Think threads with YAMAWA

▪ Roll Taps for Carbon Steels of Medium Hardness ▪

# MHRZ

**Medium Hard**

MHRZ

Now, the worries about tapping carbon steels and alloy steels of medium hardness have gone.

Z-PRO
Ultimate Machining Taps

# Roll Taps for Carbon Steels of Medium Hardness

# MHRZ M6~M20

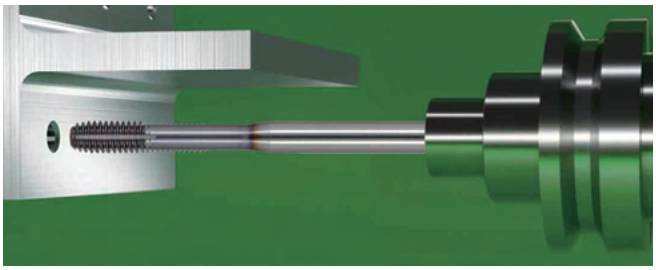
HSS-Co | Coating | 2~4 | Medium carbon steels 10~30 (m/min) | High carbon steels 10~30 (m/min) | Alloy steels 10~30 (m/min) | Thermal refined steels 10~20 (m/min) 25~35HRC


M6 L-80

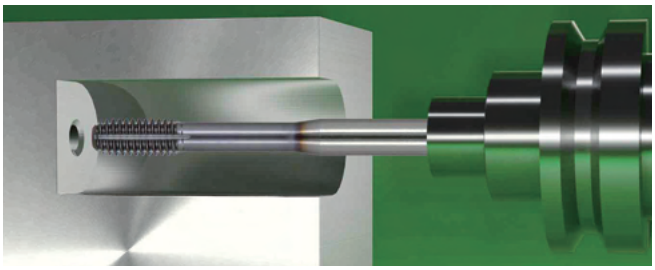
M6 L-150

## Product Features

- Torque reduction is achieved from the new design and specifications.
- Tool life is dramatically improved with superb tool materials and coatings offering excellent wear resistance.
- Stable screw thread tapping in thermal refined material up to 35 HRC.
- The MHRZ roll taps can be used with water soluble cutting fluid.
- Secures appropriate tool projection length to prevent interference with workpieces



Obstacle



Deep position

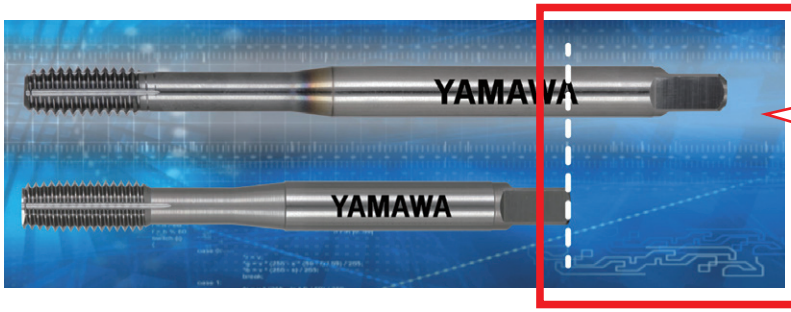
## Benefits of Z-PRO Dimension

- A longer overall length enables a better supply of cutting fluid, resulting in an excellent surface finish of internal threads.

### Comparison of Z-PRO and JIS Shape.

Z-PRO Shape

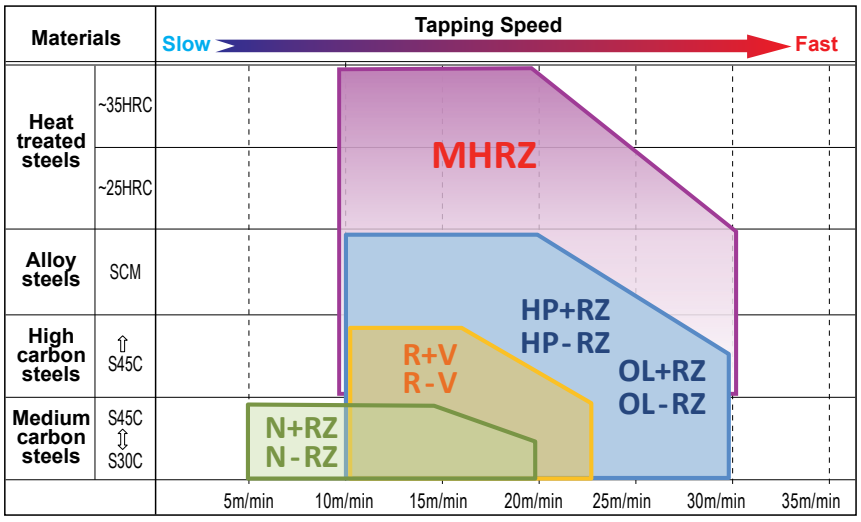
JIS Shape




**The longer tool projection allows...**

a better external lubrication, resulting in an excellent surface finish of internal threads.

