



- 고정도강(HRc52~68), 프리하든강 계열의 고정밀 가공 엔드밀
- 고품질 실리콘계 코팅(Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 날부인선의 조도가 뛰어나 피삭재의 면조도가 우수합니다.
- 초미립자 초경합금(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

Endmills for pre-hardened and hardened steels(HRc52~68)

- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Excellent surface finish.
- Very nice work surface finish.
- Outstanding performance at high speed machining by ultra fine (0.2µm) WC grade.

2

UWC
초미립자

TISIN-S
Coating

R

R

30°

CUTTING
DATA

0.05 ~ 2.5R 3 ~ 6R 404P

Condition	D Size	D Tolerance	Condition	D Size	D Tolerance
ØD ≠ Ød	Ø0.1 ~ 0.15	+0 ~ -0.005mm	ØD = Ød	Ø6 ~ 12	-0.005 ~ -0.015mm
	Ø0.2 ~ 12	+0 ~ -0.01mm			

단위 : mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 001 003 S04	0.05R X 0.1	0.15	0.3	40	4	
2JJRB 001 005 S04	0.05R X 0.1	0.15	0.5	40	4	
2JJRB 0015 003 S04	0.075R X 0.15	0.15	0.3	40	4	
2JJRB 0015 005 S04	0.075R X 0.15	0.15	0.5	40	4	
2JJRB 0015 010 S04	0.075R X 0.15	0.15	1	40	4	
2JJRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4	
2JJRB 002 010 S04	0.1R X 0.2	0.2	1	40	4	
2JJRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4	
2JJRB 002 020 S04	0.1R X 0.2	0.2	2	40	4	
2JJRB 002 025 S04	0.1R X 0.2	0.2	2.5	40	4	
2JJRB 002 030 S04	0.1R X 0.2	0.2	3	40	4	
2JJRB 0025 005 S04	0.125R X 0.25	0.25	0.5	40	4	
2JJRB 0025 010 S04	0.125R X 0.25	0.25	1	40	4	
2JJRB 0025 015 S04	0.125R X 0.25	0.25	1.5	40	4	
2JJRB 0025 020 S04	0.125R X 0.25	0.25	2	40	4	
2JJRB 0025 025 S04	0.125R X 0.25	0.25	2.5	40	4	
2JJRB 0025 030 S04	0.125R X 0.25	0.25	3	40	4	
2JJRB 003 010 S04	0.15R X 0.3	0.3	1	40	4	
2JJRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4	
2JJRB 003 020 S04	0.15R X 0.3	0.3	2	40	4	
2JJRB 003 025 S04	0.15R X 0.3	0.3	2.5	40	4	
2JJRB 003 030 S04	0.15R X 0.3	0.3	3	40	4	
2JJRB 003 035 S04	0.15R X 0.3	0.3	3.5	40	4	
2JJRB 003 040 S04	0.15R X 0.3	0.3	4	40	4	
2JJRB 003 050 S04	0.15R X 0.3	0.3	5	40	4	
2JJRB 004 010 S04	0.2R X 0.4	0.4	1	40	4	
2JJRB 004 015 S04	0.2R X 0.4	0.4	1.5	40	4	
2JJRB 004 020 S04	0.2R X 0.4	0.4	2	40	4	
2JJRB 004 025 S04	0.2R X 0.4	0.4	2.5	40	4	
2JJRB 004 030 S04	0.2R X 0.4	0.4	3	40	4	
2JJRB 004 035 S04	0.2R X 0.4	0.4	3.5	40	4	
2JJRB 004 040 S04	0.2R X 0.4	0.4	4	40	4	
2JJRB 004 045 S04	0.2R X 0.4	0.4	4.5	40	4	
2JJRB 004 050 S04	0.2R X 0.4	0.4	5	40	4	
2JJRB 004 060 S04	0.2R X 0.4	0.4	6	40	4	
2JJRB 004 080 S04	0.2R X 0.4	0.4	8	40	4	
2JJRB 005 010 S04	0.25R X 0.5	0.5	1	45	4	
2JJRB 005 010 S06	0.25R X 0.5	0.5	1	50	6	
2JJRB 005 015 S04	0.25R X 0.5	0.5	1.5	45	4	
2JJRB 005 020 S04	0.25R X 0.5	0.5	2	45	4	
2JJRB 005 020 S06	0.25R X 0.5	0.5	2	50	6	
2JJRB 005 025 S04	0.25R X 0.5	0.5	2.5	45	4	
2JJRB 005 030 S04	0.25R X 0.5	0.5	3	45	4	
2JJRB 005 030 S06	0.25R X 0.5	0.5	3	50	6	
2JJRB 005 035 S04	0.25R X 0.5	0.5	3.5	45	4	
2JJRB 005 040 S04	0.25R X 0.5	0.5	4	45	4	
2JJRB 005 040 S06	0.25R X 0.5	0.5	4	50	6	
2JJRB 005 045 S04	0.25R X 0.5	0.5	4.5	45	4	
2JJRB 005 050 S04	0.25R X 0.5	0.5	5	45	4	
2JJRB 005 050 S06	0.25R X 0.5	0.5	5	50	6	

