

- 고경도강(HRC52~62), 프리하드강 계열의 고속 가공 엔드밀
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 코너R 형상을 날부치핑이 적도록 설계하였습니다.
- 다양한 코너R과 유효장으로 맞춤 가공이 가능합니다.
- 초미립자 초경합금(0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

Endmills for pre-hardened and hardened steels(HRC52~62)

- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.
- Outstanding performance at high speed machining by ultra fine (0.2µm) WC grade.

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UWC
초미립자

TISIN
Coating

R

R

R

30°
Helix Angle

CUTTING
DATA

R0.02 ~ 0.5 R1 ~ 1.5 R2 ~ 3 433P

Condition	D Size	D Tolerance	Condition	D Size	D Tolerance
ØD ≠ Ød	Ø0.2 ~ 16	+0 ~ -0.01mm	ØD = Ød	Ø4 ~ 12	-0.005 ~ -0.015mm
				Ø16	-0.01 ~ -0.02mm

단위 : mm

Order Number	날경 D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CRE 002 0002 010	0.2 X R0.02	0.2	1	40	4	
2CRE 002 0002 015	0.2 X R0.02	0.2	1.5	40	4	
2CRE 002 0002 020	0.2 X R0.02	0.2	2	40	4	
2CRE 002 0005 010	0.2 X R0.05	0.2	1	40	4	
2CRE 002 0005 015	0.2 X R0.05	0.2	1.5	40	4	
2CRE 002 0005 020	0.2 X R0.05	0.2	2	40	4	
2CRE 003 0005 010	0.3 X R0.05	0.3	1	40	4	
2CRE 003 0005 020	0.3 X R0.05	0.3	2	40	4	
2CRE 003 0005 030	0.3 X R0.05	0.3	3	40	4	
2CRE 003 0005 040	0.3 X R0.05	0.3	4	40	4	
2CRE 003 0005 050	0.3 X R0.05	0.3	5	40	4	
2CRE 004 0005 010	0.4 X R0.05	0.4	1	40	4	
2CRE 004 0005 020	0.4 X R0.05	0.4	2	40	4	
2CRE 004 0005 030	0.4 X R0.05	0.4	3	40	4	
2CRE 004 0005 040	0.4 X R0.05	0.4	4	40	4	
2CRE 004 0005 050	0.4 X R0.05	0.4	5	40	4	
2CRE 004 0005 060	0.4 X R0.05	0.4	6	40	4	
2CRE 004 001 010	0.4 X R0.1	0.4	1	40	4	
2CRE 004 001 015	0.4 X R0.1	0.4	1.5	40	4	
2CRE 004 001 020	0.4 X R0.1	0.4	2	40	4	
2CRE 004 001 030	0.4 X R0.1	0.4	3	40	4	
2CRE 004 001 040	0.4 X R0.1	0.4	4	40	4	
2CRE 005 0002 010	0.5 X R0.02	0.5	1	45	4	
2CRE 005 0002 015	0.5 X R0.02	0.5	1.5	45	4	
2CRE 005 0002 020	0.5 X R0.02	0.5	2	45	4	
2CRE 005 0002 025	0.5 X R0.02	0.5	2.5	45	4	
2CRE 005 0002 030	0.5 X R0.02	0.5	3	45	4	
2CRE 005 0002 040	0.5 X R0.02	0.5	4	45	4	
2CRE 005 0002 050	0.5 X R0.02	0.5	5	45	4	
2CRE 005 0002 060	0.5 X R0.02	0.5	6	45	4	
2CRE 005 0002 080	0.5 X R0.02	0.5	8	45	4	
2CRE 005 0002 100	0.5 X R0.02	0.5	10	50	4	
2CRE 005 0005 010	0.5 X R0.05	0.5	1	45	4	
2CRE 005 0005 015	0.5 X R0.05	0.5	1.5	45	4	
2CRE 005 0005 020	0.5 X R0.05	0.5	2	45	4	
2CRE 005 0005 025	0.5 X R0.05	0.5	2.5	45	4	
2CRE 005 0005 030	0.5 X R0.05	0.5	3	45	4	
2CRE 005 0005 040	0.5 X R0.05	0.5	4	45	4	
2CRE 005 0005 050	0.5 X R0.05	0.5	5	45	4	
2CRE 005 0005 060	0.5 X R0.05	0.5	6	45	4	
2CRE 005 0005 080	0.5 X R0.05	0.5	8	45	4	
2CRE 005 0005 100	0.5 X R0.05	0.5	10	50	4	
2CRE 005 0005 120	0.5 X R0.05	0.5	12	50	4	
2CRE 005 001 010	0.5 X R0.1	0.5	1	45	4	
2CRE 005 001 015	0.5 X R0.1	0.5	1.5	45	4	
2CRE 005 001 020	0.5 X R0.1	0.5	2	45	4	
2CRE 005 001 025	0.5 X R0.1	0.5	2.5	45	4	
2CRE 005 001 030	0.5 X R0.1	0.5	3	45	4	
2CRE 005 001 040	0.5 X R0.1	0.5	4	45	4	
2CRE 005 001 050	0.5 X R0.1	0.5	5	45	4	

