"Management of bored holes" is the most important point in tapping!

Introduction of YAMAWA Check Pins, CPC-S, CPC-T, CPR-S, CPR-T

When machining internal screw threads by using taps, it is necessary to bore holes of the specified size in the work material in advance. This hole is called the "Bored hole". It is common to use a drill.

The quality of the finished bored hole has a great effect on the "tool life of the tap" and "the quality of the internal screw thread".

In addition, various problems will occur if the bored hole is not properly finished. The most common problems are:

1) When processing by a drill of decreased sharpness due to wear

* The diameter on the bottom becomes smaller than the entrance of the hole, which means the hole becomes tapered.

* The pilot hole is not concentric, it becomes a distorted bored hole.

2) Examples of defects due to the properties of the work material

* Materials such as aluminum, copper, stainless steel, and titanium alloy tend to shrink after drilling (spring-back phenomenon), so the finished hole diameter is smaller than the drill diameter.

3) Examples of defects due to inappropriate processing conditions

If the work material is not fixed horizontally, a bored hole will be machined diagonally to the machined surface.

If the gripping power to hold the drill is insufficient, the drill sinks and the bored hole depth becomes shallow.

Next, let's consider the troubles and adverse effects that can occur when tapping into an inappropriate bored hole.

1) If the bored hole diameter is too small or distorted, the following problems can occur.

* Since the cutting cross-sectional area (volume) increases, the processing load on the tap increases, and the tap life decreases.

* Since the amount of chip discharge increases, chipping on the cutting edge and tap's breakage troubles easily occur due to chip jamming.

* Processing by roll taps results in excessive forming of the work material, which may not only result in a good "Internal screw thread" but also lead to breakage of the roll taps.

2) If the bored hole is machined diagonally, the tap will bend during tapping and breakage troubles are likely to occur.

3) If the bored hole depth is insufficient, the tap hits the bottom of the hole and breaks.

As described above, there is a close relationship between the bored hole condition and tapping trouble, so it is very important to maintain bored hole diameter accuracy and ensure bored hole depth.

YAMAWA has the theme of "Reliable Screw Threads" and has a lineup of "Check Pins Series" for taps to check whether the bored hole is in the best condition for tapping.

The lineup of YAMAWA Check Pin Series for taps is as follows.

Check Pins for Cutting taps : CPC-S, CPC-T Check Pins for Forming taps : CPR-S, CPR-T

The "Check Pin for Taps", which can easily check the bored hole diameter and hole depth, is a simple inspection tool that prevents tapping problems and maximizes taps' performance. We hope you will improve the productivity of tapping process by using "YAMAWA Check Pin Series"!

- * Please refer to the leaflet of "Check Pin Series". https://www.yamawa.com/en/download/leaflet.html?itemid=74&dispmid=693
- * Please watch the video of "Check Pin Series. <u>https://youtu.be/J_kjC29EusY?t=21</u>

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