

- 합금강, SUS계열, Ti/Ni계 합금, 인코넬 등 난삭재 가공 엔드밀
- J-CRO 코팅 처리하여 다양한 피삭재 가공시 인선부에 스트레스가 적으며, 내마모성 또한 향상됩니다.
- 강력한 채터링방지 설계로 엔드밀의 진동을 최소화하였습니다.
- 코너R부 적용으로 밑날 치핑을 방지 하였습니다.
- 항절력이 높은 미립자 초경합금을 채택하여, 고이송 작업시 엔드밀의 파손을 최소화.
- Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard-to-cut materials
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Strong design for protection against chattering.
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS fine WC grade.

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WC
미립자

JCRO
Coating

R
± 0.005

R
± 0.01

R
± 0.015

42°
Helix Angle

CUTTING
DATA

R0.1 ~ 0.5 R1 ~ 1.5 R2 ~ 3 478P

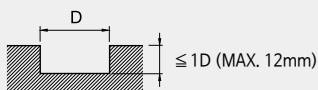
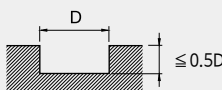

Condition	D Size	D Tolerance	Condition	D Size	D Tolerance
øD ≠ ød	ø1 ~ 20	+0 ~ -0.01mm	øD = ød	ø6 ~ 12	-0.005 ~ -0.015mm
				ø14 ~ 20	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
4SUC 010 001 S04	1 X R0.1	2.5	50	4		4SUC 080 003 S08	8 X R0.3	20	80	8	
4SUC 010 002 S04	1 X R0.2	2.5	50	4		4SUC 080 005 070	8 X R0.5	16	70	8	
4SUC 012 001 S04	1.2 X R0.1	3	50	4		4SUC 080 005 S08	8 X R0.5	20	80	8	
4SUC 012 002 S04	1.2 X R0.2	3	50	4		4SUC 080 010 070	8 X R1	16	70	8	
4SUC 015 001 S04	1.5 X R0.1	4	50	4		4SUC 080 010 S08	8 X R1	20	80	8	
4SUC 015 002 S04	1.5 X R0.2	4	50	4		4SUC 080 015 S08	8 X R1.5	20	80	8	
4SUC 015 003 S04	1.5 X R0.3	4	50	4		4SUC 080 020 S08	8 X R2	20	80	8	
4SUC 020 001 S04	2 X R0.1	6	50	4		4SUC 085 003 S10	8.5 X R0.3	22	80	10	
4SUC 020 002 S04	2 X R0.2	6	50	4		4SUC 090 003 S10	9 X R0.3	25	80	10	
4SUC 020 003 S04	2 X R0.3	6	50	4		4SUC 100 003 070	10 X R0.3	20	70	10	
4SUC 020 005 S04	2 X R0.5	6	50	4		4SUC 100 003 S10	10 X R0.3	25	80	10	
4SUC 025 001 S04	2.5 X R0.1	7	50	4		4SUC 100 005 070	10 X R0.5	20	70	10	
4SUC 025 002 S04	2.5 X R0.2	7	50	4		4SUC 100 005 S10	10 X R0.5	25	80	10	
4SUC 025 003 S04	2.5 X R0.3	7	50	4		4SUC 100 010 070	10 X R1	20	70	10	
4SUC 030 001 S06	3 X R0.1	10	60	6		4SUC 100 010 S10	10 X R1	25	80	10	
4SUC 030 002 055	3 X R0.2	6	55	6		4SUC 100 015 070	10 X R1.5	20	70	10	
4SUC 030 002 S06	3 X R0.2	10	60	6		4SUC 100 015 S10	10 X R1.5	25	80	10	
4SUC 030 003 S06	3 X R0.3	10	60	6		4SUC 100 020 070	10 X R2	20	70	10	
4SUC 030 005 055	3 X R0.5	6	55	6		4SUC 100 020 S10	10 X R2	25	80	10	
