

- Straight Fluted Taps for Taper Pipe Threads, for high hardness materials ▪
- Spiral Fluted Taps for Taper Pipe Threads, for high hardness materials ▪

# PMST OX Rc(PT) PMSP OX Rc(PT)

# PM PIPE SERIES

Ideal for tapping material such as plastic mold steels with hardness of 30-45HRC !!

**Z-PRO**  
*Ultimate Machining Taps*  
**DIN**



## Product Features



Straight Fluted Taps for Taper Pipe Threads, for high hardness materials  
Spiral Fluted Taps for Taper Pipe Threads, for high hardness materials

**PMST OX Rc(PT)**



**PMSP OX Rc(PT)**



### Application

YAMAWA's PM taper pipe taps are suitable for tapping hardened mold steels with a hardness of 30-45HRC

Workpiece materials		Recommended tapping speed (m/min)
S136H	AISI420ESR (30~36HRC)	~5
718H	AISI P20 (36~42HRC)	~5



- **Made with our new powder metals HSS.**

Powder metals HSS has excellent wear resistance.

- **Cutting surfaces have oxidization treatment.**

Oxidization treatment (OX) is applied to the surface treatment which has excellent welding resistance.

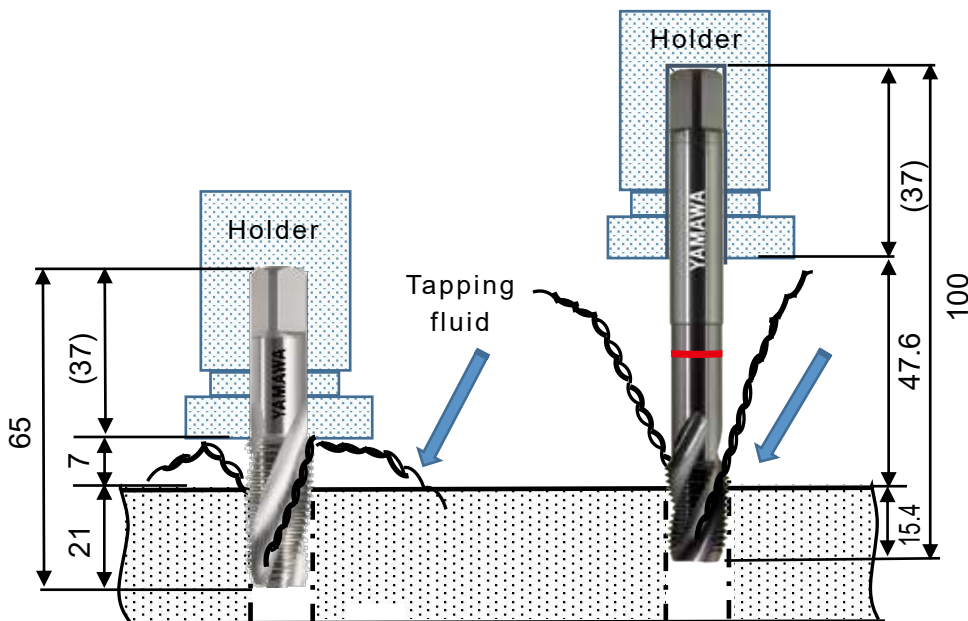
- **Unique cutting edge design is suitable for high hardness materials.**

## DIN overall length provides excellent chip evacuation.

Ex.Rc/PT 3/8-19

JIS overall length SP-PT

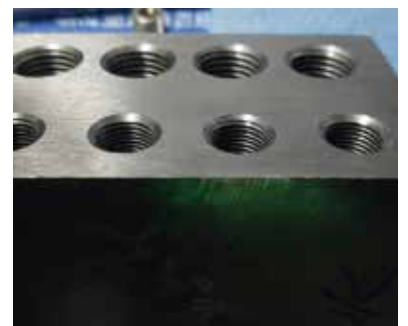
PMSP OX Rc



Excellent chip evacuation



Excellent surface finish



### What is a plastic mold?

Many items such as refrigerators, washing machines, TVs, home appliances smartphones, automobiles, construction machines, ships, airplanes and other transportation equipment, have components which are produced in molds.



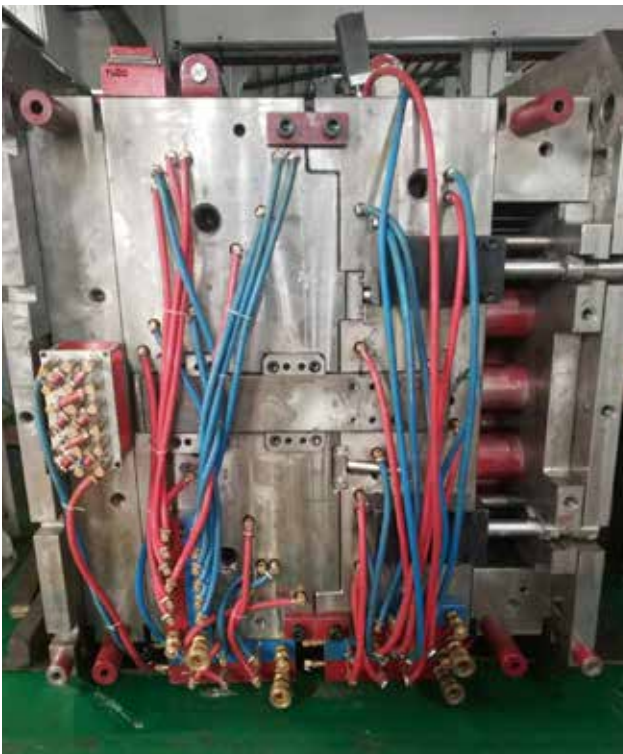
The injection mold is widely used in many industries for producing plastic products.

