THE NEW VALUE FRONTIER

KYOCERA

밀링
Milling

MEW형

양면 4코너 사양 신세대 엔드밀 Double-sided 4-edge Insert, Newly Developed End Mill

# MEW형

**Newly Developed Mold Technology End Mill**

## Milling Solutions

- 교세라 독자의 몰드기술로 **포지티브급의 저저항**
  Kyocera's unique mold technology reduces cutting force equivalent to positive inserts
- **MEGACOAT NANO**로 긴수명
  Extended Tool Life by New MEGACOAT NANO Technology

**양면 4코너 사양**으로 경제적
Economical 4-edge Insert

가공에 따른 **3가지 브레이커**
3 Chipbreakers for various appplications

ADVANCING PRODUCTIVITY

생산성 향상에 기여하는 교세라

# 양면 4코너 신세대 엔드밀 교세라 독자의 몰드기술로 포지티브급의 저저항

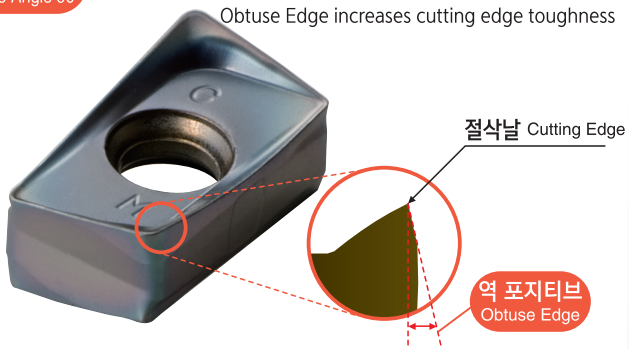
Double-sided 4-edge Insert, Newly Developed End Mill
Kyocera's unique mold technology reduces cutting force equivalent to positive inserts

절입각90°
Cutting Edge Angle 90°

90°

## 역 포지티브 사양으로 절삭날 강도 업

Obtuse Edge increases cutting edge toughness

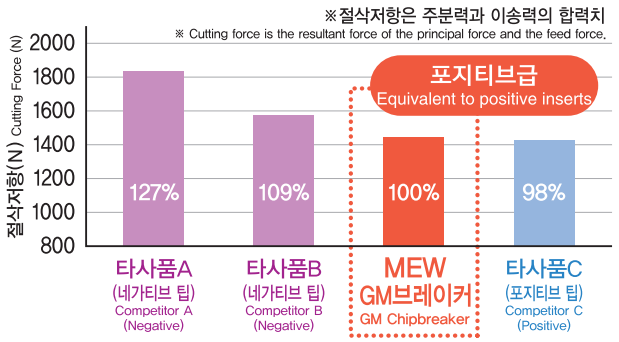



## 네가티브 팁으로 포지티브급의 저저항

Low cutting force equivalent to positive inserts

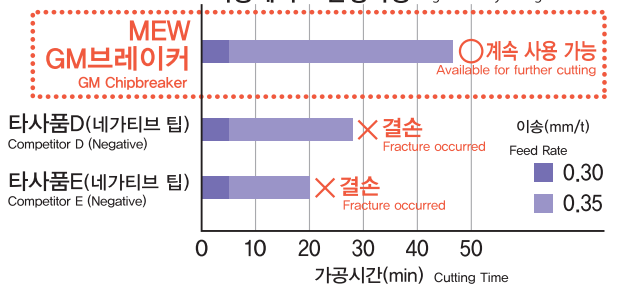
● **절삭저항 비교** Cutting Force Comparison

※절삭저항은 주분력과 이송력의 합력치
※ Cutting force is the resultant force of the principal force and the feed force.




Vc=150m/min ap×ae=3×15mm fz=0.15mm/t S50C 커터 Ø20 Cutter (당사비교) (Internal evaluation)

● **내결손성 비교** Fracture Resistance Comparison
**고이송에서도 안정가공** High stability at high feed rates




Vc=120m/min ap×ae=3×10mm fz=0.3~0.35mm/t
SCM440H (37~39Hs) 커터Ø20 Cutter (당사비교) (Internal evaluation)

# 떨림에 강하고 깨끗한 가공면

Improved surface finish, minimizing chattering

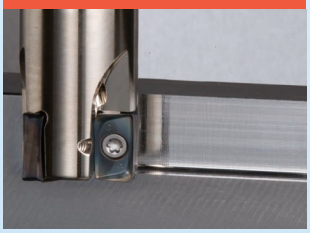
**헬리컬 절삭날과 A.R.의 최적 설계에 의해, 떨림에 강하고 버가 적음**
Sharp cutting and superior resistance to chattering and burrs, due to helical cutting edge and optimum axial rake design

| MEW GM브레이커 GM Chipbreaker | 타사품F (네가티브 팁) Competitor F (Negative) | 타사품G (포지티브 팁) Competitor G (Positive) |
|---|---|---|
| +20° | +17° | +17° |

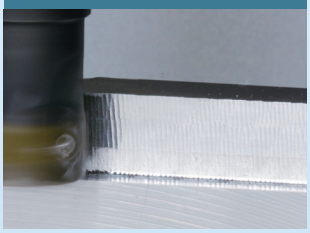
실구조각이 크고 절삭저항이 적음
Large actual rake angle lowers cutting force

### 벽면의 가공면 상태 Surface of Shoulder Wall

MEW형 MEW



타사품H 포지티브 커터 Competitor H (Positive Cutter)

