

Innovation Alley

compiled by Fastener World

CFRTP Light-Weight Wrenches

Toshin Electric rolled out the carbon fiber reinforced thermoplastic (CFRTP) "CARBLACK Double Wrench Set" and "CARBLACK Monkey Wrench". CFRTP is known for being light-weight, rigid and resistant against static electricity.

The double wrench and monkey wrench come with the following features:

1. Lighter by one third than iron-made wrenches. From 500 down to 165 grams.
2. Rust-proof.
3. Resisting static electricity. No spark from collision or friction. Preventing explosion.
4. Not harming electroplated products.

The middle section of the double wrench comes with a press-fit design allowing the user to join multiple wrenches into a wrench set that is portable and space-saving. The monkey wrench can open its jaw by 30 mm in maximum and has engraved scales.



Screws Resistant to Heat and Impacts of Chemical Solutions

NBK (Nabeya Bi-tech Kaisha) has successfully developed a carbon-silicon made special screw with high hardness and resistance against heat and the impacts of chemical solutions.

The screw can apply to the next-generation semiconductor industry and aerospace industry and will be mass-produced starting at the end of this year. The revenue generated from this type of screws is expected to reach JPY 100 million.

The automotive industry is in growing need for special screws. NBK eyed the lightweight silicon material that is resistant against heat and the impacts of chemical solutions, and successfully developed the first silicon special screw on the market. NBK worked with a Ceramics Research Institute in Gifu Prefecture of Japan to find the best blend of carbon and silicon and gave birth to the product.

NBK made its way into the special screw industry in 1999. Its order growth was mostly attributed to the semiconductor industry. Its business recorded a 10% growth in 2020.



QUICKLOC® Quick-release System

The QUICKLOC® clamping, rotation and pressure locks create repeatedly releasable joints.

Easy to fit and even easier to operate –the right quick-release system also allows repeated opening and closing. QUICKLOC® is the perfect solution for components that are frequently used or serviced.

QUICKLOC® is a high-strength system which is easy to use. The quick release fasteners are maintenance-free, vibration-resistant and have a captive seal to prevent loss. It comprises a hardened steel locking bolt, a plastic retainer and a spring steel slip-on lock bottom. In addition to its standard models, it offers custom designs as well.

QUICKLOC® clamping, rotation and pressure locks are used in all industrial sectors where repeatedly releasable joints for fast assembly are required, including rail transport, the automotive sector, medical technology, compressor technology and heating engineering as well as aerospace.





PD400UR Screw Driving Device

PD400UR Screw Driving Device is certified to "UR+" by Universal Robot. Nitto Seiko is the first Japanese company of its industry to have acquired the certificate with a screw driving device. The company successfully developed the URcap "NS SD600T" plug-in software which can be installed to the Universal Robot teach pendant from which the user can manage fastening torque and the driver's turning speed. Enter the target torque and the easy mode will automatically calculate the fittest turning speed, or select the detailed mode to allow for individual parameter configurations.

The Device is equipped with NX-T3 Driver Series/SD600T controller for high precision. Different torque values and turning speed can be set for each fastening spot, and 16 configuration sets can be stored to cope with various conditions. The user can choose to have the device pick up screws either magnetically or via vacuum suction.

'Zero Chromate' Zinc Electroplating Technology

"Zero Chromate" developed by Kamiyama Tekkoshō in Japan can provide surface treatment for the company's self-drilling and self-tapping screws or can be used for OEM purposes. Since Geomet and other surface treatment solutions may affect the fit of screw recess and the tapping performance, the company has developed the next-generation Zero Chromate technology which is chrome and cobalt free and highly resistant against corrosion. The features include:

1. A 1µm Zero Chromate coating layer covers the top of an 8µm zinc coating layer to form a coating layer as thin as just 9µm. Its anti-corrosion performance has been confirmed in a salt-spray test to be 10 times better than that of a uni-chrome coating layer.
2. At almost the same cost as Trivalent chromium.
3. Value of usage between uni-chrome coat and Geomet.
4. Thin, environment-friendly and corrosion-resistant.



Typhoon+ Hydraulic Bolt Tensioner

Nord-Lock Group is celebrating the launch of the new Typhoon+ hydraulic bolt tensioner which has been developed to meet the technical and environmental demands of the wind energy market, where high bolt load and restricted access applications are common challenges.

Part of Nord-Lock Group, Boltight has developed a deep understanding of hydraulic bolt tensioning and is working hard to deploy the latest technology and advanced bolt tensioning solutions that permanently eliminate the risk of loose or over tightened bolts.

The robust Typhoon+ design ensures reliability during frequent and repeated use necessary on wind turbine projects, both on and offshore, for low radial clearance applications. The new design offers:

- **Ease of use** – a fast automatic spring-return design using a single reaction allows a full return to zero stroke piston retraction, and removes the need for manual input.
- **Improved seal technology** – reduces seal changeouts and enhances general performance throughout the high cycle usage.
- **Safety** – Over-stroke prevention removes the possibility of over-stroking the pistons. Internal fail-safe technology keeps the tensioner on the bolt in the event of puller bar failure, ensuring user safety.
- **High Life Cycle** – Long service intervals, not restricted by a fixed number of cycles thanks to high grade material puller bar.
- **Low Maintenance** – due to an improved spring-loaded auto engagement gear driven nut rotating socket with a geared drive, and it's easy to use.
- **Durability** – a unique surface finish provides long lasting protection in harsh environments.

When asked about the launch of Typhoon+, Boltight's Commercial & Projects Manager, Gavin Coopey said, "We're delighted to be launching this new solution to our overall product offering. We feel confident that the Typhoon+ will play a crucial role by making the process of using hydraulic bolt tensioners on wind turbine bolts much quicker, improve durability and reduce downtime". ■

