

Wall to Wall Technology

IMTS 2014 promises the latest products and services in PT and motion control

With the addition of Industrial Automation North America (IANA) as well as Motion, Drive & Automation North America (MDANA), IMTS 2014 has greatly expanded its range of manufacturing technology services. These co-located shows complement the metalworking solutions found at IMTS by bringing in key suppliers from around the world.

MOTION, DRIVE & AUTOMATION NORTH AMERICA

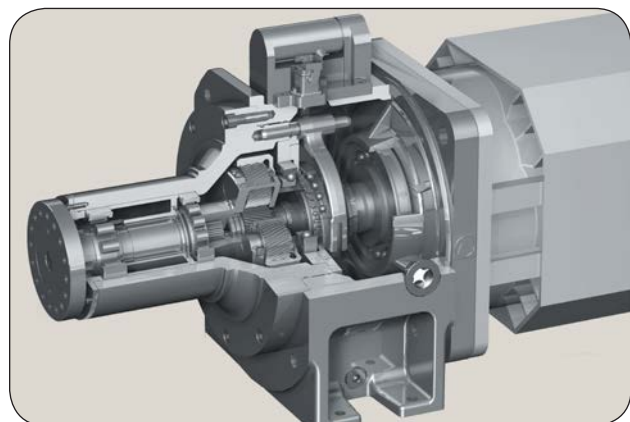
This event will feature technologies and solutions for the power transmission, motion control and fluid technology sectors together. Meet face-to-face with key suppliers from around the world and see first-hand the best new technology available. Here are some highlights:

ZF

Booth E-4868

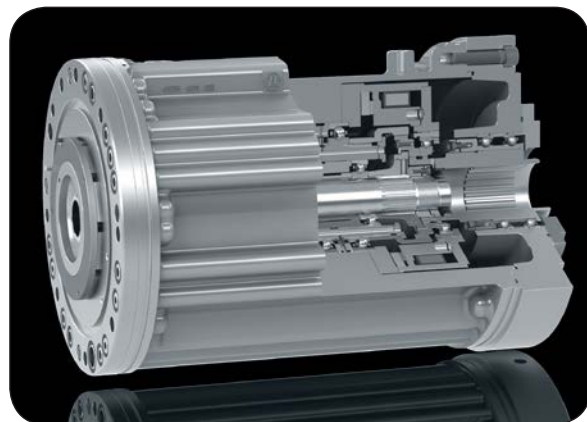
ZF has pooled its comprehensive knowhow for the new hollow shaft drives from the Duoplan model range. Consequently, the ZF-Duoplan 2K 150 HS that was already presented in 2012 features a top speed of 18,000 revolutions per minute with up to 24 kilowatt (kW) drives with 600 newton meters (Nm) of nominal output torque. Now, two further versions for higher performance ranges are almost ready for the start of production at ZF: The 2K 280 HS/HWG is predestined for up to 44Kw or 1,400 Nm and, thus, scores with a maximum of 16,000 revolutions. In addition, there is the 2K 380 HS/HWG that excels with up to 12,500 revolutions with 60 Kw motors or 1,900 Nm engines.

The special features of the ZF hollow shaft drives can be attributed to the innovative design for which there is a patent pending: The extremely compact planetary gear set is only active when it is actually required. In



the event of high speeds in direct drive (gear ratio 1:1), it remains decoupled which drastically reduces the rotating masses. The resulting advantages over conventional planet or spur gear drives go far beyond high rotation speeds: They range from the short ramp-up times to the excellent efficiency and the low temperature level of a maximum of 37 degrees to vibration values that always remain below one millimeter per second.

The ZF hollow shaft drives increase the spread between the torque and the speed for machine tools, irrespective of whether they are operated with a DC or AC drive. In doing so, the new Duoplan variants increase the bandwidth of possible applications and consequently improve the workload of each machine. Furthermore, they can be vertically or horizontally docked in a direct manner to highly dynamic spindle motors that enable shorter cycle times. For the first time, the ZF two-speed drives are therefore also an option for machines that were previously only suitable for direct drives. A further advantage: The



hollow shaft design allows pushrods for release units or even coolants to be passed through the drive. As it is the case with all other products from the Duoplan family, these innovations are also maintenance-free and particularly durable.

