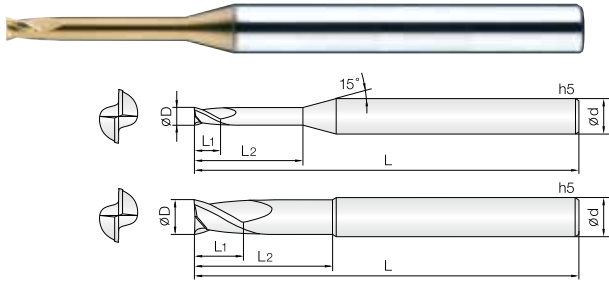


2HRE 2 Flutes High Speed Rib End Mills

2날 고속가공용 리브 엔드밀



- 고경도강 (HRc50~60), 프리하든강 계열의 고정밀 가공 엔드밀
- 실리콘계 코팅 (Si) 처리하여 내마모성이 우수합니다.
- 고정밀 공차 적용으로 초정밀 가공에 적합합니다.
- 인선부 강성을 보장하여 날부치핑을 최소화 하였습니다.
- 초미립자 초경합금 (0.2µm)을 채택, 고속절삭시 뛰어난 성능을 발휘합니다.

• Endmills for pre-hardened and hardened steels(HRc50~65)

- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- High speed, feed applicable by 3 flute ball edge.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.



Shield Edge 425P

| Condition | D Size | D Tolerance | Condition | D Size | D Tolerance |
|-----------|-------------|---------------|-----------|---------|-------------------|
| øD ≠ ød | ø0.1 ~ 0.15 | +0 ~ -0.005mm | øD = ød | ø6 | -0.005 ~ -0.015mm |
| | ø0.2 ~ 6 | +0 ~ -0.01mm | | ø8 ~ 12 | -0.01 ~ -0.025mm |
| | ø8 ~ 12 | +0 ~ -0.015mm | | | |

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 |
|--------------------|---------------------|---------------------------|-------------------------------|---------------------------|----------------------|----|------------------|---------------------|---------------------------|-------------------------------|---------------------------|----------------------|----|
| 2HRE 001 003 S04 | 0.1 | 0.15 | 0.3 | 40 | 4 | | 2HRE 006 050 S04 | 0.6 | 0.6 | 5 | 40 | 4 | |
| 2HRE 001 005 S04 | 0.1 | 0.15 | 0.5 | 40 | 4 | | 2HRE 006 060 S04 | 0.6 | 0.6 | 6 | 40 | 4 | |
| 2HRE 0015 003 S04 | 0.15 | 0.15 | 0.3 | 40 | 4 | | 2HRE 006 080 S04 | 0.6 | 0.6 | 8 | 40 | 4 | |
| 2HRE 0015 005 S04 | 0.15 | 0.15 | 0.5 | 40 | 4 | | 2HRE 006 100 S04 | 0.6 | 0.6 | 10 | 40 | 4 | |
| 2HRE 0015 0075 S04 | 0.15 | 0.15 | 0.75 | 40 | 4 | | 2HRE 006 120 S04 | 0.6 | 0.6 | 12 | 45 | 4 | |
| 2HRE 0015 010 S04 | 0.15 | 0.15 | 1 | 40 | 4 | | 2HRE 006 140 S04 | 0.6 | 0.6 | 14 | 45 | 4 | |
| 2HRE 002 005 S04 | 0.2 | 0.2 | 0.5 | 40 | 4 | | 2HRE 006 160 S04 | 0.6 | 0.6 | 16 | 45 | 4 | |
| 2HRE 002 010 S04 | 0.2 | 0.2 | 1 | 40 | 4 | | 2HRE 007 020 S04 | 0.7 | 0.7 | 2 | 40 | 4 | |
| 2HRE 002 015 S04 | 0.2 | 0.2 | 1.5 | 40 | 4 | | 2HRE 007 040 S04 | 0.7 | 0.7 | 4 | 40 | 4 | |
| 2HRE 002 020 S04 | 0.2 | 0.2 | 2 | 40 | 4 | | 2HRE 007 060 S04 | 0.7 | 0.7 | 6 | 40 | 4 | |
| 2HRE 002 025 S04 | 0.2 | 0.2 | 2.5 | 40 | 4 | | 2HRE 007 080 S04 | 0.7 | 0.7 | 8 | 40 | 4 | |
| 2HRE 002 030 S04 | 0.2 | 0.2 | 3 | 40 | 4 | | 2HRE 007 100 S04 | 0.7 | 0.7 | 10 | 40 | 4 | |
| 2HRE 0025 005 S04 | 0.25 | 0.25 | 0.5 | 40 | 4 | | 2HRE 007 120 S04 | 0.7 | 0.7 | 12 | 45 | 4 | |
| 2HRE 0025 010 S04 | 0.25 | 0.25 | 1 | 40 | 4 | | 2HRE 008 020 S04 | 0.8 | 0.8 | 2 | 40 | 4 | |
| 2HRE 0025 015 S04 | 0.25 | 0.25 | 1.5 | 40 | 4 | | 2HRE 008 030 S04 | 0.8 | 0.8 | 3 | 40 | 4 | |
| 2HRE 0025 020 S04 | 0.25 | 0.25 | 2 | 40 | 4 | | 2HRE 008 040 S04 | 0.8 | 0.8 | 4 | 40 | 4 | |
| 2HRE 0025 030 S04 | 0.25 | 0.25 | 3 | 40 | 4 | | 2HRE 008 050 S04 | 0.8 | 0.8 | 5 | 40 | 4 | |
| 2HRE 003 010 S04 | 0.3 | 0.3 | 1 | 40 | 4 | | 2HRE 008 060 S04 | 0.8 | 0.8 | 6 | 40 | 4 | |
| 2HRE 003 015 S04 | 0.3 | 0.3 | 1.5 | 40 | 4 | | 2HRE 008 080 S04 | 0.8 | 0.8 | 8 | 40 | 4 | |
| 2HRE 003 020 S04 | 0.3 | 0.3 | 2 | 40 | 4 | | 2HRE 008 100 S04 | 0.8 | 0.8 | 10 | 40 | 4 | |
| 2HRE 003 025 S04 | 0.3 | 0.3 | 2.5 | 40 | 4 | | 2HRE 008 120 S04 | 0.8 | 0.8 | 12 | 45 | 4 | |
| 2HRE 003 030 S04 | 0.3 | 0.3 | 3 | 40 | 4 | | 2HRE 008 140 S04 | 0.8 | 0.8 | 14 | 45 | 4 | |
| 2HRE 003 035 S04 | 0.3 | 0.3 | 3.5 | 40 | 4 | | 2HRE 009 060 S04 | 0.9 | 0.9 | 6 | 40 | 4 | |
| 2HRE 003 040 S04 | 0.3 | 0.3 | 4 | 40 | 4 | | 2HRE 009 080 S04 | 0.9 | 0.9 | 8 | 40 | 4 | |
| 2HRE 003 050 S04 | 0.3 | 0.3 | 5 | 40 | 4 | | 2HRE 009 100 S04 | 0.9 | 0.9 | 10 | 40 | 4 | |
| 2HRE 004 010 S04 | 0.4 | 0.4 | 1 | 40 | 4 | | 2HRE 010 020 S04 | 1 | 1 | 2 | 45 | 4 | |
| 2HRE 004 015 S04 | 0.4 | 0.4 | 1.5 | 40 | 4 | | 2HRE 010 030 S04 | 1 | 1 | 3 | 45 | 4 | |
| 2HRE 004 020 S04 | 0.4 | 0.4 | 2 | 40 | 4 | | 2HRE 010 040 S04 | 1 | 1 | 4 | 45 | 4 | |
| 2HRE 004 025 S04 | 0.4 | 0.4 | 2.5 | 40 | 4 | | 2HRE 010 050 S04 | 1 | 1 | 5 | 45 | 4 | |
| 2HRE 004 030 S04 | 0.4 | 0.4 | 3 | 40 | 4 | | 2HRE 010 060 S04 | 1 | 1 | 6 | 45 | 4 | |
| 2HRE 004 035 S04 | 0.4 | 0.4 | 3.5 | 40 | 4 | | 2HRE 010 080 S04 | 1 | 1 | 8 | 45 | 4 | |
| 2HRE 004 040 S04 | 0.4 | 0.4 | 4 | 40 | 4 | | 2HRE 010 100 S04 | 1 | 1 | 10 | 45 | 4 | |
| 2HRE 004 050 S04 | 0.4 | 0.4 | 5 | 40 | 4 | | 2HRE 010 120 S04 | 1 | 1 | 12 | 45 | 4 | |
| 2HRE 004 060 S04 | 0.4 | 0.4 | 6 | 40 | 4 | | 2HRE 010 140 S04 | 1 | 1 | 14 | 45 | 4 | |
| 2HRE 004 080 S04 | 0.4 | 0.4 | 8 | 40 | 4 | | 2HRE 010 160 S04 | 1 | 1 | 16 | 50 | 4 | |
| 2HRE 004 100 S04 | 0.4 | 0.4 | 10 | 40 | 4 | | 2HRE 010 180 S04 | 1 | 1 | 18 | 50 | 4 | |
| 2HRE 005 010 S04 | 0.5 | 0.5 | 1 | 40 | 4 | | 2HRE 010 200 S04 | 1 | 1 | 20 | 50 | 4 | |
| 2HRE 005 020 S04 | 0.5 | 0.5 | 2 | 40 | 4 | | 2HRE 010 250 S04 | 1 | 1 | 25 | 60 | 4 | |
| 2HRE 005 030 S04 | 0.5 | 0.5 | 3 | 40 | 4 | | 2HRE 010 300 S04 | 1 | 1 | 30 | 70 | 4 | |
| 2HRE 005 040 S04 | 0.5 | 0.5 | 4 | 40 | 4 | | 2HRE 012 040 S04 | 1.2 | 1.2 | 4 | 45 | 4 | |
| 2HRE 005 050 S04 | 0.5 | 0.5 | 5 | 40 | 4 | | 2HRE 012 060 S04 | 1.2 | 1.2 | 6 | 45 | 4 | |
| 2HRE 005 060 S04 | 0.5 | 0.5 | 6 | 40 | 4 | | 2HRE 012 080 S04 | 1.2 | 1.2 | 8 | 45 | 4 | |
| 2HRE 005 080 S04 | 0.5 | 0.5 | 8 | 40 | 4 | | 2HRE 012 100 S04 | 1.2 | 1.2 | 10 | 45 | 4 | |
| 2HRE 005 100 S04 | 0.5 | 0.5 | 10 | 40 | 4 | | 2HRE 012 120 S04 | 1.2 | 1.2 | 12 | 45 | 4 | |
| 2HRE 005 120 S04 | 0.5 | 0.5 | 12 | 45 | 4 | | 2HRE 012 160 S04 | 1.2 | 1.2 | 16 | 50 | 4 | |
| 2HRE 005 140 S04 | 0.5 | 0.5 | 14 | 45 | 4 | | 2HRE 012 200 S04 | 1.2 | 1.2 | 20 | 50 | 4 | |
| 2HRE 006 010 S04 | 0.6 | 0.6 | 1 | 40 | 4 | | 2HRE 012 250 S04 | 1.2 | 1.2 | 25 | 60 | 4 | |
| 2HRE 006 020 S04 | 0.6 | 0.6 | 2 | 40 | 4 | | 2HRE 012 300 S04 | 1.2 | 1.2 | 30 | 70 | 4 | |
| 2HRE 006 030 S04 | 0.6 | 0.6 | 3 | 40 | 4 | | 2HRE 014 060 S04 | 1.4 | 1.4 | 6 | 45 | 4 | |
| 2HRE 006 040 S04 | 0.6 | 0.6 | 4 | 40 | 4 | | 2HRE 014 080 S04 | 1.4 | 1.4 | 8 | 45 | 4 | |

