0.3	4.5	30	6	70
2HRR 030 R03 350 680	3	R0.3	4.5	35	6	80
2HRR 030 R03 400 680	3	R0.3	4.5	40	6	80
2HRR 030 R05 080 650	3	R0.5	4.5	8	6	50
2HRR 030 R05 080 675	3	R0.5	4.5	8	6	75
2HRR 030 R05 100 650	3	R0.5	4.5	10	6	50
2HRR 030 R05 120 650	3	R0.5	4.5	12	6	50
2HRR 030 R05 120 675	3	R0.5	4.5	12	6	75
2HRR 030 R05 160 660	3	R0.5	4.5	16	6	60
2HRR 030 R05 200 660	3	R0.5	4.5	20	6	60
2HRR 030 R05 200 675	3	R0.5	4.5	20	6	75
2HRR 030 R05 250 665	3	R0.5	4.5	25	6	65
2HRR 030 R05 300 670	3	R0.5	4.5	30	6	70
2HRR 030 R05 350 680	3	R0.5	4.5	35	6	80
2HRR 030 R05 400 680	3	R0.5	4.5	40	6	80
2HRR 030 R10 080 650	3	R1.0	4.5	8	6	50
2HRR 030 R10 100 650	3	R1.0	4.5	10	6	50
2HRR 030 R10 120 650	3	R1.0	4.5	12	6	50
2HRR 030 R10 160 660	3	R1.0	4.5	16	6	60
2HRR 030 R10 200 660	3	R1.0	4.5	20	6	60
2HRR 030 R10 250 665	3	R1.0	4.5	25	6	65
2HRR 030 R10 300 670	3	R1.0	4.5	30	6	70

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 030 R10 350 680	3	R1.0	4.5	35	6	80
2HRR 030 R10 400 680	3	R1.0	4.5	40	6	80
2HRR 040 R01 080 650	4	R0.1	6	8	6	50
2HRR 040 R01 100 650	4	R0.1	6	10	6	50
2HRR 040 R01 120 650	4	R0.1	6	12	6	50
2HRR 040 R01 160 660	4	R0.1	6	16	6	60
2HRR 040 R01 200 660	4	R0.1	6	20	6	60
2HRR 040 R01 250 665	4	R0.1	6	25	6	65
2HRR 040 R01 300 670	4	R0.1	6	30	6	70
2HRR 040 R01 350 680	4	R0.1	6	35	6	80
2HRR 040 R01 400 680	4	R0.1	6	40	6	80
2HRR 040 R01 450 690	4	R0.1	6	45	6	90
2HRR 040 R01 500 6A0	4	R0.1	6	50	6	100
2HRR 040 R02 080 650	4	R0.2	6	8	6	50
2HRR 040 R02 100 650	4	R0.2	6	10	6	50
2HRR 040 R02 120 650	4	R0.2	6	12	6	50
2HRR 040 R02 160 660	4	R0.2	6	16	6	60
2HRR 040 R02 200 660	4	R0.2	6	20	6	60
2HRR 040 R02 250 665	4	R0.2	6	25	6	65
2HRR 040 R02 300 670	4	R0.2	6	30	6	70
2HRR 040 R02 350 680	4	R0.2	6	35	6	80
2HRR 040 R02 400 680	4	R0.2	6	40	6	80
2HRR 040 R02 450 690	4	R0.2	6	45	6	90
2HRR 040 R02 500 6A0	4	R0.2	6	50	6	100
2HRR 040 R03 080 650	4	R0.3	6	8	6	50
2HRR 040 R03 100 650	4	R0.3	6	10	6	50
2HRR 040 R03 120 650	4	R0.3	6	12	6	50
2HRR 040 R03 160 660	4	R0.3	6	16	6	60
2HRR 040 R03 200 660	4	R0.3	6	20	6	60
2HRR 040 R03 250 665	4	R0.3	6	25	6	65
2HRR 040 R03 300 670	4	R0.3	6	30	6	70
2HRR 040 R03 350 680	4	R0.3	6	35	6	80
2HRR 040 R03 400 680	4	R0.3	6	40	6	80
2HRR 040 R03 450 690	4	R0.3	6	45	6	90

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 040 R03 500 6A0	4	R0.3	6	50	6	100
2HRR 040 R05 080 650	4	R0.5	6	8	6	50
2HRR 040 R05 100 650	4	R0.5	6	10	6	50
2HRR 040 R05 120 650	4	R0.5	6	12	6	50
2HRR 040 R05 120 675	4	R0.5	6	12	6	75
2HRR 040 R05 160 660	4	R0.5	6	16	6	60
2HRR 040 R05 200 660	4	R0.5	6	20	6	60
2HRR 040 R05 200 675	4	R0.5	6	20	6	75
2HRR 040 R05 250 665	4	R0.5	6	25	6	65
2HRR 040 R05 250 675	4	R0.5	6	25	6	75
2HRR 040 R05 300 670	4	R0.5	6	30	6	70
2HRR 040 R05 350 680	4	R0.5	6	35	6	80
2HRR 040 R05 400 680	4	R0.5	6	40	6	80
2HRR 040 R05 450 690	4	R0.5	6	45	6	90
2HRR 040 R05 500 6A0	4	R0.5	6	50	6	100
2HRR 040 R10 080 650	4	R1.0	6	8	6	50
2HRR 040 R10 100 650	4	R1.0	6	10	6	50
2HRR 040 R10 120 650	4	R1.0	6	12	6	50
2HRR 040 R10 120 675	4	R1.0	6	12	6	75
2HRR 040 R10 160 660	4	R1.0	6	16	6	60
2HRR 040 R10 200 660	4	R1.0	6	20	6	60
2HRR 040 R10 250 665	4	R1.0	6	25	6	65
2HRR 040 R10 300 670	4	R1.0	6	30	6	70
2HRR 040 R10 350 680	4	R1.0	6	35	6	80
2HRR 040 R10 400 680	4	R1.0	6	40	6	80
2HRR 040 R10 450 690	4	R1.0	6	45	6	90
2HRR 040 R10 500 6A0	4	R1.0	6	50	6	100
2HRR 050 R02 150 660	5	R0.2	7.5	15	6	60
2HRR 050 R02 250 665	5	R0.2	7.5	25	6	65
2HRR 050 R02 300 670	5	R0.2	7.5	30	6	70
2HRR 050 R02 400 680	5	R0.2	7.5	40	6	80
2HRR 050 R02 500 6A0	5	R0.2	7.5	50	6	100
2HRR 050 R05 180 660	5	R0.5	7.5	18	6	60
2HRR 050 R05 250 665	5	R0.5	7.5	25	6	65

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 050 R05 300 670	5	R0.5	7.5	30	6	70
2HRR 050 R05 400 680	5	R0.5	7.5	40	6	80
2HRR 050 R05 500 6A0	5	R0.5	7.5	50	6	100
2HRR 050 R10 180 660	5	R1.0	7.5	18	6	60
2HRR 050 R10 250 665	5	R1.0	7.5	25	6	65
2HRR 050 R10 300 670	5	R1.0	7.5	30	6	70
2HRR 050 R10 400 680	5	R1.0	7.5	40	6	80
2HRR 050 R10 500 6A0	5	R1.0	7.5	50	6	100
2HRR 060 R01 200 660	6	R0.1	9	20	6	60
2HRR 060 R01 400 690	6	R0.1	9	40	6	90
2HRR 060 R02 200 660	6	R0.2	9	20	6	60
2HRR 060 R02 400 690	6	R0.2	9	40	6	90
2HRR 060 R03 200 660	6	R0.3	9	20	6	60
2HRR 060 R03 400 690	6	R0.3	9	40	6	90
2HRR 060 R05 200 660	6	R0.5	9	20	6	60
2HRR 060 R05 400 690	6	R0.5	9	40	6	90
2HRR 060 R10 200 660	6	R1.0	9	20	6	60
2HRR 060 R10 400 690	6	R1.0	9	40	6	90
2HRR 060 R15 200 660	6	R1.5	9	20	6	60
2HRR 060 R15 400 690	6	R1.5	9	40	6	90
2HRR 080 R02 240 865	8	R0.2	12	24	8	65
2HRR 080 R02 400 8A0	8	R0.2	12	40	8	100
2HRR 080 R03 240 865	8	R0.3	12	24	8	65
2HRR 080 R03 400 8A0	8	R0.3	12	40	8	100
2HRR 080 R05 240 865	8	R0.5	12	24	8	65
2HRR 080 R05 240 880	8	R0.5	12	24	8	80
2HRR 080 R05 400 8A0	8	R0.5	12	40	8	100
2HRR 080 R10 240 865	8	R1.0	12	24	8	65
2HRR 080 R10 240 880	8	R1.0	12	24	8	80
2HRR 080 R10 400 8A0	8	R1.0	12	40	8	100
2HRR 080 R15 240 865	8	R1.5	12	24	8	65
2HRR 080 R15 400 8A0	8	R1.5	12	40	8	100
2HRR 080 R20 240 865	8	R2.0	12	24	8	65
2HRR 100 R02 300 A70	10	R0.2	15	30	10	70

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRR 100 R02 400 AA0	10	R0.2	15	40	10	100
2HRR 100 R03 300 A70	10	R0.3	15	30	10	70
2HRR 100 R03 400 AA0	10	R0.3	15	40	10	100
2HRR 100 R05 300 A70	10	R0.5	15	30	10	70
2HRR 100 R05 400 AA0	10	R0.5	15	40	10	100
2HRR 100 R10 300 A70	10	R1.0	15	30	10	70
2HRR 100 R10 400 AA0	10	R1.0	15	40	10	100
2HRR 100 R15 300 A70	10	R1.5	15	30	10	70
2HRR 100 R15 400 AA0	10	R1.5	15	40	10	100
2HRR 100 R20 300 A70	10	R2.0	15	30	10	70
2HRR 100 R20 400 AA0	10	R2.0	15	40	10	100
2HRR 120 R02 300 C80	12	R0.2	18	30	12	80
2HRR 120 R02 500 CB0	12	R0.2	18	50	12	110
2HRR 120 R03 300 C80	12	R0.3	18	30	12	80
2HRR 120 R03 500 CB0	12	R0.3	18	50	12	110
2HRR 120 R05 300 C80	12	R0.5	18	30	12	80
2HRR 120 R05 500 CB0	12	R0.5	18	50	12	110
2HRR 120 R10 300 C80	12	R1.0	18	30	12	80
2HRR 120 R10 500 CB0	12	R1.0	18	50	12	110
2HRR 120 R15 300 C80	12	R1.5	18	30	12	80
2HRR 120 R15 500 CB0	12	R1.5	18	50	12	110
2HRR 120 R20 300 C80	12	R2.0	18	30	12	80
2HRR 120 R20 500 CB0	12	R2.0	18	50	12	110
2HRR 120 R30 300 C80	12	R3.0	18	30	12	80
2HRR 120 R30 500 CB0	12	R3.0	18	50	12	110
2HRR 160 R05 400 GB0	16	R0.5	24	40	16	110
2HRR 160 R05 400 GF0	16	R0.5	24	40	16	150
2HRR 160 R10 400 GB0	16	R1.0	24	40	16	110
2HRR 160 R10 400 GF0	16	R1.0	24	40	16	150

2HCR

2날 코너 래디우스 엔드밀

2 Flutes Corner Radius End Mills

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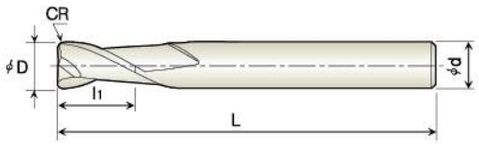

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 002 R002 004 445	0.2	R0.02	0.4	4	45
2HCR 002 R005 004 445	0.2	R0.05	0.4	4	45
2HCR 003 R002 006 445	0.3	R0.02	0.6	4	45
2HCR 003 R005 006 445	0.3	R0.05	0.6	4	45
2HCR 003 R01 006 445	0.3	R0.1	0.6	4	45
2HCR 004 R002 008 445	0.4	R0.02	0.8	4	45
2HCR 004 R005 008 445	0.4	R0.05	0.8	4	45
2HCR 004 R01 008 445	0.4	R0.1	0.8	4	45
2HCR 005 R002 010 445	0.5	R0.02	1	4	45
2HCR 005 R005 010 445	0.5	R0.05	1	4	45
2HCR 005 R01 010 445	0.5	R0.1	1	4	45
2HCR 006 R002 012 445	0.6	R0.02	1.2	4	45
2HCR 006 R005 012 445	0.6	R0.05	1.2	4	45
2HCR 006 R01 012 445	0.6	R0.1	1.2	4	45
2HCR 006 R02 012 445	0.6	R0.2	1.2	4	45
2HCR 007 R005 014 445	0.7	R0.05	1.4	4	45
2HCR 007 R01 014 445	0.7	R0.1	1.4	4	45
2HCR 007 R02 014 445	0.7	R0.2	1.4	4	45
2HCR 008 R002 016 445	0.8	R0.02	1.6	4	45
2HCR 008 R005 016 445	0.8	R0.05	1.6	4	45
2HCR 008 R01 016 445	0.8	R0.1	1.6	4	45
2HCR 008 R02 016 445	0.8	R0.2	1.6	4	45
2HCR 009 R005 018 445	0.9	R0.05	1.8	4	45
2HCR 009 R01 018 445	0.9	R0.1	1.8	4	45

2날 코너 래디우스 엔드밀

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unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 010 R002 025 445	1	R0.02	2.5	4	45
2HCR 010 R005 025 445	1	R0.05	2.5	4	45
2HCR 010 R01 025 445	1	R0.1	2.5	4	45
2HCR 010 R02 025 445	1	R0.2	2.5	4	45
2HCR 010 R03 025 445	1	R0.3	2.5	4	45
2HCR 012 R002 032 445	1.2	R0.02	3.2	4	45
2HCR 012 R005 032 445	1.2	R0.05	3.2	4	45
2HCR 012 R01 032 445	1.2	R0.1	3.2	4	45
2HCR 012 R02 032 445	1.2	R0.2	3.2	4	45
2HCR 012 R03 032 445	1.2	R0.3	3.2	4	45
2HCR 015 R002 040 445	1.5	R0.02	4	4	45
2HCR 015 R005 040 445	1.5	R0.05	4	4	45
2HCR 015 R01 040 445	1.5	R0.1	4	4	45
2HCR 015 R02 040 445	1.5	R0.2	4	4	45
2HCR 015 R03 040 445	1.5	R0.3	4	4	45
2HCR 015 R05 040 445	1.5	R0.5	4	4	45
2HCR 020 R002 060 445	2	R0.02	6	4	45
2HCR 020 R005 060 445	2	R0.05	6	4	45
2HCR 020 R01 060 445	2	R0.1	6	4	45
2HCR 020 R02 060 445	2	R0.2	6	4	45
2HCR 020 R03 060 445	2	R0.3	6	4	45
2HCR 020 R05 060 445	2	R0.5	6	4	45
2HCR 025 R005 060 450	2.5	R0.05	6	4	50
2HCR 025 R01 060 450	2.5	R0.1	6	4	50
2HCR 025 R02 060 450	2.5	R0.2	6	4	50
2HCR 025 R03 060 450	2.5	R0.3	6	4	50
2HCR 025 R05 060 450	2.5	R0.5	6	4	50
2HCR 030 R005 080 660	3	R0.05	8	6	60
2HCR 030 R01 080 660	3	R0.1	8	6	60
2HCR 030 R02 080 660	3	R0.2	8	6	60
2HCR 030 R03 080 660	3	R0.3	8	6	60
2HCR 030 R05 080 660	3	R0.5	8	6	60
2HCR 030 R10 080 660	3	R1.0	8	6	60
2HCR 035 R01 090 670	3.5	R0.1	9	6	70

2날 코너 래디우스 엔드밀

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2 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 035 R02 090 670	3.5	R0.2	9	6	70
2HCR 035 R03 090 670	3.5	R0.3	9	6	70
2HCR 035 R05 090 670	3.5	R0.5	9	6	70
2HCR 035 R10 090 670	3.5	R1.0	9	6	70
2HCR 040 R005 100 460	4	R0.05	10	4	60
2HCR 040 R005 100 670	4	R0.05	10	6	70
2HCR 040 R01 100 460	4	R0.1	10	4	60
2HCR 040 R01 100 670	4	R0.1	10	6	70
2HCR 040 R02 100 460	4	R0.2	10	4	60
2HCR 040 R02 100 670	4	R0.2	10	6	70
2HCR 040 R03 100 460	4	R0.3	10	4	60
2HCR 040 R03 100 670	4	R0.3	10	6	70
2HCR 040 R05 100 460	4	R0.5	10	4	60
2HCR 040 R05 100 670	4	R0.5	10	6	70
2HCR 040 R10 100 460	4	R1.0	10	4	60
2HCR 040 R10 100 670	4	R1.0	10	6	70
2HCR 045 R01 110 675	4.5	R0.1	11	6	75
2HCR 045 R02 110 675	4.5	R0.2	11	6	75
2HCR 045 R03 110 675	4.5	R0.3	11	6	75
2HCR 045 R05 110 675	4.5	R0.5	11	6	75
2HCR 050 R01 130 675	5	R0.1	13	6	75
2HCR 050 R02 130 675	5	R0.2	13	6	75
2HCR 050 R03 130 675	5	R0.3	13	6	75
2HCR 050 R05 130 675	5	R0.5	13	6	75
2HCR 050 R10 130 675	5	R1.0	13	6	75
2HCR 060 R005 110 660	6	R0.05	11	6	60
2HCR 060 R005 130 690	6	R0.05	13	6	90
2HCR 060 R01 110 660	6	R0.1	11	6	60
2HCR 060 R01 130 690	6	R0.1	13	6	90
2HCR 060 R02 110 660	6	R0.2	11	6	60
2HCR 060 R02 130 690	6	R0.2	13	6	90
2HCR 060 R03 110 660	6	R0.3	11	6	60
2HCR 060 R03 130 690	6	R0.3	13	6	90
2HCR 060 R05 110 660	6	R0.5	11	6	60

2날 코너 래디우스 엔드밀

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2 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 060 R05 130 690	6	R0.5	13	6	90
2HCR 060 R10 110 660	6	R1.0	11	6	60
2HCR 060 R10 130 690	6	R1.0	13	6	90
2HCR 060 R15 110 660	6	R1.5	11	6	60
2HCR 060 R15 130 690	6	R1.5	13	6	90
2HCR 060 R20 110 660	6	R2.0	11	6	60
2HCR 060 R20 130 690	6	R2.0	13	6	90
2HCR 060 R25 130 690	6	R2.5	13	6	90
2HCR 080 R01 160 870	8	R0.1	16	8	70
2HCR 080 R01 190 8A0	8	R0.1	19	8	100
2HCR 080 R02 160 870	8	R0.2	16	8	70
2HCR 080 R02 190 8A0	8	R0.2	19	8	100
2HCR 080 R03 160 870	8	R0.3	16	8	70
2HCR 080 R03 190 8A0	8	R0.3	19	8	100
2HCR 080 R05 160 870	8	R0.5	16	8	70
2HCR 080 R05 190 8A0	8	R0.5	19	8	100
2HCR 080 R10 160 870	8	R1.0	16	8	70
2HCR 080 R10 190 8A0	8	R1.0	19	8	100
2HCR 080 R15 160 870	8	R1.5	16	8	70
2HCR 080 R15 190 8A0	8	R1.5	19	8	100
2HCR 080 R20 160 870	8	R2.0	16	8	70
2HCR 080 R20 190 8A0	8	R2.0	19	8	100
2HCR 080 R25 190 8A0	8	R2.5	19	8	100
2HCR 080 R30 190 8A0	8	R3.0	19	8	100
2HCR 080 R35 190 8A0	8	R3.5	19	8	100
2HCR 100 R01 190 A75	10	R0.1	19	10	75
2HCR 100 R01 220 AA0	10	R0.1	22	10	100
2HCR 100 R02 190 A75	10	R0.2	19	10	75
2HCR 100 R02 220 AA0	10	R0.2	22	10	100
2HCR 100 R03 190 A75	10	R0.3	19	10	75
2HCR 100 R03 220 AA0	10	R0.3	22	10	100
2HCR 100 R05 190 A75	10	R0.5	19	10	75
2HCR 100 R05 220 AA0	10	R0.5	22	10	100
2HCR 100 R10 190 A75	10	R1.0	19	10	75

2날 코너 래디우스 엔드밀

H 2 CR 30° PAGE No.245

2 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 100 R10 220 AA0	10	R1.0	22	10	100
2HCR 100 R15 190 A75	10	R1.5	19	10	75
2HCR 100 R15 220 AA0	10	R1.5	22	10	100
2HCR 100 R20 190 A75	10	R2.0	19	10	75
2HCR 100 R20 220 AA0	10	R2.0	22	10	100
2HCR 100 R25 220 AA0	10	R2.5	22	10	100
2HCR 100 R30 220 AA0	10	R3.0	22	10	100
2HCR 100 R40 220 AA0	10	R4.0	22	10	100
2HCR 120 R01 220 C80	12	R0.1	22	12	80
2HCR 120 R01 260 CB0	12	R0.1	26	12	110
2HCR 120 R02 220 C80	12	R0.2	22	12	80
2HCR 120 R02 260 CB0	12	R0.2	26	12	110
2HCR 120 R03 220 C80	12	R0.3	22	12	80
2HCR 120 R03 260 CB0	12	R0.3	26	12	110
2HCR 120 R05 220 C80	12	R0.5	22	12	80
2HCR 120 R05 260 CB0	12	R0.5	26	12	110
2HCR 120 R05 260 CD0	12	R0.5	26	12	130
2HCR 120 R10 220 C80	12	R1.0	22	12	80
2HCR 120 R10 260 CB0	12	R1.0	26	12	110
2HCR 120 R10 260 CD0	12	R1.0	26	12	130
2HCR 120 R15 220 C80	12	R1.5	22	12	80
2HCR 120 R15 260 CB0	12	R1.5	26	12	110
2HCR 120 R15 260 CD0	12	R1.5	26	12	130
2HCR 120 R20 220 C80	12	R2.0	22	12	80
2HCR 120 R20 260 CB0	12	R2.0	26	12	110
2HCR 120 R20 260 CD0	12	R2.0	26	12	130
2HCR 120 R25 260 CB0	12	R2.5	26	12	110
2HCR 120 R30 260 CB0	12	R3.0	26	12	110
2HCR 120 R40 260 CB0	12	R4.0	26	12	110
2HCR 120 R50 260 CB0	12	R5.0	26	12	110
2HCR 160 R05 320 GB0	16	R0.5	32	16	110
2HCR 160 R05 320 GF0	16	R0.5	32	16	150
2HCR 160 R10 320 GB0	16	R1.0	32	16	110
2HCR 160 R10 320 GF0	16	R1.0	32	16	150

2날 코너 래디우스 엔드밀

H 2 CR 30° PAGE No.245

2 Flutes Corner Radius End Mills

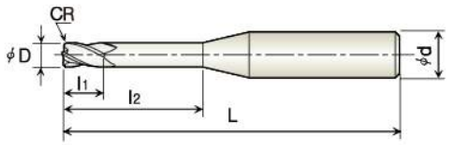
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HCR 160 R15 320 GB0	16	R1.5	32	16	110
2HCR 160 R20 320 GB0	16	R2.0	32	16	110
2HCR 160 R30 320 GB0	16	R3.0	32	16	110
2HCR 200 R05 380 KB0	20	R0.5	38	20	110
2HCR 200 R05 380 KF0	20	R0.5	38	20	150
2HCR 200 R10 380 KB0	20	R1.0	38	20	110
2HCR 200 R10 380 KF0	20	R1.0	38	20	150
2HCR 200 R15 380 KB0	20	R1.5	38	20	110
2HCR 200 R20 380 KB0	20	R2.0	38	20	110
2HCR 200 R30 380 KB0	20	R3.0	38	20	110

4HRR

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 008 R002 020 445	0.8	R0.02	1.2	2	4	45
4HRR 008 R002 040 445	0.8	R0.02	1.2	4	4	45
4HRR 008 R002 060 445	0.8	R0.02	1.2	6	4	45
4HRR 008 R002 080 445	0.8	R0.02	1.2	8	4	45
4HRR 008 R002 100 445	0.8	R0.02	1.2	10	4	45
4HRR 008 R005 020 445	0.8	R0.05	1.2	2	4	45
4HRR 008 R005 040 445	0.8	R0.05	1.2	4	4	45
4HRR 008 R005 060 445	0.8	R0.05	1.2	6	4	45
4HRR 008 R005 080 445	0.8	R0.05	1.2	8	4	45
4HRR 008 R005 100 445	0.8	R0.05	1.2	10	4	45
4HRR 008 R01 020 445	0.8	R0.1	1.2	2	4	45
4HRR 008 R01 040 445	0.8	R0.1	1.2	4	4	45
4HRR 008 R01 060 445	0.8	R0.1	1.2	6	4	45
4HRR 008 R01 080 445	0.8	R0.1	1.2	8	4	45
4HRR 008 R01 100 445	0.8	R0.1	1.2	10	4	45
4HRR 010 R002 040 445	1	R0.02	1.5	4	4	45
4HRR 010 R002 060 445	1	R0.02	1.5	6	4	45
4HRR 010 R002 080 445	1	R0.02	1.5	8	4	45
4HRR 010 R002 100 445	1	R0.02	1.5	10	4	45
4HRR 010 R002 120 445	1	R0.02	1.5	12	4	45
4HRR 010 R002 160 450	1	R0.02	1.5	16	4	50
4HRR 010 R002 200 450	1	R0.02	1.5	20	4	50
4HRR 010 R005 040 445	1	R0.05	1.5	4	4	45
4HRR 010 R005 060 445	1	R0.05	1.5	6	4	45

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 010 R005 080 445	1	R0.05	1.5	8	4	45
4HRR 010 R005 100 445	1	R0.05	1.5	10	4	45
4HRR 010 R005 120 445	1	R0.05	1.5	12	4	45
4HRR 010 R005 160 450	1	R0.05	1.5	16	4	50
4HRR 010 R005 200 450	1	R0.05	1.5	20	4	50
4HRR 010 R01 040 445	1	R0.1	1.5	4	4	45
4HRR 010 R01 060 445	1	R0.1	1.5	6	4	45
4HRR 010 R01 080 445	1	R0.1	1.5	8	4	45
4HRR 010 R01 100 445	1	R0.1	1.5	10	4	45
4HRR 010 R01 120 445	1	R0.1	1.5	12	4	45
4HRR 010 R01 160 450	1	R0.1	1.5	16	4	50
4HRR 010 R01 200 450	1	R0.1	1.5	20	4	50
4HRR 010 R02 040 445	1	R0.2	1.5	4	4	45
4HRR 010 R02 060 445	1	R0.2	1.5	6	4	45
4HRR 010 R02 080 445	1	R0.2	1.5	8	4	45
4HRR 010 R02 100 445	1	R0.2	1.5	10	4	45
4HRR 010 R02 120 445	1	R0.2	1.5	12	4	45
4HRR 010 R02 160 450	1	R0.2	1.5	16	4	50
4HRR 010 R02 200 450	1	R0.2	1.5	20	4	50
4HRR 010 R03 040 445	1	R0.3	1.5	4	4	45
4HRR 010 R03 060 445	1	R0.3	1.5	6	4	45
4HRR 010 R03 080 445	1	R0.3	1.5	8	4	45
4HRR 010 R03 100 445	1	R0.3	1.5	10	4	45
4HRR 010 R03 120 445	1	R0.3	1.5	12	4	45
4HRR 010 R03 160 450	1	R0.3	1.5	16	4	50
4HRR 010 R03 200 450	1	R0.3	1.5	20	4	50
4HRR 012 R002 040 445	1.2	R0.02	1.8	4	4	45
4HRR 012 R002 060 445	1.2	R0.02	1.8	6	4	45
4HRR 012 R002 080 445	1.2	R0.02	1.8	8	4	45
4HRR 012 R002 100 445	1.2	R0.02	1.8	10	4	45
4HRR 012 R002 120 445	1.2	R0.02	1.8	12	4	45
4HRR 012 R002 160 450	1.2	R0.02	1.8	16	4	50
4HRR 012 R002 200 450	1.2	R0.02	1.8	20	4	50
4HRR 012 R005 040 445	1.2	R0.05	1.8	4	4	45

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 012 R005 060 445	1.2	R0.05	1.8	6	4	45
4HRR 012 R005 080 445	1.2	R0.05	1.8	8	4	45
4HRR 012 R005 100 445	1.2	R0.05	1.8	10	4	45
4HRR 012 R005 120 445	1.2	R0.05	1.8	12	4	45
4HRR 012 R005 160 450	1.2	R0.05	1.8	16	4	50
4HRR 012 R005 200 450	1.2	R0.05	1.8	20	4	50
4HRR 012 R01 040 445	1.2	R0.1	1.8	4	4	45
4HRR 012 R01 060 445	1.2	R0.1	1.8	6	4	45
4HRR 012 R01 080 445	1.2	R0.1	1.8	8	4	45
4HRR 012 R01 100 445	1.2	R0.1	1.8	10	4	45
4HRR 012 R01 120 445	1.2	R0.1	1.8	12	4	45
4HRR 012 R01 160 450	1.2	R0.1	1.8	16	4	50
4HRR 012 R01 200 450	1.2	R0.1	1.8	20	4	50
4HRR 012 R02 040 445	1.2	R0.2	1.8	4	4	45
4HRR 012 R02 060 445	1.2	R0.2	1.8	6	4	45
4HRR 012 R02 080 445	1.2	R0.2	1.8	8	4	45
4HRR 012 R02 100 445	1.2	R0.2	1.8	10	4	45
4HRR 012 R02 120 445	1.2	R0.2	1.8	12	4	45
4HRR 012 R02 160 450	1.2	R0.2	1.8	16	4	50
4HRR 012 R02 200 450	1.2	R0.2	1.8	20	4	50
4HRR 012 R03 040 445	1.2	R0.3	1.8	4	4	45
4HRR 012 R03 060 445	1.2	R0.3	1.8	6	4	45
4HRR 012 R03 080 445	1.2	R0.3	1.8	8	4	45
4HRR 012 R03 100 445	1.2	R0.3	1.8	10	4	45
4HRR 012 R03 120 445	1.2	R0.3	1.8	12	4	45
4HRR 012 R03 160 450	1.2	R0.3	1.8	16	4	50
4HRR 012 R03 200 450	1.2	R0.3	1.8	20	4	50
4HRR 015 R002 040 445	1.5	R0.02	2.3	4	4	45
4HRR 015 R002 060 445	1.5	R0.02	2.3	6	4	45
4HRR 015 R002 080 445	1.5	R0.02	2.3	8	4	45
4HRR 015 R002 100 445	1.5	R0.02	2.3	10	4	45
4HRR 015 R002 120 445	1.5	R0.02	2.3	12	4	45
4HRR 015 R002 160 450	1.5	R0.02	2.3	16	4	50
4HRR 015 R002 200 450	1.5	R0.02	2.3	20	4	50

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 015 R002 220 460	1.5	R0.02	2.3	22	4	60
4HRR 015 R002 250 460	1.5	R0.02	2.3	25	4	60
4HRR 015 R005 040 445	1.5	R0.05	2.3	4	4	45
4HRR 015 R005 060 445	1.5	R0.05	2.3	6	4	45
4HRR 015 R005 080 445	1.5	R0.05	2.3	8	4	45
4HRR 015 R005 100 445	1.5	R0.05	2.3	10	4	45
4HRR 015 R005 120 445	1.5	R0.05	2.3	12	4	45
4HRR 015 R005 160 450	1.5	R0.05	2.3	16	4	50
4HRR 015 R005 200 450	1.5	R0.05	2.3	20	4	50
4HRR 015 R005 220 460	1.5	R0.05	2.3	22	4	60
4HRR 015 R005 250 460	1.5	R0.05	2.3	25	4	60
4HRR 015 R01 040 445	1.5	R0.1	2.3	4	4	45
4HRR 015 R01 060 445	1.5	R0.1	2.3	6	4	45
4HRR 015 R01 080 445	1.5	R0.1	2.3	8	4	45
4HRR 015 R01 100 445	1.5	R0.1	2.3	10	4	45
4HRR 015 R01 120 445	1.5	R0.1	2.3	12	4	45
4HRR 015 R01 160 450	1.5	R0.1	2.3	16	4	50
4HRR 015 R01 200 450	1.5	R0.1	2.3	20	4	50
4HRR 015 R01 220 460	1.5	R0.1	2.3	22	4	60
4HRR 015 R01 250 460	1.5	R0.1	2.3	25	4	60
4HRR 015 R02 040 445	1.5	R0.2	2.3	4	4	45
4HRR 015 R02 060 445	1.5	R0.2	2.3	6	4	45
4HRR 015 R02 080 445	1.5	R0.2	2.3	8	4	45
4HRR 015 R02 100 445	1.5	R0.2	2.3	10	4	45
4HRR 015 R02 120 445	1.5	R0.2	2.3	12	4	45
4HRR 015 R02 160 450	1.5	R0.2	2.3	16	4	50
4HRR 015 R02 200 450	1.5	R0.2	2.3	20	4	50
4HRR 015 R02 220 460	1.5	R0.2	2.3	22	4	60
4HRR 015 R02 250 460	1.5	R0.2	2.3	25	4	60
4HRR 015 R03 040 445	1.5	R0.3	2.3	4	4	45
4HRR 015 R03 060 445	1.5	R0.3	2.3	6	4	45
4HRR 015 R03 080 445	1.5	R0.3	2.3	8	4	45
4HRR 015 R03 100 445	1.5	R0.3	2.3	10	4	45
4HRR 015 R03 120 445	1.5	R0.3	2.3	12	4	45

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 015 R03 160 450	1.5	R0.3	2.3	16	4	50
4HRR 015 R03 200 450	1.5	R0.3	2.3	20	4	50
4HRR 015 R03 220 460	1.5	R0.3	2.3	22	4	60
4HRR 015 R03 250 460	1.5	R0.3	2.3	25	4	60
4HRR 015 R05 040 445	1.5	R0.5	2.3	4	4	45
4HRR 015 R05 060 445	1.5	R0.5	2.3	6	4	45
4HRR 015 R05 080 445	1.5	R0.5	2.3	8	4	45
4HRR 015 R05 100 445	1.5	R0.5	2.3	10	4	45
4HRR 015 R05 120 445	1.5	R0.5	2.3	12	4	45
4HRR 015 R05 160 450	1.5	R0.5	2.3	16	4	50
4HRR 015 R05 200 450	1.5	R0.5	2.3	20	4	50
4HRR 015 R05 220 460	1.5	R0.5	2.3	22	4	60
4HRR 015 R05 250 460	1.5	R0.5	2.3	25	4	60
4HRR 020 R002 040 445	2	R0.02	3	4	4	45
4HRR 020 R002 060 445	2	R0.02	3	6	4	45
4HRR 020 R002 080 445	2	R0.02	3	8	4	45
4HRR 020 R002 100 445	2	R0.02	3	10	4	45
4HRR 020 R002 120 445	2	R0.02	3	12	4	45
4HRR 020 R002 140 450	2	R0.02	3	14	4	50
4HRR 020 R002 160 450	2	R0.02	3	16	4	50
4HRR 020 R002 180 450	2	R0.02	3	18	4	50
4HRR 020 R002 200 450	2	R0.02	3	20	4	50
4HRR 020 R002 220 460	2	R0.02	3	22	4	60
4HRR 020 R002 250 460	2	R0.02	3	25	4	60
4HRR 020 R002 300 470	2	R0.02	3	30	4	70
4HRR 020 R002 350 470	2	R0.02	3	35	4	70
4HRR 020 R005 040 445	2	R0.05	3	4	4	45
4HRR 020 R005 060 445	2	R0.05	3	6	4	45
4HRR 020 R005 080 445	2	R0.05	3	8	4	45
4HRR 020 R005 100 445	2	R0.05	3	10	4	45
4HRR 020 R005 120 445	2	R0.05	3	12	4	45
4HRR 020 R005 140 450	2	R0.05	3	14	4	50
4HRR 020 R005 160 450	2	R0.05	3	16	4	50
4HRR 020 R005 180 450	2	R0.05	3	18	4	50

