

# SKF EnCompass Field Performance Program

SHOWCASED ALONGSIDE NEW PRODUCTS AT PTC ASIA 2015

SKF recently presented a selection of its products and solutions at PTC Asia 2015 in Shanghai, China, from Oct. 27-30.

This year, SKF demonstrated the new SKF EnCompass Field Performance Program and a range of solutions for industrial electric motors, elevators, centrifugal compressors, gearboxes, remote diagnostics and other products.

New small sealed SKF Explorer spherical roller bearings with improved performance were one of SKF's exhibits at this year's PTC. The bearings prolong service intervals and needs for re-lubrication for gearless traction motors and reduce environmental impact. The range of bearings uses a new seal design, given the designation 'RS', which reduces overall friction in the bearing by up to 20 percent. In representative running conditions, this translates into calculated annual energy savings of up to 145 kWh. For a typical gearless traction motor in a heavy-duty elevator, replacing two sealed SKF Explorer bearings with the newly optimized design could cut CO<sub>2</sub> emissions by up to

100kg annually. Over the motor's life-cycle, it can add up to a two-ton reduction in CO<sub>2</sub> emissions.

The new small sealed SKF Explorer spherical roller bearing is part of the SKF EnCompass Field Performance Program. This program provides users with a more detailed analysis of the factors that influence bearing service life and enables users to optimize bearing selection and design for improved performance in real-world conditions.

Also on display were the new oil-free pure refrigerant lubricated bearings for centrifugal compressors in chillers. The new bearings are an oil-free solution for direct drive centrifugal compressors in chillers that use low-viscosity refrigerant as the bearing lubricant.

SKF also showed off a new magnetic system, an oil-and contact-free drive for centrifugal compressors in chillers. Combining a high-speed permanent magnet motor and active magnetic bearings with integrated controls, the magnetic system can operate with variable speed drives from various manufacturers to deliver energy savings of at least 10 percent versus conventional

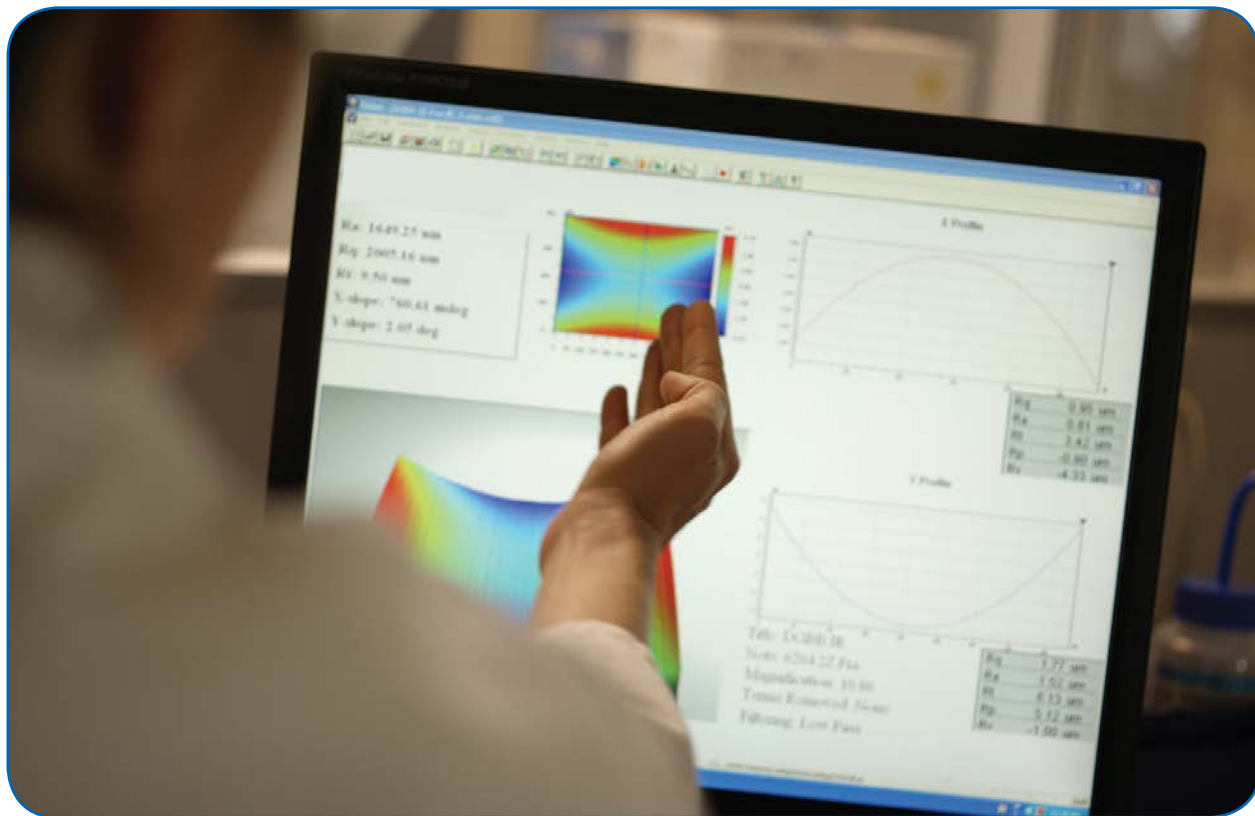
centrifugal compressor designs. This technology also reduces maintenance costs for the users and provides them with reliable and cost-effective air conditioning.