단위 : mm

| Order Number | 날경 Diameter D | 날장 Length of cut L1 | 유효장 Effective Length L2 | 전장 Overall Length L | 샙크 Shank Dia d | 비고 | Order Number | 날경 Diameter D | 날장 Length of cut L1 | 유효장 Effective Length L2 | 전장 Overall Length L | 샙크 Shank Dia d | 비고 |
|------------------|---------------------|---------------------------|-------------------------------|---------------------------|----------------------|----|------------------|---------------------|---------------------------|-------------------------------|---------------------------|----------------------|----|
| 2HRE 014 100 S04 | 1.4 | 1.4 | 10 | 45 | 4 | | 2HRE 030 120 S06 | 3 | 3 | 12 | 50 | 6 | |
| 2HRE 014 140 S04 | 1.4 | 1.4 | 14 | 45 | 4 | | 2HRE 030 160 S06 | 3 | 3 | 16 | 55 | 6 | |
| 2HRE 014 160 S04 | 1.4 | 1.4 | 16 | 50 | 4 | | 2HRE 030 200 S06 | 3 | 3 | 20 | 60 | 6 | |
| 2HRE 014 200 S04 | 1.4 | 1.4 | 20 | 50 | 4 | | 2HRE 030 250 S06 | 3 | 3 | 25 | 65 | 6 | |
| 2HRE 015 040 S04 | 1.5 | 1.5 | 4 | 45 | 4 | | 2HRE 030 300 S06 | 3 | 3 | 30 | 70 | 6 | |
| 2HRE 015 060 S04 | 1.5 | 1.5 | 6 | 45 | 4 | | 2HRE 030 350 S06 | 3 | 3 | 35 | 75 | 6 | |
| 2HRE 015 080 S04 | 1.5 | 1.5 | 8 | 45 | 4 | | 2HRE 030 400 S06 | 3 | 3 | 40 | 80 | 6 | |
| 2HRE 015 100 S04 | 1.5 | 1.5 | 10 | 45 | 4 | | 2HRE 030 450 S06 | 3 | 3 | 45 | 90 | 6 | |
| 2HRE 015 120 S04 | 1.5 | 1.5 | 12 | 45 | 4 | | 2HRE 030 500 S06 | 3 | 3 | 50 | 100 | 6 | |
| 2HRE 015 140 S04 | 1.5 | 1.5 | 14 | 50 | 4 | | 2HRE 030 600 S06 | 3 | 3 | 60 | 100 | 6 | |
| 2HRE 015 160 S04 | 1.5 | 1.5 | 16 | 50 | 4 | | 2HRE 040 080 S06 | 4 | 4 | 8 | 50 | 6 | |
| 2HRE 015 180 S04 | 1.5 | 1.5 | 18 | 50 | 4 | | 2HRE 040 100 S06 | 4 | 4 | 10 | 50 | 6 | |
| 2HRE 015 200 S04 | 1.5 | 1.5 | 20 | 50 | 4 | | 2HRE 040 120 S06 | 4 | 4 | 12 | 50 | 6 | |
| 2HRE 015 250 S04 | 1.5 | 1.5 | 25 | 60 | 4 | | 2HRE 040 160 S06 | 4 | 4 | 16 | 55 | 6 | |
| 2HRE 015 300 S04 | 1.5 | 1.5 | 30 | 70 | 4 | | 2HRE 040 200 S06 | 4 | 4 | 20 | 60 | 6 | |
| 2HRE 016 100 S04 | 1.6 | 1.6 | 10 | 45 | 4 | | 2HRE 040 250 S06 | 4 | 4 | 25 | 65 | 6 | |
| 2HRE 016 140 S04 | 1.6 | 1.6 | 14 | 45 | 4 | | 2HRE 040 300 S06 | 4 | 4 | 30 | 70 | 6 | |
| 2HRE 016 180 S04 | 1.6 | 1.6 | 18 | 50 | 4 | | 2HRE 040 350 S06 | 4 | 4 | 35 | 75 | 6 | |
| 2HRE 018 100 S04 | 1.8 | 1.8 | 10 | 45 | 4 | | 2HRE 040 400 S06 | 4 | 4 | 40 | 80 | 6 | |
| 2HRE 018 140 S04 | 1.8 | 1.8 | 14 | 45 | 4 | | 2HRE 040 450 S06 | 4 | 4 | 45 | 90 | 6 | |
| 2HRE 018 180 S04 | 1.8 | 1.8 | 18 | 50 | 4 | | 2HRE 040 500 S06 | 4 | 4 | 50 | 100 | 6 | |
| 2HRE 020 040 S04 | 2 | 2 | 4 | 45 | 4 | | 2HRE 040 550 S06 | 4 | 4 | 55 | 100 | 6 | |
| 2HRE 020 060 S04 | 2 | 2 | 6 | 45 | 4 | | 2HRE 040 600 S06 | 4 | 4 | 60 | 100 | 6 | |
| 2HRE 020 080 S04 | 2 | 2 | 8 | 45 | 4 | | 2HRE 050 160 S06 | 5 | 6 | 16 | 55 | 6 | |
| 2HRE 020 100 S04 | 2 | 2 | 10 | 45 | 4 | | 2HRE 050 200 S06 | 5 | 6 | 20 | 60 | 6 | |
| 2HRE 020 120 S04 | 2 | 2 | 12 | 45 | 4 | | 2HRE 050 250 S06 | 5 | 6 | 25 | 65 | 6 | |
| 2HRE 020 140 S04 | 2 | 2 | 14 | 45 | 4 | | 2HRE 050 300 S06 | 5 | 6 | 30 | 70 | 6 | |
| 2HRE 020 160 S04 | 2 | 2 | 16 | 50 | 4 | | 2HRE 050 350 S06 | 5 | 6 | 35 | 75 | 6 | |
| 2HRE 020 180 S04 | 2 | 2 | 18 | 50 | 4 | | 2HRE 050 400 S06 | 5 | 6 | 40 | 80 | 6 | |
| 2HRE 020 200 S04 | 2 | 2 | 20 | 50 | 4 | | 2HRE 050 500 S06 | 5 | 6 | 50 | 100 | 6 | |
| 2HRE 020 220 S04 | 2 | 2 | 22 | 60 | 4 | | 2HRE 050 600 S06 | 5 | 6 | 60 | 100 | 6 | |
| 2HRE 020 250 S04 | 2 | 2 | 25 | 60 | 4 | | 2HRE 060 200 S06 | 6 | 10 | 20 | 60 | 6 | |
| 2HRE 020 300 S04 | 2 | 2 | 30 | 60 | 4 | | 2HRE 060 300 S06 | 6 | 10 | 30 | 75 | 6 | |
| 2HRE 020 350 S04 | 2 | 2 | 35 | 70 | 4 | | 2HRE 060 400 S06 | 6 | 10 | 40 | 80 | 6 | |
| 2HRE 020 400 S04 | 2 | 2 | 40 | 80 | 4 | | 2HRE 060 500 S06 | 6 | 10 | 50 | 90 | 6 | |
| 2HRE 020 450 S04 | 2 | 2 | 45 | 80 | 4 | | 2HRE 060 600 S06 | 6 | 10 | 60 | 110 | 6 | |
| 2HRE 020 500 S04 | 2 | 2 | 50 | 90 | 4 | | 2HRE 080 200 S08 | 8 | 12 | 20 | 65 | 8 | |
| 2HRE 025 080 S04 | 2.5 | 2.5 | 8 | 45 | 4 | | 2HRE 080 300 S08 | 8 | 12 | 30 | 80 | 8 | |
| 2HRE 025 100 S04 | 2.5 | 2.5 | 10 | 45 | 4 | | 2HRE 080 400 S08 | 8 | 12 | 40 | 100 | 8 | |
| 2HRE 025 120 S04 | 2.5 | 2.5 | 12 | 45 | 4 | | 2HRE 100 250 S10 | 10 | 15 | 25 | 70 | 10 | |
| 2HRE 025 160 S04 | 2.5 | 2.5 | 16 | 50 | 4 | | 2HRE 100 350 S10 | 10 | 15 | 35 | 80 | 10 | |
| 2HRE 025 200 S04 | 2.5 | 2.5 | 20 | 50 | 4 | | 2HRE 100 450 S10 | 10 | 15 | 45 | 100 | 10 | |
| 2HRE 025 250 S04 | 2.5 | 2.5 | 25 | 60 | 4 | | 2HRE 120 300 S12 | 12 | 18 | 30 | 80 | 12 | |
| 2HRE 025 300 S04 | 2.5 | 2.5 | 30 | 70 | 4 | | 2HRE 120 400 S12 | 12 | 18 | 40 | 100 | 12 | |
| 2HRE 025 350 S04 | 2.5 | 2.5 | 35 | 70 | 4 | | 2HRE 120 500 S12 | 12 | 18 | 50 | 120 | 12 | |
| 2HRE 025 400 S04 | 2.5 | 2.5 | 40 | 80 | 4 | | | | | | | | |
| 2HRE 025 500 S04 | 2.5 | 2.5 | 50 | 90 | 4 | | | | | | | | |
| 2HRE 030 060 S06 | 3 | 3 | 6 | 45 | 6 | | | | | | | | |
| 2HRE 030 080 S06 | 3 | 3 | 8 | 45 | 6 | | | | | | | | |
| 2HRE 030 100 S06 | 3 | 3 | 10 | 45 | 6 | | | | | | | | |