4SUC 030 005 S06	3 X R0.5	10	60	6		4SUC 100 025 070	10 X R2.5	20	70	10	
4SUC 035 002 S06	3.5 X R0.2	10	60	6		4SUC 100 025 S10	10 X R2.5	25	80	10	
4SUC 040 001 S06	4 X R0.1	12	60	6		4SUC 100 030 070	10 X R3	20	70	10	
4SUC 040 002 055	4 X R0.2	8	55	6		4SUC 100 030 S10	10 X R3	25	80	10	
4SUC 040 002 S06	4 X R0.2	12	60	6		4SUC 110 005 S12	11 X R0.5	27	90	12	
4SUC 040 003 S06	4 X R0.3	12	60	6		4SUC 110 010 S12	11 X R1	27	90	12	
4SUC 040 005 055	4 X R0.5	8	55	6		4SUC 120 003 080	12 X R0.3	24	80	12	
4SUC 040 005 S06	4 X R0.5	12	60	6		4SUC 120 003 S12	12 X R0.3	30	100	12	
4SUC 040 010 S06	4 X R1	12	60	6		4SUC 120 005 080	12 X R0.5	24	80	12	
4SUC 045 002 S06	4.5 X R0.2	14	60	6		4SUC 120 005 S12	12 X R0.5	30	100	12	
4SUC 050 002 055	5 X R0.2	10	55	6		4SUC 120 010 080	12 X R1	24	80	12	
4SUC 050 002 S06	5 X R0.2	15	60	6		4SUC 120 010 S12	12 X R1	30	100	12	
4SUC 050 003 S06	5 X R0.3	15	60	6		4SUC 120 015 080	12 X R1.5	24	80	12	
4SUC 050 005 055	5 X R0.5	10	55	6		4SUC 120 015 S12	12 X R1.5	30	100	12	
4SUC 050 005 S06	5 X R0.5	15	60	6		4SUC 120 020 080	12 X R2	24	80	12	
4SUC 050 010 S06	5 X R1	15	60	6		4SUC 120 020 S12	12 X R2	30	100	12	
4SUC 055 002 S06	5.5 X R0.2	15	60	6		4SUC 120 025 S12	12 X R2.5	30	100	12	
New 4SUC 060 002 055	6 X R0.2	12	55	6		4SUC 120 030 080	12 X R3	24	80	12	
New 4SUC 060 002 S06	6 X R0.2	15	60	6		4SUC 120 030 S12	12 X R3	30	100	12	
4SUC 060 003 055	6 X R0.3	12	55	6		4SUC 140 005 S14	14 X R0.5	35	100	14	
4SUC 060 003 S06	6 X R0.3	15	60	6		4SUC 140 010 S14	14 X R1	35	100	14	
4SUC 060 005 055	6 X R0.5	12	55	6		4SUC 160 005 100	16 X R0.5	32	100	16	
4SUC 060 005 S06	6 X R0.5	15	60	6		4SUC 160 005 S16	16 X R0.5	42	110	16	
4SUC 060 010 055	6 X R1	12	55	6		4SUC 160 010 100	16 X R1	32	100	16	
4SUC 060 010 S06	6 X R1	15	60	6		4SUC 160 010 S16	16 X R1	42	110	16	
4SUC 060 015 S06	6 X R1.5	15	60	6		4SUC 180 005 S18	18 X R0.5	45	110	18	
4SUC 065 003 S08	6.5 X R0.3	18	60	8		4SUC 180 010 S18	18 X R1	45	110	18	
4SUC 070 003 S08	7 X R0.3	20	80	8		4SUC 200 005 S20	20 X R0.5	48	110	20	
4SUC 070 005 S08	7 X R0.5	20	80	8		4SUC 200 010 S20	20 X R1	48	110	20	
4SUC 007 010 S08	7 X R1	20	80	8							
4SUC 080 003 070	8 X R0.3	16	70	8							

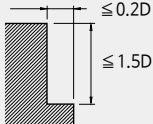
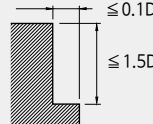
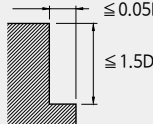
홈절삭 Slotting

