



Innovation Alley

compiled by Fastener World

No Compromise Panel Fastener

For the most demanding applications such as fire-sensitive environments, Buttonfix has designed an all-metal version of their award-winning panel fixings. The Type 1 Metal Button-Fix retains all the benefits of the polymer versions – quick and easy installation, accessibility of services, and amazing strength – but is manufactured in materials that are compliant for use with fire-retardant panels.

Producers of fire-retardant panels have been quick to see the advantages of this new product. With a stainless-steel spring to grip the Button within the Fix, Type 1 Metal Button-Fix is also ideal for marine applications where vibration may be an issue. The reassuring 'click' as the

Button-fix locks home has been tested over 10,000 times, to ensure reliable performance no matter how many times the panel is removed.

Available from May this year, Type 1 Metal Button-Fix meets the International Maritime Organization (IMO) Standards: Annex 2.1 for non-combustible materials, making it ideal for all types of interior panelling on yachts and ships.



GO-300 Cordless Lithium-Ion Battery Tool for Threaded Inserts

The new GO-300 addition to the GOEBEL cordless tool family offers modern features that provide advantageous benefits to the operator in all job-site applications. It is ergonomically designed for speed, efficiency, and versatility when setting threaded inserts. The cordless battery system allows the user to take the tool to any job-site and have free range of motion.

Performance is what the company strived to provide with this tool ; therefore it added a pulling force adjustment which the user can set to L = low and H = high. The multi-functional switch panel indicates the battery level as well as gives the user the option to adjust the stroke range easily depending on the size and grip range of the threaded insert. The tool set comes complete with battery, charger, interchangeable mandrel & anvils, wrench and operating manual; all stored together in a rugged carrying-case. The easy to identify colored mandrels allows the user to quickly reach for the correct threaded mandrel needed for the application.



WELTAC® Resistance Element Welding

WELTAC® resistance element welding enables the joining of lightweight materials with steel of all qualities.

For the joining of materials in car lightweight design, especially aluminium and steel, Böllhoff has added another technology to its product portfolio: the resistance element welding.

Resistance element welding is a further development of resistance spot welding.

At WELTAC®, a rivet-like resistance element ensures, that materials which are not thermally compatible, or only to a limited



extent, are joined. The resistance spot welding systems, existing at the customers' premises, can still be used for modern body construction architectures.

"invisMX" Invisible Magnetic Screws

Screws are a common component. Fastening screws onto an object will inevitably leave the screw head on the connecting part of the surfaces and undermine visual appearance. In light of this, a Swiss company invented an invisible magnetic screw which leaves no screw marks when used to fasten objects. This screw is named invisMX magnetic invisible screw, and it has a strong bearing

capability at a maximum of 400 kilograms.

The screw was invented by Lamello AG Joining Technology from Switzerland. It can stay hidden and fasten the internal part of objects. It is somewhat similar to the mortise and tenon in Chinese building structures but simpler and more convenient.



All that is needed is to punch a small hole on the wood, install the screw into the hole on one end of the wood, and drive in the nut on the other end, utilizing connection of two pieces of wood and a magnetic tool to fasten the screw and nut. This is all done by utilizing unique magnetic attraction repulsion. The removal of the screw is very convenient, and all that takes is to use related magnetic tools which will remove the screw within seconds. The screw can make wood connection very firm and has a strong grip with the torsion force reaching 160 kilograms. It is currently applied to the process of furniture production.



60-Volt Cordless Nutrunner



STANLEY Assembly Technologies, a brand of STANLEY Engineered Fastening, is extending its B-Series cordless tool line to include the B44L angle-lever cordless nutrunner. Thanks to its 60-volt DEWALT® FLEXVOLT™ battery, the B44L is the most powerful cordless nutrunner available to the assembly market.

For added convenience, the B44L can store data for up to 500 fastening cycles and two trace sequences. It also has a built-in controller with wireless capability. This allows seamless integration with the plant's existing communications system.

The B44L is available in four models with speed ratings from 243 to 573 rpm and maximum torque ranges of 55 to 120 Nm. The ½" drive is also offered in square, double-ended and flush socket configurations.

ProSeries™ “WSTS Truss/Stud Screw”

MiTek USA announced that it has released a new ProSeries™ fastener. The new ProSeries™ “WSTS Truss/Stud Screw” provides uplift resistance and lateral load resistance for the following connections: Truss-to-top-plate; rafter-to-top-plate; top-plate-to-stud; stud-to-bottom-plate.

