

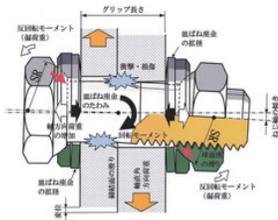


Innovation Alley

compiled by Fastener World

Japanese Designer Invents Slip Type Anti-loosening Bolt/Nut/Washer

Kazutomi Oka, a designer from Kanagawa Prefecture of Japan developed the patent-pending "Slip Type Anti-loosening Bolt/Nut/Washer" utilizing spherical seating surface to prevent loosening. This design has completed testing in July 2017. The designer is seeking licensee makers and die makers for collaboration.



The repeating vibration perpendicular to the thread axis causes the nut to rotate and leads to loosening. "Slip Type Anti-loosening Bolt/Nut/Washer" can prevent loosening by "bearing" and "releasing" forces. Its design utilizes Coulomb's law of friction and comes with a spherical seating surface. When vibration that may lead to loosening occurs, the spherical seating surface will slip before the threads do in order to release the force of vibration.

SAMAC Fixings from UK Rolls Out Performance Plus TORX Head High Performance Screws

The Performance Plus Torx head wood screws by SAMAC come with the following features.

1. Torx, Reinforced Double Countersunk Head - Reduces cam out, increases torque transmission and assists countersinking.
2. Self- Countersinking Ribs – For improved countersinking and a flush finish.
3. Waxed Zinc and Yellow Passivated Finish – Corrosion resistant and significantly reduces torque.
4. Milling Thread – Reduces torque, prevents splitting.
5. Serrated Thread - Cuts into wood reducing splitting and torque.
6. Type 17 Cut Point – Reduces splitting and the requirement for pre-drilling. Each box comes complete with FREE pozi bit.



MiTek® Launches New ProSeries™ Fasteners

MiTek ProSeries fasteners feature a "cut point" that offers a fast start – with no pre-drilling required – that helps reduce installation torque and splitting.

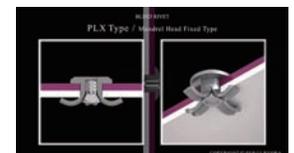
- Ideal for wood-to-wood and metal-to wood connections, MiTek Hex Head structural wood screws are available in lengths from 1-1/2" to 8". These screws can be used in numerous framing applications in lieu of traditional lags screws where a hex head drive is desired.
- MiTek Washer Head structural wood screws (exterior finish) offer an alternative to traditional lags screws. The large, flat washer head offers a low profile (for less interference) after installation. These screws are ideal for deck ledger attachments and other wood-to-wood connections. They are available in lengths from 2-7/8" to 8."
- Specifically designed for multi-ply EWP and dimensional wood connections, MiTek Washer Head structural wood screws (with a yellow zinc finish) allow for one-sided connections on 2-, 3-, and 4-ply beams and truss girders. They are available in lengths from 2-7/8" to 6-3/4".
- Ideal for a low-profile appearance, MiTek Bugle Head screws are available in lengths from 2-1/2" to 10". These are general-purpose structural screws that offer a high-strength alternative to traditional lag screws and allow for the head to be driven flush or countersunk.



Screw lengths are stamped on the head of all MiTek ProSeries structural wood screws. This is ideal during the inspection process. The MiTek Washer Head structural wood screws and the MiTek Bugle Head structural wood screws both utilize a T30 Torx drive to maximize bit engagement and reduce "cam-out."

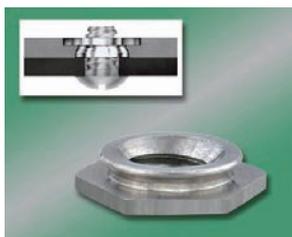
Japanese Fukui Byora Rolls Out PLX Blind Rivet Used for Resin and Soft Materials

PLX blind rivet can tighten up soft materials like automotive interiors, building materials, and rubber. The sleeves of the blind rivet can split in 4 directions to fasten soft materials. A single size of PLX blind rivet can cope with multiple widths of soft materials, reducing parts count and improving work efficiency. The company increased the pullout strength of the mandrel head as well to prevent loosening of the mandrel head after fastening. This mandrel head fastening achieves a simple and easy water-proof effect and prevents abnormal noise. Additionally, users can choose the special large flange type PLX blind rivet to further increase retention level.



PEMSERT® Self-Clinching Stainless Steel Flush Nuts for Thin Metal Sheets Provide Strong Threads Without Protruding or Marring Assemblies

PEMSERT® self-clinching flush nuts from PennEngineering® ideally suit attachment applications where a thin metal sheet requires load-bearing threads stronger than tapped holes but must remain flat without any protrusions on either side of the sheet. They can be installed before sheet bending and forming to provide threads for mating hardware in sections that otherwise would be inaccessible for fastener installation after chassis are formed. Their uniquely designed hexagonal head and clinch technology ensures high axial and torsional strength in service. Ultimately, the nuts install permanently, will never loosen or fall out, and leave surfaces unmarred to enhance the functional and cosmetic qualities of assemblies.



