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Serving Manufacturers, Distributors and End Users

Fastener TECHNOLOGY INTERNATIONAL

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Japanese News

Daiichi Kogyo Develops SSOO Nut PLUS that Does Not Loosen by Embedding in Plastic

Daiichi Kogyo Co., Ltd. (Shizuoka Prefecture) released the "SSOO Nut PLUS", which is an improved version of the "SSOO Nut" for plastic inserts that supports high torque, in September 2020. It supports not only the conventional outsert method of embedding by hot press fitting after plastic molding, but also the insert method of embedding during plastic injection molding. It will be sold to the automobile industry, where the adoption of plastic parts is advancing due to weight reduction.

The SSOO nut is an outsert type insert nut (outsert nut) that has a unique octagonal shape that exhibits high torque resistance, does not run idle when tightened after embedding, and protects plastic parts by not loosening.

The SSOO nut, through which the female thread penetrates does not support the insert method of embedding during injection molding, but the newly developed SSOO nut PLUS has a thin horizontal cap attached and the plastic enters the inside of the nut. By preventing this, it corresponds to the insert method. Since it also supports the conventional outsert method, it can be used properly per the user's design.

Using the technology of the bag nut, a representative product of the company, the thin horizontal cap was welded. When using cold heading for cap nuts, it is necessary to secure a cap thickness of at least 2 mm, but a cap thickness of 0.5 mm has been achieved by welding. By securing a long effective screw part with low dimensions, they can meet the needs of making plastic parts as thin as possible by saving space.

The company released the SSOO Bolt in July 2020. It is the company's first insert bolt for resin that supports high torque, and has the feature of protecting resin products without idling even with high tightening torque like the SSOO nut.



SSOO nut (above) and SSOO nut PLUS (below).



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HIOS 50th Anniversary, Entering the Digital Age with "INTRTORQUE"

HIOS (Tokyo) celebrated its 50th anniversary this year. In the era of automation and IoT, the "digitalization of fastening system" that President **Katsuyuki Totsu** has pursued for half a century is finally in full swing.

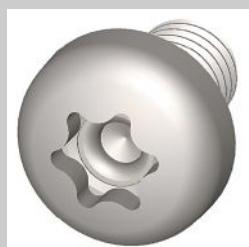


"Screw crazy father," are the words that President Totsu calls himself, the pride of pursuing the conclusion more than anyone else is hidden. The series of screw tightening movements seems to be simple movements, but he says that it is a drama made up of various technologies.

In 1968, he developed the "Totsu screw" with a guide on the minus screw and an electric screwdriver to replace the pneumatic type that had been the mainstream until now, and established the **Totsu Research Institute**, the predecessor of the company. The world's first developed current-controlled screwdriver has shifted screw tightening from an ambiguous human sense to numerically precise work for mass production of industrial products.

The system that combines Totsu screw, Totsu plastic screw to improve the come-out developed after that, a dedicated bit, and an electric screwdriver that tightens it is a system that is famous in Japan such as watches, electric appliances, automobiles, and game machine makers. Accepted by major manufacturers, you can still see HIOS orange drivers on the assembly lines of each company.

Now that automation and IoT are the keywords, the fastening system that integrates President Totsu's idea of digitalization of screw tightening is "INTRTORQUE" that enables work by collaborative robots.



INTRTORQUE is a fastener with a guide called a super point on the bit side, which guides the tip of the bit to the center of the screw and inserts a convex part to prevent wobbling in the recess of Hexarobula that prevents come out. Since the robot can be tightened only in the direction of rotation, the robot can be miniaturized without the need for thrust. A bit with a super point that has excellent fitting and stability prevents the line from stopping without dropping the screw even if it is right next to it.

And the latest electric screwdriver, the "BLG-BC2" sends the conclusion data to the server in real time. Traceability is made possible by leaving a history of each screw tightening work.

The cost-cutting effect created by introducing a fastening system that combines these screws, bits, screwdrivers, and robots is "an order of magnitude higher than the effect of desperately lowering the unit price of a single screw," says President Totsu.

From this, President Totsu says, "If we rationalize the technology, screws can find great added value, not cost."



OSG Completes "NEO Shinshiro Factory"

OSG (Aichi) has completed all the renewal work of the "NEO Shinshiro Factory" and has begun efforts toward the realization of ultra-high-mix low-volume production that makes full use of digital technology.

In May of 2020, the Shinshiro Factory, which is one of the mother factories, was renewed and operated as the NEO Shinshiro Factory. This is the first large-scale renewal of a domestic mother factory in about 30 years.

The factory produces carbide drills, carbide taps, high-speed drills and high-speed end mills, producing 5400 types and 7700 lots of tools per month. With about 600 people, it has a monthly production capacity of 6000 types, 8000 lots and more than 700,000 pieces. According to the company's guess, this factory is the only factory in the world that is producing such ultra-high-mix low-volume production.



In order to work on ultra-high-mix low-volume production, the company tried to visualize the process by thoroughly digitizing. In order to increase the equipment utilization rate, the firm has implemented "outer setup" to collectively manage grindstones, jigs and tools and programs. On the other hand, with an emphasis on human power, NEO is promoting digitization as a tool on the premise that people are the center. NEO is particular about ultra-high-mix low-volume production because the firm thinks that it is a production system that

can be established in Japan as well. In the case of high-mix small-lot production, the goal is to have the strongest competitiveness in the world, even if it is a mixed production of standard products and special products.

As the digitization of production information, the company will visualize the processing, share information such as the operating rate, production schedule, production status and number of flows for each processing machine and analyze the collected data.

In the digitization of quality information, the processed products are centrally managed by the server as quality information of the measured values for both the assigned material and the processing history to ensure traceability.

Relative to the digitization of equipment maintenance information, in order to maintain high quality and high efficiency production in each process, equipment maintenance information was digitized and a predictive maintenance system was established.

Shinjo Manufactures/Sells German "Flowform" in Japan

Shinjo Manufacturing (Osaka) will start manufacturing "Flowform", a product of **Arnold Umformtechnic GmbH & Co.KG** in Germany, in the spring of 2021. Arnold, a longtime partner of Shinjo, developed Flowform in 2008, which is a technology for joining different materials needed for reducing the weight of automobiles.

Recent changes in the environment have greatly influenced the background of product development. CO₂ emissions from the transportation sector including automobiles, account for some 20% of total emissions, and CO₂ reduction has become a major issue for the automobile industry. Although the weight reduction of automobiles was effective in reducing CO₂, there was a problem with the technology for joining different materials, and Arnold developed Flowform to solve this problem.

The Flowform technology is a self-piercing male screw roll-molded screw, which is used by automobile makers in Europe, the USA and China for other parts of the body, shock towers and battery packs for electric vehicles.

Its features are no pilot hole required, (2) construction from one side is possible, adhesive can be used together, removable and different materials can be joined.



In 2019, the company signed a license agreement with Arnold for the manufacture and sale of Flowform in Japan, and moved to prepare production facilities for the start of production in Japan. In January 2020, The firm ordered a special German rolling machine, which is the core of manufacturing.

Domestic production of Flowform is a major initiative that enables a stable supply to users in Japan. Domestic sales will be carried out together with Shinjo Manufacturing's brother company, **Miwa Kohan**.

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**Japanese
News**