



- 알루미늄 및 알루미늄 합금, 동 및 동합금, 강화플라스틱(CFRP), 유리/탄소섬유 등 비철 비금속 계열의 다양한 피삭재 전용 엔드밀
- 코팅피막에 경도가 높고 마찰계수가 낮은 Tetrabond TAC코팅을 적용하여 내마모성이 우수하며, 피삭재의 표면조도가 월등히 우수합니다.
- 인선부 강성을 보강하여 날부치핑을 최소화 하였습니다.
- 고정밀 공차 적용으로 초정밀가공에 적합합니다.
- **Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.**
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

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WC
미립자

GTAC
Coating

|DI|
+0~-0.005

|DI|
+0~-0.01

|DI|
-0.01~-0.025

30°
Helix Angle

Sharp Edge

CUTTING
DATA

D Size	D Tolerance
ø 0.1	+0 ~ -0.005mm
ø 0.2 ~ 5	+0 ~ -0.01mm
ø 6 ~ 12	-0.01 ~ -0.025mm

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2DRE 001 003 S04	0.1	0.3	-	45	4		2DRE 030 200 S06	3	4.5	20	60	6	
2DRE 001 005 S04	0.1	0.5	-	45	4		2DRE 030 250 S06	3	4.5	25	65	6	
2DRE 002 005 S04	0.2	0.5	-	45	4		2DRE 030 300 S06	3	4.5	30	70	6	
2DRE 002 010 S04	0.2	0.3	1	45	4		2DRE 030 400 S06	3	4.5	40	80	6	
2DRE 002 015 S04	0.2	0.3	1.5	45	4		2DRE 040 120 S06	4	6	12	50	6	
2DRE 002 020 S04	0.2	0.3	2	45	4		2DRE 040 160 S06	4	6	16	60	6	
2DRE 003 010 S04	0.3	0.5	1	45	4		2DRE 040 200 S06	4	6	20	60	6	
2DRE 003 015 S04	0.3	0.5	1.5	45	4		2DRE 040 250 S06	4	6	25	65	6	
2DRE 003 020 S04	0.3	0.5	2	45	4		2DRE 040 300 S06	4	6	30	70	6	
2DRE 004 010 S04	0.4	0.6	1	45	4		2DRE 040 400 S06	4	6	40	80	6	
2DRE 004 020 S04	0.4	0.6	2	45	4		2DRE 050 200 S06	5	6	20	60	6	
2DRE 004 030 S04	0.4	0.6	3	45	4		2DRE 050 400 S06	5	6	40	80	6	
2DRE 004 040 S04	0.4	0.6	4	45	4		2DRE 060 200 S06	6	8	20	60	6	
2DRE 004 050 S04	0.4	0.6	5	45	4		2DRE 060 300 S06	6	8	30	90	6	
2DRE 005 020 S04	0.5	0.7	2	45	4		2DRE 080 200 S08	8	12	20	70	8	
2DRE 005 040 S04	0.5	0.7	4	45	4		2DRE 100 250 S10	10	15	25	80	10	
2DRE 005 060 S04	0.5	0.7	6	45	4		2DRE 120 300 S12	12	18	30	80	12	
2DRE 005 080 S04	0.5	0.7	8	45	4								
2DRE 005 100 S04	0.5	0.7	10	45	4								
2DRE 006 020 S04	0.6	0.9	2	45	4								
2DRE 006 040 S04	0.6	0.9	4	45	4								
2DRE 006 060 S04	0.6	0.9	6	45	4								
2DRE 006 080 S04	0.6	0.9	8	45	4								
2DRE 006 100 S04	0.6	0.9	10	45	4								
2DRE 008 020 S04	0.8	1.2	2	45	4								
2DRE 008 040 S04	0.8	1.2	4	45	4								
2DRE 008 060 S04	0.8	1.2	6	45	4								
2DRE 008 080 S04	0.8	1.2	8	45	4								
2DRE 008 100 S04	0.8	1.2	10	45	4								
2DRE 008 120 S04	0.8	1.2	12	45	4								
2DRE 010 040 S04	1	1.5	4	45	4								
2DRE 010 060 S04	1	1.5	6	45	4								
2DRE 010 080 S04	1	1.5	8	45	4								
2DRE 010 100 S04	1	1.5	10	45	4								
2DRE 010 120 S04	1	1.5	12	45	4								
2DRE 010 160 S04	1	1.5	16	50	4								
2DRE 015 060 S04	1.5	2.3	6	45	4								
2DRE 015 080 S04	1.5	2.3	8	45	4								
2DRE 015 100 S04	1.5	2.3	10	45	4								
2DRE 015 120 S04	1.5	2.3	12	45	4								
2DRE 015 160 S04	1.5	2.3	16	50	4								
2DRE 015 200 S04	1.5	2.3	20	50	4								
2DRE 020 060 S04	2	3	6	45	4								
2DRE 020 080 S04	2	3	8	45	4								
2DRE 020 100 S04	2	3	10	45	4								
2DRE 020 120 S04	2	3	12	45	4								
2DRE 020 160 S04	2	3	16	50	4								
2DRE 020 200 S04	2	3	20	50	4								
2DRE 030 120 S06	3	4.5	12	50	6								
2DRE 030 160 S06	3	4.5	16	60	6								

