

# Bosch Rexroth

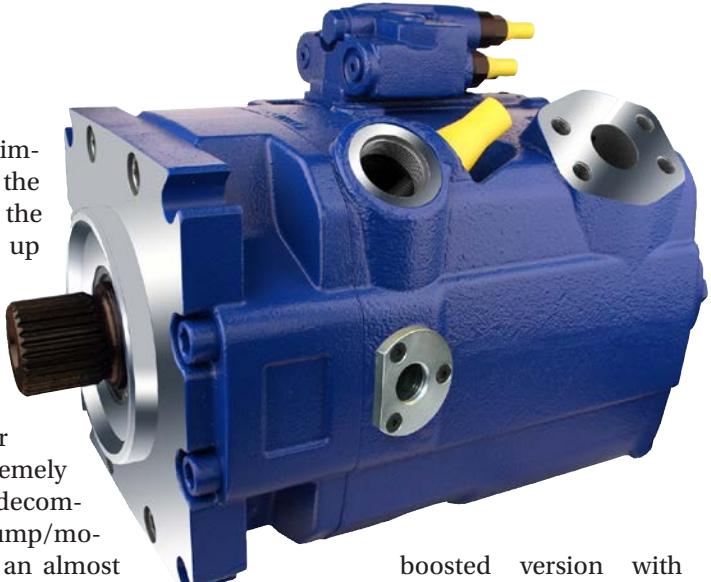
## INTRODUCES HIGH-PRESSURE AXIAL-PISTON PUMP

Rexroth combines significantly lower noise emissions with further improved efficiency in the new A15VSO hydraulic axial-piston pump for stationary applications in open circuit operation. It can meet pressure requirements to 420 bars and recover potential energy during pump/motor operation almost completely. This enables innovative regeneration concepts that can improve the efficiency of machines and systems. Equipped with a universal through drive, the A15VSO seamlessly integrates into the Rexroth line of products and simplifies the process of combining different pumps. Rexroth developers used state-of-the-art simulation tools in all design stages.

The one-piece housing eliminates numerous sealed oil paths, allowing designers to move closer to the goal of a leak-free design. The housing structure, optimized for minimum sound emissions, reduces noise considerably. Subsequently, the airborne noise level has been reduced in average by up to two dB(A) at full flow operation and up to three dB(A) during pressure holding periods (high-pressure stand by). In addition, the development engineers shifted the operating noise to a frequency range that is perceived as sonorous and more agreeable to the human ear.

Further design improvements bring the overall efficiency of the axial-piston pump up to 93 percent. The swivel range, for example, has been expanded to  $\pm 100$  percent to enable complete over center operation for extremely fast and efficient decompression. In the pump/motor operating mode an almost complete regeneration of potential energy is possible, for instance during lowering of a load or braking of a moving mass. This opens up new opportunities for maximizing the energy efficiency of machines and systems, whereby the robust and stable swivel action ensures highly dynamic performance with reduced response times.

The A15VSO is available in sizes 110, 145, 175, 210 and 280 cubic centimeter (cc) at a nominal pressure of 350 bar and a maximum pressure of 420 bar. The standard 280cc pump can run at 1,800 rpm with flooded suction. The new compact housing, which features an optimized layout of flow channels and better use of installation space, simplifies the process of fitting the pump even in very tight spaces. A



boosted version with impeller (A15VLO) is also available for up to 20 percent higher operating speeds. The universal through drive increases flexibility for customized drive solutions and can easily be used to connect axial-piston, gear, and other hydraulic pumps out of the comprehensive line of Rexroth pumps. Numerous hydraulic and electric controllers (also for remote control operation) enable efficient, highly precise control of power, pressure and flow, as well as load-sensing functions.

### For more information:

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

# Ovako

## STEEL RINGS IMPROVE PROCESSES AND LOWER COSTS

Production of near-net-shape rolled and forged stainless steel rings by Ovako, using closely managed hot-rolled ring mill techniques, is helping customers to reduce process costs and cut down on waste. Rolled and forged steel rings are vital components for applications in the rolling bearing, heavy vehicle, automotive and machine tool manufacturing industries. Yet machining can be costly with issues of weight and generation of waste materials.

A leading producer of high quality rolled and forged rings for nearly a century, Ovako has recently invested

heavily, and further expanded its capabilities, to deliver rolled and forged rings that are extremely close to customers' final component sizes.

This allows customers to focus on their assembly or final targets with reduced needs for further machining and the associated costs and material waste, such as polluting dust. Some surfaces may even



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require no further machining at all, providing even more cost-efficient and time-effective processes.