| 피삭재 Material | | 구조용강 / 탄소강 / 회주철 Mild steels / Carbon Steels / Gray cast irons SS / SC / FC | | | | 공구강 / 금형강 Tool steels / Mold steels SCM / HPM | | | | 합금강 / 프리하든강 Alloy Steels / Pre-hardened Steels NAK80 / KP4M | | | | 고경도강 Hardened Steels STAVAX / SKD11 | | | |
|---------------------------|----------------------------|---|-------|----------------------|-----------------------|---|-------|----------------------|-----------------------|---|-------|----------------------|-----------------------|---|------|----------------------|-----------------------|
| 경도 Hardness | | ~30HRc | | | | 30 ~ 40HRc | | | | 40 ~ 45HRc | | | | 45 ~ 55HRc | | | |
| 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 | 0.5 | 56,000 | 340 | 0.006 | 0.002 | 56,000 | 310 | 0.005 | 0.002 | 56,000 | 270 | 0.003 | 0.016 | 44,800 | 180 | 0.002 | 0.0118 |
| " | 1 | 50,900 | 290 | 0.005 | 0.016 | 50,900 | 260 | 0.005 | 0.016 | 50,900 | 230 | 0.004 | 0.02 | 40,800 | 160 | 0.003 | 0.0144 |
| " | 1.5 | 48,200 | 250 | 0.003 | 0.006 | 48,200 | 230 | 0.003 | 0.006 | 48,200 | 200 | 0.002 | 0.006 | 38,500 | 140 | 0.002 | 0.0054 |
| ∅ 0.3 | 1 | 60,000 | 560 | 0.009 | 0.101 | 60,000 | 500 | 0.008 | 0.101 | 60,000 | 400 | 0.006 | 0.101 | 52,100 | 330 | 0.004 | 0.0909 |
| " | 1.5 | 50,800 | 460 | 0.008 | 0.057 | 50,800 | 410 | 0.007 | 0.057 | 50,800 | 360 | 0.005 | 0.057 | 42,700 | 260 | 0.004 | 0.0513 |
| " | 2 | 41,500 | 350 | 0.006 | 0.013 | 41,500 | 320 | 0.005 | 0.013 | 41,500 | 280 | 0.004 | 0.013 | 33,200 | 190 | 0.003 | 0.0117 |
| " | 3 | 31,900 | 240 | 0.002 | 0.004 | 31,900 | 220 | 0.002 | 0.004 | 31,900 | 190 | 0.001 | 0.004 | 25,500 | 130 | 0.001 | 0.0036 |
| " | 4 | 26,200 | 170 | 0.001 | 0.003 | 26,200 | 160 | 0.001 | 0.003 | 26,200 | 140 | 0.001 | 0.003 | 20,900 | 100 | 0.001 | 0.0027 |
| " | 5 | 20,400 | 100 | 0.001 | 0.002 | 20,400 | 90 | 0.001 | 0.002 | 20,400 | 80 | 0.001 | 0.002 | 16,300 | 60 | 0.001 | 0.0018 |
| ∅ 0.4 | 1 | 52,700 | 660 | 0.012 | 0.054 | 57,700 | 640 | 0.010 | 0.054 | 48,100 | 470 | 0.008 | 0.054 | 38,500 | 320 | 0.005 | 0.0486 |
| " | 5 | 38,500 | 380 | 0.003 | 0.003 | 34,200 | 300 | 0.003 | 0.003 | 30,100 | 240 | 0.002 | 0.003 | 24,100 | 160 | 0.001 | 0.0027 |
| " | 10 | 33,700 | 260 | 0.001 | 0.001 | 27,300 | 190 | 0.001 | 0.001 | 24,600 | 150 | 0.001 | 0.001 | 19,700 | 100 | 0.001 | 0.0009 |
| ∅ 0.5 | 2 | 56,800 | 900 | 0.020 | 0.098 | 54,000 | 760 | 0.016 | 0.098 | 40,600 | 510 | 0.014 | 0.098 | 32,500 | 350 | 0.010 | 0.0882 |
| " | 3 | 44,200 | 660 | 0.080 | 0.016 | 39,900 | 530 | 0.090 | 0.016 | 32,200 | 370 | 0.008 | 0.016 | 25,700 | 260 | 0.006 | 0.0144 |
| " | 4 | 40,600 | 580 | 0.009 | 0.012 | 36,100 | 460 | 0.008 | 0.012 | 29,700 | 330 | 0.008 | 0.012 | 23,700 | 230 | 0.005 | 0.0108 |
| " | 5 | 37,000 | 500 | 0.080 | 0.008 | 32,300 | 390 | 0.008 | 0.008 | 27,200 | 290 | 0.006 | 0.008 | 21,700 | 200 | 0.004 | 0.0072 |
| " | 6 | 33,400 | 420 | 0.005 | 0.004 | 28,500 | 320 | 0.005 | 0.004 | 24,700 | 250 | 0.003 | 0.004 | 19,700 | 170 | 0.002 | 0.0036 |
| " | 8 | 29,100 | 320 | 0.002 | 0.002 | 24,100 | 240 | 0.002 | 0.002 | 21,600 | 190 | 0.001 | 0.002 | 17,400 | 130 | 0.001 | 0.0018 |
| " | 10 | 26,100 | 250 | 0.001 | 0.001 | 21,200 | 180 | 0.001 | 0.001 | 19,600 | 150 | 0.001 | 0.001 | 15,600 | 100 | 0.001 | 0.0009 |
| " | 14 | 21,500 | 120 | 0.001 | 0.001 | 16,700 | 80 | 0.001 | 0.001 | 16,300 | 70 | 0.001 | 0.001 | 13,000 | 50 | 0.001 | 0.0009 |
| ∅ 0.6 | 2 | 63,600 | 1,240 | 0.025 | 0.203 | 53,300 | 930 | 0.020 | 0.203 | 39,100 | 600 | 0.016 | 0.203 | 31,300 | 410 | 0.011 | 0.1827 |
| " | 3 | 52,500 | 990 | 0.018 | 0.114 | 44,000 | 740 | 0.016 | 0.114 | 33,500 | 500 | 0.013 | 0.114 | 26,800 | 340 | 0.009 | 0.1026 |
| " | 4 | 41,300 | 740 | 0.012 | 0.025 | 34,700 | 550 | 0.011 | 0.025 | 27,900 | 390 | 0.009 | 0.025 | 22,300 | 270 | 0.006 | 0.0225 |
| " | 5 | 36,700 | 630 | 0.010 | 0.017 | 30,900 | 470 | 0.009 | 0.017 | 25,500 | 340 | 0.007 | 0.017 | 20,400 | 240 | 0.005 | 0.0153 |
| " | 6 | 32,100 | 520 | 0.007 | 0.008 | 27,000 | 390 | 0.006 | 0.008 | 23,000 | 290 | 0.005 | 0.008 | 18,400 | 200 | 0.003 | 0.0072 |
| " | 8 | 26,800 | 390 | 0.004 | 0.003 | 22,600 | 300 | 0.004 | 0.003 | 20,000 | 230 | 0.003 | 0.003 | 16,000 | 160 | 0.002 | 0.0027 |
| " | 10 | 23,400 | 300 | 0.002 | 0.002 | 19,700 | 230 | 0.002 | 0.002 | 17,900 | 180 | 0.002 | 0.002 | 14,300 | 130 | 0.001 | 0.0018 |
| " | 12 | 20,900 | 240 | 0.002 | 0.001 | 17,600 | 180 | 0.001 | 0.001 | 16,400 | 150 | 0.001 | 0.001 | 13,100 | 100 | 0.001 | 0.0009 |
| " | 16 | 16,200 | 100 | 0.001 | 0.001 | 13,700 | 80 | 0.001 | 0.001 | 13,500 | 70 | 0.001 | 0.001 | 10,800 | 50 | 0.001 | 0.0009 |
| ∅ 0.7 | 2 | 59,800 | 1,380 | 0.030 | 0.047 | 50,200 | 1,040 | 0.027 | 0.047 | 36,100 | 660 | 0.021 | 0.047 | 28,800 | 430 | 0.015 | 0.0423 |
