

① Spiral Fluted Tap Series for blind hole

| Overall length | Thread length | Thread + Neck length | Shank length | Shank dia. | Size of square | Length of square |
|----------------|---------------|----------------------|--------------|------------|----------------|------------------|
| L | ℓ | ℓn | ℓs | Ds | K | ℓk |

- ① Spiral Fluted Taps (for blind hole)
- ② Spiral Fluted Taps (for through hole)
- ③ Spiral Pointed Taps (for through hole)
- ④ Hand Taps
- ⑤ Cemented Carbide Taps
- ⑥ Roll Taps
- ⑦ Special Thread Taps (Simple inspection tools)
- ⑧ Pipe Taps
- ⑨ Thread Mills (Premium Thread Mills)
- ⑩ Dies
- ⑪ Center Drills (Centering Tools)
- ⑫ Precision Machinery/ Medical Surgical Instruments



Z-PRO HVSP



Z-PRO Hybrid Value Spiral Fluted Taps for Steels

Specification



Tapping Speeds depending on Materials

| | | | | | | |
|---------------------------|------------------------------|----------------------------|---------------------|-------------------------------|----------------------------|-------------------|
| Low carbon steels 低炭素鋼 | Medium carbon steels 中炭素鋼 | High carbon steels 高炭素鋼 | Alloy steels 合金鋼 | Thermal refined steels 調質鋼 | Stainless steels ステンレス鋼 | Cast steels 鋳鋼 |
| 3~12 (m/min) | 3~12 (m/min) | 3~12 (m/min) | 3~12 (m/min) | ~5 (m/min) | ~5 (m/min) | 3~12 (m/min) |
| | | | | 25~35HRC | | |

Product Features

- YAMAWA has designed a flute shape and cutting edge angle to improve the chip ejection properties.
- A heel grind on the rear threads has improved the performance of the tap and eliminated the materials chip residue in the threads that is caused on reversal by the tap's end threads.
- With no chips left in the threads, the tapping operation is less likely to chip the flutes or threads of the tap during the tap's reversal.
- There are several full threads after the cutting chamfer and a special heel grind to the balance of the threads to reduce their full thread height, thereby reducing any chance of chipping the flutes.

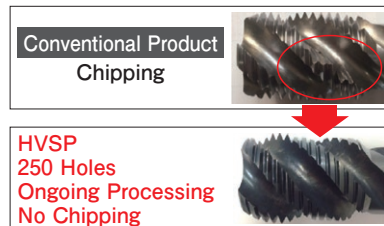
Tapping Data

- Improvement of chipped flutes

Tapping conditions [M36 × 4]

| | |
|---------------------|-------------------------------|
| Work Piece Material | SS400 |
| Tapping Speed | 3m/min |
| Tapping Length | 50mm |
| Machinery Type | Radial drilling machine |
| Tapping Fluid | Non-water soluble cutting oil |

◎ Full Thread Part



◎ Chamfer Part



- Compatible with a wide range of workpiece machining.

