



# A-PLUS

SERIES

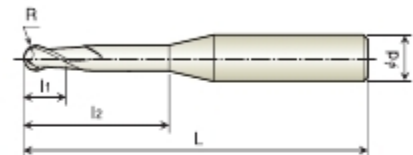


## 2날 리브가공용 볼 엔드밀

### 2 FLUTES RIB BALL END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 개선된 목부형상으로 파손에 대한 저항력 증대
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Improves breakage-resistance ( $\leq R0.3$ ) due to newly developed neck geometry.

SMG	A <sup>+</sup>
	R ±0.005
30°	h5
DATA p.208	



unit (mm)

신규 모델번호	구 모델번호	볼반경	유효장	날장	샤프크경	전장
Model No.	Model No.	Radius of Ball Nose	Effective Length	Length of cut	Shank Diameter	Overall Length
		R	l <sub>2</sub>	l <sub>1</sub>	d	L
2KRB 001 003 445	KPRE001003	R0.05	0.3	0.1	4	45
2KRB 002 005 445	KPRE002005	R0.1	0.5	0.2	4	45
2KRB 002 010 445	KPRE00201	R0.1	1	0.2	4	45
2KRB 002 015 445	KPRE002015	R0.1	1.5	0.2	4	45
2KRB 002 020 445	KPRE00202	R0.1	2	0.2	4	45
2KRB 003 005 445	KPRE003005	R0.15	0.5	0.3	4	45
2KRB 003 010 445	KPRE00301	R0.15	1	0.3	4	45
2KRB 003 015 445	KPRE003015	R0.15	1.5	0.3	4	45
2KRB 003 020 445	KPRE00302	R0.15	2	0.3	4	45
2KRB 004 010 445	KPRE00401	R0.2	1	0.4	4	45
2KRB 004 020 445	KPRE00402	R0.2	2	0.4	4	45
2KRB 004 030 445	KPRE00403	R0.2	3	0.4	4	45
2KRB 004 040 445	KPRE00404	R0.2	4	0.4	4	45
2KRB 004 050 445	KPRE00405	R0.2	5	0.4	4	45
2KRB 005 020 445	KPRE00502	R0.25	2	0.5	4	45
2KRB 005 030 445	KPRE00503	R0.25	3	0.5	4	45
2KRB 005 040 445	KPRE00504	R0.25	4	0.5	4	45
2KRB 005 060 445	KPRE00506	R0.25	6	0.5	4	45
2KRB 006 020 445	KPRE00602	R0.3	2	0.6	4	45
2KRB 006 040 445	KPRE00604	R0.3	4	0.6	4	45
2KRB 006 060 445	KPRE00606	R0.3	6	0.6	4	45
2KRB 006 080 445	KPRE00608	R0.3	8	0.6	4	45
2KRB 006 100 445	KPRE00610	R0.3	10	0.6	4	45
2KRB 008 020 445	KPRE00802	R0.4	2	0.8	4	45
2KRB 008 040 445	KPRE00804	R0.4	4	0.8	4	45
2KRB 008 060 445	KPRE00806	R0.4	6	0.8	4	45
2KRB 008 080 445	KPRE00808	R0.4	8	0.8	4	45
2KRB 008 100 445	KPRE00810	R0.4	10	0.8	4	45
2KRB 010 040 445	KPRE01004	R0.5	4	1	4	45
2KRB 010 060 445	KPRE01006	R0.5	6	1	4	45
2KRB 010 080 445	KPRE01008	R0.5	8	1	4	45
2KRB 010 100 445	KPRE01010	R0.5	10	1	4	45

# A PLUS

## 2날 리브가공용 볼 엔드밀

## 2 FLUTES RIB BALL END MILLS



A PLUS

unit (mm)