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 020 R005 200 450	2	R0.05	3	20	4	50
4HRR 020 R005 220 460	2	R0.05	3	22	4	60
4HRR 020 R005 250 460	2	R0.05	3	25	4	60
4HRR 020 R005 300 470	2	R0.05	3	30	4	70
4HRR 020 R005 350 470	2	R0.05	3	35	4	70
4HRR 020 R01 040 445	2	R0.1	3	4	4	45
4HRR 020 R01 060 445	2	R0.1	3	6	4	45
4HRR 020 R01 080 445	2	R0.1	3	8	4	45
4HRR 020 R01 100 445	2	R0.1	3	10	4	45
4HRR 020 R01 120 445	2	R0.1	3	12	4	45
4HRR 020 R01 140 450	2	R0.1	3	14	4	50
4HRR 020 R01 160 450	2	R0.1	3	16	4	50
4HRR 020 R01 180 450	2	R0.1	3	18	4	50
4HRR 020 R01 200 450	2	R0.1	3	20	4	50
4HRR 020 R01 220 460	2	R0.1	3	22	4	60
4HRR 020 R01 250 460	2	R0.1	3	25	4	60
4HRR 020 R01 300 470	2	R0.1	3	30	4	70
4HRR 020 R01 350 470	2	R0.1	3	35	4	70
4HRR 020 R02 040 445	2	R0.2	3	4	4	45
4HRR 020 R02 060 445	2	R0.2	3	6	4	45
4HRR 020 R02 080 445	2	R0.2	3	8	4	45
4HRR 020 R02 100 445	2	R0.2	3	10	4	45
4HRR 020 R02 120 445	2	R0.2	3	12	4	45
4HRR 020 R02 140 450	2	R0.2	3	14	4	50
4HRR 020 R02 160 450	2	R0.2	3	16	4	50
4HRR 020 R02 180 450	2	R0.2	3	18	4	50
4HRR 020 R02 200 450	2	R0.2	3	20	4	50
4HRR 020 R02 220 460	2	R0.2	3	22	4	60
4HRR 020 R02 250 460	2	R0.2	3	25	4	60
4HRR 020 R02 300 470	2	R0.2	3	30	4	70
4HRR 020 R02 350 470	2	R0.2	3	35	4	70
4HRR 020 R03 040 445	2	R0.3	3	4	4	45
4HRR 020 R03 060 445	2	R0.3	3	6	4	45
4HRR 020 R03 080 445	2	R0.3	3	8	4	45

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 020 R03 100 445	2	R0.3	3	10	4	45
4HRR 020 R03 120 445	2	R0.3	3	12	4	45
4HRR 020 R03 140 450	2	R0.3	3	14	4	50
4HRR 020 R03 160 450	2	R0.3	3	16	4	50
4HRR 020 R03 180 450	2	R0.3	3	18	4	50
4HRR 020 R03 200 450	2	R0.3	3	20	4	50
4HRR 020 R03 220 460	2	R0.3	3	22	4	60
4HRR 020 R03 250 460	2	R0.3	3	25	4	60
4HRR 020 R03 300 470	2	R0.3	3	30	4	70
4HRR 020 R03 350 470	2	R0.3	3	35	4	70
4HRR 020 R05 040 445	2	R0.5	3	4	4	45
4HRR 020 R05 060 445	2	R0.5	3	6	4	45
4HRR 020 R05 080 445	2	R0.5	3	8	4	45
4HRR 020 R05 100 445	2	R0.5	3	10	4	45
4HRR 020 R05 120 445	2	R0.5	3	12	4	45
4HRR 020 R05 140 450	2	R0.5	3	14	4	50
4HRR 020 R05 160 450	2	R0.5	3	16	4	50
4HRR 020 R05 180 450	2	R0.5	3	18	4	50
4HRR 020 R05 200 450	2	R0.5	3	20	4	50
4HRR 020 R05 220 460	2	R0.5	3	22	4	60
4HRR 020 R05 250 460	2	R0.5	3	25	4	60
4HRR 020 R05 300 470	2	R0.5	3	30	4	70
4HRR 020 R05 350 470	2	R0.5	3	35	4	70
4HRR 025 R01 060 445	2.5	R0.1	3.8	6	4	45
4HRR 025 R01 080 445	2.5	R0.1	3.8	8	4	45
4HRR 025 R01 100 445	2.5	R0.1	3.8	10	4	45
4HRR 025 R01 120 445	2.5	R0.1	3.8	12	4	45
4HRR 025 R01 160 450	2.5	R0.1	3.8	16	4	50
4HRR 025 R01 200 450	2.5	R0.1	3.8	20	4	50
4HRR 025 R01 250 460	2.5	R0.1	3.8	25	4	60
4HRR 025 R01 300 470	2.5	R0.1	3.8	30	4	70
4HRR 025 R02 060 445	2.5	R0.2	3.8	6	4	45
4HRR 025 R02 080 445	2.5	R0.2	3.8	8	4	45
4HRR 025 R02 100 445	2.5	R0.2	3.8	10	4	45

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 025 R02 120 445	2.5	R0.2	3.8	12	4	45
4HRR 025 R02 160 450	2.5	R0.2	3.8	16	4	50
4HRR 025 R02 200 450	2.5	R0.2	3.8	20	4	50
4HRR 025 R02 250 460	2.5	R0.2	3.8	25	4	60
4HRR 025 R02 300 470	2.5	R0.2	3.8	30	4	70
4HRR 025 R03 060 445	2.5	R0.3	3.8	6	4	45
4HRR 025 R03 080 445	2.5	R0.3	3.8	8	4	45
4HRR 025 R03 100 445	2.5	R0.3	3.8	10	4	45
4HRR 025 R03 120 445	2.5	R0.3	3.8	12	4	45
4HRR 025 R03 160 450	2.5	R0.3	3.8	16	4	50
4HRR 025 R03 200 450	2.5	R0.3	3.8	20	4	50
4HRR 025 R03 250 460	2.5	R0.3	3.8	25	4	60
4HRR 025 R03 300 470	2.5	R0.3	3.8	30	4	70
4HRR 025 R05 060 445	2.5	R0.5	3.8	6	4	45
4HRR 025 R05 080 445	2.5	R0.5	3.8	8	4	45
4HRR 025 R05 100 445	2.5	R0.5	3.8	10	4	45
4HRR 025 R05 120 445	2.5	R0.5	3.8	12	4	45
4HRR 025 R05 160 450	2.5	R0.5	3.8	16	4	50
4HRR 025 R05 200 450	2.5	R0.5	3.8	20	4	50
4HRR 025 R05 250 460	2.5	R0.5	3.8	25	4	60
4HRR 025 R05 300 470	2.5	R0.5	3.8	30	4	70
4HRR 030 R01 080 650	3	R0.1	4.5	8	6	50
4HRR 030 R01 100 450	3	R0.1	4.5	10	4	50
4HRR 030 R01 100 650	3	R0.1	4.5	10	6	50
4HRR 030 R01 120 650	3	R0.1	4.5	12	6	50
4HRR 030 R01 160 660	3	R0.1	4.5	16	6	60
4HRR 030 R01 200 660	3	R0.1	4.5	20	6	60
4HRR 030 R01 250 665	3	R0.1	4.5	25	6	65
4HRR 030 R01 300 670	3	R0.1	4.5	30	6	70
4HRR 030 R01 350 680	3	R0.1	4.5	35	6	80
4HRR 030 R01 400 680	3	R0.1	4.5	40	6	80
4HRR 030 R01 500 6A0	3	R0.1	4.5	50	6	100
4HRR 030 R02 100 350	3	R0.2	4.5	10	3	50
4HRR 030 R02 100 450	3	R0.2	4.5	10	4	50

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 030 R02 080 650	3	R0.2	4.5	8	6	50
4HRR 030 R02 100 650	3	R0.2	4.5	10	6	50
4HRR 030 R02 120 650	3	R0.2	4.5	12	6	50
4HRR 030 R02 160 660	3	R0.2	4.5	16	6	60
4HRR 030 R02 200 660	3	R0.2	4.5	20	6	60
4HRR 030 R02 250 665	3	R0.2	4.5	25	6	65
4HRR 030 R02 300 670	3	R0.2	4.5	30	6	70
4HRR 030 R02 350 680	3	R0.2	4.5	35	6	80
4HRR 030 R02 400 680	3	R0.2	4.5	40	6	80
4HRR 030 R02 500 6A0	3	R0.2	4.5	50	6	100
4HRR 030 R03 080 650	3	R0.3	4.5	8	6	50
4HRR 030 R03 100 350	3	R0.3	4.5	10	3	50
4HRR 030 R03 100 450	3	R0.3	4.5	10	4	50
4HRR 030 R03 100 650	3	R0.3	4.5	10	6	50
4HRR 030 R03 120 650	3	R0.3	4.5	12	6	50
4HRR 030 R03 160 660	3	R0.3	4.5	16	6	60
4HRR 030 R03 200 660	3	R0.3	4.5	20	6	60
4HRR 030 R03 250 665	3	R0.3	4.5	25	6	65
4HRR 030 R03 300 670	3	R0.3	4.5	30	6	70
4HRR 030 R03 350 680	3	R0.3	4.5	35	6	80
4HRR 030 R03 400 680	3	R0.3	4.5	40	6	80
4HRR 030 R03 500 6A0	3	R0.3	4.5	50	6	100
4HRR 030 R05 080 650	3	R0.5	4.5	8	6	50
4HRR 030 R05 100 350	3	R0.5	4.5	10	3	50
4HRR 030 R05 100 450	3	R0.5	4.5	10	4	50
4HRR 030 R05 100 650	3	R0.5	4.5	10	6	50
4HRR 030 R05 120 650	3	R0.5	4.5	12	6	50
4HRR 030 R05 160 660	3	R0.5	4.5	16	6	60
4HRR 030 R05 200 660	3	R0.5	4.5	20	6	60
4HRR 030 R05 250 665	3	R0.5	4.5	25	6	65
4HRR 030 R05 300 670	3	R0.5	4.5	30	6	70
4HRR 030 R05 350 675	3	R0.5	4.5	35	6	75
4HRR 030 R05 400 680	3	R0.5	4.5	40	6	80
4HRR 030 R05 500 6A0	3	R0.5	4.5	50	6	100

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 030 R10 080 650	3	R1.0	4.5	8	6	50
4HRR 030 R10 100 350	3	R1.0	4.5	10	3	50
4HRR 030 R10 100 450	3	R1.0	4.5	10	4	50
4HRR 030 R10 100 650	3	R1.0	4.5	10	6	50
4HRR 030 R10 120 650	3	R1.0	4.5	12	6	50
4HRR 030 R10 160 660	3	R1.0	4.5	16	6	60
4HRR 030 R10 200 660	3	R1.0	4.5	20	6	60
4HRR 030 R10 250 665	3	R1.0	4.5	25	6	65
4HRR 030 R10 300 670	3	R1.0	4.5	30	6	70
4HRR 030 R10 350 680	3	R1.0	4.5	35	6	80
4HRR 030 R10 400 680	3	R1.0	4.5	40	6	80
4HRR 030 R10 500 6A0	3	R1.0	4.5	50	6	100
4HRR 040 R01 080 650	4	R0.1	6	8	6	50
4HRR 040 R01 100 650	4	R0.1	6	10	6	50
4HRR 040 R01 120 450	4	R0.1	6	12	4	50
4HRR 040 R01 120 650	4	R0.1	6	12	6	50
4HRR 040 R01 160 660	4	R0.1	6	16	6	60
4HRR 040 R01 200 660	4	R0.1	6	20	6	60
4HRR 040 R01 250 665	4	R0.1	6	25	6	65
4HRR 040 R01 300 670	4	R0.1	6	30	6	70
4HRR 040 R01 350 680	4	R0.1	6	35	6	80
4HRR 040 R01 400 680	4	R0.1	6	40	6	80
4HRR 040 R01 450 690	4	R0.1	6	45	6	90
4HRR 040 R01 500 6A0	4	R0.1	6	50	6	100
4HRR 040 R02 080 650	4	R0.2	6	8	6	50
4HRR 040 R02 100 650	4	R0.2	6	10	6	50
4HRR 040 R02 120 450	4	R0.2	6	12	4	50
4HRR 040 R02 120 650	4	R0.2	6	12	6	50
4HRR 040 R02 160 660	4	R0.2	6	16	6	60
4HRR 040 R02 200 660	4	R0.2	6	20	6	60
4HRR 040 R02 250 665	4	R0.2	6	25	6	65
4HRR 040 R02 300 670	4	R0.2	6	30	6	70
4HRR 040 R02 350 680	4	R0.2	6	35	6	80
4HRR 040 R02 400 680	4	R0.2	6	40	6	80

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 040 R02 450 690	4	R0.2	6	45	6	90
4HRR 040 R02 500 6A0	4	R0.2	6	50	6	100
4HRR 040 R03 080 650	4	R0.3	6	8	6	50
4HRR 040 R03 100 650	4	R0.3	6	10	6	50
4HRR 040 R03 120 450	4	R0.3	6	12	4	50
4HRR 040 R03 120 650	4	R0.3	6	12	6	50
4HRR 040 R03 160 660	4	R0.3	6	16	6	60
4HRR 040 R03 200 660	4	R0.3	6	20	6	60
4HRR 040 R03 250 665	4	R0.3	6	25	6	65
4HRR 040 R03 300 670	4	R0.3	6	30	6	70
4HRR 040 R03 350 680	4	R0.3	6	35	6	80
4HRR 040 R03 400 680	4	R0.3	6	40	6	80
4HRR 040 R03 450 690	4	R0.3	6	45	6	90
4HRR 040 R03 500 6A0	4	R0.3	6	50	6	100
4HRR 040 R05 080 650	4	R0.5	6	8	6	50
4HRR 040 R05 100 650	4	R0.5	6	10	6	50
4HRR 040 R05 120 450	4	R0.5	6	12	4	50
4HRR 040 R05 120 650	4	R0.5	6	12	6	50
4HRR 040 R05 160 450	4	R0.5	6	16	4	50
4HRR 040 R05 160 4A0	4	R0.5	6	16	4	100
4HRR 040 R05 160 660	4	R0.5	6	16	6	60
4HRR 040 R05 200 660	4	R0.5	6	20	6	60
4HRR 040 R05 250 665	4	R0.5	6	25	6	65
4HRR 040 R05 300 670	4	R0.5	6	30	6	70
4HRR 040 R05 350 680	4	R0.5	6	35	6	80
4HRR 040 R05 400 680	4	R0.5	6	40	6	80
4HRR 040 R05 450 690	4	R0.5	6	45	6	90
4HRR 040 R05 500 6A0	4	R0.5	6	50	6	100
4HRR 040 R10 080 650	4	R1.0	6	8	6	50
4HRR 040 R10 100 650	4	R1.0	6	10	6	50
4HRR 040 R10 120 450	4	R1.0	6	12	4	50
4HRR 040 R10 120 650	4	R1.0	6	12	6	50
4HRR 040 R10 160 450	4	R1.0	6	16	4	50
4HRR 040 R10 160 660	4	R1.0	6	16	6	60

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 040 R10 200 660	4	R1.0	6	20	6	60
4HRR 040 R10 250 665	4	R1.0	6	25	6	65
4HRR 040 R10 300 670	4	R1.0	6	30	6	70
4HRR 040 R10 350 680	4	R1.0	6	35	6	80
4HRR 040 R10 400 680	4	R1.0	6	40	6	80
4HRR 040 R10 450 690	4	R1.0	6	45	6	90
4HRR 040 R10 500 6A0	4	R1.0	6	50	6	100
4HRR 050 R01 180 660	5	R0.1	7.5	18	6	60
4HRR 050 R01 300 670	5	R0.1	7.5	30	6	70
4HRR 050 R01 400 680	5	R0.1	7.5	40	6	80
4HRR 050 R01 500 6A0	5	R0.1	7.5	50	6	100
4HRR 050 R02 180 660	5	R0.2	7.5	18	6	60
4HRR 050 R02 300 670	5	R0.2	7.5	30	6	70
4HRR 050 R02 400 680	5	R0.2	7.5	40	6	80
4HRR 050 R02 500 6A0	5	R0.2	7.5	50	6	100
4HRR 050 R03 180 660	5	R0.3	7.5	18	6	60
4HRR 050 R03 300 670	5	R0.3	7.5	30	6	70
4HRR 050 R03 400 680	5	R0.3	7.5	40	6	80
4HRR 050 R03 500 6A0	5	R0.3	7.5	50	6	100
4HRR 050 R05 180 660	5	R0.5	7.5	18	6	60
4HRR 050 R05 300 670	5	R0.5	7.5	30	6	70
4HRR 050 R05 400 680	5	R0.5	7.5	40	6	80
4HRR 050 R05 500 6A0	5	R0.5	7.5	50	6	100
4HRR 050 R10 180 660	5	R1.0	7.5	18	6	60
4HRR 050 R10 300 670	5	R1.0	7.5	30	6	70
4HRR 050 R10 400 680	5	R1.0	7.5	40	6	80
4HRR 050 R10 500 6A0	5	R1.0	7.5	50	6	100
4HRR 060 R01 200 660	6	R0.1	9	20	6	60
4HRR 060 R01 400 690	6	R0.1	9	40	6	90
4HRR 060 R01 500 6A0	6	R0.1	9	50	6	100
4HRR 060 R02 200 660	6	R0.2	9	20	6	60
4HRR 060 R02 200 675	6	R0.2	9	20	6	75
4HRR 060 R02 200 6A0	6	R0.2	9	20	6	100
4HRR 060 R02 300 680	6	R0.2	9	30	6	80

4날 리브 코너 래디우스 엔드밀

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4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 060 R02 400 690	6	R0.2	9	40	6	90
4HRR 060 R02 500 6A0	6	R0.2	9	50	6	100
4HRR 060 R03 200 660	6	R0.3	9	20	6	60
4HRR 060 R03 200 675	6	R0.3	9	20	6	75
4HRR 060 R03 200 6A0	6	R0.3	9	20	6	100
4HRR 060 R03 300 680	6	R0.3	9	30	6	80
4HRR 060 R03 400 690	6	R0.3	9	40	6	90
4HRR 060 R03 500 6A0	6	R0.3	9	50	6	100
4HRR 060 R05 200 660	6	R0.5	9	20	6	60
4HRR 060 R05 200 675	6	R0.5	9	20	6	75
4HRR 060 R05 200 6A0	6	R0.5	9	20	6	100
4HRR 060 R05 300 680	6	R0.5	9	30	6	80
4HRR 060 R05 400 690	6	R0.5	9	40	6	90
4HRR 060 R05 500 6A0	6	R0.5	9	50	6	100
4HRR 060 R10 200 660	6	R1.0	9	20	6	60
4HRR 060 R10 200 675	6	R1.0	9	20	6	75
4HRR 060 R10 200 6A0	6	R1.0	9	20	6	100
4HRR 060 R10 300 680	6	R1.0	9	30	6	80
4HRR 060 R10 400 690	6	R1.0	9	40	6	90
4HRR 060 R10 500 6A0	6	R1.0	9	50	6	100
4HRR 060 R15 200 660	6	R1.5	9	20	6	60
4HRR 060 R15 200 675	6	R1.5	9	20	6	75
4HRR 060 R15 200 6A0	6	R1.5	9	20	6	100
4HRR 060 R15 300 680	6	R1.5	9	30	6	80
4HRR 060 R15 400 690	6	R1.5	9	40	6	90
4HRR 060 R15 500 6A0	6	R1.5	9	50	6	100
4HRR 060 R20 200 660	6	R2.0	9	20	6	60
4HRR 060 R20 200 675	6	R2.0	9	20	6	75
4HRR 060 R20 200 6A0	6	R2.0	9	20	6	100
4HRR 060 R20 400 690	6	R2.0	9	40	6	90
4HRR 080 R01 240 865	8	R0.1	12	24	8	65
4HRR 080 R02 240 865	8	R0.2	12	24	8	65
4HRR 080 R02 240 875	8	R0.2	12	24	8	75
4HRR 080 R02 240 8A0	8	R0.2	12	24	8	100

4날 리브 코너 래디우스 엔드밀

H 4 CR 30° PAGE No.246

4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 080 R03 240 865	8	R0.3	12	24	8	65
4HRR 080 R03 240 875	8	R0.3	12	24	8	75
4HRR 080 R03 240 8A0	8	R0.3	12	24	8	100
4HRR 080 R05 240 865	8	R0.5	12	24	8	65
4HRR 080 R05 240 875	8	R0.5	12	24	8	75
4HRR 080 R05 240 8A0	8	R0.5	12	24	8	100
4HRR 080 R05 300 890	8	R0.5	12	30	8	90
4HRR 080 R05 400 8A0	8	R0.5	12	40	8	100
4HRR 080 R10 240 865	8	R1.0	12	24	8	65
4HRR 080 R10 240 875	8	R1.0	12	24	8	75
4HRR 080 R10 240 8A0	8	R1.0	12	24	8	100
4HRR 080 R10 240 8C5	8	R1.0	12	24	8	125
4HRR 080 R10 300 890	8	R1.0	12	30	8	90
4HRR 080 R10 400 8A0	8	R1.0	12	40	8	100
4HRR 080 R15 240 865	8	R1.5	12	24	8	65
4HRR 080 R15 240 875	8	R1.5	12	24	8	75
4HRR 080 R15 240 8A0	8	R1.5	12	24	8	100
4HRR 080 R15 400 8A0	8	R1.5	12	40	8	100
4HRR 080 R20 240 865	8	R2.0	12	24	8	65
4HRR 080 R20 240 875	8	R2.0	12	24	8	75
4HRR 080 R20 300 890	8	R2.0	12	30	8	90
4HRR 100 R02 300 A70	10	R0.2	15	30	10	70
4HRR 100 R02 300 A75	10	R0.2	15	30	10	75
4HRR 100 R02 300 AA0	10	R0.2	15	30	10	100
4HRR 100 R03 300 A70	10	R0.3	15	30	10	70
4HRR 100 R03 300 A75	10	R0.3	15	30	10	75
4HRR 100 R03 300 AA0	10	R0.3	15	30	10	100
4HRR 100 R05 300 A70	10	R0.5	15	30	10	70
4HRR 100 R05 300 A75	10	R0.5	15	30	10	75
4HRR 100 R05 300 AA0	10	R0.5	15	30	10	100
4HRR 100 R05 400 AA0	10	R0.5	15	40	10	100
4HRR 100 R10 300 A70	10	R1.0	15	30	10	70
4HRR 100 R10 300 A75	10	R1.0	15	30	10	75
4HRR 100 R10 300 AA0	10	R1.0	15	30	10	100

4날 리브 코너 래디우스 엔드밀

H 4 CR 30° PAGE No.246

4 Flutes Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRR 100 R10 300 AF0	10	R1.0	15	30	10	150
4HRR 100 R10 400 AA0	10	R1.0	15	40	10	100
4HRR 100 R15 300 A70	10	R1.5	15	30	10	70
4HRR 100 R15 300 A75	10	R1.5	15	30	10	75
4HRR 100 R15 300 AA0	10	R1.5	15	30	10	100
4HRR 100 R15 400 AA0	10	R1.5	15	40	10	100
4HRR 100 R20 300 A70	10	R2.0	15	30	10	70
4HRR 100 R20 300 A75	10	R2.0	15	30	10	75
4HRR 100 R20 300 AA0	10	R2.0	15	30	10	100
4HRR 100 R20 400 AA0	10	R2.0	15	40	10	100
4HRR 100 R25 300 A70	10	R2.5	15	30	10	70
4HRR 120 R03 300 C80	12	R0.3	18	30	12	80
4HRR 120 R03 300 CB0	12	R0.3	18	30	12	110
4HRR 120 R05 300 C80	12	R0.5	18	30	12	80
4HRR 120 R05 300 CB0	12	R0.5	18	30	12	110
4HRR 120 R05 300 CF0	12	R0.5	18	30	12	150
4HRR 120 R05 400 CB0	12	R0.5	18	40	12	110
4HRR 120 R10 300 C80	12	R1.0	18	30	12	80
4HRR 120 R10 300 CB0	12	R1.0	18	30	12	110
4HRR 120 R10 300 CF0	12	R1.0	18	30	12	150
4HRR 120 R10 400 CB0	12	R1.0	18	40	12	110
4HRR 120 R15 300 C80	12	R1.5	18	30	12	80
4HRR 120 R15 300 CB0	12	R1.5	18	30	12	110
4HRR 120 R15 400 CB0	12	R1.5	18	40	12	110
4HRR 120 R20 300 C80	12	R2.0	18	30	12	80
4HRR 120 R20 300 CB0	12	R2.0	18	30	12	110
4HRR 120 R20 300 CF0	12	R2.0	18	30	12	150
4HRR 120 R20 300 CK0	12	R2.0	18	30	12	200
4HRR 120 R20 400 CB0	12	R2.0	18	40	12	110
4HRR 120 R30 300 C80	12	R3.0	18	30	12	80
4HRR 120 R30 300 CB0	12	R3.0	18	30	12	110

4HCR

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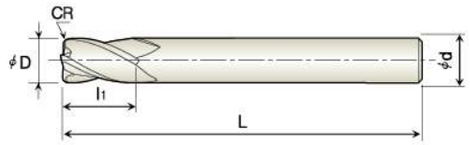
4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HCR 010 R002 025 445	1	R0.02	2.5	4	45
4HCR 010 R005 025 445	1	R0.05	2.5	4	45
4HCR 010 R01 025 445	1	R0.1	2.5	4	45
4HCR 010 R02 025 445	1	R0.2	2.5	4	45
4HCR 010 R03 025 445	1	R0.3	2.5	4	45
4HCR 012 R002 032 445	1.2	R0.02	3.2	4	45
4HCR 012 R005 032 445	1.2	R0.05	3.2	4	45
4HCR 012 R01 032 445	1.2	R0.1	3.2	4	45
4HCR 012 R02 032 445	1.2	R0.2	3.2	4	45
4HCR 012 R03 032 445	1.2	R0.3	3.2	4	45
4HCR 015 R002 040 445	1.5	R0.02	4	4	45
4HCR 015 R005 040 445	1.5	R0.05	4	4	45
4HCR 015 R01 040 445	1.5	R0.1	4	4	45
4HCR 015 R02 040 445	1.5	R0.2	4	4	45
4HCR 015 R03 040 445	1.5	R0.3	4	4	45
4HCR 015 R05 040 445	1.5	R0.5	4	4	45
4HCR 020 R002 060 445	2	R0.02	6	4	45
4HCR 020 R005 060 445	2	R0.05	6	4	45
4HCR 020 R01 060 445	2	R0.1	6	4	45
4HCR 020 R02 060 445	2	R0.2	6	4	45
4HCR 020 R03 060 445	2	R0.3	6	4	45
4HCR 020 R05 060 445	2	R0.5	6	4	45
4HCR 025 R005 060 450	2.5	R0.05	6	4	50
4HCR 025 R01 060 450	2.5	R0.1	6	4	50

4날 코너 래디우스 엔드밀

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4 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HCR 025 R02 060 450	2.5	R0.2	6	4	50
4HCR 025 R03 060 450	2.5	R0.3	6	4	50
4HCR 025 R05 060 450	2.5	R0.5	6	4	50
4HCR 030 R005 080 660	3	R0.05	8	6	60
4HCR 030 R01 080 660	3	R0.1	8	6	60
4HCR 030 R02 080 660	3	R0.2	8	6	60
4HCR 030 R03 080 660	3	R0.3	8	6	60
4HCR 030 R05 080 660	3	R0.5	8	6	60
4HCR 030 R10 080 660	3	R1	8	6	60
4HCR 035 R01 090 670	3.5	R0.1	9	6	70
4HCR 035 R02 090 670	3.5	R0.2	9	6	70
4HCR 035 R03 090 670	3.5	R0.3	9	6	70
4HCR 035 R05 090 670	3.5	R0.5	9	6	70
4HCR 035 R10 090 670	3.5	R1	9	6	70
4HCR 040 R005 100 460	4	R0.05	10	4	60
4HCR 040 R005 100 670	4	R0.05	10	6	70
4HCR 040 R01 100 460	4	R0.1	10	4	60
4HCR 040 R01 100 670	4	R0.1	10	6	70
4HCR 040 R02 100 460	4	R0.2	10	4	60
4HCR 040 R02 100 670	4	R0.2	10	6	70
4HCR 040 R03 100 460	4	R0.3	10	4	60
4HCR 040 R03 100 670	4	R0.3	10	6	70
4HCR 040 R05 100 460	4	R0.5	10	4	60
4HCR 040 R05 100 670	4	R0.5	10	6	70
4HCR 040 R10 100 460	4	R1	10	4	60
4HCR 040 R10 100 670	4	R1	10	6	70
4HCR 045 R01 110 675	4.5	R0.1	11	6	75
4HCR 045 R02 110 675	4.5	R0.2	11	6	75
4HCR 045 R03 110 675	4.5	R0.3	11	6	75
4HCR 045 R05 110 675	4.5	R0.5	11	6	75
4HCR 050 R01 130 675	5	R0.1	13	6	75
4HCR 050 R02 130 675	5	R0.2	13	6	75
4HCR 050 R03 130 675	5	R0.3	13	6	75
4HCR 050 R05 130 675	5	R0.5	13	6	75

4날 코너 래디우스 엔드밀

H 4 CR 30° PAGE No.246

4 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HCR 050 R10 130 675	5	R1	13	6	75
4HCR 060 R005 110 660	6	R0.05	11	6	60
4HCR 060 R005 130 690	6	R0.05	13	6	90
4HCR 060 R01 110 660	6	R0.1	11	6	60
4HCR 060 R01 130 690	6	R0.1	13	6	90
4HCR 060 R02 110 660	6	R0.2	11	6	60
4HCR 060 R02 130 690	6	R0.2	13	6	90
4HCR 060 R03 110 660	6	R0.3	11	6	60
4HCR 060 R03 130 690	6	R0.3	13	6	90
4HCR 060 R05 110 660	6	R0.5	11	6	60
4HCR 060 R05 130 690	6	R0.5	13	6	90
4HCR 060 R10 110 660	6	R1	11	6	60
4HCR 060 R10 130 690	6	R1	13	6	90
4HCR 060 R15 110 660	6	R1.5	11	6	60
4HCR 060 R15 130 690	6	R1.5	13	6	90
4HCR 060 R20 110 660	6	R2	11	6	60
4HCR 060 R20 130 690	6	R2	13	6	90
4HCR 060 R25 130 690	6	R2.5	13	6	90
4HCR 080 R01 160 870	8	R0.1	16	8	70
4HCR 080 R01 190 8A0	8	R0.1	19	8	100
4HCR 080 R02 160 870	8	R0.2	16	8	70
4HCR 080 R02 190 8A0	8	R0.2	19	8	100
4HCR 080 R03 160 870	8	R0.3	16	8	70
4HCR 080 R03 190 8A0	8	R0.3	19	8	100
4HCR 080 R05 160 870	8	R0.5	16	8	70
4HCR 080 R05 190 8A0	8	R0.5	19	8	100
4HCR 080 R10 160 870	8	R1	16	8	70
4HCR 080 R10 190 8A0	8	R1	19	8	100
4HCR 080 R15 160 870	8	R1.5	16	8	70
4HCR 080 R15 190 8A0	8	R1.5	19	8	100
4HCR 080 R20 160 870	8	R2	16	8	70
4HCR 080 R20 190 8A0	8	R2	19	8	100
4HCR 080 R25 190 8A0	8	R2.5	19	8	100
4HCR 080 R30 190 8A0	8	R3	19	8	100

4날 코너 래디우스 엔드밀

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4 Flutes Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HCR 080 R35 190 8A0	8	R3.5	19	8	100
4HCR 100 R01 190 A75	10	R0.1	19	10	75
4HCR 100 R01 220 AA0	10	R0.1	22	10	100
4HCR 100 R02 190 A75	10	R0.2	19	10	75
4HCR 100 R02 220 AA0	10	R0.2	22	10	100
4HCR 100 R03 190 A75	10	R0.3	19	10	75
4HCR 100 R03 220 AA0	10	R0.3	22	10	100
4HCR 100 R05 190 A75	10	R0.5	19	10	75
4HCR 100 R05 220 AA0	10	R0.5	22	10	100
4HCR 100 R10 190 A75	10	R1	19	10	75
4HCR 100 R10 220 AA0	10	R1	22	10	100
4HCR 100 R15 190 A75	10	R1.5	19	10	75
4HCR 100 R15 220 AA0	10	R1.5	22	10	100
4HCR 100 R20 190 A75	10	R2	19	10	75
4HCR 100 R20 220 AA0	10	R2	22	10	100
4HCR 100 R25 220 AA0	10	R2.5	22	10	100
4HCR 100 R30 220 AA0	10	R3	22	10	100
4HCR 100 R40 220 AA0	10	R4	22	10	100
4HCR 120 R01 220 C80	12	R0.1	22	12	80
4HCR 120 R01 260 CB0	12	R0.1	26	12	110
4HCR 120 R02 220 C80	12	R0.2	22	12	80
4HCR 120 R02 260 CB0	12	R0.2	26	12	110
4HCR 120 R03 220 C80	12	R0.3	22	12	80
4HCR 120 R03 260 CB0	12	R0.3	26	12	110
4HCR 120 R05 220 C80	12	R0.5	22	12	80
4HCR 120 R05 260 CB0	12	R0.5	26	12	110
4HCR 120 R05 260 CD0	12	R0.5	26	12	130
4HCR 120 R10 220 C80	12	R1	22	12	80
4HCR 120 R10 260 CB0	12	R1	26	12	110
4HCR 120 R10 260 CD0	12	R1	26	12	130
4HCR 120 R15 220 C80	12	R1.5	22	12	80
4HCR 120 R15 260 CB0	12	R1.5	26	12	110
4HCR 120 R15 260 CD0	12	R1.5	26	12	130
4HCR 120 R20 220 C80	12	R2	22	12	80

4날 코너 래디우스 엔드밀

H 4 CR 30° PAGE No.246

4 Flutes Corner Radius End Mills

unit(mm)