G-TAC

2DRE / 3DRE Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Alloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
ø 0.5	28,800	160	45,000	500	28,800	160	45,000	450	28,800	140	45,000	410
ø 0.6	28,800	180	45,000	590	28,800	180	45,000	540	28,800	160	45,000	500
ø 0.8	28,800	200	45,000	770	28,800	200	45,000	720	26,100	180	45,000	590
ø 1	28,800	200	45,000	900	28,800	200	45,000	960	20,700	200	37,800	630
ø 1.2	28,800	210	45,000	1,100	28,800	210	45,000	1,000	17,100	200	32,400	630
ø 1.5	28,800	250	45,000	1,400	28,800	250	45,000	1,100	14,000	200	26,600	630
ø 2	28,800	400	45,000	1,800	28,800	380	45,000	1,100	13,000	200	25,200	680
ø 2.5	22,500	540	43,200	1,900	22,500	540	27,900	1,100	8,600	230	18,000	680
ø 3	18,900	630	36,000	1,900	18,900	630	23,400	1,100	7,200	230	15,300	680
ø 4	14,000	650	29,700	2,000	14,000	650	18,000	1,200	5,400	250	12,600	720
ø 5	11,300	680	27,900	2,500	11,300	680	17,280	1,500	4,300	270	11,300	860
ø 6	9,500	750	23,400	2,500	9,500	750	14,310	1,500	3,600	280	9,500	900
ø 8	7,200	800	17,550	2,600	7,200	800	10,800	1,600	2,600	270	7,100	900
ø 10	5,700	900	13,950	2,900	5,700	900	8,640	1,700	2,100	330	5,700	1,000
ø 12	4,800	950	11,700	2,900	4,800	950	7,200	1,700	1,800	350	4,800	1,000
측면절삭 Side Cutting	Ap	Ae	Ap	Ap	Ap	Ap	Ap	Ae	Ap	Ae	Ap	Ap
	1.5D	0.1D	1D	0.1D	1.5D	0.1D	1D	0.1D	1.5D	0.1D	1D	0.05D
홈절삭 Slotting	Ap		Ap		Ap		Ap		Ap		Ap	
	0.3D < ø 1 < 0.5D		0.15D		0.3D < ø 1 < 0.5D		0.15D		0.3D < ø 1 < 0.5D		0.1D	
절입량 Depth of Cut												

2DLE Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	알루미늄합금재 Aluminum Alloy Expanding Material A7075				알루미늄합금주물 / 다이캐스팅 Aluminum Alloys Casting / Die Casting Si1 3%				탄소섬유 / 동합금 Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100		동합금 Copper Alloy C1100	
	일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling		일반가공 Regular Milling		고속가공 High Speed Milling	
외경 Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
ø 0.1	32,000	35	45,000	120	32,000	35	45,000	120	32,000	35	45,000	100
ø 0.3	32,000	60	45,000	300	32,000	60	45,000	300	32,000	60	45,000	210
ø 0.5	28,800	90	45,000	500	28,800	90	45,000	500	28,800	90	45,000	390
ø 0.8	28,800	120	45,000	700	28,800	130	45,000	700	23,000	110	45,000	500
ø 1	28,800	170	45,000	900	28,800	170	45,000	900	20,700	125	37,800	630
ø 1.5	28,800	230	40,500	1,100	28,800	230	40,500	1,100	14,000	130	26,700	630
ø 2	23,000	270	30,600	1,100	23,000	270	30,600	1,100	10,400	135	21,600	675
ø 3	15,300	460	20,700	1,100	15,300	460	20,700	1,100	7,200	200	15,300	675
ø 4	11,300	470	15,300	1,100	11,300	470	15,300	1,100	5,400	210	11,700	675
ø 5	9,000	490	12,200	1,100	9,000	490	12,200	1,100	4,300	225	9,000	675
ø 6	7,700	540	10,000	1,100	7,700	540	10,000	1,100	3,600	225	7,200	675
ø 8	6,000	600	8,200	1,200	6,000	600	8,200	1,200	2,600	300	5,900	720
ø 10	4,500	650	6,000	1,400	4,500	650	6,000	1,400	2,100	300	4,300	800
ø 12	3,100	690	4,500	1,500	3,100	690	4,500	1,500	1,600	320	3,200	850
측면절삭 Side Cutting	Ap	Ae	Ap	Ap	Ap	Ap	Ap	Ae	Ap	Ae	Ap	Ae
	1.2D	0.1D	1D	0.1D	1.2D	0.1D	1D	0.1D	1D	0.1D	1D	0.05D
홈절삭 Slotting	Ap		Ap		Ap		Ap		Ap		Ap	
	0.3D		0.15D		0.3D		0.15D		0.3D		0.1D	
절입량 Depth of Cut												

- 날 끝이 정밀하게 연삭되어 있습니다. 파손을 피하기 위해 가능하면 비접촉 방식으로 측정 하십시오.
- 이 절삭 조건표는 절삭조건에 참고 수치입니다. 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건변경 요망 합니다.
- 조건표가 기계의 최대 스피드 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피드 속도와 이송 속도를 비례적으로 조정 하십시오.
- 진동이 적고 강성이 좋은 공작기계 사용 요망 합니다 (ø1이하 사용시 진동 허용 관리 5µm이내 일것.)
- 에어브로, 절삭유, 오일 미스트 클린트를 추천하며, 칩을 잘 제거하고 가공시의 발열과 발화에 주의 하십시오
- The edge of the flute precisely grinded. If you want to measure the tool, and to avoid damaging on the flutes, use non-contact measuring method.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine, or found red heat on the material, adjust RPM and feed in the same proportion.
- Use a machine with low vibration and good rigidity (ø1 or less, the vibration tolerance management should be within 5µm).
- Air blow or mist coolant is recommended and note for chip emission, heat, or ignition.