The WSTS Truss/Stud Screw is tested in accordance with ICC-ES AC233 and AC13, and meets 2015 and 2018 IRC and IBC code requirements. The WSTS Truss/Stud Screw offers a “reverse thread angle” on opposite ends of the screw for greater resistance to withdrawal.

The WSTS Truss/Stud Screw is fully threaded along its length for installation flexibility. The head of the screw is designed to countersink when driven, so the screw is taken out of the way of finishing materials like drywall and trim. A Type-17 screw point

engages the wood quickly for easier starting and driving of the screw.

The WSTS Truss/Stud Screw package includes an installation angle tool that makes proper installations easier. The installation angle tool is also removable so the bit can be used with or without the device.

The screw comes in two lengths: 4½ inch length for stud-to-bottom plate connections, and 6 inch length for connections through the double top plate.

“The Better Bit”

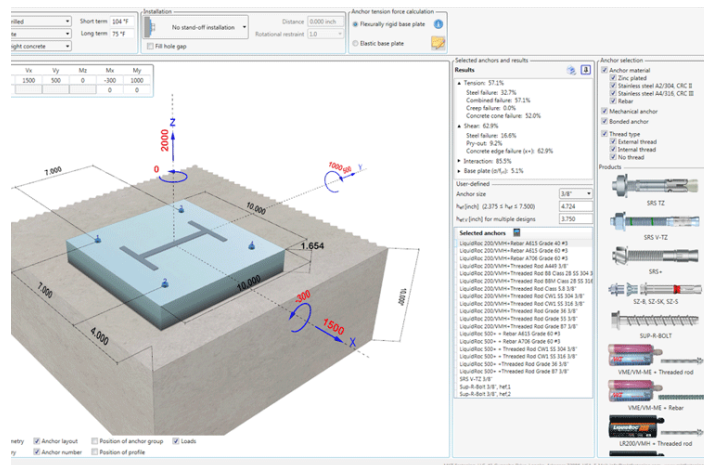
The dynamic Australian owned and operated construction supplies wholesaler dedicated to supporting the independent distribution channel with an extensive range of products, ICCONS, has recently introduced a new product called “The Better Bit.” This is a decking bit that can cover 8, 10, and 12 gauge decking screws and whose control collet can be simply adjusted to set the countersink depth. According to ICCONS, this new bit is perfectly suited for applications in carpentry, woodworking, furniture making, deck building, DIY construction, and etc.





Improved Anchor Design Software V2.1.2

The most easy-to-use anchor design software has been improved to also be the most powerful. The MKT Anchor Design software V2.1.2 has just been released and allows the designer to calculate seismic loads, including applying the Ω_0 factor for your application. All seismic calculations are according to ACI 318-14 and allow the designer to evaluate every load factor and load combination possible.



Test Device Analyzing Self-drilling Screw Performance

Kamiyama Tekkosho developed the self-drilling screw fastening test device called "SCR-19S" with an aim to reduce the required time to fasten self-drilling screws by 50%. The company is currently using the device for trial tests and it expects to develop a new type of self-drilling screws by 2020.

acquired data to improve drill tip design.

Kamiyama Tekkosho's "Uni-point" construction self-drilling screws drills into iron plates without the need for pre-drilling holes. The new screw design is expected to further improve Uni-point.

The common way to test self-drilling screws is to improve the drilling tip and then measure the time required for the self-drilling screw to fasten onto test materials. The way that the new device takes is to use sensors to measure the number of rotation of the screw as well as the force applied to the screw's axial and perpendicular direction, and then use the new



TRIBO 3-in-1 Bolt

Tribo Bolt combines multiple patented designs into an original branded product integrating a special head shape, special materials and special threads. It achieves three major functions: lightweighting, high strength and anti-loosening. The head height is 60%-70% of a hexagonal bolt, the head diameter is 80%, and the total volume is 50% of a hexagonal bolt.



- Zero driving angle. Great torque transmission.
- Increases socket durability.
- Makes the socket lighter, thinner, shorter and smaller.
- Special outer shape requiring specified tools. Anti-theft.
- Miniaturized grain structure. Reduced material impurity. Enhanced delayed fracture resistance. High strength.
- MotionTite asymmetrical thread design increasing fatigue strength by 1.2 times. Resisting impact and vibration.