Order Number	날경 D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CRE 005 001 060	0.5 X R0.1	0.5	6	45	4	
2CRE 005 001 080	0.5 X R0.1	0.5	8	45	4	
2CRE 005 001 100	0.5 X R0.1	0.5	10	50	4	
2CRE 005 001 120	0.5 X R0.1	0.5	12	50	4	
2CRE 006 0002 020	0.6 X R0.02	0.6	2	45	4	
2CRE 006 0002 030	0.6 X R0.02	0.6	3	45	4	
2CRE 006 0002 040	0.6 X R0.02	0.6	4	45	4	
2CRE 006 0002 060	0.6 X R0.02	0.6	6	45	4	
2CRE 006 0002 080	0.6 X R0.02	0.6	8	45	4	
2CRE 006 0002 100	0.6 X R0.02	0.6	10	50	4	
2CRE 006 0005 020	0.6 X R0.05	0.6	2	45	4	
2CRE 006 0005 030	0.6 X R0.05	0.6	3	45	4	
2CRE 006 0005 040	0.6 X R0.05	0.6	4	45	4	
2CRE 006 0005 060	0.6 X R0.05	0.6	6	45	4	
2CRE 006 0005 080	0.6 X R0.05	0.6	8	45	4	
2CRE 006 0005 100	0.6 X R0.05	0.6	10	50	4	
2CRE 006 0005 120	0.6 X R0.05	0.6	12	50	4	
2CRE 006 001 020	0.6 X R0.1	0.6	2	45	4	
2CRE 006 001 030	0.6 X R0.1	0.6	3	45	4	
2CRE 006 001 040	0.6 X R0.1	0.6	4	45	4	
2CRE 006 001 060	0.6 X R0.1	0.6	6	45	4	
2CRE 006 001 080	0.6 X R0.1	0.6	8	45	4	
2CRE 006 001 100	0.6 X R0.1	0.6	10	50	4	
2CRE 006 001 120	0.6 X R0.1	0.6	12	50	4	
2CRE 007 001 020	0.7 X R0.1	0.7	2	45	4	
2CRE 007 001 040	0.7 X R0.1	0.7	4	45	4	
2CRE 007 001 060	0.7 X R0.1	0.7	6	45	4	
2CRE 007 001 080	0.7 X R0.1	0.7	8	45	4	
2CRE 007 001 100	0.7 X R0.1	0.7	10	45	4	
2CRE 008 0002 020	0.8 X R0.02	0.8	2	45	4	
2CRE 008 0002 040	0.8 X R0.02	0.8	4	45	4	
2CRE 008 0002 060	0.8 X R0.02	0.8	6	45	4	
2CRE 008 0002 080	0.8 X R0.02	0.8	8	45	4	
2CRE 008 0002 100	0.8 X R0.02	0.8	10	50	4	
2CRE 008 0005 020	0.8 X R0.05	0.8	2	45	4	
2CRE 008 0005 040	0.8 X R0.05	0.8	4	45	4	
2CRE 008 0005 060	0.8 X R0.05	0.8	6	45	4	
2CRE 008 0005 080	0.8 X R0.05	0.8	8	45	4	
2CRE 008 0005 100	0.8 X R0.05	0.8	10	50	4	
2CRE 008 0005 120	0.8 X R0.05	0.8	12	50	4	
2CRE 008 001 020	0.8 X R0.1	0.8	2	45	4	
2CRE 008 001 040	0.8 X R0.1	0.8	4	45	4	
2CRE 008 001 060	0.8 X R0.1	0.8	6	45	4	
2CRE 008 001 080	0.8 X R0.1	0.8	8	45	4	
2CRE 008 001 100	0.8 X R0.1	0.8	10	50	4	
2CRE 008 001 120	0.8 X R0.1	0.8	12	50	4	
2CRE 008 001 140	0.8 X R0.1	0.8	14	50	4	
2CRE 008 002 020	0.8 X R0.2	0.8	2	45	4	
2CRE 008 002 040	0.8 X R0.2	0.8	4	45	4	
2CRE 008 002 060	0.8 X R0.2	0.8	6	45	4	

