

PL1/PL2

Hand Taps
for Thermoset
Resins

Ideal for tapping thermoset and thermoplastic resins

▪ Hand Taps for Thermoset Resins ▪

PL1 PL2

JIS





Product Features

PL1 is a hand tap designed for thermoset resins—some of the most difficult plastics to thread. These materials conduct heat poorly, so heat builds at the cutting edge, increasing friction and wear, and the internal thread can shrink. To compensate, PL1 is made to an oversize class and nitrided for improved wear resistance. The cutting edge geometry is also optimized to reduce chip packing. Applicable materials: thermoset resins such as PF (phenolic), MF (melamine), and EP (epoxy), among others.

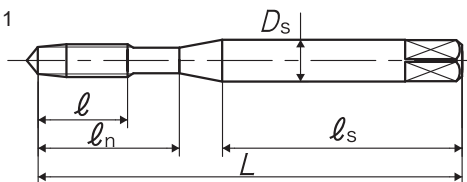
Recommended Tapping Conditions

Size	Tapping Speed(m/min)
M2	2.5~5
M2.3	2.5~5
M2.5	3~6
M2.6	3~6
M3	4~8

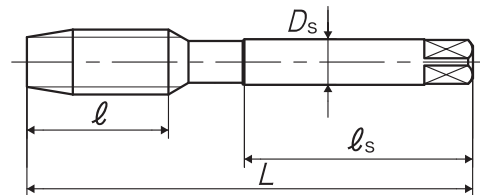
Size	Tapping Speed(m/min)
M3.5	4~8
M4	4.5~9
M5	4.5~9
M6	5~10
M8	5~10

Shape and Dimensions

TYPE:1



TYPE:2



	Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l_n (mm)	l_s (mm)	D_s (mm)	No. of flutes	TYPE
*	M2 × 0.4	P4	TPLM2.0E3	3P	42	7.2	12	27	3	3	1
*	M2.3 × 0.4	P4	TPLM2.3E3	3P	42	7.2	12	27	3	3	1
	M2.5 × 0.45	P4	TPLM2.5F3	3P	46	8.1	14	29	3	3	1
*	M2.6 × 0.45	P4	TPLM2.6F3	3P	46	8.1	14	29	3	3	1
	M3 × 0.5	P5	TPLM3.0G3	3P	46	9	14	26	4	4	1
	M3.5 × 0.6	P5	TPLM3.5H3	3P	52	11	16	29	5	4	1
	M4 × 0.7	P5	TPLM4.0I3	3P	52	11	17	29	5	4	1
	M5 × 0.8	P5	TPLM5.0K3	3P	60	13	22	33	5.5	4	1
*	M6 × 1	P5	TPLM6.0M3	3P	62	15	26	33	6	4	1
*	M8 × 1.25	P6	TPLM8.0N3	3P	70	19	-	36	6.2	4	2

* Special item. Made to order.



Product Features

Thermoplastics tend to deform and stretch even at relatively low temperatures. As a result, tapping can cause internal threads to shrink, and stringy chips may remain deep in the hole, making removal difficult. PL2 stabilizes thread quality by using an oversize class, and its optimized flute geometry helps prevent chip packing. Applicable materials include thermoplastics such as POM, PC, ABS, PVC, and HDPE (high-density polyethylene), but tapping of thermoset resins is also possible.

Prevent chip packing deep in the hole



Tapped with HT



Tapped with PL2

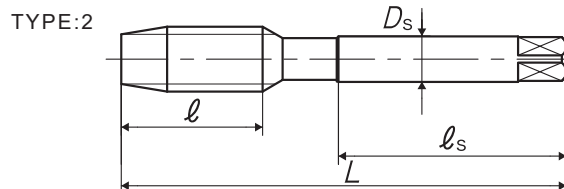
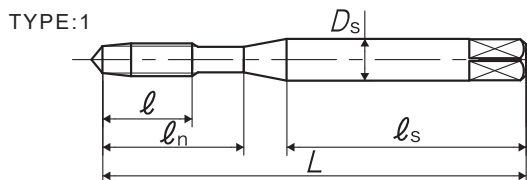
Chips have been removed, leaving none behind.

