

A One-Stop Manufacturing Shop

Hannover Messe USA Continues to Expand IMTS Portfolio

Matthew Jaster, Senior Editor

Are you interested in all the manufacturing technology and innovation found at Hannover Messe in Germany?

The Industrial Automation and Motion & Drives trade fairs are combined at IMTS this year in order to create a cross-platform for power transmission, fluid power and automation.

The Integrated Automation, Motion & Drives USA fair will boast 490+ exhibitors from 18 different countries. Attendees won't need to traverse across 35+ pavilions to find individual components or complete systems that boost the efficiency and reliability of their production processes. All the technology will be on-hand at McCormick Place in the East Building (Lakeside Center).

Peter Eelman, vice president of exhibitions and communications for AMT, said the original reason AMT collaborated with Hannover Fairs was to expand the scope of IMTS.

"IMTS started as a general machine tool show and then it moved beyond that into factory automation. Today, we're basically building a one-stop shop concept. The breadth of manufacturing that is now covered when you add the Hannover Fairs pieces with the IMTS pieces, there's not a person at a manufacturing facility that would not benefit from attending the show," he said.

Here are a few highlights from the East Building this year:

The Digital Factory

The Digital Factory at IAMD USA will showcase IIoT solutions that optimize plant processes and accelerate the development of new products to conserve manufacturers' resources and lower their production costs. Digital Factory will feature software and wireless technology innovations, digital twin, production monitoring and control systems, IT security and more solutions for the entire production process.

"We are excited to launch Digital

Factory at IAMD in the U.S.," said Adrienne Zepeda, show manager of Industrial Events at Hannover Fairs USA. "The world's top industrial technology and digitization innovators will demonstrate IT-optimized smart manufacturing and IIoT solutions, offering attendees what they need to implement smart, transportable data and connections on and off the plant floor," added Zepeda.

For the first time on the show floor, Digital Factory at IAMD will display Enterprise Resource Planning ERP, Supply Chain Management, Process Integration, Product Lifecycle Management (PLM), Visualization, Manufacturing Execution Systems MES and Virtual Commissioning, Offline Programming and Set-up and other IIoT solutions all in one area. Leading technology providers in the space include SAP, Infor and FORCAM to name a few.

Solutions Theater: Adopting IIoT Strategies

The Solutions Theater will educate attendees about the latest processes, standards, trends and implementations for the plant floor and beyond. Leading industry speakers will explain the adoption of IIoT, providing clear details on how to move forward and adapt to the fourth industrial revolution.

Top innovators and experts in the field, including Bluetooth, German Plattform Industrie 4.0, Industrial Internet Consortium (IIC), Manufacturing Leadership Council, Mechanical Engineering Industry Association (VDMA) and National Electrical Manufacturers Association (NEMA), will participate in these discussions.

"We are excited to bring these global industry organizations to the trade show floor to provide speakers and develop content for the educational sessions, panels and keynotes," said

Zepeda.

On Monday, September 10, HFUSA will host an opening ceremony in the Solutions Theater, and the German Plattform Industrie 4.0 will hold a special program (in partnership with the IIC, NEMA and Manufacturing Leadership Council): Industrie 4.0 Meets the Industrial Internet of Things (IIoT). On Wednesday, September 12, VDMA will host a conference program of morning and afternoon sessions covering smart manufacturing and predictive maintenance.

On Friday, September 14, the Industrial Internet Consortium will host a morning of presentations and panel discussions followed by a networking reception on the trade show floor. IIC discussions will focus on technologies disrupting the manufacturing industry: The Industrial Internet of Things, Cybersecurity, Automation, Time Sensitive Networking (TSN) and Artificial Intelligence. Experts in manufacturing, automation and security will showcase IIC case studies about how new technologies shape machine interoperability, manufacturing quality improvements, real-time control and synchronization of high-performance machines, equipment failure predictions and more.

"Partnering with these outstanding industry experts for the new Solutions Theater programs and demonstrations will bring great value to Hannover Messe USA attendees," added Zepeda.

Taking it to the Next Level

Due to the strong manufacturing economy, IMTS 2018 has opened additional exhibiting space on Level 2 of the East Hall. Here you'll find 340+ exhibitors in areas like machine components, cleaning, environmental resources, controls and CAD-CAM.

Exhibitors showcase reclaim, reuse and recycle technologies, products for washing, purification, filtration and separation, material handling systems,

and motion control components, as well as environmental management software.

After visiting Level 2, head up to Level 3 where another 65+ exhibitors are displaying products and technologies for CAD-CAM, quality assurance, EDM, automation and motion and drives.

