7 Special Thread Taps / Simple Inspection Tools

Dc L		Ds	ln	
Drill	Overall	Shank	Thread + Neck	
dia.	length	dia.	length	

YAMAWA

Hand Taps

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Pipe Taps

Thread Mills Thread Mills

(10)

Center Drills Centering Tools

Precision Machinery/

Dies

Тар Wor Rev

(4)

Cemented Carbide Taps

 $\mathbf{H}\mathbf{R}$

Broken Tap Removal Tools

Specification



Product Features

The unique cutting edge shape is adopted so that a broken high-hardness cutting tap can be removed. The tap can be removed by drilling a hole in its center. •Wear resistance of the tool is improved by special coating and ultra micro grain cemented carbide resistant to machining the high-hardness HSS tap.

Machining case 1 (for spiral fluted taps)

Machining conditions

				TOOT CONDITION
Тар	SP M12×1.75	Machining Depth	15mm	100
Workpiece Material	S50C	Machine	MC BT40, vertical type	
Tool	ITRD Dc8.5	Cutting Fluid	Water soluble cutting fluid, (x20)	
Revolution Speed	450min ⁻¹	Internal Thread Accuracy	Gauge OK (after retapping)	
Feed Speed	3mm/min (in 0.3 mm steps)			. 2



For a tap with spiral flutes, such as a spiral fluted tap, since lands of the tap are coiled around the internal thread, the tap does not move easily even during removal and its fragments does not come out easily on the way. Therefore, ITRD is most suitable for the removal of spiral fluted taps (35° or more of helix angle).

Machining case 2 (for hand taps or spiral pointed taps)

Machining conditions ITRD Dc-8.5

Тар	HT M12×1.5	Machining Depth	12mm
Workpiece Material	SCM440	Used Machine	MC, vertical type
Revolution Speed	460min ⁻¹	Cutting Fluid	Water soluble cutting fluid, (x20)
Feed Speed	3mm/min (in 0.3 mm steps)		

Fragments of removed tap During removal After removal Before removal Fragment of internal thread on entrance side Easy to break

Remarks: For a tap with straight flutes, such as a hand tap or a spiral pointed tap, deeper machining causes lands of the tap to bend more easily, and its fragments to come out easily. Therefore, if any tap fragments come out with unusual sound during removal, stop machining and remove the fragments with a scriber or the like. While doing so, proceed with machining carefully.



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Tool condition

Teel condition







·To eject sludge during machining, water-soluble cutting oil is recommended.



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7) Special Thread Taps / Simple Inspection Tools



ITRD Broken Tap Removal Tools



Segment: 52

Spiral Fluted Taps (for blind hole)

Spiral Fluted Taps (for through hole) $(\mathbf{2})$

al Pointed Taps (for through hole) 3

Spiral

Taps Hand . (4)

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Roll (6)

Pipe Taps

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Drills

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Center [

Centering Tools

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Size Dc × Ds × L	Code	Dc (mm)	L (mm)	Ds (mm)	ℓn (mm)	TYPE	MSRP
For Metric Threads							
$6 \times 8 \times 60$	ITZ6.00ZPWSI	6	60	8	30	1	¥ 28,700 $^{\square}$
$7 \times 8 \times 70$	ITZ7.00ZPWSI	7	70	8	35	1	¥ 34,700 $^\square$
8.5 × 10 × 75	ITZ8.50ZPWSJ	8.5	75	10	40	1	\pm 42,500 $^{\Box}$

Notes

① Compatible machines include vertical type MC, NC, and milling machines. It cannot be used with a drilling machine.

- ② The depth of the tap to remove is 1.5D or less for spiral fluted taps or 1D or less for spiral pointed taps and hand taps.
- ③ Use a machine and tooling that have high stiffness. In addition, supply enough water-soluble cutting oil.
- (4) Although it is possible to remove a tap broken in forward tapping, ITRD cannot remove a tap broken in reverse tapping because the tap revolves and moves during removal.
- (5) The recommended material of workpiece is steel, which is high in cutting torque. For a soft material, such as aluminum, it is not possible to remove because the tap revolves and moves during removal.



Remarks: The internal threads may be broken after using the ITRD. Therefore, there is no guarantee of the internal thread quality after the tap removal.

Notes on use

- ◆Use a cover and wear safety goggles, because there is a danger of damage.
- Observe the proper cutting conditions, because there is a danger of damage.
- Never wear gloves while the tool is revolving, because they might get caught. Wear safety shoes, because your foot might get injured by a
- falling tool.
- •When attaching the tool to a machine, fix it firmly so that there is no rattle or runout.
- Fix the workpiece firmly so that it does not move during machining. Do not use a tool showing signs of severe wear or with chipping on cutting edges.
- \blacklozenge Be sure to take disaster prevention measures, because there is a danger of fire due to possible high temperature and heat generated during cutting.