단위 : mm

Order Number	날경 D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CRE 008 002 080	0.8 X R0.2	0.8	8	45	4		2CRE 012 003 120	1.2 X R0.3	1.2	12	50	4	
2CRE 008 002 100	0.8 X R0.2	0.8	10	50	4		2CRE 012 003 140	1.2 X R0.3	1.2	14	50	4	
2CRE 008 002 120	0.8 X R0.2	0.8	12	50	4		2CRE 012 003 160	1.2 X R0.3	1.2	16	50	4	
2CRE 008 002 140	0.8 X R0.2	0.8	14	50	4		2CRE 012 003 200	1.2 X R0.3	1.2	20	50	4	
2CRE 010 0005 040	1 X R0.05	1	4	45	4		2CRE 015 001 040	1.5 X R0.1	1.5	4	45	4	
2CRE 010 0005 060	1 X R0.05	1	6	45	4		2CRE 015 001 060	1.5 X R0.1	1.5	6	45	4	
2CRE 010 0005 080	1 X R0.05	1	8	45	4		2CRE 015 001 080	1.5 X R0.1	1.5	8	45	4	
2CRE 010 0005 100	1 X R0.05	1	10	50	4		2CRE 015 001 100	1.5 X R0.1	1.5	10	50	4	
2CRE 010 0005 120	1 X R0.05	1	12	50	4		2CRE 015 001 120	1.5 X R0.1	1.5	12	50	4	
2CRE 010 0005 140	1 X R0.05	1	14	50	4		2CRE 015 001 140	1.5 X R0.1	1.5	14	50	4	
2CRE 010 0005 160	1 X R0.05	1	16	50	4		2CRE 015 001 160	1.5 X R0.1	1.5	16	50	4	
2CRE 010 0005 200	1 X R0.05	1	20	50	4		2CRE 015 001 200	1.5 X R0.1	1.5	20	50	4	
2CRE 010 0005 220	1 X R0.05	1	22	60	4		2CRE 015 001 220	1.5 X R0.1	1.5	22	60	4	
2CRE 010 0005 250	1 X R0.05	1	25	60	4		2CRE 015 001 250	1.5 X R0.1	1.5	25	60	4	
2CRE 010 001 040	1 X R0.1	1	4	45	4		2CRE 015 002 040	1.5 X R0.2	1.5	4	45	4	
2CRE 010 001 060	1 X R0.1	1	6	45	4		2CRE 015 002 060	1.5 X R0.2	1.5	6	45	4	
2CRE 010 001 080	1 X R0.1	1	8	45	4		2CRE 015 002 080	1.5 X R0.2	1.5	8	45	4	
2CRE 010 001 100	1 X R0.1	1	10	50	4		2CRE 015 002 100	1.5 X R0.2	1.5	10	50	4	
2CRE 010 001 120	1 X R0.1	1	12	50	4		2CRE 015 002 120	1.5 X R0.2	1.5	12	50	4	
2CRE 010 001 140	1 X R0.1	1	14	50	4		2CRE 015 002 140	1.5 X R0.2	1.5	14	50	4	
2CRE 010 001 160	1 X R0.1	1	16	50	4		2CRE 015 002 160	1.5 X R0.2	1.5	16	50	4	
2CRE 010 001 200	1 X R0.1	1	20	50	4		2CRE 015 002 200	1.5 X R0.2	1.5	20	50	4	
2CRE 010 001 220	1 X R0.1	1	22	60	4		2CRE 015 002 220	1.5 X R0.2	1.5	22	60	4	
2CRE 010 001 250	1 X R0.1	1	25	60	4		2CRE 015 002 250	1.5 X R0.2	1.5	25	60	4	
2CRE 010 002 040	1 X R0.2	1	4	45	4		2CRE 015 003 040	1.5 X R0.3	1.5	4	45	4	
2CRE 010 002 060	1 X R0.2	1	6	45	4		2CRE 015 003 060	1.5 X R0.3	1.5	6	45	4	
2CRE 010 002 080	1 X R0.2	1	8	45	4		2CRE 015 003 080	1.5 X R0.3	1.5	8	45	4	
2CRE 010 002 100	1 X R0.2	1	10	50	4		2CRE 015 003 100	1.5 X R0.3	1.5	10	50	4	
2CRE 010 002 120	1 X R0.2	1	12	50	4		2CRE 015 003 120	1.5 X R0.3	1.5	12	50	4	
2CRE 010 002 140	1 X R0.2	1	14	50	4		2CRE 015 003 140	1.5 X R0.3	1.5	14	50	4	
2CRE 010 002 160	1 X R0.2	1	16	50	4		2CRE 015 003 160	1.5 X R0.3	1.5	16	50	4	