"MISTOL®F" for Inspecting and Sorting Parts of Ultra-small Objects

Nitto Seiko launched sales of "MISTOL®F" on June 3 which can inspect the appearance and size of ultra-small screws with diameters from 0.6mm to 3mm. The device can perform an inspection of appearance (damage, color, etc.), size, and mixed materials at a speed of 100 to 500 pieces per minute and can be applied by the automotive parts and household appliances industries. It can check the upper and lower side of an object simultaneously without worrying about clogging objects.





Angled Tip Long-Nose Pliers

The Japanese well-known hand tool manufacturer, Lobtex Co., Ltd. has recently developed its new J-CRAFT series angled tip long-nose pliers. Thanks to the direction and angle (30°) of the tip, this tool can easily grip target objects even in cramped spaces where conventional pliers cannot be laterally opened.



Gripping



Cutting

Mistake-proofing Torque Wrench Preventing Repeated Fastening

The CSPFHW series wireless torque wrench can detect if the user forgets he or she has tightened a fastener and is trying to re-tighten it. This product comes with no torque sensor but instead comes with the unique ability to check for repeated tightening.



- Repeated tightening on an already tightened bolt or nut would be regarded by the wrench as a repetition and the red NG lamp would turn on.
- This wireless wrench operates in conjunction with a signal receptor, configuration box, and multi-port box.
- 7-digit English and numeric characters and a 3-digit ID can be set for the wrench to trace its usage data.
- The battery can sustain through over 150 thousand times of use. In the case of fastening 3600 pieces of fastener per day, the battery can be used for over two months.
- The wrench head can be exchanged for a ratchet head and other head types for compatibility with various fastening operations.

Small Parts Counting Machine

The counting device from Tokyo Electron Device can precisely count the number of small and lightweight parts, and can be used for counting, stock management and subdivision of screws, washers and electronic parts. It can recognize the type and number of parts, preventing human errors such as miscounting and mixing with wrong parts. The company sells it to parts manufacturers and logistics centers.

The device consists of a workbench to which the parts are placed, a counting camera, and a monitor display to show the counting result. The user has to select from the monitor the parts to be counted, and then place the parts onto the workbench for counting. Placing different parts will make the monitor report an error marked in red, thereby preventing the user from taking the wrong parts.

By using this device, parts manufacturers and logistics centers can reduce operating time, facilitate standardized operation and make it easier to record operations.



System Monitoring Wind Turbine Screws

The rupture and deterioration of screws are the most critical task of wind turbine maintenance BACS embarked on developing a system monitoring screws used on wind turbine for signs of deterioration. This smart maintenance system collects data through sensors installed on the screws and is expected to be in service by 2021.

The system is being co-developed by the University of Tokyo, a screw maker from Fukushima Prefecture, and a wind power maintenance company. It is expected to cut substantial maintenance costs from wind turbines deployed for 20 years of use.



The system requires sensors to be embedded into screws and wireless transmission devices to be installed on the outside of the screws to form a structure consisting of mother devices and child devices. In phase 1, 64 child devices which connect wirelessly to 2 mother devices are installed on a wind turbine to execute simultaneous detection. If a sensor exceeds a certain amount of numeric values, it will shift to the non-simultaneous state while other child devices continue transmission to the mother devices, thereby knowing the state of screws in advance.



BACS
バックス情報システム株式会社

"Beans Anchor"

Japan Power Fastening (JPF) developed "Beans Anchor" used on concrete. It is a female-thread post-installed anchor utilizing fastening torque to control the expansion of the anchor. This patented anchor has internal steel balls that slide to expand the anchor body. It has excellent performance, high endurance and greatly reduces construction noise and impact. JPF is preparing to mass-produce it and expects to roll it out to the market in the second half of this year.



Bolt and Nut Automated Spot Welding Device

Koyo Giken Inc. developed a bolt/nut automated spot welding device that combines a 3-dimensional-translation NC device and a parts feeder to automatically place bolts and nuts onto a processed object and spot weld them. The device uses a servo motor and disassembling it is easy, and therefore it is convenient for changing between manual or automatic operations. It is connected to a computer panel and can automatically place bolts and nuts onto a specified spot on a metal plate and weld

them, making itself suitable for small batch production of diversified products. It is supported by Koyo Giken's IoT service to have its status under check and save the trouble of maintenance for users. Koyo Giken will promote it to small and medium enterprises in the automotive and other industries and expects to sell 1,200 sets per year.