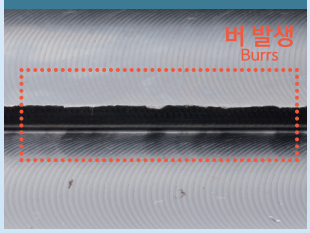


MEW형은 떨림이 없고 벽면이 우수
Smooth surface of MEW without chattering

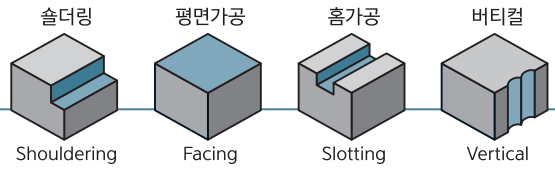
### 포지티브 커터와의 비교 Burr Comparison with Positive Cutters

MEW형 MEW

타사품 I 포지티브 커터 Competitor I (Positive Cutter)




절삭성이 우수해서 포지티브 커터보다 버가 적음
Less burrs than positive cutters due to sharp cutting



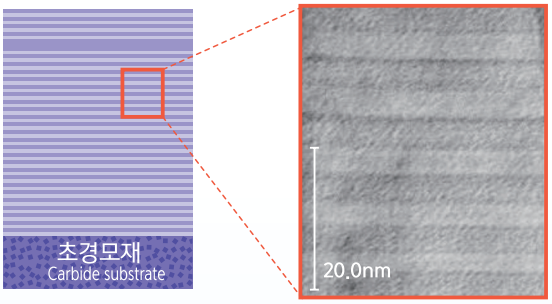

# 신기술 MEGACOAT NANO로 긴수명

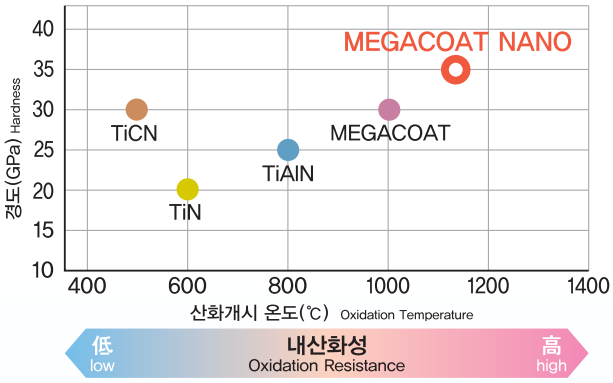
Extended Tool Life by New MEGACOAT NANO Technology

**특수 나노 적층 코팅「MEGACOAT NANO」에 의해 밀링가공의 안정화와 긴수명을 실현하였습니다.**
**강·스텐레스강용 PR1525, 주철용 PR1510을 레파토리**

Special multi-layer nano coating "MEGACOAT" enables stable milling and extended tool life
PR1525 for steel and stainless steel, and PR1510 for cast iron

**MEGACOAT 베이스 적층 구조**
MEGACOAT base multi-layer structure




고경도 (35GPa) 와 우수한 내산화성 (산화개시 온도 : 1,150℃) 이 마모를 억제해 내칩핑성능도 향상

Prevents wear and fracture with high hardness (35GPa) and superior oxidation resistance (oxidation temperature: 1,150℃)

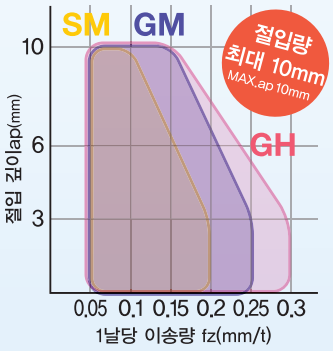
# 다양한 브레이커 라인업

Various Chipbreaker Lineup

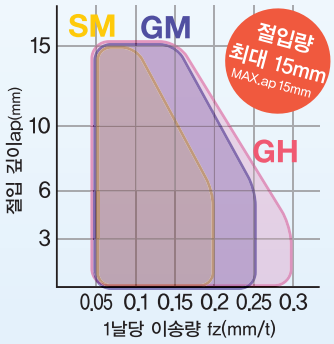
**가공에 따른 3가지 브레이커를 새롭게 개발** Newly developed 3 chipbreakers for various applications
**다양한 가공에 대응 가능** Applicable to a wide range of application

| 브레이커 Chipbreaker | 용도 Application | 형상 Shape |
|---|---|---|
| GM | 범용 General Purpose | |
| SM | 저저항용 Low cutting force | |
| GH | 중절삭용 Heavy milling | |

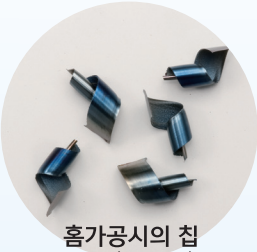
● LOMU10타입 LOMU10...type




● LOMU15타입 LOMU15...type




〈절삭조건〉 Vc=150m/min ae=ØD/2 피삭재 : S50C
Cutting Condition Workpiece

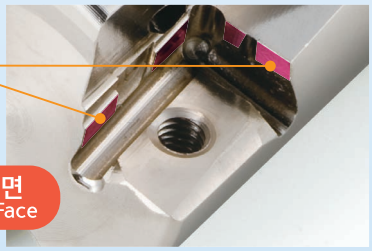

홈가공시의 칩
Chips (grooving)

숄더링시의 칩
Chips (shouldering)