2CRE 010 002 200	1 X R0.2	1	20	50	4		2CRE 015 003 200	1.5 X R0.3	1.5	20	50	4	
2CRE 010 002 220	1 X R0.2	1	22	60	4		2CRE 015 003 220	1.5 X R0.3	1.5	22	60	4	
2CRE 010 002 250	1 X R0.2	1	25	60	4		2CRE 015 003 250	1.5 X R0.3	1.5	25	60	4	
2CRE 010 003 040	1 X R0.3	1	4	45	4		2CRE 015 005 040	1.5 X R0.5	1.5	4	45	4	
2CRE 010 003 060	1 X R0.3	1	6	45	4		2CRE 015 005 060	1.5 X R0.5	1.5	6	45	4	
2CRE 010 003 080	1 X R0.3	1	8	45	4		2CRE 015 005 080	1.5 X R0.5	1.5	8	45	4	
2CRE 010 003 100	1 X R0.3	1	10	50	4		2CRE 015 005 100	1.5 X R0.5	1.5	10	50	4	
2CRE 010 003 120	1 X R0.3	1	12	50	4		2CRE 015 005 120	1.5 X R0.5	1.5	12	50	4	
2CRE 010 003 140	1 X R0.3	1	14	50	4		2CRE 015 005 140	1.5 X R0.5	1.5	14	50	4	
2CRE 010 003 160	1 X R0.3	1	16	50	4		2CRE 015 005 160	1.5 X R0.5	1.5	16	50	4	
2CRE 010 003 200	1 X R0.3	1	20	50	4		2CRE 015 005 200	1.5 X R0.5	1.5	20	50	4	
2CRE 010 003 220	1 X R0.3	1	22	60	4		2CRE 015 005 220	1.5 X R0.5	1.5	22	60	4	
2CRE 010 003 250	1 X R0.3	1	25	60	4		2CRE 015 005 250	1.5 X R0.5	1.5	25	60	4	
2CRE 012 001 040	1.2 X R0.1	1.2	4	45	4		2CRE 020 001 060	2 X R0.1	2	6	45	4	
2CRE 012 001 060	1.2 X R0.1	1.2	6	45	4		2CRE 020 001 080	2 X R0.1	2	8	45	4	
2CRE 012 001 080	1.2 X R0.1	1.2	8	45	4		2CRE 020 001 100	2 X R0.1	2	10	50	4	
2CRE 012 001 100	1.2 X R0.1	1.2	10	50	4		2CRE 020 001 120	2 X R0.1	2	12	50	4	
2CRE 012 001 120	1.2 X R0.1	1.2	12	50	4		2CRE 020 001 140	2 X R0.1	2	14	50	4	
2CRE 012 001 140	1.2 X R0.1	1.2	14	50	4		2CRE 020 001 160	2 X R0.1	2	16	50	4	
2CRE 012 001 160	1.2 X R0.1	1.2	16	50	4		2CRE 020 001 200	2 X R0.1	2	20	50	4	
2CRE 012 001 200	1.2 X R0.1	1.2	20	50	4		2CRE 020 001 250	2 X R0.1	2	25	60	4	
2CRE 012 002 040	1.2 X R0.2	1.2	4	45	4		2CRE 020 001 300	2 X R0.1	2	30	70	4	
2CRE 012 002 060	1.2 X R0.2	1.2	6	45	4		2CRE 020 001 350	2 X R0.1	2	35	80	4	
2CRE 012 002 080	1.2 X R0.2	1.2	8	45	4		2CRE 020 001 400	2 X R0.1	2	40	80	4	
2CRE 012 002 100	1.2 X R0.2	1.2	10	50	4		2CRE 020 002 060	2 X R0.2	2	6	45	4	
2CRE 012 002 120	1.2 X R0.2	1.2	12	50	4		2CRE 020 002 080	2 X R0.2	2	8	45	4	
2CRE 012 002 140	1.2 X R0.2	1.2	14	50	4		2CRE 020 002 100	2 X R0.2	2	10	50	4	
2CRE 012 002 160	1.2 X R0.2	1.2	16	50	4		2CRE 020 002 120	2 X R0.2	2	12	50	4	
2CRE 012 002 200	1.2 X R0.2	1.2	20	50	4		2CRE 020 002 140	2 X R0.2	2	14	50	4	
2CRE 012 003 040	1.2 X R0.3	1.2	4	45	4		2CRE 020 002 160	2 X R0.2	2	16	50	4	
2CRE 012 003 060	1.2 X R0.3	1.2	6	45	4		2CRE 020 002 200	2 X R0.2	2	20	50	4	
2CRE 012 003 080	1.2 X R0.3	1.2	8	45	4		2CRE 020 002 250	2 X R0.2	2	25	60	4	
2CRE 012 003 100	1.2 X R0.3	1.2	10	50	4		2CRE 020 002 300	2 X R0.2	2	30	70	4	

