WE CREATE YOUR TOMORROW!

Aluminum Endmill Series

A+- Endmill

Aluminum Endmill Series

- Various types of endmills are in stock.
- Exclusive U-shaped flute ensures excellent chip evacuation in high feed machining.
- Double relief angle increases cutting edge strength.

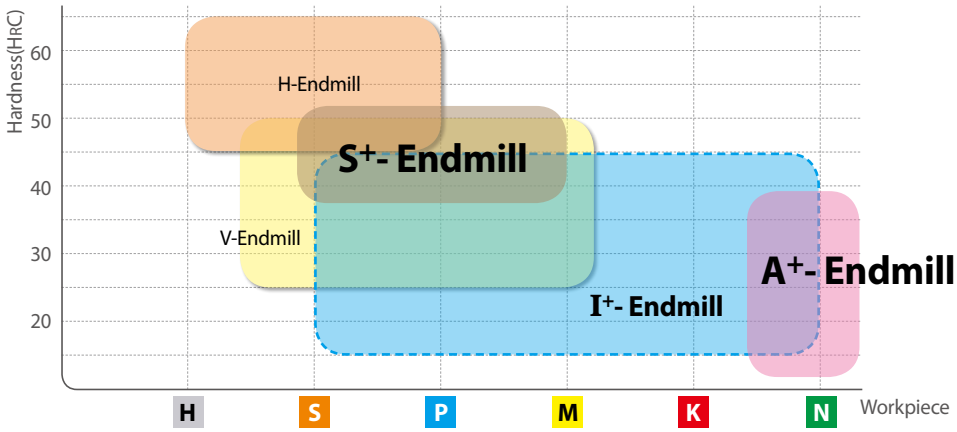
KORLOY

A+-Endmill

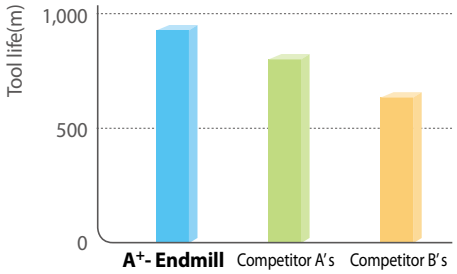
Features

- **Exclusive U shaped flute**
  - Excellent chip evacuation even in high feed machining
  - U shaped and buffed flute reduces built-up-edge.
- **Double relief angle**
  - High rigidity of cutting edge ensures high productivity.
- **Sharp cutting edge**
  - For both roughing and finishing

Application range



Comparison of performance



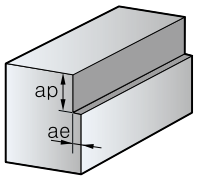
A+- Endmill | Competitor A's | Competitor B's

- **Workpiece** A7075
- **Cutting conditions** diameter=Ø8.0, n(min^{-1})=8000, vc(m/min)=200, vf(mm/min)=1200, fz(mm/t)=0.05
  ap(mm)=8, ae(mm)=2.0, wet
- **Tools** A Plus Endmill / APFE3080-060 3 flutes

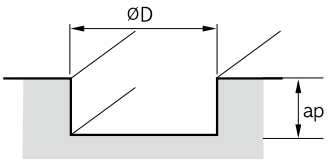
Recommend Cutting Conditions

Workpiece / Condition / Diameter(Ø)	Shouldering				Slotting			
	Aluminum alloy (A7075)		Aluminum alloy (cast) (AC4B)		Aluminum alloy (A7075)		Aluminum alloy (cast) (AC4B)	
	R.P.M n(min^{-1})	Feed vf(mm/min)	R.P.M n(min^{-1})	Feed vf(mm/min)	R.P.M n(min^{-1})	Feed vf(mm/min)	R.P.M n(min^{-1})	Feed vf(mm/min)
1	40,000	480	40,000	368	40,000	368	40,000	280
2	40,000	880	38,000	680	38,000	680	32,000	440
3	32,000	1,120	25,000	760	25,000	760	21,000	480
4	24,000	1,200	19,000	800	19,000	800	13,000	520
5	19,000	1,280	15,000	880	15,000	800	13,000	560
6	16,000	1,520	13,000	960	13,000	880	11,000	600
8	12,000	1,520	9,500	960	9,500	960	8,000	640
10	9,500	1,520	7,600	960	7,600	960	6,400	640
12	8,000	1,520	6,400	960	6,400	960	5,300	640
16	6,000	1,520	4,800	960	4,800	800	4,000	576
20	4,800	1,200	3,800	800	3,800	776	3,200	528