# 홀더의 내구성 업과 팁 장착 정도 향상

Improved Toolholder Durability and Precision

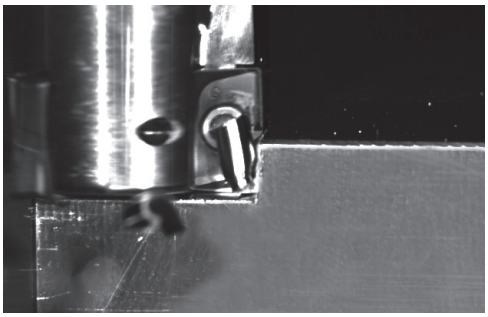
**MEW형**
MEW




**구속면을 확대**
Extended Contact face

## 부드러운 칩 배출

Smooth Chip Evacuation

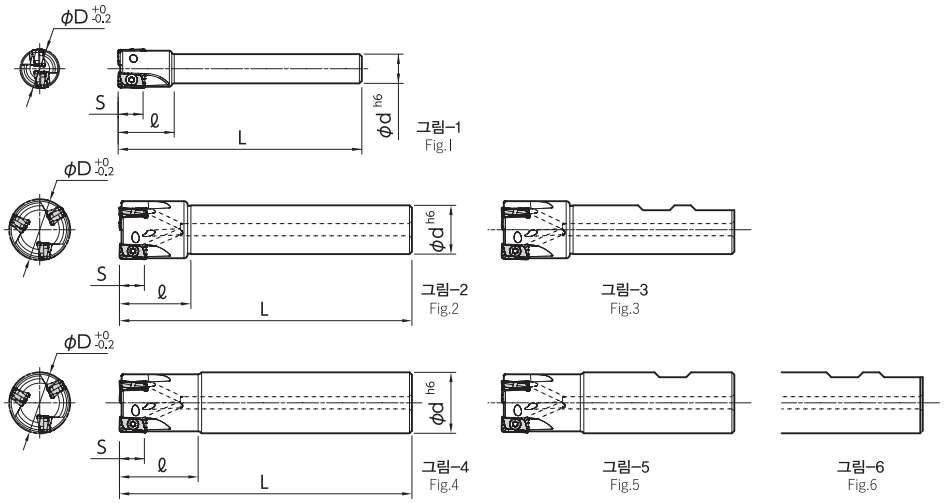


**깔끔한 칩 컬**
Properly curled chips

(초고속 카메라 촬영 데이터) (The photo was taken by a high speed camera.)

## MEW형 MEW End Mill

(스트레이트 샹크)
(Cylindrical)




## 홀더 치수 Toolholder Dimensions

| 규 격 Description | | | 재고 Stock | 날수 No. of inserts | 치수 (mm) Dimension ØD | Ød | L | ℓ | S | 경사각 (°) Rake Angle A.R. (MAX) | R.R. | 쿨런트 홀 Coolant Hole | 형상 Drawing | 최고 회전수 ($min^{-1}$) Max. Revolution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 스트레이트 샹크 Cylindrical | 표준 샹크 Standard Shank | MEW 16-S12-10-2T | ● | 2 | 16 | 12 | 100 | 23 | 10 | +7° | -22° | 무 No | 그림-1 Fig.1 | 43,750 |
| | | 18-S16-10-2T | ● | | 18 | 16 | 100 | 25 | | | -21° | 유 Yes | 그림-2 Fig.2 | 43,000 |
| | | 20-S16-10-2T | ● | | 20 | | 110 | 26 | | | -20° | | | 41,000 |
| | | 22-S20-10-3T | ● | 3 | 22 | 20 | 110 | 26 | | | | | | 39,600 |
| | | 25-S20-10-3T | ● | | 25 | | 120 | 29 | | | | | | 37,500 |
| | | 28-S25-10-3T | ● | | 28 | 25 | 120 | 29 | | | | | | 35,800 |
| | | 30-S25-10-4T | ● | 4 | 30 | | 130 | 32 | | | | | | 34,800 |
| | | 32-S25-10-4T | ● | | 32 | | 130 | 32 | | | | | | 33,900 |
| | | 40-S32-10-5T | ● | 5 | 40 | 32 | 150 | 50 | | | -19° | | | 30,000 |
| | | 50-S32-10-5T | ● | | 50 | | 120 | 40 | | | | | | 22,500 |
| | 동일경 샹크 Same Shank Size | MEW 16-S16-10-2T | ● | 2 | 16 | 16 | 100 | 26 | 10 | +7° | -21° | 유 Yes | 그림-4 Fig.4 | 43,750 |
| | | 20-S20-10-2T | ● | | 20 | 20 | 110 | 30 | | | -20° | | | 41,000 |
| | | 20-S20-10-3T | ● | 3 | | | 110 | 30 | | | | | | 41,000 |
| | | 25-S25-10-2T | ● | 2 | 25 | 25 | 120 | 32 | | | | | | 37,500 |
| | | 25-S25-10-3T | ● | 3 | | | 120 | 32 | | | | | | 37,500 |
| | | 32-S32-10-3T | ● | | 32 | 32 | 130 | 40 | | | | | | 33,900 |
| | | 32-S32-10-4T | ● | 4 | | | 130 | 40 | | | | | | 33,900 |
| | 롱 샹크 Long | MEW 20-S20-10-150-2T | ● | 2 | 20 | 20 | 150 | 40 | 10 | +7° | -20° | 유 Yes | 그림-4 Fig.4 | 41,000 |
| | | 25-S25-10-170-2T | ● | | 25 | 25 | 170 | 50 | | | | | | 37,500 |
| | 표준 샹크 Standard Shank | MEW 25-S20-15-2T | ● | 2 | 25 | 20 | 120 | 29 | 15 | +10° | -22° | 유 Yes | 그림-2 Fig.2 | 35,000 |
| | | 32-S25-15-2T | ● | | 32 | 25 | 130 | 32 | | | | | | 30,000 |
| | | 40-S32-15-3T | ● | 3 | 40 | 32 | 150 | 50 | | | -21° | | | 25,000 |
| | | 40-S32-15-4T | ● | 4 | | | 150 | 50 | | | | | | 25,000 |
| | | 50-S32-15-4T | ● | 4 | 50 | | 120 | 40 | | | | | | 17,000 |
| | 동일경 샹크 Same Shank Size | MEW 25-S25-15-2T | ● | 2 | 25 | 25 | 120 | 32 | 15 | +10° | -22° | 유 Yes | 그림-4 Fig.4 | 35,000 |
| | | 32-S32-15-2T | ● | | 32 | 32 | 130 | 40 | | | | | | 30,000 |
| | | 32-S32-15-3T | ● | 3 | | | 130 | 40 | | | | | | 30,000 |
| 웰던 샹크 Weldon | 표준 Standard Shank | MEW 40-W32-10-5T | 수 | 5 | 40 | 32 | 111 | 50 | 10 | +7° | -19° | 유 Yes | 그림-3 Fig.3 | 30,000 |
| | | MEW 40-W32-15-4T | 수 | 4 | 40 | 32 | 111 | 50 | 15 | +10° | -21° | | | 25,000 |
| | 동일경 샹크 Same Shank Size | MEW 16-W16-10-2T | 수 | 2 | 16 | 16 | 75 | 25 | 10 | +7° | -22° | 유 Yes | 그림-5 Fig.5 | 43,750 |
| | | 20-W20-10-2T | 수 | | 20 | 20 | 77 | 25 | | | -20° | | | 41,000 |
| | | 20-W20-10-3T | 수 | 3 | | | 77 | 25 | | | | | | 41,000 |
| | | 25-W25-10-2T | 수 | 2 | 25 | 25 | 90 | 32 | | | | | 그림-6 Fig.6 | 37,500 |
| | | 25-W25-10-3T | 수 | 3 | | | 90 | 32 | | | | | | 37,500 |
| | | 32-W32-10-4T | 수 | 4 | 32 | 32 | 102 | 40 | | | | | | 33,900 |
| | | MEW 25-W25-15-2T | 수 | 2 | 25 | 25 | 90 | 32 | 15 | +10° | -22° | 유 Yes | 그림-6 Fig.6 | 35,000 |
| | | 32-W32-15-3T | 수 | 3 | 32 | 32 | 102 | 40 | | | | | | 30,000 |