| " | 4 | 38,900 | 840 | 0.017 | 0.038 | 32,700 | 630 | 0.015 | 0.038 | 25,800 | 440 | 0.012 | 0.038 | 20,600 | 290 | 0.009 | 0.0342 |
| " | 6 | 30,200 | 600 | 0.010 | 0.014 | 25,400 | 450 | 0.009 | 0.014 | 21,200 | 330 | 0.007 | 0.014 | 16,900 | 230 | 0.005 | 0.0126 |
| " | 8 | 25,300 | 460 | 0.006 | 0.006 | 21,300 | 350 | 0.005 | 0.006 | 18,400 | 260 | 0.004 | 0.006 | 14,700 | 190 | 0.003 | 0.0054 |
| " | 10 | 22,000 | 360 | 0.004 | 0.003 | 18,500 | 270 | 0.003 | 0.003 | 16,500 | 220 | 0.003 | 0.003 | 13,200 | 160 | 0.002 | 0.0027 |
| ∅ 0.8 | 2 | 41,200 | 1,050 | 0.033 | 0.108 | 34,500 | 460 | 0.029 | 0.108 | 26,200 | 530 | 0.023 | 0.108 | 21,000 | 370 | 0.016 | 0.0972 |
| " | 4 | 37,100 | 930 | 0.027 | 0.08 | 31,100 | 700 | 0.024 | 0.08 | 24,100 | 480 | 0.019 | 0.08 | 19,300 | 330 | 0.013 | 0.072 |
| " | 6 | 28,800 | 680 | 0.015 | 0.024 | 24,200 | 510 | 0.013 | 0.024 | 19,800 | 370 | 0.010 | 0.024 | 15,800 | 250 | 0.007 | 0.0216 |
| " | 8 | 24,100 | 520 | 0.009 | 0.01 | 20,300 | 390 | 0.008 | 0.01 | 17,200 | 300 | 0.006 | 0.01 | 13,800 | 200 | 0.004 | 0.009 |
| " | 10 | 21,000 | 420 | 0.006 | 0.005 | 17,700 | 320 | 0.005 | 0.005 | 15,500 | 240 | 0.004 | 0.005 | 12,400 | 170 | 0.003 | 0.0045 |
| " | 12 | 18,700 | 340 | 0.004 | 0.003 | 15,800 | 260 | 0.003 | 0.003 | 14,100 | 200 | 0.003 | 0.003 | 11,300 | 140 | 0.002 | 0.0027 |
| " | 14 | 15,600 | 230 | 0.002 | 0.001 | 13,200 | 180 | 0.002 | 0.001 | 12,300 | 150 | 0.001 | 0.001 | 980 | 100 | 0.001 | 0.0009 |
| ∅ 0.9 | 6 | 27,600 | 790 | 0.019 | 0.019 | 23,000 | 590 | 0.017 | 0.019 | 18,500 | 420 | 0.013 | 0.019 | 14,800 | 290 | 0.010 | 0.0171 |
| " | 8 | 23,000 | 600 | 0.012 | 0.012 | 19,300 | 450 | 0.011 | 0.012 | 16,100 | 330 | 0.008 | 0.012 | 12,900 | 230 | 0.006 | 0.0108 |
| " | 10 | 20,000 | 470 | 0.008 | 0.008 | 16,800 | 360 | 0.007 | 0.008 | 14,500 | 270 | 0.005 | 0.008 | 11,600 | 190 | 0.004 | 0.0072 |
| ∅ 1.0 | 2 | 37,900 | 1,340 | 0.048 | 0.263 | 31,500 | 990 | 0.043 | 0.263 | 23,400 | 6,500 | 0.034 | 0.263 | 18,700 | 440 | 0.031 | 0.237 |
| " | 3 | 37,900 | 1,340 | 0.048 | 0.263 | 31,500 | 990 | 0.043 | 0.263 | 23,400 | 6,500 | 0.034 | 0.263 | 18,700 | 440 | 0.031 | 0.237 |
| " | 4 | 34,100 | 1,170 | 0.040 | 0.195 | 28,400 | 870 | 0.036 | 0.195 | 21,500 | 580 | 0.028 | 0.195 | 17,200 | 400 | 0.025 | 0.176 |
| " | 5 | 30,300 | 1,000 | 0.032 | 0.058 | 25,300 | 750 | 0.029 | 0.058 | 19,600 | 510 | 0.022 | 0.058 | 15,700 | 360 | 0.020 | 0.052 |
| " | 6 | 26,500 | 850 | 0.023 | 0.024 | 22,100 | 630 | 0.021 | 0.024 | 17,600 | 440 | 0.016 | 0.024 | 14,100 | 310 | 0.014 | 0.022 |
| " | 8 | 22,100 | 660 | 0.014 | 0.013 | 18,600 | 490 | 0.013 | 0.013 | 15,300 | 360 | 0.010 | 0.013 | 12,300 | 250 | 0.009 | 0.012 |
| " | 10 | 19,200 | 530 | 0.010 | 0.013 | 16,200 | 400 | 0.009 | 0.013 | 13,800 | 300 | 0.007 | 0.013 | 11,000 | 210 | 0.006 | 0.012 |
| " | 12 | 17,200 | 440 | 0.007 | 0.007 | 14,500 | 330 | 0.006 | 0.007 | 12,600 | 250 | 0.005 | 0.007 | 10,100 | 170 | 0.005 | 0.006 |
| " | 14 | 15,600 | 360 | 0.005 | 0.005 | 13,200 | 270 | 0.004 | 0.005 | 11,700 | 210 | 0.003 | 0.005 | 9,400 | 150 | 0.003 | 0.005 |
| " | 16 | 14,300 | 300 | 0.004 | 0.003 | 12,100 | 230 | 0.003 | 0.003 | 11,000 | 180 | 0.003 | 0.003 | 8,800 | 130 | 0.003 | 0.003 |
| " | 20 | 12,500 | 200 | 0.003 | 0.001 | 10,600 | 160 | 0.003 | 0.001 | 9,800 | 130 | 0.002 | 0.001 | 7,900 | 90 | 0.002 | 0.001 |
| " | 25 | 10,800 | 120 | 0.003 | 0.001 | 9,200 | 90 | 0.002 | 0.001 | 8,800 | 80 | 0.002 | 0.001 | 7,100 | 50 | 0.002 | 0.001 |
| " | 30 | 9,700 | 50 | 0.002 | 0.001 | 8,200 | 40 | 0.002 | 0.001 | 8,100 | 30 | 0.001 | 0.001 | 6,500 | 30 | 0.001 | 0.0009 |
| ∅ 1.2 | 4 | 28,900 | 1,180 | 0.050 | 0.189 | 24,100 | 870 | 0.047 | 0.189 | 18,300 | 580 | 0.036 | 0.189 | 14,500 | 400 | 0.032 | 0.170 |
| " | 6 | 24,800 | 970 | 0.037 | 0.120 | 20,700 | 720 | 0.034 | 0.120 | 16,100 | 490 | 0.026 | 0.120 | 12,800 | 340 | 0.023 | 0.108 |
| " | 8 | 20,700 | 760 | 0.024 | 0.051 | 17,300 | 570 | 0.021 | 0.051 | 13,900 | 400 | 0.016 | 0.051 | 11,100 | 280 | 0.014 | 0.046 |
| " | 10 | 18,000 | 620 | 0.016 | 0.026 | 15,100 | 470 | 0.014 | 0.026 | 12,400 | 340 | 0.011 | 0.026 | 9,900 | 230 | 0.010 | 0.023 |
| " | 12 | 16,100 | 520 | 0.011 | 0.015 | 13,500 | 390 | 0.010 | 0.015 | 11,400 | 290 | 0.008 | 0.015 | 9,100 | 200 | 0.007 | 0.014 |
| " | 16 | 13,400 | 380 | 0.006 | 0.006 | 11,300 | 290 | 0.005 | 0.006 | 9,800 | 220 | 0.004 | 0.006 | 7,900 | 150 | 0.004 | 0.005 |
| " | 20 | 11,700 | 280 | 0.004 | 0.003 | 9,900 | 210 | 0.004 | 0.003 | 8,800 | 170 | 0.003 | 0.003 | 7,000 | 120 | 0.003 | 0.003 |
| " | 25 | 10,800 | 120 | 0.003 | 0.001 | 9,200 | 90 | 0.002 | 0.001 | 8,800 | 80 | 0.002 | 0.001 | 7,100 | 50 | 0.002 | 0.001 |
| " | 30 | 9,700 | 50 | 0.002 | 0.001 | 8,200 | 40 | 0.002 | 0.001 | 8,100 | 30 | 0.001 | 0.001 | 6,500 | 30 | 0.001 | 0.0009 |