### Clean steels for tight tolerances

Ovako strictly controls its whole production chain from the initial melt, carefully managing oxygen levels to manufacture exceptionally clean steels through to the precision rolling of the rings. On completion every ring is inspected for surface defects, discrepancies in their inner and outer diameter, width, height and squareness utilizing an inventive inspection system.

Cleaner steels can enable longer operational lifespans for products with higher wear and corrosion resistance, and reduce maintenance and lifecycle costs.

The near-net-shape rings have very tight tolerances for minimal deviation from each client's desired net dimensions, with small allowances to accommodate waste reduction targets. They can be heat treated before delivery – including normalized, soft annealed, quenched and tempered and more.

To facilitate individual customer requirements, Ovako can manufacture virtually any ring profile shape in dimensions of 170-4,000 mm and weight ranges between 7-5,000 kg. All the rings are of stable quality with tests carried out on every batch, and batch deliveries are adaptable to suit each customer's unique requirements.

### Expanded production capacity

Ovako has opened a new hot-rolled ring mill at its works in Hofors, Sweden. This will increase its manufacturing capacity by 75 percent from around 30,000 to 55,000 tonnes, equivalent to more than 3.5 million rings manufactured per year. The company prides itself on processes that few ring producers can match in terms of consistent quality from delivery to delivery.

### For more information:

Ovako AB  
Phone: (803) 802-1500  
[www.ovako.com](http://www.ovako.com)

## igus

RELEASES BEARING MATERIAL SAMPLE KIT

Plastics specialist igus has announced the release of its dry-tech box, a sample kit designed to help engineers find the right material bearing for their application. The box contains a set of state-of-the-art card overlays, which filter the bearing choices by criteria – similar to the igus online configurator. The dry-tech sample box includes a complete array of Iglide bearings, ranging from Iglide H, which is suitable in corrosive environments, to Iglide A350, which can withstand temperatures up to 356°F, and are utilized for the food industry. The box also contains a user-friendly bearing guide that highlights the key properties of each bearing making the search for the perfect bearing simple and precise. All igus bearings have dry-running properties, making them lubrication-



free, maintenance-free, cost-effective, and long-lasting. Iglide bearings are all fully lab tested in the areas of durability, friction, and stability, and are at the core of igus' plastics development.

### For more information:

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## TorqSense

PROVIDES IN-LINE TORQUE METER

Manchester University's School of Chemical Engineering and Analytical Sciences is leading world class developments in energy efficiency in the process industries. Researchers have incorporated TorqSense transducers into a test rig that is analyzing losses in in-line mixers. The energy consumption involved with in-tank mixing processes is well researched and understood. But with in-line rotor-stator mixers the flow is often controlled independently of the rotor speed and collecting sufficient data to accurately model the process has to date required a large number of experiments. Now researchers Dr. Mike Cooke and T. L. Rogers at Manchester University have developed two simplified methods of obtaining the necessary information for particular stator-rotor mixers: one uses torque measurements, the other heat balance.

Dr. Cooke explains that high shear rotor-stator mixers are widely used in process industries, including the manufacture of many food, cosmetic, healthcare products, fine chemicals and pharmaceuticals. Rotor-stator devices provide a focused delivery of energy, power and shear to accelerate physical processes such as mixing, dissolution, emulsification and deagglomeration. "To reliably scale-up these devices from laboratory size to industrial scale, we need to understand the relationship between rotor speed, flow rate and the energy dissipated," he says. "The first step is to link the energy dissipation rate to desired process results."



The scientists created two mixing experiments and set about measuring the torque profile and heat balance. In the first experiment torque was measured by a Sensor Technology's TorqSense in-line torque meter fitted to the drive shaft. There are two main sources of potential error when measuring the torque on the rotor shaft, time-based zero-drift and bending moments on the shaft, both of which are easily counteracted with the TorqSense. Other corrections also have to be made for bearing losses, temperature fluctuations etc.

TorqSense proved a good choice for this work because its non-contact operation meant extra drag forces were not added to the system and also allowed rapid assembly and disassembly during the experiments. It uses two piezoelectric combs which are simply glued to the drive shaft at right angles to one another. As the shaft turns it naturally twists along its length very slightly and in proportion to the torque, which deforms the combs changing their piezo-signature. This change is measured by wirelessly by a radio frequency pick up and used to monitor the torque.