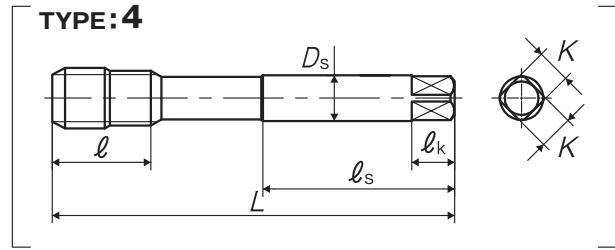
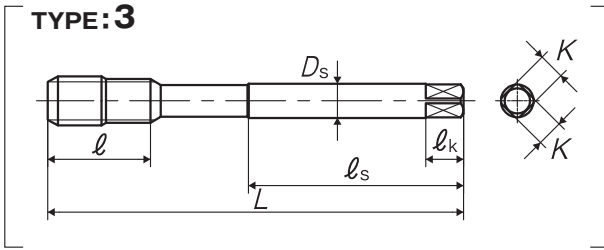
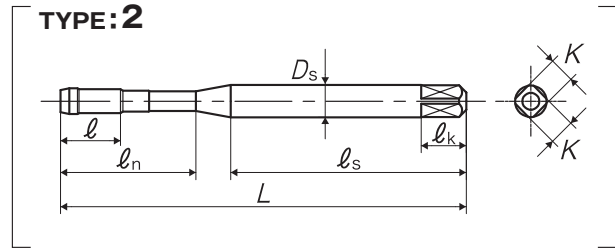
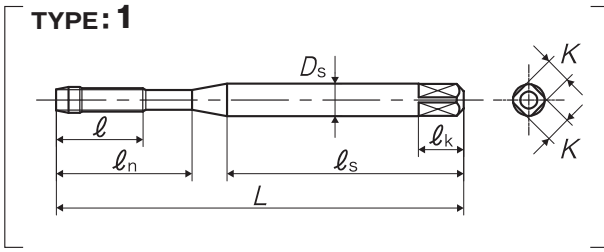
Tapping conditions

| Material | Recommended Tapping Speed (m/min) |
|--------------------------------------|-----------------------------------|
| Stainless Steel SUS303/SUS304/SUS316 | ~5 |
| Alloy Steel SCM/SCr | 3~12 |
| High Carbon Steel S45C~ | 3~12 |
| Medium Carbon Steel S25C~S45C | 3~12 |
| Low Carbon Steel ~S20C/SS400 | 3~12 |
| Thermal refined steel | ~5 |
| Cast steel | 3~12 |

Excellent Surface Finish



| Overall length | Thread length | Thread + Neck length | Shank length | Shank dia. | Size of square | Length of square |
|----------------|---------------|----------------------|----------------|----------------|----------------|------------------|
| L | ℓ | ℓ _n | ℓ _s | D _s | K | ℓ _k |