**최고 회전수 표기에 대해서** Caution about the Max. Revolution

잘못해 최고 회전수 이상으로 회전 시켰을 경우 원심력에 의해 팁이나 부품의 비산등이 생기는 경우가 있기 때문에 주의하여 주십시오.
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

● : 표준재고 Std. Item

## MEW형 페이스밀 MEW Face Mill

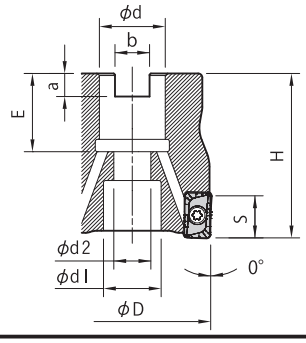



그림-1 Fig.1

### 페이스밀 치수 Dimension

| 규 격 Description | 재고 stock | 날수 No. of Insert | 치수 (mm) Dimension ØD | Ød | Ød1 | Ød2 | H | E | a | b | S | 경사각 (°) Rake Angle A.R. (MAX) | R.R. | 쿨런트 홀 Coolant Hole | 형상 Shape | 중량 (kg) Weight | 최고 회전수 ($min^{-1}$) Max. Revolution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEW 032R-10-4T-M | ● | 4 | 32 | 16 | 14 | 9 | 35 | 19 | 5.6 | 8.4 | 10 | +7° | -20° | 유 Yes | 그림-1 Fig.1 | 0.1 | 33,900 |
| 040R-10-5T-M | ● | 5 | 40 | | | | 40 | | | | | | -19° | | | 0.2 | 30,000 |
| 050R-10-5T-M | ● | | 50 | 22 | 18 | 11 | | 21 | 6.3 | 10.4 | | | | | | 0.4 | 22,500 |
| 063R-10-6T-M | ● | 6 | 63 | | | | | | | | | | | | | 0.5 | 20,500 |
| MEW 040R-15-4T-M | ● | 4 | 40 | 16 | 14 | 9 | 40 | 19 | 5.6 | 8.4 | 15 | +10° | -21° | 유 Yes | 그림-1 Fig.1 | 0.2 | 25,000 |
| 050R-15-4T-M | ● | | 50 | 22 | 18 | 11 | | 21 | 6.3 | 10.4 | | | | | | 0.3 | 17,000 |
| 063R-15-5T-M | ● | 5 | 63 | | | | | | | | | | | | | 0.5 | 14,500 |
| 080R-15-6T-M | ● | 6 | 80 | 27 | 20 | 13 | 50 | 25 | 7 | 12.4 | | | -20° | | | 1.0 | 12,000 |
| 080R-15-6T | ● | | | 25.4 | | | | 27 | 6 | 9.5 | | | | | | 1.0 | 12,000 |