HARD series

단위 : mm

HARD series

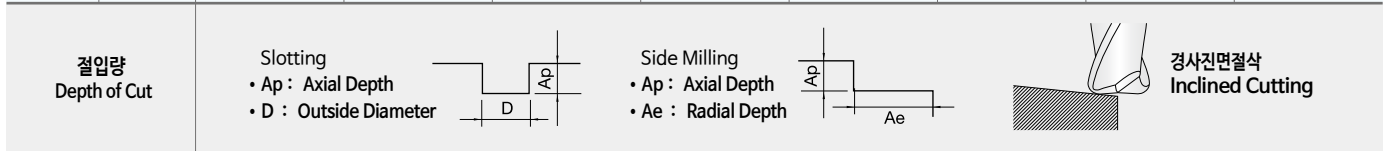
Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
2CRE 020 003 060	2 X R0.3	2	6	45	4		2CRE 030 003 350	3 X R0.3	3	35	75	6	
2CRE 020 003 080	2 X R0.3	2	8	45	4		2CRE 030 003 400	3 X R0.3	3	40	80	6	
2CRE 020 003 100	2 X R0.3	2	10	50	4		2CRE 030 005 100	3 X R0.5	3	10	50	6	
2CRE 020 003 120	2 X R0.3	2	12	50	4		2CRE 030 005 120	3 X R0.5	3	12	55	6	
2CRE 020 003 140	2 X R0.3	2	14	50	4		2CRE 030 005 160	3 X R0.5	3	16	55	6	
2CRE 020 003 160	2 X R0.3	2	16	50	4		2CRE 030 005 200	3 X R0.5	3	20	60	6	
2CRE 020 003 200	2 X R0.3	2	20	50	4		2CRE 030 005 250	3 X R0.5	3	25	65	6	
2CRE 020 003 250	2 X R0.3	2	25	60	4		2CRE 030 005 300	3 X R0.5	3	30	70	6	
2CRE 020 003 300	2 X R0.3	2	30	70	4		2CRE 030 005 350	3 X R0.5	3	35	75	6	
2CRE 020 005 060	2 X R0.5	2	6	45	4		2CRE 030 005 400	3 X R0.5	3	40	80	6	
2CRE 020 005 080	2 X R0.5	2	8	45	4		2CRE 030 005 450	3 X R0.5	3	45	90	6	
2CRE 020 005 100	2 X R0.5	2	10	50	4		2CRE 030 005 500	3 X R0.5	3	50	100	6	
2CRE 020 005 120	2 X R0.5	2	12	50	4		2CRE 030 010 100	3 X R1	3	10	50	6	
2CRE 020 005 140	2 X R0.5	2	14	50	4		2CRE 030 010 120	3 X R1	3	12	55	6	
2CRE 020 005 160	2 X R0.5	2	16	50	4		2CRE 030 010 160	3 X R1	3	16	55	6	
2CRE 020 005 200	2 X R0.5	2	20	50	4		2CRE 030 010 200	3 X R1	3	20	60	6	
2CRE 020 005 250	2 X R0.5	2	25	60	4		2CRE 030 010 250	3 X R1	3	25	65	6	
2CRE 020 005 300	2 X R0.5	2	30	70	4		2CRE 030 010 300	3 X R1	3	30	70	6	
2CRE 020 005 350	2 X R0.5	2	35	80	4		2CRE 030 010 350	3 X R1	3	35	75	6	
2CRE 020 005 400	2 X R0.5	2	40	80	4		2CRE 030 010 400	3 X R1	3	40	80	6	
2CRE 025 001 100	2.5 X R0.1	2.5	10	50	4		2CRE 040 001 050	4 X R0.1	4	12	50	4	
2CRE 025 001 160	2.5 X R0.1	2.5	16	50	4		2CRE 040 001 070	4 X R0.1	4	20	70	4	
2CRE 025 001 200	2.5 X R0.1	2.5	20	50	4		2CRE 040 001 120	4 X R0.1	4	12	55	6	
2CRE 025 001 250	2.5 X R0.1	2.5	25	60	4		2CRE 040 001 160	4 X R0.1	4	16	55	6	
2CRE 025 001 300	2.5 X R0.1	2.5	30	70	4		2CRE 040 001 200	4 X R0.1	4	20	60	6	
2CRE 025 002 100	2.5 X R0.2	2.5	10	50	4		2CRE 040 001 250	4 X R0.1	4	25	65	6	
2CRE 025 002 160	2.5 X R0.2	2.5	16	50	4		2CRE 040 001 300	4 X R0.1	4	30	70	6	
2CRE 025 002 200	2.5 X R0.2	2.5	20	50	4		2CRE 040 001 350	4 X R0.1	4	35	75	6	
2CRE 025 002 250	2.5 X R0.2	2.5	25	60	4		2CRE 040 001 400	4 X R0.1	4	40	80	6	
2CRE 025 002 300	2.5 X R0.2	2.5	30	70	4		2CRE 040 001 450	4 X R0.1	4	45	90	6	
2CRE 025 003 100	2.5 X R0.3	2.5	10	50	4		2CRE 040 001 500	4 X R0.1	4	50	100	6	