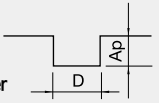
| 피삭재 Material | | 구조용강 / 탄소강 / 회주철 Mild steels / Carbon Steels / Gray cast irons SS/SC/FC | | | | 공구강 / 금형강 Tool steels / Mold steels SCM/HPM | | | | 합금강 / 프리하드강 Alloy Steels / Pre-hardened Steels NAK80/KP4M | | | | 고경도강 Hardened Steels STAVAX/SKD11 | | | |
|------------------------|-------------------------|---|-------|-------------------|--------------------|---|-------|-------------------|--------------------|---|------|-------------------|--------------------|---|-------|-------------------|--------------------|
| 경도 Hardness | | ~30HRc | | | | 30 ~ 40HRc | | | | 40 ~ 45HRc | | | | 45 ~ 55HRc | | | |
| 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 |
| ø 1.4 | 6 | 23,300 | 1,070 | 0.052 | 0.222 | 19,400 | 800 | 0.047 | 0.222 | 14,800 | 540 | 0.060 | 0.222 | 11,900 | 370 | 0.054 | 0.200 |
| " | 8 | 19,500 | 850 | 0.035 | 0.094 | 16,300 | 640 | 0.032 | 0.094 | 12,900 | 440 | 0.025 | 0.094 | 10,300 | 310 | 0.023 | 0.085 |
| " | 10 | 16,900 | 710 | 0.025 | 0.048 | 14,200 | 530 | 0.022 | 0.048 | 11,500 | 380 | 0.017 | 0.048 | 9,200 | 260 | 0.015 | 0.043 |
| " | 14 | 13,700 | 510 | 0.013 | 0.018 | 11,500 | 390 | 0.012 | 0.018 | 9,700 | 290 | 0.009 | 0.018 | 7,800 | 200 | 0.008 | 0.016 |
| " | 16 | 12,600 | 450 | 0.010 | 0.012 | 10,600 | 340 | 0.009 | 0.012 | 9,100 | 250 | 0.007 | 0.012 | 7,300 | 180 | 0.006 | 0.011 |
| " | 20 | 10,300 | 300 | 0.006 | 0.005 | 8,700 | 230 | 0.005 | 0.005 | 7,800 | 180 | 0.004 | 0.005 | 6,200 | 120 | 0.004 | 0.005 |
| ø 1.5 | 4 | 26,600 | 1,340 | 0.073 | 0.462 | 22,100 | 1,000 | 0.065 | 0.462 | 16,300 | 640 | 0.051 | 0.462 | 13,000 | 440 | 0.046 | 0.416 |
| " | 6 | 22,800 | 1,120 | 0.057 | 0.293 | 19,000 | 840 | 0.051 | 0.293 | 14,400 | 550 | 0.040 | 0.293 | 11,500 | 380 | 0.036 | 0.264 |
| " | 8 | 19,000 | 900 | 0.041 | 0.124 | 15,900 | 670 | 0.037 | 0.124 | 12,500 | 460 | 0.029 | 0.124 | 10,000 | 320 | 0.026 | 0.112 |
| " | 10 | 16,600 | 750 | 0.030 | 0.063 | 13,800 | 560 | 0.027 | 0.063 | 11,200 | 390 | 0.021 | 0.063 | 8,900 | 270 | 0.019 | 0.057 |
| " | 12 | 14,800 | 630 | 0.023 | 0.037 | 12,400 | 470 | 0.020 | 0.037 | 10,200 | 340 | 0.016 | 0.037 | 8,200 | 240 | 0.014 | 0.033 |
| " | 14 | 13,400 | 550 | 0.017 | 0.023 | 11,200 | 410 | 0.016 | 0.023 | 9,500 | 300 | 0.012 | 0.023 | 7,600 | 210 | 0.011 | 0.021 |
| " | 16 | 12,300 | 480 | 0.013 | 0.015 | 10,300 | 360 | 0.012 | 0.015 | 8,900 | 270 | 0.009 | 0.015 | 7,100 | 190 | 0.008 | 0.014 |
| " | 18 | 11,500 | 420 | 0.011 | 0.011 | 9,600 | 310 | 0.010 | 0.011 | 8,400 | 240 | 0.007 | 0.011 | 6,700 | 170 | 0.006 | 0.010 |
| " | 20 | 10,700 | 370 | 0.009 | 0.008 | 9,000 | 280 | 0.008 | 0.008 | 7,900 | 220 | 0.006 | 0.008 | 6,300 | 150 | 0.005 | 0.007 |
| " | 25 | 9,300 | 270 | 0.005 | 0.004 | 7,800 | 200 | 0.005 | 0.004 | 7,100 | 160 | 0.004 | 0.004 | 5,700 | 110 | 0.004 | 0.004 |
| " | 30 | 8,300 | 200 | 0.004 | 0.002 | 7,000 | 150 | 0.004 | 0.002 | 6,500 | 120 | 0.003 | 0.002 | 5,200 | 90 | 0.003 | 0.002 |
| ø 1.6 | 10 | 16,100 | 780 | 0.035 | 0.082 | 13,500 | 580 | 0.032 | 0.082 | 10,800 | 410 | 0.025 | 0.082 | 8,600 | 280 | 0.018 | 0.074 |
| " | 14 | 13,000 | 580 | 0.020 | 0.030 | 10,900 | 430 | 0.018 | 0.030 | 9,100 | 320 | 0.014 | 0.030 | 7,300 | 220 | 0.010 | 0.027 |
| " | 18 | 11,100 | 450 | 0.013 | 0.014 | 9,300 | 340 | 0.012 | 0.014 | 8,000 | 260 | 0.009 | 0.014 | 6,400 | 180 | 0.006 | 0.013 |
| ø 2 | 4 | 23,000 | 1,500 | 0.070 | 0.966 | 20,000 | 1,200 | 0.060 | 0.966 | 14,000 | 750 | 0.052 | 0.966 | 12,000 | 500 | 0.040 | 0.869 |
| " | 6 | 20,300 | 1,350 | 0.064 | 0.926 | 17,400 | 1,030 | 0.058 | 0.926 | 12,500 | 650 | 0.045 | 0.926 | 10,000 | 450 | 0.032 | 0.833 |
| " | 8 | 17,000 | 1,090 | 0.054 | 0.391 | 14,500 | 830 | 0.048 | 0.391 | 10,800 | 540 | 0.038 | 0.391 | 8,700 | 380 | 0.027 | 0.352 |
| " | 10 | 14,800 | 920 | 0.045 | 0.200 | 12,600 | 700 | 0.040 | 0.200 | 9,700 | 470 | 0.031 | 0.200 | 7,800 | 330 | 0.022 | 0.180 |
| " | 12 | 13,200 | 790 | 0.037 | 0.116 | 11,200 | 600 | 0.034 | 0.116 | 8,900 | 420 | 0.026 | 0.116 | 7,100 | 290 | 0.019 | 0.104 |
| " | 14 | 12,000 | 700 | 0.031 | 0.073 | 10,200 | 530 | 0.028 | 0.073 | 8,200 | 370 | 0.022 | 0.073 | 6,600 | 260 | 0.016 | 0.066 |
| " | 16 | 11,100 | 620 | 0.026 | 0.049 | 9,400 | 470 | 0.024 | 0.049 | 7,700 | 340 | 0.018 | 0.049 | 6,100 | 230 | 0.013 | 0.044 |
| " | 18 | 10,300 | 550 | 0.022 | 0.034 | 8,700 | 420 | 0.020 | 0.034 | 7,200 | 310 | 0.015 | 0.034 | 5,800 | 210 | 0.011 | 0.031 |
| " | 20 | 9,600 | 500 | 0.018 | 0.025 | 8,100 | 380 | 0.016 | 0.025 | 6,900 | 280 | 0.013 | 0.025 | 5,500 | 190 | 0.009 | 0.023 |
| " | 22 | 8,700 | 420 | 0.014 | 0.018 | 7,500 | 320 | 0.014 | 0.018 | 6,500 | 250 | 0.010 | 0.018 | 5,200 | 170 | 0.008 | 0.016 |
| " | 25 | 8,400 | 390 | 0.012 | 0.013 | 7,100 | 290 | 0.011 | 0.013 | 6,200 | 230 | 0.008 | 0.013 | 4,900 | 160 | 0.006 | 0.012 |
