

# Making the Move to Digitalization and Electrification

## Fluid Power and Motion Control Center Stage at IFPE 2023

Matthew Jaster, Senior Editor



The International Fluid Power Exposition (IFPE), Las Vegas March 14-18, is where fluid power professionals meet to discover highly engineered solutions for improving mobile and industrial equipment's efficiency, performance and sustainability. Attendees will also learn about the latest technology available to the industry and network to discuss and combat the most pressing industrial challenges. From sensor technology and data analytics to robotics, custom software development, and industrial automation, attendees will experience the latest innovations in fluid power. The show is co-located with CONEXPO-CON/AGG, the largest construction trade show in North America.

"The international audience for IFPE is significant," said John Rozum, show director for IFPE. "These are the engineers, the product planners, the executives from OEMs all over the world. The fluid power and motion control technology on display at IFPE is what makes the construction equipment you see at CONEXPO-CON/AGG work, and that doesn't change regardless of where the product is made."

The following is a collection of products and technologies that will be on display during the show:

### Regal Rexnord Highlights End-to-End Industrial Powertrain Solutions

Regal Rexnord (Booth #C32490) provides complete, end-to-end and optimized electromechanical powertrains for a wide range of applications and industries. Products that have been engineered to meet specific application requirements for endless potential. Regal Rexnord will help customers to design, assemble and commission their powertrains, and then enhance performance with internet of things (IoT) monitoring via their *Perceptiv* intelligence platform. The *Perceptiv* intelligence platform is an interconnected matrix of smart, digital solutions bundled with the *Tag-It* program to simplify asset management for maintenance and procurement teams. It enables users to reduce maintenance time, streamline the procurement process and achieve inventory objectives by integrating data silos. Plus, users can manage everything in one place using the *Perceptiv* intelligence IoT platform.

This portfolio includes brands from both Regal and Rexnord PMC, including Regal's Browning, Grove Gear, Hub City, Jaure, Kop-Flex, McGill, ModSort, Sealmaster and System Plast brands, as well as PMC's Berg, Cambridge, Centa, Falk, Rexnord and Stearns brands, among others.

In addition to more robust solutions across the industrial powertrain, Regal Rexnord will have opportunities to provide customers IIoT and digital solutions by harnessing the combined capabilities of Regal's *Perceptiv* and Rexnord's *DiRXN* digital platforms. By integrating hardware, software and

human-ware, Regal Rexnord will be well positioned to deliver best-in-class solutions optimized for reliability, performance and efficiency.



regalrexnord.com

### JW Winco Offers Coupling Technology

Couplings from JW Winco (Booth #S61913) transmit rotary motions and torques from shaft to shaft. They also even out tolerances and mechanical deflection that would otherwise result in damage to drive or measurement configurations.

JW Winco recently added couplings of aluminum and stainless steel that include designs for positive and non-positive connections. Multiple bore diameters, various, stiffness and hardness levels of the coupling body as well as an optional keyway allow very specific customization to the given use case. In general, all couplings compensate for offsets and misalignments,



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accommodate runout error and axial motion, and dampen vibrations and impacts to varying degrees.

At the application level, there is a choice between position and motion control or torque and power transmission.

For position and motion control, the rotary motion must be transmitted with very high precision and accuracy. This requires a coupling type that functions with zero backlash in the direction of rotation and has high torsional stiffness. Typical applications include servo and stepper motors for linear axes, industrial robots and test benches.

For torque and power transmission, on the other hand, the focus is on pure force transmission. This calls for couplings that can withstand high torques and heavy loads while functioning reliably in harsh conditions. Typical applications include conveyor systems, pumps and agitators, packaging machines.



jwwinco.com

### Nord Introduces Latest Drive Solutions

Nord Drivesystem's (Booth #S-85214) construction solutions focus on reliability, high-efficiency, and versatility.