Recommended Tapping Conditions

Size	Tapping Speed(m/min)
M2	~1
M2.3	~1.5
M2.5	~1.5
M2.6	~1.5
M3	~2

Size	Tapping Speed(m/min)
M3.5	~2.5
M4	~3
M5	~4
M6	~5
M8	~5


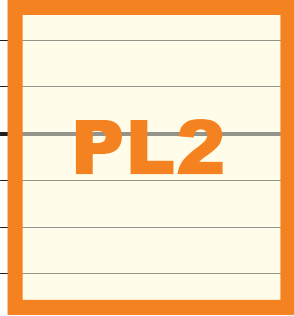
Shape and Dimensions



	Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	No. of flutes	TYPE
*	M2 × 0.4	P4	TY2.0ESMEN3	3P	42	7.2	12	27	3	3	1
*	M2.3 × 0.4	P4	TY2.3ESMEN3	3P	42	7.2	12	27	3	3	1
	M2.5 × 0.45	P4	TY2.5FSMEN3	3P	46	8.1	14	29	3	3	1
*	M2.6 × 0.45	P4	TY2.6FSMEN3	3P	46	8.1	14	29	3	3	1
	M3 × 0.5	P5	TY3.0GTMEN3	3P	46	9	14	26	4	4	1
	M3.5 × 0.6	P5	TY3.5HTMEN3	3P	52	11	16	29	5	4	1
	M4 × 0.7	P5	TY4.0ITMEN3	3P	52	11	17	29	5	4	1
	M5 × 0.8	P5	TY5.0KTMEN3	3P	60	13	22	33	5.5	4	1
*	M6 × 1	P5	TY6.0MTMEN3	3P	62	15	26	33	6	4	1
*	M8 × 1.25	P6	TY8.0NUMEN3	3P	70	19	-	36	6.2	4	2

* Special item. Made to order.

System Table: Taps for Synthetic Resins (Through/Blind Holes)

Example of work-materials			Tapping Speed	
			Slow	Fast
			5m/min	10m/min
Thermoset resins	Phenolicresin	PF	 PL1	
	Urea resin	UF		
	Melamine resin	MF		
	Epoxyresin(forcasting)	EP		
	Unsaturated polyester (casting, rigid)	UP		
Thermoplastic resins	Engineering plastics		 PL2	
	Polyacetal	POM		
	Polycarbonate	PC		
	General-purpose plastics			
	ABS resin	ABS		
	PVC	PVC		
	High-density polyethylene (HDPE)	HDPE		
			5m/min	10m/min

Bored Hole Size

Size	Minor Diameter(D1)		Bored Hole Size (reference)
	Max.	Min.	
M2×0.4	1.679	1.567	1.65
M2.3×0.4	1.979	1.867	1.95
M2.5×0.45	2.138	2.013	2.11
M2.6×0.45	2.238	2.113	2.21
M3×0.5	2.599	2.459	2.56
M3.5×0.6	3.010	2.850	2.97
M4×0.7	3.422	3.242	3.38
M5×0.8	4.334	4.134	4.28
M6×1	5.153	4.917	5.09
M8×1.25	6.912	6.647	6.85

Warning

- ◆Tools may shatter during use. Wear safety eye cover or eye glasses to avoid injury during tapping.
- ◆Use tools under the proper tapping condition.
- ◆Never wear gloves during turning operations as the gloves may get caught in the tools.
- ◆Wear safety shoes to avoid foot injury by the falling tools.
- ◆When attaching tools to the machine, fasten firmly to avoid chatter and run-out.
- ◆Fasten the workpiece firmly so it never moves during the tapping operation. Never use worn tools or damaged tools.
- ◆Take a special care to prevent fire during machining. High temperature during tapping can cause a fire.

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