

② Spiral Fluted Tap Series for through 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



ZET-P



Spiral Fluted Taps for Titanium Alloys, Through Hole Use (with LH Spiral Flutes)

Specification



Tapping Speeds depending on Materials

Titanium alloys
チタン合金
5~10
(m/min)

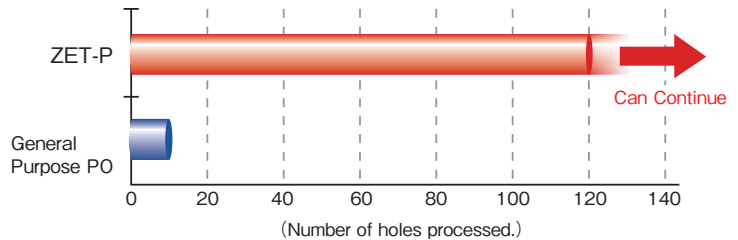
Product Features

- The tap is produced from a high grade powder high speed steel that is excellent in heat resistance and abrasion resistance applications.
- A left hand spiral flute with a right hand screw thread helps prevent material shrinkage and the chips are pushed forward out of the hole to allow the cutting heat to be carried out.
- Appropriate flute shape for titanium alloy is utilized, and the discharge of chips is made smooth.
- A nitride surface treatment is performed for added wear resistance.
- Considering the shrinkage of the internal screw thread, the tap is produced to a moderate oversize condition.

Tapping Data

Tapping Conditions [M6×1]

Workpiece Material	Ti-6Al-4V
Bored Hole Size	φ5.0
Tapping Length	12mm
Tapping Speed	8m/min
Machinery Type	CNC tapping center
Tapping Fluid	Water soluble cutting fluid



Characteristics of titanium alloy

- It is mainly composed of titanium that has a high strength and is light weight. It has excellent heat resistance. There are various kinds of titanium alloys such as Ti - 5Al - 2.5Sn, Ti - 5Ta, and the most popular Ti - 6Al - 4V which is commonly used due to its good characteristics.

Examples of problems in tapping

- Titanium alloys have high temperature strength and the thermal diffusion is small, so abrupt abrasion occurs on the tap.
- The spring back on internal screw threads may cause diameters to shrink and the tap may be crimped causing breakage.
- Chip welding occurs easily on the cutting chamfer of the tap and the threads flank surface. The finished threads surface of the internal screw thread also becomes rough and coarse.

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Spiral Fluted Taps
(for blind hole) ①

Spiral Fluted Taps
(for through hole) ②

Spiral Pointed Taps
(for through hole) ③

Hand Taps ④

Cemented Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills
Premium Thread Mills ⑨

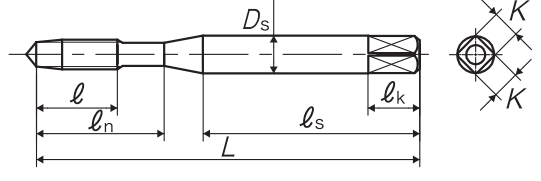
Dies ⑩

Center Drills
Centering Tools ⑪

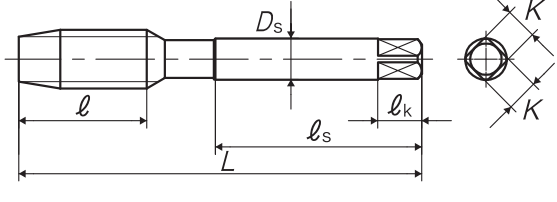
Precision Machinery/
Metal Surgical Instruments ⑫

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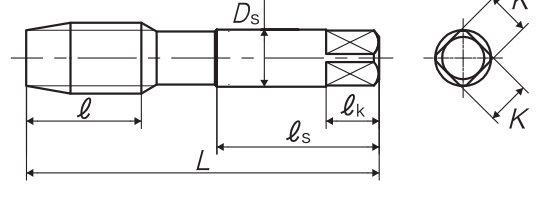
TYPE: 1



