New System Monitoring Wind Turbine Screws

The rupture and deterioration of screws are the most critical tasks of wind turbine maintenance. The Japanese BACS embarked on developing a system monitoring screws used on wind turbines 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 main devices and ancillary devices. In phase I, 64 ancillary devices which connect wirelessly to 2 main devices are installed on a wind turbine to execute simultaneous detection. If a sensor exceeds a certain amount of numeric value, it will shift to the non-simultaneous state while other ancillary devices continue transmission to the main devices, thereby knowing the state of screws in advance.

Innovation Alley

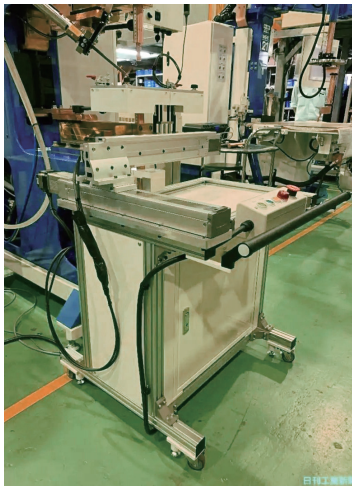
compiled by Fastener World

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 can greatly reduce 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.

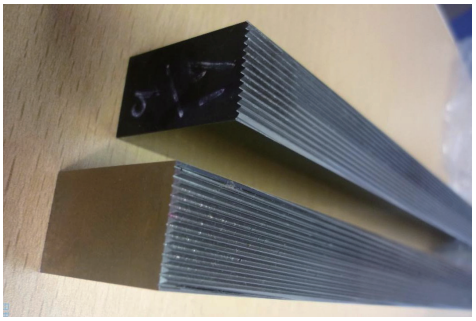
Bolt and Nut Automated Spot-Welding Device

Koyo Giken Inc. from Japan 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 buts 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

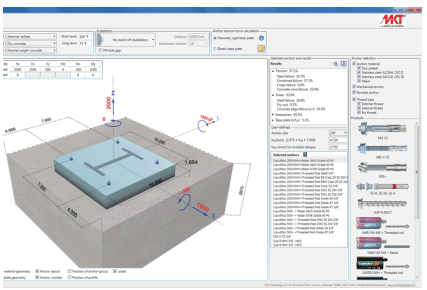
Tailored to fasten thin plates, SPILEAD Self-tapping Screw developed by Yamashina from Japan gains great disparity in torque by low fastening torque and and high rupture strength. This disparity ensures secure screw fastening and makes SPILEAD suitable for thin plates in 0.1T-0.2T thickness, variable 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 avoid the threaded portion coming up from inside the fastened object after the screw is fastened.



'Dios' Thread Rolling Dies

High-hardness screws with 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 from Japan developed "Dios", a thread rolling die widely adopted by carmakers. The sales of this product 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 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.



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 Ω0 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. ■

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, etc.