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	
2JJRB 005 060 S06	0.25R X 0.5	0.5	6	50	6	
2JJRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	
2JJRB 005 100 S04	0.25R X 0.5	0.5	10	45	4	
2JJRB 005 120 S04	0.25R X 0.5	0.5	12	45	4	
2JJRB 006 010 S04	0.3R X 0.6	0.6	1	45	4	
2JJRB 006 010 S06	0.3R X 0.6	0.6	1	50	6	
2JJRB 006 020 S04	0.3R X 0.6	0.6	2	45	4	
2JJRB 006 020 S06	0.3R X 0.6	0.6	2	50	6	
2JJRB 006 030 S04	0.3R X 0.6	0.6	3	45	4	
2JJRB 006 030 S06	0.3R X 0.6	0.6	3	50	6	
2JJRB 006 040 S04	0.3R X 0.6	0.6	4	45	4	
2JJRB 006 040 S06	0.3R X 0.6	0.6	4	50	6	
2JJRB 006 050 S04	0.3R X 0.6	0.6	5	45	4	
2JJRB 006 050 S06	0.3R X 0.6	0.6	5	50	6	
2JJRB 006 060 S04	0.3R X 0.6	0.6	6	45	4	
2JJRB 006 060 S06	0.3R X 0.6	0.6	6	50	6	
2JJRB 006 080 S04	0.3R X 0.6	0.6	8	45	4	
2JJRB 006 080 S06	0.3R X 0.6	0.6	8	50	6	
2JJRB 006 100 S04	0.3R X 0.6	0.6	10	45	4	
2JJRB 006 120 S04	0.3R X 0.6	0.6	12	45	4	
2JJRB 006 140 S04	0.3R X 0.6	0.6	14	45	4	
2JJRB 007 020 S04	0.35R X 0.7	0.7	2	45	4	
2JJRB 007 040 S04	0.35R X 0.7	0.7	4	45	4	
2JJRB 007 060 S04	0.35R X 0.7	0.7	6	45	4	
2JJRB 007 080 S04	0.35R X 0.7	0.7	8	45	4	
2JJRB 007 100 S04	0.35R X 0.7	0.7	10	45	4	
2JJRB 007 120 S04	0.35R X 0.7	0.7	12	45	4	
2JJRB 008 020 S04	0.4R X 0.8	0.8	2	45	4	
2JJRB 008 020 S06	0.4R X 0.8	0.8	2	50	6	
2JJRB 008 030 S04	0.4R X 0.8	0.8	3	45	4	
2JJRB 008 030 S06	0.4R X 0.8	0.8	3	50	6	
2JJRB 008 040 S04	0.4R X 0.8	0.8	4	45	4	
2JJRB 008 040 S06	0.4R X 0.8	0.8	4	50	6	
2JJRB 008 050 S04	0.4R X 0.8	0.8	5	45	4	
2JJRB 008 050 S06	0.4R X 0.8	0.8	5	50	6	
2JJRB 008 060 S04	0.4R X 0.8	0.8	6	45	4	
2JJRB 008 060 S06	0.4R X 0.8	0.8	6	50	6	
2JJRB 008 080 S04	0.4R X 0.8	0.8	8	45	4	
2JJRB 008 080 S06	0.4R X 0.8	0.8	8	50	6	
2JJRB 008 100 S04	0.4R X 0.8	0.8	10	45	4	
2JJRB 008 120 S04	0.4R X 0.8	0.8	12	45	4	
2JJRB 009 040 S04	0.45R X 0.9	0.9	4	45	4	
2JJRB 009 060 S04	0.45R X 0.9	0.9	6	45	4	
2JJRB 009 080 S04	0.45R X 0.9	0.9	8	45	4	
2JJRB 009 100 S04	0.45R X 0.9	0.9	10	50	4	
2JJRB 009 120 S04	0.45R X 0.9	0.9	12	50	4	
2JJRB 010 020 S04	0.5R X 1	1	2	45	4	
2JJRB 010 020 S06	0.5R X 1	1	2	50	6	
2JJRB 010 030 S04	0.5R X 1	1	3	45	4	