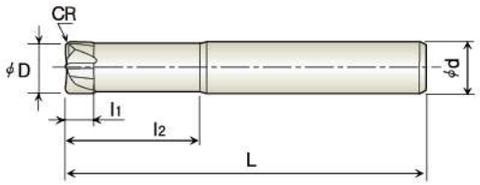
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HCR 120 R20 260 CB0	12	R2	26	12	110
4HCR 120 R20 260 CD0	12	R2	26	12	130
4HCR 120 R25 260 CB0	12	R2.5	26	12	110
4HCR 120 R30 260 CB0	12	R3	26	12	110
4HCR 120 R40 260 CB0	12	R4	26	12	110
4HCR 120 R50 260 CB0	12	R5	26	12	110
4HCR 160 R05 320 GB0	16	R0.5	32	16	110
4HCR 160 R05 320 GF0	16	R0.5	32	16	150
4HCR 160 R10 320 GB0	16	R1	32	16	110
4HCR 160 R10 320 GF0	16	R1	32	16	150
4HCR 160 R15 320 GB0	16	R1.5	32	16	110
4HCR 160 R20 320 GB0	16	R2	32	16	110
4HCR 160 R30 320 GB0	16	R3	32	16	110
4HCR 200 R05 380 KB0	20	R0.5	38	20	110
4HCR 200 R05 380 KF0	20	R0.5	38	20	150
4HCR 200 R10 380 KB0	20	R1	38	20	110
4HCR 200 R10 380 KF0	20	R1	38	20	150
4HCR 200 R15 380 KB0	20	R1.5	38	20	110
4HCR 200 R20 380 KB0	20	R2	38	20	110
4HCR 200 R30 380 KB0	20	R3	38	20	110

4HIT

H 4 CR PAGE No.247

4날 HIT 엔드밀(고속고이송)

4 Flutes HIT End Mills for High Speed & Feedrate



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HIT 015 R03 040 645	1.5	R0.3	0.8	4	6	45
4HIT 020 R05 060 650	2	R0.5	1	6	6	50
4HIT 020 R05 060 670	2	R0.5	1	6	6	70
4HIT 030 R05 080 650	3	R0.5	1.5	8	6	50
4HIT 030 R05 080 670	3	R0.5	1.5	8	6	70
4HIT 030 R10 080 650	3	R1.0	1.5	8	6	50
4HIT 030 R10 200 660	3	R1.0	1.5	20	6	60
4HIT 040 R05 120 660	4	R0.5	2	12	6	60
4HIT 040 R05 120 670	4	R0.5	2	12	6	70
4HIT 040 R05 160 660	4	R0.5	2	16	6	60
4HIT 040 R05 160 670	4	R0.5	2	16	6	70
4HIT 040 R10 120 660	4	R1.0	2	12	6	60
4HIT 040 R10 120 670	4	R1.0	2	12	6	70
4HIT 040 R10 160 660	4	R1.0	2	16	6	60
4HIT 040 R10 160 670	4	R1.0	2	16	6	70
4HIT 050 R10 150 660	5	R1.0	2.5	15	6	60
4HIT 060 R05 120 660	6	R0.5	3	12	6	60
4HIT 060 R05 150 660	6	R0.5	3	15	6	60
4HIT 060 R05 150 680	6	R0.5	3	15	6	80
4HIT 060 R05 200 680	6	R0.5	3	20	6	80
4HIT 060 R05 300 680	6	R0.5	3	30	6	80
4HIT 060 R10 150 660	6	R1.0	3	15	6	60
4HIT 060 R10 150 680	6	R1.0	3	15	6	80
4HIT 060 R10 200 680	6	R1.0	3	20	6	80

4날 HIT 엔드밀(고속고이송)

H 4 CR PAGE No.247

4 Flutes HIT End Mills for High Speed & Feedrate

unit(mm)

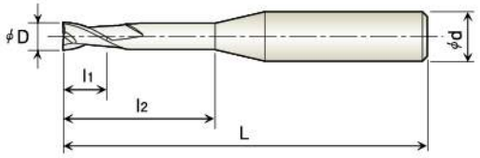
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HIT 060 R10 300 680	6	R1.0	3	30	6	80
4HIT 060 R15 150 660	6	R1.5	3	15	6	60
4HIT 080 R05 200 865	8	R0.5	4	20	8	65
4HIT 080 R05 200 890	8	R0.5	4	20	8	90
4HIT 080 R05 200 8A0	8	R0.5	4	20	8	100
4HIT 080 R05 400 890	8	R0.5	4	40	8	90
4HIT 080 R10 200 865	8	R1.0	4	20	8	65
4HIT 080 R10 200 890	8	R1.0	4	20	8	90
4HIT 080 R10 200 8A0	8	R1.0	4	20	8	100
4HIT 080 R10 300 890	8	R1.0	4	30	8	90
4HIT 080 R10 400 890	8	R1.0	4	40	8	90
4HIT 080 R20 200 865	8	R2.0	4	20	8	65
4HIT 080 R20 200 8A0	8	R2.0	4	20	8	100
4HIT 100 R05 250 A70	10	R0.5	5	25	10	70
4HIT 100 R05 250 AA0	10	R0.5	5	25	10	100
4HIT 100 R10 250 A70	10	R1.0	5	25	10	70
4HIT 100 R10 250 AA0	10	R1.0	5	25	10	100
4HIT 100 R10 250 AB0	10	R1.0	5	25	10	110
4HIT 100 R10 400 AA0	10	R1.0	5	40	10	100
4HIT 100 R20 200 A70	10	R2.0	5	20	10	70
4HIT 100 R20 250 A70	10	R2.0	5	25	10	70
4HIT 100 R20 250 AB0	10	R2.0	5	25	10	110
4HIT 120 R10 300 C80	12	R1.0	6	30	12	80
4HIT 120 R10 300 CB0	12	R1.0	6	30	12	110
4HIT 120 R10 400 CB0	12	R1.0	6	40	12	110
4HIT 120 R20 300 C80	12	R2.0	6	30	12	80
4HIT 120 R20 300 CB0	12	R2.0	6	30	12	110
4HIT 120 R20 400 CB0	12	R2.0	6	40	12	110

2HRE

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills

PAGE No.248



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 001 003 445	0.1	0.15	0.3	4	45
2HRE 001 005 445	0.1	0.15	0.5	4	45
2HRE 002 005 445	0.2	0.3	0.5	4	45
2HRE 002 010 445	0.2	0.3	1	4	45
2HRE 002 015 445	0.2	0.3	1.5	4	45
2HRE 002 020 445	0.2	0.3	2	4	45
2HRE 002 025 445	0.2	0.3	2.5	4	45
2HRE 002 030 445	0.2	0.3	3	4	45
2HRE 003 005 445	0.3	0.45	0.5	4	45
2HRE 003 010 445	0.3	0.45	1	4	45
2HRE 003 015 445	0.3	0.45	1.5	4	45
2HRE 003 020 445	0.3	0.45	2	4	45
2HRE 003 025 445	0.3	0.45	2.5	4	45
2HRE 003 030 445	0.3	0.45	3	4	45
2HRE 003 035 445	0.3	0.45	3.5	4	45
2HRE 003 040 445	0.3	0.45	4	4	45
2HRE 003 050 445	0.3	0.45	5	4	45
2HRE 004 010 445	0.4	0.6	1	4	45
2HRE 004 015 445	0.4	0.6	1.5	4	45
2HRE 004 020 445	0.4	0.6	2	4	45
2HRE 004 025 445	0.4	0.6	2.5	4	45
2HRE 004 030 445	0.4	0.6	3	4	45
2HRE 004 035 445	0.4	0.6	3.5	4	45
2HRE 004 040 445	0.4	0.6	4	4	45

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills

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unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 004 050 445	0.4	0.6	5	4	45
2HRE 004 060 445	0.4	0.6	6	4	45
2HRE 004 080 445	0.4	0.6	8	4	45
2HRE 004 100 445	0.4	0.6	10	4	45
2HRE 005 010 445	0.5	0.7	1	4	45
2HRE 005 020 445	0.5	0.7	2	4	45
2HRE 005 030 445	0.5	0.7	3	4	45
2HRE 005 040 445	0.5	0.7	4	4	45
2HRE 005 050 445	0.5	0.7	5	4	45
2HRE 005 060 445	0.5	0.7	6	4	45
2HRE 005 080 445	0.5	0.7	8	4	45
2HRE 005 100 445	0.5	0.7	10	4	45
2HRE 005 120 445	0.5	0.7	12	4	45
2HRE 005 140 445	0.5	0.7	14	4	45
2HRE 006 020 445	0.6	0.9	2	4	45
2HRE 006 030 445	0.6	0.9	3	4	45
2HRE 006 040 445	0.6	0.9	4	4	45
2HRE 006 050 445	0.6	0.9	5	4	45
2HRE 006 060 445	0.6	0.9	6	4	45
2HRE 006 080 445	0.6	0.9	8	4	45
2HRE 006 100 445	0.6	0.9	10	4	45
2HRE 006 120 445	0.6	0.9	12	4	45
2HRE 006 140 445	0.6	0.9	14	4	45
2HRE 006 160 445	0.6	0.9	16	4	45
2HRE 007 020 445	0.7	1	2	4	45
2HRE 007 040 445	0.7	1	4	4	45
2HRE 007 060 445	0.7	1	6	4	45
2HRE 007 080 445	0.7	1	8	4	45
2HRE 007 100 445	0.7	1	10	4	45
2HRE 007 120 445	0.7	1	12	4	45
2HRE 008 020 445	0.8	1.2	2	4	45
2HRE 008 030 445	0.8	1.2	3	4	45
2HRE 008 040 445	0.8	1.2	4	4	45
2HRE 008 050 445	0.8	1.2	5	4	45

2날 리브가공용 플랫 엔드밀

H 2 OD 30° PAGE No.248

2 Flutes Rib Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 008 060 445	0.8	1.2	6	4	45
2HRE 008 080 445	0.8	1.2	8	4	45
2HRE 008 100 445	0.8	1.2	10	4	45
2HRE 008 120 445	0.8	1.2	12	4	45
2HRE 008 140 445	0.8	1.2	14	4	45
2HRE 009 060 445	0.9	1.3	6	4	45
2HRE 009 080 445	0.9	1.3	8	4	45
2HRE 009 100 445	0.9	1.3	10	4	45
2HRE 010 020 445	1	1.5	2	4	45
2HRE 010 030 445	1	1.5	3	4	45
2HRE 010 040 445	1	1.5	4	4	45
2HRE 010 050 445	1	1.5	5	4	45
2HRE 010 060 445	1	1.5	6	4	45
2HRE 010 080 445	1	1.5	8	4	45
2HRE 010 100 445	1	1.5	10	4	45
2HRE 010 120 445	1	1.5	12	4	45
2HRE 010 140 450	1	1.5	14	4	50
2HRE 010 160 450	1	1.5	16	4	50
2HRE 010 180 450	1	1.5	18	4	50
2HRE 010 200 450	1	1.5	20	4	50
2HRE 010 250 460	1	1.5	25	4	60
2HRE 012 040 445	1.2	1.8	4	4	45
2HRE 012 060 445	1.2	1.8	6	4	45
2HRE 012 080 445	1.2	1.8	8	4	45
2HRE 012 100 445	1.2	1.8	10	4	45
2HRE 012 120 445	1.2	1.8	12	4	45
2HRE 012 160 450	1.2	1.8	16	4	50
2HRE 012 200 450	1.2	1.8	20	4	50
2HRE 015 040 445	1.5	2.3	4	4	45
2HRE 015 060 445	1.5	2.3	6	4	45
2HRE 015 080 445	1.5	2.3	8	4	45
2HRE 015 100 445	1.5	2.3	10	4	45
2HRE 015 120 445	1.5	2.3	12	4	45
2HRE 015 140 450	1.5	2.3	14	4	50

2날 리브가공용 플랫 엔드밀

H 2 OD 30° PAGE No.248

2 Flutes Rib Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 015 160 450	1.5	2.3	16	4	50
2HRE 015 180 450	1.5	2.3	18	4	50
2HRE 015 200 450	1.5	2.3	20	4	50
2HRE 015 250 460	1.5	2.3	25	4	60
2HRE 015 300 470	1.5	2.3	30	4	70
2HRE 020 040 445	2	3	4	4	45
2HRE 020 060 445	2	3	6	4	45
2HRE 020 080 445	2	3	8	4	45
2HRE 020 100 445	2	3	10	4	45
2HRE 020 120 445	2	3	12	4	45
2HRE 020 140 450	2	3	14	4	50
2HRE 020 160 450	2	3	16	4	50
2HRE 020 180 450	2	3	18	4	50
2HRE 020 200 450	2	3	20	4	50
2HRE 020 220 460	2	3	22	4	60
2HRE 020 250 460	2	3	25	4	60
2HRE 020 300 470	2	3	30	4	70
2HRE 020 350 470	2	3	35	4	70
2HRE 025 080 445	2.5	3.8	8	4	45
2HRE 025 100 445	2.5	3.8	10	4	45
2HRE 025 120 445	2.5	3.8	12	4	45
2HRE 025 160 450	2.5	3.8	16	4	50
2HRE 025 200 450	2.5	3.8	20	4	50
2HRE 025 250 460	2.5	3.8	25	4	60
2HRE 025 300 470	2.5	3.8	30	4	70
2HRE 025 350 470	2.5	3.8	35	4	70
2HRE 030 080 650	3	4.5	8	6	50
2HRE 030 100 650	3	4.5	10	6	50
2HRE 030 120 650	3	4.5	12	6	50
2HRE 030 140 660	3	4.5	14	6	60
2HRE 030 160 660	3	4.5	16	6	60
2HRE 030 180 660	3	4.5	18	6	60
2HRE 030 200 660	3	4.5	20	6	60
2HRE 030 250 665	3	4.5	25	6	65

2날 리브가공용 플랫 엔드밀

H 2 OD 30° PAGE No.248

2 Flutes Rib Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 030 300 670	3	4.5	30	6	70
2HRE 030 350 680	3	4.5	35	6	80
2HRE 030 400 680	3	4.5	40	6	80
2HRE 030 500 6A0	3	4.5	50	6	100
2HRE 040 080 650	4	6	8	6	50
2HRE 040 100 650	4	6	10	6	50
2HRE 040 120 650	4	6	12	6	50
2HRE 040 160 660	4	6	16	6	60
2HRE 040 200 660	4	6	20	6	60
2HRE 040 250 665	4	6	25	6	65
2HRE 040 300 670	4	6	30	6	70
2HRE 040 350 680	4	6	35	6	80
2HRE 040 400 680	4	6	40	6	80
2HRE 040 450 690	4	6	45	6	90
2HRE 040 500 6A0	4	6	50	6	100
2HRE 040 550 6B0	4	6	55	6	110
2HRE 040 600 6B0	4	6	60	6	110
2HRE 050 160 660	5	8	16	6	60
2HRE 050 200 660	5	8	20	6	60
2HRE 050 250 665	5	8	25	6	65
2HRE 050 300 670	5	8	30	6	70
2HRE 050 350 680	5	8	35	6	80
2HRE 050 400 680	5	8	40	6	80
2HRE 050 500 6A0	5	8	50	6	100
2HRE 060 200 660	6	9	20	6	60
2HRE 060 300 670	6	9	30	6	70
2HRE 060 400 690	6	9	40	6	90
2HRE 060 500 6A0	6	9	50	6	100
2HRE 080 200 865	8	12	20	8	65
2HRE 080 300 880	8	12	30	8	80
2HRE 080 400 8A0	8	12	40	8	100
2HRE 100 250 A70	10	15	25	10	70
2HRE 100 350 AA0	10	15	35	10	100
2HRE 100 450 AA0	10	15	45	10	100

2날 리브가공용 플랫 엔드밀

H 2 OD 30° PAGE No.248

2 Flutes Rib Flat End Mills

unit(mm)

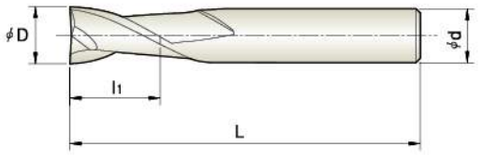
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HRE 120 300 C80	12	18	30	12	80
2HRE 120 400 CB0	12	18	40	12	110
2HRE 120 500 CB0	12	18	50	12	110

2HPE

2날 플랫 엔드밀

2 Flutes Flat End Mills

PAGE No.249



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPE 001 002 445	0.1	0.2	4	45
2HPE 0015 003 445	0.15	0.3	4	45
2HPE 002 004 445	0.2	0.4	4	45
2HPE 0025 005 445	0.25	0.5	4	45
2HPE 003 006 445	0.3	0.6	4	45
2HPE 0035 007 445	0.35	0.7	4	45
2HPE 004 008 445	0.4	0.8	4	45
2HPE 0045 009 445	0.45	0.9	4	45
2HPE 005 010 345	0.5	1	3	45
2HPE 005 010 445	0.5	1	4	45
2HPE 0055 011 445	0.55	1.1	4	45
2HPE 006 012 345	0.6	1.2	3	45
2HPE 006 012 445	0.6	1.2	4	45
2HPE 0065 013 445	0.65	1.3	4	45
2HPE 007 014 445	0.7	1.4	4	45
2HPE 0075 015 445	0.75	1.5	4	45
2HPE 008 016 345	0.8	1.6	3	45
2HPE 008 016 445	0.8	1.6	4	45
2HPE 0085 017 445	0.85	1.7	4	45
2HPE 009 018 445	0.9	1.8	4	45
2HPE 0095 019 445	0.95	1.9	4	45
2HPE 010 025 345	1	2.5	3	45
2HPE 010 025 445	1	2.5	4	45
2HPE 010 025 645	1	2.5	6	45

2날 플랫 엔드밀

2 Flutes Flat End Mills

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unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPE 0105 025 645	1.05	2.5	6	45
2HPE 011 025 645	1.1	2.5	6	45
2HPE 012 040 345	1.2	4	3	45
2HPE 012 040 445	1.2	4	4	45
2HPE 012 040 645	1.2	4	6	45
2HPE 0125 040 645	1.25	4	6	45
2HPE 013 040 645	1.3	4	6	45
2HPE 0135 040 645	1.35	4	6	45
2HPE 014 040 645	1.4	4	6	45
2HPE 0145 040 645	1.45	4	6	45
2HPE 015 040 345	1.5	4	3	45
2HPE 015 040 445	1.5	4	4	45
2HPE 015 040 645	1.5	4	6	45
2HPE 0155 040 645	1.55	4	6	45
2HPE 016 040 645	1.6	4	6	45
2HPE 0165 040 645	1.65	4	6	45
2HPE 017 042 645	1.7	4.2	6	45
2HPE 0175 042 645	1.75	4.2	6	45
2HPE 018 045 645	1.8	4.5	6	45
2HPE 0185 045 645	1.85	4.5	6	45
2HPE 019 050 645	1.9	5	6	45
2HPE 020 060 345	2	6	3	45
2HPE 020 060 445	2	6	4	45
2HPE 020 060 645	2	6	6	45
2HPE 021 060 645	2.1	6	6	45
2HPE 022 060 645	2.2	6	6	45
2HPE 023 060 645	2.3	6	6	45
2HPE 024 080 650	2.4	8	6	50
2HPE 025 080 350	2.5	8	3	50
2HPE 025 080 450	2.5	8	4	50
2HPE 025 080 650	2.5	8	6	50
2HPE 026 080 650	2.6	8	6	50
2HPE 027 080 650	2.7	8	6	50
2HPE 028 080 650	2.8	8	6	50

2날 플랫 엔드밀

H 2 OD 30° PAGE No.249

2 Flutes Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPE 029 080 650	2.9	8	6	50
2HPE 030 080 450	3	8	4	50
2HPE 030 100 350	3	10	3	50
2HPE 030 100 650	3	10	6	50
2HPE 031 100 650	3.1	10	6	50
2HPE 032 100 650	3.2	10	6	50
2HPE 033 100 650	3.3	10	6	50
2HPE 034 100 650	3.4	10	6	50
2HPE 035 100 650	3.5	10	6	50
2HPE 036 100 650	3.6	10	6	50
2HPE 037 100 650	3.7	10	6	50
2HPE 038 100 650	3.8	10	6	50
2HPE 039 100 650	3.9	10	6	50
2HPE 040 120 450	4	12	4	50
2HPE 040 120 650	4	12	6	50
2HPE 041 120 650	4.1	12	6	50
2HPE 042 120 650	4.2	12	6	50
2HPE 043 120 650	4.3	12	6	50
2HPE 044 120 650	4.4	12	6	50
2HPE 045 120 650	4.5	12	6	50
2HPE 046 130 650	4.6	13	6	50
2HPE 047 130 650	4.7	13	6	50
2HPE 048 130 650	4.8	13	6	50
2HPE 049 130 650	4.9	13	6	50
2HPE 050 150 650	5	15	6	50
2HPE 051 150 650	5.1	15	6	50
2HPE 052 150 650	5.2	15	6	50
2HPE 053 150 650	5.3	15	6	50
2HPE 054 150 650	5.4	15	6	50
2HPE 055 150 650	5.5	15	6	50
2HPE 056 150 650	5.6	15	6	50
2HPE 057 150 650	5.7	15	6	50
2HPE 058 150 650	5.8	15	6	50
2HPE 059 150 650	5.9	15	6	50

2날 플랫 엔드밀

H 2 OD 30° PAGE No.249

2 Flutes Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HPE 060 150 650	6	15	6	50
2HPE 061 160 860	6.1	16	8	60
2HPE 062 160 860	6.2	16	8	60
2HPE 063 160 860	6.3	16	8	60
2HPE 064 160 860	6.4	16	8	60
2HPE 065 160 860	6.5	16	8	60
2HPE 070 200 865	7	20	8	65
2HPE 075 200 865	7.5	20	8	65
2HPE 080 200 865	8	20	8	65
2HPE 085 200 A65	8.5	20	10	65
2HPE 090 250 A70	9	25	10	70
2HPE 095 250 A70	9.5	25	10	70
2HPE 100 250 A70	10	25	10	70
2HPE 105 250 C75	10.5	25	12	75
2HPE 110 250 C75	11	25	12	75
2HPE 115 250 C75	11.5	25	12	75
2HPE 120 300 C80	12	30	12	80
2HPE 130 350 E90	13	35	14	90
2HPE 140 350 E90	14	35	14	90
2HPE 150 350 GA0	15	35	16	100
2HPE 160 400 GA0	16	40	16	100
2HPE 180 450 IA0	18	45	18	100
2HPE 200 450 KA0	20	45	20	100

2HLE

2날 롱 플랫 엔드밀

2 Flutes Long Length Flat End Mills

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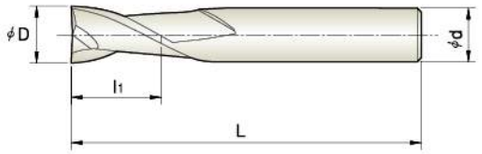


unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HLE 010 030 660	1	3	6	60
2HLE 010 050 660	1	5	6	60
2HLE 010 070 660	1	7	6	60
2HLE 010 100 660	1	10	6	60
2HLE 010 120 660	1	12	6	60
2HLE 010 150 660	1	15	6	60
2HLE 015 060 660	1.5	6	6	60
2HLE 015 080 660	1.5	8	6	60
2HLE 015 100 660	1.5	10	6	60
2HLE 015 150 660	1.5	15	6	60
2HLE 015 200 660	1.5	20	6	60
2HLE 020 100 660	2	10	6	60
2HLE 020 120 660	2	12	6	60
2HLE 020 150 660	2	15	6	60
2HLE 020 200 660	2	20	6	60
2HLE 030 120 670	3	12	6	70
2HLE 030 150 670	3	15	6	70
2HLE 030 200 670	3	20	6	70
2HLE 030 250 670	3	25	6	70
2HLE 030 300 670	3	30	6	70
2HLE 040 150 670	4	15	6	70
2HLE 040 200 670	4	20	6	70
2HLE 040 300 675	4	30	6	75
2HLE 040 350 675	4	35	6	75

2날 롱 플랫 엔드밀

2 Flutes Long Length Flat End Mills

PAGE No.250

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2HLE 040 400 680	4	40	6	80
2HLE 050 200 670	5	20	6	70
2HLE 050 250 670	5	25	6	70
2HLE 050 300 675	5	30	6	75
2HLE 050 400 680	5	40	6	80
2HLE 060 200 670	6	20	6	70
2HLE 060 200 6A0	6	20	6	100
2HLE 060 250 675	6	25	6	75
2HLE 060 300 680	6	30	6	80
2HLE 060 350 680	6	35	6	80
2HLE 060 400 690	6	40	6	90
2HLE 080 250 875	8	25	8	75
2HLE 080 250 8A0	8	25	8	100
2HLE 080 300 880	8	30	8	80
2HLE 080 350 880	8	35	8	80
2HLE 080 400 890	8	40	8	90
2HLE 080 450 8A0	8	45	8	100
2HLE 080 500 8A0	8	50	8	100
2HLE 080 550 8A0	8	55	8	100
2HLE 100 300 A80	10	30	10	80
2HLE 100 350 AA0	10	35	10	100
2HLE 100 400 AA0	10	40	10	100
2HLE 100 450 AA0	10	45	10	100
2HLE 100 500 AA0	10	50	10	100
2HLE 100 550 AB0	10	55	10	110
● 2HLE 100 600 AB0	10	60	10	110
● 2HLE 100 650 AC0	10	65	10	120
● 2HLE 100 700 AC0	10	70	10	120
2HLE 120 300 CA0	12	30	12	100
2HLE 120 350 CA0	12	35	12	100
2HLE 120 400 CA0	12	40	12	100
2HLE 120 450 CA0	12	45	12	100
2HLE 120 500 CA0	12	50	12	100
2HLE 120 550 CB0	12	55	12	110

2날 롱 플랫 엔드밀

H 2 OD 30° PAGE No.250

2 Flutes Long Length Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
⊙ 2HLE 120 600 CB0	12	60	12	110
⊙ 2HLE 120 700 CD0	12	70	12	130
⊙ 2HLE 140 500 EB0	14	50	14	110
2HLE 160 400 GF0	16	40	16	150
⊙ 2HLE 160 550 GC0	16	55	16	120
⊙ 2HLE 160 700 GD0	16	70	16	130
⊙ 2HLE 200 500 KF0	20	50	20	150
⊙ 2HLE 200 600 KD0	20	60	20	130
⊙ 2HLE 250 750 PF0	25	75	25	150

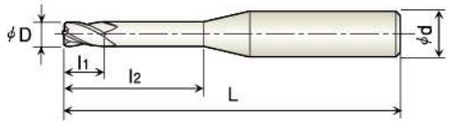
⊙ 주문생산 Order Production

4HRE

H 4 OD 30° PAGE No.251

4날 리브가공용 플랫 엔드밀

4 Flutes Rib Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRE 008 020 445	0.8	1.2	2	4	45
4HRE 008 040 445	0.8	1.2	4	4	45
4HRE 008 060 445	0.8	1.2	6	4	45
4HRE 008 080 445	0.8	1.2	8	4	45
4HRE 008 100 445	0.8	1.2	10	4	45
4HRE 008 120 445	0.8	1.2	12	4	45
4HRE 008 160 445	0.8	1.2	16	4	45
4HRE 009 020 445	0.9	1.4	2	4	45
4HRE 009 060 445	0.9	1.4	6	4	45
4HRE 009 080 445	0.9	1.4	8	4	45
4HRE 009 100 445	0.9	1.4	10	4	45
4HRE 010 020 445	1	1.5	2	4	45
4HRE 010 030 445	1	1.5	3	4	45
4HRE 010 040 445	1	1.5	4	4	45
4HRE 010 060 445	1	1.5	6	4	45
4HRE 010 080 445	1	1.5	8	4	45
4HRE 010 100 445	1	1.5	10	4	45
4HRE 010 120 445	1	1.5	12	4	45
4HRE 010 140 450	1	1.5	14	4	50
4HRE 010 160 450	1	1.5	16	4	50
4HRE 010 200 450	1	1.5	20	4	50
4HRE 010 250 460	1	1.5	25	4	60
4HRE 012 040 445	1.2	1.8	4	4	45
4HRE 012 060 445	1.2	1.8	6	4	45

4날 리브가공용 플랫 엔드밀

H 4 OD 30° PAGE No.251

4 Flutes Rib Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRE 012 080 445	1.2	1.8	8	4	45
4HRE 012 100 445	1.2	1.8	10	4	45
4HRE 012 120 445	1.2	1.8	12	4	45
4HRE 012 160 450	1.2	1.8	16	4	50
4HRE 015 040 445	1.5	2.3	4	4	45
4HRE 015 060 445	1.5	2.3	6	4	45
4HRE 015 080 445	1.5	2.3	8	4	45
4HRE 015 100 445	1.5	2.3	10	4	45
4HRE 015 120 445	1.5	2.3	12	4	45
4HRE 015 160 450	1.5	2.3	16	4	50
4HRE 015 200 450	1.5	2.3	20	4	50
4HRE 015 250 460	1.5	2.3	25	4	60
4HRE 020 040 445	2	3	4	4	45
4HRE 020 060 445	2	3	6	4	45
4HRE 020 080 445	2	3	8	4	45
4HRE 020 100 445	2	3	10	4	45
4HRE 020 120 445	2	3	12	4	45
4HRE 020 140 450	2	3	14	4	50
4HRE 020 160 450	2	3	16	4	50
4HRE 020 180 450	2	3	18	4	50
4HRE 020 200 450	2	3	20	4	50
4HRE 020 250 460	2	3	25	4	60
4HRE 020 300 470	2	3	30	4	70
4HRE 025 100 445	2.5	3.8	10	4	45
4HRE 025 120 445	2.5	3.8	12	4	45
4HRE 025 160 450	2.5	3.8	16	4	50
4HRE 025 200 450	2.5	3.8	20	4	50
4HRE 025 250 460	2.5	3.8	25	4	60
4HRE 025 300 470	2.5	3.8	30	4	70
4HRE 030 060 645	3	4.5	6	6	45
4HRE 030 080 650	3	4.5	8	6	50
4HRE 030 100 650	3	4.5	10	6	50
4HRE 030 120 650	3	4.5	12	6	50
4HRE 030 160 660	3	4.5	16	6	60

4날 리브가공용 플랫 엔드밀

H 4 OD 30° PAGE No.251

4 Flutes Rib Flat End Mills

unit(mm)

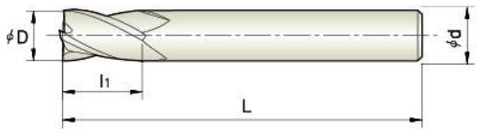
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HRE 030 200 660	3	4.5	20	6	60
4HRE 030 250 665	3	4.5	25	6	65
4HRE 030 300 670	3	4.5	30	6	70
4HRE 030 350 680	3	4.5	35	6	80
4HRE 030 400 680	3	4.5	40	6	80
4HRE 040 080 650	4	6	8	6	50
4HRE 040 100 650	4	6	10	6	50
4HRE 040 120 650	4	6	12	6	50
4HRE 040 160 660	4	6	16	6	60
4HRE 040 200 660	4	6	20	6	60
4HRE 040 250 665	4	6	25	6	65
4HRE 040 300 670	4	6	30	6	70
4HRE 040 400 680	4	6	40	6	80
4HRE 040 450 690	4	6	45	6	90
4HRE 040 500 6A0	4	6	50	6	100
4HRE 050 160 660	5	8	16	6	60
4HRE 050 200 660	5	8	20	6	60
4HRE 050 250 665	5	8	25	6	65
4HRE 050 300 670	5	8	30	6	70
4HRE 050 400 680	5	8	40	6	80
4HRE 050 500 6A0	5	8	50	6	100
4HRE 060 200 660	6	9	20	6	60
4HRE 060 300 670	6	9	30	6	70
4HRE 060 400 690	6	9	40	6	90
4HRE 060 500 6A0	6	9	50	6	100
4HRE 080 200 865	8	12	20	8	65
4HRE 080 300 880	8	12	30	8	80
4HRE 080 400 8A0	8	12	40	8	100
4HRE 100 250 A70	10	15	25	10	70
4HRE 100 350 AA0	10	15	35	10	100
4HRE 100 450 AA0	10	15	45	10	100
4HRE 120 300 C80	12	18	30	12	80
4HRE 120 400 CB0	12	18	40	12	110
4HRE 120 500 CB0	12	18	50	12	110

4HPE

4날 플랫 엔드밀

4 Flutes Flat End Mills

PAGE No.252



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HPE 008 016 445	0.8	1.6	4	45
4HPE 010 025 445	1	2.5	4	45
4HPE 010 025 645	1	2.5	6	45
4HPE 012 040 445	1.2	4	4	45
4HPE 015 040 445	1.5	4	4	45
4HPE 015 040 645	1.5	4	6	45
4HPE 020 060 445	2	6	4	45
4HPE 020 060 645	2	6	6	45
4HPE 025 080 445	2.5	8	4	45
4HPE 025 080 645	2.5	8	6	45
4HPE 030 100 350	3	10	3	50
4HPE 030 100 450	3	10	4	50
4HPE 030 100 650	3	10	6	50
4HPE 035 100 650	3.5	10	6	50
4HPE 040 120 450	4	12	4	50
4HPE 040 120 650	4	12	6	50
4HPE 045 120 650	4.5	12	6	50
4HPE 050 150 650	5	15	6	50
4HPE 055 150 650	5.5	15	6	50
4HPE 060 150 650	6	15	6	50
4HPE 060 150 675	6	15	6	75
4HPE 060 150 6A0	6	15	6	100
4HPE 070 200 865	7	20	8	65
4HPE 080 200 865	8	20	8	65

4날 플랫 엔드밀

4 Flutes Flat End Mills

PAGE No.252

unit(mm)

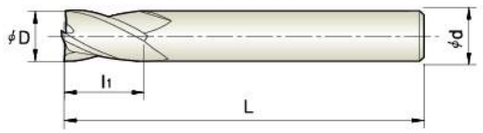
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HPE 080 200 875	8	20	8	75
4HPE 080 200 8A0	8	20	8	100
4HPE 100 250 A70	10	25	10	70
4HPE 100 250 A75	10	25	10	75
4HPE 100 250 AA0	10	25	10	100
4HPE 120 300 C80	12	30	12	80
4HPE 120 300 CA0	12	30	12	100
4HPE 140 350 E90	14	35	14	90
4HPE 160 400 GA0	16	40	16	100
4HPE 180 450 IA0	18	45	18	100
4HPE 200 450 KA0	20	45	20	100

4HLE

4날 롱 플랫 엔드밀

4 Flutes Long Length Flat End Mills

PAGE No.253



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HLE 010 030 660	1	3	6	60
4HLE 010 050 660	1	5	6	60
4HLE 010 070 660	1	7	6	60
4HLE 015 060 660	1.5	6	6	60
4HLE 015 080 660	1.5	8	6	60
4HLE 015 100 660	1.5	10	6	60
4HLE 020 080 660	2	8	6	60
4HLE 020 100 660	2	10	6	60
4HLE 020 120 660	2	12	6	60
4HLE 020 150 660	2	15	6	60
4HLE 030 100 670	3	10	6	70
4HLE 030 150 670	3	15	6	70
4HLE 030 200 670	3	20	6	70
4HLE 030 250 670	3	25	6	70
4HLE 030 300 670	3	30	6	70
4HLE 040 120 670	4	12	6	70
4HLE 040 150 470	4	15	4	70
4HLE 040 150 670	4	15	6	70
4HLE 040 200 470	4	20	4	70
4HLE 040 200 670	4	20	6	70
4HLE 040 250 670	4	25	6	70
4HLE 040 300 675	4	30	6	75
4HLE 040 350 675	4	35	6	75
4HLE 040 400 680	4	40	6	80