SPILEAD Self-tapping Screw

Tailored to fasten thin plates, SPILEAD Self-tapping Screw gains great disparity in torque by low fastening torque and high rupture strength. This disparity ensures secure screw fastening and make SPILEAD suitable for thin plates in 0.1T-0.2T thickness, variable bottom holes and screwdrivers with inconsistent torque. Its front end is a triple-thread design to prevent inclined screw insertion

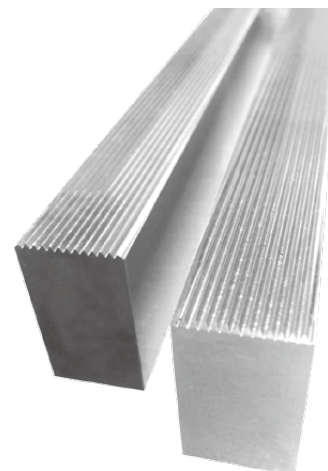
and inclined screw fastening, improving operability. A M4×6 SPILEAD screw, for instance, fastens up in just one and a half turns, reducing fastening time. Furthermore, it is short in length to prevent the threaded portion from coming up from inside the fastened object after the screw is fastened.



'Dios' Thread Rolling Dies

High-hardness screws for their reduced weight are increasingly used on car engines and other safety critical components. Therefore, wear of dies has become a task to tackle with. To cope with that, Sanmei Works developed "Dios", a thread rolling die widely adopted by carmakers. The sales of this product in the latest 12-month period grew 50% year on year. "Dios" is for forming threads of high-hardness screws which are made of stainless steel or other materials or have been heat treated. Its forming capacity reaches 50-90 thousand pieces and its service life is more than 200% longer.

Sanmei Works is a thread rolling machine maker representing 50% of market shares in Japan. Its revenues in the latest 12-month period reached JPY 2 billion. As a product under the company's diversified business, Dios represents 10% of the total revenues. In the future the company will raise the proportion of the dies business.





High-speed 8mm Threading Rolling Machine

THI-8R Evolution" developed by Sanmei Works Co., Ltd is an 8mm (diameter) thread rolling machine with a speed of 400 rotations per minute, 30% faster than old models. The machine will launch sales within this year and is applicable to automotive screws production. It comes with a cooling device to resist frictional heat. Its panel shows the temperature change of die rams, and if the rams reach a specific temperature, the machine would stop to prevent die galling. Operation is simple because the user can adjust the rams via the rotatable control device and determine the position of dies via the touch panel.

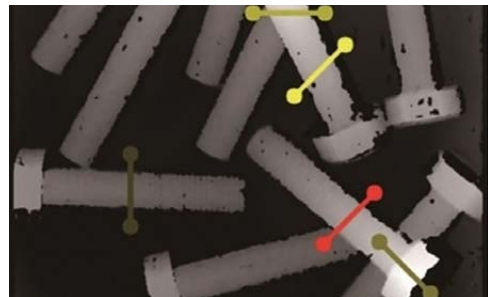


Precise Pickup System for Screws and Parts

Professor Harada Kensuke from Osaka University developed a system for robots to accurately determine pickup locations in each operation. When the robot picks up a part, the camera measures the actual pickup location and its margin of error to the target location. The margin of error will be reflected on the next determination of pickup location. After a few times of confirmation, the margin of error will be rectified.

The rectification can be done just by simple mathematic determinants, and therefore, creates less burden. When picking up and placing a certain part, the robot only has to show the part to camera once for measurement and then it is done. In the professor's lab, he set an initial 10mm margin of error to the pickup operation of screws, and the margin was reduced to less

than 5mm after several times of confirmation. This system is simple without requiring additional equipment, and therefore, its implementation is easy. ■



Echo Fasteners

EF has ten years of experience in standard fastener production and sales. Since 2014, EF began the production and sales of special parts, such as machining parts, stamping parts, casting parts, forging parts and other non-standard products. Material covers copper, aluminum, plastic, rubber, carbon steel, stainless steel, alloy steel, etc., and the products are mainly sold to North America and Europe. Our registered headmarking are EF and 01XG.



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