단위 : mm

Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter R × D	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2JJRB 010 030 S06	0.5R X 1	1	3	50	6		2JJRB 015 160 S04	0.75R X 1.5	1.5	16	50	4	
2JJRB 010 040 S04	0.5R X 1	1	4	45	4		2JJRB 015 160 S06	0.75R X 1.5	1.5	16	60	6	
2JJRB 010 040 S06	0.5R X 1	1	4	50	6		2JJRB 015 180 S04	0.75R X 1.5	1.5	18	50	4	
2JJRB 010 050 S04	0.5R X 1	1	5	45	4		2JJRB 015 200 S04	0.75R X 1.5	1.5	20	50	4	
2JJRB 010 050 S06	0.5R X 1	1	5	50	6		2JJRB 015 220 S04	0.75R X 1.5	1.5	22	60	4	
2JJRB 010 060 S04	0.5R X 1	1	6	45	4		2JJRB 015 250 S04	0.75R X 1.5	1.5	25	60	4	
2JJRB 010 060 S06	0.5R X 1	1	6	50	6		2JJRB 015 300 S04	0.75R X 1.5	1.5	30	70	4	
2JJRB 010 080 S04	0.5R X 1	1	8	45	4		2JJRB 016 060 S04	0.8R X 1.6	1.6	6	45	4	
2JJRB 010 080 S06	0.5R X 1	1	8	50	6		2JJRB 016 080 S04	0.8R X 1.6	1.6	8	45	4	
2JJRB 010 100 S04	0.5R X 1	1	10	50	4		2JJRB 016 120 S04	0.8R X 1.6	1.6	12	50	4	
2JJRB 010 100 S06	0.5R X 1	1	10	50	6		2JJRB 016 160 S04	0.8R X 1.6	1.6	16	50	4	
2JJRB 010 120 S04	0.5R X 1	1	12	50	4		2JJRB 016 200 S04	0.8R X 1.6	1.6	20	50	4	
2JJRB 010 120 S06	0.5R X 1	1	12	50	6		2JJRB 018 060 S04	0.9R X 1.8	1.8	6	45	4	
2JJRB 010 140 S04	0.5R X 1	1	14	50	4		2JJRB 018 080 S04	0.9R X 1.8	1.8	8	45	4	
2JJRB 010 160 S04	0.5R X 1	1	16	50	4		2JJRB 018 120 S04	0.9R X 1.8	1.8	12	50	4	
2JJRB 010 180 S04	0.5R X 1	1	18	50	4		2JJRB 018 160 S04	0.9R X 1.8	1.8	16	50	4	
2JJRB 010 200 S04	0.5R X 1	1	20	50	4		2JJRB 018 200 S04	0.9R X 1.8	1.8	20	50	4	
2JJRB 010 220 S04	0.5R X 1	1	22	60	4		2JJRB 020 040 S04	1R X 2	2	4	45	4	
2JJRB 010 250 S04	0.5R X 1	1	25	60	4		2JJRB 020 040 S06	1R X 2	2	4	50	6	
2JJRB 012 040 S04	0.6R X 1.2	1.2	4	45	4		2JJRB 020 060 S04	1R X 2	2	6	45	4	
2JJRB 012 040 S06	0.6R X 1.2	1.2	4	50	6		2JJRB 020 060 S06	1R X 2	2	6	50	6	
2JJRB 012 060 S04	0.6R X 1.2	1.2	6	45	4		2JJRB 020 080 S04	1R X 2	2	8	45	4	
2JJRB 012 060 S06	0.6R X 1.2	1.2	6	50	6		2JJRB 020 080 S06	1R X 2	2	8	50	6	
2JJRB 012 080 S04	0.6R X 1.2	1.2	8	45	4		2JJRB 020 100 S04	1R X 2	2	10	50	4	
2JJRB 012 080 S06	0.6R X 1.2	1.2	8	50	6		2JJRB 020 100 S06	1R X 2	2	10	50	6	