Maxxdrive XD industrial gear units are Nord's heavy-duty solution designed specifically for crane and hoist applications. They feature an extended center distance to allow for a U-shaped design with the cable drum and motor on the same side of the gear unit. Compared to Nord's standard, compact Maxxdrive series, the XD center distance has been increased by 35 percent. This includes 3-stage and 4-stage reductions with same overall unit dimensions and center distances for a standardized design, and various input and output shaft and coupling options for easy adaptation to applications.

Maxxdrive industrial gear units deliver output torques up to 2,495,900 lb-in, high load capacity, and a long service life. They feature Nord's trademarked Unicas housing design that ensures precise positioning of bearings and shafts, quiet operation, low maintenance, and increased safety with all joints and components sealed. Due to their robust housing, they can withstand a wide variety of ambient conditions and function both in dusty environments as well as in environments with high humidity, heat, and larger temperature differences. These units are highly configurable and feature a wide range of options including various output

shaft options, output flanges, motor attachments, and input options.

Maxxdrive XT industrial gear units drastically reduce spare parts costs and downtime through their universal, symmetrical housing design for mirror image installations. These units were developed for maximum thermal power and mechanical load capacities and due to their ribbed housing, optimized axial fans, and air guide covers, they can achieve very high thermal ratings without the need for external cooling measures. Modularly attached backstops enable easy maintenance access without costly downtime.

Nord's Unicas helical bevel gear units offer a wide performance range of 0.16 – 268 hp and torque up to 442,537 lb-in. Specialized heavy-duty bearings and spread bearing/flange mount designs enable these units to produce high load capacity, minimum backlash, and long service life. They also achieve a low Total Cost of Ownership (TCO) due to their low maintenance and high efficiency for low operating costs. With numerous shaft designs, mounting options, and bearing concepts, these versatile units are adaptable to countless applications.

Unicas parallel shaft gear units provide reliable operation in a compact, robust design. Their single piece housing protects internal components from debris while delivering quiet operation, a long service life, and requiring very low maintenance. They feature various VL bearing options for maximum radial and axial load capacity, extensive shaft designs, as well as versatile foot, flange, and shaft mounting options. A wide range of configurable, specialized solutions are available with 15 case sizes to choose from, performance up to 268 hp, and torque up to 885,075 lb-in.

Control cabinet variable frequency drives from Nord offer scalable functionality in a compact, cost-effective design. They are compatible with both synchronous and asynchronous motors, provide a high degree of performance, and include functional safety options. Nordac Pro SK 500E VFDs offer performance up to 215 hp and include an integrated Ethernet interface with various optional modules for extended functionality.

Nordac Pro SK 500P VFDs are available in five flexible frame sizes and feature multiple easy to use interfaces, high precision regulation and large overload capacities, and full PLC functionality for adaptability to a wide range of applications.



Nord supplies a wide range of synchronous and asynchronous motors that deliver high efficiency, reliability, and significantly reduce energy costs. These motors conform to global energy guidelines and certifications and are designed for combination with Nord's full line of gear units and electronic control products for maximum performance. Explosion protected versions are also available for safe operation in hazardous environments such as dust and gas atmospheres. Add on options such as brakes, encoders, external cooling fans, and environmental protection features are also available to meet the needs of specific application requirements.

[nord.com](http://nord.com)

## RBI Bearing Extends Bearing Life with Armor Technology

RBI Bearing (Booth #C30992) offers bearing treatments and protection to reduce bearing failure and extend the bearing life, which means less downtime and reduced repair costs. Armor Nano Technology is a procedure that fuses calcium molecules into the molecular fabric of the metal. Challenging environments involving heat, pressure, or friction activate the calcium causing the particles to elongate and form a protective barrier that reduces the need for lubrication while substantially increasing the lifespan of the bearing – saving you time and money. This isotropic nanotechnology treatment was shown by Oak Ridge National Laboratories to reduce friction up to 99 percent when both pieces of metal are treated.

A armor Coated Protection Bearing Shield offers a UV-resistant thermoplastic polymer bearing shield end users install on site or a spray application of the thermoplastic material applied on site by a trained technician. Armor Coated Protection will immediately prevent contamination ingress and stop corrosion in the bearing housing and bolts as well as reducing the need for purging grease. The inhibiting oil allows the shaft to rotate freely within the coating which prevents the build-up and entry of debris and moisture into the bearing, providing unrivalled protection. The slow-release inhibiting oil prevents corrosion in the bearing casing and fixing bolts as well as lubricating the rotating shaft.