The product line includes PEMSERT F™ 300 Series stainless steel types for installation into steel or aluminum sheets and PEMSERT F4™ heat-treated 400 Series stainless steel versions specifically designed for installation into 300 Series stainless steel sheets. Both types are available in thread sizes #2-56 through ¼-20 and M2 through M6. Sheets can be as thin as .060"/1.53mm. For aerospace applications, F nuts can be ordered to conform with US NASM45938/4 aerospace standards.

Making Surgical Screws from Bones

(Below is an excerpt from article "Making surgical screws from bones" published on ScienceDaily)

Together with TU Graz's Institute of Biomechanics, in 2013 orthopaedist Klaus Pastl developed an alternative: the "Shark Screw," made of the specially compact and hard middle layer of the human thigh bone (femur). So what exactly are the advantages of screws made of donated bone material? The metal doesn't have to be removed and a second operation doesn't have to be carried out because the donated material has completely healed into the bones. So well healed that the transplant is no longer visible in an x-ray after one year.



The design of the thread of the screws alone has an enormous effect on the bending and shear strength and breaking torque. Researchers have to investigate and understand the forces active in the bone structure of the foot and jaw. In general there is a big difference between working with metal screws and screws made of biomaterial. The mechanical principles are the same, but we also have to consider that donated bone material shrinks somewhat during sterilisation and two hours after the operation expands again in the body and becomes more elastic.

The Shark Screw is being produced from the start-up surgebright, which was founded in 2016. The patented technology is already being used in 14 Austrian hospitals.

Japanese KFC Launched Sales of K/KP Torque Shear Nut

KFC launched sales of K/KP Torque Shear Nut in August 2017 which is a type of torque management nut for preventing human errors. The resin cap free spins when the specified torque is reached, making it possible to confirm the state of fastening with bare eyes.

The product has a two-piece structure where a resin cap covers on top of the anti-loosening nut. The operator uses an impact wrench and starts fastening from the top of the resin cap, and when the specified torque is reached the cap free spins and falls off. Accordingly the operator can quickly tell if there is an error with bare eyes.



ITW Brands Introduces Revamped Cement Board Screws

ITW Brands has introduced a groundbreaking iteration of its Backer-On® and Rock-On® cement board screws. The new screws have been uniquely designed with a patented serrated head, T-25 star drive and serrated thread forms to solve common contractor challenges and enhance performance. Key innovations include:



- Patented serrated head design. The head delivers flush seating while reducing board blow out.
- Star drive with T-25 bit. The star drive recess provides a stick fit for every screw, allowing for one-handed operation with no wear on the bit.
- Serrated thread forms. The improved threading requires less torque for faster installation.
- Patented sharp point and lead threads support immediate pick-up and reduces the effort required to drive.

New PEM® S-RT™ Self-Clinching Free-Running Locknuts with Modified Threads Enable Easier Tightening of Mating Screws and Vibration-Resistant Locking Performance

New PEM® S-RT™ self-clinching free-running locknuts from PennEngineering® feature a modified thread angle enabling easier tightening of mating screws and superior vibration-resistant locking performance in thin metal assemblies. The modified thread formation allows mating screws to spin freely during the attachment process until clamp load is induced during the screw-tightening process.



The applied clamp load then engages the locknut's vibration-resistant locking feature, which securely and reliably locks the screw in place. Compared with traditional locknuts, excellent joint clamp load remains consistent, even after many on/off cycles.

PEM S-RT self-clinching locknuts install into aluminum or steel sheets as thin as .030"/0.8mm and become permanent parts of an assembly. Upon their installation using a PEMSERTER® or other standard press, the back side of the host metal sheet for screw insertion will be flush or sub-flush and the assembly side will be flush or sub-flush ideally suiting sheet-to-sheet attachment applications.

These carbon steel locknuts can be specified with thread sizes from #4-40 through 5/16-18 and M3 through M6 and in a variety of shank lengths. Zinc plating finishes are available in standard colorless or optional yellow.

Stryker's Spine Division Commercially Launches Serrato Pedicle Screw at NASS 2017

Stryker's Spine division announced that it has commercially launched its Serrato™ pedicle screw, a unique dual-lead screw intended for use in the non-cervical spine, at the North American Spine Society (NASS) Annual Meeting, Oct. 25-28, 2017, Orlando, Fla.