**최고 회전수 표기에 대해서** Caution about the Max. Revolution

잘못해 최고 회전수 이상으로 회전 시켰을 경우 원심력에 의해 팁이나 부품의 비산등이 생기는 경우가 있기 때문에 주의하여 주십시오.
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

● : 표준재고 Std. Item

### 부품과 적합 팁 (엔드밀·페이스밀 공통) Spare parts and applicable inserts (end mill / face mill)

| 규 격 Description | 부 품 Spare Parts: 클램프 스크류 Clamp Screw | 렌치 Wrench | 소착방지제 Anti-seize Compound | 아바 장착용 볼트 Mounting bolt | 적합 팁 Applicable Inserts: 범용 General Purpose | 저저항형 Low Cutting Force | 인선강화형 (중절삭용) Tough Edge (Heavy Milling) |
|---|---|---|---|---|---|---|---|
| MEW ···-10-_T | SB-3065TRP | DTPM-8 | MP-1 | - | LOMU 100408ER-GM | LOMU 100408ER-SM | LOMU 100408ER-GH |
| MEW 032R-10_-M | | | | HH8×25 | | | |
| 040R-10_-M | 팁 클램프용 토르크 1.2N·m Recommended torque for insert clamp | | | | | | |
| 050R-10_-M | | | | HH10×30 | | | |
| 063R-10_-M | | | | | | | |
| MEW ···-15-_T | SB-4090TRP | DTPM-15 | MP-1 | - | LOMU 150508ER-GM | LOMU 150508ER-SM | LOMU 150508ER-GH |
| MEW 040R-15_-M | | | | HH8×25 | | | |
| 050R-15_-M | 팁 클램프용 토르크 3.5N·m Recommended torque for insert clamp | | | HH10×30 | | | |
| 063R-15_-M | | | | | | | |
| 080R-15_-(M) | | | | HH12×40 | | | |

소착방지제 (MP-1)는, 팁을 고정할 때 클램프 스크류에 얇게 도포하여 주십시오.
Coat Anti-seize Compound (MP-1) thinly on portion of taper and thread when insert is fixed.

추천 절삭조건 ➡P6
Recommended Cutting Conditions

**본 제품의 클램프 스크류 및 렌치는 토르크 플러스 사양입니다.**
Wrenches and clamp screws are "Torx Plus".

① 토르크 플러스 렌치··· 그림-1참조 (그립색···청색)
1) See Fig. 1 for "Torx Plus" Wrench. (Blue grip)

② 토르크 렌치·····그림-2참조 (그립색···흑색)
2) See Fig. 2 for "Torx" Wrench. (Black grip)

**각 렌치는 선단형상이 다릅니다.**
A "Torx Plus" Wrench and a "Torx" Wrench have different top shapes. Please use a "Torx Plus" Wrench.

**※잘못된 「토르크」렌치를 사용하면, 나사 머리부분이나 렌치 선단이 파손 될 수 있고, 클램프 스크류를 풀 수 없게 될 우려가 있습니다.**
If a "Torx" Wrench is used to tighten, the screw head might become damaged and then the screw cannot be removed.

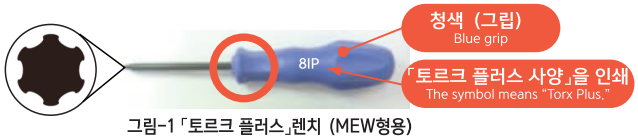



그림-1 「토르크 플러스」렌치 (MEW형용)
Fig. 1 "Torx Plus" Wrench (For MEW)

그림-2 「토르크」렌치 (MEW형에는 사용 불가)
Fig. 2 "Torx" Wrench (Do NOT use it for MEW) (Do NOT use it for MEW)

## ■팁 교환순서 How to mount an insert

1. 팁 장착부에 칩 등의 불순물을 확실히 제거하여 주십시오.
   Be sure to remove dust and chips from the insert mounting pocket.
2. 클램프 스크류는
   Apply anti-seize compound on portion of taper and thread of clamp screw.
   ① 테이퍼부와 나사부에 소착방지제를 도포하여 주십시오.
   Attach the screw (magnetc head) to the front end of the wrench.
   ② 렌치 선단부 (선단부는 자석화 처리) 에 장착해 팁을 구속면 방향으로 누르면서 체결하여 주십시오. (그림-1 참조)
   While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten. (See Fig. 1.)
   또,M3나사 (SB-3065TRP)는 팁 상면에 대해 나사를 기울여서 장착하기 때문에 주의하여 주십시오. (그림-2 참조)
   Tighten M3 screws (SB-3065TRP) slightly inclined from the insert surface. (See Fig. 2.) surface of the insert.
3. 렌치는 클램프 스크류와 평행한 방향으로 조여주십시오. 추천 토르크 ➡ 4페이지
   When tightening the screw, make sure that the wrench is parallel to the screw. For recommended torque, see Table 1
4. 체결 후, 팁 좌면과 홀더의 지지좌면 및 구속면에 틈이 없는지 확인하여 주십시오.
   After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the holder or between the insert side surfaces and the constraint surface of the holder. If there is any clearance, remove the insert and mount it again according to the above steps.
   틈새가 있는 경우 처음부터 다시 차례로 체결하여 주십시오.