2CRE 025 003 160	2.5 X R0.3	2.5	16	50	4		2CRE 040 002 050	4 X R0.2	4	12	50	4	
2CRE 025 003 200	2.5 X R0.3	2.5	20	50	4		2CRE 040 002 070	4 X R0.2	4	20	70	4	
2CRE 025 003 250	2.5 X R0.3	2.5	25	60	4		2CRE 040 002 120	4 X R0.2	4	12	55	6	
2CRE 025 003 300	2.5 X R0.3	2.5	30	70	4		2CRE 040 002 160	4 X R0.2	4	16	55	6	
2CRE 025 005 100	2.5 X R0.5	2.5	10	50	4		2CRE 040 002 200	4 X R0.2	4	20	60	6	
2CRE 025 005 160	2.5 X R0.5	2.5	16	50	4		2CRE 040 002 250	4 X R0.2	4	25	65	6	
2CRE 025 005 200	2.5 X R0.5	2.5	20	50	4		2CRE 040 002 300	4 X R0.2	4	30	70	6	
2CRE 025 005 250	2.5 X R0.5	2.5	25	60	4		2CRE 040 002 350	4 X R0.2	4	35	75	6	
2CRE 025 005 300	2.5 X R0.5	2.5	30	70	4		2CRE 040 002 400	4 X R0.2	4	40	80	6	
2CRE 030 001 100	3 X R0.1	3	10	50	6		2CRE 040 002 450	4 X R0.2	4	45	90	6	
2CRE 030 001 120	3 X R0.1	3	12	55	6		2CRE 040 002 500	4 X R0.2	4	50	100	6	
2CRE 030 001 160	3 X R0.1	3	16	55	6		2CRE 040 003 050	4 X R0.3	4	12	50	4	
2CRE 030 001 200	3 X R0.1	3	20	60	6		2CRE 040 003 070	4 X R0.3	4	20	70	4	
2CRE 030 001 250	3 X R0.1	3	25	65	6		2CRE 040 003 120	4 X R0.3	4	12	55	6	
2CRE 030 001 300	3 X R0.1	3	30	70	6		2CRE 040 003 160	4 X R0.3	4	16	55	6	
2CRE 030 001 350	3 X R0.1	3	35	75	6		2CRE 040 003 200	4 X R0.3	4	20	60	6	
2CRE 030 001 400	3 X R0.1	3	40	80	6		2CRE 040 003 250	4 X R0.3	4	25	65	6	
2CRE 030 002 100	3 X R0.2	3	10	50	6		2CRE 040 003 300	4 X R0.3	4	30	70	6	
2CRE 030 002 120	3 X R0.2	3	12	55	6		2CRE 040 003 350	4 X R0.3	4	35	75	6	
2CRE 030 002 160	3 X R0.2	3	16	55	6		2CRE 040 003 400	4 X R0.3	4	40	80	6	
2CRE 030 002 200	3 X R0.2	3	20	60	6		2CRE 040 003 450	4 X R0.3	4	45	90	6	
2CRE 030 002 250	3 X R0.2	3	25	65	6		2CRE 040 003 500	4 X R0.3	4	50	100	6	
2CRE 030 002 300	3 X R0.2	3	30	70	6		2CRE 040 005 050	4 X R0.5	4	12	50	4	
2CRE 030 002 350	3 X R0.2	3	35	75	6		2CRE 040 005 070	4 X R0.5	4	20	70	4	
2CRE 030 002 400	3 X R0.2	3	40	80	6		2CRE 040 005 120	4 X R0.5	4	12	55	6	
2CRE 030 002 450	3 X R0.2	3	45	90	6		2CRE 040 005 160	4 X R0.5	4	16	55	6	
2CRE 030 002 500	3 X R0.2	3	50	100	6		2CRE 040 005 200	4 X R0.5	4	20	60	6	
2CRE 030 003 100	3 X R0.3	3	10	50	6		2CRE 040 005 250	4 X R0.5	4	25	65	6	
2CRE 030 003 120	3 X R0.3	3	12	55	6		2CRE 040 005 300	4 X R0.5	4	30	70	6	
2CRE 030 003 160	3 X R0.3	3	16	55	6		2CRE 040 005 350	4 X R0.5	4	35	75	6	
2CRE 030 003 200	3 X R0.3	3	20	60	6		2CRE 040 005 400	4 X R0.5	4	40	80	6	
2CRE 030 003 250	3 X R0.3	3	25	65	6		2CRE 040 005 450	4 X R0.5	4	45	90	6	
2CRE 030 003 300	3 X R0.3	3	30	70	6		2CRE 040 005 500	4 X R0.5	4	50	100	6	

