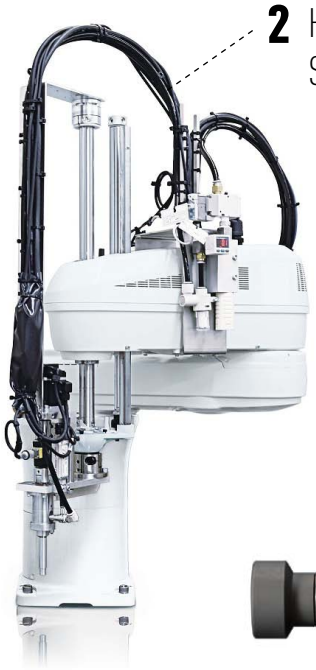
1 Internally Threaded Studs & Full-inspection Device

Innovation Alley

compiled by Fastener World



2 High Precision Screwdriving Robot

3 Multi-Volt Cordless Impact Wrench

1 Internally Threaded Studs & Full-inspection Device

Fuji Seira successfully developed and started using a full inspection device on "Internally Threaded Studs" used on notebook integrated circuits. It uses laser inspection to detect burrs and unprocessed parts, and works at a speed of 35 pieces per minute, which translates to about 5 times the speed of visual check. It makes for unmanned operation in nighttime and helps progress towards zero product defection.

The development costs JPY 7.5 million. Using laser sensors made by Keyence, the device can detect burrs that are 0.7mm long. "Internally Threaded Stud" is a product developed by Fuji Seira in response to the request for light-weighting. 72% lighter than the company's previous products, "Internally Threaded Stud" drops its cylindrical shape and changes to a triangular prismatic appearance to reduce volume, and is made of aluminum alloy instead of brass to restrain the formation of burrs from processing.

2 High Precision Screwdriving Robot

Denso Wave has started selling a high speed and high precision screwdriving robot with a bit rotating at a maximum of 6,000 turns per minute, as well as a torque sensor working at a tolerance range reduced to within 1%. This horizontal multi-knot robot merges a screwdriving unit with software. It is connected to a controller upon delivery to easily incorporate with operation onsite. It can detect screw heads hovering up to 0.05mm above the surface. Screwdriving modes can be configured on the user interface.

3 Multi-Volt Cordless Impact Wrench

HIKOKI started selling WR36DD cordless impact wrenches which can prevent over-fastening. It can stop working at pre-configured times and allows preventing over-fastening and damaging bolts. The wrench allows setting 4 turning speeds and 4 points in time to stop. Using a phone app, the user can adjust the stopping time at 0.1 second intervals. It is smaller in size and lighter and reduces burden for operators.

4 Resin Double Nut and Bolt

5 New Concept of Transforming Fastening

4 Resin Double Nut and Bolt

Sanko Kasei (Japan) successfully developed resin double nut and bolt. This product incorporates glass fiber to improve durability by 30%. It is lighter and easier to handle compared with metal bolts and nuts. The product includes a bolt, nut and flange. With a tool, the double nut will separate into two when the bolt goes into the nut, and therefore, it only takes once to install or remove the double nut.

This product is mainly used at construction sites, which are prone to vibration and which highly require double nuts. The company will initially provide the products in the size of 12mm and later expand the product line with customized variations. The products can be fluorine-coated as an addition.

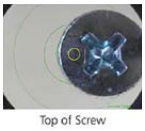
5 New Concept of Transforming Fastening Tools

Engineer is known as a Japanese innovative fastening tool developer. The company's new concept of transforming fastening tools is to attach and combine several self-developed products into a super tool. An example is the DR-22/23 tool rolled out this spring, which combines a GT Drive handle (DZ-70/71), a magnetic device to pick up screws (DR-19), and a bit to remove damaged screws (DBZ-51/21), merging 3 products with their respective features and benefits into one entity.

6 Model Y Wearable Support Robot

The wearable support robot developed by ATOUN and dubbed "a robot to put on" works great in a load-intensive environment.

Yahata Neji provides up to 400 thousand types of products, which require a workforce to manage them. In distribution, a carton of screws can weigh up to 30 kilograms, which is a lot of physical burden to the personnel working for long hours. Therefore, Yahata Neji is the first in the fastener industry to have adopted three ATOUN Model Y wearable robots in one of its distribution centers for personnel's wrist and waist support. The robots are able to alleviate wrist and waist pain and improve operation speed and efficiency.