Design innovations pioneered by Stryker elevate one of the most basic spinal surgery tools, with the goal of reducing work, increasing speed, and enhancing surgical efficiency. The Serrato pedicle screw is the first dual-thread screw with enhanced cutting flutes (serrations) that are designed to reduce work by lowering the insertion torque, and True-Tip geometry, which allows for precise insertion and immediate bone engagement.

New Ultrasonic Bolt Load Measuring Equipment Launched by Hydratight

Joint integrity specialist Hydratight has introduced advanced electronic bolt load monitoring equipment for use on any critical bolted application.



The BoltScope Ultra is a handheld device that monitors and displays elongation, stress and load on fasteners. Hydratight has provided the system for use in oil and gas, nuclear, wind and power generation industries. However, it can support any application where the accuracy of bolt load requirements is highly critical.

The BoltScope Ultra is compact, lightweight, durable and easy to operate. It also has an anti-glare screen for use in bright conditions.

Japanese SAKATA Rolls Out Brush Socket Capable of Removing Bolt Rust in 5 Seconds

SAKATA Manufacturing Co., Ltd. has rolled out a critically acclaimed brush socket that can remove rust off bolts and nuts fastened for a long term or used in a harsh environment. The socket can cope with sizes up to M36, as well as inch sizes, round bars, and customized products. It can remove rust in just 5 seconds. The user just has to set it onto a commercial electric driver and it is ready to go.



Kistler Group Releases Schatz Mobile Testing Systems in the US

The Kistler Group is set to launch its Schatz mobile testing systems for bolted joint analysis and tool testing in the US market. Kistler recently acquired Schatz GmbH in 2016, and has since extended its knowledge in bolted joint technology.



According to a US-based consulting firm, the automotive industry assumes that 70% of warranty costs and 20% of all recall actions are caused directly or indirectly by faulty threaded joints.

To serve this market, Kistler is delivering quality control systems for fasteners – namely the Schatz-combiTEST and the INSPECTpro.

The Schatz-combiTEST mobile system features dual capabilities by combining calibration of manual torque wrenches with testing of fastening tools. This battery charged device offers convenient, real-time testing of all tools on an assembly line.

The Schatz INSPECTpro, a portable measurement and evaluation instrument, offers a way to test torque and rotation angle on threaded joints. This system provides graphic analyses of assembly processes to ensure that threaded joint assemblies meet optimum quality standards. The system's Tool Management license allows tools to be tested and stored ahead of time so that later on, they can be called up directly in Tool Testing mode.

Japanese Kondotec Develops Bolts Used for Furring Strips

Kondotec Inc. developed "Kondo Furring Strip Bolts" that comes with a two-piece structure and is used for assembling and fixing. It can significantly reduce assembly time. The wave washer under its head has bigger spring counterforce than average washers, and therefore it can evenly distribute the pressure on the fastening portion and has strong anti-loose capability. Furthermore, it is less likely to bite into the target component and cause damage. It uses a flange nut to prevent the contact surface of the base material from deforming.



Japanese Nitto Seiko Develops "Tough Alum." Bolt with the Same Level of Tensile Strength as Steel Bolts

The Japanese automotive industry is accelerating towards CO2 reduction and the development of self-driving cars. Currently the top priority is lightweighting of the car bodies, and Japanese screw makers are also seeking lightweighting of bolts. In light of this, Nitto Seiko developed "Tough Alum." high strength bolts that has the same tensile strength (over 420MPa) as steel bolts.

"Tough Alum." uses 6000 series aluminum that is high-strength and less prone to stress corrosion crack, and after heat treatment it can attain the same level of tensile strength as steel bolts. Therefore, the weight can decrease to two thirds of a steel bolt to support customers' demand for product lightweighting. Furthermore, the oxide film on the aluminum surface can achieve excellent corrosion resistance, and prevent galvanic corrosion in conjunction with aluminum parts. Applying Nitto Seiko's original "Flix" coefficient of friction stabilizer onto "Tough Alum." will alleviate seizing that is unique to aluminum products, achieving axial force fastening merely by low torque. "Tough Alum." has launched sales since November with a target of producing 1 million pieces per month.



Dimac Launches New SPC-LAB Series

Dimac latest generation mobile unit SPC-LAB allows to detect any defectiveness before they impact the production and to plan the corrective operations in the best possible ways.



Basically, SPC-LAB consists of a latest generation mobile unit for measurements and controls designed to increase SPC measures reliability and objectification, optimizing process control costs. The machine is compatible with the factories data collecting procedures and it is simple to use. Actually, fasteners market appreciates SPC-LAB measurements precision and repeatability, and ERP systems interfacing.