그림-1
Fig. 1

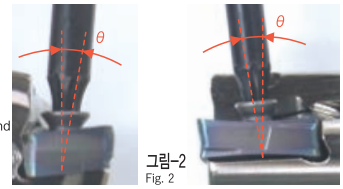
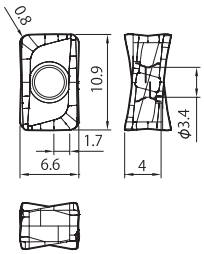
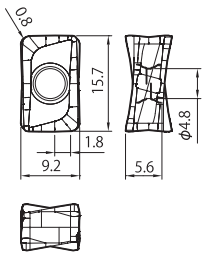


그림-2
Fig. 2

## 적합 팁 Applicable Inserts

| 사용분류 기준 Classification of usage | | | | |
|---|---|---|---|---|
| ★ : 황삭/제1추천 Roughing / 1st Choice<br>☆ : 황삭/제2추천 Roughing / 2nd Choice<br>■ : 정삭/제1추천 Finishing / 1st Choice<br>□ : 정삭/제2추천 Finishing / 2nd Choice<br>(고경도는 45HRC이하의 경우) (In case hardness is under 45HRC) | P | 탄소강·합금강 Carbon Steel / Alloy Steel | ★ | |
| | | 금형강 Mold Steel | ★ | |
| | M | 스텐레스강 Stainless Steel | ★ | |
| | K | 회주철 Gray Cast Iron | | ★ |
| | | 덕타일 주철 Nodular Cast Iron | | ★ |
| | N | 비철금속 Non-ferrous Metals | | |
| | S | 내열합금 Heat-resistante Alloys | ★ | |
| | | 티탄합금 Titanium Alloys | | ★ |
| | H | 고경도재 Hard Materials | □ | |

| 형 상 Insert | | 규 격 Description | MEGACOAT NANO PR1525 | MEGACOAT NANO PR1510 |
|---|---|---|---|---|
| 범용 General Purpose |  | LOMU 100408ER-GM | ● | ● |
| 저저항형 Low Cutting Force | | LOMU 100408ER-SM | ● | ● |
| 인선 강화형 (중절삭용) Tough Edge (Heavy Milling) | | LOMU 100408ER-GH | ● | ● |
| 범용 General Purpose |  | LOMU 150508ER-GM | ● | ● |
| 저저항형 Low Cutting Force | | LOMU 150508ER-SM | ● | ● |
| 인선 강화형 (중절삭용) Tough Edge (Heavy Milling) | | LOMU 150508ER-GH | ● | ● |

● : 표준재고 Std. Item

## 추천 절삭조건 Recommended Cutting Conditions

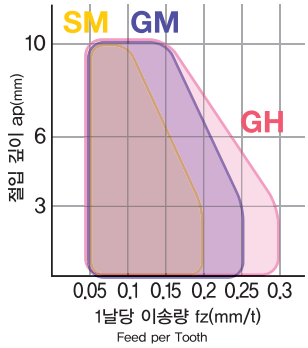
| 브레이커 Chipbreaker | 피삭재 Workpieces Materials | 이송 fz (mm/t) feed | | 추천 팁 재종 Vc (절삭속도 m/min) Recommended Insert Grade | |
|---|---|---|---|---|---|
| | | 홀더 규격 Toolholder Descriptions | | MEGACOAT NANO | |
| | | MEW16~MEW18 | MEW20~MEW50 MEW032R~MEW080R | PR1525 | PR1510 |
| GM | 탄소강 Carbon Steel S××C | 0.06~0.1~0.2 | 0.08~0.15~0.25 | ★ 120~180~250 | - |
| | 합금강 Alloy Steel SCM 등 etc | 0.06~0.1~0.14 | 0.08~0.15~0.2 | ★ 100~160~220 | - |
| | 금형강 Mold Steel SKD/NAK 등 etc | 0.06~0.08~0.12 | 0.08~0.12~0.2 | ★ 80~140~180 | |
| | 스텐레스강 Stainless Steel SUS304 등 etc | 0.06~0.08~0.12 | 0.08~0.12~0.15 | ☆ 100~160~200 | - |
| | 회주철 Gray Cast Iron FC | 0.06~0.1~0.17 | 0.08~0.18~0.25 | - | ★ 120~180~250 |
| | 덕타일 주철 FCD Nodular Cast Iron | 0.06~0.08~0.12 | 0.08~0.15~0.2 | - | ★ 100~150~200 |
| | 티탄합금 Titanium Alloys Ti-6Al-4V | 0.06~0.08~0.12 | 0.08~0.15~0.2 | - | ★ 30~50~70 |
| SM | 탄소강 Carbon Steel S××C | 0.06~0.1~0.17 | 0.08~0.15~0.2 | ★ 120~180~250 | - |
| | 합금강 Alloy Steel SCM 등 etc | 0.06~0.08~0.12 | 0.08~0.12~0.18 | ★ 100~160~220 | - |
| | 금형강 Mold Steel SKD/NAK 등 etc | 0.06~0.08~0.12 | 0.08~0.1~0.15 | ★ 80~140~180 | |
| | 스텐레스강 Stainless Steel SUS304 등 etc | 0.06~0.08~0.12 | 0.08~0.1~0.15 | ★ 100~160~200 | - |
| | 티탄합금 Titanium Alloys Ti-6Al-4V | 0.06~0.08~0.12 | 0.08~0.12~0.18 | - | ★ 30~50~70 |
| GH | 탄소강 Carbon Steel S××C | 0.06~0.1~0.2 | 0.08~0.2~0.3 | ★ 120~180~250 | - |
| | 합금강 Alloy Steel SCM 등 etc | 0.06~0.1~0.14 | 0.08~0.2~0.25 | ★ 100~160~220 | - |
| | 금형강 Mold Steel SKD/NAK 등 etc | 0.06~0.08~0.12 | 0.08~0.15~0.22 | ★ 80~140~180 | |
| | 스텐레스강 Stainless Steel SUS304 등 etc | 0.06~0.08~0.12 | 0.08~0.12~0.15 | ☆ 100~150~200 | - |
| | 회주철 Gray Cast Iron FC | 0.06~0.1~0.2 | 0.08~0.22~0.3 | - | ★ 120~180~250 |
| | 덕타일 주철 FCD Nodular Cast Iron | 0.06~0.08~0.15 | 0.08~0.18~0.25 | - | ★ 100~150~200 |
| | 티탄합금 Titanium Alloys Ti-6Al-4V | 0.06~0.08~0.12 | 0.08~0.15~0.2 | - | ★ 30~50~70 |