2JJRB 012 100 S04	0.6R X 1.2	1.2	10	50	4		2JJRB 020 120 S04	1R X 2	2	12	50	4	
2JJRB 012 100 S06	0.6R X 1.2	1.2	10	50	6		2JJRB 020 120 S06	1R X 2	2	12	50	6	
2JJRB 012 120 S04	0.6R X 1.2	1.2	12	50	4		2JJRB 020 140 S04	1R X 2	2	14	50	4	
2JJRB 012 120 S06	0.6R X 1.2	1.2	12	50	6		2JJRB 020 140 S06	1R X 2	2	14	50	6	
2JJRB 012 160 S04	0.6R X 1.2	1.2	16	50	4		2JJRB 020 160 S04	1R X 2	2	16	50	4	
2JJRB 012 200 S04	0.6R X 1.2	1.2	20	50	4		2JJRB 020 160 S06	1R X 2	2	16	60	6	
2JJRB 012 240 S04	0.6R X 1.2	1.2	24	60	4		2JJRB 020 180 S04	1R X 2	2	18	50	4	
2JJRB 014 060 S04	0.7R X 1.4	1.4	6	45	4		2JJRB 020 180 S06	1R X 2	2	18	60	6	
2JJRB 014 080 S04	0.7R X 1.4	1.4	8	45	4		2JJRB 020 200 S04	1R X 2	2	20	50	4	
2JJRB 014 120 S04	0.7R X 1.4	1.4	12	50	4		2JJRB 020 200 S06	1R X 2	2	20	60	6	
2JJRB 014 160 S04	0.7R X 1.4	1.4	16	50	4		2JJRB 020 220 S04	1R X 2	2	22	60	4	
2JJRB 015 030 S04	0.75R X 1.5	1.5	3	45	4		2JJRB 020 250 S04	1R X 2	2	25	60	4	
2JJRB 015 030 S06	0.75R X 1.5	1.5	3	50	6		2JJRB 020 300 S04	1R X 2	2	30	60	4	
2JJRB 015 040 S04	0.75R X 1.5	1.5	4	45	4		2JJRB 025 080 S04	1.25R X 2.5	2.5	8	45	4	
2JJRB 015 040 S06	0.75R X 1.5	1.5	4	50	6		2JJRB 025 080 S06	1.25R X 2.5	2.5	8	50	6	
2JJRB 015 060 S04	0.75R X 1.5	1.5	6	45	4		2JJRB 025 100 S04	1.25R X 2.5	2.5	10	50	4	
2JJRB 015 060 S06	0.75R X 1.5	1.5	6	50	6		2JJRB 025 100 S06	1.25R X 2.5	2.5	10	50	6	
2JJRB 015 080 S04	0.75R X 1.5	1.5	8	45	4		2JJRB 025 120 S04	1.25R X 2.5	2.5	12	50	4	
2JJRB 015 080 S06	0.75R X 1.5	1.5	8	50	6		2JJRB 025 120 S06	1.25R X 2.5	2.5	12	50	6	
2JJRB 015 100 S04	0.75R X 1.5	1.5	10	50	4		2JJRB 025 160 S04	1.25R X 2.5	2.5	16	50	4	
2JJRB 015 100 S06	0.75R X 1.5	1.5	10	50	6		2JJRB 025 160 S06	1.25R X 2.5	2.5	16	60	6	
2JJRB 015 120 S04	0.75R X 1.5	1.5	12	50	4		2JJRB 025 200 S04	1.25R X 2.5	2.5	20	60	4	
2JJRB 015 120 S06	0.75R X 1.5	1.5	12	50	6		2JJRB 025 200 S06	1.25R X 2.5	2.5	20	60	6	
2JJRB 015 140 S04	0.75R X 1.5	1.5	14	50	4		2JJRB 025 250 S04	1.25R X 2.5	2.5	25	60	4	
2JJRB 015 140 S06	0.75R X 1.5	1.5	14	50	6		2JJRB 025 300 S04	1.25R X 2.5	2.5	30	70	4	