신규 모델번호 Model No.	구 모델번호 Model No.	볼반경	유효장	날 장	생크경	전 장
		Radius of Ball Nose	Effective Length	Length of cut	Shank Diameter	Overall Length
		R	$l_2$	$l_1$	d	L
2KRB 015 060 445	KPRB01506	R0.75	6	1.5	4	45
2KRB 015 080 445	KPRB01508	R0.75	8	1.5	4	45
2KRB 015 100 445	KPRB01510	R0.75	10	1.5	4	45
2KRB 015 120 445	KPRB01512	R0.75	12	1.5	4	45
2KRB 015 160 450	KPRB01516	R0.75	16	1.5	4	50
2KRB 020 060 445	KPRB02006	R1.0	6	2	4	45
2KRB 020 080 445	KPRB02008	R1.0	8	2	4	45
2KRB 020 100 445	KPRB02010	R1.0	10	2	4	45
2KRB 020 120 445	KPRB02012	R1.0	12	2	4	45
2KRB 020 140 450	KPRB02014	R1.0	14	2	4	50
2KRB 030 120 650	KPRB03012	R1.5	12	3	6	50
2KRB 030 160 660	KPRB03016	R1.5	16	3	6	60
2KRB 030 200 660	KPRB03020	R1.5	20	3	6	60
2KRB 040 120 650	KPRB04012	R2.0	12	4	6	50
2KRB 040 160 660	KPRB04016	R2.0	16	4	6	60
2KRB 040 200 660	KPRB04020	R2.0	20	4	6	60
2KRB 040 250 665	KPRB04025	R2.0	25	4	6	65

생크경, 전장 표시법	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
사이즈	인선직경공차(mm)																				
D Size	D Tolerance																				
All	0~0.010																				

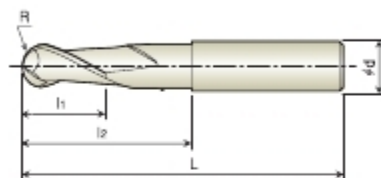
● : NEW

## 2날 쇼트 볼 엔드밀

### 2 FLUTES SHORT BALL END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 고정도 3차원 가공에 적합
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Suitable for precision three-dimensional cutting in the low to high speed range.

SMG	A <sup>+</sup>
	R ±0.005
30°	h5
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unit (mm)

신규 모델번호 Model No.	구 모델번호 Model No.	볼반경 Radius of Ball Nose R	유효장 Effective Length l <sub>2</sub>	날장 Length of cut l <sub>1</sub>	샙크경 Shank Diameter d	전장 Overall Length L
2KSB 004 010 650	KPBS2004	R0.2	1	0.4	6	50
2KSB 005 015 650	KPBS2005	R0.25	1.5	0.5	6	50
2KSB 006 015 650	KPBS2006	R0.3	1.5	0.6	6	50
2KSB 008 020 650	KPBS2008	R0.4	2	0.8	6	50
2KSB 010 025 650	KPBS2010	R0.5	2.5	1	6	50
2KSB 012 030 650	KPBS2012	R0.6	3	1.2	6	50
2KSB 015 040 650	KPBS2015	R0.75	4	1.5	6	50
2KSB 020 060 650	KPBS2020	R1.0	6	2	6	50
2KSB 025 060 650	KPBS2025	R1.25	6	2.5	6	50
2KSB 030 080 650	KPBS2030	R1.5	8	3	6	50
2KSB 040 100 650	KPBS2040	R2.0	10	4	6	50
2KSB 050 120 650	KPBS2050	R2.5	12	5	6	50
2KSB 060 150 660	KPBS2060	R3.0	15	7	6	60
2KSB 080 200 860	KPBS2080	R4.0	20	10	8	60
2KSB 100 250 A70	KPBS2100	R5.0	25	12	10	70
2KSB 120 300 C80	KPBS2120	R6.0	30	14	12	80

샙크경, 전장 표시법	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

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

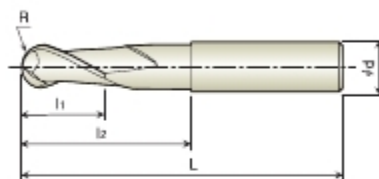
● : NEW

# A PLUS

## 2날 롱 볼 엔드밀

### 2 FLUTES LONG BALL END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 고정도 3차원 가공에 적합
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Suitable for precision three-dimensional cutting in the low to high speed range.



unit (mm)