4날 롱 플랫 엔드밀

4 Flutes Long Length Flat End Mills

PAGE No.253

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HLE 050 200 670	5	20	6	70
4HLE 050 250 670	5	25	6	70
4HLE 050 300 675	5	30	6	75
4HLE 050 400 680	5	40	6	80
4HLE 060 200 670	6	20	6	70
4HLE 060 200 6A0	6	20	6	100
4HLE 060 250 675	6	25	6	75
4HLE 060 250 6A0	6	25	6	100
4HLE 060 300 680	6	30	6	80
4HLE 060 350 680	6	35	6	80
4HLE 060 400 690	6	40	6	90
4HLE 080 250 875	8	25	8	75
4HLE 080 250 8A0	8	25	8	100
4HLE 080 300 880	8	30	8	80
4HLE 080 300 8A0	8	30	8	100
4HLE 080 300 8F0	8	30	8	150
4HLE 080 350 880	8	35	8	80
4HLE 080 400 890	8	40	8	90
4HLE 080 450 8A0	8	45	8	100
4HLE 080 500 8A0	8	50	8	100
4HLE 080 550 8A0	8	55	8	100
4HLE 100 300 A80	10	30	10	80
4HLE 100 350 AA0	10	35	10	100
4HLE 100 350 AF0	10	35	10	150
4HLE 100 400 AA0	10	40	10	100
4HLE 100 450 AA0	10	45	10	100
4HLE 100 500 AA0	10	50	10	100
4HLE 100 550 AB0	10	55	10	110
4HLE 100 600 AB0	10	60	10	110
4HLE 100 650 AC0	10	65	10	120
4HLE 100 700 AC0	10	70	10	120
4HLE 120 300 CA0	12	30	12	100
4HLE 120 350 CA0	12	35	12	100
4HLE 120 400 CA0	12	40	12	100

4날 롱 플랫 엔드밀

H 4 OD 30° PAGE No.253

4 Flutes Long Length Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HLE 120 400 CF0	12	40	12	150
4HLE 120 450 CA0	12	45	12	100
4HLE 120 500 CA0	12	50	12	100
⊙ 4HLE 120 550 CB0	12	55	12	110
⊙ 4HLE 120 600 CB0	12	60	12	110
⊙ 4HLE 120 700 CD0	12	70	12	130
4HLE 140 500 EB0	14	50	14	110
4HLE 160 400 GF0	16	40	16	150
4HLE 160 550 GC0	16	55	16	120
⊙ 4HLE 160 700 GD0	16	70	16	130
4HLE 200 500 KF0	20	50	20	150
⊙ 4HLE 200 600 KD0	20	60	20	130
⊙ 4HLE 250 750 PF0	25	75	25	150

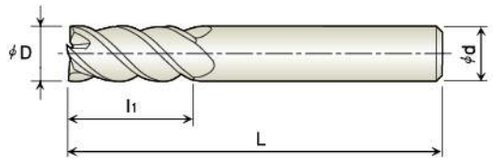
⊙ 주문생산 Order Production

4HHE

H 4 OD 43° PAGE No.254

4날 43° 헬릭스 플랫 엔드밀

4 Flutes 43° HELIX Flat End Mills



unit(mm)

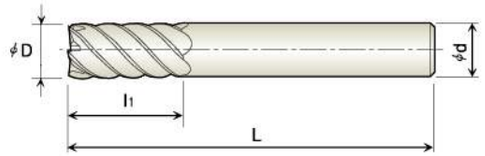
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4HHE 010 020 445	1	2	4	45
4HHE 010 020 645	1	2	6	45
4HHE 015 040 445	1.5	4	4	45
4HHE 015 040 645	1.5	4	6	45
4HHE 020 050 445	2	5	4	45
4HHE 020 050 645	2	5	6	45
4HHE 030 080 350	3	8	3	50
4HHE 030 080 445	3	8	4	45
4HHE 030 080 650	3	8	6	50
4HHE 040 100 460	4	10	4	60
4HHE 040 100 650	4	10	6	50
4HHE 040 120 445	4	12	4	45
4HHE 050 130 650	5	13	6	50
4HHE 060 150 650	6	15	6	50
4HHE 060 150 675	6	15	6	75
4HHE 080 200 865	8	20	8	65
4HHE 080 200 875	8	20	8	75
4HHE 100 250 A70	10	25	10	70
4HHE 100 250 A75	10	25	10	75
4HHE 120 300 C80	12	30	12	80
4HHE 160 400 GA0	16	40	16	100
4HHE 200 450 KA0	20	45	20	100

6HPE

6날 45° 헬릭스 플랫 엔드밀

6 Flutes 45° HELIX Flat End Mills

PAGE No.255



unit(mm)

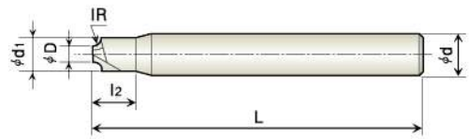
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
6HPE 060 150 650	6	15	6	50
6HPE 080 200 865	8	20	8	65
6HPE 100 250 A70	10	25	10	70
6HPE 120 300 C80	12	30	12	80
6HPE 160 400 GA0	16	40	16	100
6HPE 200 450 KA0	20	45	20	100

2IRC

2날 코너 라운딩 커터

2 Flutes Inner Corner Radius

PAGE No.256



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Inner Radius (IR)	외경 Outside Diameter of Cut (d1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2IRC 005 IR055 017 445	0.5	IR0.55	1.7	3	4	45
2IRC 005 IR06 018 445	0.5	IR0.6	1.8	3	4	45
2IRC 005 IR065 019 445	0.5	IR0.65	1.9	3	4	45
2IRC 005 IR07 020 445	0.5	IR0.7	2	3	4	45
2IRC 009 IR05 020 445	0.9	IR0.5	2	3	4	45
2IRC 009 IR075 025 445	0.9	IR0.75	2.5	4	4	45
2IRC 009 IR08 026 445	0.9	IR0.8	2.6	4	4	45
2IRC 009 IR085 027 445	0.9	IR0.85	2.7	4	4	45
2IRC 009 IR09 028 445	0.9	IR0.9	2.8	4	4	45
2IRC 009 IR095 029 445	0.9	IR0.95	2.9	4	4	45
2IRC 009 IR10 030 650	0.9	IR1.0	3	5	6	50
2IRC 009 IR125 035 650	0.9	IR1.25	3.5	5	6	50
2IRC 014 IR15 045 650	1.4	IR1.5	4.5	8	6	50
2IRC 014 IR20 055 650	1.4	IR2.0	5.5	10	6	50
2IRC 019 IR25 070 860	1.9	IR2.5	7	13	8	60
2IRC 019 IR30 080 860	1.9	IR3.0	8	–	8	60
2IRC 019 IR35 090 A70	1.9	IR3.5	9	13	10	70
2IRC 019 IR40 100 A70	1.9	IR4.0	10	–	10	70
2IRC 019 IR45 110 C80	1.9	IR4.5	11	13	12	80
2IRC 019 IR50 120 C80	1.9	IR5.0	12	–	12	80
2IRC 034 IR125 060 650	3.4	IR1.25	6	–	6	50
2IRC 039 IR10 060 650	3.9	IR1.0	6	–	6	50
2IRC 039 IR20 080 860	3.9	IR2.0	8	–	8	60
2IRC 039 IR60 160 G85	3.9	IR6.0	16	–	16	85

2날 코너 라운딩 커터

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2 Flutes Inner Corner Radius

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Inner Radius (IR)	외경 Outside Diameter of Cut (d1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2IRC 039 IR80 200 K85	3.9	IR8.0	20	-	20	85
2IRC 049 IR05 060 660	4.9	IR0.5	6	-	6	60
2IRC 049 IR15 080 860	4.9	IR1.5	8	-	8	60
2IRC 059 IR10 080 860	5.9	IR1.0	8	-	8	60
2IRC 059 IR70 200 K85	5.9	IR7.0	20	-	20	85

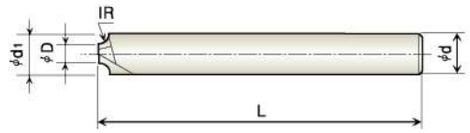
주문생산 Order Production

4IRC

PAGE No.257

4날 코너 라운딩 커터

4 Flutes Inner Corner Radius



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Inner Radius (IR)	외경 Outside Diameter of Cut (d1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4IRC 019 IR10 040 450	1.9	IR1.0	4	4	50
4IRC 024 IR075 040 450	2.4	IR0.75	4	4	50
4IRC 029 IR05 040 450	2.9	IR0.5	4	4	50
4IRC 039 IR10 060 650	3.9	IR1.0	6	6	50
4IRC 039 IR20 080 860	3.9	IR2.0	8	8	60
4IRC 039 IR30 100 A70	3.9	IR3.0	10	10	70
4IRC 039 IR40 120 C80	3.9	IR4.0	12	12	80
4IRC 039 IR60 160 G80	3.9	IR6.0	16	16	80
4IRC 049 IR05 060 650	4.9	IR0.5	6	6	50
4IRC 049 IR075 060 650	4.9	IR0.75	6	6	50
4IRC 049 IR15 080 860	4.9	IR1.5	8	8	60
4IRC 049 IR25 100 A70	4.9	IR2.5	10	10	70
4IRC 059 IR10 080 860	5.9	IR1.0	8	8	60
4IRC 059 IR20 100 A70	5.9	IR2.0	10	10	70
4IRC 059 IR30 120 C80	5.9	IR3.0	12	12	80
4IRC 059 IR50 160 G80	5.9	IR5.0	16	16	80

주문생산 Order Production

PART 3

A-PRO SERIES

전체 타입 All Type

사이즈 D Size	인선직경공차(mm) D Tolerance
ALL	0 ~ −0.020

- 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 side cutting.

2ARB

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills

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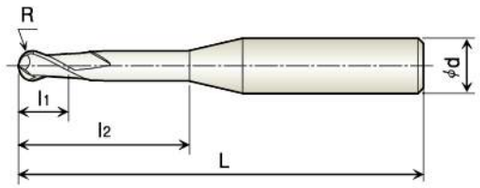


unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARB 004 010 445	R0.2	0.4	1	4	45
2ARB 004 020 445	R0.2	0.4	2	4	45
2ARB 005 020 445	R0.25	0.5	2	4	45
2ARB 005 040 445	R0.25	0.5	4	4	45
2ARB 006 020 445	R0.3	0.6	2	4	45
2ARB 006 030 445	R0.3	0.6	3	4	45
2ARB 006 040 445	R0.3	0.6	4	4	45
2ARB 006 050 445	R0.3	0.6	5	4	45
2ARB 006 060 445	R0.3	0.6	6	4	45
2ARB 008 020 445	R0.4	0.8	2	4	45
2ARB 008 030 445	R0.4	0.8	3	4	45
2ARB 008 040 445	R0.4	0.8	4	4	45
2ARB 008 050 445	R0.4	0.8	5	4	45
2ARB 008 060 445	R0.4	0.8	6	4	45
2ARB 008 080 445	R0.4	0.8	8	4	45
2ARB 010 030 445	R0.5	1	3	4	45
2ARB 010 040 445	R0.5	1	4	4	45
2ARB 010 050 445	R0.5	1	5	4	45
2ARB 010 060 445	R0.5	1	6	4	45
2ARB 010 080 445	R0.5	1	8	4	45
2ARB 010 100 445	R0.5	1	10	4	45
2ARB 010 120 445	R0.5	1	12	4	45
2ARB 012 080 445	R0.6	1.2	8	4	45
2ARB 012 100 445	R0.6	1.2	10	4	45

2날 리브가공용 볼 엔드밀

2 Flutes Rib Ball End Mills

PAGE No.258

unit(mm)

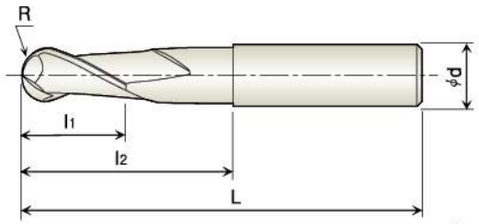
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARB 012 120 445	R0.6	1.2	12	4	45
2ARB 015 060 445	R0.75	1.5	6	4	45
2ARB 015 080 445	R0.75	1.5	8	4	45
2ARB 015 100 445	R0.75	1.5	10	4	45
2ARB 015 120 445	R0.75	1.5	12	4	45
2ARB 015 160 450	R0.75	1.5	16	4	50
2ARB 016 080 445	R0.8	1.6	8	4	45
2ARB 016 120 445	R0.8	1.6	12	4	45
2ARB 020 080 445	R1.0	2	8	4	45
2ARB 020 100 445	R1.0	2	10	4	45
2ARB 020 120 445	R1.0	2	12	4	45
2ARB 020 160 450	R1.0	2	16	4	50
2ARB 020 200 450	R1.0	2	20	4	50
2ARB 025 080 650	R1.25	2.5	8	6	50
2ARB 030 120 650	R1.5	3	12	6	50
2ARB 030 160 660	R1.5	3	16	6	60
2ARB 030 200 660	R1.5	3	20	6	60
2ARB 030 250 665	R1.5	3	25	6	65
2ARB 040 120 650	R2.0	4	12	6	50
2ARB 040 160 660	R2.0	4	16	6	60
2ARB 040 200 660	R2.0	4	20	6	60
2ARB 040 250 665	R2.0	4	25	6	65
2ARB 040 300 670	R2.0	4	30	6	70

2ASB

PAGE No.259

2날 쇼트 볼 엔드밀

2 Flutes Short Ball End Mills



unit(mm)

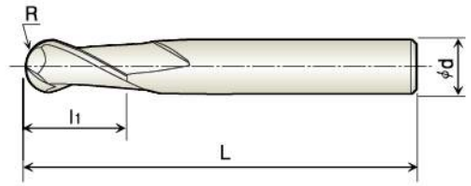
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ASB 004 010 650	R0.2	0.4	1	6	50
2ASB 005 015 650	R0.25	0.5	1.5	6	50
2ASB 006 015 650	R0.3	0.6	1.5	6	50
2ASB 008 020 650	R0.4	0.8	2	6	50
2ASB 010 025 650	R0.5	1	2.5	6	50
2ASB 015 040 650	R0.75	1.5	4	6	50
2ASB 020 060 650	R1.0	2	6	6	50
2ASB 025 060 650	R1.25	2.5	6	6	50
2ASB 030 080 650	R1.5	3	8	6	50
2ASB 040 100 650	R2.0	4	10	6	50
2ASB 050 120 650	R2.5	5	12	6	50
2ASB 060 150 660	R3.0	7	15	6	60
2ASB 080 200 860	R4.0	10	20	8	60
2ASB 100 250 A70	R5.0	12	25	10	70
2ASB 120 300 C80	R6.0	14	30	12	80

2APB

PAGE No.260

2날 볼 엔드밀

2 Flutes Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2APB 004 008 445	R0.2	0.8	4	45
2APB 005 010 445	R0.25	1	4	45
2APB 006 012 445	R0.3	1.2	4	45
2APB 008 015 445	R0.4	1.5	4	45
2APB 010 020 650	R0.5	2	6	50
2APB 015 040 650	R0.75	4	6	50
2APB 020 050 660	R1.0	5	6	60
2APB 025 060 660	R1.25	6	6	60
2APB 030 080 360	R1.5	8	3	60
2APB 030 080 660	R1.5	8	6	60
2APB 035 080 660	R1.75	8	6	60
2APB 040 080 470	R2.0	8	4	70
2APB 040 080 670	R2.0	8	6	70
2APB 045 100 670	R2.25	10	6	70
2APB 050 100 680	R2.5	10	6	80
2APB 055 120 680	R2.75	12	6	80
2APB 060 120 690	R3.0	12	6	90
2APB 065 140 890	R3.25	14	8	90
2APB 070 140 890	R3.5	14	8	90
2APB 080 140 8A0	R4.0	14	8	100
2APB 090 180 AA0	R4.5	18	10	100
2APB 100 180 AA0	R5.0	18	10	100
2APB 100 250 AF0	R5.0	25	10	150
2APB 120 220 CB0	R6.0	22	12	110

2날 볼 엔드밀

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2 Flutes Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2APB 120 300 CF0	R6.0	30	12	150
2APB 160 300 GA0	R8.0	30	16	100
2APB 160 300 GF0	R8.0	30	16	150
2APB 200 380 KA0	R10.0	38	20	100
2APB 200 380 KF0	R10.0	38	20	150

2ARR

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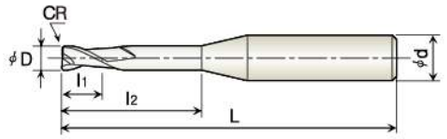
2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARR 010 R02 030 650	1	R0.2	1.5	3	6	50
2ARR 010 R02 060 650	1	R0.2	1.5	6	6	50
2ARR 010 R02 080 650	1	R0.2	1.5	8	6	50
2ARR 015 R02 045 650	1.5	R0.2	2.3	4.5	6	50
2ARR 015 R02 100 650	1.5	R0.2	2.3	10	6	50
2ARR 015 R02 120 650	1.5	R0.2	2.3	12	6	50
2ARR 015 R05 045 650	1.5	R0.5	2.3	4.5	6	50
2ARR 020 R02 060 650	2	R0.2	3	6	6	50
2ARR 020 R02 120 650	2	R0.2	3	12	6	50
2ARR 020 R02 160 660	2	R0.2	3	16	6	60
2ARR 020 R05 060 650	2	R0.5	3	6	6	50
2ARR 025 R02 080 650	2.5	R0.2	4	8	6	50
2ARR 025 R05 080 650	2.5	R0.5	4	8	6	50
2ARR 030 R03 120 650	3	R0.3	4.5	12	6	50
2ARR 030 R03 160 660	3	R0.3	4.5	16	6	60
2ARR 030 R05 120 650	3	R0.5	4.5	12	6	50
2ARR 030 R05 160 660	3	R0.5	4.5	16	6	60
2ARR 030 R10 120 650	3	R1.0	4.5	12	6	50
2ARR 040 R03 150 660	4	R0.3	6	15	6	60
2ARR 040 R05 150 660	4	R0.5	6	15	6	60
2ARR 040 R05 200 660	4	R0.5	6	20	6	60
2ARR 040 R10 150 660	4	R1.0	6	15	6	60
2ARR 050 R03 180 660	5	R0.3	7.5	18	6	60
2ARR 050 R05 180 660	5	R0.5	7.5	18	6	60

2날 리브 코너 래디우스 엔드밀

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2 Flutes Rib Corner Radius End Mills

unit(mm)

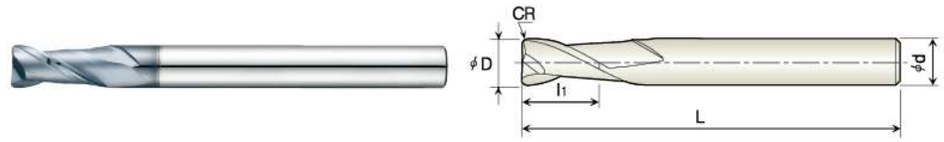
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARR 060 R03 180 660	6	R0.3	9	18	6	60
2ARR 060 R05 180 660	6	R0.5	9	18	6	60
2ARR 060 R10 180 660	6	R1.0	9	18	6	60
2ARR 060 R15 180 660	6	R1.5	9	18	6	60
2ARR 080 R03 240 865	8	R0.3	12	24	8	65
2ARR 080 R05 240 865	8	R0.5	12	24	8	65
2ARR 080 R10 240 865	8	R1.0	12	24	8	65
2ARR 080 R15 240 865	8	R1.5	12	24	8	65
2ARR 100 R03 300 A70	10	R0.3	15	30	10	70
2ARR 100 R05 300 A70	10	R0.5	15	30	10	70
2ARR 100 R10 300 A70	10	R1.0	15	30	10	70
2ARR 100 R15 300 A70	10	R1.5	15	30	10	70
2ARR 120 R05 300 C80	12	R0.5	18	30	12	80
2ARR 120 R10 300 C80	12	R1.0	18	30	12	80
2ARR 120 R15 300 C80	12	R1.5	18	30	12	80

2ACR

PAGE No.262

2날 코너 래디우스 엔드밀

2 Flutes Corner Radius End Mills



unit(mm)

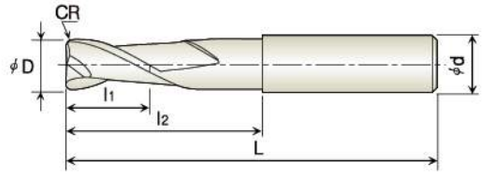
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ACR 060 R05 130 690	6	R0.5	13	6	90
2ACR 060 R10 130 690	6	R1.0	13	6	90
2ACR 080 R05 190 8A0	8	R0.5	19	8	100
2ACR 080 R10 190 8A0	8	R1.0	19	8	100
2ACR 100 R05 220 AA0	10	R0.5	22	10	100
2ACR 100 R10 220 AA0	10	R1.0	22	10	100
2ACR 120 R05 260 CB0	12	R0.5	26	12	110
2ACR 120 R10 260 CB0	12	R1.0	26	12	110

2ALR

A 2 CR 35° PAGE No.263

2날 롱생크 코너 래디우스 엔드밀

2 Flutes Long Shank Corner Radius End Mills



unit(mm)

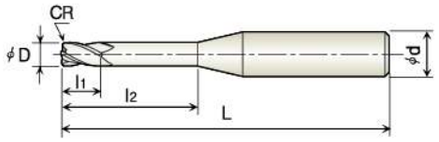
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ALR 060 R05 180 680	6	R0.5	9	18	6	80
2ALR 060 R10 180 680	6	R1.0	9	18	6	80
2ALR 080 R05 240 890	8	R0.5	12	24	8	90
2ALR 080 R10 240 890	8	R1.0	12	24	8	90
2ALR 100 R05 300 AA0	10	R0.5	15	30	10	100
2ALR 100 R10 300 AA0	10	R1.0	15	30	10	100
2ALR 120 R05 300 CB0	12	R0.5	18	30	12	110
2ALR 120 R10 300 CB0	12	R1.0	18	30	12	110

4ARR

A 4 CR 45° PAGE No.264

4날 리브 코너 래디우스 엔드밀

4 Flutes Rib Corner Radius End Mills



unit(mm)

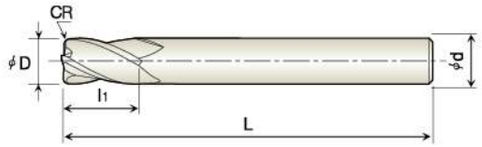
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4ARR 020 R03 060 650	2	R0.3	3	6	6	50
4ARR 030 R03 120 650	3	R0.3	4.5	12	6	50
4ARR 030 R03 160 660	3	R0.3	4.5	16	6	60
4ARR 030 R05 120 650	3	R0.5	4.5	12	6	50
4ARR 030 R05 160 660	3	R0.5	4.5	16	6	60
4ARR 040 R03 150 660	4	R0.3	6	15	6	60
4ARR 040 R03 200 660	4	R0.3	6	20	6	60
4ARR 040 R05 150 660	4	R0.5	6	15	6	60
4ARR 040 R05 200 660	4	R0.5	6	20	6	60
4ARR 040 R10 150 660	4	R1.0	6	15	6	60
4ARR 060 R05 180 660	6	R0.5	9	18	6	60
4ARR 060 R10 180 660	6	R1.0	9	18	6	60
4ARR 060 R15 180 660	6	R1.5	9	18	6	60
4ARR 080 R05 240 865	8	R0.5	12	24	8	65
4ARR 080 R10 240 865	8	R1.0	12	24	8	65
4ARR 080 R15 240 865	8	R1.5	12	24	8	65
4ARR 080 R20 240 865	8	R2.0	12	24	8	65
4ARR 100 R05 300 A70	10	R0.5	15	30	10	70
4ARR 100 R10 300 A70	10	R1.0	15	30	10	70
4ARR 100 R15 300 A70	10	R1.5	15	30	10	70
4ARR 100 R20 300 A70	10	R2.0	15	30	10	70
4ARR 120 R05 300 C80	12	R0.5	18	30	12	80
4ARR 120 R10 300 C80	12	R1.0	18	30	12	80
4ARR 120 R15 300 C80	12	R1.5	18	30	12	80
4ARR 120 R20 300 C80	12	R2.0	18	30	12	80

4ACR

A | 4 | CR | 35° | PAGE No.265

4날 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills



unit(mm)

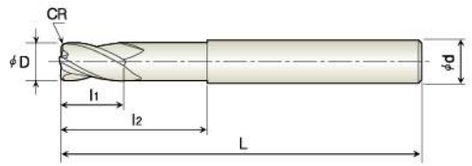
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4ACR 060 R05 130 690	6	R0.5	13	6	90
4ACR 060 R10 130 690	6	R1.0	13	6	90
4ACR 080 R05 190 8A0	8	R0.5	19	8	100
4ACR 080 R10 190 8A0	8	R1.0	19	8	100
4ACR 100 R05 220 AA0	10	R0.5	22	10	100
4ACR 100 R10 220 AA0	10	R1.0	22	10	100
4ACR 120 R05 260 CB0	12	R0.5	26	12	110
4ACR 120 R10 260 CB0	12	R1.0	26	12	110

4ALR

A | 4 | CR | 45° | PAGE No.266

4날 롱생크 코너래디우스 엔드밀

4 Flutes Long Shank Corner Radius End Mills



unit(mm)

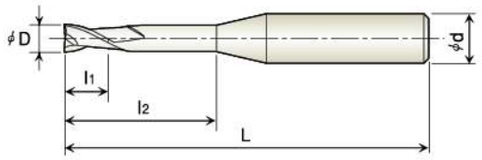
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4ALR 060 R05 180 680	6	R0.5	9	18	6	80
4ALR 060 R10 180 680	6	R1.0	9	18	6	80
4ALR 080 R05 240 8A0	8	R0.5	12	24	8	100
4ALR 080 R10 240 8A0	8	R1.0	12	24	8	100
4ALR 100 R05 300 AA0	10	R0.5	15	30	10	100
4ALR 100 R10 300 AA0	10	R1.0	15	30	10	100
4ALR 120 R05 300 CB0	12	R0.5	18	30	12	110
4ALR 120 R10 300 CB0	12	R1.0	18	30	12	110

2ARE

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills

PAGE No.267



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARE 004 010 445	0.4	0.6	1	4	45
2ARE 004 020 445	0.4	0.6	2	4	45
2ARE 005 020 445	0.5	0.7	2	4	45
2ARE 005 030 445	0.5	0.7	3	4	45
2ARE 005 040 445	0.5	0.7	4	4	45
2ARE 006 020 445	0.6	0.9	2	4	45
2ARE 006 030 445	0.6	0.9	3	4	45
2ARE 006 040 445	0.6	0.9	4	4	45
2ARE 006 050 445	0.6	0.9	5	4	45
2ARE 006 060 445	0.6	0.9	6	4	45
2ARE 007 030 445	0.7	1	3	4	45
2ARE 007 040 445	0.7	1	4	4	45
2ARE 007 060 445	0.7	1	6	4	45
2ARE 008 020 445	0.8	1.2	2	4	45
2ARE 008 030 445	0.8	1.2	3	4	45
2ARE 008 040 445	0.8	1.2	4	4	45
2ARE 008 050 445	0.8	1.2	5	4	45
2ARE 008 060 445	0.8	1.2	6	4	45
2ARE 008 080 445	0.8	1.2	8	4	45
2ARE 010 030 445	1	1.5	3	4	45
2ARE 010 040 445	1	1.5	4	4	45
2ARE 010 050 445	1	1.5	5	4	45
2ARE 010 060 445	1	1.5	6	4	45
2ARE 010 080 445	1	1.5	8	4	45

2날 리브가공용 플랫 엔드밀

2 Flutes Rib Flat End Mills

PAGE No.267

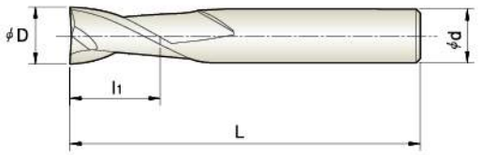
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ARE 010 100 445	1	1.5	10	4	45
2ARE 010 120 445	1	1.5	12	4	45
2ARE 012 080 445	1.2	1.8	8	4	45
2ARE 012 100 445	1.2	1.8	10	4	45
2ARE 012 120 445	1.2	1.8	12	4	45
2ARE 015 060 445	1.5	2.3	6	4	45
2ARE 015 080 445	1.5	2.3	8	4	45
2ARE 015 100 445	1.5	2.3	10	4	45
2ARE 015 120 445	1.5	2.3	12	4	45
2ARE 015 160 450	1.5	2.3	16	4	50
2ARE 020 080 445	2	3	8	4	45
2ARE 020 100 445	2	3	10	4	45
2ARE 020 120 445	2	3	12	4	45
2ARE 020 160 450	2	3	16	4	50
2ARE 020 200 450	2	3	20	4	50
2ARE 025 080 650	2.5	3.8	8	6	50
2ARE 025 120 650	2.5	3.8	12	6	50
2ARE 030 120 650	3	4.5	12	6	50
2ARE 030 160 660	3	4.5	16	6	60
2ARE 030 200 660	3	4.5	20	6	60
2ARE 040 120 650	4	6	12	6	50
2ARE 040 160 660	4	6	16	6	60
2ARE 040 200 660	4	6	20	6	60
2ARE 040 250 665	4	6	25	6	65

2APE

2날 플랫 엔드밀

2 Flutes Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2APE 004 008 445	0.4	0.8	4	45
2APE 005 010 445	0.5	1	4	45
2APE 006 012 445	0.6	1.2	4	45
2APE 007 014 445	0.7	1.4	4	45
2APE 008 016 445	0.8	1.6	4	45
2APE 010 025 645	1	2.5	6	45
2APE 012 040 645	1.2	4	6	45
2APE 015 040 645	1.5	4	6	45
2APE 020 060 645	2	6	6	45
2APE 025 080 650	2.5	8	6	50
2APE 030 100 350	3	10	3	50
2APE 030 100 650	3	10	6	50
2APE 035 100 650	3.5	10	6	50
2APE 040 120 455	4	12	4	55
2APE 040 120 650	4	12	6	50
2APE 045 120 650	4.5	12	6	50
2APE 050 150 650	5	15	6	50
2APE 055 150 650	5.5	15	6	50
2APE 060 150 650	6	15	6	50
2APE 065 150 865	6.5	15	8	65
2APE 070 200 865	7	20	8	65
2APE 075 200 865	7.5	20	8	65
2APE 080 200 865	8	20	8	65
2APE 085 200 A65	8.5	20	10	65

2날 플랫 엔드밀

2 Flutes Flat End Mills

unit(mm)

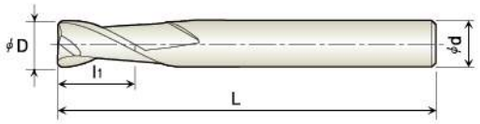
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2APE 090 250 A70	9	25	10	70
2APE 095 250 A70	9.5	25	10	70
2APE 100 250 A70	10	25	10	70
2APE 105 280 C80	10.5	25	12	70
2APE 110 300 C80	11	25	12	70
2APE 115 250 C70	11.5	25	12	70
2APE 120 300 C80	12	30	12	80
2APE 130 350 E90	13	35	14	90
2APE 140 350 E90	14	35	14	90
2APE 160 400 GA0	16	40	16	100
2APE 180 450 IA0	18	45	18	100
2APE 200 450 KA0	20	45	20	100

2AEL

A 2 OD 30° PAGE No.269

2날 롱 플랫 엔드밀

2 Flutes Long Length Flat End Mills



unit(mm)

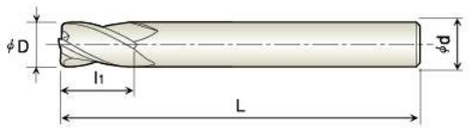
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2AEL 010 040 645	1	4	6	45
2AEL 020 080 645	2	8	6	45
2AEL 030 120 650	3	12	6	50
2AEL 030 150 660	3	15	6	60
2AEL 040 160 660	4	16	6	60
2AEL 040 200 670	4	20	6	70
2AEL 050 250 680	5	25	6	80
2AEL 060 200 670	6	20	6	70
2AEL 060 250 680	6	25	6	80
2AEL 080 280 890	8	28	8	90
2AEL 080 350 890	8	35	8	90
2AEL 100 350 AA0	10	35	10	100
2AEL 100 450 AB0	10	45	10	110
2AEL 120 400 CB0	12	40	12	110

4APE

A 4 OD 30° PAGE No.270

4날 플랫 엔드밀

4 Flutes Flat End Mills



unit(mm)

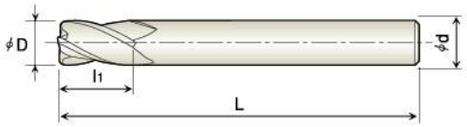
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4APE 020 060 645	2	6	6	45
4APE 025 080 645	2.5	8	6	45
4APE 030 100 650	3	10	6	50
4APE 035 100 650	3.5	10	6	50
4APE 040 120 650	4	12	6	50
4APE 045 120 650	4.5	12	6	50
4APE 050 150 650	5	15	6	50
4APE 055 150 650	5.5	15	6	50
4APE 060 150 650	6	15	6	50
4APE 065 180 865	6.5	18	8	65
4APE 070 200 865	7	20	8	65
4APE 075 200 865	7.5	20	8	65
4APE 080 200 865	8	20	8	65
4APE 085 230 A65	8.5	23	10	65
4APE 090 250 A70	9	25	10	70
4APE 095 250 A70	9.5	25	10	70
4APE 100 250 A70	10	25	10	70
4APE 105 280 C70	10.5	28	12	70
4APE 110 280 C70	11	28	12	70
4APE 115 300 C70	11.5	30	12	70
4APE 120 300 C80	12	30	12	80
4APE 130 350 E90	13	35	14	90
4APE 140 350 E90	14	35	14	90
4APE 160 400 GA0	16	40	16	100
4APE 180 450 IA0	18	45	18	100
4APE 200 450 KA0	20	45	20	100

4AEL

A 4 OD 30° PAGE No.271

4날 롱 플랫 엔드밀

4 Flutes Long Length Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4AEL 020 080 645	2	8	6	45
4AEL 030 150 660	3	15	6	60
4AEL 040 200 670	4	20	6	70
4AEL 050 250 680	5	25	6	80
4AEL 060 200 670	6	20	6	70
4AEL 060 250 680	6	25	6	80
4AEL 080 300 890	8	30	8	90
4AEL 080 350 890	8	35	8	90
4AEL 100 350 AA0	10	35	10	100
4AEL 100 450 AB0	10	45	10	110
4AEL 120 400 CB0	12	40	12	110
4AEL 120 500 CB0	12	50	12	110
4AEL 120 600 CC0	12	60	12	120

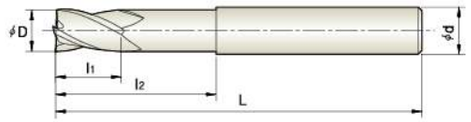
주문생산 Order Production

4APL

A 4 OD 30° PAGE No.272

4날 롱 생크 플랫엔드밀

4 Flutes Long Shank Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4APL 040 180 470	4	6	18	4	70
4APL 060 180 680	6	9	18	6	80
4APL 080 240 8A0	8	12	24	8	100
4APL 100 300 AA0	10	15	30	10	100
4APL 120 300 CB0	12	18	30	12	110

PART 4

X-PRO SERIES

라핑 Roughing

사이즈 D Size	인선직경공차(mm) D Tolerance
6 ~ 12	0 ~ −0.04
14 ~ 20	0 ~ −0.05

플랫 Flat

사이즈 D Size	인선직경공차(mm) D Tolerance
6 ~ 12	0 ~ −0.025
14 ~ 20	0 ~ −0.030

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

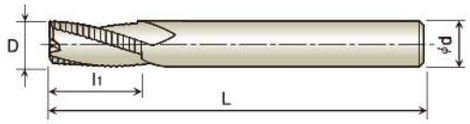
- Rapid and rough machining
- Easy to chips disposal
- Increased tool life by reducing cutting resistance