The new Duoplan 2K 450 and 2K 600 two-speed manual transmissions now complete ZF's product range as latest innovations. The transmissions that can be delivered as of now are designed for nominal input torques of 450 or 600 Nm and thus complete the 2K series which already covers torques up to 300 and over 800 Nm.

ZF now offers more than ten different transmission variants for several applications and installation positions with the expanded product range. With their help, motors with installation dimensions of 100 to 280 millimeters axle height can be operated; the range of the transferred power is between 19 and 120 Kw, the range of the nominal input torques is between 120 and 1,200 Nm.

For mechanical engineering companies, this extensive range of transmissions offers the advantage to further increase their efficiency and their cost-effectiveness, because an optimally adjusted motor/transmission unit also reduces energy consumption.

In addition, there are the proven advantages of the shiftable two-speed transmission: If hard materials are to be machined, the ZF Duoplan 2K transmissions transfer high torques at

low rotational speeds. If soft materials must be processed, the ZF machine drives supply high speeds in the upper speed range. These and many more innovations will be on-hand as ZF displays its products and technologies at Booth E-4868 in the Motion, Drive and Automation show taking place at IMTS 2014 in Chicago.

For more information:
ZF North America Inc.
Phone: (734) 416-6200
www.zf.com/us

FESTO CORPORATION

Booth E-4865, E-4936, C-869

Festo will be showcasing the HGPLE electric gripper in an end-of-arm-robotic-tooling demonstration at IMTS. The HGPLE electric gripper operates using position control or force control, and can switch between the two modes on the fly. At the show, the HGPLE gripper will pick and place a work piece using force control. Between picks, the electric gripper operates using position control for fast, precise positioning of the gripper fingers. The demo shows how utilizing both force and position speeds up changeover between different sized work pieces. Festo will also be featuring the company's latest innovations in pneumatic and electric motion actuation products including safety systems and components, actuators, valves and valve terminals, drives, air preparation systems, and advanced controllers and architectures.

For more information:

Festo
Phone: (800) 993-3786
www.festo.com



WITTENSTEIN

Booth E-4879

Wittenstein Alpha announced the new SC+, SPC+, TPC+ product family earlier this year as a new development to offer performance in low ratio right angle applications. As line speed requirements continue to increase, the ability to run lower ratios to achieve higher output speeds becomes crucial. The SC+ uses a high-speed bevel design with reduced output friction to achieve speed increases of up to 30 percent for enhanced throughput. Using the 2:1 ratio offers designers increased output speed while maintaining inertia reduction.

Using new materials, innovative gearing designs,

and improved lubrication, the SC+, SPC+, and TPC+ are the coolest on the market, leading to longer lifetime and increased speed to achieve maximum machine performance. This product family offers an improved synchronous running accuracy, delivering the highest results in printing and imaging systems. Enhanced drivetrain accuracy delivers the best resolution for



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The SC+, SPC+, and TPC+ gearbox family is based on a newly designed right angle spiral bevel gear set. The family is intended to be a modular set to provide different ratios and output configurations: The SC+ contains the spiral gear set in a single stage design with output shaft configuration, and is available in 1:1 and 2:1 ratios. The SPC+ contains the spiral bevel gear set, but is also equipped with an SP+ shaft style planetary output stage, providing ratios to 20:1. The TPC+ contains the spiral bevel gear set, but it also equipped with a TP+ flange style planetary output stage, providing ratios to 20:1.

For more information:

Wittenstein
Phone: (630) 540-5341
www.wittenstein-us.com

INDUSTRIAL AUTOMATION NORTH AMERICA

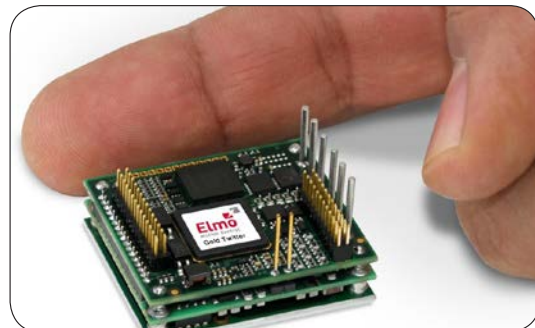
IANA made its North American debut in 2012 co-located with IMTS. Featuring factory, process, and building automation, this event is distinguishing itself as the place to see the automation industry's most innovative solutions and technologies. Here are some highlights:

ELMO MOTION CONTROL

Booth E-4971

Elmo Motion Control, a leading provider of advanced and cost-effective motion control solutions, will exhibit its flagship Gold Twitter, the smallest, high-power servo drive on the market today at Industrial Automation North America (IANA) at IMTS.