| " | 30 | 7,500 | 310 | 0.008 | 0.007 | 6,300 | 230 | 0.007 | 0.007 | 5,600 | 180 | 0.005 | 0.007 | 4,500 | 130 | 0.004 | 0.006 |
| ø 2.5 | 8 | 15,000 | 1,340 | 0.077 | 0.954 | 12,800 | 1,020 | 0.069 | 0.954 | 9,600 | 670 | 0.054 | 0.954 | 7,700 | 460 | 0.039 | 0.859 |
| " | 10 | 13,100 | 1,140 | 0.068 | 0.488 | 11,100 | 860 | 0.061 | 0.488 | 8,600 | 590 | 0.048 | 0.488 | 6,900 | 400 | 0.034 | 0.439 |
| " | 12 | 11,800 | 1,000 | 0.060 | 0.283 | 10,000 | 750 | 0.054 | 0.283 | 7,900 | 520 | 0.042 | 0.283 | 6,300 | 360 | 0.030 | 0.255 |
| " | 16 | 9,900 | 790 | 0.045 | 0.119 | 8,400 | 590 | 0.040 | 0.119 | 6,800 | 430 | 0.031 | 0.119 | 5,500 | 290 | 0.022 | 0.107 |
| " | 20 | 8,700 | 650 | 0.033 | 0.061 | 7,300 | 490 | 0.030 | 0.061 | 6,100 | 360 | 0.023 | 0.061 | 4,900 | 250 | 0.017 | 0.055 |
| " | 25 | 7,600 | 520 | 0.022 | 0.031 | 6,400 | 390 | 0.019 | 0.031 | 5,500 | 300 | 0.015 | 0.031 | 4,400 | 210 | 0.011 | 0.028 |
| " | 30 | 6,800 | 430 | 0.014 | 0.018 | 5,700 | 320 | 0.012 | 0.018 | 5,000 | 250 | 0.010 | 0.018 | 4,000 | 1,700 | 0.007 | 0.016 |
| " | 35 | 6,200 | 380 | 0.009 | 0.012 | 5,200 | 280 | 0.008 | 0.012 | 4,800 | 190 | 0.007 | 0.012 | 3,800 | 1,400 | 0.005 | 0.011 |
| " | 40 | 5,700 | 290 | 0.005 | 0.008 | 4,800 | 220 | 0.004 | 0.008 | 4,400 | 170 | 0.003 | 0.008 | 3,500 | 120 | 0.002 | 0.007 |
| " | 50 | 5,000 | 190 | 0.001 | 0.004 | 4,200 | 140 | 0.001 | 0.004 | 3,900 | 120 | 0.001 | 0.004 | 3,100 | 80 | 0.001 | 0.004 |
| ø 3 | 6 | 13,200 | 1,470 | 0.103 | 1.978 | 10,900 | 1,080 | 0.093 | 1.978 | 8,000 | 700 | 0.072 | 1.978 | 6,400 | 480 | 0.052 | 1.780 |
| " | 10 | 11,600 | 1,270 | 0.092 | 1.013 | 9,600 | 930 | 0.083 | 1.013 | 7,200 | 620 | 0.064 | 1.013 | 5,800 | 430 | 0.046 | 0.912 |
| " | 12 | 10,500 | 1,110 | 0.081 | 0.586 | 8,700 | 830 | 0.073 | 0.586 | 6,700 | 560 | 0.057 | 0.586 | 5,300 | 380 | 0.041 | 0.527 |
| " | 16 | 8,900 | 900 | 0.064 | 0.247 | 7,400 | 670 | 0.058 | 0.247 | 5,900 | 470 | 0.045 | 0.247 | 4,700 | 320 | 0.032 | 0.222 |
| " | 20 | 7,800 | 750 | 0.050 | 0.127 | 6,600 | 560 | 0.045 | 0.127 | 5,300 | 400 | 0.035 | 0.127 | 4,300 | 280 | 0.025 | 0.114 |
| " | 25 | 6,900 | 620 | 0.036 | 0.065 | 5,800 | 460 | 0.032 | 0.065 | 4,800 | 340 | 0.025 | 0.065 | 3,900 | 230 | 0.018 | 0.059 |
| " | 30 | 6,200 | 520 | 0.026 | 0.038 | 5,200 | 390 | 0.023 | 0.038 | 4,500 | 290 | 0.018 | 0.038 | 3,600 | 200 | 0.013 | 0.034 |
| " | 35 | 5,700 | 440 | 0.018 | 0.024 | 4,800 | 330 | 0.016 | 0.024 | 4,200 | 250 | 0.013 | 0.024 | 3,300 | 170 | 0.009 | 0.022 |
| " | 40 | 5,300 | 370 | 0.013 | 0.016 | 4,500 | 280 | 0.012 | 0.016 | 3,900 | 220 | 0.009 | 0.016 | 3,100 | 150 | 0.006 | 0.014 |
| " | 45 | 5,000 | 330 | 0.008 | 0.012 | 4,200 | 230 | 0.008 | 0.012 | 3,700 | 180 | 0.006 | 0.012 | 2,900 | 130 | 0.005 | 0.011 |
| " | 50 | 4,700 | 270 | 0.006 | 0.008 | 3,900 | 200 | 0.005 | 0.008 | 3,600 | 160 | 0.004 | 0.008 | 2,800 | 110 | 0.003 | 0.007 |
| " | 60 | 4,500 | 250 | 0.003 | 0.005 | 3,600 | 180 | 0.003 | 0.005 | 3,200 | 130 | 0.003 | 0.005 | 2,500 | 90 | 0.002 | 0.005 |
| ø 4 | 8 | 10,000 | 1,600 | 0.140 | 1.990 | 8,800 | 1,100 | 0.140 | 1.990 | 6,800 | 770 | 0.093 | 1.990 | 5,300 | 500 | 0.070 | 1.791 |
| " | 10 | 9,200 | 1,400 | 0.120 | 1.960 | 8,000 | 1,000 | 0.120 | 1.960 | 5,900 | 690 | 0.085 | 1.960 | 4,700 | 460 | 0.066 | 1.764 |
| " | 12 | 8,500 | 1,280 | 0.112 | 1.852 | 7,100 | 950 | 0.101 | 1.852 | 5,100 | 600 | 0.078 | 1.852 | 4,100 | 410 | 0.056 | 1.667 |
| " | 16 | 7,200 | 1,050 | 0.093 | 0.781 | 6,000 | 770 | 0.084 | 0.781 | 4,400 | 510 | 0.065 | 0.781 | 3,600 | 350 | 0.046 | 0.703 |
| " | 20 | 6,300 | 880 | 0.077 | 0.400 | 5,200 | 650 | 0.069 | 0.400 | 4,000 | 440 | 0.054 | 0.400 | 3,200 | 300 | 0.038 | 0.360 |
| " | 25 | 5,600 | 750 | 0.061 | 0.205 | 4,600 | 540 | 0.055 | 0.205 | 3,600 | 380 | 0.042 | 0.205 | 2,900 | 260 | 0.030 | 0.185 |
| " | 30 | 5,000 | 630 | 0.048 | 0.119 | 4,100 | 460 | 0.043 | 0.119 | 3,300 | 330 | 0.033 | 0.119 | 2,600 | 230 | 0.024 | 0.107 |
| " | 35 | 4,600 | 540 | 0.038 | 0.075 | 3,800 | 400 | 0.034 | 0.075 | 3,100 | 290 | 0.026 | 0.075 | 2,500 | 200 | 0.019 | 0.068 |
| " | 40 | 4,200 | 470 | 0.030 | 0.050 | 3,500 | 350 | 0.027 | 0.050 | 2,900 | 250 | 0.021 | 0.050 | 2,300 | 180 | 0.015 | 0.045 |
| " | 45 | 3,900 | 410 | 0.023 | 0.035 | 3,300 | 300 | 0.021 | 0.035 | 2,700 | 230 | 0.016 | 0.035 | 2,200 | 160 | 0.012 | 0.032 |
| " | 50 | 3,700 | 360 | 0.018 | 0.026 | 3,100 | 270 | 0.016 | 0.026 | 2,600 | 200 | 0.013 | 0.026 | 2,100 | 140 | 0.009 | 0.023 |
| " | 55 | 3,500 | 320 | 0.015 | 0.020 | 2,950 | 250 | 0.015 | 0.020 | 2,500 | 180 | 0.010 | 0.020 | 2,000 | 130 | 0.007 | 0.018 |
| " | 60 | 3,300 | 280 | 0.011 | 0.015 | 2,800 | 210 | 0.010 | 0.015 | 2,400 | 160 | 0.008 | 0.015 | 1,900 | 110 | 0.006 | 0.014 |