신규 모델 번호 Model No.	구 모델 번호 Model No.	볼반경 Radius of Ball Nose R	유효장 Effective Length l <sub>2</sub>	날 장 Length of cut l <sub>1</sub>	생크경 Shank Diameter d	전 장 Overall Length L
2KLB 010 030 650	KPBL2010	R0.5	3	1.5	6	50
2KLB 015 040 650	KPBL2015	R0.75	4	2	6	50
2KLB 020 060 660	KPBL2020	R1.0	6	3	6	60
2KLB 030 080 660	KPBL2030	R1.5	8	4	6	60
2KLB 040 100 670	KPBL2040	R2.0	10	6	6	70
2KLB 050 120 680	KPBL2050	R2.5	12	8	6	80
2KLB 060 150 690	KPBL2060	R3.0	15	9	6	90
2KLB 080 200 8A0	KPBL2080	R4.0	20	12	8	100
2KLB 100 250 AA0	KPBL2100	R5.0	25	15	10	100
2KLB 120 300 CB0	KPBL2120	R6.0	30	18	12	110

SMG	A <sup>+</sup>
	R ±0.005
30°	h5
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# A PLUS

생크경, 전장 표시법	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

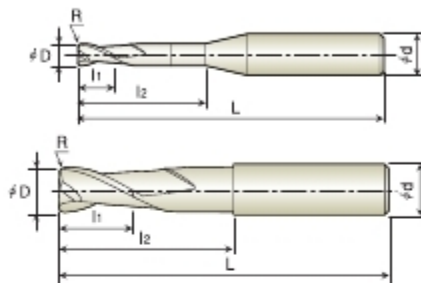
사이즈 D Size	인선직경공차(mm) D Tolerance	볼반경(mm) R Size	R공차(mm) R Tolerance
1~5	0~0.010	R0.5~R2.5	±0.005
6~12	0~0.015	R3~R6	±0.010

: NEW

## 2날 리브 코너 라디우스 엔드밀

### 2 FLUTES RIB CORNER RADIUS END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 원활한 칩배출을 위한 형상설계
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Geometry design for smooth chip flow.



SMG	A+
2	CR ±0.005
30°	h5
DATA p.211	

# A PLUS

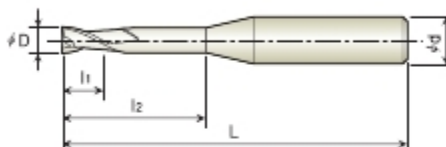
신규 모델 번호 Model No.	구 모델 번호 Model No.	인선직경	코너반경	유효장	날 장	생크경	전 장
		Outside Diameter D	Corner Radius CR	Effective Length L <sub>2</sub>	Length of cut L <sub>1</sub>	Shank Diameter d	Overall Length L
2KRR 015 R02 040 445	KPRE2015R02-040	1.5	R0.2	4	2.3	4	45
2KRR 020 R03 060 445	KPRE2020R03-060	2	R0.3	6	3	4	45
2KRR 020 R03 100 445	KPRE2020R03-100	2	R0.3	10	3	4	45
2KRR 020 R05 060 445	KPRE2020R05-060	2	R0.5	6	3	4	45
2KRR 020 R05 100 445	KPRE2020R05-100	2	R0.5	10	3	4	45
2KRR 020 R05 140 450	KPRE2020R05-140	2	R0.5	14	3	4	50
2KRR 020 R10 060 445	KPRE2020R10-060	2	R1.0	6	3	4	45
2KRR 020 R10 100 445	KPRE2020R10-100	2	R1.0	10	3	4	45
2KRR 030 R05 100 650	KPRE2030R05-100	3	R0.5	10	4.5	6	50
2KRR 030 R05 120 650	KPRE2030R05-120	3	R0.5	12	4.5	6	50
2KRR 030 R05 160 660	KPRE2030R05-160	3	R0.5	16	4.5	6	60
2KRR 030 R05 200 660	KPRE2030R05-200	3	R0.5	20	4.5	6	60
2KRR 040 R05 120 650	KPRE2040R05-120	4	R0.5	12	6	6	50
2KRR 040 R05 160 660	KPRE2040R05-160	4	R0.5	16	6	6	60
2KRR 040 R05 200 660	KPRE2040R05-200	4	R0.5	20	6	6	60
2KRR 060 R05 180 660	KPRE2060R05-180	6	R0.5	18	9	6	60
2KRR 060 R10 180 660	KPRE2060R10-180	6	R1.0	18	9	6	60
2KRR 060 R15 180 660	KPRE2060R15-180	6	R1.5	18	9	6	60
2KRR 080 R05 240 865	KPRE2080R05-240	8	R0.5	24	12	8	65
2KRR 080 R10 240 865	KPRE2080R10-240	8	R1.0	24	12	8	65
2KRR 080 R15 240 865	KPRE2080R15-240	8	R1.5	24	12	8	65
2KRR 100 R05 300 A70	KPRE2100R05-300	10	R0.5	30	15	10	70
2KRR 100 R10 300 A70	KPRE2100R10-300	10	R1.0	30	15	10	70
2KRR 100 R15 300 A70	KPRE2100R15-300	10	R1.5	30	15	10	70
2KRR 120 R05 300 C80	KPRE2120R05-300	12	R0.5	30	18	12	80
2KRR 120 R10 300 C80	KPRE2120R10-300	12	R1.0	30	18	12	80
2KRR 120 R15 300 C80	KPRE2120R15-300	12	R1.5	30	18	12	80