A armor Permanent Lubrication is a solid lubricant with an oil-filled porous structure fills the space between the rolling elements and races in a bearing, providing constant and consistent lubrication. There is no need for additional lubrication during the life of the bearing. Because it is a solid, Armor Bearings Permanent Lubrication can help block debris and reduce foreign contamination of the bearing. Reducing the incursion of debris into the bearing can significantly extend the bearing's life.

[rbibearing.com](http://rbibearing.com)

## QCC Displays Pump, Motor and Actuator Technologies

QCC (Booth #S81133) S15 Series pumps and motors are of axial piston design, utilizing slipper pistons. All 15 Series variable pumps feature trunnion style swashplates with direct displacement control.

The 15 Series variable displacement pump is designed for machine applications where up to 15 horsepower is required for the propel function, or for auxiliary work functions where the system pressure requirements and the design life can be met within the pump rating. The maximum pump displacement is 0.913 in<sup>3</sup>/Rev. (15 cc/Rev.).

The 15 Series fixed displacement motor is an axial piston unit with a fixed displacement of 0.913 in<sup>3</sup>/Rev. (15 cc/Rev.). The variable displacement motor has a maximum displacement of 0.913 in<sup>3</sup>/Rev. (15 cc/Rev.).

QCC took over the manufacture of the Dyna/Barber Colman actuator and sensor product families using the original tooling, assembly and test procedures transferred to us from Woodward/Barber Colman, the Original Equipment Manufacturers (OEM). These products are exact matches to the original equipment part numbers and have been in production for many years with QCC.

Dyna Plus actuators can be operated with Woodward controllers to provide engine governing of speed and power for combustion gas, diesel, steam engines and turbines. The actuators can also be used in remote positioning and load control systems. Dyna Actuators have output work capacities of 1, 4, 6 and 8 ft-lbs. through output shafts that can be set for clockwise or counterclockwise rotation. Dyna actuators are also available in standard or marine/explosion proof models. QCC also makes electrical speed switches, mechanical speed switches and mini generators to OEM specifications.

QCC took over the manufacture of the Webster CP pumps and motors product families using the original tooling, assembly and test procedures transferred to us from Danfoss the Original Equipment Manufacturer (OEM). These products are exact matches to the original equipment part numbers and have been in production for many years with QCC.

The CP series gear pumps are high pressure, fixed displacement pumps of pressure balanced, spur gear design.



The design has been optimized to provide high efficiency and light weights by using cast aluminum front and rear housings and compacted graphite gear housings. The pressure plates are steel backed bronze for maximum strength and bearing capability.

The CP series consists of two primary product sizes: CP222 series and CP 180 series. Single and tandem versions of both sizes are available, as well as optional auxiliary pads. These pumps are applied in open center, open circuit hydraulic systems to provide output flow and pressure for hydraulic functions.

[qccorp.com](http://qccorp.com)

### Impro Fluidtek Presents Heavy-, Medium- and Light-Duty Motors

The WS from Impro Fluidtek (Booth #S81957) targets agricultural equipment, skid steer attachments, and other applications that require greater torque under demanding conditions. Additional product features include a three-zone commutator valve, heavy-duty tapered roller bearings, and case drain with integral internal drain. The WS offers numerous housing, displacement and shaft options to meet most common SAE and European requirements.

The WP motor series is an economical alternative to more complex roller gerotor designs and still provides high efficiency across a wide performance range. These motors are intended for light-duty applications requiring high torque in a compact package and are suitable for industrial and mobile applications including car wash brushes, food processing equipment, conveyors, machine tools, agricultural equipment, sweepers, skid steer attachments, and more.