Weighing at just 18 grams (less than 1 ounce), and less than 13 cm³ in volume, the Gold Twitter delivers up to 4,000W of qualitative power, ultra high current of 50A/100V with advanced servo capabilities and support for EtherCAT and CANopen fieldbus communication standards for



deployment in any industrial application. Gold Twitter is compliant with international safety and EMC standards.

The Gold Twitter is an excellent solution for applications that require ex-





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tremely high servo performance but are limited in space. In addition, the Gold Twitter is mountable, thus ensuring high servo performance and savings in hardware and cabling.

Based on the premise that “the best way to dissipate heat is not to generate it in the first place,” the Gold Twitter incorporates Elmo’s proprietary FASST (Fast and Soft Switching Technology) resulting in >99% efficiency with negligible EMI.

“I’m proud of Elmo’s ingenuity and innovation. I am not aware of any servo drive in the industry that approaches the Gold Twitter’s power and size density,” said John McLaughlin, manager of Elmo USA.

Elmo will also be debuting at IMTS, the superb Gold Drum HV, a compact high voltage servo drive that delivers up to 65,000 W of continuous power and runs optimally on any servo motor, supporting “any feedback” sensor in single, dual and gantry loop configurations.

Easily set up and tuned using Elmo Application Studio II (EASII) software, the Gold Twitter, Gold Drum HV, and Elmo’s product line of Gold servo drivers operate as a single or multi-axis control solution in a distributed configuration real-time network.

Elmo recently released its free advanced online EASII Experience RPS system providing users with the abil-

ity to build and practice advance servo control, multi-axis solutions and EtherCAT networking. It allows building up a complete application online with no need to purchase or install any hardware or operating system.

For more information:

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

B&R INDUSTRIAL AUTOMATION

Booth E-4901

With the X20c series, B&R is setting new standards for protection against harsh environmental conditions. The “coated” variants of the compact controller and I/O modules are protected against condensation and corrosive gases by a special coating on the electronics module. This makes these modules suitable for use in corrosive environmental conditions.



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BECKHOFF AUTOMATION

Booth E-4905

The coating on the electronics module protects the components and circuit board from the effects of condensation and corrosive gases. The effectiveness of protection against condensation is checked using the test specified in BMW GS 95011-4, and protection against corrosive gases using the 4-part corrosive gas tests specified in EN 60068-2-6, test method 4. The tests are carried out in a fully accredited in-house testing laboratory and in certified external testing facilities. B&R places even higher demands on the modules than what is specified in the standards and also subjects equipment to additional, more stringent testing.

At sea and in icy temperatures

The X20 modules with coated circuit boards are completely compatible with existing models with respect to functionality. Their introduction represents the third time that B&R has extended the range of applications in which the X20 system can be used. The operating temperature range for all X20 modules was recently expanded to -25°C to +60°C. The X20 System has also received certification for maritime applications from Germanischer Lloyd (GL), which is particularly demanding. To discuss these and other B&R products, visit Booth E-4901 during the Industrial Automation North America (IANA) show at IMTS.

For more information:

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

To substantially boost the performance of multi-touch industrial displays via an all-in-one HMI and automation device, Beckhoff Automation has released the new CP22xx Panel PC series. Designed for cabinet installation, the CP22xx series combines the advantages of a modern multi-touch interface with high-performance multi-core processors for automation and control applications. With the company's extensive range of Control Panels and Panel PCs, along with TwinCAT automation software, Beckhoff offers the ideal portfolio to efficiently solve all PLC, motion and HMI tasks in a machine or factory. Equipped with powerful multi-core CPUs – Intel Celeron, Core i3, i5 (all with 2 cores) or i7 (4 cores) of the 3rd and 4th generation – the CP22xx Panel PCs achieve maximum computing power for the most demanding industrial applications. Adding to the flexibility of the CP22xx series is a range of available screen sizes from 12- to 24-inch, so the most challenging control and HMI tasks can be solved while precisely matching the devices to application-specific requirements. Widescreen display orientations in landscape and portrait formats are also available, adding even more variety to the product lineup.