※티탄합금은 습식가공을 추천 Machining with coolant is recommended for titanium alloys.

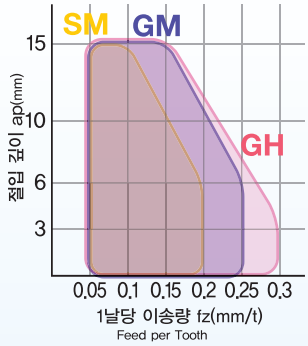
★ : 제1추천 ☆ : 제2추천
★ : 1st recommendation ☆ : 2nd recommendation

**브레이커 적용범위 (숄더링)**
Applicable Chipbreaker Range (Shouldering)

● LOMU10타입 LOMU10 type

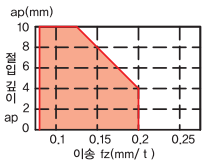
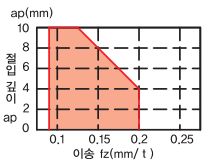
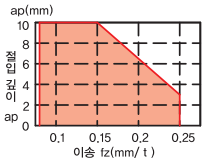
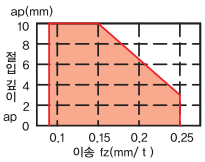
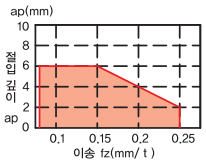
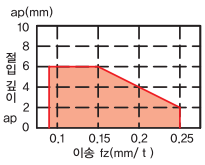
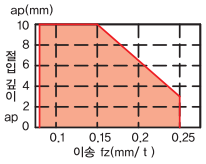
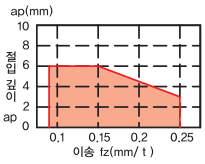


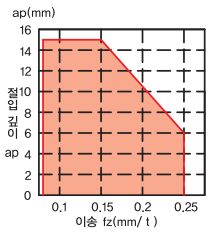
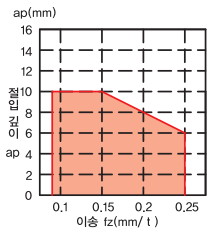
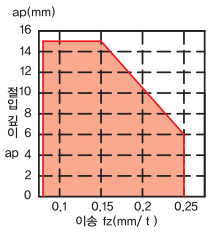
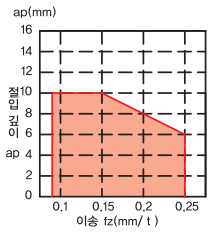

● LOMU15타입 LOMU15 type




〈절삭조건〉 Cutting Conditions
Vc=150m/min ae=ØD/2 피삭재 :S50C
Workpieces Materials

## 절삭 능력 Cutting Performance

| 규 격 Description | 숄더링의 경우 (절입폭ae=ØD/2일 때) Shouldering (ae=ØD/2) | 홈가공의 경우 Slotting |
|---|---|---|
| MEW16-10형<br>MEW18-10형 |  |  |
| MEW20-10형<br>~<br>MEW50-10형 |  |  |
| MEW20-S20<br>-10-150-2T<br>MEW25-S25<br>-10-170-2T<br>(롱샹크)<br>Long Shank |  |  |
| MEW032R···<br>-10형<br>~<br>MEW063R···<br>-10형 |  |  |

| 규 격 Description | 숄더링의 경우 (절입폭ae=ØD/2일 때) Shouldering (ae=ØD/2) | 홈가공의 경우 Slotting |
|---|---|---|
| MEW25-15형<br>~<br>MEW50-15형 |  |  |
| MEW040R···<br>-15형<br>~<br>MEW080R···<br>-15형 |  |  |

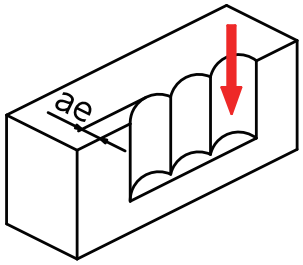
〈절삭조건〉 Cutting Condition
·Vc=180m/min
·GM브레이커 GM Chipbreaker
·피삭재 Workpiece : S50C
·돌출 길이 Overhang Length
1. 엔드밀 : 치수표의 ℓ과 동일 End mill: Overhang length is "ℓ" of the dimension list
2. 페이스밀 : 치수표의 H+최소 아바 돌출량
Face mill: Overhang length is "H" of the dimension list + minimum arbor overhang