TYPE: 2



TYPE: 3



Segment : 1T

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	ZETPMR3.0G	5P	46	9	14	26	4	3.2	6	3	1	¥ 2,880
M4 × 0.7	P3	ZETPMR4.0I	5P	52	11	17	29	5	4	7	3	1	¥ 2,880
M5 × 0.8	P3	ZETPMR5.0K	5P	60	13	22	33	5.5	4.5	7	3	1	¥ 2,900
M6 × 1	P3	ZETPMR6.0M	5P	62	15	26	33	6	4.5	7	3	1	¥ 3,200
M8 × 1.25	P4	ZETPMS8.0N	5P	70	19	-	36	6.2	5	8	3	2	¥ 4,460
M10 × 1.5	P4	ZETPMS010O	5P	75	23	-	38	7	5.5	8	3	2	¥ 5,670
M10 × 1.25	P4	ZETPMS010N	5P	75	23	-	38	7	5.5	8	3	2	¥ 5,670 ※
M12 × 1.75	P5	ZETPMT012P	5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030
M12 × 1.5	P4	ZETPMS012O	5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030 ※
M12 × 1.25	P5	ZETPMT012N	5P	82	26	-	42	8.5	6.5	9	3	2	¥ 8,030 ※
M14 × 2	P5	ZETPMT014Q	5P	88	26	-	45	10.5	8	11	3	2	¥ 11,000 ※
M14 × 1.5	P4	ZETPMS014O	5P	88	26	-	45	10.5	8	11	3	2	¥ 11,000 ※
M16 × 2	P5	ZETPMT016Q	5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
M16 × 1.5	P4	ZETPMS016O	5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 ※
M18 × 2.5	P5	ZETPMT018R	5P	100	33	-	51	14	11	14	4	2	¥ 19,700 ※
M18 × 1.5	P5	ZETPMT018O	5P	100	33	-	51	14	11	14	4	2	¥ 19,700 ※
M20 × 2.5	P5	ZETPMT020R	5P	105	33	-	50	15	12	15	4	3	¥ 26,700 ※
M20 × 1.5	P5	ZETPMT020O	5P	105	33	-	50	15	12	15	4	3	¥ 26,700 ※
For Unified Threads													
No.4-40UNC	P3	ZETPMRUN4H	5P	46	9	14	25	4	3.2	6	3	1	¥ 3,630 ※
No.6-32UNC	P3	ZETPMRUN6J	5P	52	11	17	27	5	4	7	3	1	¥ 3,380 ※
No.8-32UNC	P3	ZETPMRUN8J	5P	60	13	22	31	5.5	4.5	7	3	1	¥ 3,400 ※
No.10-24UNC	P3	ZETPMRUNAM	5P	60	13	22	32	5.5	4.5	7	3	1	¥ 3,400 ※
No.10-32UNF	P3	ZETPMRUNAJ	5P	60	13	22	32	5.5	4.5	7	3	1	¥ 3,400 ※
1/4-20UNC	P3	ZETPMRU04N	5P	62	15	26	33	6	4.5	7	3	1	¥ 3,650 ※
1/4-28UNF	P3	ZETPMRU04K	5P	62	15	26	33	6	4.5	7	3	1	¥ 3,650 ※
5/16-18UNC	P4	ZETPMSU05O	5P	70	19	-	36	6.2	5	8	3	2	¥ 5,130 ※
5/16-24UNF	P4	ZETPMSU05M	5P	70	19	-	36	6.2	5	8	3	2	¥ 5,130 ※
3/8-16UNC	P4	ZETPMSU06P	5P	75	23	-	38	7	5.5	8	3	2	¥ 6,570 ※
3/8-24UNF	P4	ZETPMSU06M	5P	75	23	-	38	7	5.5	8	3	2	¥ 6,570 ※
7/16-14UNC	P4	ZETPMSU07Q	5P	82	26	-	42	8.5	6.5	9	3	2	¥ 9,260 ※
7/16-20UNF	P4	ZETPMSU07N	5P	82	26	-	42	8.5	6.5	9	3	2	¥ 9,260 ※
1/2-13UNC	P5	ZETPMTU08R	5P	88	26	-	45	10.5	8	11	3	2	¥ 9,820 ※

※ = Specified Distribution Items. Made to order products.

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1/2-20UNF	P4	ZETPMSU08N	5P	88	26	-	45	10.5	8	11	3	2	¥ 9,820 [※]
5/8-11UNC	P5	ZETPMTU10U	5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 [※]
5/8-18UNF	P4	ZETPMSU10O	5P	95	26	-	48	12.5	10	13	3	2	¥ 14,800 [※]
3/4-10UNC	P5	ZETPMTU12V	5P	105	33	-	50	15	12	15	4	3	¥ 26,700 [※]
3/4-16UNF	P5	ZETPMTU12P	5P	105	33	-	50	15	12	15	4	3	¥ 26,700 [※]

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