단위 : mm

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2JJRB 030 060 S06	1.5R X 3	3	6	50	6								
2JJRB 030 080 S06	1.5R X 3	3	8	50	6								
2JJRB 030 100 S06	1.5R X 3	3	10	50	6								
2JJRB 030 120 S06	1.5R X 3	3	12	50	6								
2JJRB 030 160 S06	1.5R X 3	3	16	60	6								
2JJRB 030 200 S06	1.5R X 3	3	20	60	6								
2JJRB 030 250 S06	1.5R X 3	3	25	65	6								
2JJRB 030 300 S06	1.5R X 3	3	30	70	6								
2JJRB 030 350 S06	1.5R X 3	3	35	75	6								
2JJRB 030 400 S06	1.5R X 3	3	40	80	6								
2JJRB 030 450 S06	1.5R X 3	3	45	90	6								
2JJRB 030 500 S06	1.5R X 3	3	50	100	6								
2JJRB 035 100 S06	1.75R X 3.5	3.5	10	50	6								
2JJRB 035 150 S06	1.75R X 3.5	3.5	15	60	6								
2JJRB 035 200 S06	1.75R X 3.5	3.5	20	60	6								
2JJRB 035 250 S06	1.75R X 3.5	3.5	25	65	6								
2JJRB 035 300 S06	1.75R X 3.5	3.5	30	70	6								
2JJRB 035 350 S06	1.75R X 3.5	3.5	35	75	6								
2JJRB 035 400 S06	1.75R X 3.5	3.5	40	80	6								
2JJRB 040 080 S06	2R X 4	4	8	50	6								
2JJRB 040 100 S06	2R X 4	4	10	50	6								
2JJRB 040 120 S06	2R X 4	4	12	50	6								
2JJRB 040 160 S06	2R X 4	4	16	60	6								
2JJRB 040 200 S06	2R X 4	4	20	60	6								
2JJRB 040 250 S06	2R X 4	4	25	65	6								
2JJRB 040 300 S06	2R X 4	4	30	70	6								
2JJRB 040 350 S06	2R X 4	4	35	75	6								
2JJRB 040 400 S06	2R X 4	4	40	80	6								
2JJRB 040 450 S06	2R X 4	4	45	90	6								
2JJRB 040 500 S06	2R X 4	4	50	100	6								
2JJRB 050 160 S06	2.5R X 5	6	16	60	6								
2JJRB 050 200 S06	2.5R X 5	6	20	60	6								
2JJRB 050 250 S06	2.5R X 5	6	25	70	6								
2JJRB 050 300 S06	2.5R X 5	6	30	75	6								
2JJRB 050 400 S06	2.5R X 5	6	40	80	6								
2JJRB 050 450 S06	2.5R X 5	6	45	90	6								
2JJRB 050 500 S06	2.5R X 5	6	50	100	6								
2JJRB 060 150 S06	3R X 6	10	15	55	6								
2JJRB 060 300 100	3R X 6	10	30	100	6								
2JJRB 060 500 120	3R X 6	10	50	120	6								
2JJRB 080 250 060	4R X 8	12	25	60	8								
2JJRB 080 300 100	4R X 8	12	30	100	8								
2JJRB 080 600 120	4R X 8	12	60	120	8								
2JJRB 100 300 070	5R X 10	16	30	70	10								
2JJRB 100 450 100	5R X 10	16	45	100	10								
2JJRB 100 600 130	5R X 10	16	60	130	10								
2JJRB 120 300 075	6R X 12	18	30	75	12								
2JJRB 120 500 110	6R X 12	18	50	110	12								
2JJRB 120 600 130	6R X 12	18	60	130	12								