| 피삭재 Material | | 구조용강 / 탄소강 / 회주철 Mild steels / Carbon Steels / Gray cast irons SS / SC / FC | | | | 공구강 / 금형강 Tool steels / Mold steels SCM / HPM | | | | 합금강 / 프리하든강 Alloy Steels / Pre-hardened Steels NAK80 / KP4M | | | | 고경도강 Hardened Steels STAVAX / SKD11 | | | |
|---------------------------|----------------------------|---|-------|----------------------|-----------------------|---|------|----------------------|-----------------------|---|------|----------------------|-----------------------|---|------|----------------------|-----------------------|
| 경도 Hardness | | ~30HRc | | | | 30 ~ 40HRc | | | | 40 ~ 45HRc | | | | 45 ~ 55HRc | | | |
| 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 |
| ∅ 5 | 16 | 6,000 | 1,140 | 0.127 | 1.907 | 5,100 | 860 | 0.114 | 1.907 | 3,500 | 520 | 0.089 | 1.907 | 2,800 | 360 | 0.064 | 1.716 |
| " | 20 | 5,300 | 980 | 0.121 | 0.977 | 4,400 | 730 | 0.109 | 0.977 | 3,100 | 440 | 0.085 | 0.977 | 2,500 | 310 | 0.061 | 0.879 |
| " | 25 | 4,600 | 820 | 0.109 | 0.500 | 3,800 | 600 | 0.099 | 0.500 | 2,800 | 390 | 0.077 | 0.500 | 2,200 | 270 | 0.055 | 0.450 |
| " | 30 | 4,200 | 710 | 0.094 | 0.289 | 3,400 | 510 | 0.085 | 0.289 | 2,500 | 340 | 0.066 | 0.289 | 2,000 | 230 | 0.047 | 0.260 |
| " | 35 | 3,800 | 620 | 0.077 | 0.182 | 3,100 | 450 | 0.069 | 0.182 | 2,300 | 300 | 0.054 | 0.182 | 1,900 | 210 | 0.038 | 0.164 |
| " | 40 | 3,500 | 540 | 0.060 | 0.122 | 2,800 | 390 | 0.054 | 0.122 | 2,200 | 270 | 0.042 | 0.122 | 1,700 | 180 | 0.030 | 0.110 |
| " | 50 | 3,100 | 430 | 0.031 | 0.063 | 2,400 | 300 | 0.028 | 0.063 | 1,900 | 210 | 0.022 | 0.063 | 1,500 | 150 | 0.016 | 0.057 |
| " | 60 | 2,800 | 350 | 0.013 | 0.036 | 2,100 | 240 | 0.012 | 0.036 | 1,800 | 170 | 0.009 | 0.036 | 1,400 | 120 | 0.007 | 0.032 |
| ∅ 6 | 20 | 4,200 | 960 | 0.126 | 2.025 | 3,800 | 780 | 0.114 | 2.025 | 2,600 | 470 | 0.088 | 2.025 | 2,100 | 330 | 0.063 | 1.823 |
| " | 30 | 3,400 | 730 | 0.109 | 0.600 | 2,800 | 540 | 0.099 | 0.600 | 2,000 | 340 | 0.077 | 0.600 | 1,600 | 240 | 0.055 | 0.540 |
| " | 40 | 3,000 | 600 | 0.083 | 0.253 | 2,300 | 410 | 0.074 | 0.253 | 1,700 | 260 | 0.058 | 0.253 | 1,300 | 170 | 0.041 | 0.228 |
| " | 50 | 2,600 | 480 | 0.054 | 0.130 | 1,900 | 310 | 0.049 | 0.130 | 1,500 | 220 | 0.038 | 0.130 | 1,200 | 160 | 0.027 | 0.117 |
| " | 60 | 2,400 | 410 | 0.031 | 0.075 | 1,700 | 260 | 0.028 | 0.075 | 1,300 | 170 | 0.022 | 0.075 | 1,000 | 120 | 0.016 | 0.068 |
| ∅ 8 | 20 | 3,200 | 910 | 0.180 | 1.600 | 2,800 | 710 | 0.160 | 1.600 | 2,300 | 450 | 0.130 | 1.600 | 1,700 | 330 | 0.090 | 1.440 |
| " | 40 | 2,600 | 600 | 0.120 | 0.200 | 2,000 | 410 | 0.100 | 0.200 | 1,500 | 250 | 0.080 | 0.200 | 1,100 | 160 | 0.060 | 0.180 |
| ∅ 10 | 25 | 2,900 | 890 | 0.200 | 1.760 | 2,700 | 680 | 0.180 | 1.760 | 2,100 | 430 | 0.130 | 1.760 | 1,500 | 310 | 0.080 | 1.584 |
| " | 45 | 2,200 | 580 | 0.140 | 0.240 | 2,000 | 400 | 0.120 | 0.240 | 1,300 | 220 | 0.070 | 0.240 | 900 | 150 | 0.050 | 0.216 |