SKF's HRS seals were also shown at the exhibition. The new generation HRS seals can extend the service life of heavy-duty equipment operating in difficult conditions, and are manufactured in a full range of standard sizes to suit heavy-duty applications in a range of industries, including wind energy, cement manufacture, mining and tunnel boring equipment.

SKF also demonstrated their SKF Insight technology, which enhances bearing condition monitoring management in the railway and wind power industries. SKF Insight creates a cost effective way of collecting condition monitoring data so that bearing life and change-out intervals are determined based on real operating conditions.

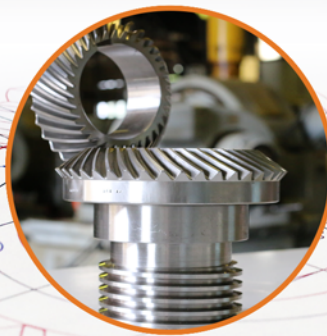
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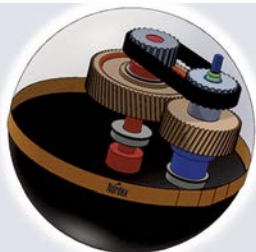
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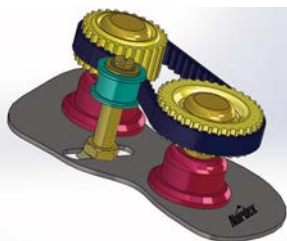
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## EPC Model 30M

DESIGNED TO PROVIDE ACCURATE INCREMENTAL FEEDBACK IN HARSH  
CONDITIONS

Encoder Products Company (EPC) recently introduced the all new Model 30M, a low-profile 30mm diameter magnetic encoder module. The Model 30M is designed to provide accurate incremental feedback, even in harsh operating conditions, by means of advanced sensing and signal processing technology.

The Model 30M combines a hall-effect sensor, advanced signal processing circuitry and a small, powerful magnetic target, which can be affixed to a rotating shaft via an optional shaft adaptor or insert. With a wide sensor-to-magnet air gap and high waveform symmetry and repeatability, the Model 30M tolerates shaft misalignment and delivers high-quality signal accuracy.

Designed for high-performance applications, the Model 30M offers resolutions up to 1,024 CPR, a maximum frequency of 350 MHz, up to 8-pole commutation, an optional index channel, two voltage selections and four output types. Connector options include an 8-pin M12, or an 8-pin or 16-pin Molex with an integral strain relief. An optional centering and gap-setting tool enables quick and easy installation.

Resistant to dust, dirt, and moisture, the Model 30M features a chemically inert high-temperature nylon housing

and non-contact magnetic sensing. The encoder is capable of operating in temperatures ranging from -40C to 120C and can be sealed to IP69K. With a sensor-to-magnet air gap of 0.022", the Model 30M holds ratings of 100 g at 11ms for shock and 20 g at 10 to 3000 Hz for vibration.



The Model 30M is a cost-effective solution for non-contact, end-of-shaft rotary feedback in commercial, industrial and non-industrial applications. Some examples are servo or stepper motor control, mobile equipment speed and steering sensing, timber processing machinery, studio and stage equipment, solar panel positioning, vending machines, rotary valve positioning, punch presses and robotics.