사이즈 D Size	인선직경公差(mm) D Tolerance	코너R반경(mm) R Size	R公差(mm) R Tolerance
1.5~5	0~0.010	R0.05~R0.5	±0.006
6~12	0~0.015	R1~R1.5	±0.010

## 2날 리브가공용 스퀘어(플랫) 엔드밀

### 2 FLUTES RIB SQUARE(FLAT) END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 개선된 목부형상으로 파손에 대한 저항력 증대
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Improves breakage-resistance(≤R0.3) due to newly developed neck geometry.



unit (mm)

신규 모델번호 Model No.	구 모델번호 Model No.	인선직경 Outside Diameter D	유효장 Effective Length l <sub>2</sub>	날 장 Length of cut l <sub>1</sub>	샤프트경 Shank Diameter d	전 장 Overall Length L
2KRE 001 003 445	KPRE001003	0.1	0.3	0.15	4	45
2KRE 001 005 445	KPRE001005	0.1	0.5	0.15	4	45
2KRE 002 005 445	KPRE002005	0.2	0.5	0.3	4	45
2KRE 002 010 445	KPRE00201	0.2	1	0.3	4	45
2KRE 002 015 445	KPRE002015	0.2	1.5	0.3	4	45
2KRE 002 020 445	KPRE00202	0.2	2	0.3	4	45
2KRE 003 005 445	KPRE003005	0.3	0.5	0.45	4	45
2KRE 003 010 445	KPRE00301	0.3	1	0.45	4	45
2KRE 003 015 445	KPRE003015	0.3	1.5	0.45	4	45
2KRE 003 020 445	KPRE00302	0.3	2	0.45	4	45
2KRE 004 010 445	KPRE00401	0.4	1	0.6	4	45
2KRE 004 020 445	KPRE00402	0.4	2	0.6	4	45
2KRE 004 030 445	KPRE00403	0.4	3	0.6	4	45
2KRE 004 040 445	KPRE00404	0.4	4	0.6	4	45
2KRE 004 050 445	KPRE00405	0.4	5	0.6	4	45
2KRE 005 020 445	KPRE00502	0.5	2	0.7	4	45
2KRE 005 040 445	KPRE00504	0.5	4	0.7	4	45
2KRE 005 060 445	KPRE00506	0.5	6	0.7	4	45
2KRE 006 020 445	KPRE00602	0.6	2	0.9	4	45
2KRE 006 040 445	KPRE00604	0.6	4	0.9	4	45
2KRE 006 060 445	KPRE00606	0.6	6	0.9	4	45
2KRE 008 020 445	KPRE00802	0.8	2	1.2	4	45
2KRE 008 040 445	KPRE00804	0.8	4	1.2	4	45
2KRE 008 060 445	KPRE00806	0.8	6	1.2	4	45
2KRE 008 080 445	KPRE00808	0.8	8	1.2	4	45
2KRE 010 040 445	KPRE01004	1	4	1.5	4	45
2KRE 010 060 445	KPRE01006	1	6	1.5	4	45
2KRE 010 080 445	KPRE01008	1	8	1.5	4	45
2KRE 010 100 445	KPRE01010	1	10	1.5	4	45
2KRE 015 060 445	KPRE01506	1.5	6	2.3	4	45
2KRE 015 080 445	KPRE01508	1.5	8	2.3	4	45
2KRE 015 100 445	KPRE01510	1.5	10	2.3	4	45