Segment : 1C

| Size | Class | Code | Chamfer | L (mm) | ℓ (mm) | ℓ _n (mm) | ℓ _s (mm) | D _s (mm) | K (mm) | ℓ _k (mm) | No. of flutes | TYPE | MSRP |
|--------------------|-------|-------------|---------|--------|--------|---------------------|---------------------|---------------------|--------|---------------------|---------------|------|----------|
| For Metric Threads | | | | | | | | | | | | | |
| M3 × 0.5 | P3 | SY3.0GREEXJ | 2.5P | 56 | 9 | 18 | 32 | 4 | 3.2 | 6 | 3 | 1 | ¥ 1,400 |
| M3 × 0.35 | P3 | SY3.0DREEXJ | 2.5P | 56 | 6.5 | 18 | 32 | 4 | 3.2 | 6 | 3 | 2 | ¥ 2,390 |
| M4 × 0.7 | P4 | SY4.0ISEEXJ | 2.5P | 63 | 13 | 21 | 36 | 5 | 4 | 7 | 3 | 1 | ¥ 1,400 |
| M4 × 0.5 | P4 | SY4.0GSEEXJ | 2.5P | 63 | 9 | 21 | 36 | 5 | 4 | 7 | 3 | 2 | ¥ 2,050 |
| M5 × 0.8 | P4 | SY5.0KSEEXJ | 2.5P | 70 | 14 | 25 | 40 | 5.5 | 4.5 | 7 | 3 | 1 | ¥ 1,410 |
| M5 × 0.5 | P4 | SY5.0GSEEXJ | 2.5P | 70 | 9 | 25 | 40 | 5.5 | 4.5 | 7 | 3 | 2 | ¥ 2,050 |
| M6 × 1 | P4 | SY6.0MSEEXJ | 2.5P | 80 | 15 | 30 | 45 | 6 | 4.5 | 7 | 3 | 1 | ¥ 1,610 |
| M6 × 0.75 | P4 | SY6.0JSEEXJ | 2.5P | 80 | 15 | 30 | 45 | 6 | 4.5 | 7 | 3 | 1 | ¥ 2,270 |
| M6 × 0.5 | P4 | SY6.0GSEEXJ | 2.5P | 80 | 9 | 30 | 45 | 6 | 4.5 | 7 | 3 | 2 | ¥ 2,270 |
| M8 × 1.25 | P4 | SY8.0NSEEXJ | 2.5P | 90 | 19 | - | 46 | 6.2 | 5 | 8 | 3 | 3 | ¥ 2,270 |
| M8 × 1 | P4 | SY8.0MSEEXJ | 2.5P | 90 | 19 | - | 46 | 6.2 | 5 | 8 | 3 | 3 | ¥ 2,580 |
| M10 × 1.5 | P4 | SY010OSEEXJ | 2.5P | 100 | 23 | - | 51 | 7 | 5.5 | 8 | 3 | 3 | ¥ 2,970 |
| M10 × 1.25 | P4 | SY010NSEEXJ | 2.5P | 100 | 23 | - | 51 | 7 | 5.5 | 8 | 3 | 3 | ¥ 2,970 |
| M10 × 1 | P4 | SY010MSEEXJ | 2.5P | 100 | 23 | - | 51 | 7 | 5.5 | 8 | 3 | 3 | ¥ 3,520 |
| M12 × 1.75 | P4 | SY012PSEEXJ | 2.5P | 110 | 26 | - | 56 | 8.5 | 6.5 | 9 | 3 | 3 | ¥ 4,000 |
| M12 × 1.5 | P4 | SY012OSEEXJ | 2.5P | 110 | 26 | - | 56 | 8.5 | 6.5 | 9 | 3 | 3 | ¥ 4,000 |
| M12 × 1.25 | P4 | SY012NSEEXJ | 2.5P | 110 | 26 | - | 56 | 8.5 | 6.5 | 9 | 3 | 3 | ¥ 4,000 |
| M14 × 2 | P4 | SY014QSEEXJ | 2.5P | 110 | 26 | - | 56 | 10.5 | 8 | 11 | 3 | 3 | ¥ 5,470 |
| M14 × 1.5 | P4 | SY014OSEEXJ | 2.5P | 110 | 26 | - | 56 | 10.5 | 8 | 11 | 3 | 3 | ¥ 5,470 |
| M16 × 2 | P4 | SY016QSEEXJ | 2.5P | 110 | 26 | - | 56 | 12.5 | 10 | 13 | 3 | 3 | ¥ 7,300 |
| M16 × 1.5 | P4 | SY016OSEEXJ | 2.5P | 110 | 26 | - | 56 | 12.5 | 10 | 13 | 3 | 3 | ¥ 7,300 |
| M18 × 2.5 | P5 | SY018RTEEXJ | 2.5P | 125 | 33 | - | 64 | 14 | 11 | 14 | 4 | 3 | ¥ 9,760 |
| M18 × 1.5 | P5 | SY018OTEEXJ | 2.5P | 125 | 33 | - | 64 | 14 | 11 | 14 | 4 | 3 | ¥ 9,760 |
| M20 × 2.5 | P5 | SY020RTEEXJ | 2.5P | 140 | 33 | - | 71 | 15 | 12 | 15 | 4 | 4 | ¥ 13,300 |
| M20 × 1.5 | P5 | SY020OTEEXJ | 2.5P | 140 | 33 | - | 71 | 15 | 12 | 15 | 4 | 4 | ¥ 13,300 |
| M22 × 2.5 | P5 | SY022RTEEXJ | 2.5P | 140 | 33 | - | 71 | 17 | 13 | 16 | 4 | 4 | ¥ 16,800 |
| M22 × 1.5 | P5 | SY022OTEEXJ | 2.5P | 140 | 33 | - | 71 | 17 | 13 | 16 | 4 | 4 | ¥ 16,800 |
| M24 × 3 | P5 | SY024STEEXJ | 2.5P | 160 | 37 | - | 82 | 19 | 15 | 18 | 4 | 4 | ¥ 21,000 |
| M24 × 1.5 | P5 | SY024OTEEXJ | 2.5P | 160 | 37 | - | 82 | 19 | 15 | 18 | 4 | 4 | ¥ 21,000 |
| M27 × 3 | P5 | SY027STEEXJ | 2.5P | 160 | 37 | - | 82 | 20 | 15 | 18 | 4 | 4 | ¥ 29,700 |
| M27 × 1.5 | P5 | SY027OTEEXJ | 2.5P | 160 | 37 | - | 82 | 20 | 15 | 18 | 4 | 4 | ¥ 29,700 |
| M30 × 3.5 | P6 | SY030TUEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 37,700 |
| M30 × 3 | P6 | SY030SUEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 37,700 |
| M30 × 1.5 | P6 | SY030OUEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 37,700 |

