

NEWS...NEWS...NEWS...NEWS...

PENNENGINEERING® ENTERS INTO AGREEMENT TO ACQUIRE HEYCO® PRODUCTS INC.

July 28, 2016

PennEngineering® (Danboro, PA, USA) has entered into an agreement to acquire Heyco® Products Inc. (Toms River, NJ, USA), it was announced by both companies.



Terms of the agreement were undisclosed and no changes are anticipated regarding Heyco's operations, facilities, and employees. The acquisition is expected to expand sales growth opportunities for both companies.

Heyco Products (www.heyco.com) will continue to operate as a separate company under the PennEngineering corporate umbrella. The highly regarded Heyco brand will remain unaffected. Bill Jemison, President of Heyco, will continue to lead the company with the existing Heyco management team. He will report to Mark Petty, CEO of PennEngineering.

"PennEngineering and Heyco share a common culture of solid brand recognition and quality engineered products, with a strong R&D and customer service focus," said Petty. "This will allow for a seamless transition. The acquisition will diversify the PennEngineering product portfolio by expanding into engineered plastic fasteners, components and wire protection products. Additionally, Heyco will

benefit from the wide range of resources that PennEngineering can provide."

Founded in 1926, Heyco Products designs and manufactures molded wire protection products, plastic fasteners, molded components and stamped electrical components to meet the needs of industrial, medical, appliance, transportation, alternative energy, lighting, and aerospace companies. With a well-known brand name, Heyco also brings with it a modern, globally certified, U.S.-based manufacturing facility with vast expertise in injection molding, progressive stamping, over molding, and assembly processes and techniques.



IN THE NEWS

Unique Application for PEM® Products

PEM® Fasteners a Key to Assembly Success for PianoArc™ Circular and Curved Keyboards

[PianoArc™](#) (Boston, MA) has struck a resonant chord in the world of music by pioneering astonishing

circular and curved keyboards for performers at live concerts and stadium events around the globe. The unique keyboard



designs and layouts have changed the way that artists approach their music and serve as fresh evidence that creativity and innovation are alive and well up and down the scale.

One of the assembly challenges for PianoArc designers from the outset was how keyboard units could be attached securely to compatible stands. For this critical function PEM® self-clinching nuts from PennEngineering® (Danboro, PA) became the keys to success.

Almost 32 PEM carbon steel self-clinching nuts play roles in each of PianoArc's two most popular keyboard offerings: the circular Brock360 and the

semi-circular DualWing designs. The nuts specified for both of these applications install permanently in 1/8"-thick machined aluminum



panels that compose the keyboard stands – creating load-bearing threads in the very thin sheets and providing high pushout and torque-out resistances. Mating screws complete attachment of units to stands.

"For years we have trusted PEM hardware," notes Dave Starkey, chief technical officer at PianoArc and the originator of the company's

mechanical and electronic keyboard designs. "PEM fasteners simply work." Upon their installation (in these applications they are manually pressed into place using an arbor press instead of automatically), the fasteners ultimately remain intact, never loosen or fall out, and will not jeopardize unit integrity or performance on the road or in concert.

"Reliable attachment of keyboard units and stands is obviously essential," Starkey adds, "and the PEM nuts consistently do the job without fail."

All the PianoArc keyboards are wonders to behold and to hear. The Brock360 – a circular controller keyboard style with a 6' outer diameter – launched as the world's first circular keyboard controller and features sprung (unweighted) CNC machined keys and 288 contiguous notes. The semi-circular DualWing (which debuted in 2016) is engineered as dual 72-note controller keyboards equipped with synth action, a carbon fiber top, integrated (midi-programmable) light show, and custom mounts for control surface, laptop, and microphone mounts.

Sound from the keyboards is generated from MIDI/USB outputs and any MIDI or software sound solution can be employed. As for playing such a radically re-configured instrument, Starkey reports that for many performers, it can be relatively easier than tickling the ivories on conventional pianos.

"The key dimensions where the white/black keys intersect are the same as a traditional piano," Starkey says, "and it seems to translate easily to most keyboard techniques. The curvature actually places the natural key intervals closer together, enabling 10th intervals for many of those with a normal octave reach."

As would likely be expected, the question most asked by performers: How do I find Middle C? "The latest designs include LEDs that indicate the section/channel division," according to Starkey. "By default, there are three Middle Cs in the Brock360 – and it is even possible to configure up to 24."

For almost 75 years, PEM self-clinching fasteners have been writing fastener history as hardware solutions for attachment applications across industries. The PEM nut was the very first

PennEngineering product introduced when the company was founded in 1942. Since then, the

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lineup of PEM brand self-clinching fasteners has expanded to the tune of dozens of different types (in addition to nuts) in thousands of styles and variations. Compared with alternative attachment options, self-clinching fasteners often will hit more of the right notes that other methods cannot reach.

For example, if disassembly will be required to allow for service or repairs, designers will quickly rule out welding, adhesives, and high bond tapes, largely because they represent “permanent” joining methods. And alternative hardware, such as sheet-metal screws, can cause their own issues over time. These include diminishing holding power, reduced thread integrity, and likely loosening and falling out. As for tapping, extruding, or stamping threads into a metal sheet, sheets will often be too thin and the task too impractical. In addition, poor quality threads can be expected from such operations.

“The choice of PEM hardware does away with all the usual drawbacks associated with conventional joining technologies,” confirms Starkey. “Self-clinching fasteners and thin metal sheets were made for each other.”

The benefits of all self-clinching fasteners effectively arise from their design incorporating an annular recess (for permanently locking the fastener in place in a thin ductile metal sheet) and an element to prevent fastener rotation in service.

