

**【Consultation】**



We are tapping FC-250 castings in mass production on a machining center. Currently, the tap we use for cast iron is a FC-HT M5 X 0.8 with a 5 thread chamfer. We have no problems with cutting edge chipping and tap breakage but the GP-6H GO gauge measure tight around 3,000 holes. I would like to reduce the frequency of tap replacement and further improve processing time. Can you recommend better taps for this work?

**【Answer】**

I think the FC-HT is the best high speed steel HSS tap material for processing FC cast iron casting. You have said, "currently, we have no problems with cutting edge chipping or tap breaking," so I assume the tool life is simply because the tap wears out. It seems the processing environment and processing conditions are also in a good position. YAMAWA believes, a N-CT FC carbide hand tap for cast iron would be the best recommended tap for improvement. The basic specification of the N-CT FC carbide tap is the same as the FC-HT hand tap for cast iron, but since it is a cemented carbide tap, the processing tool life will be greatly increased. Please try processing the FC-250 cast iron with N-CT FC.



**【Description】**

The figure on the right shows the number of tapped holes and the number of taps consumed using a M5 X 0.8 N-CT FC carbide tap with a 3 thread chamfer, and a HT M5 X 0.8 standard HSS tap with a 5 thread chamfer in FC-250 cast iron. In this example, we are comparing the abrasion amount of wear on each tap. The N-CT FC carbide tap has about 50 times longer lifespan than a standard hand tap.

Comparison of number of tapped holes using a carbide tap and a HSS tap and a measurement of the abrasion wear amount on the cutting chamfer.

**Carbide tap: Example using a N-CT FC and tool**

| Size           | M6X1          | M8X1.25       | M10X1.25      |
|----------------|---------------|---------------|---------------|
| Material       | FC250         | FC250         | FC250         |
| Pilot Hole Dia | φ5.0          | φ6.7          | φ8.7          |
| Cutting Length | 10mm          | 16mm          | 18mm          |
| Machine        | 4-Axis        | Multi-Axis    | Special       |
| Speed          | 8m/min        | 6m/min        | 5.7m/min      |
| Tapping Oil    | Water Soluble | Water Soluble | Water Soluble |
| Holes Tapped   | 53,000        | 18,860        | 38,500        |