RE Series motors offer the perfect compromise between price and performance by producing work horsepower at a reasonable cost. Although these motors perform well in a wide range of applications, they are especially suited for low flow, high pressure applications. During startup, pressure causes the balance plate to flex toward the rotor, vastly improving volumetric efficiency. As the motor reaches

operating pressure, the balance plate relaxes, allowing the rotor to turn freely which translates into higher mechanical efficiencies. Transmitting this power to the output shaft is the most durable drive link in its class. Four bearing options, combined with standard mounting flanges and output shafts, allow the motor to be configured to suit nearly any application.

[improfluidtek.com](http://improfluidtek.com)

### Optibelt Offers Power Transmission Belts

Optibelt's (Booth #S83659) modular polyurethane synchronous timing belts allows for almost limitless configurations on site. Have a damaged cleat? Modify the product and need new cleats? That is no problem with Optibelt's ATC-System. The ATC-System with tracking guides help keep the belts in perfect alignment on the production line. Even better, the track guide(s) do not affect any of ATC's customization options. Tracking guide options on ATC10K6 include widths of 50 mm and 100 mm. They are available in linear and spliced/welded endless.

The ATC-System is a patented system of modular polyurethane timing belts offering amazing customization and cost savings. Customers can now order standard stocked belts and cleats that can be assembled and customized on site offering faster delivery and greater versatility.

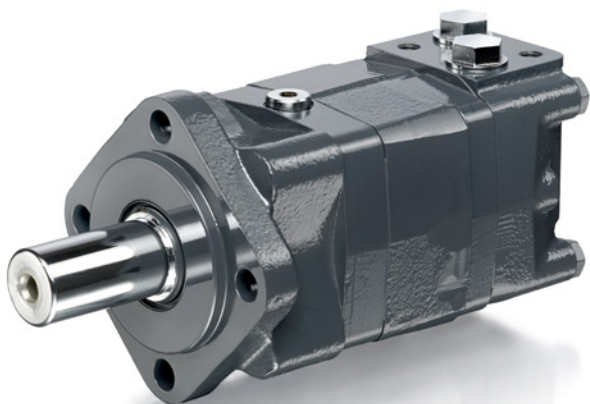
The ATC-System uses the ATC belt as a customizable platform. Each ATC belt's tooth has pre-formed insert and hole punch locations. The insert locations can be "punched" where an ATC cleat/attachment needs to be added. The cleat is simply screwed into the topside of the belt into the insert embedded in the tooth.

The ATC cleating system is strong enough to handle assembly fixture attachments or be used to convey products from one location to the next. There are hundreds of cleating options available to handle a variety of manufacturing needs. Facilities can have even stock ATC belts and cleats to replace worn belting or replace individual cleats on demand.

[optibelt.com](http://optibelt.com)

### Stiebel Drive Technology Features Pump Drives and Gearboxes

Stiebel Drive Technology (Booth #S80153) provides standard and customized solutions for pump drives and transfer case gearboxes. Applications range across any industry using mobile class machinery and includes roadbuilding, construction, agricultural, transportation, marine, railway, mining, forestry and more. The Type 4462 Six Output Pump Drive is intended for heavy duty applications. It can be paired with A7V 1000 and A4VG 250 pumps. It features two output pads on the gearbox input side and four on the output side, this unit also boasts an oil recirculation pump to assist when this particular machine is operating on sloped hills and terrain, avoiding starving the upper gears of lubrication. The Type 4384 Four Pad Pump Drive can accommodate pump sizes SAE-B, C & D and is available with either SAE-1, 2 or 3 Bellhousing or Input Flange 150, 180 or SAE 1800. With a rated input power of 720 hp (530 kW) and