Exhibitor Previews

The following section includes previews from exhibitors in areas of manufacturing covered in the pages of *PTE* magazine.

Lafert North America

BOOTH E-121050

Lafert N.A.'s HPS Series permanent magnet (PM) synchronous AC motors deliver IE4 Super Premium energy efficiency while reducing motor size and weight by up to 50 percent. The HPS Series combines the mechanical design of the standard induction motor with the high performance and energy efficiency of the brushless servo motor design. This uniquely engineered product was inspired and made possible through decades of Lafert experience and expertise in the design and manufacture of both motor designs.

The target of the HPS Series is motor-driven HVACR equipment such as pumps, fans, compressors and blowers



where system size, weight or operating costs are key design considerations. The IE4 Super Premium energy efficiency levels achieved by HPS Series motors deliver significant energy savings (up to 14%) when compared to EISA Premium AC motors. The energy efficient performance of HPS Series motors allows equipment manufacturers to exceed minimum energy performance standards (MEPS) while

reducing ownership costs.

Additionally, the HPI Series combines each high performance HPS Series permanent magnet motor with a matched variable frequency drives (VFD) design to produce seamlessly integrated motor and drive solutions. The onboard Lafert drive technology and control interface, deliver optimized system performance and energy efficiency without costly and time-consuming integration of discrete motor and drive systems.

For more information:

Lafert North America
Phone: (905) 629-1939
www.lafertna.com

B&R Industrial Automation

BOOTH E-134111

B&R Industrial Automation Corp will introduce track technology enabling The Adaptive Machine at booth E-134111. An adaptive machine has the capacity to change over on the fly, and moreover, to reconfigure with different production modules on the same base machine platform.



This new generation of production machinery is readily adaptable to constant size and format changes. In addition, it is reconfigurable to radical and unforeseen requirements through corresponding equipment changes, such as replacing a welding module with a forming module.

Adaptive machines are defined by individually controlled modules with multidirectional movement, tight synchronization with other (often robotic) devices, and exceptional production flexibility. Adaptive machinery will compare favorably in all aspects of productivity measurement—OEE,

ROI, TCO—as lot and batch sizes shrink and throughput (lead time and volume) requirements remain critical.

Additionally, IMTS attendees can also discover the world's first field device for OPC UA. The new X20 I/O system bus controller makes it possible to implement OPC UA communication from the sensor layer to the ERP layer without any interfaces whatsoever.

B&R has further expanded its portfolio of modular *mapp* software components. IMTS attendees will also be introduced to the new *mapp RoboX* and *mapp Teach* that make it faster and easier than ever to get robotic systems configured and ready for operation.

IMTS attendees will also learn about HTML5 based HMI development using the new *mapp View*. For the first time, automation engineers have all the tools they need to create powerful and intuitive web-based HMI solutions—without the need to learn *HTML5*, *CSS* or *JavaScript*.

IMTS attendees will also learn more about the *SafeDESIGNER* library for press applications. B&R is one of the first manufacturers to offer a complete set of the function blocks specified in PLCopen Part 4. As a result, users working with safety-critical press applications will have a much easier time setting up the necessary safety functions.

For more information:

B&R Industrial Automation Corp.
Phone: (770) 772-0400
www.br-automation.com

Siemens Industry, Inc.

BOOTH E-134500

At IMTS 2018, Siemens Industry, Inc. will present its Sinumerik CNC hardware and software solutions, offering dual tracks for the machine tool builder and end-user attendees from job shops and production departments of all types. Advancements in machine tool automation will be demonstrated for various CNC machines—from basic milling and turning applications to multi-axis machining centers and the fully automated, flexible work cells used throughout the manufacturing

industry. In addition, Siemens will display its new *Mindsphere* “software as a service” concept, which enables machine tool users to gather, prioritize and access data in real-time, using edge technology.



Reflecting the company’s drive to the digital factory, a virtual experience for machine tool design and build functions will be presented to the OEMs, while end-users will experience how the machines used on their shop-floors will be operated, managed, programmed and maintained in the future. In combination with the advanced motion control technologies and PLM services offered by Siemens, the full process chain from CAD to CAM to virtual simulation to production and performance assessment will be on display.

Siemens offers the machine tool builder an entire portfolio of CNCs, plus the integration

of robotic machining and solutions for additive, in tandem with the advanced automation scenarios of today’s manufacturing environment.

Likewise, Siemens has taken a major step on the road to digitalization with *Mindsphere*, which offers machine tool builders and end-users alike a variety of customizable software and application options for the control and maintenance of their operations.

