

# Fastener Innovation Alley

## 扣件新品大道

Compiled by Fastener World

### Oxidation Colored Stainless Steel Screws

Japanese Ikeda Metal Industrial has developed stainless steel screws colored blue, yellow or red by oxidation coloring treatment. These screws are designed to help operators detect foreign substance contamination at the food production site at an early stage and to prevent shipment in a contaminated state. Stainless steel screws are commonly used in the assembly of food manufacturing machinery because of their corrosion resistance, but they can be difficult to locate if they become loose and fall off and get mixed with milk, mayonnaise or other white colored foods. In fact, there have been cases where packaging has been mixed with screws and shipped unknowingly.

To solve this problem, Ikeda Metal Industrial designed a special surface treatment called "stainless steel oxidation coloring" for coloring stainless steel screws to comply with the Food Sanitation Law. By easily identifying the color of the screws, even if it is mixed with food, it is possible to detect foreign substance contamination at an early stage and prevent shipment in a mixed state.



### Acutrak 3 Headless Compression Screw System

Acumed, a medical device company, announced the release of its next generation Acutrak 3 Headless Screw System. Since 1994, this first-of-a-kind screw has been trusted by surgeons over 5 million times, successfully benefitting patients worldwide.

Acutrak compression headless screws embody simplicity, versatility, and ease of use for fracture fixation. Building on Acutrak 2's proven track record, Acutrak 3 advances prior design features with an industry-leading novel thread pitch design to elevate surgical performance to new standards.

The launch of Acutrak 3 now includes a new 2.0 mm diameter Nano screw, and extensions to the current portfolio of Micro, Mini, and Standard screws. These additional size offerings will allow for further surgical options among Acutrak's approved indications.



### Fasteners for Sheds and Small Buildings

Sheds and small buildings are a fast-growing segment that creates high demand for a variety of different fasteners. SPAX has various styles and types of fasteners which make them an attractive partner for any builder of these structures.

SPAX offers PowerLags® from ¼" to ½" in diameter up to 12" lengths in certain diameters and a #14 x 6¼" truss rafter screw perfect for fastening small truss systems inside of a shed.

SPAX also offers a multi-material screw in both a flat countersunk head as well as a low-profile wafer head, offered in both interior and exterior coatings. With a large range of diameters and lengths offered, SPAX has great solutions for framing, subfloor, decorative attachments, composite flooring, and many other applications. SPAX also offers most of their products in bulk options which makes it attractive for customers producing these structures in high volume.



### Welded Bolts Not Requiring Heat Treatment

Welded bolts for high-strength steel plates have been in high demand. High-strength materials require the use of high-strength welded bolts, so conventional welded bolts are made of heat-treated high-strength steel. The manufacturing of welded screws calls for high carbon content in the material to increase bolt strength. However, the high carbon content results in poor weldability and sometimes reduces weld strength.

On the contrary, Japanese Yamashina's welded bolts are made of metal materials that do not require heat treatment, which saves heat treatment costs and improves quality. Due to the use of high strength materials, machinability is less desirable and advanced technology is required for its manufacture. Yamashina overcame this problem and began selling its welded bolts.



The characteristics of this product are as follows:

- **Using high tensile strength materials**

High-strength materials with a tensile strength of about 800 MPa. No need to harden the bolts by heat treatment.

- **Achieving high-strength welding**

Low carbon content in the material carbon makes for good weldability and enables safe and high-strength welding. To use Yamashina's welded bolts, weld it to a steel plate and stand it up.

### Auto-Torq Axle Fastener

Auto-Torq Axle Fastener by Stemco is designed to streamline wheel end installation by eliminating the need for complex processes and specialty tools. With no need for washers, clips, snap rings, screws, or keepers, Auto-Torq makes installation simple and efficient, the company says. Plus, by applying the optimum clamp load on the bearings every time, bearing wear is minimized, resulting in the longest bearing service life.

Auto-Torq offers an all-in-one solution that is compatible with any industry hub manufacturer.



### Japan's First Colored Titanium Blind Rivets

To meet the increasingly diverse and complex needs of the industry, Nissen Rivet in Japan has for the first time achieved 100% localized manufacture of titanium blind rivets using advanced processing technology. In addition to improving efficiency and productivity, the applications of the blind rivets as an environmentally friendly fastening technology are expanding. The company also offers colored titanium blind rivets (using anodized coating).

