

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

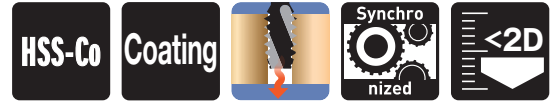


Z-PRO MHSL

Z-PRO
Spiral Fluted Taps for Carbon Steels of Medium Hardness, Through Hole Use (with LH Spiral Flutes)



Specification

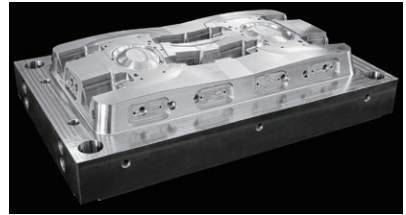


Tapping Speeds depending on Materials

M1.8 ~ M5 × 0.5					
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	Thermal refined steels 調質鋼	Tool steels 工具鋼
2~16 (m/min)	2~16 (m/min)	2~16 (m/min)	2~16 (m/min) 25~35HRC	1~12 (m/min) 35~45HRC	1~12 (m/min)
M6 ~ M16					
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	Tool steels 工具鋼	
10~20 (m/min)	10~20 (m/min)	10~20 (m/min)	10~20 (m/min) 25~35HRC	5~15 (m/min)	

Product Features

- High wear-resistant HSS material and special coating for longer tool life
- Unique flute design for stable and smooth chip ejection
- Secures appropriate tool projection length to prevent interference with workpieces



Suitable for tapping threads in mold parts



Suitable for creating tip mounting threads

Tapping Data

Tapping Conditions [M2.5 × 0.45]

Workpiece Material	SCM440 (45HRC)
Bored Hole Size	φ2.1
Tapping Length	5mm
Tapping Speed	5m/min
Machine	Machining center, vertical type (fully synchronized feed)
Tapping Fluid	Water soluble cutting fluid

After tapping 200 holes (The tap can still be used for tapping)	
State of Wear	Good internal threads

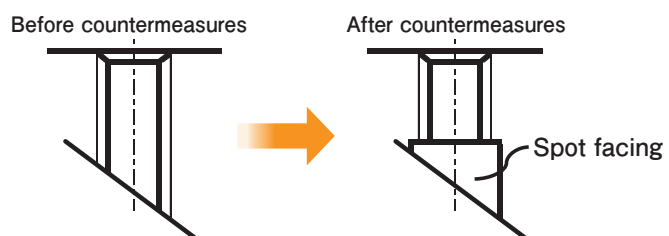
Tapping examples on the market

MHSL	Workpiece Material	Tapping Condition / Tapping Result						Remarks
		Nominal Size	Material Symbol (Hardness)	Bored Hole Size (mm)	Tapping Length (mm)*	Cutting Speed (m/min)	Feed Mechanism	
M2.5 × 0.45	SCM440 (45HRC)	2.1	4 (1.6D)	2.5	Synchronized	Water soluble	300holes	Reduced breakage problems
M2.5 × 0.45	SKD61 (45HRC)	2.1	5 (2D)	5	Synchronized	Water soluble	150 holes or more (The tap still works well)	-
M4 × 0.7	SCM440 (45HRC)	3.4	6 (1.5D)	5	Synchronized	Water soluble	351holes	Reduced tapping time

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

Measures against tapping-related problems

When tapping internal threads in a through hole toward the slanted surface as shown on the left, spot facing as shown on the right is recommended to prevent the occurrence of a broken tap or such other problems.