## ■버티컬·경사·헬리컬가공에 대해서 Ramping, Helical milling and Vertical milling

1. 버티컬가공은 가능합니다.
Available for vertical milling

2. 경사가공·헬리컬가공은 피삭재와 팁 여유면이 간섭되어 가공이 불가 합니다.
NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

### 버티컬 가공 Vertical Milling




| 팁 규격<br>Insert Description | 버티컬 최대 절입폭 (ae)<br>Maximum Width of Cut (ae) |
|---|---|
| LOMU10형<br>LOMU10 type | 5mm |
| LOMU15형<br>LOMU15 type | 7mm |

## ■가공 실예 Case Studies

### SS400

·건설기계 부품 Construction equipment's part
·Vc=250m/min
·ap×ae=4×20mm
·fz=0.14mm/t (Vf=1,350mm/min)
·습식 Wet
·MEW32-S32-10-4T (4날) 4 inserts
·LOMU100408ER-GM (PR1525)

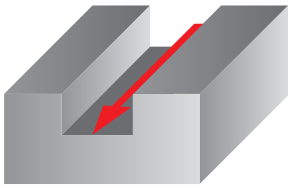
| | |
|---|---|
| PR1525 | 칩 배출량 = 108cc/분<br>Chip Removal Rate = 108cc/min |
| 타사품A(포지티브 커터)<br>Competitor A (Positive cutter) | 칩 배출량 = 72cc/분<br>Chip Removal Rate = 72cc/min |

MEW는 이송을 올려도 떨림이 없고, 안정가공이 가능하며 가공능률도 1.5배 향상.
또한, 버가 억제되어 우수한 가공면을 실현.
MEW showed stable milling without chattering at higher feed, improving the cutting efficiency by 150%. Burrs are prevented and excellent surface finish is achieved.

(고객평가) Evaluation by the user

### SS400

·기계 부품 Machine part
·Vc=250m/min
·ap×ae=3×20mm (홈가공) Grooving
·fz=0.2mm/t (Vf=2,390mm/min)
·건식 Dry
·MEW20-S20-10-3T (3날) 3 inserts
·LOMU100408ER-GM (PR1525)



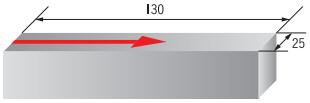
| | |
|---|---|
| PR1525 | 칩 배출량 = 144cc/분 (안정가공)<br>Chip Removal Rate = 144cc/min (Stable milling) |
| 타사품B(포지티브 커터)<br>Competitor B (Positive cutter) | 칩 배출량 = 114cc/분 (불안정)<br>Chip Removal Rate = 114cc/min (Unstable) |

타사품B에서 떨림이 발생하는 가공조건에서도 MEW는 떨림 없이 가공 가능
또 버의 발생도 없고 양호한 가공면
No chattering with MEW, while Competitor B chattered at the same cutting conditions. No burrs with MEW and excellent surface finish is gained..

(고객평가) Evaluation by the user

### 15-5PH (42HRC)

·항공기 부품 Aircraft Part
·Vc=180m/min
·ap×ae=2×25mm
·fz=0.1mm/t (Vf=716mm/min)
·습식 Wet
·MEW32-S32-10-4T (4날) 4 inserts
·LOMU150508ER-GM (PR1525)



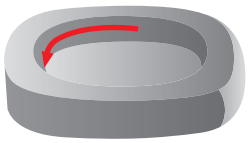

| | |
|---|---|
| PR1525 | 칩 배출량 = 35.8cc/분 (계속 가공 가능)<br>Chip Removal Rate = 35.8cc/min (Further Milling Possible) |
| 타사품C(포지티브 커터)<br>Competitor C (Positive cutter) | 칩 배출량 = 26.8cc/분 (계속 가공 불가)<br>Chip Removal Rate = 26.8cc/min (Unable to continue cutting) |

타사품C에 비해서 MEW는 떨림없이 안정가공이 가능.
피삭재는 42HRC의 난삭재이지만, PR1525는 마모·용착이 적고 양호한 인선.
No chattering and more stable milling is possible with MEW. Dispite the milling difficulty because of the properties of the material, PR1525 kept good cutting edge form, minimizing wear and adhesion.

(고객평가) Evaluation by the user

### SKD61 (45HRC)

·금형 부품 Mold Part
·Vc=100m/min
·ap×ae=3.5×30mm
·fz=0.1mm/t (Vf=400mm/min)
·건식 Dry
·MEW32-S32-10-4T (4날) 4 inserts
·LOMU100408ER-GH (PR1525)



| | |
|---|---|
| PR1525 | 칩 배출량 = 42cc/분 (계속 가공 가능)<br>Chip Removal Rate = 42cc/min (Further Milling Possible) |
| 타사품D(포지티브 커터)<br>Competitor D (Positive cutter) | 칩 배출량 = 21cc/분 (계속 가공 불가)<br>Chip Removal Rate = 21cc/min (Unable to continue cutting) |

MEW는 가공 능률이 2배로 오르고, 사용 코너수도 2배이므로
대폭적인 코스트 다운을 실현.
MEW doubled cutting efficiency. Furthermore, MEW inserts have double number of edges (4-edge), which enables a drastic cost reduction.

(고객평가) Evaluation by the user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032-821-8365
FAX:032-821-8369
●근무시간 9:00~12:30 · 13:30~17:30
●토요일 · 일요일 · 공휴일 등은 쉽니다.
한국교세라정공(주) 영업본부

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