## Machining Area




**No more worries!!**


♦By adopting roll taps, the worries about the problems caused by chips are completely solved.

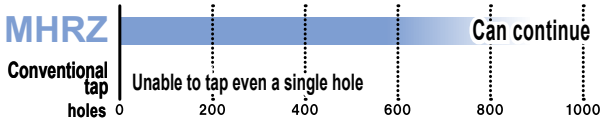


♦A great improvement in surface finish of internal threads

# Tapping Data / Tapping Torque / Machining Examples

base material with excellent durability and high level of abrasion resistance together with optimal coating are used

## Longer tool life is realized.



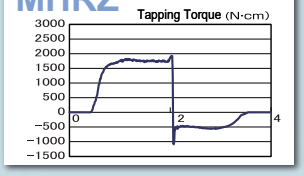

| | |
|---|---|
| Size | M12×1.5 |
| Workpiece Material | SCM440／35HRC |
| Tapping Speed | 20m／min |
| Bored Hole Size | Φ11.3mm |

| | |
|---|---|
| Tapping Length | 18mm (through hole) |
| Machine | MC (full synchronous feed) |
| Tapping Fluid | Water soluble cutting fluid |
| Number of Holes | 800holes |

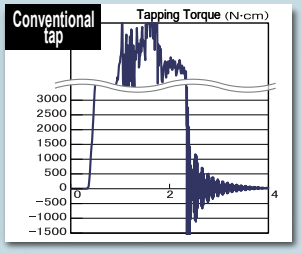
## Uniquely developed thread specifications succeeded in reducing torque

**Torque comparison with conventional products**

MHRZ

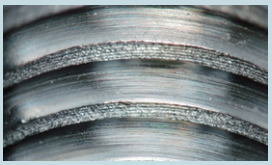



Conventional tap




### ■ Comparison of Internal Threads with Cutting Taps

MHRZ



Cutting Tap (Gauge passed)

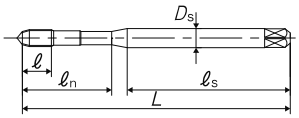
Examples of Tapping Data

| MHRZ | Workpiece Material | Tapping Conditions/Tapping Result | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Nominal Size | Material Symbol (Hardness) | Bored Hole Size (mm) | Tapping Length (mm)(*) | Machine | Tapping Speed (m/min) | Feed Mechanism | Tapping Fluid | Tool Life (Holes/pcs) | Status of Conventional Tap / Parts |
| M 6 X 1 | SUS316 | 5.60 | 9 (1.5D) | CNC | 28 | Synchronized | Non-water soluble | 10,000 | GP.NG. at 5000 holes Automobile parts |
| M 6 X 1 | S55C | 5.55 | 15 (2.5D) | MC | 26 | Synchronized | Water soluble | 6,000 | Random breakage Shaft parts |
| M 6 X 1 | SCM420H (30HRC) | 5.55 | 6 (1D) | MC | 20 | Synchronized | Water soluble | 2,000 | Galling occurred on internal threads. Gear parts |
| M 6 X 1 | SCM435 (30HRC) | 5.55 | 6 (1D) | MC | 10 | Synchronized | Non-water soluble | 4,800 | Replaced due to premature wear. Automobile parts |
| M 8 X 1.25 | Aluminum alloy castings (200HBW) | 7.50 | 16 (2D) | MC | 30 | Synchronized | Water soluble | 16,000 | Chipping occurred at 15,000 holes. Automobile parts |
| M10 X 1.5 | SCr420 (30HRC) | 9.40 | 35 (3.5D) | MC | 10 | Synchronized | Non-water soluble | 860 | Chipping occurred at 80 holes. Automobile parts |

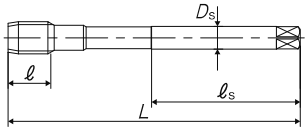
*※(D) indicates the ratio of the tapping length to the outside diameter.