절입량
Depth of Cut

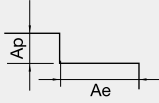
Slotting

- Ap : Axial Depth
- D : Outside Diameter



Side Milling

- Ap : Axial Depth
- Ae : Radial Depth



- 날 끝이 정밀하게 연삭되어 있습니다. 파손을 피하기 위해 가능하면 비접촉 방식으로 측정 하십시오.
- HRC60 이상 고경도강 가공 시 같은 직경의 같은 비율로 20% DOWN 시켜주십시오.
- 상기 절삭조건은 참고 수치이므로 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건 변경 요망합니다.
- 조건표가 기계의 최대 스피드 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피드 속도와 이송속도를 비례하여 조정 하십시오.
- 진동이 적고 강성이 좋은 공작기계 사용 요망 합니다.(∅1이하 사용시 진동 허용 관리 5 μ m이내 일것.)
- 에어브로, 절삭유, 오일 미스트 콜러트를 추천하며, 칩을 잘 제거하고 가공시 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.
- When milling workpiece, HRC over 60 hardened steel , reduce 20% of the RPM and feed compared to the same diameter.
- 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 ($\varnothing 1$ or less, the vibration tolerance management should be within 5 μ m).
- Air blow or mist coolants are recommended and note for chip emission, heat, or ignition.