Top of Screw

Side of Screw

7 EDX-7200 X-ray Spectrometer

6 Model Y Wearable Support Robot

7 EDX-7200 X-ray Spectrometer

Shimadzu Corporation released EDX-7200 Energy Dispersive X-ray Fluorescence Spectrometer in Japan and abroad. The EDX-7200 offers up to 3 times faster analysis speed than its predecessor (EDX-7000) with up to 1.7 times higher sensitivity. The product was designed for analyzing hazardous elements or impurities. Energy dispersive X-ray fluorescence (EDX) spectrometers are used to determine the type and concentration of elements in samples by irradiating them with X-rays and then analyzing the energy level (wavelength) or intensity of fluorescent X-rays emitted from the sample. A key feature of EDX systems is the ability to non-destructively analyze elements. Consequently, EDX systems are used for various applications by electronic devices and automobile manufacturers or their parts suppliers that are required to comply with RoHS/ELV directives. The high sensitivity is utilized for compliance with various regulations, analyzing material compositions and impurities, and R&D.

With the background fundamental parameter method in EDX, measurement of the irregular-shape of a screw's shaft creates fewer errors, allowing for measuring galvanized electroplating thickness. As an analytical instrument manufacturer with the largest market share of EDX systems in Japan, Shimadzu has the advantage of being able to offer solutions for inspection and analysis.

8 "Blanca" Heat Treatment for Stainless Steel Screws

8 "Blanca" Heat Treatment for Stainless Steel Screws

Japanese Kamiyama Tekkosho made its first attempt into the heat treatment field in 2020 and developed "Zero Chromate", a chrome-free electroplating technology, and this time went on to develop RoHS and REACH compliant "Blanca" heat treatment used on SUS410 stainless steel screws. "Blanca" means "white" in Spanish. The naming implies visually appealing and damage-free heat treatment. It sustained 4,000 hours in a salt spray test. It prevents red rust and corrosion, can self-heal and fasten stainless steel plates.

9 Drivable Screw Nails

9 Drivable Screw Nails

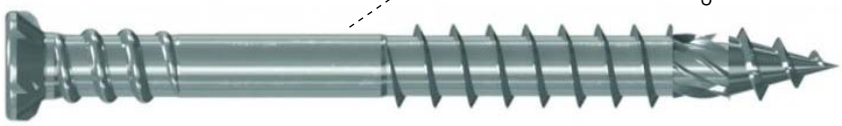
Japanese Kankei Corporation has developed Double Lock Nail® harnessing the strength of a self-rotating screw and allowing the use of a nail gun to drive it in place. It can also be removed like a screw, not with a pry bar but by using a power tool. It exerts the fastening force of a screw and can be inserted with a nail gun, working both like a screw and nail.

Unlike conventional screw nails, the entire Double Lock Nail® is embedded in the material when driven in, exerting full strength without creating open spaces between materials. This is achieved by fastening with the entire nail to create a strong grip without cracking thin wood. It can also be used to fasten C shaped steel and aluminum.

10 "TAFF®-A" Screw Series

To improve automated screw fastening, Japanese Techno Associe rolls out TAFF®-A Screw Series, including mini-screws, machine screws, high strength screws and self-tapping screws. Customers can choose one of them according to the type of fastened objects and applications to solve the problems with automation and greatly improve productivity. The series can be used with electric screwdrivers, multi-knot robotic arms and production lines, and has achieved cost reduction in screw fastening. The series doesn't create gaps with the bits and therefore is suitable with automated screw fastening devices.

11 RT UNI-C Decking Screw



The REISSER RT UNI-C is manufactured from corrosion- and acid-resistant stainless steel A4 directly at the REISSER SCHRAUBENTECHNIK's headquarters in Criesbach, Germany. It is a high-quality "Made in Germany" product ideally suited for permanent use in outdoor areas that are exposed to weather conditions, including in areas with special climatic conditions, such as those near the coast. Thanks to its diameter of 6.0 mm and length of up to 100 mm, the RT UNI-C is perfect for processing large board thicknesses. It is suitable for all types of wood — even woods containing a large amount of tannic acid and modified woods.The RT UNI-C was developed in order to make it possible to screw all common softwoods, hardwoods and tropical woods onto wooden substructures with additional large board thicknesses outdoors, too, such as in the construction of bridges or platforms, but also in terrace construction as well as in gardening and landscaping. The RT UNI-C decking screw is equipped with a countersunk head with milling ribs and SIT® drive. The milling ribs ensure effective milled recessing of the head in wood and allow for absolutely flush countersinking. They not only guarantee an attractive final result, but also reduce the risk of injury. The existing thread under head allows the component to be pressed firmly into place and prevents the wood connectors from creaking or wobbling. The thread under head provides secure support and securely fixes the terrace boards onto the substructure. With the reinforced core in the special thread, the decking screw more stable and robust and offers a high breakage resistance. After production, the RT UNI-C made of stainless steel A4 is pickled in the in-house electroplating facility, passivated and coated with anti-friction coating, which considerably reduces the screw-in resistance.