• **Application tip**



■ Shouldering depth (ap) and radial depth (ae)
- ae≤0.2D (D<3)
- ae≤0.5D (D≥3)



■ Slotting depth(ap)
- ap≤D (Max :12mm)

1. Clamp the workpiece rigidly. In case of vibration, reduce RPM and feed rate by the same ratio.

Aluminum machining

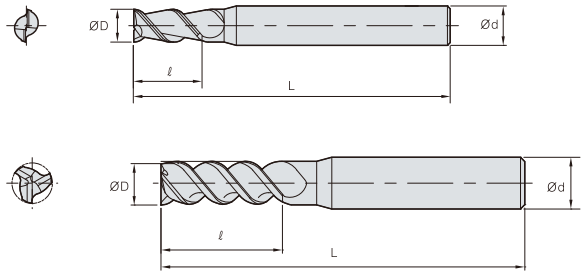
- Built-up edge
- Low heat resistance could create residual stress or inaccuracy after machining.
- Scratch due to low hardness
- Low tool life due to flank wear

Trouble shooting for Aluminum machining

- Use a higher rake, sharp edge and oil (MQL) mist to decrease cutting load and built-up edge.
- Increase Vc and reduce the depth of cut for better surface finish.

A+-Endmill

APFE2000/3000 (Flat)



2 | 3 | Helix Angle 50° | Grade H05S | h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03

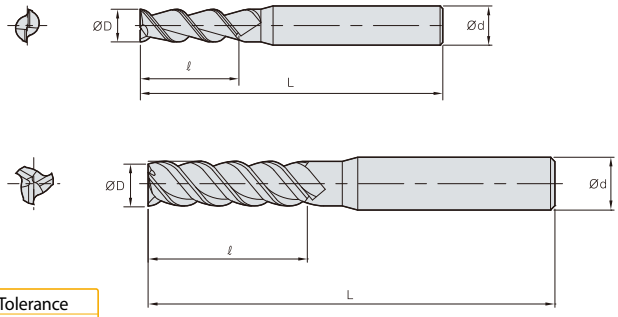
(mm)

Designation		ØD	Ød	ℓ	L
APFE 2	2025-050	2.5	6	8	50
	2030-050	3.0	6	9	50
	2040-050	4.0	6	12	50
	2050-050	5.0	6	15	50
	2060-050	6.0	6	18	50
	2080-060	8.0	8	20	60
	2100-075	10.0	10	30	75
	2120-075	12.0	12	32	75
	2160-100	16.0	16	45	100
	2200-100	20.0	20	45	100

(mm)

Designation		ØD	Ød	ℓ	L
APFE 3	3025-050	2.5	6	8	50
	3030-050	3.0	6	9	50
	3040-050	4.0	6	12	50
	3050-050	5.0	6	15	50
	3060-050	6.0	6	18	50
	3080-060	8.0	8	20	60
	3100-075	10.0	10	30	75
	3120-075	12.0	12	32	75
	3160-100	16.0	16	45	100
	3200-100	20.0	20	45	100

APLFE2000 (Long flat)



2 | 3 | Helix Angle 50° | Grade H05S | h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø20	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	ℓ	L
APLFE 2	2030-060	3.0	6	12	60
	2040-060	4.0	6	16	60
	2050-060	5.0	6	20	60
	2060-075	6.0	6	25	75
	2080-075	8.0	8	32	75
	2100-100	10.0	10	45	100
	2120-100	12.0	12	45	100
	2160-150	16.0	16	65	150
	2200-150	20.0	20	75	150

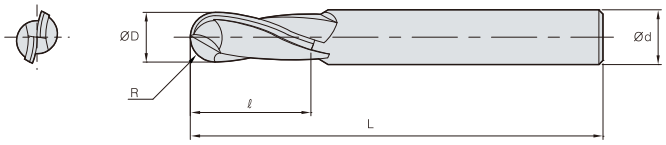
APLFE3000 (Long flat)

(mm)