단위 : mm

Order Number	날경 D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Dia d	비고
2CRE 040 010 050	4 X R1	4	12	50	4		2CRE 100 015 240	10 X R1.5	11	24	70	10	
2CRE 040 010 070	4 X R1	4	20	70	4		2CRE 100 015 450	10 X R1.5	11	45	100	10	
2CRE 040 010 120	4 X R1	4	12	55	6		2CRE 100 020 240	10 X R2	11	24	70	10	
2CRE 040 010 160	4 X R1	4	16	55	6		2CRE 100 020 450	10 X R2	11	45	100	10	
2CRE 040 010 200	4 X R1	4	20	60	6		2CRE 120 002 260	12 X R0.2	13	26	80	12	
2CRE 040 010 250	4 X R1	4	25	65	6		2CRE 120 002 500	12 X R0.2	13	50	110	12	
2CRE 040 010 300	4 X R1	4	30	70	6		2CRE 120 003 260	12 X R0.3	13	26	80	12	
2CRE 040 010 350	4 X R1	4	35	75	6		2CRE 120 003 500	12 X R0.3	13	50	110	12	
2CRE 040 010 400	4 X R1	4	40	80	6		2CRE 120 005 260	12 X R0.5	13	26	80	12	
2CRE 040 010 450	4 X R1	4	45	90	6		2CRE 120 005 500	12 X R0.5	13	50	110	12	
2CRE 040 010 500	4 X R1	4	50	100	6		2CRE 120 005 700	12 X R0.5	13	70	130	12	
2CRE 050 002 150	5 X R0.2	6	15	60	6		2CRE 120 010 260	12 X R1	13	26	80	12	
2CRE 050 002 250	5 X R0.2	6	25	70	6		2CRE 120 010 500	12 X R1	13	50	110	12	
2CRE 050 002 300	5 X R0.2	6	30	70	6		2CRE 120 010 700	12 X R1	13	70	130	12	
2CRE 050 002 400	5 X R0.2	6	40	80	6		2CRE 120 015 260	12 X R1.5	13	26	80	12	
2CRE 050 002 500	5 X R0.2	6	50	100	6		2CRE 120 015 500	12 X R1.5	13	50	110	12	
2CRE 050 005 150	5 X R0.5	6	15	60	6		2CRE 120 020 260	12 X R2	13	26	80	12	
2CRE 050 005 250	5 X R0.5	6	25	70	6		2CRE 120 020 500	12 X R2	13	50	110	12	
2CRE 050 005 300	5 X R0.5	6	30	70	6		2CRE 120 030 260	12 X R3	13	26	80	12	
2CRE 050 005 400	5 X R0.5	6	40	80	6		2CRE 120 030 500	12 X R3	13	50	110	12	
2CRE 050 005 500	5 X R0.5	6	50	100	6		2CRE 160 005 110	16 X R0.5	20	40	110	16	
2CRE 050 010 150	5 X R1	6	15	60	6		2CRE 160 005 160	16 X R0.5	20	60	160	16	
2CRE 050 010 250	5 X R1	6	25	70	6		2CRE 160 010 110	16 X R1	20	40	110	16	
2CRE 050 010 300	5 X R1	6	30	70	6		2CRE 160 010 160	16 X R1	20	60	160	16	
2CRE 050 010 400	5 X R1	6	40	80	6								
2CRE 050 010 500	5 X R1	6	50	100	6								
2CRE 060 001 200	6 X R0.1	7	20	60	6								
2CRE 060 001 400	6 X R0.1	7	40	90	6								
2CRE 060 002 200	6 X R0.2	7	20	60	6								
2CRE 060 002 400	6 X R0.2	7	40	90	6								
2CRE 060 002 600	6 X R0.2	7	60	110	6								
2CRE 060 003 200	6 X R0.3	7	20	60	6								
2CRE 060 003 400	6 X R0.3	7	40	90	6								
2CRE 060 005 200	6 X R0.5	7	20	60	6								
2CRE 060 005 400	6 X R0.5	7	40	90	6								
2CRE 060 005 600	6 X R0.5	7	60	110	6								
2CRE 060 010 200	6 X R1	7	20	60	6								
2CRE 060 010 400	6 X R1	7	40	90	6								
2CRE 060 010 600	6 X R1	7	60	110	6								
2CRE 060 015 200	6 X R1.5	7	20	60	6								
2CRE 060 015 400	6 X R1.5	7	40	90	6								
2CRE 080 002 220	8 X R0.2	9	22	65	8								
2CRE 080 002 400	8 X R0.2	9	40	100	8								
2CRE 080 003 220	8 X R0.3	9	22	65	8								
2CRE 080 003 400	8 X R0.3	9	40	100	8								
2CRE 080 005 220	8 X R0.5	9	22	65	8								
2CRE 080 005 400	8 X R0.5	9	40	100	8								
2CRE 080 005 600	8 X R0.5	9	60	120	8								
2CRE 080 010 220	8 X R1	9	22	65	8								
2CRE 080 010 400	8 X R1	9	40	100	8								
2CRE 080 010 600	8 X R1	9	60	120	8								
2CRE 080 015 220	8 X R1.5	9	22	65	8								
2CRE 080 015 400	8 X R1.5	9	40	100	8								
2CRE 100 002 240	10 X R0.2	11	24	70	10								
2CRE 100 002 450	10 X R0.2	11	45	100	10								
2CRE 100 002 600	10 X R0.2	11	60	120	10								
2CRE 100 003 240	10 X R0.3	11	24	70	10								
2CRE 100 003 450	10 X R0.3	11	45	100	10								
2CRE 100 005 240	10 X R0.5	11	24	70	10								
2CRE 100 005 450	10 X R0.5	11	45	100	10								
2CRE 100 005 600	10 X R0.5	11	60	120	10								
2CRE 100 010 240	10 X R1	11	24	70	10								
2CRE 100 010 450	10 X R1	11	45	100	10								
2CRE 100 010 600	10 X R1	11	60	120	10								

