

# YAMAWA U.S.A. TODAY

AXE-HT TAPS, THE LATEST NEW DESIGN FOR TAPPING CAST ALUMINUM FROM YAMAWA

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NEWSLETTER FROM YAMAWA MFG. CO., LTD.

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## AXE-HT TAP



The AXE-HT tap is a new design from YAMAWA for tapping cast aluminum.

**FEATURES:** A unique new cutting edge design results in extended tool life.

The new AXE-HT taps are manufactured from premium powder metal high speed steel featuring high wear resistance and high heat durability properties.

The AXE-HT series taps have a TIN coating resulting in 5 times longer tool life compared to previous tap designs for taps for cast aluminum.

The cutting edges of the AXE-HT tap develop a small amount of wear compared to other high performance taps that can damage the threads, change the thread size and create a rough surface finish in cast aluminum.

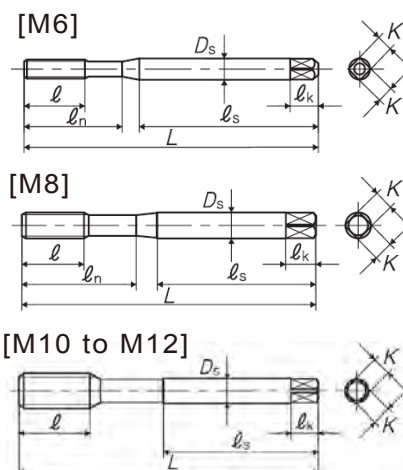
These amazing taps have the best combination of negative rake angle and eccentric relief.

The AXE-HT tap offers a wider area of application, from a middle to high speed tapping.

**YAMAWA CONTINUES CREATING "RELIABLE SCREW THREADS".**

### Table of dimensions and sizes

DIN lengths with ANSI shank dimensions (Unit: inch)



Size	Class	Code	Chamfer	L (inch)	ℓ (inch)	ℓ <sub>n</sub> (inch)	ℓ <sub>s</sub> (inch)	D <sub>s</sub> (inch)	K (inch)	ℓ <sub>k</sub> (inch)	No. of flutes
For Metric threads											
M6 × 1	D5	TS6.0M5LPVA	1.5P	3.15	0.591	1.181	1.713	0.255	0.191	0.312	3
M8 × 1.25	D5	TS8.0N5LPVA	1.5P	3.543	0.748	1.382	1.831	0.318	0.238	0.375	4
M10 × 1.5	D6	TS010O6LPVA	1.5P	3.937	0.906	-	2.008	0.323	0.242	0.406	4
M10 × 1.25	D6	TS010N6LPVA	1.5P	3.937	0.906	-	2.008	0.323	0.242	0.406	4
M10 × 1	D6	TS010M6LPVA	1.5P	3.937	0.906	-	2.008	0.323	0.242	0.406	4
M12 × 1.75	D6	TS012P6LPVA	1.5P	4.331	1.024	-	2.205	0.367	0.275	0.438	4
M12 × 1.5	D6	TS012O6LPVA	1.5P	4.331	1.024	-	2.205	0.367	0.275	0.438	4
M12 × 1.25	D6	TS012N6LPVA	1.5P	4.331	1.024	-	2.205	0.367	0.275	0.438	4

A tap's accuracy class does not always ensure the accuracy of internal screws.

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**The YAMAWA AXE-HT tap is the latest new design for tapping cast aluminum.**

The AXE-HT tap has an excellent combination of negative rake angle and eccentric relief that results in longer tool life.

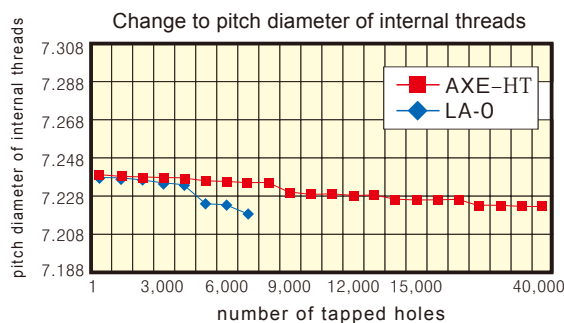
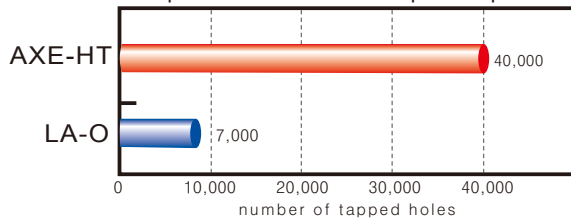
AXE-HT taps are made from a TiN coated premium powder high speed steel.

AXE-HT taps can be applied to machines from transfer lines, lathes and machining centers.

Tapping operations are more stable from the cutting edge design which controls the chips into a smaller size.

## Tapping data

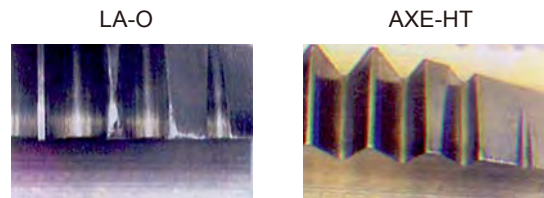
A tool life comparison of the AXE-HT tap to the previous LA-O product for cast aluminum. Tap M8×1.25



AXE-HT : HSS-P TiN vs. LA-O : HSS-E NI

- material : AC4A- T6 treated
- thread length : 13 mm (blind hole)
- tapping speed : 10m/min
- machine : transfer machine
- feed : lead screw feed
- bored hole :  $\phi$  6.8
- cutting oil : water soluble (1x30)

Damage to cutting edge after 7000 tapped holes



## TECHNICAL TAP TIPS

Aluminum and aluminum alloys are relatively soft materials that create little resistance to being cut during tapping. The chips produced from tapping wrought aluminum tend to be long and can build up in the flutes of a tap.

Cast aluminum is also soft but at times can be quite abrasive from components like silicon. The chips from cast aluminum are shorter than wrought aluminum but can still pose problems for the tap. It is best in cast aluminum to use a tap that will control the chip into smaller sizes. Chips from cast aluminum should not be allowed to interfere with the threading process or the quality of the thread will suffer.

The danger in tapping any type of aluminum is the tap will ream the hole easily if the tap is running eccentric to the center line of the spindle or out of alignment to the hole being tapped. It is very important to minimize run out of the tap and be sure the tap is on the center of the hole.

A heavy duty soluble oil or light base mineral oil works best in tapping aluminum.