3XOE

3날 라핑 엔드밀

3 Flutes Roughing End Mills

PAGE No.273



unit(mm)

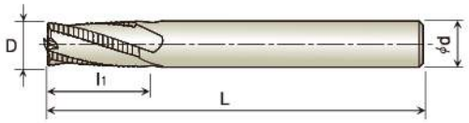
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3XOE 040 100 650	4	10	6	50
3XOE 060 090 660	6	9	6	60
3XOE 060 150 660	6	15	6	60
3XOE 080 120 865	8	12	8	65
3XOE 080 200 865	8	20	8	65

4XOE

4날 라핑 엔드밀

4 Flutes Roughing End Mills

PAGE No.273



unit(mm)

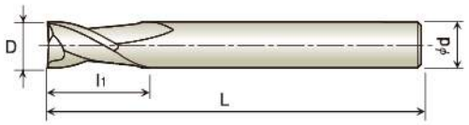
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4XOE 100 150 A70	10	15	10	70
4XOE 100 250 A70	10	25	10	70
4XOE 120 180 C80	12	18	12	80
4XOE 120 300 C80	12	30	12	80
4XOE 140 250 EA0	14	25	14	100
4XOE 160 250 GA0	16	25	16	100
4XOE 160 400 GA0	16	40	16	100

2XPE

PAGE No.276

2날 플랫 엔드밀

2 Flutes Flat End Mills



unit(mm)

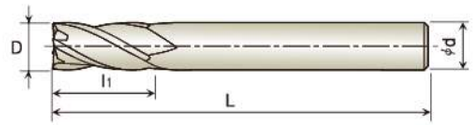
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2XPE 060 120 660	6	12	6	60
2XPE 060 150 660	6	15	6	60
2XPE 060 200 660	6	20	6	60
2XPE 080 160 870	8	16	8	70
2XPE 080 200 870	8	20	8	70
2XPE 080 250 870	8	25	8	70
2XPE 100 220 A75	10	22	10	75
2XPE 100 250 A75	10	25	10	75
2XPE 100 300 A75	10	30	10	75
2XPE 120 260 C80	12	26	12	80
2XPE 120 300 C80	12	30	12	80
2XPE 120 350 CA0	12	35	12	100
2XPE 120 400 CA0	12	40	12	100
2XPE 160 320 GA0	16	32	16	100
2XPE 160 400 GA0	16	40	16	100

4XPE

PAGE No.277

4날 플랫 엔드밀

4 Flutes Flat End Mills



unit(mm)

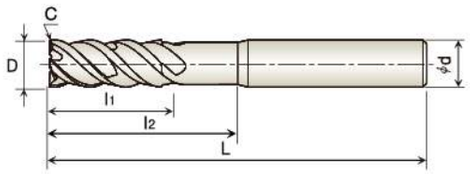
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4XPE 030 080 655	3	8	6	55
4XPE 040 100 655	4	10	6	55
4XPE 050 130 655	5	13	6	55
4XPE 060 120 660	6	12	6	60
4XPE 060 150 660	6	15	6	60
4XPE 060 200 660	6	20	6	60
4XPE 080 160 870	8	16	8	70
4XPE 080 200 870	8	20	8	70
4XPE 080 250 870	8	25	8	70
4XPE 100 220 A75	10	22	10	75
4XPE 100 250 A75	10	25	10	75
4XPE 100 300 A75	10	30	10	75
4XPE 120 260 C80	12	26	12	80
4XPE 120 300 C80	12	30	12	80
4XPE 120 350 CA0	12	35	12	100
4XPE 120 400 CA0	12	40	12	100
4XPE 160 320 GA0	16	32	16	100
4XPE 160 400 GA0	16	40	16	100

4XREV

PAGE No.274

4날 X-VIC 리브 플랫 엔드밀

4 Flutes X-VIC Rib Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	챔퍼 Chamfer (C)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4XREV 060 200 660	6	0.06	13	20	6	60
4XREV 080 260 870	8	0.08	19	26	8	70
4XREV 100 300 A75	10	0.1	22	30	10	75
4XREV 120 360 C80	12	0.12	26	36	12	80
4XREV 140 360 EB0	14	0.14	26	36	14	110
4XREV 160 420 GB0	16	0.16	32	42	16	110
4XREV 200 520 KB0	20	0.2	38	52	20	110

4XPEV

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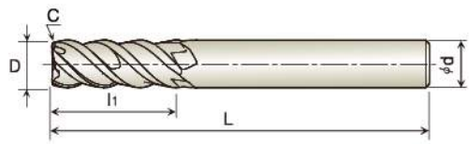
4날 X-VIC 플랫 엔드밀

4 Flutes X-VIC Flat End Mills

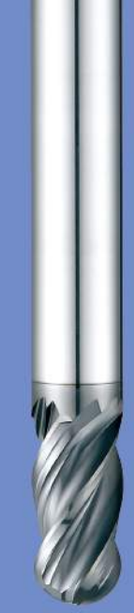


unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	챔퍼 Chamfer (C)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4XPEV 060 130 660	6	0.1	13	6	60
4XPEV 080 190 870	8	0.1	19	8	70
4XPEV 100 220 A75	10	0.1	22	10	75
4XPEV 120 260 C80	12	0.1	26	12	80
4XPEV 140 260 EB0	14	0.15	26	14	110
4XPEV 160 320 GB0	16	0.15	32	16	110
4XPEV 200 380 KB0	20	0.15	38	20	110

PART 5

S-PRO SERIES



볼 Ball

사이즈 D Size	인선직경공차(mm) D 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
16 ~ 20	0 ~ −0.025	R8 ~ R10	±0.015

코너 래디우스 Corner Radius

사이즈 D Size	인선직경공차(mm) D Tolerance	볼반경(mm) R Size	R공차(mm) R 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 D Size	인선직경공차(mm) D Tolerance
1 ~ 5	0 ~ −0.010
6 ~ 12	0 ~ −0.015
14 ~ 20	0 ~ −0.025

- Chattering 방지 위한 부등 분할 형상 설계
- 4날 적용 및 깊은 칩 배출 공간으로 매끄러운 칩 배출 및 면조도 우수
- 합금강, SUS 계열, 티타늄 등 난삭재 가공 탁월함

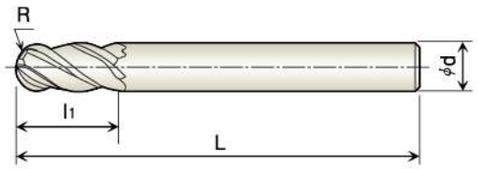
- Unequal flute
- Excellent surface roughness and smooth chip disposal
- Outstanding performance for Alloy steels, SUS, Titanium and hard to cut materials

4SUB

S 4 R 45° PAGE No.278

4날 SUS용 볼 엔드밀

4 Flutes Ball End Mills For SUS



unit(mm)

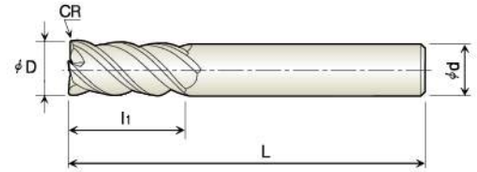
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUB 030 080 660	R1.5	8	6	60
4SUB 040 080 670	R2.0	8	6	70
4SUB 050 120 680	R2.5	12	6	80
4SUB 060 120 690	R3.0	12	6	90
4SUB 080 160 8A0	R4.0	16	8	100
4SUB 100 200 AA0	R5.0	20	10	100
4SUB 120 250 CA0	R6.0	25	12	100
4SUB 160 300 GA0	R8.0	30	16	100
4SUB 200 380 KA0	R10.0	38	20	100

4SUR

S 4 CR 43° PAGE No.279

4날 SUS용 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills For SUS



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUR 010 R01 025 650	1	R0.1	2.5	6	50
4SUR 010 R02 025 650	1	R0.2	2.5	6	50
4SUR 012 R01 030 650	1.2	R0.1	3	6	50
4SUR 015 R01 040 650	1.5	R0.1	4	6	50
4SUR 015 R02 040 650	1.5	R0.2	4	6	50
4SUR 020 R01 060 650	2	R0.1	6	6	50
4SUR 020 R02 060 650	2	R0.2	6	6	50
4SUR 025 R02 070 650	2.5	R0.2	7	6	50
4SUR 030 R02 080 655	3	R0.2	8	6	55
4SUR 030 R03 080 655	3	R0.3	8	6	55
4SUR 030 R05 080 655	3	R0.5	8	6	55
4SUR 040 R02 100 655	4	R0.2	10	6	55
4SUR 040 R03 100 655	4	R0.3	10	6	55
4SUR 040 R05 100 655	4	R0.5	10	6	55
4SUR 050 R02 150 660	5	R0.2	15	6	60
4SUR 050 R03 150 660	5	R0.3	15	6	60
4SUR 050 R05 150 660	5	R0.5	15	6	60
4SUR 060 R02 150 660	6	R0.2	15	6	60
4SUR 060 R03 130 660	6	R0.3	13	6	60
4SUR 060 R03 150 660	6	R0.3	15	6	60
4SUR 060 R05 150 660	6	R0.5	15	6	60
4SUR 070 R03 160 865	7	R0.3	16	8	65
4SUR 080 R03 200 870	8	R0.3	20	8	70
4SUR 080 R05 200 870	8	R0.5	20	8	70

4날 SUS용 코너 래디우스 엔드밀

S 4 CR 43° PAGE No.279

4 Flutes Corner Radius End Mills For SUS

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUR 080 R10 200 870	8	R1.0	20	8	70
4SUR 090 R03 190 A70	9	R0.3	19	10	70
4SUR 100 R03 220 A70	10	R0.3	22	10	70
4SUR 100 R03 250 A75	10	R0.3	25	10	75
4SUR 100 R05 250 A75	10	R0.5	25	10	75
4SUR 100 R10 250 A75	10	R1.0	25	10	75
4SUR 100 R15 250 A75	10	R1.5	25	10	75
4SUR 100 R20 250 A75	10	R2.0	25	10	75
4SUR 100 R30 250 A75	10	R3.0	25	10	75
4SUR 120 R03 260 C80	12	R0.3	26	12	80
4SUR 120 R05 300 C80	12	R0.5	30	12	80
4SUR 120 R10 300 C80	12	R1.0	30	12	80
4SUR 120 R15 300 C80	12	R1.5	30	12	80
4SUR 120 R20 300 C80	12	R2.0	30	12	80
4SUR 120 R30 300 C80	12	R3.0	30	12	80
4SUR 120 R40 300 C80	12	R4.0	30	12	80
4SUR 140 R03 260 E90	14	R0.3	26	14	90
⊙ 4SUR 160 R03 320 GA0	16	R0.3	32	16	100
⊙ 4SUR 180 R03 320 IA0	18	R0.3	32	18	100
⊙ 4SUR 200 R03 380 KA0	20	R0.3	38	20	100

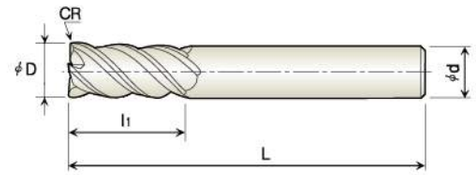
⊙ 주문생산 Order Production

4SURA

S 4 CR 43° PAGE No.279

4날 인코넬용 코너 래디우스 엔드밀

4 Flutes Corner Radius End Mills For INCONEL



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SURA 010 R01 025 650	1	R0.1	2.5	6	50
4SURA 010 R02 025 650	1	R0.2	2.5	6	50
4SURA 012 R01 030 650	1.2	R0.1	3	6	50
4SURA 015 R01 040 650	1.5	R0.1	4	6	50
4SURA 015 R02 040 650	1.5	R0.2	4	6	50
4SURA 020 R01 060 650	2	R0.1	6	6	50
4SURA 020 R02 060 650	2	R0.2	6	6	50
4SURA 025 R02 070 650	2.5	R0.2	7	6	50
4SURA 030 R02 080 655	3	R0.2	8	6	55
4SURA 030 R03 080 655	3	R0.3	8	6	55
4SURA 030 R05 080 655	3	R0.5	8	6	55
4SURA 040 R02 100 655	4	R0.2	10	6	55
4SURA 040 R03 100 655	4	R0.3	10	6	55
4SURA 040 R05 100 655	4	R0.5	10	6	55
4SURA 050 R02 150 660	5	R0.2	15	6	60
4SURA 050 R03 150 660	5	R0.3	15	6	60
4SURA 050 R05 150 660	5	R0.5	15	6	60
4SURA 060 R02 150 660	6	R0.2	15	6	60
4SURA 060 R03 130 660	6	R0.3	13	6	60
4SURA 060 R03 150 660	6	R0.3	15	6	60
4SURA 060 R05 150 660	6	R0.5	15	6	60
4SURA 070 R03 160 865	7	R0.3	16	8	65
4SURA 080 R03 200 870	8	R0.3	20	8	70
4SURA 080 R05 200 870	8	R0.5	20	8	70

4날 인코넬용 코너 래디우스 엔드밀

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4 Flutes Corner Radius End Mills For INCONEL

unit(mm)

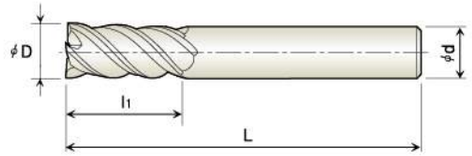
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SURA 080 R10 200 870	8	R1.0	20	8	70
4SURA 090 R03 190 A70	9	R0.3	19	10	70
4SURA 100 R03 220 A70	10	R0.3	22	10	70
4SURA 100 R03 250 A75	10	R0.3	25	10	75
4SURA 100 R05 250 A75	10	R0.5	25	10	75
4SURA 100 R10 250 A75	10	R1.0	25	10	75
4SURA 100 R15 250 A75	10	R1.5	25	10	75
4SURA 100 R20 250 A75	10	R2.0	25	10	75
4SURA 100 R30 250 A75	10	R3.0	25	10	75
4SURA 120 R03 260 C80	12	R0.3	26	12	80
4SURA 120 R05 300 C80	12	R0.5	30	12	80
4SURA 120 R10 300 C80	12	R1.0	30	12	80
4SURA 120 R15 300 C80	12	R1.5	30	12	80
4SURA 120 R20 300 C80	12	R2.0	30	12	80
4SURA 120 R30 300 C80	12	R3.0	30	12	80
4SURA 120 R40 300 C80	12	R4.0	30	12	80
4SURA 140 R03 260 E90	14	R0.3	26	14	90
4SURA 160 R03 320 GA0	16	R0.3	32	16	100
4SURA 180 R03 320 IA0	18	R0.3	32	18	100
4SURA 200 R03 380 KA0	20	R0.3	38	20	100

4SUE

PAGE No.280

4날 SUS용 플랫 엔드밀

4 Flutes Flat End Mills For SUS



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUE 010 025 650	1	2.5	6	50
4SUE 012 030 650	1.2	3	6	50
4SUE 015 040 650	1.5	4	6	50
4SUE 020 060 650	2	6	6	50
4SUE 025 070 650	2.5	7	6	50
4SUE 030 080 655	3	8	6	55
4SUE 030 100 660	3	10	6	60
4SUE 035 100 655	3.5	10	6	55
4SUE 040 100 655	4	10	6	55
4SUE 040 120 660	4	12	6	60
4SUE 045 120 655	4.5	12	6	55
4SUE 050 150 655	5	15	6	55
4SUE 055 150 660	5.5	15	6	60
4SUE 060 130 660	6	13	6	60
4SUE 060 150 660	6	15	6	60
4SUE 060 200 665	6	20	6	65
4SUE 065 150 860	6.5	15	8	60
4SUE 070 160 865	7	16	8	65
4SUE 070 200 870	7	20	8	70
4SUE 080 160 865	8	16	8	65
4SUE 080 200 870	8	20	8	70
4SUE 080 250 870	8	25	8	70
4SUE 080 300 880	8	30	8	80
4SUE 085 200 A70	8.5	20	10	70

4날 SUS용 플랫 엔드밀

S 4 OD 43° PAGE No.280

4 Flutes Flat End Mills For SUS

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUE 090 190 A70	9	19	10	70
4SUE 090 250 A80	9	25	10	80
4SUE 100 220 A70	10	22	10	70
4SUE 100 250 A75	10	25	10	75
4SUE 100 350 A85	10	35	10	85
4SUE 120 260 C80	12	26	12	80
4SUE 120 300 C80	12	30	12	80
4SUE 120 400 C90	12	40	12	90
4SUE 140 260 E90	14	26	14	90
⊙ 4SUE 160 320 GA0	16	32	16	100
⊙ 4SUE 180 320 IA0	18	32	18	100
⊙ 4SUE 200 380 KA0	20	38	20	100

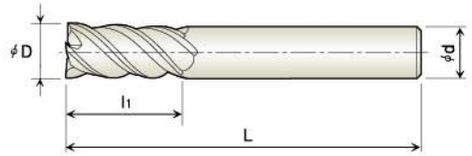
⊙ 주문생산 Order Production

4SUEA

S 4 OD 43° PAGE No.280

4날 인코넬용 플랫 엔드밀

4 Flutes Flat End Mills For INCONEL



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUEA 010 025 650	1	2.5	6	50
4SUEA 012 030 650	1.2	3	6	50
4SUEA 015 040 650	1.5	4	6	50
4SUEA 020 060 650	2	6	6	50
4SUEA 025 070 650	2.5	7	6	50
4SUEA 030 080 655	3	8	6	55
4SUEA 030 100 660	3	10	6	60
4SUEA 035 100 655	3.5	10	6	55
4SUEA 040 100 655	4	10	6	55
4SUEA 040 120 660	4	12	6	60
4SUEA 045 120 655	4.5	12	6	55
4SUEA 050 150 655	5	15	6	55
4SUEA 055 150 660	5.5	15	6	60
4SUEA 060 130 660	6	13	6	60
4SUEA 060 150 660	6	15	6	60
4SUEA 060 200 665	6	20	6	65
4SUEA 065 150 860	6.5	15	8	60
4SUEA 070 160 865	7	16	8	65
4SUEA 070 200 870	7	20	8	70
4SUEA 080 160 865	8	16	8	65
4SUEA 080 200 870	8	20	8	70
4SUEA 080 250 870	8	25	8	70
4SUEA 080 300 880	8	30	8	80
4SUEA 085 200 A70	8.5	20	10	70

4날 인코넬용 플랫 엔드밀

S 4 OD 43° PAGE No.280

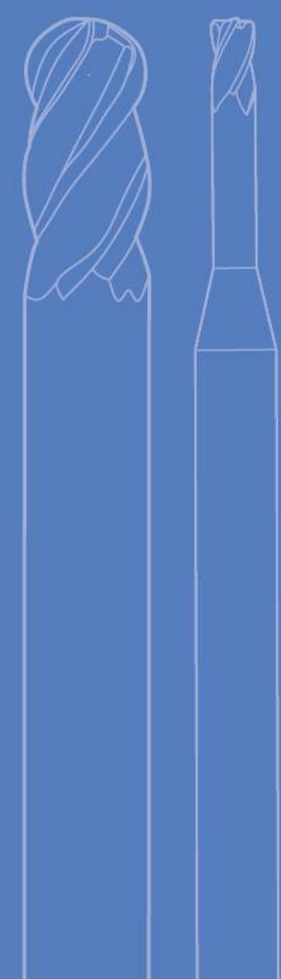
4 Flutes Flat End Mills For INCONEL

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4SUEA 090 190 A70	9	19	10	70
4SUEA 090 250 A80	9	25	10	80
4SUEA 100 220 A70	10	22	10	70
4SUEA 100 250 A75	10	25	10	75
4SUEA 100 350 A85	10	35	10	85
4SUEA 120 260 C80	12	26	12	80
4SUEA 120 300 C80	12	30	12	80
4SUEA 120 400 C90	12	40	12	90
4SUEA 140 260 E90	14	26	14	90
4SUEA 160 320 GA0	16	32	16	100
4SUEA 180 320 IA0	18	32	18	100
4SUEA 200 380 KA0	20	38	20	100

PART 6

D-PRO SERIES



볼 Ball

사이즈 D Size	인선직경공차(mm) D 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 D Size	인선직경공차(mm) D Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
2 ~ 5	0 ~ −0.010	R0.05 ~ R0.5	±0.005
6 ~ 12	0 ~ −0.015	R1	±0.010

플랫 Flat

사이즈 D Size	인선직경공차(mm) D Tolerance
0.5 ~ 5	0 ~ −0.010
6 ~ 12	0 ~ −0.015

- 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

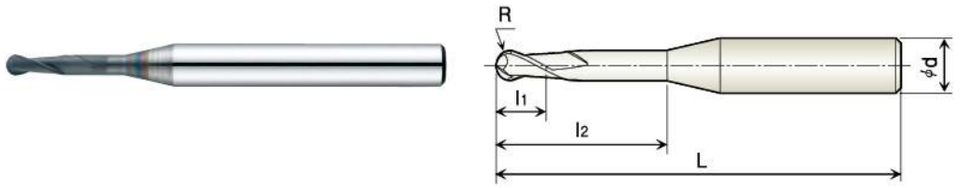
- Graphite, Copper, Reinforced Plastic, Glass injection Molding and Non-Ferrous Metal
- The wide range of Effective Length and Overall Length for various work shape
- Improve the performance for the best pure diamond coating(CVD)

2DRB

DIA 2 R 30° PAGE No.281

2날 다이아몬드 코팅 리브 볼 엔드밀

2 Flutes Diamond Coated Rib Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRB 002 010 445	R0.1	0.2	1	4	45
2DRB 002 015 445	R0.1	0.2	1.5	4	45
2DRB 003 010 445	R0.15	0.3	1	4	45
2DRB 003 020 445	R0.15	0.3	2	4	45
2DRB 004 010 445	R0.2	0.4	1	4	45
2DRB 004 020 445	R0.2	0.4	2	4	45
2DRB 004 030 445	R0.2	0.4	3	4	45
2DRB 004 040 445	R0.2	0.4	4	4	45
2DRB 004 050 445	R0.2	0.4	5	4	45
2DRB 004 060 445	R0.2	0.4	6	4	45
2DRB 005 020 445	R0.25	0.5	2	4	45
2DRB 005 030 445	R0.25	0.5	3	4	45
2DRB 005 040 445	R0.25	0.5	4	4	45
2DRB 005 050 445	R0.25	0.5	5	4	45
2DRB 005 060 445	R0.25	0.5	6	4	45
2DRB 005 080 445	R0.25	0.5	8	4	45
2DRB 006 020 445	R0.3	0.6	2	4	45
2DRB 006 030 445	R0.3	0.6	3	4	45
2DRB 006 040 445	R0.3	0.6	4	4	45
2DRB 006 050 445	R0.3	0.6	5	4	45
2DRB 006 060 445	R0.3	0.6	6	4	45
2DRB 006 080 445	R0.3	0.6	8	4	45
2DRB 006 100 445	R0.3	0.6	10	4	45
2DRB 006 120 445	R0.3	0.6	12	4	45

2날 다이아몬드 코팅 리브 볼 엔드밀

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2 Flutes Diamond Coated Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRB 008 030 445	R0.4	0.8	3	4	45
2DRB 008 040 445	R0.4	0.8	4	4	45
2DRB 008 050 445	R0.4	0.8	5	4	45
2DRB 008 060 445	R0.4	0.8	6	4	45
2DRB 008 080 445	R0.4	0.8	8	4	45
2DRB 008 100 445	R0.4	0.8	10	4	45
2DRB 008 150 445	R0.4	0.8	15	4	45
2DRB 008 200 445	R0.4	0.8	20	4	45
2DRB 010 030 450	R0.5	2	3	4	50
2DRB 010 040 450	R0.5	2	4	4	50
2DRB 010 050 450	R0.5	2	5	4	50
2DRB 010 060 450	R0.5	2	6	4	50
2DRB 010 100 450	R0.5	2	10	4	50
2DRB 010 120 450	R0.5	2	12	4	50
2DRB 010 160 460	R0.5	3	16	4	60
2DRB 010 180 460	R0.5	3	18	4	60
2DRB 010 200 460	R0.5	3	20	4	60
2DRB 010 250 480	R0.5	3	25	4	80
2DRB 010 300 480	R0.5	3	30	4	80
2DRB 010 350 480	R0.5	3	35	4	80
2DRB 010 400 480	R0.5	3	40	4	80
2DRB 015 100 460	R0.75	4	10	4	60
2DRB 015 150 460	R0.75	4	15	4	60
2DRB 015 200 460	R0.75	4	20	4	60
2DRB 015 100 480	R0.75	4.5	10	4	80
2DRB 015 120 480	R0.75	4.5	12	4	80
2DRB 015 150 480	R0.75	4.5	15	4	80
2DRB 015 180 480	R0.75	4.5	18	4	80
2DRB 015 200 480	R0.75	4.5	20	4	80
2DRB 015 250 480	R0.75	4.5	25	4	80
2DRB 015 300 480	R0.75	4.5	30	4	80
2DRB 015 350 480	R0.75	4.5	35	4	80
2DRB 015 400 480	R0.75	4.5	40	4	80
2DRB 020 100 460	R1.0	5	10	4	60

2날 다이아몬드 코팅 리브 볼 엔드밀

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2 Flutes Diamond Coated Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRB 020 150 460	R1.0	5	15	4	60
2DRB 020 200 460	R1.0	5	20	4	60
2DRB 020 100 480	R1.0	6	10	4	80
2DRB 020 150 480	R1.0	6	15	4	80
2DRB 020 200 480	R1.0	6	20	4	80
2DRB 020 250 480	R1.0	6	25	4	80
2DRB 020 300 480	R1.0	6	30	4	80
2DRB 020 350 480	R1.0	6	35	4	80
2DRB 020 400 4A0	R1.0	6	40	4	100
2DRB 020 450 4A0	R1.0	6	45	4	100
2DRB 020 500 4A0	R1.0	6	50	4	100
2DRB 020 600 4A0	R1.0	6	60	4	100
2DRB 030 150 4A0	R1.5	9	15	4	100
2DRB 030 200 4A0	R1.5	9	20	4	100
2DRB 030 250 4A0	R1.5	9	25	4	100
2DRB 030 300 4A0	R1.5	9	30	4	100
2DRB 030 350 4A0	R1.5	9	35	4	100
2DRB 030 400 4A0	R1.5	9	40	4	100
2DRB 030 500 4A0	R1.5	9	50	4	100
2DRB 030 600 4A0	R1.5	9	60	4	100
2DRB 030 160 660	R1.5	8	16	6	60
2DRB 030 200 660	R1.5	8	20	6	60
2DRB 030 300 675	R1.5	12	30	6	75
2DRB 030 350 680	R1.5	12	35	6	80
2DRB 040 300 480	R2.0	16	30	4	80
2DRB 040 400 4A0	R2.0	16	40	4	100
2DRB 040 400 4D0	R2.0	16	40	4	130
2DRB 040 500 4F0	R2.0	16	50	4	150
2DRB 040 160 660	R2.0	8	16	6	60
2DRB 040 200 670	R2.0	8	20	6	70
2DRB 040 300 680	R2.0	12	30	6	80
2DRB 040 400 685	R2.0	12	40	6	85
2DRB 060 250 680	R3.0	16	25	6	80
2DRB 060 250 6B0	R3.0	16	25	6	110

2날 다이아몬드 코팅 리브 볼 엔드밀

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2 Flutes Diamond Coated Rib Ball End Mills

unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRB 060 300 6F0	R3.0	16	30	6	150
2DRB 060 400 6B0	R3.0	16	40	6	110
2DRB 060 500 6F0	R3.0	16	50	6	150
2DRB 080 300 880	R4.0	20	30	8	80
2DRB 080 300 8B0	R4.0	20	30	8	110
2DRB 080 400 8B0	R4.0	20	40	8	110
2DRB 080 400 8K0	R4.0	20	40	8	200
2DRB 080 500 8G0	R4.0	20	50	8	160
2DRB 100 350 AB0	R5.0	22	35	10	110
2DRB 100 500 AB0	R5.0	22	50	10	110
2DRB 100 500 AK0	R5.0	22	50	10	200
2DRB 100 600 AG0	R5.0	22	60	10	160
2DRB 120 500 CB0	R6.0	25	50	12	110
2DRB 120 500 CG0	R6.0	25	50	12	160
2DRB 120 600 CK0	R6.0	25	60	12	200

2DPB

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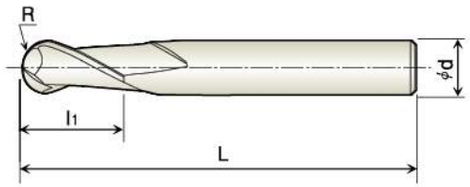
2날 다이아몬드 코팅 볼 엔드밀

2 Flutes Diamond Coated Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DPB 006 012 445	R0.3	1.2	4	45
2DPB 008 015 445	R0.4	1.5	4	45
2DPB 010 030 450	R0.5	3	4	50
2DPB 015 050 450	R0.75	5	4	50
2DPB 020 070 460	R1.0	7	4	60
2DPB 030 100 660	R1.5	10	6	60
2DPB 040 120 670	R2.0	12	6	70
2DPB 040 200 4A0	R2.0	20	4	100
2DPB 050 200 6A0	R2.5	20	6	100
2DPB 060 200 6B0	R3.0	20	6	110
2DPB 060 300 6F0	R3.0	30	6	150
2DPB 080 200 8B0	R4.0	20	8	110
2DPB 080 300 8F0	R4.0	30	8	150
2DPB 100 200 AB0	R5.0	20	10	110
2DPB 100 350 AF0	R5.0	35	10	150
2DPB 120 200 CB0	R6.0	20	12	110
2DPB 120 400 CF0	R6.0	40	12	150

2DRR

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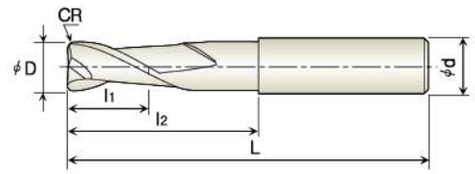
2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

2 Flutes Diamond Coated Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 002 R002 015 460	0.2	R0.02	0.4	1.5	4	60
2DRR 003 R002 015 460	0.3	R0.02	0.6	1.5	4	60
2DRR 003 R002 030 460	0.3	R0.02	0.6	3	4	60
2DRR 003 R002 045 460	0.3	R0.02	0.6	4.5	4	60
2DRR 003 R002 060 460	0.3	R0.02	0.6	6	4	60
2DRR 004 R002 020 460	0.4	R0.02	0.8	2	4	60
2DRR 004 R002 040 460	0.4	R0.02	0.8	4	4	60
2DRR 004 R002 060 460	0.4	R0.02	0.8	6	4	60
2DRR 004 R002 080 460	0.4	R0.02	0.8	8	4	60
2DRR 005 R005 015 460	0.5	R0.05	1	1.5	4	60
2DRR 005 R005 025 460	0.5	R0.05	1	2.5	4	60
2DRR 005 R005 035 460	0.5	R0.05	1	3.5	4	60
2DRR 005 R005 050 460	0.5	R0.05	1	5	4	60
2DRR 005 R005 075 460	0.5	R0.05	1	7.5	4	60
2DRR 005 R005 100 460	0.5	R0.05	1	10	4	60
2DRR 006 R005 020 460	0.6	R0.05	1.2	2	4	60
2DRR 006 R005 030 460	0.6	R0.05	1.2	3	4	60
2DRR 006 R005 060 460	0.6	R0.05	1.2	6	4	60
2DRR 006 R005 090 460	0.6	R0.05	1.2	9	4	60
2DRR 006 R005 120 460	0.6	R0.05	1.2	12	4	60
2DRR 008 R005 025 460	0.8	R0.05	1.6	2.5	4	60
2DRR 008 R005 040 460	0.8	R0.05	1.6	4	4	60
2DRR 008 R005 080 460	0.8	R0.05	1.6	8	4	60
2DRR 008 R005 100 460	0.8	R0.05	1.6	10	4	60

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

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2 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 008 R005 160 460	0.8	R0.05	1.6	16	4	60
2DRR 010 R005 030 460	1	R0.05	2	3	4	60
2DRR 010 R005 050 460	1	R0.05	2	5	4	60
2DRR 010 R005 100 460	1	R0.05	2	10	4	60
2DRR 010 R005 150 460	1	R0.05	2	15	4	60
2DRR 010 R005 200 460	1	R0.05	2	20	4	60
2DRR 010 R01 030 460	1	R0.1	2	3	4	60
2DRR 010 R01 050 460	1	R0.1	2	5	4	60
2DRR 010 R01 100 460	1	R0.1	2	10	4	60
2DRR 010 R01 150 460	1	R0.1	2	15	4	60
2DRR 010 R01 200 460	1	R0.1	2	20	4	60
2DRR 010 R02 030 460	1	R0.2	2	3	4	60
2DRR 010 R02 050 460	1	R0.2	2	5	4	60
2DRR 010 R02 100 460	1	R0.2	2	10	4	60
2DRR 010 R02 150 460	1	R0.2	2	15	4	60
2DRR 010 R02 200 460	1	R0.2	2	20	4	60
2DRR 015 R005 040 460	1.5	R0.05	3	4	4	60
2DRR 015 R005 050 460	1.5	R0.05	3	5	4	60
2DRR 015 R005 100 460	1.5	R0.05	3	10	4	60
2DRR 015 R005 150 460	1.5	R0.05	3	15	4	60
2DRR 015 R005 200 460	1.5	R0.05	3	20	4	60
2DRR 015 R01 040 460	1.5	R0.1	3	4	4	60
2DRR 015 R01 050 460	1.5	R0.1	3	5	4	60
2DRR 015 R01 100 460	1.5	R0.1	3	10	4	60
2DRR 015 R01 150 460	1.5	R0.1	3	15	4	60
2DRR 015 R01 200 460	1.5	R0.1	3	20	4	60
2DRR 015 R015 040 460	1.5	R0.15	3	4	4	60
2DRR 015 R015 050 460	1.5	R0.15	3	5	4	60
2DRR 015 R015 100 460	1.5	R0.15	3	10	4	60
2DRR 015 R015 150 460	1.5	R0.15	3	15	4	60
2DRR 015 R015 200 460	1.5	R0.15	3	20	4	60
2DRR 015 R02 040 460	1.5	R0.2	3	4	4	60
2DRR 015 R02 050 460	1.5	R0.2	3	5	4	60
2DRR 015 R02 100 460	1.5	R0.2	3	10	4	60