### For more information:

TorqSense  
Sensor Technology Ltd.  
Phone: (585) 385-1750  
[www.torqsense.com](http://www.torqsense.com)

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# ABB

## PRESENTS OFFSHORE DRIVE AND CONTROL SOLUTIONS

Modular liquid-cooled drives and PLCs from ABB have been included in Vard Electro's innovative, application-specific propulsion and thruster power solutions for offshore supply vessels. The electric motor propulsion technology designed by Vard Electro is used on a series of six platform-supply vessels (PSVs) — the first two of which currently are being built in Japan.

Twenty years ago, in response to growing global competition and demands for ever-more sophisticated propulsion performance, the innovative shipbuilding group Vard decided to bring their systems integration function in-house. Vard established a fully owned daughter company, Vard Electro, specializing in system integration and development and providing

tailor-made marine electronics solutions for offshore specialized vessels worldwide.

Vard Electro looked for a drives and control supplier that could provide a highly configurable drives platform, and chose drives from ABB's ACS800 range, with control provided by ABB's AC500 PLCs. The high degree of modularity of both the controller and drives, the availability of sophisticated PLC development tools in the form of ABB's Automation Builder engineering software suite — together with valuable local programming and HMI capabilities of the drives themselves — provided the economy and versatility of platform that Vard Electro was looking for. These system components also provided a number of tangible performance advantages for this particular motor control application. They include fast real-time control updates and low harmonics power conversion of the drives, and compactness that comes from liquid cooling — an extremely valuable feature for the packed OSV engine rooms housing the main engines and thrusters.

For each vessel of the six PSVs which are being built in Japan, ABB is supplying five PLC-controlled variable-speed drives to control a total of over 6 MW of power: two 2 MW drive systems for the main engines, two 730 kW drives for bow thrusters, and one 730 kW drive for a dual-fed bow thruster that is able to survive the failure of either of the vessel's two power generators.

The ABB drives and controller system are now part of Vard Electro's new SeaQ Power intelligent power systems range, which was created during the past year. To support the development process for the new propulsion power offering, ABB initially supplied the company with a small-scale version of the PLC-drive-motor package, plus development tools. Supplying the complete control and drive package ensured that there were no integra-





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tion problems. ABB's AC500 is also one of the fastest PLCs on the market, and Vard Electro also chose a version of the PLC with one of the fastest processor options—the PM590-ETH—to ensure very good real-time control performance. The PLC is connected to the drive using Profibus DP fieldbus communications.

Vard Electro's control logic for the propulsion system includes all of the standard control features, as well as numerous variations to optimize performance in a number of situations, including a Vard Electro "ride through" specification to overcome power supply glitches smoothly, seamless switchovers for dual-fed supply arrangements, and rich local status, alarms/diagnostics and control possibilities on each of the drives—provided via the addition of a touch-screen HMI located on each cabinet's front panel. For this latter task, Vard Electro chose to install large CP660 HMI panels from ABB's state-of-the-art CP600 series, which meet DNV standards—to display information to operators in very clear and detailed forms.

The integration of all these components was simplified by the use of ABB's integrated *Automation Builder* software, which provides a common development tool for the spectrum of automation components used in this application: PLCs, drives, HMIs, field-bus, networks and web services.

Before delivering the new electric power propulsion control system, Vard Electro performed detailed testing on the PLC and drive combinations at its test facility in Søvik, Norway. These trials were also witnessed by Vard Elec-

tro's Japanese shipyard customer. The integrated control system passed all of its tests and Vard Electro now has shipped the propulsion systems for the first two vessels. The very first vessel with this technology will be launched in mid-2014, and will be destined for use in platform supply applications.

"By combining ABB's high quality drives and PLCs with Vard Electro's

specialist system integration know-how, we have been able to deliver a propulsion solution offering state-of-the-art performance," says Tommy Damm, a drives specialist with ABB Norway.

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# Trelleborg Sealing Solutions

INTRODUCE INNOVATIONS AT IFPE 2014

In facilitating the advancement of fluid power, motion control and power transmission applications, Trelleborg Sealing Solutions presented its "Trelleborg Solution," advanced delivery services and customized packaging as well as its array of innovative products including Turcon, Glyd Ring II, Zurcon Glyd Ring D and high performance rotary seals during IFPE 2014. With a focus on increasing the Total Value of Ownership (TVO) for customers and supplying not just the highest quality of products, but also services, the "Trelleborg Solution" from Trelleborg Sealing Solutions helps accelerate customers' business processes and delivers seal application and design for even more efficient manufacturing. When coupled with its advanced delivery services, Trelleborg Sealing Solutions can help empower fluid power component manufacturers through vendor-managed inventory and supply chain solutions, such as value-added packaging and handling services. These give customers the ability to customize packaging and labeling for a more simplified stocking and handling operation.