HARD series

피삭재 Material		동 Copper C1100				합금강 / 프리하드강 Alloy Steels / Prehardened Steels NAK80/KP4M				고경도강 Hardened Steels STAVAX/SKD11				열처리 / 고경도강 Heat-treated steels / Hardened Steels SKD11 / SKD61			
경도 Hardness		40 ~ 45HRC								45 ~ 55HRC				55 ~ 62HRC			
외경 Outside Diameter	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	RPM	FEED	Ap Axial Depth	Ae Radial Depth
∅ 0.2	1	50,000	800	0.026	0.020	50,000	263	0.006	0.020	34,500	197	0.004	0.020	14,950	108	0.001	0.015
"	1.5	50,000	750	0.017	0.010	50,000	210	0.005	0.010	26,450	158	0.003	0.010	11,730	87	0.001	0.007
∅ 0.3	1	50,000	800	0.029	0.020	50,000	224	0.007	0.020	34,500	168	0.005	0.015	21,505	92	0.004	0.015
"	3	50,000	650	0.029	0.015	50,000	182	0.006	0.015	24,150	137	0.003	0.010	14,605	75	0.002	0.010
∅ 0.4	1	47,150	800	0.047	0.062	50,000	224	0.013	0.070	39,675	168	0.011	0.070	23,575	92	0.004	0.070
"	3	33,350	700	0.026	0.053	26,450	196	0.008	0.026	26,450	147	0.007	0.026	15,755	81	0.003	0.026
∅ 0.5	1	48,300	850	0.079	0.114	48,300	238	0.033	0.119	39,100	179	0.029	0.119	24,150	98	0.013	0.119
"	3	31,050	750	0.056	0.088	31,050	210	0.022	0.110	25,415	158	0.020	0.110	15,755	87	0.008	0.110
"	5	25,760	700	0.026	0.044	25,760	196	0.011	0.010	20,700	147	0.010	0.010	12,995	81	0.004	0.010
∅ 0.6	2	27,945	850	0.111	0.158	27,945	238	0.010	0.214	23,000	179	0.010	0.214	14,835	98	0.004	0.214
"	6	16,445	750	0.035	0.044	16,445	210	0.003	0.010	13,570	158	0.003	0.010	8,740	87	0.001	0.010
∅ 0.8	4	17,250	900	0.129	0.194	17,020	252	0.014	0.114	14,720	189	0.015	0.114	9,890	104	0.007	0.114
"	8	12,650	750	0.029	0.098	12,650	210	0.005	0.088	10,695	158	0.005	0.088	7,475	87	0.002	0.088
∅ 1	4	13,800	950	0.196	0.396	13,800	266	0.029	0.264	11,730	200	0.029	0.264	8,280	110	0.017	0.264
"	10	8,625	750	0.047	0.308	8,625	210	0.011	0.123	7,475	158	0.011	0.123	5,290	87	0.006	0.123
"	16	6,900	650	0.018	0.220	6,900	182	0.004	0.026	5,980	137	0.004	0.026	4,255	75	0.002	0.026
∅ 1.2	6	9,200	1,035	0.182	0.457	9,200	575	0.018	0.088	8,165	483	0.018	0.088	6,095	59	0.011	0.088
"	12	6,670	662	0.053	0.396	6,670	368	0.007	0.070	5,980	299	0.007	0.070	4,370	37	0.004	0.070
∅ 1.5	4	12,880	1,925	0.293	0.660	12,880	1,070	0.044	0.440	11,730	920	0.044	0.440	8,970	121	0.032	0.440
"	10	8,280	1,325	0.147	0.554	8,280	736	0.031	0.282	7,590	633	0.031	0.282	5,865	83	0.022	0.282
"	20	5,865	725	0.041	0.352	6,350	403	0.005	0.106	4,160	345	0.005	0.106	3,870	45	0.003	0.106
∅ 2	6	12,535	1,801	0.314	0.836	12,535	1,001	0.042	0.792	11,730	909	0.042	0.792	9,430	130	0.035	0.792
"	12	9,200	1,449	0.182	0.704	9,200	805	0.030	0.440	8,280	725	0.030	0.440	6,785	105	0.025	0.440
"	20	6,900	1,139	0.091	0.651	6,200	633	0.017	0.194	3,520	564	0.017	0.194	3,226	82	0.014	0.194
"	30	5,865	973	0.049	0.440	3,300	541	0.005	0.132	2,860	495	0.005	0.132	2,386	68	0.002	0.132
∅ 2.5	10	10,350	1,801	0.331	0.836	10,350	1,001	0.051	0.528	9,775	943	0.051	0.528	8,165	151	0.047	0.528
"	30	6,210	787	0.067	0.616	6,210	437	0.011	0.176	5,865	414	0.011	0.176	4,830	65	0.010	0.176
∅ 3	12	10,350	2,029	0.381	0.831	10,350	1,127	0.103	0.616	9,775	874	0.103	0.655	8,740	196	0.073	0.655
"	20	8,165	1,553	0.254	0.762	6,050	863	0.071	0.567	3,420	667	0.071	0.567	3,108	147	0.043	0.567
"	30	6,900	1,263	0.137	0.674	3,300	702	0.049	0.371	2,890	541	0.049	0.371	2,440	115	0.028	0.352
∅ 4	12	8,740	1,904	0.401	1.525	8,740	1,058	0.081	1.124	7,360	920	0.081	1.124	6,210	210	0.083	1.124
"	20	6,785	1,458	0.375	1.325	5,880	810	0.053	0.880	5,750	840	0.053	0.880	4,830	194	0.057	0.880
"	30	5,750	752	0.196	1.210	2,950	418	0.028	0.671	2,540	656	0.028	0.671	2,160	149	0.030	0.708
"	45	4,715	500	0.096	1.118	2,300	278	0.007	0.326	2,015	322	0.007	0.326	1,800	75	0.007	0.326
∅ 5	15	7,705	3,064	0.697	2.277	7,705	1,702	0.106	1.346	5,520	1,139	0.106	1.346	4,600	342	0.110	1.346
"	30	5,290	1,470	0.342	1.760	2,780	817	0.053	1.035	3,795	541	0.053	1.035	3,220	164	0.055	1.035
∅ 6	20	5,980	2,194	0.600	2.194	5,460	1,219	0.476	1.356	3,565	1,035	0.186	1.356	3,105	393	0.145	1.356
"	40	4,600	1,635	0.565	2.049	2,380	909	0.410	1.304	2,160	759	0.164	1.304	2,040	304	0.123	1.304
∅ 8	22	5,520	1,946	0.528	2.542	5,520	1,081	0.419	1.518	3,220	909	0.164	1.518	2,760	346	0.128	1.518
"	40	4,140	1,449	0.497	2.277	2,120	805	0.361	1.323	2,080	667	0.144	1.323	1,955	268	0.108	1.323
∅ 10	24	4,600	1,656	0.449	2.887	4,485	920	0.356	1.645	2,760	771	0.139	1.645	2,300	294	0.108	1.645
"	45	3,450	1,221	0.423	2.438	3,450	679	0.307	1.334	1,955	564	0.122	1.334	1,725	228	0.092	1.334
∅ 12	26	3,795	1,387	0.377	3.013	3,795	771	0.299	2.024	2,300	644	0.117	2.024	1,955	247	0.091	2.024
"	50	2,875	1,035	0.355	2.415	2,875	575	0.258	1.403	1,725	483	0.103	1.403	1,380	191	0.077	1.403
∅ 16	35	2,990	1,097	0.302	2.921	2,990	610	0.239	2.162	1,725	518	0.094	2.162	1,610	198	0.073	2.162



- HRC62 이상인 경우 같은 직경의 같은 비율로 20% DOWN 시켜주십시오.
- 유효장이 긴 경우에는 회전수와 이송 속도를 최대 30% 이하로 줄이십시오.
- Ae값 설정시 코너R 치수를 고려 해주십시오.
- 곡면 절삭시 날경의 코너R 보다 낮은 이동 PITCH를 설정 하십시오.
- 곡면 절삭시 안정적인 속도내 에서 피드를 최대 30%까지 UP 해주십시오.
- When milling workpiece HRC over 62, reduce 20% of the RPM and feed with the same diameter.
- If the effective length is long, reduce the RPM and feed maximum 30%.
- Consider the corner radius value when you set up the Ae value.
- For curved milling, set up the lower value of the pitch than the corner radius value of tool diameter.
- For curved milling, raise up the feed up to 30% in stable milling condition.