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

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2 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 015 R02 150 460	1.5	R0.2	3	15	4	60
2DRR 015 R02 200 460	1.5	R0.2	3	20	4	60
2DRR 015 R03 040 460	1.5	R0.3	3	4	4	60
2DRR 015 R03 050 460	1.5	R0.3	3	5	4	60
2DRR 015 R03 100 460	1.5	R0.3	3	10	4	60
2DRR 015 R03 150 460	1.5	R0.3	3	15	4	60
2DRR 015 R03 200 460	1.5	R0.3	3	20	4	60
2DRR 020 R005 040 460	2	R0.05	3	4	4	60
2DRR 020 R005 060 460	2	R0.05	3	6	4	60
2DRR 020 R005 120 460	2	R0.05	3	12	4	60
2DRR 020 R005 180 460	2	R0.05	3	18	4	60
2DRR 020 R005 250 460	2	R0.05	3	25	4	60
2DRR 020 R005 300 460	2	R0.05	3	30	4	60
2DRR 020 R01 040 460	2	R0.1	3	4	4	60
2DRR 020 R01 060 460	2	R0.1	3	6	4	60
2DRR 020 R01 120 460	2	R0.1	3	12	4	60
2DRR 020 R01 180 460	2	R0.1	3	18	4	60
2DRR 020 R01 250 460	2	R0.1	3	25	4	60
2DRR 020 R01 300 460	2	R0.1	3	30	4	60
2DRR 020 R02 040 460	2	R0.2	3	4	4	60
2DRR 020 R02 060 460	2	R0.2	3	6	4	60
2DRR 020 R02 120 460	2	R0.2	3	12	4	60
2DRR 020 R02 180 460	2	R0.2	3	18	4	60
2DRR 020 R02 250 460	2	R0.2	3	25	4	60
2DRR 020 R02 300 460	2	R0.2	3	30	4	60
2DRR 020 R03 040 460	2	R0.3	3	4	4	60
2DRR 020 R03 060 460	2	R0.3	3	6	4	60
2DRR 020 R03 120 460	2	R0.3	3	12	4	60
2DRR 020 R03 180 460	2	R0.3	3	18	4	60
2DRR 020 R03 250 460	2	R0.3	3	25	4	60
2DRR 020 R03 300 460	2	R0.3	3	30	4	60
2DRR 020 R05 040 460	2	R0.5	3	4	4	60
2DRR 020 R05 060 460	2	R0.5	3	6	4	60
2DRR 020 R05 120 460	2	R0.5	3	12	4	60

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

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2 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 020 R05 180 460	2	R0.5	3	18	4	60
2DRR 020 R05 250 460	2	R0.5	3	25	4	60
2DRR 020 R05 300 460	2	R0.5	3	30	4	60
2DRR 030 R005 060 480	3	R0.05	4.5	6	4	80
2DRR 030 R005 100 480	3	R0.05	4.5	10	4	80
2DRR 030 R005 200 480	3	R0.05	4.5	20	4	80
2DRR 030 R005 300 480	3	R0.05	4.5	30	4	80
2DRR 030 R005 400 480	3	R0.05	4.5	40	4	80
2DRR 030 R01 060 480	3	R0.1	4.5	6	4	80
2DRR 030 R01 100 480	3	R0.1	4.5	10	4	80
2DRR 030 R01 200 480	3	R0.1	4.5	20	4	80
2DRR 030 R01 300 480	3	R0.1	4.5	30	4	80
2DRR 030 R01 400 480	3	R0.1	4.5	40	4	80
2DRR 030 R02 060 480	3	R0.2	4.5	6	4	80
2DRR 030 R02 100 480	3	R0.2	4.5	10	4	80
2DRR 030 R02 200 480	3	R0.2	4.5	20	4	80
2DRR 030 R02 300 480	3	R0.2	4.5	30	4	80
2DRR 030 R02 400 480	3	R0.2	4.5	40	4	80
2DRR 030 R03 060 480	3	R0.3	4.5	6	4	80
2DRR 030 R03 100 480	3	R0.3	4.5	10	4	80
2DRR 030 R03 200 480	3	R0.3	4.5	20	4	80
2DRR 030 R03 300 480	3	R0.3	4.5	30	4	80
2DRR 030 R03 400 480	3	R0.3	4.5	40	4	80
2DRR 030 R05 060 480	3	R0.5	4.5	6	4	80
2DRR 030 R05 100 480	3	R0.5	4.5	10	4	80
2DRR 030 R05 200 480	3	R0.5	4.5	20	4	80
2DRR 030 R05 300 480	3	R0.5	4.5	30	4	80
2DRR 030 R05 400 480	3	R0.5	4.5	40	4	80
2DRR 030 R10 060 480	3	R1.0	4.5	6	4	80
2DRR 030 R10 100 480	3	R1.0	4.5	10	4	80
2DRR 030 R10 200 480	3	R1.0	4.5	20	4	80
2DRR 030 R10 300 480	3	R1.0	4.5	30	4	80
2DRR 030 R10 400 480	3	R1.0	4.5	40	4	80
2DRR 040 R005 100 480	4	R0.05	6	10	4	80

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

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2 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 040 R005 150 480	4	R0.05	6	15	4	80
2DRR 040 R005 250 480	4	R0.05	6	25	4	80
2DRR 040 R005 400 480	4	R0.05	6	40	4	80
2DRR 040 R01 100 480	4	R0.1	6	10	4	80
2DRR 040 R01 150 480	4	R0.1	6	15	4	80
2DRR 040 R01 250 480	4	R0.1	6	25	4	80
2DRR 040 R01 400 480	4	R0.1	6	40	4	80
2DRR 040 R02 100 480	4	R0.2	6	10	4	80
2DRR 040 R02 150 480	4	R0.2	6	15	4	80
2DRR 040 R02 250 480	4	R0.2	6	25	4	80
2DRR 040 R02 400 480	4	R0.2	6	40	4	80
2DRR 040 R05 100 480	4	R0.5	6	10	4	80
2DRR 040 R05 150 480	4	R0.5	6	15	4	80
2DRR 040 R05 250 480	4	R0.5	6	25	4	80
2DRR 040 R05 400 480	4	R0.5	6	40	4	80
2DRR 040 R10 100 480	4	R1.0	6	10	4	80
2DRR 040 R10 150 480	4	R1.0	6	15	4	80
2DRR 040 R10 250 480	4	R1.0	6	25	4	80
2DRR 040 R10 400 480	4	R1.0	6	40	4	80
2DRR 050 R005 100 6B0	5	R0.05	7.5	10	6	110
2DRR 050 R005 150 6B0	5	R0.05	7.5	15	6	110
2DRR 050 R005 300 6B0	5	R0.05	7.5	30	6	110
2DRR 050 R005 500 6B0	5	R0.05	7.5	50	6	110
2DRR 050 R01 100 6B0	5	R0.1	7.5	10	6	110
2DRR 050 R01 150 6B0	5	R0.1	7.5	15	6	110
2DRR 050 R01 300 6B0	5	R0.1	7.5	30	6	110
2DRR 050 R01 500 6B0	5	R0.1	7.5	50	6	110
2DRR 050 R02 100 6B0	5	R0.2	7.5	10	6	110
2DRR 050 R02 150 6B0	5	R0.2	7.5	15	6	110
2DRR 050 R02 300 6B0	5	R0.2	7.5	30	6	110
2DRR 050 R02 500 6B0	5	R0.2	7.5	50	6	110
2DRR 050 R05 100 6B0	5	R0.5	7.5	10	6	110
2DRR 050 R05 150 6B0	5	R0.5	7.5	15	6	110
2DRR 050 R05 300 6B0	5	R0.5	7.5	30	6	110

2날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

DIA 2 CR 30° PAGE No.283

2 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

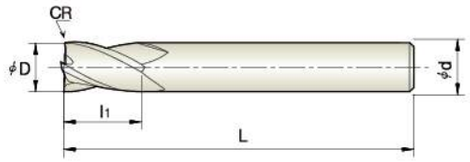
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRR 050 R05 500 6B0	5	R0.5	7.5	50	6	110
2DRR 060 R005 150 6B0	6	R0.05	9	15	6	110
2DRR 060 R005 200 6B0	6	R0.05	9	20	6	110
2DRR 060 R005 300 6B0	6	R0.05	9	30	6	110
2DRR 060 R005 500 6B0	6	R0.05	9	50	6	110
2DRR 060 R01 150 6B0	6	R0.1	9	15	6	110
2DRR 060 R01 200 6B0	6	R0.1	9	20	6	110
2DRR 060 R01 300 6B0	6	R0.1	9	30	6	110
2DRR 060 R01 500 6B0	6	R0.1	9	50	6	110
2DRR 060 R02 150 6B0	6	R0.2	9	15	6	110
2DRR 060 R02 200 6B0	6	R0.2	9	20	6	110
2DRR 060 R02 300 6B0	6	R0.2	9	30	6	110
2DRR 060 R02 500 6B0	6	R0.2	9	50	6	110
2DRR 060 R05 150 6B0	6	R0.5	9	15	6	110
2DRR 060 R05 200 6B0	6	R0.5	9	20	6	110
2DRR 060 R05 300 6B0	6	R0.5	9	30	6	110
2DRR 060 R05 500 6B0	6	R0.5	9	50	6	110
2DRR 060 R10 150 6B0	6	R1.0	9	15	6	110
2DRR 060 R10 200 6B0	6	R1.0	9	20	6	110
2DRR 060 R10 300 6B0	6	R1.0	9	30	6	110
2DRR 060 R10 500 6B0	6	R1.0	9	50	6	110

4DRR

DIA 4 CR 30° PAGE No.284

4날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

4 Flutes Diamond Coated Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4DRR 020 R005 040 460	2	R0.05	3	4	4	60
4DRR 020 R005 060 460	2	R0.05	3	6	4	60
4DRR 020 R005 120 460	2	R0.05	3	12	4	60
4DRR 020 R005 180 460	2	R0.05	3	18	4	60
4DRR 020 R005 250 460	2	R0.05	3	25	4	60
4DRR 020 R005 300 460	2	R0.05	3	30	4	60
4DRR 020 R01 040 460	2	R0.1	3	4	4	60
4DRR 020 R01 060 460	2	R0.1	3	6	4	60
4DRR 020 R01 120 460	2	R0.1	3	12	4	60
4DRR 020 R01 180 460	2	R0.1	3	18	4	60
4DRR 020 R01 250 460	2	R0.1	3	25	4	60
4DRR 020 R01 300 460	2	R0.1	3	30	4	60
4DRR 020 R02 040 460	2	R0.2	3	4	4	60
4DRR 020 R02 060 460	2	R0.2	3	6	4	60
4DRR 020 R02 120 460	2	R0.2	3	12	4	60
4DRR 020 R02 180 460	2	R0.2	3	18	4	60
4DRR 020 R02 250 460	2	R0.2	3	25	4	60
4DRR 020 R02 300 460	2	R0.2	3	30	4	60
4DRR 020 R03 040 460	2	R0.3	3	4	4	60
4DRR 020 R03 060 460	2	R0.3	3	6	4	60
4DRR 020 R03 120 460	2	R0.3	3	12	4	60
4DRR 020 R03 180 460	2	R0.3	3	18	4	60
4DRR 020 R03 250 460	2	R0.3	3	25	4	60
4DRR 020 R03 300 460	2	R0.3	3	30	4	60

4날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

DIA 4 CR 30° PAGE No.284

4 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4DRR 020 R05 040 460	2	R0.5	3	4	4	60
4DRR 020 R05 060 460	2	R0.5	3	6	4	60
4DRR 020 R05 120 460	2	R0.5	3	12	4	60
4DRR 020 R05 180 460	2	R0.5	3	18	4	60
4DRR 020 R05 250 460	2	R0.5	3	25	4	60
4DRR 020 R05 300 460	2	R0.5	3	30	4	60
4DRR 030 R005 060 480	3	R0.05	4.5	6	4	80
4DRR 030 R005 100 480	3	R0.05	4.5	10	4	80
4DRR 030 R005 200 480	3	R0.05	4.5	20	4	80
4DRR 030 R005 300 480	3	R0.05	4.5	30	4	80
4DRR 030 R005 400 480	3	R0.05	4.5	40	4	80
4DRR 030 R01 060 480	3	R0.1	4.5	6	4	80
4DRR 030 R01 100 480	3	R0.1	4.5	10	4	80
4DRR 030 R01 200 480	3	R0.1	4.5	20	4	80
4DRR 030 R01 300 480	3	R0.1	4.5	30	4	80
4DRR 030 R01 400 480	3	R0.1	4.5	40	4	80
4DRR 030 R02 060 480	3	R0.2	4.5	6	4	80
4DRR 030 R02 100 480	3	R0.2	4.5	10	4	80
4DRR 030 R02 200 480	3	R0.2	4.5	20	4	80
4DRR 030 R02 300 480	3	R0.2	4.5	30	4	80
4DRR 030 R02 400 480	3	R0.2	4.5	40	4	80
4DRR 030 R03 060 480	3	R0.3	4.5	6	4	80
4DRR 030 R03 100 480	3	R0.3	4.5	10	4	80
4DRR 030 R03 200 480	3	R0.3	4.5	20	4	80
4DRR 030 R03 300 480	3	R0.3	4.5	30	4	80
4DRR 030 R03 400 480	3	R0.3	4.5	40	4	80
4DRR 030 R05 060 480	3	R0.5	4.5	6	4	80
4DRR 030 R05 100 480	3	R0.5	4.5	10	4	80
4DRR 030 R05 200 480	3	R0.5	4.5	20	4	80
4DRR 030 R05 300 480	3	R0.5	4.5	30	4	80
4DRR 030 R05 400 480	3	R0.5	4.5	40	4	80
4DRR 030 R10 060 480	3	R1.0	4.5	6	4	80
4DRR 030 R10 100 480	3	R1.0	4.5	10	4	80
4DRR 030 R10 200 480	3	R1.0	4.5	20	4	80

4날 다이아몬드 코팅 리브 코너 래디우스 엔드밀

DIA 4 CR 30° PAGE No.284

4 Flutes Diamond Coated Rib Corner Radius End Mills

unit(mm)

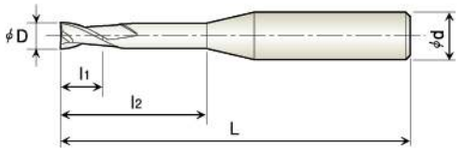
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4DRR 030 R10 300 480	3	R1.0	4.5	30	4	80
4DRR 030 R10 400 480	3	R1.0	4.5	40	4	80
4DRR 040 R03 200 4A0	4	R0.3	6	20	4	100
4DRR 040 R05 200 4A0	4	R0.5	6	20	4	100
4DRR 040 R10 200 4A0	4	R1.0	6	20	4	100
4DRR 060 R03 250 6B0	6	R0.3	9	25	6	110
4DRR 060 R05 250 6B0	6	R0.5	9	25	6	110
4DRR 060 R05 300 6F0	6	R0.5	9	30	6	150
4DRR 060 R10 250 6B0	6	R1.0	9	25	6	110
4DRR 060 R10 300 6F0	6	R1.0	9	30	6	150
4DRR 080 R03 300 8B0	8	R0.3	12	30	8	110
4DRR 080 R05 300 8B0	8	R0.5	12	30	8	110
4DRR 080 R05 400 8G0	8	R0.5	12	40	8	160
4DRR 080 R10 300 8B0	8	R1.0	12	30	8	110
4DRR 080 R10 400 8G0	8	R1.0	12	40	8	160
4DRR 100 R05 350 AB0	10	R0.5	15	35	10	110
4DRR 100 R05 450 AG0	10	R0.5	15	45	10	160
4DRR 100 R10 350 AB0	10	R1.0	15	35	10	110
4DRR 100 R10 450 AG0	10	R1.0	15	45	10	160
4DRR 120 R05 400 CB0	12	R0.5	18	40	12	110
4DRR 120 R05 450 CG0	12	R0.5	18	45	12	160
4DRR 120 R10 400 CB0	12	R1.0	18	40	12	110
4DRR 120 R10 450 CG0	12	R1.0	18	45	12	160

2DRE

DIA 2 OD 30° PAGE No.285

2날 다이아몬드 코팅 리브 플랫 엔드밀

2 Flutes Diamond Coated Rib Flat End Mills



unit(mm)

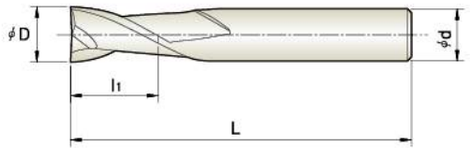
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DRE 010 050 460	1	3	5	4	60
2DRE 010 100 460	1	3	10	4	60
2DRE 010 150 460	1	3	15	4	60
2DRE 010 200 460	1	3	20	4	60
2DRE 010 250 460	1	3	25	4	60
2DRE 015 100 460	1.5	6	10	4	60
2DRE 015 150 460	1.5	6	15	4	60
2DRE 015 200 460	1.5	6	20	4	60
2DRE 015 250 460	1.5	6	25	4	60
2DRE 020 120 480	2	8	12	4	80
2DRE 020 150 480	2	8	15	4	80
2DRE 020 200 480	2	8	20	4	80
2DRE 020 250 480	2	8	25	4	80
2DRE 020 300 480	2	8	30	4	80
2DRE 020 400 480	2	8	40	4	80
2DRE 030 200 480	3	12	20	4	80
2DRE 030 250 480	3	12	25	4	80
2DRE 030 300 480	3	12	30	4	80
2DRE 030 400 480	3	12	40	4	80
2DRE 080 400 8G0	8	25	40	8	160
2DRE 100 500 AG0	10	25	50	10	160
2DRE 120 600 CG0	12	25	60	12	160

2DPE

DIA 2 OD 30° PAGE No.286

2날 다이아몬드 코팅 플랫 엔드밀

2 Flutes Diamond Coated Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DPE 002 004 445	0.2	0.4	4	45
2DPE 003 006 445	0.3	0.6	4	45
2DPE 004 008 445	0.4	0.8	4	45
2DPE 005 010 445	0.5	1	4	45
2DPE 006 012 445	0.6	1.2	4	45
2DPE 007 014 445	0.7	1.4	4	45
2DPE 008 016 445	0.8	1.6	4	45
2DPE 009 018 445	0.9	1.8	4	45
2DPE 010 030 450	1	3	4	50
2DPE 015 040 450	1.5	4	4	50
2DPE 020 060 460	2	6	4	60
2DPE 020 080 480	2	8	4	80
2DPE 025 080 460	2.5	8	4	60
2DPE 030 100 660	3	10	6	60
2DPE 030 120 480	3	12	4	80
2DPE 040 120 660	4	12	6	60
2DPE 050 150 660	5	15	6	60
2DPE 050 200 6B0	5	20	6	110
2DPE 050 300 680	5	30	6	80
2DPE 060 150 670	6	15	6	70
2DPE 060 250 6B0	6	25	6	110
2DPE 060 250 6F0	6	25	6	150
2DPE 060 300 670	6	30	6	70
2DPE 070 200 870	7	20	8	70

2날 다이아몬드 코팅 플랫 엔드밀

DIA 2 OD 30° PAGE No.286

2 Flutes Diamond Coated Flat End Mills

unit(mm)

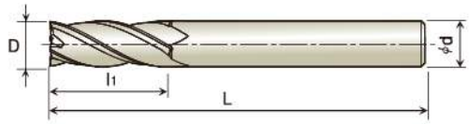
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2DPE 080 200 870	8	20	8	70
2DPE 080 300 880	8	30	8	80
2DPE 100 200 A75	10	20	10	75
2DPE 120 260 C80	12	26	12	80

4DPE

DIA 4 OD 30° PAGE No.287

4날 다이아몬드 코팅 플랫 엔드밀

4 Flutes Diamond Coated Flat End Mills



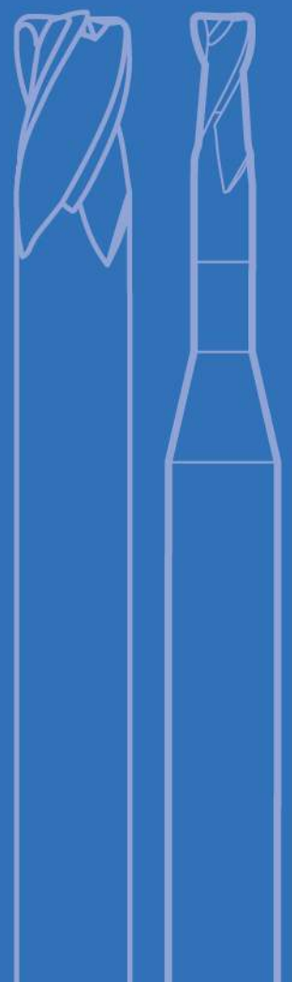
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4DPE 020 060 445	2	6	4	45
4DPE 020 100 460	2	10	4	60
4DPE 030 090 650	3	9	6	50
4DPE 030 150 360	3	15	4	60
4DPE 030 150 460	3	15	4	60
4DPE 040 120 650	4	12	6	50
4DPE 040 200 480	4	20	4	80
4DPE 060 180 660	6	18	6	60
4DPE 060 250 6B0	6	25	6	110
4DPE 060 250 6F0	6	25	6	150
4DPE 080 240 870	8	24	8	70
4DPE 080 350 8B0	8	35	8	110
4DPE 080 350 8G0	8	35	8	160
4DPE 100 250 A80	10	25	10	80
4DPE 100 400 AB0	10	40	10	110
4DPE 100 500 AG0	10	50	10	160
4DPE 120 250 C80	12	25	12	80
4DPE 120 450 CB0	12	45	12	110
4DPE 120 550 CG0	12	55	12	160

주문생산 Order Production

PART 7

A-PLUS SERIES



볼 Ball

사이즈 D Size	인선직경공차(mm) D 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 D Size	인선직경공차(mm) D Tolerance	볼반경(mm) R Size	R공차(mm) R 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 D Size	인선직경공차(mm) D Tolerance
0.5 ~ 5	0 ~ −0.010
6 ~ 12	0 ~ −0.015

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

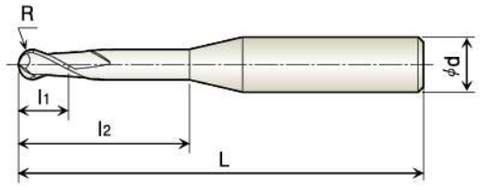
- Copper, graphite and non-ferrous metal
- Special coating to maximize the wear-resistance and lubrication
- Smooth chip disposal

2KRB

DLC 2 R 30° PAGE No.288

2날 리브 볼 엔드밀

2 Flutes Rib Ball End Mills



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRB 001 003 445	R0.05	0.1	0.3	4	45
2KRB 002 005 445	R0.1	0.2	0.5	4	45
2KRB 002 010 445	R0.1	0.2	1	4	45
2KRB 002 015 445	R0.1	0.2	1.5	4	45
2KRB 002 020 445	R0.1	0.2	2	4	45
2KRB 003 005 445	R0.15	0.3	0.5	4	45
2KRB 003 010 445	R0.15	0.3	1	4	45
2KRB 003 015 445	R0.15	0.3	1.5	4	45
2KRB 003 020 445	R0.15	0.3	2	4	45
2KRB 004 010 445	R0.2	0.4	1	4	45
2KRB 004 020 445	R0.2	0.4	2	4	45
2KRB 004 030 445	R0.2	0.4	3	4	45
2KRB 004 040 445	R0.2	0.4	4	4	45
2KRB 004 050 445	R0.2	0.4	5	4	45
2KRB 005 020 445	R0.25	0.5	2	4	45
2KRB 005 030 445	R0.25	0.5	3	4	45
2KRB 005 040 445	R0.25	0.5	4	4	45
2KRB 005 060 445	R0.25	0.5	6	4	45
2KRB 006 020 445	R0.3	0.6	2	4	45
2KRB 006 040 445	R0.3	0.6	4	4	45
2KRB 006 060 445	R0.3	0.6	6	4	45
2KRB 006 080 445	R0.3	0.6	8	4	45
2KRB 006 100 445	R0.3	0.6	10	4	45
2KRB 008 020 445	R0.4	0.8	2	4	45

2날 리브 볼 엔드밀

DLC 2 R 30° PAGE No.288

2 Flutes Rib Ball End Mills

unit(mm)

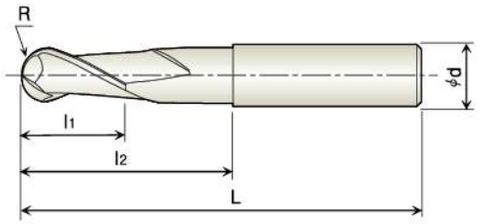
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRB 008 040 445	R0.4	0.8	4	4	45
2KRB 008 060 445	R0.4	0.8	6	4	45
2KRB 008 080 445	R0.4	0.8	8	4	45
2KRB 008 100 445	R0.4	0.8	10	4	45
2KRB 010 040 445	R0.5	1	4	4	45
2KRB 010 060 445	R0.5	1	6	4	45
2KRB 010 080 445	R0.5	1	8	4	45
2KRB 010 100 445	R0.5	1	10	4	45
2KRB 015 060 445	R0.75	1.5	6	4	45
2KRB 015 080 445	R0.75	1.5	8	4	45
2KRB 015 100 445	R0.75	1.5	10	4	45
2KRB 015 120 445	R0.75	1.5	12	4	45
2KRB 015 160 450	R0.75	1.5	16	4	50
2KRB 020 060 445	R1.0	2	6	4	45
2KRB 020 080 445	R1.0	2	8	4	45
2KRB 020 100 445	R1.0	2	10	4	45
2KRB 020 120 445	R1.0	2	12	4	45
2KRB 020 140 450	R1.0	2	14	4	50
2KRB 030 120 650	R1.5	3	12	6	50
2KRB 030 160 660	R1.5	3	16	6	60
2KRB 030 200 660	R1.5	3	20	6	60
2KRB 040 120 650	R2.0	4	12	6	50
2KRB 040 160 660	R2.0	4	16	6	60
2KRB 040 200 660	R2.0	4	20	6	60
2KRB 040 250 665	R2.0	4	25	6	65

2KSB

DLC 2 R 30° PAGE No.289

2날 쇼트 볼 엔드밀

2 Flutes Short Ball End Mills



unit(mm)

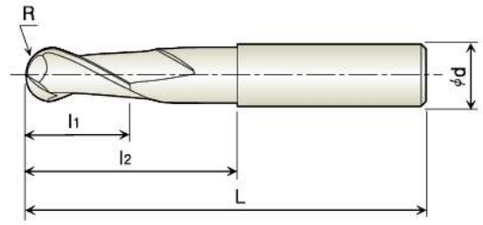
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KSB 004 010 650	R0.2	0.4	1	6	50
2KSB 005 015 650	R0.25	0.5	1.5	6	50
2KSB 006 015 650	R0.3	0.6	1.5	6	50
2KSB 008 020 650	R0.4	0.8	2	6	50
2KSB 010 025 650	R0.5	1	2.5	6	50
2KSB 012 030 650	R0.6	1.2	3	6	50
2KSB 015 040 650	R0.75	1.5	4	6	50
2KSB 020 060 650	R1.0	2	6	6	50
2KSB 025 060 650	R1.25	2.5	6	6	50
2KSB 030 080 650	R1.5	3	8	6	50
2KSB 040 100 650	R2.0	4	10	6	50
2KSB 050 120 650	R2.5	5	12	6	50
2KSB 060 150 660	R3.0	7	15	6	60
2KSB 080 200 860	R4.0	10	20	8	60
2KSB 100 250 A70	R5.0	12	25	10	70
2KSB 120 300 C80	R6.0	14	30	12	80

2KLB

DLC 2 R 30° PAGE No.290

2날 롱 볼 엔드밀

2 Flutes Long Ball End Mills



unit(mm)

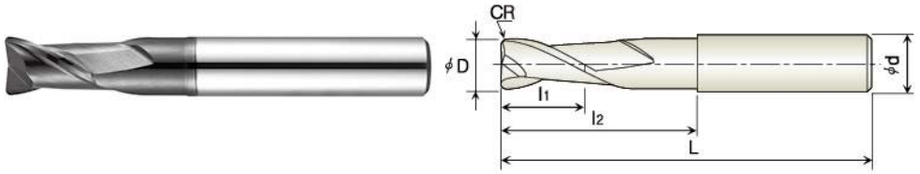
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KLB 010 030 650	R0.5	1.5	3	6	50
2KLB 015 040 650	R0.75	2	4	6	50
2KLB 020 060 660	R1.0	3	6	6	60
2KLB 030 080 660	R1.5	4	8	6	60
2KLB 040 100 670	R2.0	6	10	6	70
2KLB 050 120 680	R2.5	8	12	6	80
2KLB 060 150 690	R3.0	9	15	6	90
2KLB 080 200 8A0	R4.0	12	20	8	100
2KLB 100 250 AA0	R5.0	15	25	10	100
2KLB 120 300 CB0	R6.0	18	30	12	110

2KRR

DLC 2 CR 30° PAGE No.291

2날 리브 코너 래디우스 엔드밀

2 Flutes Rib Corner Radius End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRR 015 R02 040 445	1.5	R0.2	2.3	4	4	45
2KRR 020 R03 060 445	2	R0.3	3	6	4	45
2KRR 020 R03 100 445	2	R0.3	3	10	4	45
2KRR 020 R05 060 445	2	R0.5	3	6	4	45
2KRR 020 R05 100 445	2	R0.5	3	10	4	45
2KRR 020 R05 140 450	2	R0.5	3	14	4	50
2KRR 020 R10 060 445	2	R1.0	3	6	4	45
2KRR 020 R10 100 445	2	R1.0	3	10	4	45
2KRR 030 R05 100 650	3	R0.5	4.5	10	6	50
2KRR 030 R05 120 650	3	R0.5	4.5	12	6	50
2KRR 030 R05 160 660	3	R0.5	4.5	16	6	60
2KRR 030 R05 200 660	3	R0.5	4.5	20	6	60
2KRR 040 R05 120 650	4	R0.5	6	12	6	50
2KRR 040 R05 160 660	4	R0.5	6	16	6	60
2KRR 040 R05 200 660	4	R0.5	6	20	6	60
2KRR 060 R05 180 660	6	R0.5	9	18	6	60
2KRR 060 R10 180 660	6	R1.0	9	18	6	60
2KRR 060 R15 180 660	6	R1.5	9	18	6	60
2KRR 080 R05 240 865	8	R0.5	12	24	8	65
2KRR 080 R10 240 865	8	R1.0	12	24	8	65
2KRR 080 R15 240 865	8	R1.5	12	24	8	65
2KRR 100 R05 300 A70	10	R0.5	15	30	10	70
2KRR 100 R10 300 A70	10	R1.0	15	30	10	70
2KRR 100 R15 300 A70	10	R1.5	15	30	10	70

2날 리브 코너 래디우스 엔드밀

DLC 2 CR 30° PAGE No.291

2 Flutes Rib Corner Radius End Mills

unit(mm)

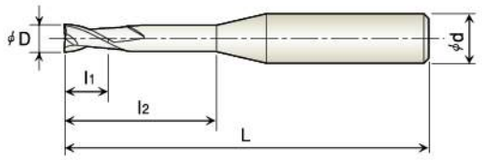
모델번호	인선직경(선단경) Outside Diameter (D)	코너반경 Corner Radius (CR)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRR 120 R05 300 C80	12	R0.5	18	30	12	80
2KRR 120 R10 300 C80	12	R1.0	18	30	12	80
2KRR 120 R15 300 C80	12	R1.5	18	30	12	80

2KRE

DLC 2 OD 30° PAGE No.292

2날 리브 플랫 엔드밀

2 Flutes Rib Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRE 001 003 445	0.1	0.15	0.3	4	45
2KRE 001 005 445	0.1	0.15	0.5	4	45
2KRE 002 005 445	0.2	0.3	0.5	4	45
2KRE 002 010 445	0.2	0.3	1	4	45
2KRE 002 015 445	0.2	0.3	1.5	4	45
2KRE 002 020 445	0.2	0.3	2	4	45
2KRE 003 005 445	0.3	0.45	0.5	4	45
2KRE 003 010 445	0.3	0.45	1	4	45
2KRE 003 015 445	0.3	0.45	1.5	4	45
2KRE 003 020 445	0.3	0.45	2	4	45
2KRE 004 010 445	0.4	0.6	1	4	45
2KRE 004 020 445	0.4	0.6	2	4	45
2KRE 004 030 445	0.4	0.6	3	4	45
2KRE 004 040 445	0.4	0.6	4	4	45
2KRE 004 050 445	0.4	0.6	5	4	45
2KRE 005 020 445	0.5	0.7	2	4	45
2KRE 005 040 445	0.5	0.7	4	4	45
2KRE 005 060 445	0.5	0.7	6	4	45
2KRE 006 020 445	0.6	0.9	2	4	45
2KRE 006 040 445	0.6	0.9	4	4	45
2KRE 006 060 445	0.6	0.9	6	4	45
2KRE 008 020 445	0.8	1.2	2	4	45
2KRE 008 040 445	0.8	1.2	4	4	45
2KRE 008 060 445	0.8	1.2	6	4	45

2날 리브 플랫 엔드밀

DLC 2 OD 30° PAGE No.292

2 Flutes Rib Flat End Mills

unit(mm)

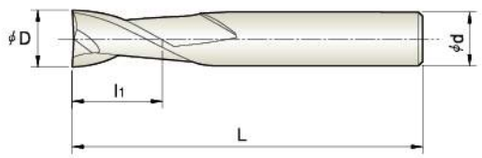
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KRE 008 080 445	0.8	1.2	8	4	45
2KRE 010 040 445	1	1.5	4	4	45
2KRE 010 060 445	1	1.5	6	4	45
2KRE 010 080 445	1	1.5	8	4	45
2KRE 010 100 445	1	1.5	10	4	45
2KRE 015 060 445	1.5	2.3	6	4	45
2KRE 015 080 445	1.5	2.3	8	4	45
2KRE 015 100 445	1.5	2.3	10	4	45
2KRE 015 120 445	1.5	2.3	12	4	45
2KRE 015 160 450	1.5	2.3	16	4	50
2KRE 020 060 445	2	3	6	4	45
2KRE 020 080 445	2	3	8	4	45
2KRE 020 100 445	2	3	10	4	45
2KRE 020 120 445	2	3	12	4	45
2KRE 020 140 450	2	3	14	4	50
2KRE 030 120 650	3	4.5	12	6	50
2KRE 030 160 660	3	4.5	16	6	60
2KRE 030 200 660	3	4.5	20	6	60
2KRE 040 120 650	4	6	12	6	50
2KRE 040 160 660	4	6	16	6	60
2KRE 040 200 660	4	6	20	6	60
2KRE 040 250 665	4	6	25	6	65

2KPE

DLC 2 OD 30° PAGE No.293

2날 플랫 엔드밀

2 Flutes Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2KPE 004 008 445	0.4	0.8	4	45
2KPE 005 010 445	0.5	1	4	45
2KPE 006 012 445	0.6	1.2	4	45
2KPE 007 014 445	0.7	1.4	4	45
2KPE 008 016 445	0.8	1.6	4	45
2KPE 010 025 645	1	2.5	6	45
2KPE 010 040 645	1	4	6	45
2KPE 012 040 645	1.2	4	6	45
2KPE 015 040 645	1.5	4	6	45
2KPE 020 060 645	2	6	6	45
2KPE 020 080 645	2	8	6	45
2KPE 025 080 650	2.5	8	6	50
2KPE 030 100 650	3	10	6	50
2KPE 030 120 650	3	12	6	50
2KPE 035 100 650	3.5	10	6	50
2KPE 040 120 650	4	12	6	50
2KPE 040 160 660	4	16	6	60
2KPE 050 150 650	5	15	6	50
2KPE 060 150 660	6	15	6	60
2KPE 060 240 660	6	24	6	60
2KPE 080 200 865	8	20	8	65
2KPE 100 250 A70	10	25	10	70
2KPE 120 300 C80	12	30	12	80

PART 8

AL-PRO SERIES

전체 타입 All Type

사이즈 D Size	인선직경공차(mm) D Tolerance
ALL	−0.005 ~ −0.015

- 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

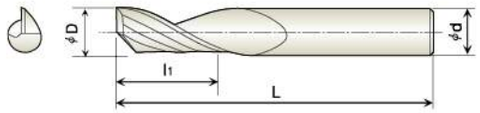
- Aluminum and Aluminum alloy.
- Excellent surface clean and chip disposal
- Variety of cutting length and overall length

