

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

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

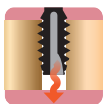
JIS

ZEN-P

Spiral Pointed Taps for Nickel Base Alloys



Specification



Tapping Speeds depending on Materials



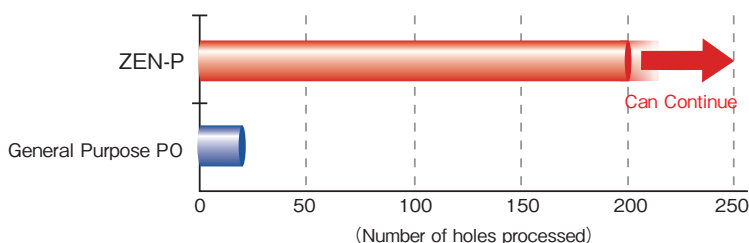
Product Features

- The tap is produced from high grade powder high speed steel material that has excellent heat resistance and abrasion resistance properties.
- Cutting edge geometry is designed to accommodate for thread shrinkage and the high temperature of difficult to machine materials.
- Utilizes the appropriate flute shape and rake angles for nickel base alloy to allow a smooth discharge of chips.
- YAMAWA uses the ideal surface treatment to prevent chip welding and abrasion.
- Compensating for diameter shrinkage of the internal screw thread, the tap is produced moderately oversize.

Tapping Data

Tapping Condition [M6×1]

Workpiece Material	Hastelloy C-276
Bored Hole Size	φ5.0
Tapping Length	10mm
Tapping Speed	5m/min
Machinery Type	CNC tapping machine
Tapping Fluid	Water soluble cutting fluid



Characteristics of nickel base alloys.

- Nickel based alloys have much better corrosion resistance and heat resistance than steel. In general, nickel based alloys are much more difficult to process than steels and stainless steels. Nickel based alloys include A286, inconels, hastelloys, Waspalloys and more. There are many kinds of nickel based alloys, but one of the more difficult ones to cut is inconel 718.

Types of problems tapping nickel based alloys.

- Nickel based alloys have a high temperature strength and thermal diffusion is small. Abrasion occurs quickly on the taps cutting edge.
- The internal thread diameters tend to spring back and may cause shrinkage and the tap may be crimped causing breakage.
- The material causes chip welding on the cutting chamfer and the flank surface of the tap's threads. The finished surface of the internal screw thread produced from nickel based alloys can become rough and coarse.

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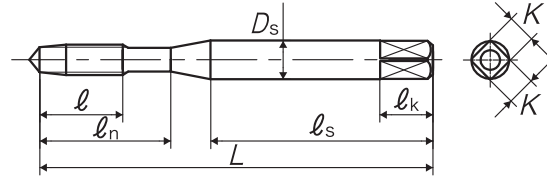
Precision Machinery/
Metal Surgical Instruments