# Shapes and Dimension

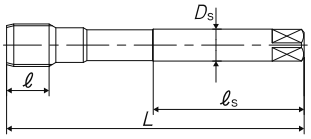
TYPE:1




TYPE:2




TYPE:3

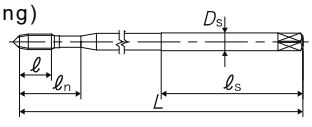



| | Nominal Size | Class | Code | Chamfer | L (mm) | ℓ (mm) | ℓn (mm) | ℓs (mm) | Ds (mm) | TYPE | MSRP (JPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ◎ | M6X1 | G8 | 1110101055 | 4P | 80 | 11 | 30 | 45 | 6 | 1 | 4,620 |
| | | | 1111101055 | 2P | | | | | | | |
| ◎ | M8X1.25 | G8 | 1110101064 | 4P | 90 | 12 | - | 46 | 6.2 | 2 | 6,080 |
| | | | 1111101064 | 2P | | | | | | | |
| ◎ | M10X1.5 | G8 | 1110101078 | 4P | 100 | 13 | - | 51 | 7 | 2 | 7,680 |
| | | | 1111101078 | 2P | | | | | | | |
| ◎ | M10X1.25 | G8 | 1110101079 | 4P | 100 | 13 | - | 51 | 7 | 2 | 7,680 |
| | | | 1111101079 | 2P | | | | | | | |
| ◎ | M12X1.75 | G8 | 1110101088 | 4P | 110 | 15 | - | 56 | 8.5 | 2 | 10,100 |
| | | | 1111101088 | 2P | | | | | | | |
| ◎ | M12X1.5 | G8 | 1110101089 | 4P | 110 | 15 | - | 56 | 8.5 | 2 | 10,100 |
| | | | 1111101089 | 2P | | | | | | | |
| ◎ | M12X1.25 | G8 | 1110101090 | 4P | 110 | 15 | - | 56 | 8.5 | 2 | 10,100 |
| | | | 1111101090 | 2P | | | | | | | |
| ◎ | M14X1.5 | G9 | 1110101102 | 4P | 110 | 18 | - | 56 | 10.5 | 2 | 13,800 |
| | | | 1111101102 | 2P | | | | | | | |
| ◎ | M16X1.5 | G9 | 1110101116 | 4P | 110 | 18 | - | 56 | 12.5 | 2 | 17,900 |
| | | | 1111101116 | 2P | | | | | | | |
| ◎ | M18X1.5 | G10 | 1110101130 | 4P | 125 | 20 | - | 64 | 14 | 2 | 22,500 |
| | | | 1111101130 | 2P | | | | | | | |
| ◎ | M20X1.5 | G10 | 1110101144 | 4P | 140 | 20 | - | 71 | 15 | 3 | 32,500 |
| | | | 1111101144 | 2P | | | | | | | |

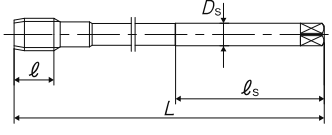
◎・・・Additional Size

## Long

TYPE:4(Long)




TYPE:5(Long)




| | Nominal Size | Class | Code | Chamfer | L (mm) | ℓ (mm) | ℓn (mm) | ℓs (mm) | Ds (mm) | TYPE | MSRP (JPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ◎ | M6X1 | G8 | 2110101055 | 4P | 100 | 11 | 30 | 45 | 6 | 4 | 5,960 |
| | | | 2111101055 | 2P | | | | | | | |
| | | | 2310101055 | 4P | 150 | | | | | | 8,600 |
| | | | 2311101055 | 2P | | | | | | | |
| ◎ | M8X1.25 | G8 | 2110101064 | 4P | 150 | 12 | - | 46 | 6.2 | 5 | 10,300 |
| | | | 2111101064 | 2P | | | | | | | |
| ◎ | M10X1.5 | G8 | 2110101078 | 4P | 150 | 13 | - | 51 | 7 | 5 | 12,100 |
| | | | 2111101078 | 2P | | | | | | | |
| ◎ | M10X1.25 | G8 | 2110101079 | 4P | 150 | 13 | - | 51 | 7 | 5 | 12,100 |
| | | | 2111101079 | 2P | | | | | | | |
| ◎ | M12X1.75 | G8 | 2110101088 | 4P | 150 | 15 | - | 56 | 8.5 | 5 | 14,400 |
| | | | 2111101088 | 2P | | | | | | | |
| ◎ | M12X1.5 | G8 | 2110101089 | 4P | 150 | 15 | - | 56 | 8.5 | 5 | 14,400 |
| | | | 2111101089 | 2P | | | | | | | |
| ◎ | M12X1.25 | G8 | 2110101090 | 4P | 150 | 15 | - | 56 | 8.5 | 5 | 14,400 |
| | | | 2111101090 | 2P | | | | | | | |
| ◎ | M14X1.5 | G9 | 2110101102 | 4P | 150 | 18 | - | 56 | 10.5 | 5 | 19,200 |
| | | | 2111101102 | 2P | | | | | | | |
| ◎ | M16X1.5 | G9 | 2110101116 | 4P | 150 | 18 | - | 56 | 12.5 | 5 | 20,200 |
| | | | 2111101116 | 2P | | | | | | | |