피삭재 Material		고경도강 Hardened Steels STAVX / SKD11				열처리 / 고경도강 Heat-treated steels / Hardened Steels SKD11 / SKD61				열처리 / 고경도강 Heat-treated steels / Hardened Steels YXR7 / SKH51			
경도 Hardness		45 ~ 55HRC				55 ~ 62HRC				62 ~ 70HRC			
반경 Radius	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.1	0.5	60,000	176	0.002	0.005	66,000	104	0.002	0.005	49,500	52	0.002	0.005
"	1	60,000	176	0.002	0.005	66,000	104	0.002	0.005	49,500	52	0.002	0.005
"	1.5	48,000	70	0.001	0.003	52,000	52	0.001	0.003	39,600	24	0.001	0.003
"	2	48,000	44	0.001	0.003	52,000	32	0.001	0.003	39,600	16	0.001	0.003
R 0.15	1	45,000	273	0.004	0.010	47,850	144	0.003	0.008	35,750	72	0.003	0.008
"	1.5	45,000	273	0.004	0.010	47,850	144	0.003	0.008	35,750	72	0.003	0.008
"	2	45,000	167	0.003	0.008	47,850	88	0.002	0.005	35,750	44	0.002	0.005
"	3	32,000	70	0.002	0.005	35,200	52	0.001	0.003	26,400	24	0.001	0.003
R 0.2	1	37,500	370	0.007	0.018	38,500	192	0.005	0.013	28,875	96	0.005	0.013
"	2	37,500	370	0.007	0.018	38,500	192	0.005	0.013	28,875	96	0.005	0.013
"	3	31,900	185	0.004	0.010	33,550	128	0.003	0.008	25,080	64	0.002	0.005
"	4	25,500	132	0.002	0.005	26,730	96	0.002	0.005	20,020	48	0.002	0.005
R 0.25	1	33,000	466	0.010	0.025	33,000	240	0.007	0.018	24,750	120	0.007	0.018
"	2	33,000	466	0.010	0.025	33,000	240	0.007	0.018	24,750	120	0.007	0.018
"	3	31,000	352	0.007	0.018	31,405	184	0.005	0.013	23,540	60	0.005	0.013
"	4	27,150	132	0.003	0.008	28,215	80	0.002	0.005	21,890	40	0.002	0.005
"	5	24,200	97	0.002	0.005	25,850	60	0.002	0.005	19,360	28	0.002	0.005
"	6	21,300	66	0.001	0.003	23,430	40	0.001	0.003	17,600	20	0.001	0.003
"	8	15,900	35	0.001	0.003	17,490	20	0.001	0.003	13,145	10	0.001	0.003
R 0.3	1	30,000	1,320	0.030	0.075	29,150	800	0.015	0.038	22,000	400	0.015	0.038
"	2	30,000	1,056	0.020	0.050	29,150	640	0.010	0.025	22,000	320	0.010	0.025
"	3	30,000	704	0.015	0.038	29,150	416	0.008	0.020	22,000	208	0.008	0.020
"	4	30,000	440	0.010	0.025	29,150	272	0.006	0.015	22,000	136	0.006	0.015
"	5	25,000	343	0.007	0.018	25,300	208	0.005	0.013	19,800	104	0.005	0.013
"	6	21,000	282	0.005	0.013	21,450	168	0.004	0.010	16,500	84	0.004	0.010
"	8	16,000	211	0.003	0.008	17,600	128	0.003	0.008	13,200	64	0.003	0.008
"	10	14,900	154	0.002	0.005	16,390	92	0.002	0.005	12,210	44	0.002	0.005
"	12	13,800	97	0.001	0.003	15,180	56	0.001	0.003	11,385	28	0.001	0.003
R 0.4	2	27,000	1,408	0.040	0.100	25,850	800	0.020	0.050	19,250	400	0.020	0.050
"	4	27,000	1,056	0.025	0.063	25,850	480	0.012	0.030	19,250	240	0.012	0.030
"	6	23,000	528	0.012	0.030	22,550	320	0.006	0.015	17,050	160	0.006	0.015
"	8	18,000	330	0.007	0.018	18,700	228	0.005	0.013	14,025	112	0.005	0.013
