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NACHI-Fujikoshi

Expanded lineup of AquaREVO Series and the release of ZT-forming Taps

In the cutting tool industry, Nachi develops and proposes optimal products for both round tools (drills, taps, end mills, etc.) and precision tools (broaches, hobs, etc.), Nachi contributes to productivity improvement and cost reduction for a wide range of markets, which includes the automotive and industrial machinery fields.

In the future, the demand for a wide variety of round tools is expected to grow due to the small-lot production of a wide variety of products and the miniaturization of parts at the user's production site. Therefore, we will introduce new round tools such as the "Aqua REVO Series" and the "ZT-Forming Tap" that realizes an overwhelmingly long life and low torque as a new round tool.

Expanded lineup of "AquaREVO series"

1. Our initiatives

In 2018, the AquaREVO Drill was launched, a carbide drill series with an all-new material, cutting geometry, and coating. In 2019, the AquaREVO Mill was launched. Both the AquaREVO Drill and AquaREVO Mill series exhibit versatile features and deliver increased tool life and high efficiency. The performance of the AquaREVO drill and AquaREVO mill have been evaluated by a wide range of users, which has caused the market share of both series to grow rapidly.

In 2021, the AquaREVO Drill Micro and AquaREVO Mill 4D are being released. The AquaREVO Drill Micro delivers "long tool life" and "stable machining", which are important aspects when drilling with small diameters. The AquaREVO Mill 4D is ideal for tall axial profile milling and deep pocket machining. By pursuing technological innovation, Nachi continues to provide added value to the manufacturing industry.

2. Outline of "AquaREVO Drill Micro"

Target industries for drilling small diameter holes are the electrical machinery, semi-conductor, and automotive part fields. The AquaREVO Drill Micro uses a new material and cutting geometry to provide long tool life, high efficiency, and versatile features to our target consumers.

①Features

A newly developed, ultra-fine grain cemented carbide gives the AquaREVO Drill Micro an increased level of hardness and durability. In addition, a new flute shape design has been adopted for this series. This design emphasizes rigidity and chip removal, which achieves torsional fracture torque*1 that is 1.2 times higher (at Ø0.5) than the conventional products of other manufacturers. The optimized centripetal design coupled with the increased rigidity allows the AquaREVO Drill Micro to improve hole position accuracy by 25% compared to other manufacturers' products.

*1 Torsional breakdown torque: Force that leads to breakage when torsion is applied to the tool

②Dimension range

5D dimensions: Ø0.5 to Ø1.99, total 150 dimensions
Reference Dimensions: Typical Dimensions Ø0.5 Overall Length 38mm
Price 3,350 yen/pc. (including tax 3,685 yen/pc.)

10D dimensions: Ø0.5 to Ø1.99, total 150 dimensions
Reference Dimensions: Typical Dimensions Ø0.5 Overall Length 38mm
Price 3,690 yen/pc. (including tax 4,059 yen/pc.)

3. Outline of "AquaREVO Mill 4D"

Applicable to a wide range of automotive and industrial machinery applications. In addition to the previous AquaREVO Mill 1.5D·2.5D, we have added a 4D series to our lineup that implements a new cutting-edge form that is optimized for long blade lengths.

①Features

Deflection of the tool during cutting is suppressed by increasing the web thickness*2 which improves the rigidity of the tool. In addition, a sharp cutting-edge shape has been introduced to reduce the cutting load. This allows for stable machining by reducing deflection in the machining surface of the workpiece by one-third that of other companies' conventional products.

*2 Web Thickness: Thickness of the portion formed by the groove bottom of the tip of the tool

②Dimension range

Four-flute 4D G Type (Gash land): Ø1 - Ø20 Total of 20 dimensions
Reference Dimensions: Typical Dimensions Ø6.0, Overall Length 60mm
Price 6,590 yen/pc. (including tax 7,249 yen/pc.)

4. Launch Date and Target

Synchronized worldwide launch on October 1, 2021
Sales Target: "AquaREVO Drill Micro" 300 million yen per year by 2024
"AquaREVO Mill 4D" 150 million yen per year by 2024

Launch of ZT Forming Tap

1. Our initiatives

We marketed the innovation of the new “Hyper Z Tap Series” in 2016. The cutting edge and flute shape, which combine stable machining accuracy and chip ejection, have contributed to productivity improvement and cost reduction for users.

However, in mass production lines such as the automotive part industry, increased tool life and stable machining are a requirement for productivity improvement. This has led to an increase in demand for taps that do not cause chip trouble.

Responding to the needs of our customers, Nachi will introduce "ZT Forming taps" which are named are after their “Zenith” toughness. This tap series will deliver superior tool life and low torque with a newly developed material, geometry, and coating.

2. Outline of "ZT Forming Tap"

(1) Innovation of ZT Forming Tap

①Material

Newly developed cobalt substrate with refined grain structure for exclusive use with form taps. High hardness is achieved while maintaining the durability of the high-speed base metal.

②Shape

The ZT thread design eliminates the margin on the thread form. Eliminating the margin reduces the contact area which decreases frictional resistance, machining torque, and wear progression. A newly developed oil groove shape improves the flow rate of coolant when tapping. This is particularly helpful on a horizontal machining center where coolant struggles to reach the tool tip.

③Coating

The newly developed ZT coating maximizes performance by combining a AlTi based film, with improved durability, and an ultra-smooth polishing process.

(2) Features

①Long life

ZT coating provides excellent wear resistance, heat resistance, and low friction. Regardless of the processing machine, the ZT tap will deliver more than three times the tool life than the conventional products of other manufacturers.

②High accuracy

Introduction of a new cutting geometry has lowered torque levels and suppressed machining resistance. This allows for stable machining with minimal burr when threading.

③Versatile use

Supports a wide range of workpieces, from highly ductile aluminum alloys to high hardness tempered steels.

3. Series and Dimension Range

Two types are available: the B type with 2-pitch chamfer and the P type with 4-pitch chamfer.

Dimension range: M3 - M16 coarse/fine total 34 dimensions
Reference dimensions: Representative dimensions M6×1 Overall length 62mm
3,400 yen/pc. (including tax 3,740 yen/pc.)

4. Launch Date and Target

Synchronized worldwide launch on October 21, 2021
Sales target: 300 million yen per year by 2024

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