The CP22xx features a free Mini-PCI slot for factory-installed cards, 2 GB DDR3-RAM (extendable to 16 GB), a hard disk, a CFast card or SSD, an on-board dual Ethernet adapter with 10/100/1000Base-T connection and an on-board SATA RAID-1 controller (Intel® Rapid Storage Technology). The

equipment also includes a serial RS232 interface and four USB 2.0 ports as well as up to four further optional Ethernet ports.

The new generation of Beckhoff Panel PCs for control cabinets and control consoles offers a scalable range of active and passive panels providing a uniform, high quality appearance on the machine and in the plant. Multi-finger touchscreens (PCT) are available in display sizes from 7- to 24-inch, in 16:9 (widescreen), 5:4 and 4:3 formats and in landscape and portrait mode. In addition to the CP22xx series, the product family encompasses a highly scalable selection featuring various display sizes and Panel PCs in different performance classes to match any application:

- CP26xx: compact Panel PC series with ARM Cortex A8, 1 GHz
- CP27xx (available soon): fanless Panel PC series with Intel Celeron ULV 827E, 1.4 GHz
- CP29xx-0000: Control Panel with DVI/USB extended interface (up to 50 m distance from the PC)
- CP29xx-0010 (available soon): Control Panel with CP-Link 4 via standard CAT-7 cable (up to 100 m distance from the PC)

For applications that require mounting arm installation, the Beckhoff CP3xxx series is also available with all-round IP 65 protection, offering a similarly extensive range of multi-touch Panels and Panel PCs.

For more information:

Beckhoff Automation
Phone: (952) 890-0000
www.beckhoffautomation.com



IMTS

The following booths will be of interest to *Power Transmission Engineering* readers that are not part of the MDA or IANA co-located programs:

ETEL

Booth N-6436

ETEL will exhibit its full range of torque motors at this year's IMTS 2014 show in Chicago's McCormick Place (September 8-13). Offering four series of direct drive ironcore torque motors, ETEL boasts one of the most comprehensive ranges of such motors in the industry and will be exhibiting at Booth #N-6436 in McCormick's North Hall.

Useful in many machine tool applications such as machining centers, milling/turning machines, rotary tables/milling heads, and multi-spindle and transfer machines, ETEL's patented motor designs can be found in over 20 countries. Within ETEL's TMK, TMB, TML and TMM series there are more than 100 models to choose from, allowing almost any relevant requirement to be successfully met.

All ETEL motors benefit from ETEL's patented anti-cogging design along with a compact coil construction enabling an exceptional peak force density in the magnetic gap with minimum torque ripple.

Of the series, ETEL's TMB torque motors are one of the most popular torque motors in its range, with a cage for water cooling. TMK motors are a unique type of very high speed torque motors for the most demanding applications. The TML and TMM are cageless variants of the famous TMB design. These variants are well suited when no water cooling is requested.

ETEL takes pride in their policy of full disclosure about their motor performances. It is standard for all data sheets to list its specifications at its highest operating temperature so that no special design is required to reach them, ensuring the user is able to utilize every bit of power that the motor is able to achieve.

For more information:

ETEL S.A
Phone: (800) 233-0388
www.heidenhain.com



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FIXTUREWORKS

Booth W-1686

Fixtureworks, a supplier of workholding and machine tool components, fixturing accessories and material handling products will showcase its extensive product lineup during IMTS 2014. Featured in the exhibit will be Fairlane Products full line of fixturing accessories including grippers, rest pads, Swivots swivel/pivoting positioning components, Quick Release ball-lock pins, rollers and bumpers. Included in the Fairlane Products lineup are the new Urethane Covered Bearing Rollers. These covered bearings have a smooth urethane surface that is cast directly to a precision sealed ball bearing. They provide smooth, quiet and non-marring operation with excellent abrasion resistance and durability. They are available with hardness ranging from 35 to 95 durometer in 1' to 3' diameters.