⑫

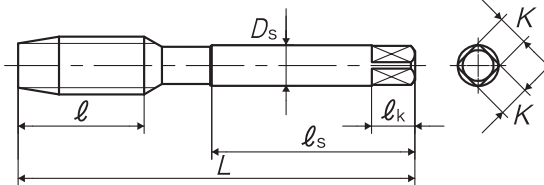
JIS

③-98

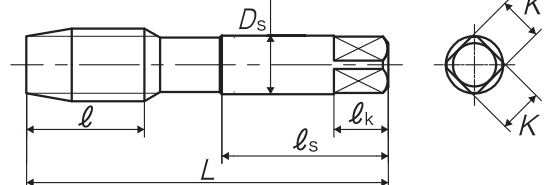
TYPE:1



TYPE:2



TYPE:3



Segment : 1F

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓ_n (mm)	ℓ_s (mm)	Ds (mm)	K (mm)	ℓ_k (mm)	No. of flutes	TYPE	MSRP
For Metric Threads													
M3 × 0.5	P3	ZENPMR3.0G	4.5P	46	9	14	26	4	3.2	6	3	1	¥ 2,880
M4 × 0.7	P3	ZENPMR4.0I	4.5P	52	11	17	29	5	4	7	3	1	¥ 2,880
M5 × 0.8	P3	ZENPMR5.0K	4.5P	60	13	22	33	5.5	4.5	7	3	1	¥ 2,900
M6 × 1	P3	ZENPMR6.0M	4.5P	62	15	26	33	6	4.5	7	3	1	¥ 3,200
M8 × 1.25	P4	ZENPMS8.0N	4.5P	70	19	-	36	6.2	5	8	3	2	¥ 4,460
M10 × 1.5	P4	ZENPMS010O	4.5P	75	23	-	38	7	5.5	8	3	2	¥ 5,670
M10 × 1.25	P4	ZENPMS010N	4.5P	75	23	-	38	7	5.5	8	3	2	¥ 5,670 ※
M12 × 1.75	P5	ZENPMT012P	4.5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030
M12 × 1.5	P4	ZENPMS012O	4.5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030 ※
M12 × 1.25	P5	ZENPMT012N	4.5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030 ※
M14 × 2	P5	ZENPMT014Q	4.5P	88	26	-	45	10.5	8	11	3	2	¥ 11,000 ※
M14 × 1.5	P4	ZENPMS014O	4.5P	88	26	-	45	10.5	8	11	3	2	¥ 11,000 ※
M16 × 2	P5	ZENPMT016Q	4.5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
M16 × 1.5	P4	ZENPMS016O	4.5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
M18 × 2.5	P5	ZENPMT018R	4.5P	100	33	-	51	14	11	14	3	2	¥ 19,700 ※
M18 × 1.5	P5	ZENPMT018O	4.5P	100	33	-	51	14	11	14	3	2	¥ 19,700 ※
M20 × 2.5	P5	ZENPMT020R	4.5P	105	33	-	50	15	12	15	3	3	¥ 26,700 ※
M20 × 1.5	P5	ZENPMT020O	4.5P	105	33	-	50	15	12	15	3	3	¥ 26,700 ※
For Unified Threads													
No.4-40UNC	P3	ZENPMRUN4H	4.5P	46	9	14	25	4	3.2	6	2	1	¥ 3,630 ※
No.6-32UNC	P3	ZENPMRUN6J	4.5P	52	11	17	27	5	4	7	3	1	¥ 3,380 ※
No.8-32UNC	P3	ZENPMRUN8J	4.5P	60	13	22	31	5.5	4.5	7	3	1	¥ 3,400 ※
No.10-24UNC	P3	ZENPMRUNAM	4.5P	60	13	22	32	5.5	4.5	7	3	1	¥ 3,400 ※
No.10-32UNF	P3	ZENPMRUNAJ	4.5P	60	13	22	32	5.5	4.5	7	3	1	¥ 3,400 ※
1/4-20UNC	P3	ZENPMRU04N	4.5P	62	15	26	33	6	4.5	7	3	1	¥ 3,650 ※
1/4-28UNF	P3	ZENPMRU04K	4.5P	62	15	26	33	6	4.5	7	3	1	¥ 3,650 ※
5/16-18UNC	P4	ZENPMSU05O	4.5P	70	19	-	36	6.2	5	8	3	2	¥ 5,130 ※
5/16-24UNF	P4	ZENPMSU05M	4.5P	70	19	-	36	6.2	5	8	3	2	¥ 5,130 ※
3/8-16UNC	P4	ZENPMSU06P	4.5P	75	23	-	38	7	5.5	8	3	2	¥ 6,570 ※
3/8-24UNF	P4	ZENPMSU06M	4.5P	75	23	-	38	7	5.5	8	3	2	¥ 6,570 ※
7/16-14UNC	P4	ZENPMSU07Q	4.5P	82	26	-	42	8.5	6.5	9	3	2	¥ 9,260 ※
7/16-20UNF	P4	ZENPMSU07N	4.5P	82	26	-	42	8.5	6.5	9	3	2	¥ 9,260 ※
1/2-13UNC	P5	ZENPMTU08R	4.5P	88	26	-	45	10.5	8	11	3	2	¥ 9,820 ※

※ = Specified Distribution Items. Made to order products.

 Think threads with
YAMAWA

③ Spiral Pointed Tap Series for through hole

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1/2-20UNF	P4	ZENPMSU08N	4.5P	88	26	-	45	10.5	8	11	3	2	¥ 9,820 ※
5/8-11UNC	P5	ZENPMTU10U	4.5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
5/8-18UNF	P4	ZENPMSU10O	4.5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
3/4-10UNC	P5	ZENPMTU12V	4.5P	105	33	-	50	15	12	15	3	3	¥ 26,700 ※
3/4-16UNF	P5	ZENPMTU12P	4.5P	105	33	-	50	15	12	15	3	3	¥ 26,700 ※

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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

JIS

③-99



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