- ① JIS Spiral Fluted Taps (for blind hole)
- ② Spiral Fluted Taps (for through hole)
- ③ Spiral Pointed Taps (for through hole)
- ④ Hand Taps
- ⑤ Cemented Carbide Taps
- ⑥ Roll Taps
- ⑦ Special Thread Taps Simple Inspection Tools
- ⑧ Pipe Taps
- ⑨ Thread Mills Premium Thread Mills
- ⑩ Dies
- ⑪ Center Drills Centering Tools
- ⑫ Precision Machinery/Metal Surgical Instruments

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| Overall length | Thread length | Thread + Neck length | Shank length | Shank dia. | Size of square | Length of square |
|----------------|---------------|----------------------|--------------|------------|----------------|------------------|
| L | ℓ | ℓn | ℓs | Ds | K | ℓk |

JIS

HVSP Z-PRO Hybrid Value Spiral Fluted Taps for Steels

| Size | Class | Code | Chamfer | L (mm) | ℓ (mm) | ℓn (mm) | ℓs (mm) | Ds (mm) | K (mm) | ℓk (mm) | No. of flutes | TYPE | MSRP |
|---------------------|-------|-------------|---------|--------|--------|---------|---------|---------|--------|---------|---------------|------|------------------------|
| M33 × 3.5 | P6 | SY033TUEEXJ | 2.5P | 180 | 46 | - | 92 | 25 | 19 | 22 | 4 | 4 | ¥ 44,000 |
| M33 × 3 | P6 | SY033SUEEXJ | 2.5P | 180 | 46 | - | 92 | 25 | 19 | 22 | 4 | 4 | ¥ 44,000 |
| M36 × 4 | P6 | SY036UUEEXJ | 2.5P | 200 | 52 | - | 102 | 28 | 21 | 24 | 4 | 4 | ¥ 50,700 |
| M36 × 3 | P6 | SY036SUEEXJ | 2.5P | 200 | 52 | - | 102 | 28 | 21 | 24 | 4 | 4 | ¥ 50,700 |
| M39 × 4 | P6 | SY039UUEEXJ | 2.5P | 200 | 52 | - | 102 | 30 | 23 | 26 | 4 | 4 | ¥ 58,200 |
| M39 × 3 | P6 | SY039SUEEXJ | 2.5P | 200 | 52 | - | 102 | 30 | 23 | 26 | 4 | 4 | ¥ 58,200 |
| M42 × 4.5 | P6 | SY042VUEEXJ | 2.5P | 200 | 59 | - | 102 | 32 | 26 | 30 | 4 | 4 | ¥ 70,800 |
| M42 × 3 | P6 | SY042SUEEXJ | 2.5P | 200 | 59 | - | 102 | 32 | 26 | 30 | 4 | 4 | ¥ 70,800 |
| M48 × 5 | P6 | SY048WUEEXJ | 2.5P | 250 | 65 | - | 128 | 38 | 29 | 32 | 4 | 4 | ¥ 103,000 |
| M48 × 3 | P6 | SY048SUEEXJ | 2.5P | 250 | 65 | - | 128 | 38 | 29 | 32 | 4 | 4 | ¥ 103,000 |