### For more information:

Phone: (800) 366-5412  
[www.encoder.com](http://www.encoder.com)

## New KISSsoft Feature

CONSIDERS COMPLIANCE AND INFLUENCE ON LOAD  
DISTRIBUTION IN THE GEARBOX

In the static system analysis, a new feature considers housing compliance and influence on load distribution in the gearbox as well as load reaction force iteratively (module KS4). A stiffness matrix for housing is imported for this calculation. This stiffness matrix is generated from an FE calculation such as ANSYS, ABAQUS or similar.

The resulting shaft displacements cause a misalignment of toothing and therefore have an effect on the gear optimization, in particular when resilient housings and high forces are involved.

A reference project using the example of a shifted transmission of a motorcycle manufacturer in cooperation with the company CADFEM was recently presented at the KISSsoft User Meeting 2015 and can be requested, in case of interest, as power point presentation (in English) at [info@KISSsoft.AG](mailto:info@KISSsoft.AG).

### For more information:

Phone: (815) 363-8823  
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# National Instruments and Bosch Rexroth

COMBINE CONTROL HARDWARE COMPACTRIO AND PROGRAMMING ENVIRONMENT LABVIEW

National Instruments and Bosch Rexroth recently introduced a control and drive solution at this year's NI-Week conference.

The advantages of the control hardware CompactRIO and the programming environment LabVIEW are combined with servo technology. Rexroth's pre-configured drive systems for measuring and testing machines cover a wide range of services and shorten the initial commissioning to just three minutes by means of a software wizard. Using a jointly tested and proven interface, machinery manufacturers are programming motion sequences in the graphic environment LabVIEW without any PLC code.

National Instruments frequently uses the control hardware CompactRIO in these applications. Rexroth has preconfigured drive systems with the compact drive control devices IndraDrive Cs and the servo motors IndraDyn S. The IndraDrive Cs kits cover the torque range from 0.56Nm to 19.8Nm in finely scalable increments. In addition, Rexroth supports custom drive solutions for torques up to 631 Nm.

Using the interface CAN over EtherCat, the CompactRIO control directly accesses the servo drives as master. Manufacturers can program processes and motion control via the graphical programming environment LabVIEW exclusively, making any additional PLC programming redundant. The plugin SoftMotion Drive Interface (SDI) required for IndraDrive Cs can

be downloaded and installed directly from the LabVIEW development environment.

The start-up assistant EasyWizard shortens the initial start-up of the drive systems to just three minutes. The intelligent drive control device automatically recognizes the respective values via the electronic nameplate of the Rexroth motors. For the initial start-up of IndraDrive Cs drives, the user only needs to enter a small number of application-specific values. Graphical programming of movements can then start right away in LabVIEW.

The IndraDyn S synchronous servo motors can meet the requirements of protection class IP54 or IP65. Depending on the precision required, the motors are equipped with encoder systems for standard or precision requirements.

CompactRIO is particularly suitable for point-to-point movements in applications with a small number of axes. Bosch Rexroth simplifies the implementation of complex multi-axis applications with measuring and testing machines in LabVIEW using the Motion-Logic-System, IndraMotion MLC. Programming of movements can also take place exclusively via LabVIEW without a single line of PLC code. For IndraMotion MLC, more than 550 virtual tools and modules are already available for movement control in LabVIEW.

### For more information:

Phone: (800) 739-7684  
[www.boschrexroth.com](http://www.boschrexroth.com)





## Muncie Power Products MB and MJ Line Motors

FEATURE LOW SPEED, HIGH TORQUE AND 23 DIFFERENT SIZES

Muncie Power Products, Inc. recently announced the release of its new line of low-speed, high-torque motors.

Featuring the MB and MJ Series, the new line offers 23 different displacement sizes between the two series. A spool valve design (MB) and disc valve design (MJ) allow each series of Muncie Power's motors to achieve high efficiencies across a broad torque range.

With gerotor (MB) and roller gerotor (MJ) design options available, the low speed high torque motors meet a variety of application needs. Built for quality performance, the new motors are designed for industrial and mobile applications.

Muncie Power's motors are backed by customer service representatives ready to assist customers in using their motor to its maximum capability.

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# Maxon Motors GP 6 S Spindle Drive

DESIGNED FOR COMPACT SPACES

Maxon Motors recently introduced the GP 6 S, a micro spindle gear drive with a diameter of 6mm that is now also available in a metal version to provide a spindle drive with optimized value.

Spindle drives are designed for linear positioning systems, lens adjustment, or syringe pumps. Maxon Motor's GP 6 S spindle gear is meant for use in compact spaces. To provide a cost-effective alternative to the ceramic version, it is now also available with a metal spindle.