Designation		ØD	Ød	ℓ	L
APLFE 3	3030-060	3.0	6	12	60
	3040-060	4.0	6	16	60
	3050-060	5.0	6	20	60
	3060-075	6.0	6	25	75
	3080-075	8.0	8	32	75
	3100-100	10.0	10	45	100
	3120-100	12.0	12	45	100
	3160-150	16.0	16	65	150
	3200-150	20.0	20	75	150

A+-Endmill

APBE2000 (Ball)

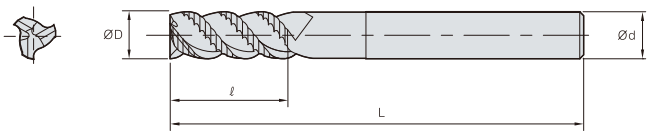


2	Helix Angle 25°	Grade H05S	h6 shank	ØD	Tolerance
				Ø1~Ø12	0.00 ~ -0.02

(mm)

Designation		ØD	Ød	ℓ	L
APBE 2	2010-050	1.0	4	2	50
	2015-050	1.5	4	3	50
	2020-050	2.0	4	4	50
	2025-050	2.5	4	5	50
	2030-050	3.0	4	6	50
	2035-050	3.5	4	7	50
	2040-050	4.0	4	8	50
	2045-050	4.5	6	9	50
	2050-050	5.0	6	10	50
	2055-050	5.5	6	11	50
	2060-050	6.0	6	12	50
	2080-060	8.0	8	16	60
	2100-075	10.0	10	20	75
	2120-075	12.0	12	24	75

APRE (For roughing)