Peter Hahn, president, Trelleborg Sealing Solutions Marketing Americas, says: "Our value proposition to our customers is a significant cost savings proposal through a radically different concept in helping our customers to not only *rethink their profitability* but actually deliver the solutions to help achieve it. As a forward-thinking company, we not only intend to bring business accelerators to the forefront for our customers but also to help them to implement and achieve increased business value."

In addition to demonstrating its service approach, Trelleborg Sealing Solutions displayed these new products at their booth:

Turcon Glyd Ring II is a double-acting, rod or bore, bi-directional seal for reciprocating and static applications offering lowered friction and yielding a longer service life.

Zurcon Glyd Ring D seal is produced from a completely new Zurcon material and engineered to extend seal life in high-pressure hydraulic sealing applications. It is well suited for machines, equipment and motors filled with hydraulic cylinders.

Rotary seals from Trelleborg Sealing Solutions extend product life while improving safety and performance in extreme environments in power transmission and motion control applications. Featured rotary seals are as follows:

CSL1500 is a radically new cassette seal design for agricultural and construction equipment that maximizes performance. These seals have been proven in lab and field to outlast conventional cassette seals.

A new line of standard inch size radial oil seals is made to meet advanced design standards. These seals offer sizes and styles that are available to fit a full range of applications. Heavy duty mechanical face seals are designed for severely contaminated environments. They are available in cast iron or bearing steel to give the best performance in every application.

## For more information:

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Siemens is offering conveyor technology for material handling, to all builder, system integrator and end-users of both discrete and process manufacturing markets. An integrated drive system with Siemens motion control and drives products, along with communication protocols, is available. It spans the range of drives, motors, gear motors and automation technology, plus machine safety, power supply and circuit protection. As a longtime supplier to the global conveyor and material handling industry, Siemens brings this offering to the North American market with the full support of its global network of engineering, sales, service and technical support.

### Advantages for machine builders

Siemens brings a flexible and field-tested portfolio of products and software services to the builders of material handling equipment in all industries. Free design tools allow a more efficient process in customer design, configuration and product selection, plus communication and energy calculation. When a large or multi-unit system is needed, the advantages of Siemens distributed control and common DC bus afford many with an economical solution to material handling. This translates to a lower installation and commissioning cost.

### Advantages for system integrators and end-users

Whether a greenfield project or brownfield expansion of an existing material handling machine or full production line, Siemens integrated drive systems bring a full portfolio of products and automation solutions to the task. In the field, fast commissioning is provided by a team of qualified personnel, resulting in quicker start-up and less downtime.

The preventive maintenance and remote diagnostics software combine to keep equipment running more productively. The recent expansion of our popular drives platform to include Profinet, Profibus, Ethernet/IP and AS-interface allow Siemens drives to com-



municate with other brands of existing products or new components on the customer's line, resulting in cost savings and greater efficiencies.

Siemens can satisfy an array of typical material handling scenarios, as it supplies a full range of products and services to create the ideal solution for the customer. Siemens products for material handling applications include:

### Gear motors

Recently established in Greenville, S.C. to better serve the North American market, the Simogear gear motor facility assembles energy-efficient gear motor units commonly found in material handling. Simogear can be combined with Sinamics drives to suit a broad range of applications—from the low-speed uses (0.1–1,000 rpm) to the most challenging, high-torque demands.

Siemens is in the forefront of the evolution from worm to helical bevel gear motor utilization in the material handling world, as this technology means less motor power is needed to produce the same output torque and speed. This translates to smaller units with higher efficiency and overall lower cost.

### Drives

The complete family of Siemens Sinamics drives means a single source for a broad assortment of product solu-

tions, globally recognized and capable of controlling virtually every application in material handling, from basic roller tracks to multi-axis, high-bay racking units, all with high-dynamic performance.

Central and decentralized drives are highlighted by the Sinamics V20, G120C and G120D. All are space-saving and offer a variety of communication, programming and control capabilities. In addition, the decentralized Sinamics G120D can be machine-mounted and is suitable for tough environments.

### Controllers, I/O and Software

Simatic S7 PLCs offer both PAC and PLC reliability in their performance with modular and PC-based options.

Distributed I/O from Siemens is useful in all conveyor, sorting and assembly operations, plus is offered in space-saving compact or modular form factors.

Simatic software includes operator control and monitoring systems with a single software environment for every automation task. Totally Integrated Automation (TIA) means over 100,000 Siemens products share a core intelligence.

### For more information:

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