

AL-PRO 09



R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

S-PRO

D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

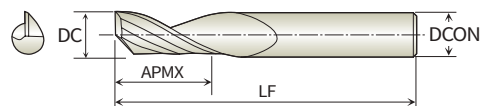
MICRO
GRAIN

MULTI

Technical data

1ALE

1날 플랫 엔드밀, 알루미늄, 수지가공용, 비코팅
1 Flute Flat End Mills For ALUMINIUM, RESIN, ABS



Non

page
No.314

(Unit: mm)

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

(Unit: mm)

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

R-PRO	
H-PRO	
A-PRO	
X-PRO	
SUS MILL	
S-PRO	
D-PRO	
A-PLUS	
AL-PRO	
AL MILL	
ABS	
MICRO GRAIN	
MULTI	
Technical data	

R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

S-PRO

D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

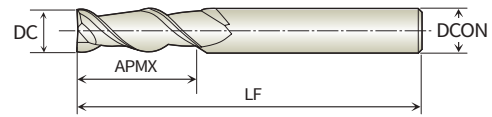
MICRO
GRAIN

MULTI

Technical data

2ALE

2날 플랫 엔드밀, 알루미늄용 헬릭스 45° 비코팅
2 Flutes 45° HELIX Flat End Mills For ALUMINIUM



Non

page
No.315

(Unit: mm)

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

(Unit: mm)

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

R-PRO	
H-PRO	
A-PRO	
X-PRO	
SUS MILL	
S-PRO	
D-PRO	
A-PLUS	
AL-PRO	
AL MILL	
ABS	
MICRO GRAIN	
MULTI	
Technical data	

R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

S-PRO

D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

MICRO
GRAIN

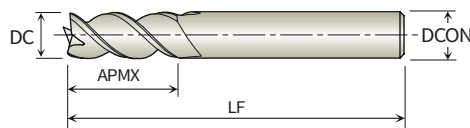
MULTI

Technical data

3ALE

3날 플랫 엔드밀, 알루미늄용 헬릭스 45° 비코팅

3 Flutes 45° HELIX Flat End Mills For ALUMINIUM



Non

page
No.316

(Unit: mm)

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

(Unit: mm)

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

(Unit: mm)

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

(Unit: mm)

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

R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

S-PRO

D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

MICRO
GRAIN

MULTI

Technical data

R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

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D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

MICRO
GRAIN

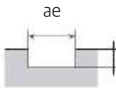
MULTI

Technical data

AL-PRO

1ALE

Milling Condition

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

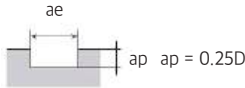
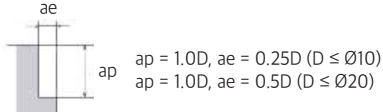
⚠ 경고 WARNING

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

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

AL-PRO 2ALE

Milling Condition

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

- ⚠ 경고 WARNING**
- 강성을 지닌 정밀한 장비와 홀더를 사용하십시오.
 - 절삭유 사용을 추천합니다.

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

R-PRO

H-PRO

A-PRO

X-PRO

SUS MILL

S-PRO

D-PRO

A-PLUS

AL-PRO

AL MILL

ABS

MICRO
GRAIN

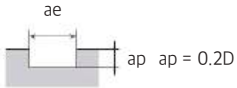
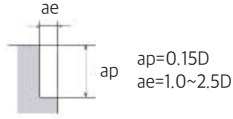
MULTI

Technical data

AL-PRO

3ALE

Milling Condition

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

⚠ 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.