피삭재 Material	합금강 / 프리하드강 Alloy Steels / Pre-hardened Steels NAK80 / KP4M				스테인레스강 / 티타늄 합금강 Stainless Steel / Titanium alloy steels SUS304 / SUS316 / Ti6A				내열합금강 Heat Resistance Alloys			
	40 ~ 45Hrc											
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 2	10,000	400	2	2	9,600	310	1	2	3,200	80	0.4	2
ø 3	6,900	410	3	3	7,400	380	1.5	3	2,700	110	0.6	3
ø 4	5,600	490	4	4	5,600	400	2	4	2,000	120	0.8	4
ø 5	4,500	630	5	5	4,500	410	2.5	5	1,600	130	1	5
ø 6	3,700	740	6	6	3,700	440	3	6	1,300	160	1.2	6
ø 7	3,200	700	7	7	3,200	410	3.5	7	1,100	140	1.4	7
ø 8	2,800	670	8	8	2,800	390	4	8	1,000	130	1.6	8
ø 9	2,500	600	9	9	2,500	350	4.5	9	900	130	1.8	9
ø 10	2,200	530	10	10	2,200	350	5	10	800	130	2	10
ø 11	2,000	530	11	11	2,000	320	5.5	11	720	120	2.2	11
ø 12	1,900	530	12	12	1,900	300	6	12	660	110	2.4	12
ø 16	1,400	390	16	16	1,400	280	8	16	500	80	3.2	16
ø 20	1,100	350	20	20	1,100	260	10	20	400	60	4	20

절입량 Depth of Cut			
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측면절삭 Side Cutting

피삭재 Material	합금강 / 프리하드강 Alloy Steels / Pre-hardened Steels NAK80 / KP4M				스테인레스강 / 티타늄 합금강 Stainless Steel / Titanium alloy steels SUS304 / SUS316 / Ti6A				내열합금강 Heat Resistance Alloys			
	40 ~ 45Hrc											
외경 Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
ø 2	21,000	825	3	0.4	14,000	420	3	0.2	4,800	130	3	0.1
ø 3	15,000	938	4.5	0.6	10,600	638	4.5	0.3	4,200	200	4.5	0.15
ø 4	11,000	1,050	6	0.8	8,000	720	6	0.4	3,200	220	6	0.2
ø 5	9,600	1,425	7.5	1	6,400	750	7.5	0.5	2,500	250	7.5	0.25
ø 6	8,000	1,650	9	1.2	5,300	750	9	0.6	2,100	250	9	0.3
ø 7	6,800	1,425	10.5	1.4	4,500	750	10.5	0.7	1,800	260	10.5	0.35
ø 8	6,000	1,200	12	1.6	4,000	720	12	0.8	1,600	260	12	0.4
ø 9	5,300	1,110	13.5	1.8	3,500	630	13.5	0.9	1,400	220	13.5	0.45
ø 10	4,800	1,080	15	2	3,200	578	15	1	1,300	210	15	0.5
ø 11	4,400	1,013	16.5	2.2	2,900	570	16.5	1.1	1,200	190	16.5	0.55
ø 12	4,000	938	18	2.4	2,700	570	18	1.2	1,100	180	18	0.6
ø 16	3,000	855	24	3.2	2,000	420	24	1.6	800	130	24	0.8
ø 20	2,400	645	30	4	1,600	383	30	2	600	100	30	1

절입량 Depth of Cut			
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- 유효장 길이가 긴 경우, RPM과 FEED를 동일 비율로 낮춰주세요.
- 가공 진입시 가능한 피삭재 밖에서 진입 하십시오.
- 절삭 조건이 없는 직경 및 유효장은 비슷한 직경 및 유효장에 비례하여 UP & DOWN 하여 설정 하십시오.
- 날 끝이 정밀하게 연삭되어 있습니다. 파손을 피하기 위해 가능하면 비접촉 방식으로 측정 하십시오.
- 상기 절삭조건은 참고 수치이므로 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건변경 요망 합니다.
- 조건표가 기계의 최대 스피들 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피들 속도와 이송 속도를 비례하여 조정 하십시오.
- 에어브로, 절삭유, 오일 미스트 쿨런트를 추천하며, 칩을 잘 제거하고 가공시 발열과 발화에 주의하십시오

- If the effective length is long, reduce the RPM and feed in the same proportion.
- When entering the tool to the workpiece, enter the tool from outside to the workpiece.
- If the diameter or effective length of your tool are not on the table, adjust it compared similarity value on the table.
- 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.
- Air blow or mist coolants are recommended and note for chip emission, heat, or ignition.