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

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JIS

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

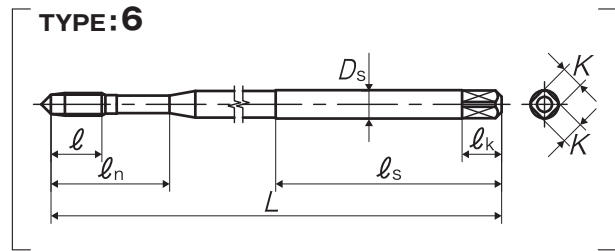
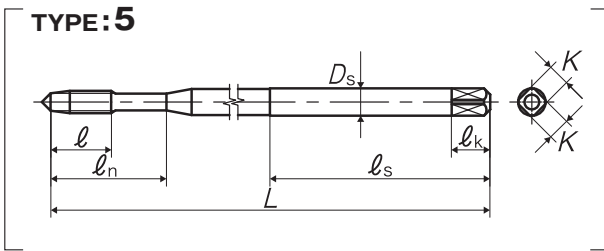
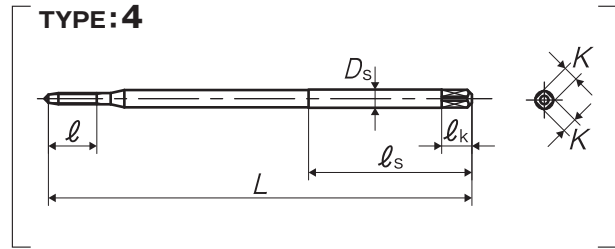
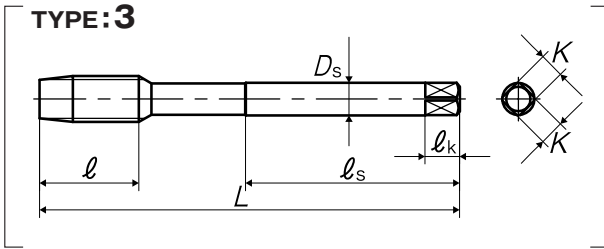
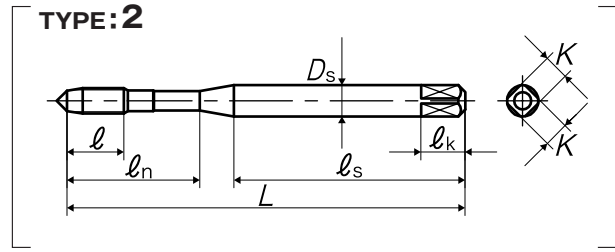
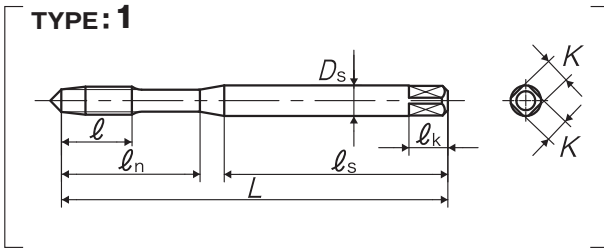
Thread Mills
Premium Thread Mills ⑨

Dies ⑩

Center Drills
Centering Tools ⑪

Precision Machinery/
Metal Surgical Instruments ⑫

JIS ⑫-4



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													
M2 × 0.4	P2	1109101021	5P	45	8	15	27	3	2.5	5	2	1	¥ 3,780
M2.5 × 0.45	P3	1109101029	5P	50	8	15	32	3	2.5	5	3	1	¥ 3,200
M3 × 0.5	P3	1109101035	5P	56	9	18	32	4	3.2	6	3	1	¥ 2,900
M3.5 × 0.6	P3	1109101038	5P	63	13	20	36	5	4	7	3	1	¥ 2,900
M4 × 0.7	P3	1109101042	5P	63	13	21	36	5	4	7	3	1	¥ 2,850
M4.5 × 0.75	P3	1109101045	5P	70	14	24	40	5.5	4.5	7	3	1	¥ 3,690
M5 × 0.8	P3	1109101049	5P	70	14	25	40	5.5	4.5	7	3	1	¥ 2,880
M5 × 0.5	P3	1109101051	5P	70	9	25	40	5.5	4.5	7	3	2	¥ 3,690
M6 × 1	P3	1109101055	5P	80	15	30	45	6	4.5	7	3	1	¥ 3,180
M8 × 1.25	P4	1109101064	5P	90	19	-	46	6.2	5	8	3	3	¥ 4,720
M10 × 1.5	P4	1109101078	5P	100	23	-	51	7	5.5	8	3	3	¥ 5,460
M10 × 1.25	P4	1109101079	5P	100	23	-	51	7	5.5	8	3	3	¥ 5,460
M12 × 1.75	P5	1109101088	5P	110	26	-	56	8.5	6.5	9	4	3	¥ 7,830
M12 × 1.5	P5	1109101089	5P	110	26	-	56	8.5	6.5	9	4	3	¥ 7,830
M12 × 1.25	P5	1109101090	7P	110	26	-	56	8.5	6.5	9	4	3	¥ 7,830
M14 × 1.5	P5	1109101102	7P	110	26	-	56	10.5	8	11	4	3	¥ 10,900
M16 × 1.5	P5	1109101116	7P	110	26	-	56	12.5	10	13	4	3	¥ 14,100
For Long Metric Threads													
M1.8 × 0.35	P2	2109101017	5P	70	8	-	27	3	2.5	5	2	4	¥ 9,680
M2 × 0.4	P2	2209101021	5P	100	8	15	27	3	2.5	5	2	5	¥ 10,200
M2.5 × 0.45	P3	2209101029	5P	100	8.1	15	32	3	2.5	5	3	5	¥ 6,320
M3 × 0.5	P3	2109101035	5P	100	9	18	32	4	3.2	6	3	5	¥ 5,260
M3.5 × 0.6	P3	2109101038	5P	100	11	20	36	5	4	7	3	5	¥ 5,260
M4 × 0.7	P3	2109101042	5P	100	11	21	36	5	4	7	3	5	¥ 4,800
M4.5 × 0.75	P3	2109101045	5P	100	13	24	40	5.5	4.5	7	3	5	¥ 5,390
M5 × 0.8	P3	2109101049	5P	100	13	25	40	5.5	4.5	7	3	5	¥ 4,310
M5 × 0.5	P3	2109101051	5P	100	9	25	40	5.5	4.5	7	3	6	¥ 5,390