"	10	14,700	299	0.005	0.013	16,115	180	0.004	0.010	12,100	88	0.004	0.010
R 0.5	2	24,000	1,760	0.100	0.250	23,100	1,400	0.050	0.125	17,600	700	0.050	0.125
"	3	24,000	1,760	0.050	0.125	23,100	1,400	0.030	0.075	17,600	700	0.030	0.075
"	4	24,000	1,760	0.050	0.125	23,100	1,400	0.030	0.075	17,600	700	0.030	0.075
"	5	24,000	1,760	0.050	0.125	23,100	1,400	0.030	0.075	17,600	700	0.030	0.075
"	6	21,500	1,100	0.030	0.075	21,670	840	0.025	0.063	15,950	420	0.025	0.063
"	8	18,500	510	0.015	0.038	20,240	384	0.015	0.038	15,180	192	0.015	0.038
"	10	14,800	378	0.010	0.025	16,170	288	0.010	0.025	12,210	144	0.010	0.025
"	12	13,400	334	0.008	0.020	14,630	232	0.008	0.020	10,945	112	0.008	0.020
"	14	12,000	308	0.007	0.018	13,200	176	0.007	0.018	9,900	88	0.007	0.018
"	16	10,500	220	0.005	0.013	11,550	128	0.005	0.013	8,635	64	0.005	0.013
"	18	9,750	176	0.004	0.010	10,725	104	0.004	0.010	8,030	68	0.004	0.010
"	20	9,000	132	0.003	0.008	9,900	80	0.003	0.008	7,425	40	0.003	0.008
"	22	9,000	97	0.002	0.005	9,900	60	0.002	0.005	7,425	28	0.002	0.005
R 0.6	6	20,000	1,760	0.060	0.150	19,250	1,400	0.036	0.090	14,410	700	0.036	0.090
"	8	16,600	792	0.025	0.063	17,435	600	0.025	0.063	13,090	300	0.025	0.063
"	10	15,500	510	0.015	0.038	16,885	384	0.015	0.038	12,650	192	0.015	0.038
R 0.7	8	15,350	1,100	0.040	0.100	15,455	840	0.030	0.075	11,605	420	0.030	0.075
R 0.75	3	17,000	1,760	0.120	0.300	16,500	1,400	0.060	0.150	12,375	700	0.060	0.150
"	4	17,000	1,760	0.120	0.300	16,500	1,400	0.060	0.150	12,375	700	0.060	0.150
"	6	17,000	1,760	0.070	0.175	16,500	1,400	0.040	0.100	12,375	700	0.040	0.100
"	8	15,000	1,100	0.045	0.113	15,400	840	0.030	0.075	11,550	420	0.030	0.075
"	10	15,000	1,100	0.045	0.113	15,400	840	0.030	0.075	11,550	420	0.030	0.075
"	12	13,000	510	0.020	0.050	14,300	384	0.020	0.050	10,725	192	0.020	0.050
"	14	10,900	427	0.015	0.038	11,990	308	0.015	0.038	9,020	152	0.015	0.038
"	16	8,850	343	0.012	0.030	9,680	232	0.012	0.030	7,260	116	0.012	0.030
"	20	8,000	308	0.010	0.025	8,800	176	0.010	0.025	6,600	88	0.010	0.025
R 0.8	8	17,500	1,848	0.080	0.200	16,830	1,440	0.050	0.125	12,650	720	0.050	0.125
"	12	13,500	528	0.024	0.060	14,740	392	0.024	0.060	11,055	196	0.025	0.063
"	16	10,800	396	0.016	0.040	11,770	296	0.016	0.040	8,800	148	0.016	0.040
R 1	4	14,000	1,848	0.150	0.375	13,475	1,440	0.080	0.200	10,120	720	0.080	0.200
"	6	14,000	1,848	0.100	0.250	13,475	1,440	0.060	0.150	10,120	720	0.060	0.150
"	8	14,000	1,848	0.100	0.250	13,475	1,440	0.060	0.150	10,120	720	0.060	0.150
"	10	14,000	1,848	0.100	0.250	13,475	1,440	0.060	0.150	10,120	720	0.060	1.500
"	12	12,400	1,188	0.060	0.150	12,650	880	0.045	0.113	9,515	440	0.045	0.113
"	14	12,400	1,188	0.060	0.150	12,650	880	0.045	0.113	9,515	440	0.045	0.113