Injection mold is a molding method in which molten plastic is injected into a mold. It is then cooled to solidify, and then the finished part is removed from the mold.

Cooling holes are required for cooling molded products. Taper pipe screws are used at the entrance of the cooling holes.

The screw size depends on the size of the molded product. Most common sizes are 1/8 or 1/4 of Rc (PT) but can range up to 1 inch.

#### Plastic mold



#### Plastic mold cooling holes



Several Rc (PT) screws are used for cooling holes.

With the mold having a hardness of 30~45HRC, and the fact that it has tapered threads, it can cause tapping issues such as torn threads, premature wear of taps, along with chipping and breakage of taps. With such tapping conditions in mind, the products we have developed are PMST OX Rc and PMSP OX Rc, which are taps for PM pipe threads.

## Shape comparison of Rc and PT taps

Shape comparison table of "PMST OX Rc / PMSP OX Rc" and "SP-PT (Long (lg) type)"

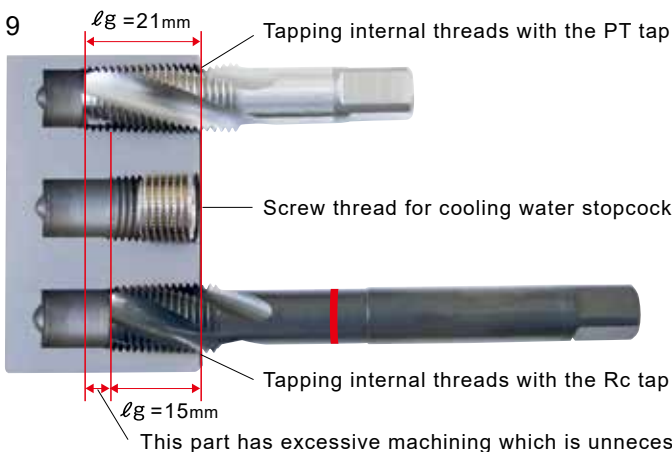
Size	PMST OX Rc and PMSP OX Rc tap shape				Size	SP-PT tap (Long (lg) type) shape			
	L (mm)	ℓ (mm)	ℓg (mm)	Ds (mm)		L (mm)	ℓ (mm)	ℓg (mm)	Ds (mm)
Rc1/16-28	90	14	10.1	6	PT 1/16-28	55	19	13	8
Rc1/8-28	90	15	10.1	7	PT 1/8-28	55	19	13	8
Rc1/4-19	100	19	15	11	PT 1/4-19	62	28	21	11
Rc3/8-19	100	21	15.4	12	PT 3/8-19	65	28	21	14
Rc1/2-14	125	26	20.5	16	PT 1/2-14	80	35	25	18
Rc3/4-14	140	28	21.8	20	PT 3/4-14	85	35	25	23
Rc1-11	160	33	26	25	PT 1-11	95	45	32	26

## Comparison of Rc and PT

Ex.Rc/PT 1/4-19

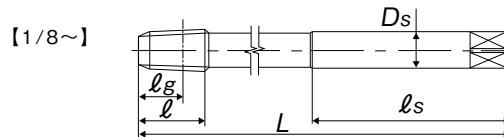
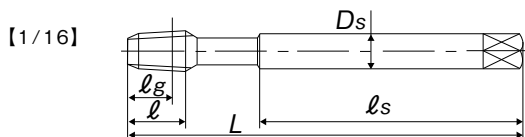
JIS overall length SP-PT (Long (lg) type)

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PMSP OX Rc



The photo on the left is a comparison of internal threads tapped with the PT and Rc taps. Machining with an Rc tap eliminates the need to tap deeper by matching the threads to be fitted.

## Tap shapes and dimensions



Size	Product code		Chamfer	Basic major dia.	L (mm)	ℓ (mm)	ℓg (mm)	ℓs (mm)	Ds (mm)	No. of flutes	
	PMST OX Rc	PMSP OX Rc								ST	SP
Rc1/16-28	3118020002	3117020002	C(2.5P)	7.723	90	14	10.1	46	6	4	3
Rc1/8-28	3118020004	3117020004	C(2.5P)	9.728	90	15	10.1	46	7	4	3
Rc1/4-19	3118020006	3117020006	C(2.5P)	13.157	100	19	15	51	11	4	3
Rc3/8-19	3118020008	3117020008	C(2.5P)	16.662	100	21	15.4	51	12	4	3
Rc1/2-14	3118020009	3117020009	C(2.5P)	20.955	125	26	20.5	64	16	4	4
Rc3/4-14	3118020011	3117020011	C(2.5P)	26.441	140	28	21.8	71	20	4	4
Rc1-11	3118020013	3117020013	C(2.5P)	33.249	160	33	26	82	25	5	4

### 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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