Mindsphere is a “software as a service” concept in which Siemens offers a wide range of services for manufacturing companies on the path to Industry 4.0. *Mindsphere* is an open IIoT operating system, allowing a customized platform for recording and analyzing large volumes of plant-wide production data. A customer can interact with Siemens to devise a variety of MindApps for machine tool predictive maintenance services, energy data

management and even resource optimization development.

For more information:

Siemens Industry Inc.
Phone: (847) 640-1595
www.usa.siemens.com/cnc

IKO International

BOOTH E-134333

For applications requiring high rigidity, increased load capacity, superior accuracy and maintenance-free operation, IKO offers the C-Lube Linear Roller Way Super MXL Master Grade. This model is part of IKO’s C-Lube Linear Roller Way Super MX family, which features a range of load capacities and mounting configurations.



The Super MXL Master Grade low fluctuation specification provides high-precision feeding. The special raceway processing suppresses small running deflection which reduces fluctuation by about 50% compared to other extra-long units. Low fluctuation is ideal for ultra-precision linear motion on machine tools that require high-precision, high-quality processing; while the extra-long unit improves load capacity and rigidity in mechanical equipment.

The C-Lube lubricating element features a unique capillary system consisting of a porous resin part integrated in the recirculating path of the end plate. As rollers circulate within the linear guide, lubricant is continuously distributed to the loading area along the track rail. The result is maintenance-free operation guaranteed for five years or 20,000 kilometers, and reduced environmental impact due to the small amount of oil required.

C-Lube is incorporated inside the slide unit, keeping size and weight to a minimum. Because C-Lube has no contact with the track, smooth motion is achieved without an increase in rolling resistance.

In addition, IKO designs and manufactures a wide range of crossed roller bearings that can handle radial, thrust and moment loads at the same time in compact sectional dimensions. These crossed roller bearings have rollers alternately crossed at right angles between inseparable inner and outer rings. Because the rollers in these bearings make line contact with the raceway surfaces, there’s minimal elastic deformation under load. Compared to ball type bearings, line contact of crossed roller bearings achieve higher dumping characteristics with zero or minimum preloading (T1) and more durability with anti-fretting feature under vibration of the machine.

For more information:

IKO International
Phone: (630) 766-6464
www.ikont.com

GKN Powder Metallurgy

BOOTH E-121602

Advanced CNC Press Technology

One of the greatest advantages of powder metal technology is the ability to create near net shape components. GKN’s Advanced CNC Press Technology provides the opportunity to reduce secondary operations and gives customers greater design flexibility for products.

The company leverages its internal tooling design and manufacturing capability to optimize the compaction process. With Advanced CNC Presses the boundaries for product design expands with high volume production at a lower cost.

Lightweight Technology

GKN also provides advanced aluminum lightweight technology with high thermal conductivity materials for structural and heat transfer applications.

GKN’s Aluminum Metal Matrix Composites (MMCs) create the

largest advantage for lightweight savings. What are Aluminum MMCs? GKN's Aluminum MMCs are designed with ceramic particles, equally dispersed within the aluminum alloy matrix, producing an aluminum alloy that improves static and dynamic performance.

The thermal properties and wear resistance of GKN's Aluminum MMC materials create efficiency savings. The material can perform for the strength needed in an application that die cast aluminum is unable to handle.

For more information:

GKN Powder Metallurgy
Phone: (248) 270-6773
www.gkn.com

Elmo Motion Control

BOOTH E-134142

Elmo Motion Control, a provider of advanced motion solutions designed to make smart machines smarter for more than 30 years, offers intelligent, ultra-small, rugged servo drives and motion controllers. Elmo provides motion solutions for some of the most demanding applications in the world. Elmo's ultra-small drives and multi-axis controllers enhance overall accuracy, speed, and ensure fast, real-time responses of any application, improve throughput, and is known to give a competitive edge.

Elmo Motion Control's high-density servo drive, the Gold Twitter, has won the Technical Innovation of the Year



at the 2018 Motion Control Industry Awards. Ideal for high performance in limited space, the Gold Twitter drive weighs less than 0.7oz and measures the size of a postage stamp, yet can deliver over 5,500W of continuous qualitative power. Now the new version provides 10,000W.

Elmo's smart motion control technology is playing a key role in enabling the digital transformation in the smart industrial revolution — IR4.0. Mounted at the heart of machines,

intelligent, compact and decentralized servo drives act as advanced telemetry devices that can sense, monitor, and react accordingly. This smart servo technology not only leads to the very results promoted by Smart Industry, but also helps create leaner machinery that is smarter, smaller, lighter, faster, safer, greener, more efficient and also cost effective.

At the core of all dynamic and mobile robotic applications is the ability to move about with motion that is

The Full Spectrum

Gear solutions made easy with one of the most comprehensive and versatile gear reduction lines in the Metric market. With over 45 years of proven performance, Lafert's power transmission products will let you push through even in the most demanding applications.