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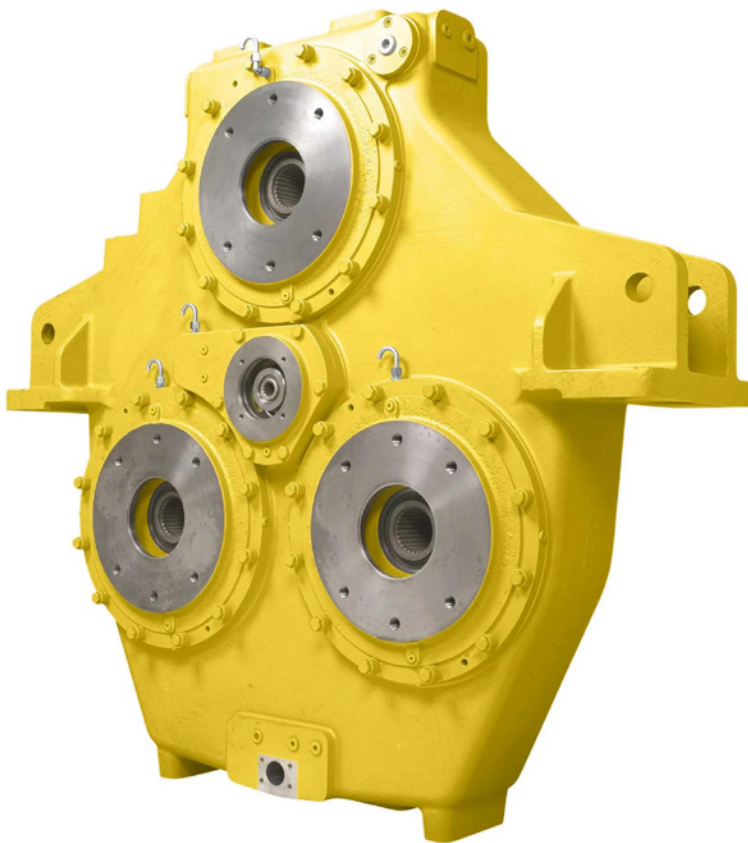
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twelve (12x) ratio options, this versatile gearbox is suitable for a variety of machine platforms, including forestry, utility, construction or agricultural to name a few.

[stiebel.de/en](http://stiebel.de/en)

### Danfoss Highlights Machine Performance

Danfoss (Booth #S80515) will demonstrate how the company is “Powering the future of machine performance,” during IFPE 2023.

“Autonomy, electrification, connectivity, and digitalization aren’t just buzzwords. They’re enabling original equipment manufacturers to develop machines with better productivity, safety, efficiency, precision, and operator experience,” said Mike Hill, senior vice president, OEM sales, Danfoss Power Solutions. “At Danfoss, we’re helping OEMs harness these trends and working with them to design, iterate, and validate their machines faster. It’s how we’re powering the future of machine performance.”

With dedicated booth areas for autonomy, connectivity, and digital tools, plus the company’s Editron electric powertrain systems, Danfoss will highlight how it’s paving the way to autonomous machines and zero-emission construction sites as well as delivering next-generation performance through smart, connected solutions. Stations showcasing system solutions for excavators, telehandlers, skid steer loaders, and wheel loaders will demonstrate Danfoss’ application expertise and how it helps OEMs increase speed to market. A variety of the company’s key products will be on display in these areas, including two of its newest releases: Thorx cam lobe motors and the Dextreme system for excavators.



Danfoss Thorx cam lobe motors reduce shock at speed changeover by 70 percent, improving machine handling and operator comfort. With an integral parking brake, the motor is 33 percent shorter in length than other cam lobe motors, reducing space requirements. In addition, the motor’s optimized brake technology lasts 20 to 25 times longer than competitive products, extending the motor’s service life.

Based on Digital Displacement technology, the Dextreme system provides a pathway to 50 percent energy savings by tackling losses in the whole excavator hydraulic system. With the most efficient and controllable hydraulic pump at its heart, the Dextreme system





provides unique digital flow control, resulting in vastly improved system efficiency and faster operator response times. Through the fast response and digital control of the hydraulic pump, engine loading can be controlled, providing significantly reduced fuel consumption without compromising on productivity.

Visitors can also see Danfoss' fluid conveyance and industrial hydraulics portfolios. The company's comprehensive offering of hose, tubing, fittings, and connectors will be highlighted. In the industrial zone, the Vickers by Danfoss line of pumps, motors, valves, cylinders, and brakes will be on display.

**danfoss.com**  
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