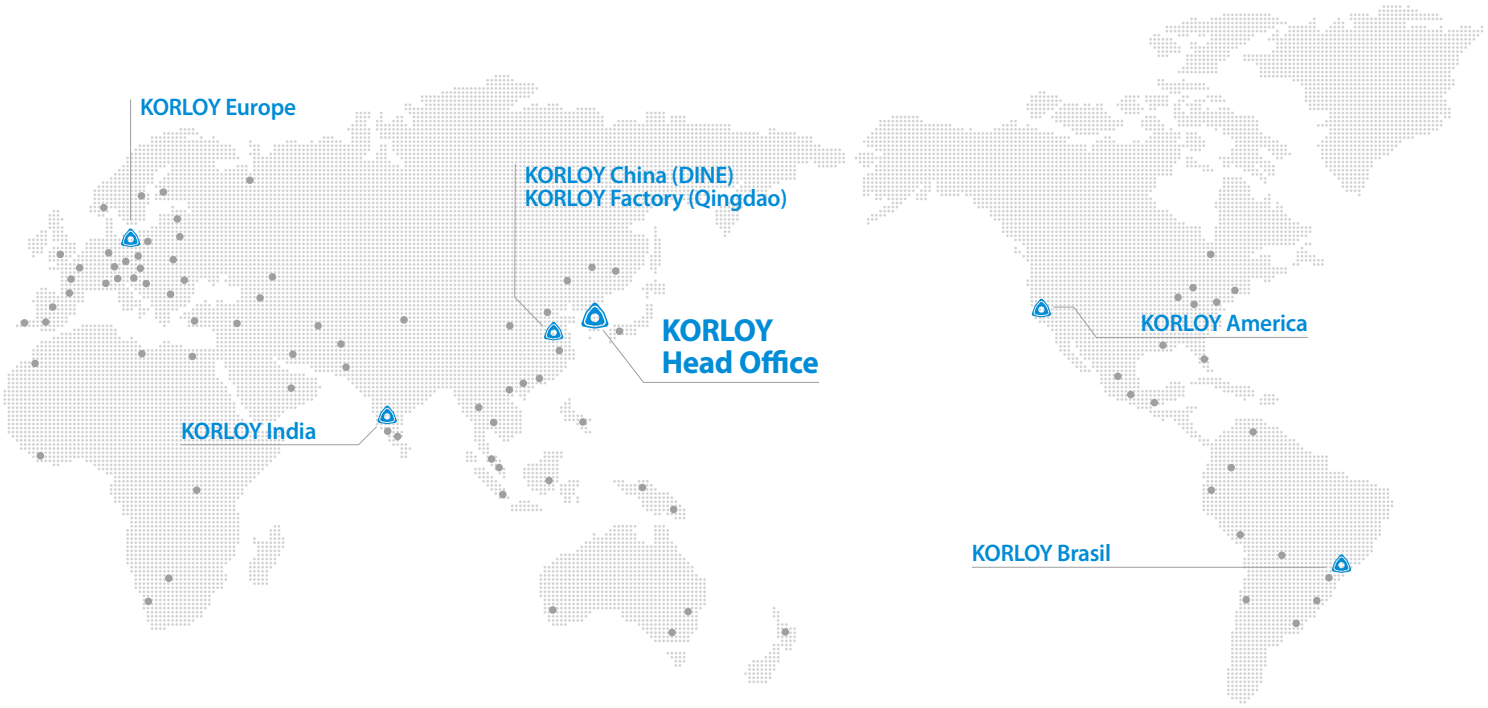


3	Helix Angle 45°	Grade H05S	h6 shank

ØD	Tolerance
Ø1~Ø12	0.00 ~ -0.02
Ø12.1~Ø25	0.00 ~ -0.03

(mm)

Designation		ØD	Ød	ℓ	L
APRE 3	3040-050	4.0	6	8	50
	3050-050	5.0	6	13	50
	3060-050	6.0	6	15	50
	3065-060	6.5	8	16	60
	3070-060	7.0	8	16	60
	3075-060	7.5	8	20	60
	3080-060	8.0	8	20	60
	3085-075	8.5	10	20	75
	3090-075	9.0	10	20	75
	3095-075	9.5	10	22	75
	3100-075	10.0	10	25	75
	3110-075	11.0	12	30	75
	3120-075	12.0	12	30	75
	3130-075	13.0	14	30	75
	3140-075	14.0	16	32	75
	3150-075	15.0	16	32	75
	3160-100	16.0	16	35	100
	3170-100	17.0	20	35	100
	3180-100	18.0	20	35	100
	3200-100	20.0	20	45	100
	3250-105	25.0	25	50	105



KORLOY

Head Office
Holystar B/D, 1350, Nambusunhwan-ro, Geumcheon-gu, Seoul, 153-823, Korea
Tel : +82-2-522-3181 Fax : +82-2-522-3184, +82-2-3474-4744
Web : www.korloy.com E-mail : export@korloy.com

Cheongju Factory
55, Sandan-ro, Heungdeok-gu, Cheongju-si,
Chungcheongbuk-do, 361-290, Korea
Tel : +82-43-262-0141 Fax : +82-43-262-0146

Jincheon Factory
54, Gwanghyewonsandan 2-gil, Gwanghyewon-myeon, Jincheon-gun,
Chungcheongbuk-do, 365-831, Korea
Tel : +82-43-535-0141 Fax : +82-43-535-0144

R & D Institute
55, Sandan-ro, Heungdeok-gu, Cheongju-si,
Chungcheongbuk-do, 361-290, Korea
Tel : +82-43-262-0141 Fax : +82-43-262-0711

KORLOY AMERICA

620 Maple Avenue, Torrance, CA 90503, USA
Tel : +1-310-782-3800 Toll Free : +1-888-711-0001 Fax : +1-310-782-3885
www.korloyamerica.com E-mail : sales@korloy.us

KORLOY EUROPE

Heinrich-Lanz-Allee 12, 60437 Frankfurt am Main, Germany
Tel : +49-69-5069-887-0 Fax : +49-69-5069-887-29
www.korloyeurope.com E-mail : sales@korloyeurope.com

KORLOY INDIA

Ground Floor, Property No. 217, Udyog Vihar Phase 4, Gurgaon 122016, Haryana, INDIA
Tel : +91-124-4050030 Fax : +91-124-4050032
www.korloyindia.com E-mail : sales.kip@korloy.com

KORLOY BRASIL

Av. Aruana 280, conj.12, WLC, Alphaville, Barueri, CEP06460-010, SP, Brasil
Tel : +55-11-4193-3810
E-mail : vendas@korloy.com

KORLOY QINGDAO

Ground Dongjing Road 56 District Free Trade Zone. Qingdao, China
Tel : +86-532-86959880 Fax : +86-532-86760651
E-mail : kycpjh@korloy.com

• Please refer to stock management of cutters and detail dimensions in the 2014 catalogue


Head Office


KORLOY Engineering Center


Cheongju
Research & Development


Jincheon Factory Office


Jincheon Factory

20140710
TN19-EM-01