An example is Emmegi, Italian company specialized in manufacturing small turned brass bars, equipping their production shops with 3 latest generation SPC-LAB units.

The capability to test 3 orthogonal plans with a unique positioning makes procedures easier and faster, plus allowing the volumetric measures capture, representing the positioning accuracy.

SPC-LAB uses the software capability on the best way, keeping the principle of a simple Computer Numerical Control program. The wide detection range of out-of-conformity cases, analyzed, classified and re-processed, allows to detect any millesimal defectiveness and to define swiftly even the most complex geometries.

Operativity is simplified by wireless mode, mainly in limited-space workplaces, where the presence of cables could be of a hindrance.

Japanese Nitto Seiko Develops Displacement Correction Type Screw Fastening Robot with Camera Equipped to Achieve High Precision

Nitto Seiko developed the "Displacement Correction Camera Equipped Yθ Screw Fastening Robot" that can correct some workpieces that lead to misplacement during fastening, eliminating barriers that clients may encounter when introducing automated robots.



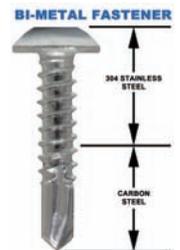
Compared to rectangular coordinate screw fastening robots, Yθ Screw Fastening Robot (straight forward + circling) is substantially compact in terms of width. High precision and high performance fastening is achieved by its thrust control and the equipped AC servo screwdriver. Furthermore, the equipped correction camera can correct the displacement of workpieces that are to be fastened, improving fastening quality. By substantially saving width, introducing this robot into the production line will be easier, which helps foster automation of screw fastening.

TFC Launches a Full Line of 304 Stainless Steel Bi-Metal Drill Screws

Triangle Fastener Corporation (TFC) of Pittsburgh, Pennsylvania, recently announced the availability of a full line of 304 stainless steel bi-metal self-drilling screws.

Bi-metal screws have heads and threads made of 304 stainless steel providing exceptional corrosion resistance and ductility. A hardened carbon steel drill point welded to a stainless steel body, which allows the screw to drill and tap steel up to 1/2" thick.

These screws are used to attach aluminum, stainless steel, insulated metal panel (IMP).

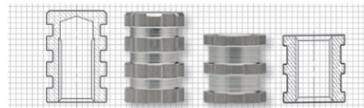


- In-stock for immediate shipping;
- Available in #12 and 1/4" diameters;
- Drill and tap up to 1/2" thick steel;
- Lengths up to 12" long;
- Head styles include hex washer head, pancake head and button head;
- With and without EPDM Bond-Seal sealing washers; and
- Can be painted to your exact color.

TFC is a provider of standard and specialty fasteners, sealants, and tools for metal construction industries.

SPIROL Introduces Molded-in Aluminum Threaded Inserts for Plastics

SPIROL introduced a high performance line of Molded-in Inserts for Plastics manufactured from aluminum. The robust design of the Series 60 Blind-End and Series 61 Through-Hole Inserts consists of axial grooves to maximize torque resistance, balanced with radial undercuts to achieve high-pull out force. These Molded-in Inserts are designed to be placed in the mold cavity prior to plastic injection, and offer exceptional performance due to unrestricted plastic flow into the retention features on the outside diameter of the Inserts.



These lightweight Threaded Inserts for Plastics are manufactured from 2024 grade aluminum which provides the best combination of strength, corrosion resistance, machineability and cost. The Series 60 and Series 61 Molded-In Inserts are lead free, 40% stronger than brass, and 1/3 the weight of the same Insert manufactured from brass. Standard inch thread sizes include 8-32, 10-24, 1/4-20, and 5/16-18, and M4, M5, M6, and M8 for metric thread sizes. Both the Series 60 and Series 61 Aluminum Inserts have a patent pending on their design.

Hafren Offers Various Security Screws

The need to safeguard against theft, vandalism and tampering is an increasingly essential part of many design specifications. To counter these threats, Hafren is constantly keeping one step ahead of the intruder by manufacturing a comprehensive range of vandal and tamper resistant fixings and fasteners which have a varied range of uses.

Hafren's range includes time and labour saving self-tapping, self-drilling and thread forming screws. For fixing sheet metal to wood and other steel construction, Hafren has also developed self drillers equipped with a 6-Lobe Pin security drive. Drilling tips provide a fast and easy application eliminating the need to pre-drill and the 6-Lobe Pin is great for higher torque applications.



Hafren has also developed a specialised thread forming screw (Power6™) ideal for automotive and fencing applications. This tri-lobular self-threading screw eliminates the need for nuts, reducing labour costs & installation time. The Power6™ Security

Screws also feature a unique shaped 6-Lobe Pin drive, providing a higher level of security. □