SMG A+  
0~0.01  
30° h5  
DATA p.212

# A PLUS

## 2날 리브가공용 스퀘어(플랫) 엔드밀

### 2 FLUTES RIB SQUARE(FLAT) END MILLS

SMG	A+
	0~0.01
30°	h5
DATA p.212	

# A PLUS

unit (mm)

신규 모델번호 Model No.	구 모델번호 Model No.	인선직경	유효장	날 장	샙크경	전 장
		Outside Diameter	Effective Length	Length of cut	Shank Diameter	Overall Length
		D	l <sub>2</sub>	l <sub>1</sub>	d	L
2KRE 015 120 445	KPRE01512	1.5	12	2.3	4	45
2KRE 015 160 450	KPRE01516	1.5	16	2.3	4	50
2KRE 020 060 445	KPRE02006	2	6	3	4	45
2KRE 020 080 445	KPRE02008	2	8	3	4	45
2KRE 020 100 445	KPRE02010	2	10	3	4	45
2KRE 020 120 445	KPRE02012	2	12	3	4	45
2KRE 020 140 450	KPRE02014	2	14	3	4	50
2KRE 030 120 650	KPRE03012	3	12	4.5	6	50
2KRE 030 160 660	KPRE03016	3	16	4.5	6	60
2KRE 030 200 660	KPRE03020	3	20	4.5	6	60
2KRE 040 120 650	KPRE04012	4	12	6	6	50
2KRE 040 160 660	KPRE04016	4	16	6	6	60
2KRE 040 200 660	KPRE04020	4	20	6	6	60
2KRE 040 250 665	KPRE04025	4	25	6	6	65

샙크경, 전장 표시법	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

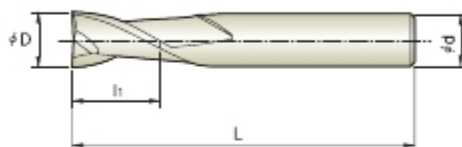
사이즈	인선직경공차(mm)
D Size	D Tolerance
All	0~0.010



## 2날 스퀘어(플랫)엔드밀

### 2 FLUTES SQUARE (FLAT) END MILLS

- ◆ 동, 흑연 및 비철 가공용으로 설계
- ◆ 내마모성 및 윤활성을 극대화시킨 특수 코팅 적용
- ◆ 원활한 칩배출을 위한 형상 설계
- ◆ Designed for cutting copper, graphite and non-ferrous metal.
- ◆ Special coating to maximize the wear-resistance and lubrication.
- ◆ Geometry design for smooth chip flow.



unit (mm)

신규 모델번호 Model No.	구 모델번호 Model No.	인선직경 Outside Diameter D	날 장 Length of cut l <sub>1</sub>	생크경 Shank Diameter d	전 장 Overall Length L
2KPE 004 008 445	KPE2004	0.4	0.8	4	45
2KPE 005 010 445	KPE2005	0.5	1	4	45
2KPE 006 012 445	KPE2006	0.6	1.2	4	45
2KPE 007 014 445	KPE2007	0.7	1.4	4	45
2KPE 008 016 445	KPE2008	0.8	1.6	4	45
2KPE 010 025 645	KPE2010	1	2.5	6	45
2KPE 010 040 645	KPE2010-040	1	4	6	45
2KPE 012 040 645	KPE2012	1.2	4	6	45
2KPE 015 040 645	KPE2015	1.5	4	6	45
2KPE 020 060 645	KPE2020	2	6	6	45
2KPE 020 080 645	KPE2020-080	2	8	6	45
2KPE 025 080 650	KPE2025	2.5	8	6	50
2KPE 030 100 650	KPE2030	3	10	6	50
2KPE 030 120 650	KPE2030-120	3	12	6	50
2KPE 035 100 650	KPE2035	3.5	10	6	50
● 2KPE 040 120 650		4	12	6	50
● 2KPE 040 160 660	KPE2040-160	4	16	6	60
● 2KPE 050 150 650		5	15	6	50
● 2KPE 060 150 650		6	15	6	50
2KPE 060 240 660	KPE2060-240	6	24	6	60
2KPE 080 200 865	KPE2080	8	20	8	65
2KPE 100 250 A70	KPE2100	10	25	10	70
2KPE 120 300 C80	KPE2120	12	30	12	80

생크경, 전장 표시법	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

사이즈 D Size	인선직경공차(mm) D Tolerance
0.5~5	0~0.010
6~12	0~0.020



# A PLUS