The GP 6 S spindle gear drive is designed for a wide variety of linear drive solutions. The maximum feed velocity is 15 mm/s at a force of 10 N. Integrated ball bearings ensure that this drive stands up to high axial loads. The gear drive can combine with the Maxon DC brushed motor (RE 6) and DC brushless motor (EC 6).

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## Catalyst Motion Group Z-Theta System

COMBINE ROTARY AND LINEAR MOTION IN ONE UNIT

Catalyst Motion Group recently created a Z-Theta system utilizing in-house branded products. Z-Theta systems offer a compact and effective package to achieve a rotary axis and a linear axis in



# Rexnord Autogard 820 Series Torque Limiters

IMPROVED WITH NEW REMOTE-RESET FEATURE

Rexnord's Autogard 820 Series Torque Limiter is now available with the option to Remote-Reset, an option that is suited to applications where the control center and the equipment are a considerable distance apart or the Autogard Torque Limiter is positioned behind complex guards and covers. From its disengaged position, the Autogard 820 Series Remote-Reset (RR) Torque Limiter can be reset in seconds using pneumatic controls without the need to physically approach the unit.

The Autogard 820 Series Torque Limiter is designed for high-torque applications in heavy-duty industries, including energy, metal processing, mining and aggregates, automotive, food processing, and pulp and paper to help protect equipment during shock loads,

overloads and jams. Providing full disengagement on overload, torque limiting "modules" are positioned at a large radius to accommodate high-disengaging torques.

## For more information:

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a single unit that, when operated in coordinated motion, can create a helical motion path.

Z-Theta systems can also be used to move to defined linear positions, and then perform independent rotary moves. The Kerk brand ScrewRail is the centerpiece of this development, with the linear and rotary power being supplied by Haydon and Pittman motor technology.

Z-Theta systems are designed for picker type applications in automated kiosks, data storage libraries, and other repetitive motion tasks requiring both linear and rotary motion. Loads of up to 100 pounds and speeds in excess of 10 inches/second are possible.

The Catalyst Motion Group Z-Theta solution is fully customizable and adaptable to a broad range of specific design requirements, providing an innovative and effective solution.

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# Applied Motion SV200 Series Servo Drives

FEATURE PROGRAMMABLE NOTCH FILTERS, ANTI-VIBRATION FUNCTION AND AUTO-TUNING

Applied Motion recently introduced its newest line of all digital servo drives, the SV200 Series.

These servo drives offer programmable notch filters, an anti-vibration function and auto-tuning. Auto-tuning, drive configuration and programming are done within the SVX Servo Suite software, which, like all Applied Motion software, is available as a free



download from their website. When paired with J Series servomotors, SV200 servo drives provide accurate and dynamic motion for demanding applications.

A wide range of control options are available from basic pulse and direction and analog torque/velocity control, to streaming commands and stored program execution. Networking options include Ethernet, RS-232/485, Modbus RTU, EtherNet/IP and CANopen.

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4,500 drives developed and manufactured by Framo Morat.

Framo Morat won the contract thanks to a successful design proposal—and the know-how gained from many other green energy projects. The order was placed in December 2011 and series production started already in August 2012. This period was used to develop the design concept to a series product, procure globally high-quality components and bought-in parts, and set up a brand new assembly line including the testing stand. Last but not least, a relatively complex logistics concept had to be developed to ensure the smooth transport from Framo Morat to the plant in Rajasthan.

Within one year (from August 2012 to August 2013), almost 5,000 drives have been supplied to India and to two projects in the USA. A single drive controls six reflectors with a total mirror surface of 330 square meters. With a weight of approximately 75 kg and outside dimensions of about 480 × 410 × 240 mm (H × W × D), the drive is both compact and robust.

Motion is ensured by a 400 W brushless DC motor provided with a CAN-Bus interface for central control. This motor is connected to a planetary gear developed especially for this control, which supplies an integer gear ratio in all three stages. The following worm gear set has been designed with an extremely low backlash in order to ensure the required positioning accuracy at the output shaft. The integrated absolute encoder with SSI interface measures the accuracy of the drive thanks to a specially developed arrangement of backlash-free gear-wheels on the encoder shaft and on the output shaft, therefore offering the possibility of an individual re-adjustment by the control.

The interaction between positioning accuracy on the one hand and torque on the other hand was one of the challenges of this project. The required torque entailed a relatively high reduction ratio, for this reason, the necessary accuracy could only be achieved using highly accurate toothed components with extremely low backlash.

#### For more information:

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