Right Angle Worm Gearboxes



Helical Inline Gear Reduction



Bevel Helical Gearboxes



Mechanical Speed Variators



Parallel Shaft Gearboxes




Shaft Mounted Gearboxes



Right Angle Worm Gearboxes




Bevel Gearboxes



Combination Right Angle Worm Gearboxes



Double Wormwheel Gearboxes



Shaft Mounted Helical Gearboxes






Planetary Gearboxes





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precise, smooth, and above all safe. As more and more small to medium sized companies are entering the realm of robotics, innovative motion implementation tools are expected to simplify set-up, reduce time-to-market, and improve overall performance. The impact of Elmo's advanced servo technology goes beyond the actualization of motion, with considerable effects on footprint, efficiency, and safety.

For more information:

Elmo Motion Control, Inc.
Phone: (603) 821-9979
www.elmomc.com

Bega Special Tools

BOOTH: E-12144

Bega Special Tools will present the latest tools for easy and safe installation and removal of bearings and other transmission parts including the Betex MF Quick-Heater, a multifunctional frequency induction heater for both mounting and dismounting bearings and other machine parts. There is no limit to size or shape of the compo-



nents as the heater works with fixed or flexible hose-type inductors. The MF Quick-Heater generator is compact and easy to move around. It is clean and operates very quietly. Heating cycles can be stored on a computer, generators can be linked to work together. This method saves valuable time as it can be deployed very rapidly, needs fewer actions and can heat faster than conventional methods.

Besides the Betex MF Quick-Heater, the offering includes heaters, hydraulic pullers, pumps, cylinders and jacks. Betex heaters for mounting are designed for industrial use. They have a robust design, are ergonomic and

maintenance free. Betex hydraulic industrial pullers have a capacity from 4 to 150 tons. They are known for their unique design with integrated pump and cylinder, self-centering arms and jaw construction, providing safety and user convenience. Betex industrial hydraulic equipment such as pumps, cylinders and jacks up to 700 bar are compatible with major international brands.

"Products of our Betex brand are used all over the world by engineers involved in maintenance and production," says Richard Imbro, Bega's national sales manager for the USA. "All tools and methods have one thing in common: they are designed to make the job easier, faster and above all safer."

"If you are involved in machine maintenance then you know the importance of having the right tools for the right job," Imbro says. "Make sure you plan your visit to our booth to see and get a feel of our special tools for mounting and dismounting bearings and other transmission parts. This year we will have a bigger booth to show and demonstrate how our tools differ from other standard tools."

For more information:

Bega Special Tools
Phone: (516) 737-8012
www.begaspecialtools.com

Igus

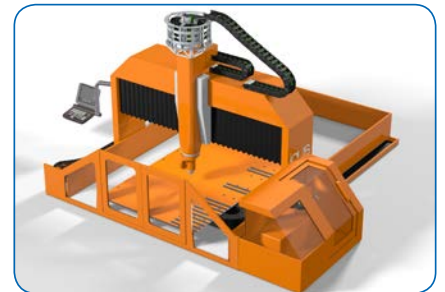
BOOTH E-134521

Igus will showcase the world's fastest harnessed e-chain, fail-safe cables with three-year guarantees and maintenance-free bearing technology that can produce a 40 percent cost savings and other products during the International Manufacturing Technology Show in Chicago. Igus will focus on 10 trends for modernizing and protecting machines at IMTS. They are:

- Ready-to-install complete systems
- Chip protection for cables
- Lean Assembly; easy installation
- Energy efficiency on long travel distances
- Energy supply for rotary motions
- Industry 4.0 with smart plastics
- Failsafe cables with warranty
- Low-cost automation and robotics

- Lubrication and maintenance-free bearing technology
- 3D printing of wearing parts

Among the products is Igus' new E4.1L energy chain, which is 50 percent lighter and requires 80 percent less assembly time than previous models. The e-chain also saves 95 percent on harnessing time and includes a honeycomb strain relief block that is simple, fast and flexible. It also includes separators for quick installation and for multi-level cable outlets.



The E4-1L is a general purpose e-chain with high dynamics. All of Igus' E4-1 system chains offer long service life, high stability and ease of installation and modularity. Among other products the company will also be displaying are items from its smart plastics line, which use data to predict their replacement date during operation; highly flexible cables that come with a 3-year guarantee; plain and hybrid bearings and its robotlink modular kit, which helps people build or buy cost-effective robots. **PTE**

For more information:

Igus, Inc.
Phone: (800) 521-2747
www.igus.com