1ALE

Non 1 OD 30° PAGE No.294

초경, 1날 알루미늄, 수지가공용 플랫 엔드밀

1 Flutes Flat End Mills For ALUMINIUM, RESIN, ABS



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
1ALE 005 010 440	0.5	1	4	40
1ALE 006 012 440	0.6	1.2	4	40
1ALE 007 014 440	0.7	1.4	4	40
1ALE 008 016 440	0.8	1.6	4	40
1ALE 009 018 440	0.9	1.8	4	40
1ALE 010 030 645	1	3	6	45
1ALE 010 040 645	1	4	6	45
1ALE 010 050 645	1	5	6	45
⊙ 1ALE 010 060 650	1	6	6	50
1ALE 015 040 645	1.5	4	6	45
1ALE 015 060 650	1.5	6	6	50
⊙ 1ALE 015 080 650	1.5	8	6	50
⊙ 1ALE 015 100 650	1.5	10	6	50
1ALE 020 060 650	2	6	6	50
1ALE 020 080 650	2	8	6	50
1ALE 020 100 650	2	10	6	50
⊙ 1ALE 020 120 650	2	12	6	50
1ALE 030 080 650	3	8	6	50
1ALE 030 100 650	3	10	6	50
1ALE 030 120 650	3	12	6	50
⊙ 1ALE 030 160 650	3	16	6	50
1ALE 040 120 650	4	12	6	50
1ALE 040 160 650	4	16	6	50
⊙ 1ALE 040 210 660	4	21	6	60

초경, 1날 알루미늄, 수지가공용 플랫 엔드밀

Non 1 OD 30° PAGE No.294

1 Flutes Flat End Mills For ALUMINIUM, RESIN, ABS

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
1ALE 050 160 660	5	16	6	60
1ALE 050 210 660	5	21	6	60
⊙ 1ALE 050 260 660	5	26	6	60
1ALE 060 160 660	6	16	6	60
1ALE 060 210 660	6	21	6	60
1ALE 060 260 665	6	26	6	65
⊙ 1ALE 060 320 670	6	32	6	70
1ALE 080 210 870	8	21	8	70
1ALE 080 260 875	8	26	8	75
1ALE 080 320 880	8	32	8	80
1ALE 080 360 890	8	36	8	90
1ALE 100 260 A75	10	26	10	75
1ALE 100 320 A80	10	32	10	80
1ALE 120 260 C80	12	26	12	80
1ALE 120 360 C90	12	36	12	90

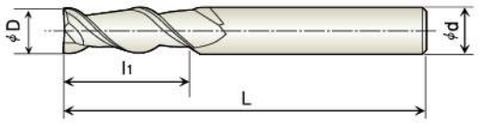
⊙ 주문생산 Order Production

2ALE

Non 2 OD 45° PAGE No.295

초경, 2날 45° 헬릭스 알루미늄용 플랫 엔드밀

2 Flutes 45° HELIX Flat End Mills For ALUMINIUM



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ALE 010 030 650	1	3	6	50
⊙ 2ALE 010 060 660	1	6	6	60
2ALE 012 040 650	1.2	4	6	50
2ALE 015 060 650	1.5	6	6	50
⊙ 2ALE 015 080 660	1.5	8	6	60
2ALE 020 060 650	2	6	6	50
2ALE 020 100 660	2	10	6	60
2ALE 025 120 660	2.5	12	6	60
2ALE 030 120 660	3	12	6	60
2ALE 030 150 665	3	15	6	65
2ALE 040 140 660	4	14	6	60
2ALE 040 160 665	4	16	6	65
2ALE 050 170 660	5	17	6	60
2ALE 050 220 660	5	22	6	60
2ALE 060 170 660	6	17	6	60
2ALE 060 220 660	6	22	6	60
⊙ 2ALE 070 230 865	7	23	8	65
2ALE 080 230 870	8	23	8	70
2ALE 080 310 880	8	31	8	80
2ALE 100 280 A75	10	28	10	75
2ALE 100 360 A90	10	36	10	90
2ALE 120 330 C80	12	33	12	80
2ALE 120 410 CA0	10	41	12	100
2ALE 120 450 CA0	10	45	12	100

초경, 2날 45° 헬릭스 알루미늄용 플랫 엔드밀

Non 2 OD 45° PAGE No.295

2 Flutes 45° HELIX Flat End Mills For ALUMINIUM

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2ALE 140 380 E90	14	38	14	90
2ALE 160 450 GA0	16	45	16	100
⊙ 2ALE 160 530 GB0	16	53	16	110
⊙ 2ALE 180 490 IA0	18	49	18	100
⊙ 2ALE 200 500 KA0	20	50	20	100
2ALE 200 550 KB0	20	55	20	110
⊙ 2ALE 250 500 PC0	25	50	25	120

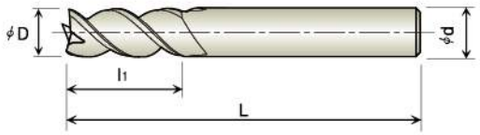
⊙ 주문생산 Order Production

3ALE

Non | 3 | OD | 45° | PAGE No.296

초경, 3날 45° 헬릭스 알루미늄용 플랫 엔드밀

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3ALE 010 020 640	1	2	6	40
3ALE 010 025 640	1	2.5	6	40
3ALE 010 030 650	1	3	6	50
3ALE 010 040 660	1	4	6	60
3ALE 010 060 660	1	6	6	60
3ALE 012 040 650	1.2	4	6	50
3ALE 015 030 640	1.5	3	6	40
3ALE 015 050 650	1.5	5	6	50
3ALE 015 060 660	1.5	6	6	60
3ALE 015 080 660	1.5	8	6	60
3ALE 015 100 660	1.5	10	6	60
3ALE 020 030 640	2	3	6	40
3ALE 020 060 650	2	6	6	50
3ALE 020 080 660	2	8	6	60
3ALE 020 100 660	2	10	6	60
3ALE 020 120 660	2	12	6	60
3ALE 025 080 640	2.5	8	6	40
3ALE 025 100 660	2.5	10	6	60
3ALE 025 120 660	2.5	12	6	60
3ALE 030 040 645	3	4	6	45
3ALE 030 080 645	3	8	6	45
3ALE 030 110 660	3	11	6	60
3ALE 030 150 665	3	15	6	65
3ALE 030 200 670	3	20	6	70

초경, 3날 45° 헬릭스 알루미늄용 플랫 엔드밀

Non | 3 | OD | 45° | PAGE No.296

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3ALE 030 250 675	3	25	6	75
3ALE 030 300 680	3	30	6	80
3ALE 035 120 660	3.5	12	6	60
3ALE 040 050 645	4	5	6	45
3ALE 040 080 645	4	8	6	45
3ALE 040 110 645	4	11	6	45
3ALE 040 130 660	4	13	6	60
3ALE 040 160 665	4	16	6	65
3ALE 040 200 670	4	20	6	70
3ALE 040 260 675	4	26	6	75
3ALE 040 300 680	4	30	6	80
3ALE 045 150 660	4.5	15	6	60
3ALE 050 060 645	5	6	6	45
3ALE 050 170 660	5	17	6	60
3ALE 050 220 660	5	22	6	60
3ALE 050 250 670	5	25	6	70
3ALE 050 300 675	5	30	6	75
3ALE 050 350 680	5	35	6	80
3ALE 050 400 685	5	40	6	85
3ALE 050 450 690	5	45	6	90
3ALE 055 170 660	5.5	17	6	60
3ALE 060 070 650	6	7	6	50
3ALE 060 130 650	6	13	6	50
3ALE 060 170 660	6	17	6	60
3ALE 060 220 660	6	22	6	60
3ALE 060 250 670	6	25	6	70
3ALE 060 300 675	6	30	6	75
3ALE 060 350 680	6	35	6	80
3ALE 060 420 690	6	42	6	90
3ALE 060 500 6A0	6	50	6	100
3ALE 070 220 865	7	22	8	65
3ALE 080 090 860	8	9	8	60
3ALE 080 190 860	8	19	8	60
3ALE 080 220 870	8	22	8	70

초경, 3날 45° 헬릭스 알루미늄용 플랫 엔드밀

Non 3 OD 45° PAGE No.296

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3ALE 080 280 880	8	28	8	80
3ALE 080 300 880	8	30	8	80
3ALE 080 350 885	8	35	8	85
3ALE 080 400 890	8	40	8	90
⊙ 3ALE 080 450 895	8	45	8	95
⊙ 3ALE 080 500 8A0	8	50	8	100
⊙ 3ALE 080 550 8B0	8	55	8	110
⊙ 3ALE 080 660 8B0	8	66	8	110
3ALE 090 270 A70	9	27	10	70
3ALE 100 110 A65	10	11	10	65
3ALE 100 220 A65	10	22	10	65
3ALE 100 270 A75	10	27	10	75
3ALE 100 320 A90	10	32	10	90
3ALE 100 350 A90	10	35	10	90
3ALE 100 400 A90	10	40	10	90
3ALE 100 450 AA0	10	45	10	100
3ALE 100 500 AA0	10	50	10	100
⊙ 3ALE 100 550 AB0	10	55	10	110
⊙ 3ALE 100 600 AB0	10	60	10	110
⊙ 3ALE 100 650 AC0	10	65	10	120
3ALE 120 130 C70	12	13	12	70
3ALE 120 260 C70	12	26	12	70
3ALE 120 320 C80	12	32	12	80
3ALE 120 400 CA0	12	40	12	100
3ALE 120 450 CA0	12	45	12	100
3ALE 120 500 CA0	12	50	12	100
⊙ 3ALE 120 550 CB0	12	55	12	110
⊙ 3ALE 120 600 CB0	12	60	12	110
⊙ 3ALE 120 650 CC0	12	65	12	120
⊙ 3ALE 120 700 CC0	12	70	12	120
⊙ 3ALE 120 750 CE0	12	75	12	140
3ALE 140 370 E90	14	37	14	90
3ALE 140 370 G90	14	37	16	90
3ALE 160 180 G90	16	18	16	90

초경, 3날 45° 헬릭스 알루미늄용 플랫 엔드밀

Non 3 OD 45° PAGE No.296

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
3ALE 160 320 G90	16	32	16	90
3ALE 160 420 GA0	16	42	16	100
3ALE 160 520 GB0	16	52	16	110
3ALE 160 550 GB0	16	55	16	110
⊙ 3ALE 160 650 GD0	16	65	16	130
⊙ 3ALE 160 750 GF0	16	75	16	150
3ALE 180 450 IA0	18	45	18	100
3ALE 200 230 K90	20	23	20	90
3ALE 200 380 K90	20	38	20	90
3ALE 200 480 KA0	20	48	20	100
3ALE 200 550 KB0	20	55	20	110
⊙ 3ALE 200 650 KD0	20	65	20	130
⊙ 3ALE 200 750 KF0	20	75	20	150
⊙ 3ALE 250 500 PC0	25	50	25	120

⊙ 주문생산 Order Production

PART 9

ABS SERIES

전체 타입 All Type

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

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

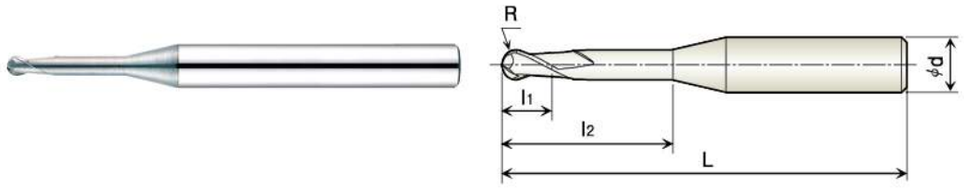
- Smooth chip disposal
- Sharp cutting edge for high speed cutting
- Improve to keep shape for precision-work

2MRB

Non 2 R 30° PAGE No.297

2날 수지가공용 리브 볼 엔드밀

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



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MRB 002 010 345	R0.1	0.4	1	3	45
2MRB 002 015 345	R0.1	0.4	1.5	3	45
2MRB 002 020 345	R0.1	0.4	2	3	45
2MRB 003 015 345	R0.15	1	1.5	3	45
2MRB 003 020 345	R0.15	1	2	3	45
2MRB 003 025 345	R0.15	1	2.5	3	45
2MRB 003 030 345	R0.15	1	3	3	45
2MRB 004 030 345	R0.2	1.2	3	3	45
2MRB 005 050 350	R0.25	1.5	5	3	50
2MRB 006 060 350	R0.3	3	6	3	50
2MRB 007 070 350	R0.35	3	7	3	50
2MRB 008 080 350	R0.4	4	8	3	50
2MRB 009 100 350	R0.45	4	10	3	50
2MRB 010 060 660	R0.5	3	6	6	60
2MRB 010 070 660	R0.5	3	7	6	60
2MRB 010 100 365	R0.5	5	10	3	65
2MRB 010 100 660	R0.5	5	10	6	60
2MRB 010 150 365	R0.5	5	15	3	65
2MRB 010 200 380	R0.5	5	20	3	80
2MRB 010 250 380	R0.5	5	25	3	80
2MRB 015 100 660	R0.75	5	10	6	60
2MRB 015 150 380	R0.75	10	15	3	80
2MRB 015 150 660	R0.75	10	15	6	60
2MRB 015 200 380	R0.75	10	20	3	80

2날 수지가공용 리브 볼 엔드밀

Non 2 R 30° PAGE No.297

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

unit(mm)

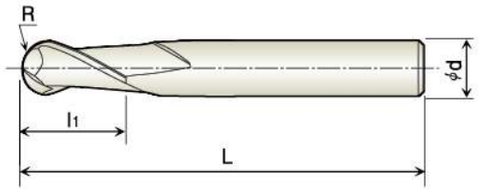
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MRB 015 250 380	R0.75	10	25	3	80
2MRB 020 100 665	R1.0	5	10	6	65
2MRB 020 150 380	R1.0	10	15	3	80
2MRB 020 150 665	R1.0	10	15	6	65
2MRB 020 200 380	R1.0	10	20	3	80
2MRB 020 250 380	R1.0	10	25	3	80
2MRB 020 300 380	R1.0	10	30	3	80
2MRB 025 200 380	R1.25	15	20	3	80
2MRB 030 150 680	R1.5	8	15	6	80
2MRB 040 250 680	R2.0	20	25	6	80
2MRB 040 300 680	R2.0	20	30	6	80
2MRB 040 400 6A0	R2.0	20	40	6	100

2MMB

Non 2 R 30° PAGE No.297

2날 수지가공용 볼 엔드밀

2 Flutes Ball End Mills For RESIN, PLASTIC, ABS



unit(mm)

모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MMB 003 010 345	R0.15	1	3	45
2MMB 004 012 345	R0.2	1.2	3	45
2MMB 004 020 345	R0.2	2	3	45
2MMB 005 015 350	R0.25	1.5	3	50
2MMB 005 020 350	R0.25	2	3	50
2MMB 006 030 350	R0.3	3	3	50
2MMB 007 030 350	R0.35	3	3	50
2MMB 008 040 350	R0.4	4	3	50
2MMB 009 040 350	R0.45	4	3	50
2MMB 010 050 365	R0.5	5	3	65
2MMB 015 100 380	R0.75	10	3	80
2MMB 020 100 380	R1.0	10	3	80
2MMB 025 100 380	R1.25	10	3	80
2MMB 025 150 380	R1.25	15	3	80
2MMB 030 100 365	R1.5	10	3	65
2MMB 030 200 380	R1.5	20	3	80
2MMB 030 200 3A0	R1.5	20	3	100
2MMB 040 200 480	R2.0	20	4	80
2MMB 040 200 4A0	R2.0	20	4	100
2MMB 040 200 680	R2.0	20	6	80
2MMB 050 300 5A0	R2.5	30	5	100
2MMB 050 300 5C0	R2.5	30	5	120
2MMB 060 250 690	R3.0	25	6	90
2MMB 060 300 6A0	R3.0	30	6	100

2날 수지가공용 볼 엔드밀

Non 2 R 30° PAGE No.297

2 Flutes Ball End Mills For RESIN, PLASTIC, ABS

unit(mm)

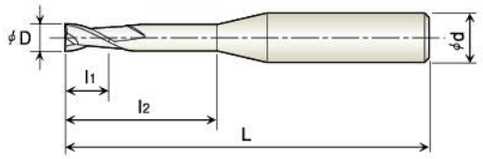
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MMB 060 400 6C0	R3.0	40	6	120
2MMB 060 400 6F0	R3.0	40	6	150
2MMB 080 450 8C0	R4.0	45	8	120
2MMB 080 450 8F0	R4.0	45	8	150
2MMB 100 500 AC0	R5.0	50	10	120
2MMB 100 500 AF0	R5.0	50	10	150
2MMB 120 500 CC0	R6.0	50	12	120
2MMB 120 500 CF0	R6.0	50	12	150

2MRE

Non 2 OD 30° PAGE No.298

2날 수지가공용 리브 플랫 엔드밀

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



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MRE 002 010 345	0.2	0.4	1	3	45
2MRE 002 015 345	0.2	0.4	1.5	3	45
2MRE 002 020 345	0.2	0.4	2	3	45
2MRE 003 015 345	0.3	1	1.5	3	45
2MRE 003 020 345	0.3	1	2	3	45
2MRE 003 025 345	0.3	1	2.5	3	45
2MRE 003 030 345	0.3	1	3	3	45
2MRE 004 030 345	0.4	1.2	3	3	45
2MRE 005 050 350	0.5	2	5	3	50
2MRE 006 060 350	0.6	3	6	3	50
2MRE 007 070 350	0.7	3	7	3	50
2MRE 008 080 350	0.8	4	8	3	50
2MRE 009 090 350	0.9	4	9	3	50
2MRE 010 050 660	1	2.5	5	6	60
2MRE 010 100 365	1	5	10	3	65
2MRE 010 100 660	1	5	10	6	60
2MRE 010 150 365	1	5	15	3	65
2MRE 010 200 380	1	5	20	3	80
2MRE 010 250 380	1	5	25	3	80
2MRE 015 100 660	1.5	5	10	6	60
2MRE 015 150 380	1.5	10	15	3	80
2MRE 015 150 660	1.5	10	15	6	60
2MRE 015 200 380	1.5	10	20	3	80
2MRE 020 100 660	2	5	10	6	60

2날 수지가공용 리브 플랫 엔드밀

Non 2 OD 30° PAGE No.298

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

unit(mm)

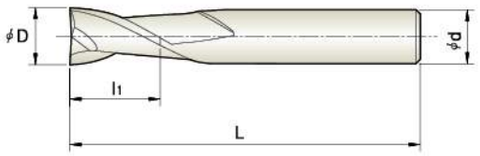
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	유효장 Effective Length (l_2)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MRE 020 150 380	2	10	15	3	80
2MRE 020 150 660	2	10	15	6	60
2MRE 020 200 380	2	10	20	3	80
2MRE 020 250 380	2	10	25	3	80
2MRE 020 300 380	2	10	30	3	80
2MRE 025 200 380	2.5	15	20	3	80
2MRE 030 150 680	3	10	15	6	80

2MME

Non 2 OD 30° PAGE No.298

2날 수지가공용 플랫 엔드밀

2 Flutes Flat End Mills For RESIN, PLASTIC, ABS



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MME 003 010 345	0.3	1	3	45
2MME 003 018 345	0.3	1.8	3	45
2MME 004 012 345	0.4	1.2	3	45
2MME 004 020 345	0.4	2	3	45
2MME 005 015 350	0.5	1.5	3	50
2MME 005 020 350	0.5	2	3	50
2MME 006 030 350	0.6	3	3	50
2MME 007 030 350	0.7	3	3	50
2MME 008 040 350	0.8	4	3	50
2MME 009 040 350	0.9	4	3	50
2MME 010 050 365	1	5	3	65
2MME 015 100 380	1.5	10	3	80
2MME 020 100 380	2	10	3	80
2MME 025 150 380	2.5	15	3	80
2MME 030 100 365	3	10	3	65
2MME 030 100 665	3	10	6	65
2MME 030 200 380	3	20	3	80
2MME 030 200 3A0	3	20	3	100
2MME 030 200 3C0	3	20	3	120
2MME 040 200 480	4	20	4	80
2MME 040 200 4A0	4	20	4	100
2MME 040 250 4C0	4	25	4	120
2MME 050 300 5A0	5	30	5	100
2MME 050 300 5C0	5	30	5	120

2날 수지가공용 플랫 엔드밀

Non 2 OD 30° PAGE No.298

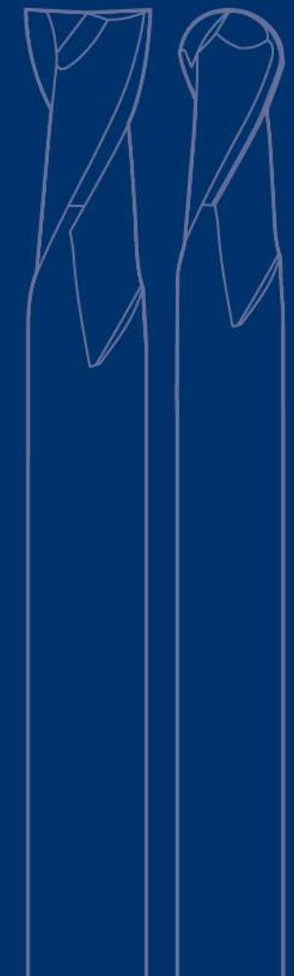
2 Flutes Flat End Mills For RESIN, PLASTIC, ABS

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MME 060 250 680	6	25	6	80
2MME 060 300 680	6	30	6	80
2MME 060 400 6A0	6	40	6	100
2MME 060 400 6C0	6	40	6	120
2MME 060 400 6F0	6	40	6	150
2MME 080 350 8A0	8	35	8	100
2MME 080 450 8C0	8	45	8	120
2MME 080 450 8G0	8	48	8	160
2MME 100 400 AA0	10	40	10	100
2MME 100 500 AC0	10	50	10	120
2MME 100 500 AG0	10	50	10	160
2MME 120 400 CA0	12	40	12	100
2MME 120 500 CC0	12	50	12	120
2MME 120 500 CG0	12	50	12	160

PART 10

MICRO GRAIN



전체 타입 All Type

사이즈 D Size	인선직경공차(mm) D Tolerance
ALL	−0.005 ~ −0.020

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

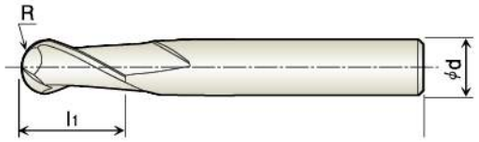
- Mild steel and non-ferrous materials
- Sharp cutting edge for high speed cutting
- Excellent finishing quality

2MGB

초경, 2날 볼 엔드밀

2 Flutes Ball End Mills

PAGE No.299



unit(mm)

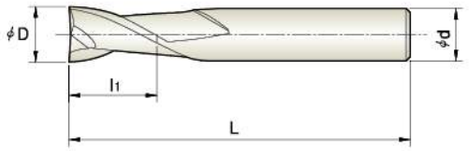
모델번호	볼반경 Radius of Ball Nose (R)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MGB 010 020 650	R0.5	2	6	50
2MGB 015 040 650	R0.75	4	6	50
2MGB 020 050 660	R1.0	5	6	60
2MGB 025 060 660	R1.25	6	6	60
2MGB 030 080 660	R1.5	8	6	60
2MGB 035 080 660	R1.75	8	6	60
2MGB 040 080 670	R2.0	8	6	70
2MGB 045 080 670	R2.25	8	6	70
2MGB 050 100 680	R2.5	10	6	80
2MGB 055 100 690	R2.75	10	6	90
2MGB 060 120 690	R3.0	12	6	90
2MGB 080 140 8A0	R4.0	14	8	100
2MGB 100 180 AA0	R5.0	18	10	100
2MGB 120 220 CB0	R6.0	22	12	110

2MGE

초경, 2날 플랫 엔드밀

2 Flutes Flat End Mills

PAGE No.300



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MGE 010 030 645	1	3	6	45
2MGE 012 040 645	1.2	4	6	45
2MGE 015 040 645	1.5	4	6	45
2MGE 020 060 645	2	6	6	45
2MGE 025 080 650	2.5	8	6	50
2MGE 030 100 650	3	10	6	50
2MGE 035 100 650	3.5	10	6	50
2MGE 040 120 650	4	12	6	50
2MGE 045 120 650	4.5	12	6	50
2MGE 050 150 650	5	15	6	50
2MGE 055 150 650	5.5	15	6	50
2MGE 060 150 650	6	15	6	50
2MGE 065 180 865	6.5	18	8	65
2MGE 070 200 865	7	20	8	65
2MGE 075 200 865	7.5	20	8	65
2MGE 080 200 865	8	20	8	65
2MGE 085 230 A70	8.5	23	10	70
2MGE 090 230 A70	9	23	10	70
2MGE 095 230 A70	9.5	23	10	70
2MGE 100 250 A70	10	25	10	70
2MGE 105 280 C80	10.5	28	12	80
2MGE 110 280 C80	11	28	12	80
2MGE 115 280 C80	11.5	28	12	80
2MGE 120 300 C80	12	30	12	80

초경, 2날 플랫 엔드밀

Non 2 OD 30° PAGE No.300

2 Flutes Flat End Mills

unit(mm)

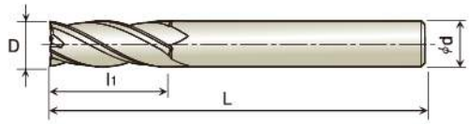
모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2MGE 010 030 645	1	3	6	45
2MGE 012 040 645	1.2	4	6	45
2MGE 015 040 645	1.5	4	6	45
2MGE 020 060 645	2	6	6	45
2MGE 025 080 650	2.5	8	6	50
2MGE 030 100 650	3	10	6	50
2MGE 035 100 650	3.5	10	6	50
2MGE 040 120 650	4	12	6	50
2MGE 045 120 650	4.5	12	6	50
2MGE 050 150 650	5	15	6	50
2MGE 055 150 650	5.5	15	6	50
2MGE 060 150 650	6	15	6	50
2MGE 065 180 865	6.5	18	8	65
2MGE 070 200 865	7	20	8	65
2MGE 075 200 865	7.5	20	8	65
2MGE 080 200 865	8	20	8	65
2MGE 085 230 A70	8.5	23	10	70
2MGE 090 230 A70	9	23	10	70
2MGE 095 230 A70	9.5	23	10	70
2MGE 100 250 A70	10	25	10	70
2MGE 105 280 C80	10.5	28	12	80
2MGE 110 280 C80	11	28	12	80
2MGE 115 280 C80	11.5	28	12	80
2MGE 120 300 C80	12	30	12	80
2MGE 130 350 E90	13	35	14	90
2MGE 140 350 E90	14	35	14	90
2MGE 160 400 G90	16	40	16	90
2MGE 180 450 IA0	18	45	18	100
2MGE 200 450 KA0	20	45	20	100

4MGE

Non 4 OD 30° PAGE No.301

초경, 4날 플랫 엔드밀

4 Flutes Flat End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4MGE 010 030 645	1	3	6	45
4MGE 015 040 645	1.5	4	6	45
4MGE 020 060 645	2	6	6	45
4MGE 025 080 650	2.5	8	6	50
4MGE 030 100 650	3	10	6	50
4MGE 035 100 650	3.5	10	6	50
4MGE 040 120 650	4	12	6	50
4MGE 045 120 650	4.5	12	6	50
4MGE 050 150 650	5	15	6	50
4MGE 055 150 650	5.5	15	6	50
4MGE 060 150 650	6	15	6	50
4MGE 065 180 865	6.5	18	8	65
4MGE 070 200 865	7	20	8	65
4MGE 075 200 865	7.5	20	8	65
4MGE 080 200 865	8	20	8	65
4MGE 085 230 A70	8.5	23	10	70
4MGE 090 230 A70	9	23	10	70
4MGE 095 230 A70	9.5	23	10	70
4MGE 100 250 A70	10	25	10	70
4MGE 105 280 C80	10.5	28	12	80
4MGE 110 280 C80	11	28	12	80
4MGE 115 280 C80	11.5	28	12	80
4MGE 120 300 C80	12	30	12	80
4MGE 130 350 E90	13	35	14	90

초경, 4날 플랫 엔드밀

Non 4 OD 30° PAGE No.301

4 Flutes Flat End Mills

unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
4MGE 140 350 E90	14	35	14	90
4MGE 160 400 G90	16	40	16	90
4MGE 180 450 IA0	18	45	18	100
4MGE 200 450 KA0	20	45	20	100

PART 11

MULTI PURPOSE

센터링 Centering

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

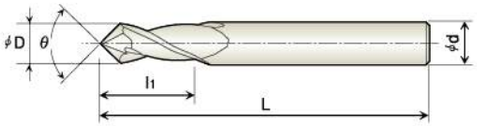
- 센터링 작업 및 모서리 면취, 측면 절삭 가능한 다기능 엔드밀
- 면조도가 뛰어남
- 내마모성 극대화

- Multi-purpose Endmill for Centering, Corner Chamfering, Side Cutting
- Excellent the surface roughness
- Optimized wear-resistant

2CEN

2날 센터링 엔드밀

2 Flutes Centering End Mills



unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle (θ)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2CEN 003 60˚ 006 345	0.3	60˚	0.6	3	45
2CEN 003 90˚ 006 345	0.3	90˚	0.6	3	45
2CEN 005 60˚ 010 350	0.5	60˚	1	3	50
2CEN 005 90˚ 010 350	0.5	90˚	1	3	50
2CEN 008 60˚ 016 350	0.8	60˚	1.6	3	50
2CEN 008 90˚ 016 350	0.8	90˚	1.6	3	50
2CEN 010 60˚ 020 350	1	60˚	2	3	50
2CEN 010 90˚ 020 350	1	90˚	2	3	50
2CEN 020 60˚ 040 350	2	60˚	4	3	50
2CEN 020 90˚ 040 350	2	90˚	4	3	50
2CEN 030 60˚ 060 350	3	60˚	6	3	50
2CEN 030 60˚ 060 650	3	60˚	6	6	50
2CEN 030 90˚ 060 350	3	90˚	6	3	50
2CEN 030 90˚ 060 650	3	90˚	6	6	50
2CEN 030 90˚ 060 6A0	3	90˚	6	6	100
2CEN 040 60˚ 080 650	4	60˚	8	6	50
2CEN 040 90˚ 080 650	4	90˚	8	6	50
2CEN 040 90˚ 080 6A0	4	90˚	8	6	100
2CEN 050 60˚ 100 650	5	60˚	10	6	50
2CEN 050 90˚ 100 650	5	90˚	10	6	50
2CEN 060 60˚ 120 660	6	60˚	12	6	60
2CEN 060 90˚ 120 660	6	90˚	12	6	60
2CEN 060 90˚ 120 6A0	6	90˚	12	6	100
2CEN 080 60˚ 160 860	8	60˚	16	8	60

2날 센터링 엔드밀

2 Flutes Centering End Mills

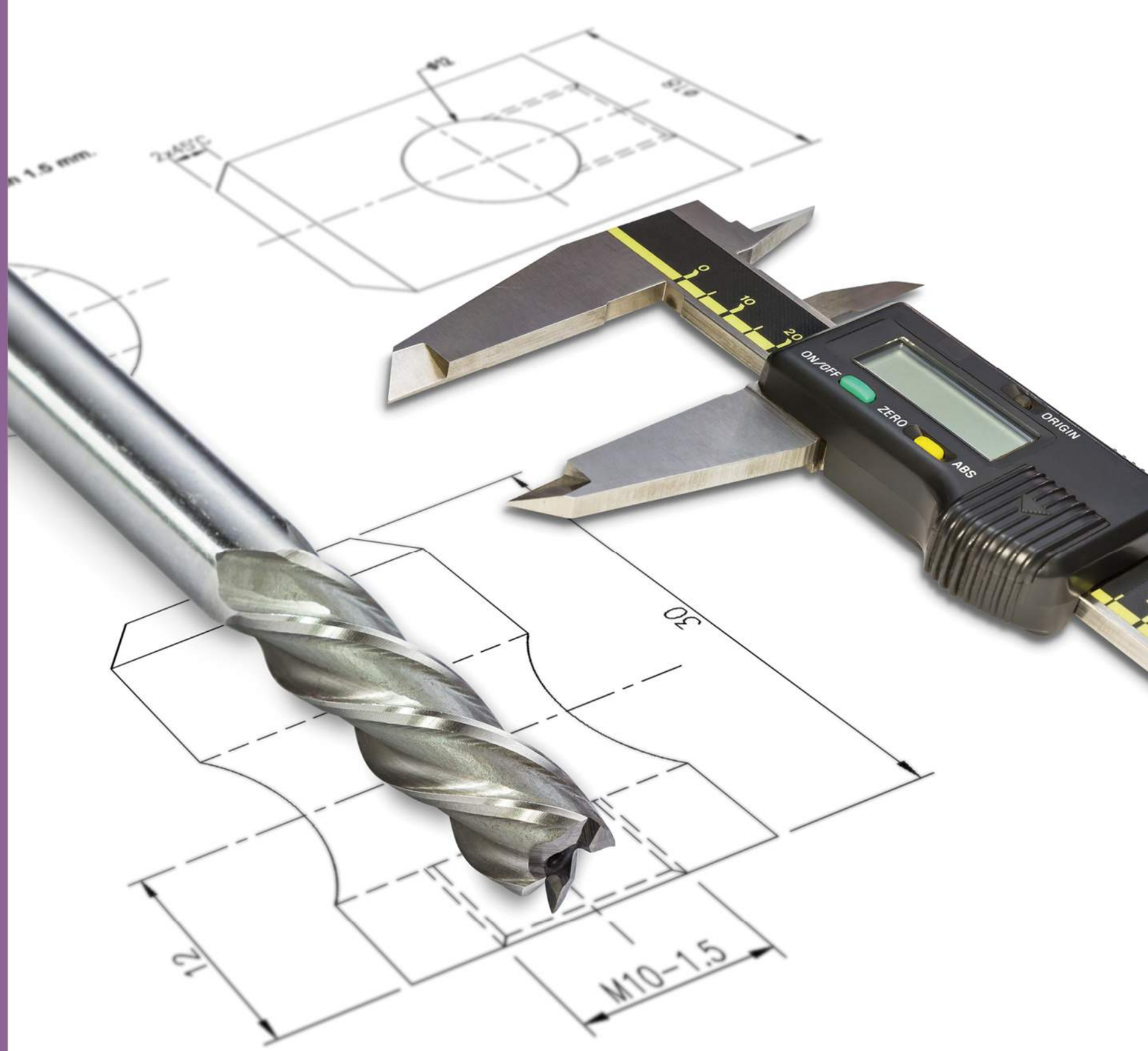
unit(mm)

모델번호	인선직경(선단경) Outside Diameter (D)	포인트각도 Angle (θ)	날장 Length of Cut (l_1)	생크경 Shank Diameter (d)	전장 Overall Length (L)
2CEN 080 90˚ 160 860	8	90˚	16	8	60
2CEN 080 90˚ 160 8A0	8	90˚	16	8	100
2CEN 100 60˚ 180 A70	10	60˚	18	10	70
2CEN 100 90˚ 180 A70	10	90˚	18	10	70
2CEN 100 90˚ 200 AA0	10	90˚	20	10	100
2CEN 120 60˚ 200 C80	12	60˚	20	12	80
2CEN 120 90˚ 200 C80	12	90˚	20	12	80
2CEN 120 90˚ 200 CA0	12	90˚	20	12	100
2CEN 140 60˚ 260 E80	14	60˚	26	14	80
2CEN 140 90˚ 260 E80	14	90˚	26	14	80
2CEN 160 60˚ 320 GA0	16	60˚	32	16	100
2CEN 160 90˚ 320 GA0	16	90˚	32	16	100

PART 12

기술자료

TECHNICAL DATA



⚠ 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.