The most important characteristic of titanium is its high corrosion resistance. It is ideal for use in corrosive environments.

The weight is about 60% of stainless steel and iron. Ideal for weight reduction, e.g. for car and motorcycle silencers and truck bodies.

Titanium hardly ages over time and is highly recyclable. It also has non-toxic and anti-bacterial properties that make it a human-friendly material compared to other metals.



### ICC Insert Nut

Japanese Iwata Bolt headquartered in Tokyo has recently added a new product "ICC Insert Nut" into its wide range of fastener portfolio, which, according to the company, can solve various plating problems.

This new product currently available in the size range of M3-M8 and with improved plating feasibility and silver clearance can create a closed-end by crimping the lid and eliminate common issues such as plating deposition. It can be applied to transportation, electronics and many other industries. With the application of this product, the overall length can be trimmed and the corrosion resistance, quality and reliability can be greatly improved.

Iwata Bolt under the leadership of President Kiyotaka and Iwata has been celebrating its 74th anniversary in 2023 and continues to strive for maintaining sustainability and achieving further growth.





### Tamper-proof Recess Inner®

Recess Inner® rolled out by AzumaNeji from Japan is a tamper-proof part that restrains unauthorized removal of bolts by loading it into the recesses of a bolt. It was developed to improve safety by reducing the risk of destruction or disassembly to machines and systems. In addition, it also prevents dust from entering the hexagonal hole.

Three types (BARNACLE, FLAT, and PLASTIC) with different characteristics are available in this lineup. The stainless steel "BARNACLE" and steel (stainless steel color plated) "FLAT" types can be removed with a special tool, while the "PLASTIC" type leaves traces when removed. The "Barnacle" is made of stainless steel and has high corrosion resistance, while the "Flat" is suitable for use where design is prioritized. Plastic "PLASTIC" is available in two colors, white and black. The white type is mainly for indoor use or machine tools, while the black type is mainly for outdoor use.

It provides safety and security in a variety of locations and applications, including equipment and facilities in places where unspecified numbers of people come and go (park playground equipment, window grids, license plates, etc.), dusty locations in factories and outdoors, and parts of machines and equipment that should not be removed without authorization (mold positioning parts, core parts of precision machines, etc.).

### High Performance AI Sorting Machine

MISTOL® AI, a high-performance inspection and sorting machine equipped with AI, has been developed by Nitto Seiko to enable inspections similar to human visual inspections and inspections of parts that have been considered difficult in the past. MISTOL® AI streamlines the image setting process, which used to be difficult, and makes it possible to configure settings without being restrained to the skill level of the operator. This product reduces work hours required for setting.

Conventional machines use a "rule-based" method, in which inspections are performed based on rules set by human operators. However, the system was not accurate enough to recognize slight changes in the captured image due to unevenness or micro-defects on the surface of the target. In addition, many quantitative settings had to be made for each inspected item on the captured image, which required time and skill to set up. MISTOL® AI learns and judges captured images on its own, making it possible to handle inspections that have been difficult with conventional methods, with simple settings and operations.



### Asfa® WP Waterproof Screw

Nitto Seiko Corporation has released Asfa® WP, a new concept O-ring embedded screw that offers high axial force performance and waterproof performance. Its unique structure factors in product misalignment and stable carrying during the assembly process. This product, which has a different shape from general waterproof screws and offers various advantages in addition to waterproof performance, is patent pending.

Because of the structure that incorporates an O-ring in the lower shaft portion of the screw neck, general waterproof screws require counterboring the fastened object and the contact area with the screw head is small, making it impossible to fasten with high axial force. The most important thing in fastening screws is to secure axial force. The flat washer on the underside of Asfa®WP provides a larger contact area with the fastener than an O-ring does, which reduces surface sinking of the fastener and enables fastening with higher axial force. In addition, since no counterboring is required for the fastener, it contributes to the customer's total cost reduction.

When we use general waterproof screws with embedded O-rings, if fasteners misalign, the O-ring is not compressed, resulting in loss of waterproof performance. With "Asfa®WP," the O-ring is positioned on the periphery of the head, which allows the O-ring to be compressed evenly and provides stable waterproof performance. □