피삭재 Material		고경도강 Hardened Steels STAVX / SKD11				열처리 / 고경도강 Heat-treated steels / Hardened Steels SKD11 / SKD61				열처리 / 고경도강 Heat-treated steels / Hardened Steels YXR7 / SKH51			
경도 Hardness		45 ~ 55HRC				55 ~ 62HRC				62 ~ 70HRC			
반경 Radius	유효장 Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
"	16	10,800	528	0.030	0.075	11,770	392	0.030	0.075	8,800	196	0.030	0.075
"	18	9,700	458	0.025	0.063	10,615	344	0.025	0.063	7,975	172	0.025	0.063
"	20	8,650	396	0.020	0.050	9,416	296	0.020	0.050	7,040	148	0.020	0.050
"	22	8,200	387	0.018	0.045	9,020	264	0.018	0.045	6,765	132	0.018	0.045
"	25	7,800	387	0.016	0.040	8,580	232	0.016	0.040	6,435	116	0.016	0.040
"	30	7,000	308	0.014	0.035	7,700	176	0.014	0.035	5,775	88	0.014	0.035
R 1.25	20	9,600	554	0.040	0.100	10,560	408	0.040	0.100	7,920	204	0.040	0.100
R 1.5	6	10,500	1,936	0.200	0.500	10,120	1,520	0.120	0.300	7,590	760	0.120	0.300
"	8	10,500	1,936	0.200	0.500	10,120	1,520	0.120	0.300	7,590	760	0.120	0.300
"	10	10,500	1,936	0.150	0.375	10,120	1,520	0.100	0.250	7,590	760	0.100	0.250
"	12	10,500	1,936	0.150	0.375	10,120	1,520	0.100	0.250	7,590	760	0.100	0.250
"	16	10,500	1,936	0.150	0.375	10,120	1,520	0.100	0.250	7,590	760	0.100	0.250
"	20	9,250	1,232	0.100	0.250	9,460	920	0.075	0.188	7,095	460	0.075	0.188
"	25	8,000	554	0.050	0.125	8,800	408	0.050	0.125	6,600	204	0.050	0.125
"	30	5,750	396	0.030	0.075	6,270	296	0.030	0.075	4,703	148	0.030	0.075
"	35	5,350	387	0.025	0.063	5,885	248	0.025	0.063	4,400	124	0.025	0.063
"	40	4,900	343	0.020	0.050	5,445	200	0.020	0.050	4,070	100	0.020	0.050
R 2	8	9,000	2,024	0.250	0.625	8,690	1,600	0.150	0.375	6,490	800	0.150	0.375
"	10	9,000	2,024	0.250	0.625	8,690	1,600	0.150	0.375	6,490	800	0.150	0.375
"	12	9,000	2,024	0.200	0.500	8,690	1,600	0.130	0.325	6,490	800	0.130	0.325
"	16	9,000	2,024	0.200	0.500	8,690	1,600	0.130	0.325	6,490	800	0.130	0.325
"	20	9,000	2,024	0.200	0.500	8,690	1,600	0.130	0.325	6,490	800	0.130	0.325
"	25	8,000	1,276	0.130	0.325	8,195	1,000	0.090	0.225	6,160	500	0.090	0.225
"	30	7,000	581	0.060	0.150	7,700	432	0.060	0.150	5,775	216	0.060	0.150
"	35	6,000	554	0.055	0.138	6,600	408	0.055	0.138	4,950	204	0.055	0.138
"	40	4,300	396	0.040	0.100	4,730	296	0.040	0.100	3,520	148	0.040	0.100
R 2.5	20	7,200	2,024	0.250	0.625	6,985	1,600	0.160	0.400	5,225	800	0.160	0.400
"	30	6,400	1,276	0.160	0.400	6,820	1,000	0.110	0.275	5,115	500	0.110	0.275
"	40	6,000	607	0.080	0.200	6,600	456	0.080	0.200	4,950	228	0.080	0.200
R 3	15	6,500	2,200	0.300	0.750	6,270	1,760	0.200	0.500	4,730	880	0.200	0.500
R 4	25	5,200	1,936	0.400	1.000	4,950	1,520	0.250	0.625	3,740	760	0.250	0.625
R 5	30	4,300	1,760	0.500	1.250	4,125	1,400	0.300	0.750	3,080	700	0.300	0.750
R 6	30	3,600	1,540	0.600	1.500	3,465	1,200	0.350	0.875	2,585	600	0.350	0.875

절입량
Depth of Cut

Ap : Axial Depth 축방향의절입깊이(mm)
 Ae : Radial Depth 반경방향의절입깊이(mm)
 D : Outside Diameter 외경(mm)
 n : Speed 회전속도 (min⁻¹)
 Vf : Feed 이송속도 (mm/min)

- HRC55 이하 피삭재(합금강, 공구강) 가공시 같은 파이에 대비 상기절삭조건 20% UP 해주십시오.
- 에어브로 혹은 미스트 쿨런트를 추천하며, 동 가공시 습식 쿨런트 추천 합니다.
- 상기 절삭조건은 참고 수치이므로 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 변경 요망합니다.
- 진동이 적고 강성이 좋은 공작 기계 사용 요망 합니다(Ø1 이하 사용 시 진동 허용 관리 5µm 이내일 것.)
- 칩 제거 주의 및 가공시 발열, 발화에 주의하십시오.
- When milling workpiece HRC below 55 (Alloy steel, tool steel), Raise up 20% RPM and feed compared to the same diameter.
- Air blow or mist coolant is recommended, and wet coolants are recommended for copper milling.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- Use a machine with low vibration and good rigidity (Ø1 or less, the vibration tolerance management will be within 5µm).
- Note for chip emission, heat, or ignition.