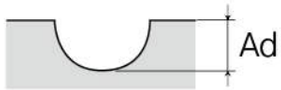
Danger of fire by spark incidence or heat caused by tool breakage can happen during processing.
Confirm fire prevention countermeasure beforehand necessarily before use.

2RRB & 2RTB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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 Ad는 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.

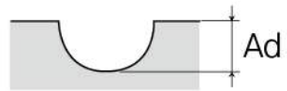
1. Use a rigid precise machine and holder.
2. Ad(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters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

2RPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



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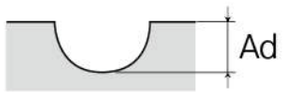
2RSB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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

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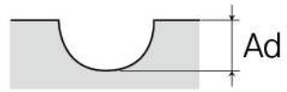
3RSB & 3RTB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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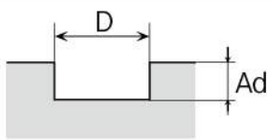
4RRR & 4RCR & 4RTR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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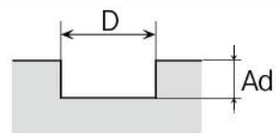
2RRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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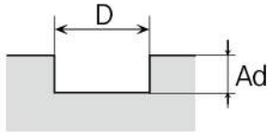
4RRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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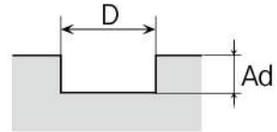
4RPE & 4RLE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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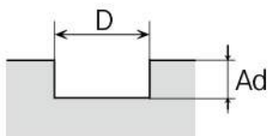
2RTR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, STAVAX			Hardened Steels SKD			Hardened Steels SKD 11		
HRC	HRC ~ 55			HRC 55 ~ 60			HRC 60 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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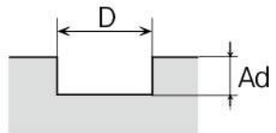
6RCR

High Speed Milling Condition

피삭재	프리하든강		고경도강(열처리강)			
Workpiece	Preharden Steel NAK, STAVAX		Hardened Steels SKD		Hardened Steels SKD 11	
HRC	HRC ~ 55		HRC 55 ~ 60		HRC 60 ~ 65	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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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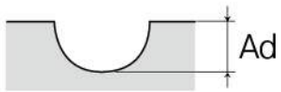
2HRB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)						동합금		
Workpiece	Preharden Steel NAK			Hardened Steels SKD, STAVAX			Hardened Steels SKD 11			Copper Aalloy		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65					
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min⁻¹)	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min⁻¹)	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min⁻¹)	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min⁻¹)	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



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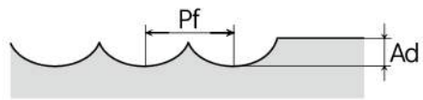
2HSB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min⁻¹)	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min⁻¹)	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min⁻¹)	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



Pf= 0.05D

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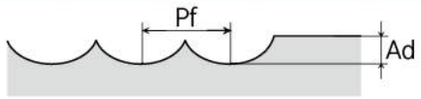
2HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Pf= 0.05D

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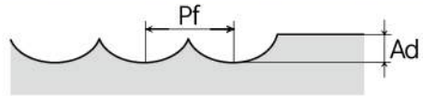
3HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Pf= 0.05D

경고 Warning

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1. Use a rigid precise machine and holder.
2. Ad(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
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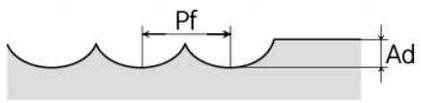
4HPB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Pf= 0.05D

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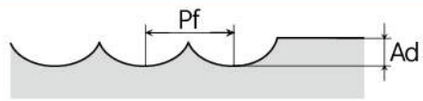
2HRR & 2HCR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			동합금		
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Copper Aalloy		
HRC	HRC 30 ~ 45			HRC 45 ~ 55					
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Pf= 0.05D

경고 Warning

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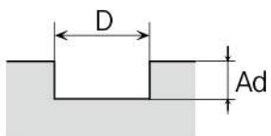
4HRR & 4HCR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



⚠ 경고 Warning

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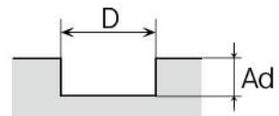
4HIT

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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2HRE

High Speed Milling Condition

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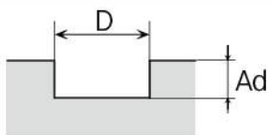
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (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



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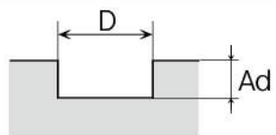
2HPE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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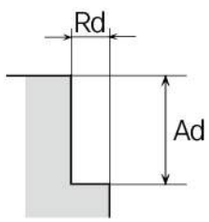
2HLE

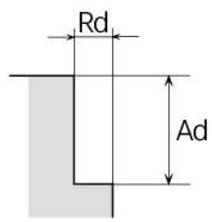
Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Rd=0.05D



Rd=0.02D

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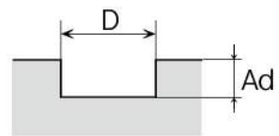
4HRE

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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4HPE

Milling Condition

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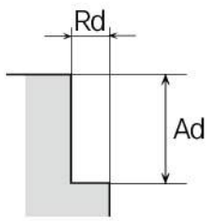
Workpiece	Preharden Steel NAK			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)
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



Ad=1.5D
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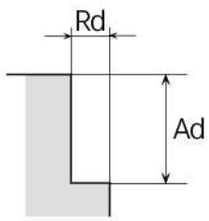
Rd=0.10D (3 ≤ D ≤ Ø6)
Rd=0.15D (7 ≤ D ≤ Ø12)



Rd=0.03D

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4HLE

Milling Condition

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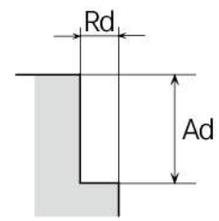
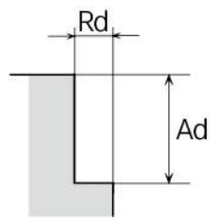
Workpiece	Preharden Steel NAK, HPM			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (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



Rd=0.05D



Rd=0.05D

경고 Warning

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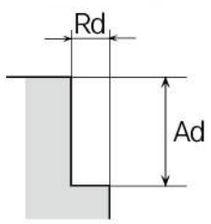
4HHE

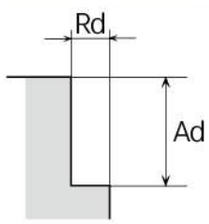
Milling Condition

피삭재	프리하든강			고경도강(열처리강)					
Workpiece	Preharden Steel NAK			Hardened Steels SKD 61, STAVAX			Hardened Steels SKD 11		
HRC	HRC 30 ~ 45			HRC 45 ~ 55			HRC 55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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



Ad=1.5D
Rd=0.05D (0.8 ≤ D ≤ Ø2)
Rd=0.10D (3 ≤ D ≤ Ø6)
Rd=0.15D (7 ≤ D ≤ Ø12)



Rd=0.03D

경고 Warning

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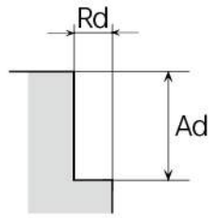
6HPE

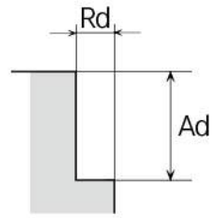
High Speed Milling Condition

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	HRC 30 ~ 45		HRC 45 ~ 55		HRC 55 ~ 65		HRC 65 ~ 70	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad=1.0D
Rd=0.05D



Ad=1.0D
Rd=0.03D

경고 Warning

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2IRC

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels S50C, SCM		Alloy Steels SKD		Prehardened Steels NAK 80, HPM 50	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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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4IRC

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels S50C, SCM		Alloy Steels SKD		Prehardened Steels NAK 80, HPM 50	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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

경고 Warning

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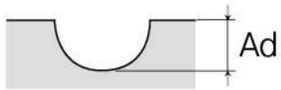
2ARB

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			동합금		
Workpiece	Preharden Steel NAK			Hardened Steels SKD 61, STAVAX			Copper Aalloy		
HRC	HRC 30 ~ 45			HRC 45 ~ 55					
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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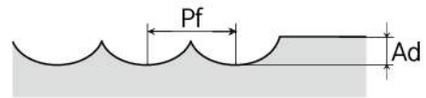
2ASB

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		Preharden Steel NAK		Hardened Steels SKD 61, STAVAX	
HRC	~ HRC 30		HRC 30 ~ 45		HRC 45 ~ 55	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.02D
Pf= 0.05D

경고 Warning

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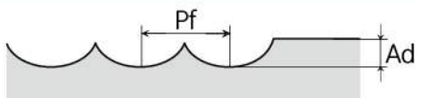
2APB

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		Preharden Steel NAK		Hardened Steels SKD 61, STAVAX	
HRC	~ HRC 30		HRC 30 ~ 45		HRC 45 ~ 55	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.02D
Pf= 0.05D

경고 Warning

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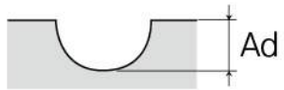
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

2ARR

High Speed Milling Condition

피삭재	프리하든강			고경도강(열처리강)			동합금		
Workpiece	Preharden Steel NAK			Hardened Steels SKD 61, STAVAX			Copper Aalloy		
HRC	HRC 30 ~ 45			HRC 45 ~ 55					
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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

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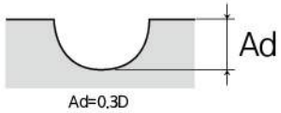
2ACR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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	 Ad=0.3D Rd=1.0D					

경고 Warning

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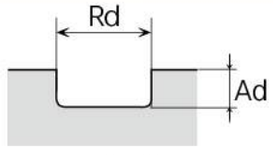
2ALR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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	 Ad=0.3D Rd=1.0D					

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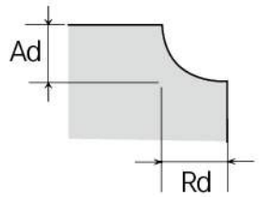
4ARR

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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



Ad=0.01D~0.02D
Rd=0.20D~0.40D

경고 Warning

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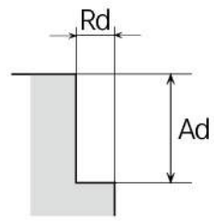
4ACR

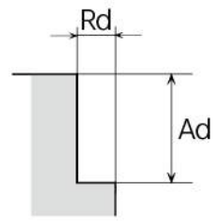
Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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



Ad=0.1D
Rd=1.0D



Ad=0.02D
Rd=1.0D

경고 Warning

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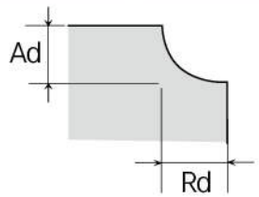
4ALR

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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



Ad=0.01D~0.02D
Rd=0.20D~0.40D

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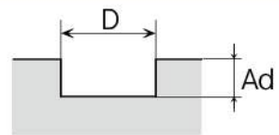
2ARE

High Speed Milling Condition

피삭재	탄소강			프리하든강			동합금		
Workpiece	Carbon Steels S50C, SCM			Preharden Steel NAK 80, HPM 50			Copper Aalloy		
HRC	~ HRC 30			HRC 30 ~ 45					
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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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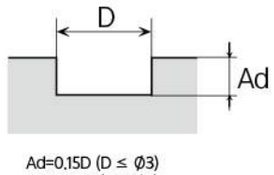
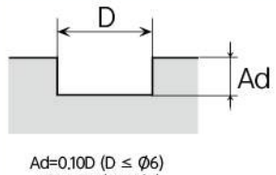
2APE

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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	 Ad=0.15D (D ≤ Ø3) Ad=0.20D (D > Ø3)		 Ad=0.10D (D ≤ Ø6) Ad=0.15D (D > Ø6)			

경고 Warning

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
2. 절입량의 Ad는 측방향 절입량을 표시합니다.
3. 강재 가공 시 Air Blow나 Oil Mist 사용을 추천합니다.
4. 회전수와 테이블 이송은 같은 비율로 조정해주십시오.
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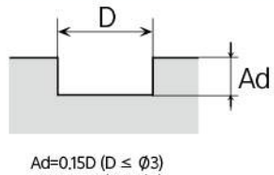
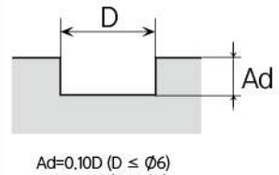
2AEL

Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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	 Ad=0.15D (D ≤ Ø3) Ad=0.20D (D > Ø3)		 Ad=0.10D (D ≤ Ø6) Ad=0.15D (D > Ø6)			

경고 Warning

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
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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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3. For milling steels, air blow or MQL(Oil Mist) are recommended.
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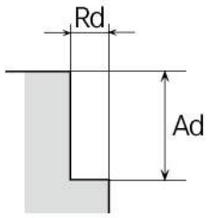
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

4APE

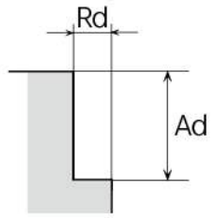
Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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



Ad=1.0D, Rd=0.02D (D ≤ Ø6)
Ad=1.0D, Rd=0.05D (D > Ø6



Ad=1.0D, Rd=0.01D (D ≤ Ø6)
Ad=1.0D, Rd=0.02D (D > Ø6)

경고 Warning

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
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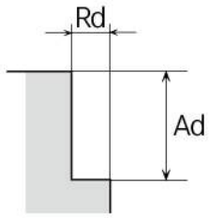
4AEL

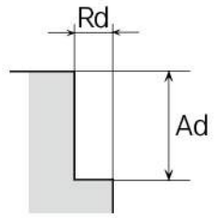
Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
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



Ad=1.0D, Rd=0.02D (D ≤ Ø6)
Ad=1.0D, Rd=0.05D (D > Ø6)



Ad=1.0D, Rd=0.01D (D ≤ Ø6)
Ad=1.0D, Rd=0.02D (D > Ø6)

경고 Warning

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
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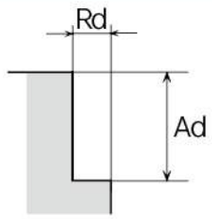
4APL

Milling Condition

피삭재	탄소강		프리하든강	
Workpiece	Carbon Steels S50C		Preharden Steel NAK	
HRC	~ HRC 30		HRC 30 ~ 45	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad=2.5D, Rd=0.05D (D ≤ Ø10)
Ad=2.5D, Rd=0.5mm (D > Ø10)

경고 Warning

1. 정밀하고 강성이 있는 홀더와 장비를 사용해주십시오.
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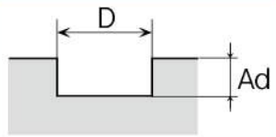
3XOE & 4XOE

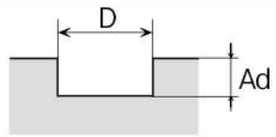
High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		Prehardened Steels NAK		Hardened Steels SKD61, STAVAX	
HRC	~ HRC 30		HRC 30 ~ 35		HRC 35 ~ 45	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad : 0.75D
Ad Max = 12mm



Ad : 0.5D

경고 Warning

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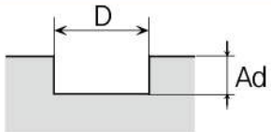
4XREV

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		Prehardened Steels NAK		Hardened Steels SKD 61, STAVAX	
HRC	~ HRC 30		HRC 30 ~ 45		HRC 45 ~ 55	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



D MAX : 0.4D
Ad MAX : 1.5D

경고 Warning

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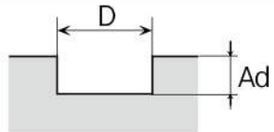
5. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

4XPEV

High Speed Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		Prehardened Steels NAK		Hardened Steels SKD 61, STAVAX	
HRC	~ HRC 30		HRC 30 ~ 45		HRC 45 ~ 55	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



D MAX : 0.4D
Ad MAX : 1.5D

경고 Warning

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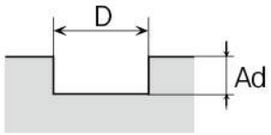
2XPE

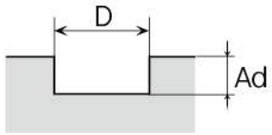
Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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



Ad=0.15D (D ≤ Ø3)
Ad=0.20D (D > Ø3)



Ad=0.10D (D ≤ Ø6)
Ad=0.15D (D > Ø6)

⚠ 경고 Warning

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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.

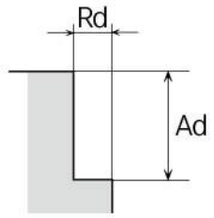
1. Use a rigid precise machine and holder.
2. Ad(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters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

4XPE

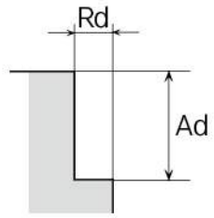
Milling Condition

피삭재	탄소강		프리하든강		고경도강(열처리강)	
Workpiece	Carbon Steels S50C		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)
2	19,000	750	15,000	650	12,000	350
3	15,000	1,000	12,500	800	10,000	500
4	11,000	1,100	9,500	850	7,900	600
6	7,500	1,100	6,500	850	5,200	600
8	5,500	1,000	4,800	750	4,000	500
10	4,500	1,000	3,800	750	3,200	500
12	3,700	1,000	3,200	750	2,500	500

Depth of Cut



Ad=1.0D, Rd=0.02D (D ≤ Ø6)
Ad=1.0D, Rd=0.05D (D > Ø6)



Ad=1.0D, Rd=0.01D (D ≤ Ø6)
Ad=1.0D, Rd=0.02D (D > Ø6)

⚠ 경고 Warning

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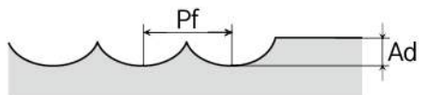
1. Use a rigid precise machine and holder.
2. Ad(mm) : Axial Depth of Cut.
3. For milling steels, air blow or MQL(Oil Mist) are recommended.
4. Adjust both Spindle speed and Feedrate by the same proportion.
5. The above condition are only reference. In actual machining conditions adjust these parameters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

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	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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

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2. 절입량의 Ad는 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.

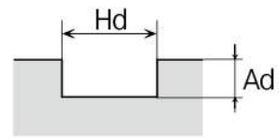
1. Use a rigid precise machine and holder.
2. Ad(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation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

4SUR & 4SURA

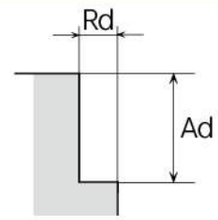
Milling Condition

피삭재	구상흑연주철		SUS 300 계열		SUS 400 계열	
Workpiece	Cast Iron		Stainless Steel 300 Series		Stainless Steel 400 Series	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad=1.0D
Rd=1.0D(Max.)



Ad=1.0D(Max.)
Rd=0.5D(Max.)

경고 Warning

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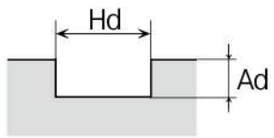
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

4SUE & 4SUEA

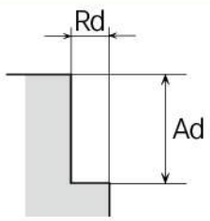
Milling Condition

피삭재	구상흑연주철		SUS 300 계열		SUS 400 계열	
Workpiece	Cast Iron		Stainless Steel 300 Series		Stainless Steel 400 Series	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad=1.0D
Rd=1.0D(Max.)



Ad=1.0D(Max.)
Rd=0.5D(Max.)

경고 Warning

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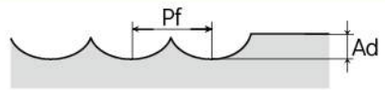
2. Ad(mm) : Axial Depth of Cut.
3. Adjust both Spindle speed and Feedrate by the same proportion.
4. The above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine capability and the operation environment.

2DRB

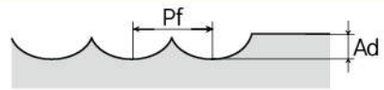
Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.1D
Pf = 0.3D



Ad = 0.05D
Pf = 0.3D

경고 Warning

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

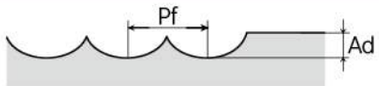
1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

2DPB

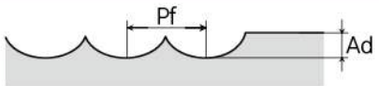
Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	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



Ad = 0.1D
Pf = 0.3D



Ad = 0.05D
Pf = 0.3D

경고 Warning

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

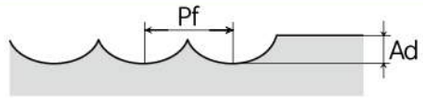
1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

2DRR

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Outside Diameter	Speed (min⁻¹)	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



Ad = 0.1D
Pf = 0.3D

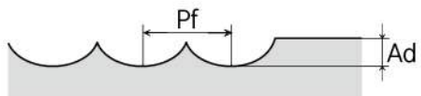
경고 Warning

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

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

4DRR

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Outside Diameter	Speed (min^{-1})	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	 Ad = 0.05D Pf = 0.3D	

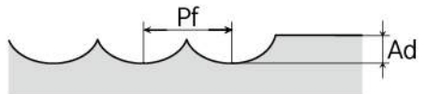
경고 Warning

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

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

2DRE

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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	 Ad = 0.25D (D ≤ Ø3) Ad = 0.5 D (D > Ø3)			

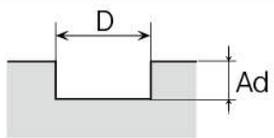
경고 Warning

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

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

2DPE

Milling Condition

피삭재	흑연		동합금	
Workpiece	Graphite		Copper Alloys	
Radius of Ball Nose	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	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	 Ad = 0.25D (D ≤ Ø3) Ad = 0.5 D (D > Ø3)			

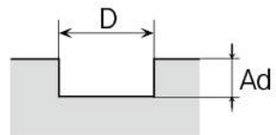
경고 Warning

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

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

4DPE

Milling Condition

피삭재	흑연	
Workpiece	Graphite	
Radius of Ball Nose	Speed (min⁻¹)	Feed (mm/min)
2.0	13,000~17,000	1,300~1,800
3.0	13,000~17,000	1,800~2,300
4.0	13,000~17,000	2,000~2,500
6.0	13,000~17,000	2,300~2,800
8.0	13,000~17,000	2,200~2,800
10.0	10,000~13,000	2,200~2,800
12.0	8,000~11,000	2,200~2,800
Depth of Cut	 Ad = 0.25D (D ≤ Ø3) Ad = 0.5 D (D > Ø3)	

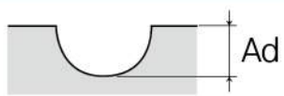
경고 Warning

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

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

2KRB

High Speed Milling Condition

피삭재	동합금		
Workpiece	Copper Alloys		
Radius of Ball Nose	Depth of Cut Ad(mm)	Speed (min⁻¹)	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			

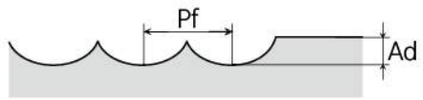
경고 Warning

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

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

2KSB

High Speed Milling Condition

피삭재	동합금		
Workpiece	Copper Alloys		
Radius of Ball Nose	Depth of Cut Ad(mm)	Feed (mm/min)	Speed (min⁻¹)
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	 Pf ≤ 0.6D		

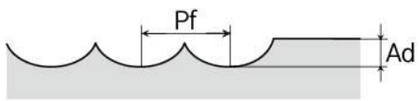
경고 Warning

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

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

2KLB

High Speed Milling Condition

피삭재	동합금		
Workpiece	Copper Alloys		
Radius of Ball Nose	Depth of Cut Ad(mm)	Feed (mm/min)	Speed (min^{-1})
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	 Pf ≤ 0.6D		

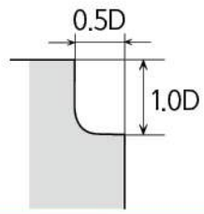
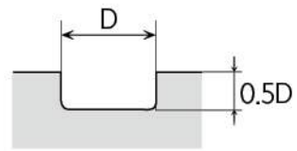
경고 Warning

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

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

2KRR

High Speed Milling Condition

피삭재	동			
Workpiece	Copper			
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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				

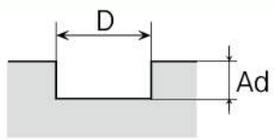
경고 Warning

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

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

2KRE

High Speed Milling Condition

피삭재	동		
Workpiece	Copper		
Outside Diameter	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)
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			

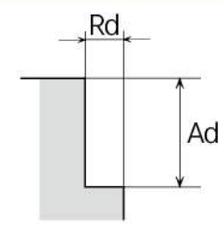
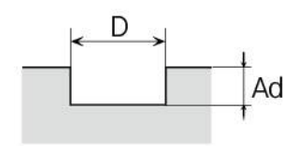
경고 Warning

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

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

2KPE

High Speed Milling Condition

피삭재	동			
Workpiece	Copper			
Outside Diameter	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	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	 Ad=1.5D, Rd=0.02D (D ≤ Ø1) Ad=1.5D, Rd=0.10D (D > Ø1)		 Ad=0.05D (D ≤ Ø1) Ad=0.10D (D > Ø1)	

경고 Warning

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

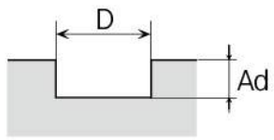
1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

1ALE

Milling Condition

피삭재	아크릴, 알루미늄		합금강, 주철	
Workpiece	Acrylic, Aluminium		Alloy Steels, Cast Iron	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.25D

경고 Warning

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

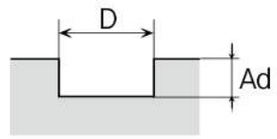
1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

2ALE

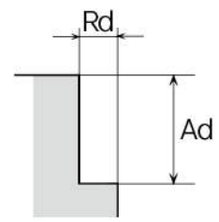
Milling Condition

피삭재	알루미늄		합금강, 주철	
Workpiece	Acrylic, Aluminium		Alloy Steels, Cast Iron	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.5D



Ad = 1.0D, Rd = 0.25D (D ≤ Ø10)
Ad = 1.0D, Rd = 0.5D (D ≤ Ø20)

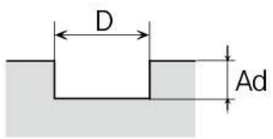
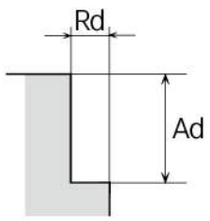
경고 Warning

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

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

3ALE

Milling Condition

피삭재	알루미늄		알루미늄	
Workpiece	Aluminium		Aluminium	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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	 Ad = 0.2D		 Ad=0.15D Rd=1.0~2.5D	

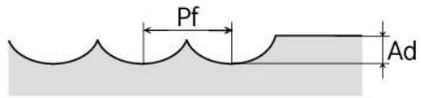
⚠ 경고 Warning

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

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

2MRB & 2MMB

High Speed Milling Condition

피삭재	ABS 수지, 아크릴		알루미늄합금	
Workpiece	ABS, Acrylic		Aluminium Alloys	
Radius of Ball Nose	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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	 Ad = 0.1D Pf = 0.3D			

⚠ 경고 Warning

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.

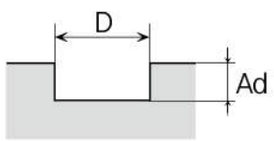
1. Use a rigid precise machine and holder.

2MRE & 2MME

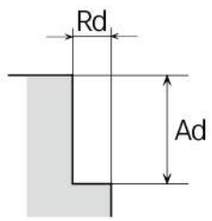
High Speed Milling Condition

피삭재	ABS 수지, 아크릴		알루미늄합금		ABS 수지, 아크릴		알루미늄합금	
Workpiece	ABS, Acrylic		Aluminium Alloys		ABS, Acrylic		Aluminium Alloys	
Outside Diameter	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	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



Ad=1.0D



Ad=1.0D
Rd=0.01D

경고 Warning

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시요.

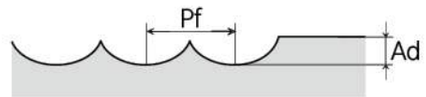
1. Use a rigid precise machine and holder.

2MGB

Milling Condition

피삭재	탄소강		합금강		프리하든강	
Workpiece	Carbon Steels S50C		Alloy Steels SCM		Prehardened Steels NAK 80, HPM 50	
Radius of Ball Nose	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	Feed (mm/min)	Speed (min⁻¹)	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



Ad = 0.05D
Pf = 0.1D

경고 Warning

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

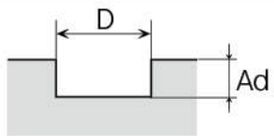
1. Use a rigid precise machine and holder.
2. Recommend water soluble fluids.

2MGE

Milling Condition

피삭재	탄소강		합금강		비철 합금	
Workpiece	Carbon Steels S50C		Alloy Steels SCM		Non-Ferrous Alloys	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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



Ad = 0.3D (D < Ø3)
Ad = 0.5D (D ≥ Ø3)

경고 Warning

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시오.
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.

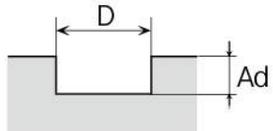
4MGE

Milling Condition

피삭재	탄소강		합금강		비철 합금	
Workpiece	Carbon Steels S50C		Alloy Steels SCM		Non-Ferrous Alloys	
Outside Diameter	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	Feed (mm/min)	Speed (min^{-1})	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

Ad = 1.0D, Rd = 0.02D (D ≤ Ø6)
Ad = 1.0D, Rd = 0.05D (D > Ø6)



Ad = 1.0D, Rd = 0.01D (D ≤ Ø6)
Ad = 1.0D, Rd = 0.02D (D > Ø6)

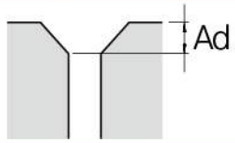
경고 Warning

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시오.
2. 절삭유 사용을 권장합니다.

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

2CEN

Milling Condition

피삭재	탄소강			프리하든강			알루미늄 합금		
Workpiece	Carbon Steels S50C, SCM			Prehardened Steels NAK 80, HPM 50			Aluminium Alloys		
Outside Diameter	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	Feed (mm/min)	Depth of Cut Ad(mm)	Speed (min^{-1})	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									

경고 Warning

1. 강성을 지닌 정밀한 장비와 홀더를 사용하십시오.
2. 절입량의 Ad는 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. Ad(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.

강종에 따른 용도

Application According To Steel Grade

강종 (Steel Grade) / 규격 (Standards)	한국 공업 규격 (KS) Korean Industrial Standards	일본 공업 규격 (JIS) Japanese Industrial Standards	미국 공업 규격 (AISI) American Iron and Steel Institute	탄소함유량 (%) Carbon content	용도 Use
기계 구조용 탄소강 Machine Structural Carbon Steel	SM10C	S10C	1010	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
	SM20C	S20C	1020	0.18~0.23	
	SM30C	S30C	1030	0.28~0.34	
	SM35C	S35C	1035	0.32~0.38	
	SM40C	S40C	1039,40	0.37~0.43	
	SM45C	S45C	4045,46	0.42~0.48	
	SM50C	S50C	1049	0.47~0.53	
	SM55C	S55C	1055	0.50~0.60	
니켈크롬강 Nickel-Chrome Steel	SNC236	SNC1	-	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
	SNC631	SNC2	-	0.27~0.35	
	SNC415	SNC21	-	0.12~0.18	
니켈크롬 몰리브덴강 Nickel Chromium Molybdenum Steel	SNCM220	SNCM21	8615,17,20	0.17~0.23	스프라인 축, 캠축, 스티어링 웜 기어, 피스톤 핀, 트랜스미션기어, 자동장치 고속회전축, 피니언 Spline Shaft, Camshaft, Steering Warm Gear, Piston Pin, Transmission Gear, High Speed Rotating Shaft, Pinion
	SNCM240	SNCM6	8637,40	0.34~0.41	
	SNCM439	SNCM8	4340	0.38~0.43	
크롬강 Chrome Steel	SCr430	SCr2	5130,32	0.28~0.33	줄, 롤러, 커플링, 볼트, 너트, 스터드, 액슬 샤프트 캠축 File, Roller, Coupling, Bolt, Nut, Stud, Axle Shaft Camshaft
	SCr435	SCr3	5135	0.33~0.38	
	SCr440	SCr4	5140	0.38~0.43	
크롬 몰리브덴강 Chrome Molybdenum Steel	SCM430	SCM2	4130	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
	SCM435	SCM3	4135,37	0.33~0.38	
	SCM440	SCM4	4140,42	0.38~0.43	
	SCM445	SCM5	4145,47	0.43~0.48	
망간강 Maganese Steel	SMN438	SMN2	1541	0.36~0.44	
	SMN443	SMN3	1541	0.36~0.44	
탄소 공구강 Carbon Tool Steel	STC2	SK2	W1-11 1/2	1.10~1.30	끌, 칼, 탭, 드릴, 햄머, 펀치 Chisel, Knife, Tap, Drill, Hammer, Punch
	STC3	SK3	W1-10	1.00~1.10	
	STC5	SK5	W1-8	0.80~0.90	
	STC7	SK7	-		
고속도 공구강 High Speed Tool Steel	SKH2	SKH2	T1	0.65~0.80	리머, 커터, 탭, 드릴, 펀치, 엔드밀 Reamer, Cutter, Tap, Drill, Punch, End Mill
	SKH3	SKH3	T4	0.70~0.80	
	SKH51	SKH9	M2	0.80~0.90	
	SKH55	SKH55	-		
	SKH57	SKH57	-		
합금 공구강 Alloy Tool Steel	STS2	SKS2	-		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
	STS3	SKS3	-		
	STS11	SKS11	F2		
	STS41	SKS41	-		
	STS43	SKS43	W2-9 1/2		
	STD1	SKD1	D3	2.00~2.35	
	STD11	SKD11	D2	1.40~1.60	
	STD12	SKD12	A2	0.95~1.05	
	STD6	SKD6	H11	0.33~0.43	
	STD61	SKD61	H13	0.32~0.45	
	STD62	SKD62	H12	0.30~0.40	
스프링강 Spring Steel	SPS1	SUP3	1075,78	0.72~0.85	
	SPS4	SUP7	9260	0.55~0.65	
	SPS6	SUP10	6150	0.47~0.54	
	SPS13	SUP9	-		
고탄소 크롬 베어링강 High Carbon Chromium Bearing Steel	STB2	SUJ2	52100	0.98~1.10	롤러, 볼 베어링, 롤러 베어링, 궤도 륜 대형볼 Roller, Ball Bearing, Roller Bearing, Race Wheel Big Ball
	STB3	SUJ3	-		
질화강 Nitriding Steel	SACM645	SACM1	-		
스테인리스강 Stainless Steel	STS410	SUS410	410	Max 0.15	
	STS420J1	SUS420J1	420	Min 0.15	
	STS420J2	SUS420J2	-		

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

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