◎・・・Additional Size

For M6 and smaller,external centers of 2 thread chamfer taps are removed.
Number of oil grooves:M6=5,M8=6,M10 and larger=8

JIS

## Roll Taps for Carbon Steels of Medium Hardness

# MHRZ-J

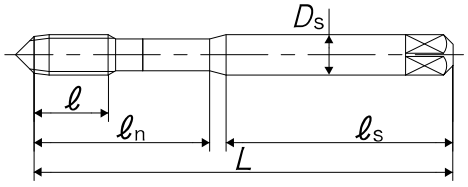
M6~M20

HSS-Co | Coating | 2~4 | Medium carbon steels 10~30 (m/min) | High carbon steels 10~30 (m/min) | Alloy steels 10~30 (m/min) | Thermal refined steels 10~20 (m/min)

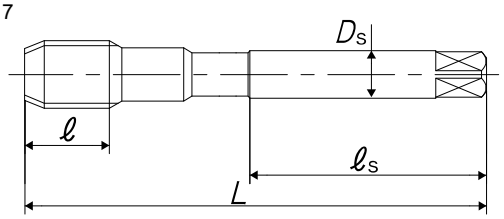
25~35HRC


## Shapes and dimension

TYPE:6




TYPE:7




| Nominal Size | Class | Code | Chamfer | L (mm) | ℓ (mm) | ℓn (mm) | ℓs (mm) | Ds (mm) | TYPE | MSRP (YEN) |
|---|---|---|---|---|---|---|---|---|---|---|
| M6X1 | G8 | RY6.0M8OCTP | 4P | 62 | 11 | 26 | 33 | 6 | 6 | 4,510 |
| | | RY6.0M8OCTB | 2P | | | | | | | |
| M8X1.25 | G8 | RY8.0N8OCTP | 4P | 70 | 12 | - | 36 | 6.2 | 7 | 6,120 |
| | | RY8.0N8OCTB | 2P | | | | | | | |
| M10X1.5 | G8 | RY010O8OCTP | 4P | 75 | 13 | - | 38 | 7 | 7 | 7,400 |
| | | RY010O8OCTB | 2P | | | | | | | |
| M10X1.25 | G8 | RY010N8OCTP | 4P | 75 | 13 | - | 38 | 7 | 7 | 7,400 |
| | | RY010N8OCTB | 2P | | | | | | | |
| M12X1.75 | G8 | RY012P8OCTP | 4P | 82 | 15 | - | 42 | 8.5 | 7 | 11,400 |
| | | RY012P8OCTB | 2P | | | | | | | |
| M12X1.5 | G8 | RY012O8OCTP | 4P | 82 | 15 | - | 42 | 8.5 | 7 | 11,400 |
| | | RY012O8OCTB | 2P | | | | | | | |
| M12X1.25 | G8 | RY012N8OCTP | 4P | 82 | 15 | - | 42 | 8.5 | 7 | 11,400 |
| | | RY012N8OCTB | 2P | | | | | | | |
| M14X1.5 | G9 | RY014O9OCTP | 4P | 88 | 18 | - | 45 | 10.5 | 7 | 15,400 |
| | | RY014O9OCTB | 2P | | | | | | | |
| M16X1.5 | G9 | RY016O9OCTP | 4P | 95 | 18 | - | 48 | 12.5 | 7 | 19,300 |
| | | RY016O9OCTB | 2P | | | | | | | |
| M18X1.5 | G10 | RY018OOOCTP | 4P | 100 | 20 | - | 51 | 14 | 7 | 27,100 |
| | | RY018OOOCTB | 2P | | | | | | | |
| M20X1.5 | G10 | RY020OOOCTP | 4P | 105 | 20 | - | 50 | 15 | 7 | 31,800 |
| | | RY020OOOCTB | 2P | | | | | | | |

For M6 and smaller,external centers of 2 thread chamfer taps are removed. Number of oil grooves:M6=5,M8=6,M10 and larger=8

### Warning

- ♦Tools may shatter. Wear cover or eye glasses to avoid injury during tapping.
- ♦Tools may shatter. Use tools under the proper tapping condition.
- ♦Never wear gloves during turning operations as the gloves may get caught with the tools.
- ♦Wear safety shoes to avoid injuring yourself by the falling tools.
- ♦On attaching tools to the machine, fasten firmly to avoid chattering and run-out.
- ♦Fasten the work pieces firmly so that they never move during operation. Never use worn tools or damaged tools with chipping.
- ♦Take a special care to fire trouble. High temperature during machining may cause fire.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**YAMAWA International Co., Ltd.**


ISO 9001 JQA-QMA14664

ISO 14001 JQA-EM3465