| For Unified Threads | | | | | | | | | | | | | |
| 1 -8UNC | P5 | SYU16XTEEXJ | 2.5P | 160 | 37 | - | 82 | 19 | 15 | 18 | 4 | 4 | ¥ 32,600 |
| 1 -12UNF | P4 | SYU16SSEEXJ | 2.5P | 160 | 37 | - | 82 | 19 | 15 | 18 | 4 | 4 | ¥ 32,600 |
| 1 1/8-7UNC | P6 | SYU18YUEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 40,800 [*] |
| 1 1/8-8UN | P5 | SYU18XTEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 40,800 [*] |
| 1 1/8-12UNF | P4 | SYU18SSEEXJ | 2.5P | 180 | 44 | - | 92 | 23 | 17 | 20 | 4 | 4 | ¥ 40,800 [*] |
| 1 1/4-7UNC | P6 | SYU20YUEEXJ | 2.5P | 180 | 44 | - | 92 | 24 | 19 | 22 | 4 | 4 | ¥ 47,700 [*] |
| 1 1/4-8UN | P5 | SYU20XTEEXJ | 2.5P | 180 | 44 | - | 92 | 24 | 19 | 22 | 4 | 4 | ¥ 47,700 [*] |
| 1 1/4-12UNF | P4 | SYU20SSEEXJ | 2.5P | 180 | 44 | - | 92 | 24 | 19 | 22 | 4 | 4 | ¥ 47,700 [*] |
| 1 3/8-6UNC | P6 | SYU22ZUEEXJ | 2.5P | 200 | 52 | - | 102 | 28 | 21 | 24 | 4 | 4 | ¥ 60,000 [*] |
| 1 3/8-8UN | P5 | SYU22XTEEXJ | 2.5P | 200 | 52 | - | 102 | 28 | 21 | 24 | 4 | 4 | ¥ 60,000 [*] |
| 1 3/8-12UNF | P4 | SYU22SSEEXJ | 2.5P | 200 | 52 | - | 102 | 28 | 21 | 24 | 4 | 4 | ¥ 60,000 [*] |
| 1 1/2-6UNC | P6 | SYU24ZUEEXJ | 2.5P | 200 | 52 | - | 102 | 30 | 23 | 26 | 4 | 4 | ¥ 64,000 [*] |
| 1 1/2-8UN | P5 | SYU24XTEEXJ | 2.5P | 200 | 52 | - | 102 | 30 | 23 | 26 | 4 | 4 | ¥ 64,000 [*] |
| 1 1/2-12UNF | P4 | SYU24SSEEXJ | 2.5P | 200 | 52 | - | 102 | 30 | 23 | 26 | 4 | 4 | ¥ 64,000 [*] |
| 1 3/4-5UNC | P6 | SYU280UEEXJ | 2.5P | 220 | 59 | - | 112 | 35 | 26 | 30 | 4 | 4 | ¥ 80,900 [*] |
| 1 3/4-8UN | P5 | SYU28XTEEXJ | 2.5P | 220 | 59 | - | 112 | 35 | 26 | 30 | 4 | 4 | ¥ 80,900 [*] |
| 1 3/4-12UN | P4 | SYU28SSEEXJ | 2.5P | 220 | 59 | - | 112 | 35 | 26 | 30 | 4 | 4 | ¥ 80,900 [*] |
| 2 -4 1/2UNC | P7 | SYU329VEEXJ | 2.5P | 250 | 73 | - | 128 | 40 | 32 | 35 | 4 | 4 | ¥ 117,000 [*] |
| 2 -8UN | P6 | SYU32XUEEXJ | 2.5P | 250 | 73 | - | 128 | 40 | 32 | 35 | 4 | 4 | ¥ 117,000 [*] |

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