The exhibit will also feature the company's full lineup of manual clamps from Imao, OK-Vise and Mitee-Bite. Clamps that provide quick and secure fastening for repetitive machining operations and are suitable for easy load/unload of workpieces. The clamps



come in a variety of sizes from heavy-duty to mini, clamping-force options from as little as 2 to over 2,200 lb. and configurations that include swing, pull, snap, hook, toe and side.

In addition, also on exhibit will be Kipp spring plungers, rest and riser pads, levers, handles, knobs, and hand wheels; Imao supports and stops, risers, T-nuts, sliding mounts, springs, supports, grid plates and blocks; OK-

Vise single and double wedge clamp designs; Mitee-Bite low-profile edge clamps; and Modern Industries mPower product line which includes quick change precision locating and mounting systems and modular tooling, plates and columns.

For more information:

FixtureWorks
Phone: (888) 794-8687
www.fixtureworks.net

SKF

Booth E-5185

The SKF Separator Filter Dryer (SFD) system introduces an ideal solution for removing water, contaminants, and oil vapor from compressed air



and help realize improved pneumatic equipment performance, reduced need for maintenance, increased uptime, and higher productivity. The compact unit is engineered to dry compressed air for pneumatic applications directly from a compressor's reservoir tank or at a point of use, eliminating the need for most external filters.

This innovative technology can be applied to serve pneumatic applications in a wide range of industries; including cement and concrete, aggregates and mining, food and beverage processing, and others where an uninterrupted supply of clean, dry compressed air is critical.

The three-in-one SFD system incorporates a dual-cartridge design, which channels air flow through one desiccant cartridge, while regeneration occurs in the other. Standard units operate between 100-180 psi and will

accommodate flow rates ranging from 20 to 800 CFM. The system can serve in high or low ambient temperatures and performs without the use of a refrigerant, a condensate drain line, or a heat exchanger to clean and maintain.

The SFD system is offered in three models: Micro Logic Timer (MLT), Programmable Logic Control (PLC), and Pneumatically Controlled (PC). All install easily on a wall or directly to a compressor's top plate for plugging into standard 120 VAC. Units can be serviced without disassembling or removing them from their mounting position. Custom solutions can be developed and tailored to specific application requests.

For more information:

SKF USA Inc.
Phone: (800) 440-4753
www.skfusa.com

BOSCH REXROTH

Booth E-5283

Intelligent and scalable CNC controls combined with, high-performance electric and hydraulic drive technologies by Bosch Rexroth improve the productivity and precision of machines — across all cutting and forming applications. Rexroth offers proven technology; industry-specific control functions; and more user-friendly, open pro-



gramming tools that help optimize machining time and improve operational flexibility and precision production. At IMTS, Bosch Rexroth will exhibit several notable products and systems designed to boost energy efficiency, improve controls programming, and integrate safety into machinery. A special machining demonstration will show how Rexroth's award-winning Open Core Engineering system offers greater freedom and flexibility for automation programmers. Other products in the booth include Rexroth's IndraMotion MTX CNC, a new IMS-I Integrated Measuring System and the Sytronix Variable-Speed Pump Drives for Machine Tools.

For more information:

Bosch Rexroth
Phone: (800) 739-7684
www.boschrexroth.com

DONTYNE GEARS

Booth N-6778



Dontyne Gears is a newly formed company set up to help in the development of gear systems. DG naturally uses the versatility of Dontyne Systems software to optimize design for production and performance, but also has access to the highest level of small and large volume machining equipment to produce such components. These components can be inspected on high quality gear inspection equipment and tested in test rigs ranging up to 160 mm centers. Proximity and collaborative links to Design Unit and Offshore Renewable Energy Catapult (formerly NaREC) in the North East of England ensure a solid knowledge base for R&D projects of the highest caliber and the possibility of larger scale development programs. DG will help define and

implement a test program for standard gearing and custom gear forms. The company will also consider collaborations with machine tool manufacturers and tooling companies in the development of equipment and processes using various production methods and materials. IMTS is a chance to get to know the personnel and discuss potential collaboration.

For more information:

Dontyne Gears
namerica@dontynesystems.com
www.dontynesystems.com

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