Regardless of type, self-clinching fasteners install permanently by pressing them into place in a properly sized hole and, when sufficient squeezing force is applied using a press, the fastener’s serrated clinching ring, knurl, ribs, or hex head is forced into the panel surface, displacing sheet material into a specially designed annular recess in the shank or pilot of the fastener, known as an undercut. The metal forced into the undercut secures the fastener against axial movement, while a non-round displacer secures the fastener against rotation.

“No secondary operations are necessary, which has quickened our production pace,” Starkey comments. In addition, the PEM fasteners inherently reduce the number of loose parts (such as washers, lock washers, and nuts) that would have to be inventoried and handled.

According to Starkey, the longtime experience with PEM hardware has contributed to a

potentially new application now in the works at PianoArc.

“We’re considering mounting a Force Sensor Resistor module to our units,” Starkey explains. At least eight modules are planned for each piano to be installed at a printed circuit board assembly house.

Instead of self-clinching fasteners – solely purposed for thin metal assemblies – PianoArc is looking to set the stage with PEM ReelFast® Type SMTPFLSM™ surface-mount spring-loaded captive panel screws. These install where designed on printed circuit boards (the boards for PianoArc are .062” thick) to provide secure attachment and allow for subsequent access.

The all-metal captive screw assemblies mount in one piece on boards using the pick-and-place method and will install in the same manner and at the same time as other surface mount components prior to the automated reflow solder process. They are supplied on tape and reel conforming to industry standards and are compatible with existing SMT automated installation equipment.

“The captive panel screws will allow us to quick-mount the modules as customer options,” Starkey adds.

Over the years, PianoArc keyboardists, designers, and technicians have rocked the music scene as a team by blending music and technology to present instrument creations that wow performers and audiences alike – with PEM brand hardware accompanying in harmony all along the way.



Do you have an interesting application for PEM® products that you would like to share? Contact us at info@pemnet.com.

UPDATE

ATLAS® Tool Update

Two new products have been added to the ATLAS line of installation tools.

First, a new Hex Cutter tool has been added to the line. Hex cutter tools are pneumatic driven tools that can transform a round hole to hex shaped for installation of full hex and half hex blind threaded inserts. The two tools now offered can create holes to install #8 to 1/2" and M4 to M12 thread sizes. For more information, [click here](#). A full [ATLAS product catalog](#) is also available.



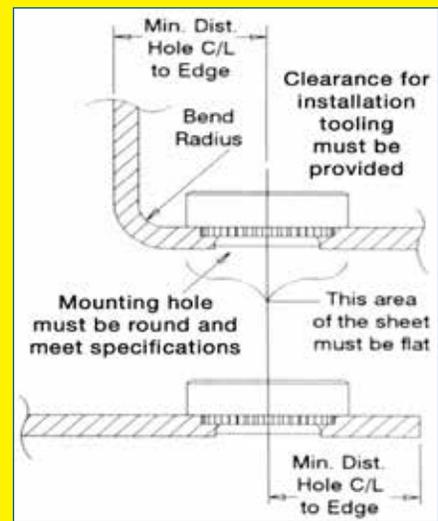
Second, and totally new is the ATLAS process control installation tool system. The system allows you to monitor the installation of blind threaded inserts when using a spin-pull tool. This provides for precise installation, improved productivity and waste reduction. Visual and audible alarms keep the process in check. For more information contact atlas@pemnet.com.



TECH TIPS AND SOLUTIONS

SUBJECT: Mounting PEM® Fasteners Close to a Bend in the Sheet or Panel.

Just as the "minimum centerline-to-edge" distance must be followed when installing a self-clinching fastener close to the edge of a sheet there are also several factors to consider when installing a fastener close to a bend in the panel. First, all of mounting holes should be punched after bending to prevent the hole from becoming out-of-round and therefore outside our catalog specified values. Secondly, self-clinching fasteners are designed to be installed into flat sheets. The fastener must be located outside the bend radius, where the sheet is flat. Once these criteria are met, the fastener may be installed as close to the bend as the installation tooling will allow. For more information see the [Techsheet PEM®-REF/CL to EDGE](#).



IN THE NEWS

Upcoming Tradeshow & Conference Session

PennEngineering will be exhibiting at the upcoming FABTECH show. Come visit us at Booth #C14043. Fasteners will be on display and presses will be operating in the booth. Go to [register](#). We will also participate in a conference session:

Where: FABTECH, Las Vegas, Nevada

When: Wednesday, November 16, 2016: 1:30 PM - 3:30 PM, Room: N223-N224

What: S31: In-Die Technologies

Exploring the Benefits of In-Die Fastener Installation

In-die fastener installation systems can improve productivity and quality while simultaneously increasing throughput and reducing WIP. A description of the individual elements of an in-die system and how they function together to form a complete system will be explained through graphics and animations. Also covered are typical and unique projects including the latest technologies associated with installation of micro-fasteners. Attendees will learn how these systems work as well as the ability to determine when an in-die assembly is appropriate and how to properly evaluate a project and mitigate risk.

Roger Patton – PennEngineering

[Register For This Session](#)

[For other upcoming global tradeshows visit our website.](#)

Recent Articles and Videos

- [Design World Feature Article "Surface Mount Fasteners Go With The Flow"](#) - September 13, 2016
 - [American Fastener Journal Feature Article "Clinching Successfully Into Stainless"](#) - August 1, 2016
 - [New VariMount® Bonding Fastener Video](#) - July 1, 2016
 - [Machine Design Featured Article "Self-Clinching Nuts Leave Minimal Footprint on Ultra-Thin Stainless Steel"](#) - June 9, 2016
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PEMspec™ App

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PennEngineering® is an expert in the development and manufacture of precision fasteners, components and systems, specializing in thin sheet attachment solutions.

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